Analysis

The Climate Change and Health Nexus

No. 117



The climate and health intersections under the Global Goal on Adaptation

Save the Children

Brot für die Welt

Cover Photo: A mother stands with her child in front of her house in the Sundarbans, the mangrove forests of Bangladesh. The houses are at risk of regular flooding.

Imprint

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IBAN: DE10 1006 1006 0500 5005 00
BIC: GENODED1KDB
Berlin, November 2026

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Foreword



Dr Dagmar Pruin
President, Brot für die Welt



Florian Westphal
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Summer 2026 has once again experienced the human consequences of a changing climate, with devastating wildfires and severe, extreme heat destroying homes, livelihoods, and ecosystems, and heavily impacting public health. The severity of this crisis is starkly demonstrated by the excess mortality records from the summer of 2026, when at least 35,000 excess deaths were recorded across Europe during four consecutive heat waves. National data revealed the staggering human cost: Germany reported an estimated 16,000 excess heat-related deaths, France recorded over 7,300 excess deaths, and Spain registered between 4,500 and 4,947 heat-attributed fatalities.

Yet, what Europe is experiencing today is only a fraction of what climate-vulnerable Least Developed Countries and communities in the Global South have been facing for years. Nepal is a recent and stark example: following the devastating floods triggered by a glacial collapse on 26 August 2026, 40 days later the official toll stood at 1,455 confirmed dead and 5,285 missing. Nepal contributes less than 0.1 percent of global greenhouse gas emissions, yet its people are facing the devastating consequences of a climate crisis they did little to cause.

Climate change has become one of the most decisive determinants of public health, and is recognized as one of the greatest health threats facing humanity. The climate crisis places an enormous and disproportionate burden on countries and communities that have contributed the least to it. Extreme heat, droughts, floods and storms, changing patterns of infectious diseases, air pollution, food insecurity, and the destruction of health infrastructure undermine health and well-being, while intensifying existing health inequalities. Children are particularly vulnerable, as their bodies and immune systems are still developing, and climate-related disruptions to nutrition, healthcare, education, and livelihoods can have lifelong consequences.

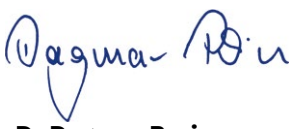
Climate change aggravates existing social and intergenerational inequalities, creating complex exposure pathways for vulnerable communities. Tackling climate change cannot be reduced to technical solutions alone; it must also be addressed as a fundamental issue of human rights, justice, and solidarity. Those who are most exposed to climate risks often have the fewest resources to adapt and build resilience. There is also an imperative need to bridge the persistent policy gap separating the climate and health sectors. This report emphasizes that climate adaptation interventions must be understood as non-negotiable necessities for protecting marginalized populations and drastically curbing preventable human mortality and morbidity. Protecting citizens from physical suffering, disabilities, avoidable morbidity, and sudden mortality offers governments a politically non-controversial, economically sensible entry point for accelerating decisive climate action. The report highlights the need for climate adaptation interventions to be evidence-based and responsive to the needs of vulnerable populations.

Currently, the Global Goal on Adaptation serves as the primary international workstream for embedding public health objectives directly into the United Framework Convention on Climate Change. It provides the most vital multilateral platform for establishing and operationalizing these life-saving synergies. For the first time, countries collectively agreed on a common framework for tracking adaptation progress in health systems at the global level. However, international frameworks remain ineffective with-

out direct, predictable implementation efforts and financial commitments. Equally important is the ability to capture specific exposure and climate impacts on vulnerable groups. Climate impacts and adaptation outcomes are not experienced equally. Monitoring and reporting systems must therefore allow for disaggregation by age, gender, disability, income, ethnic and Indigenous identity, migrant status, and other relevant factors. Without such differentiation, adaptation progress may appear successful on paper, while masking the continued exclusion of those most at risk. Particular attention should be given to children. The experiences documented in this report, from countries such as Kenya, Ethiopia, and Lao PDR, demonstrate that commitment and solutions already exist. Communities, healthcare workers, researchers, civil society organizations, and local partners are generating knowledge and implementing approaches that can strengthen resilience and protect health. What is needed now is to translate these experiences into measurable learning, scalable practices, adequate funding, and evidence-based policy.

As Brot für die Welt and Save the Children Germany, we demand climate adaptation policies and action that place human lives, public health, and children's futures at their very core. Upcoming international climate summits must seize this momentum to fully integrate and strengthen the climate-health nexus and advance socially disaggregated and child-sensitive monitoring and reporting systems within the Global Goal on Adaptation, foster transparency on policy effectiveness, and enable adjustments where needed.

Most importantly, they need to ensure meaningful participation of civil society and affected communities in shaping the future of the Global Goal on Adaptation — as well as deliver the finance needed to turn commitments into tangible action on the ground.



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Executive Summary

Climate change has become one of the most decisive determinants of public health. Its impacts are disrupting access to essential health services, intensifying existing health inequities, and placing increasing burdens of disease on already growing numbers of vulnerable populations. It is no longer a distant threat, but an active force that threatens to undo decades of progress in global health, intensify disease burdens, and deepen public health inequities worldwide. Rising temperatures, water and food insecurity, and extreme weather events are now affecting every region, thereby undermining universal health coverage, reducing life expectancy, and reversing vaccination gains.

Health adaptation efforts, including targeted policies, programs, and interventions, aim to reduce the health risks associated with climate change (Boyer et al. 2026). Understanding climate-related impacts on health and who is most vulnerable, most exposed, most susceptible to them is essential to effective adaptation to reduce the human cost of climate change in mortality and illness. Climate adaptation interventions are essential — not optional — for protecting the health of vulnerable groups, including children and youth, women, racialized and ethnic minorities, indigenous peoples, people with disabilities, including psychosocial disabilities, and migrants. More specifically, children constitute a high proportion of the global population, particularly in the Global South, and are uniquely susceptible to climate change impacts due to their distinct physiology, behavioral characteristics, and developmental needs (UNICEF 2026). Their vulnerability does not diminish their equal rights to a clean and healthy environment, water, nutrition, social protection, and climate justice (OHCHR 2023).

Despite mounting scientific evidence, climate adaptation efforts remain fragmented and mostly reactive. Rather than investing in effective adaptation action, many developing countries need to spend billions annually on climate impacts that contribute significantly to their growing external debt and deprive them of investment in public education and healthcare systems. There are now 3.4 billion people living in countries that spend more on servicing their debt than they do on health or education while the official development assistance has dropped by 17% in 2025 (UN News 2026), and the global health financing is equally entering a period of sustained cuts, with major reductions in Development Aid for Health (DAH) threatening to widen health disparities (Apeagyei et al. 2025). At the same time, these countries have become extremely vulnerable due to disrupted energy and food supply systems, as large global actors have decided to aggressively reassert themselves on the global stage.

Health is a strong argument and compelling entry point prompting governments to take decisive climate action, because avoiding unnecessary climate-related suffering and mortality is politically non-controversial, highly visible, and closely tied to economic stability (World Bank, Inter-American Development Bank, KfW 2025). Recent communication research has also found that health-impact messages are twice as likely to shift people's attitudes towards climate change when compared to non-health-related climate messages (CORE 2026).

In the last five years, the climate and health nexus has gained political visibility within the United Nations Framework Convention on Climate Change (UNFCCC), while the Global Goal on Adaptation (GGA) has become the principal workstream for anchoring health in the UNFCCC. The decision to operationalize the GGA at COP28 in 2023 — as a structured framework to measure collective progress in climate adaptation through 11 targets — was a landmark achievement, including for the global health community.

Debt Servicing at the Expense of Health and Education

3.4 billion people

live in countries that spend more on servicing external debt than on health or education.



Chad Dr Djekadoum Ndilta is taking care of a young patient in the paediatric ward of the Koyom District Hospital.

At COP30 in 2025, countries adopted the critical GGA framework with a set of 59 indicators (Belém Adaptation Indicators), including eight indicators for climate and health nexus. This is an important signal that health is increasingly recognized as a core pillar of climate adaptation, not merely its co-benefit. Yet significant challenges persist in climate adaptation and the climate and health fields. The COP30 outcome on health indicators has been viewed as technically weak and insufficiently aligned with the best available science, as assessed by the Intergovernmental Panel on Climate Change (IPCC) and the Lancet Countdown on Health and Climate Change.

Without a tangible outcome from the mid-term SB64 negotiations held in Bonn in June 2026, it is uncertain whether the goal of the two-year Belém to Addis Vision to finalize the development of the indicators by COP32 in 2027 will be met. The following COPs should, however, continue connecting the global climate and health agendas. The operationalization of the GGA with credible, equitable, and health-sensitive indicators offers an unprecedented opportunity to institutionalize adaptation under the UNFCCC and make human health a measurable, central outcome of global climate policy. Successful implementation, however, depends on the capacity of parties to deliver equitable means of implementation, such as finance, technical support, and capacity building, which are essential for countries most exposed to climate risks.



COP 30 Belém Children ask world leaders to act urgently on climate change and listen to them.

Brot für die Welt and Save the Children advocate for climate justice, holding polluting states and industries accountable for their financial obligations and championing the right to a healthy environment and health (Save the Children 2024, Brot für die Welt 2025). In this report, the organizations pursue key political levers and structural development and institutional frameworks needed to operationalize the robust climate and health adaptation nexus grounded in equity, transparency, and climate justice for the Global South, as well as for vulnerable children and youth specifically.

This report examines the critical intersection of climate change and health, with a particular focus on the unique challenges faced by Global South countries. As the UNFCCC advances the GGA, this analysis explores how climate change intensifies health burdens, and how these impacts disproportionately affect marginalized and vulnerable populations. Central to this discussion is the analysis of the eight climate and health indicators adopted by COP30 as part of the Belém Adaptation Indicators. These indicators represent a significant step toward integrating health considerations into global climate adaptation frameworks, offering a structured approach to monitor progress, identify gaps, and ensure that adaptation efforts are responsive to the health needs of communities most at risk.

The report also highlights the pivotal role of non-state actors — including humanitarian and development organizations, faith-based groups, civil society, and affected populations — in the development, implementation, and monitoring of climate and health policies. Through interviews with local partner organizations, it assesses how these actors can contribute to the operationalization of the GGA health indicators, ensuring they are both relevant and actionable for vulnerable communities. As the world moves toward COP31 and COP32, the report provides targeted advocacy recommendations, aiming to strengthen the GGA's health indicators and ensuring they are grounded in scientific evidence and community needs. By bridging technical analysis with practical insights, this report seeks to inform policymakers, practitioners, and advocates in their efforts to embed health within climate adaptation strategies and to foster equitable, resilient outcomes.

Introduction: Setting the Scene

Climate change is a defining, cross-cutting challenge of our time. The United Nations Framework Convention on Climate Change (UNFCCC) and its annual Conference of the Parties (COP) serve as the primary global forum for multilateral climate negotiations. Adopted in 1992 at the Earth Summit in Rio de Janeiro, the UNFCCC now includes 198 member states, making it the world's second-largest policymaking gathering after the United Nations General Assembly (UNGA).

While some hope that implementing the Paris Agreement could foster multilateral collaboration, the climate crisis is increasingly recognized as a multidimensional security threat, affecting everything from peacebuilding to geopolitical dynamics and democratic governance. Recent events — such as the US's renewed withdrawal from the Paris Agreement in 2025, conflicts and wars such as in Ukraine, South Sudan, and the Middle East Region — have further strained multilateral cooperation. These dynamics have delayed the energy transition, weaponized clean energy supply chains, and severely undermined climate resilience and adaptation efforts.

Within the UNFCCC framework, negotiations are uniquely structured around consensus-based decision-making — a system born from the failure to adopt formal rules of procedure. It divides countries based on economic status into three blocs: industrialized nations (including those in economic transition, or Annex 1 countries), a subset of developed countries (Annex 2), and developing nations (non-Annex countries). A core principle governs this structure: "Common but Differentiated Responsibilities and Respective Capacities" (CBDR-RC). The principle acknowledges the historical emissions debt of Annex 2 countries, assigning them primary responsibility for mitigation, while obligating them to support developing nations.

As the impact of climate change intensifies, the need for effective, locally-led adaptation strategies becomes ever more critical. Climate adaptation is not merely a technical challenge, but a question of justice, equity, and global solidarity. International adaptation finance from developed to developing countries is one of the cornerstones of climate justice, in a world where the most vulnerable, including children and youth, bear the brunt of climate impacts despite contributing the least to the crisis.

The Paris Agreement (2015) introduced the Global Goal on Adaptation (GGA) as a loosely defined framework for enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change (UNFCCC 2015). It took until COP28 (2023) for the GGA to formally develop into seven thematic targets and four policy cycles — including, for the first time in the UNFCCC, a dedicated health target. The subsequent two-year UAE-Belém Work Program, an initiative to create a scientifically robust, actionable framework for measuring climate adaptation progress, tasked 78 technical experts with developing indicators to track this progress (UNFCCC 2024). As the world marked the Paris Agreement's 10th anniversary at COP30 (2025), with major mitigation frameworks and objectives in place, albeit not implemented, the focus shifted to defining and operationalizing the global climate adaptation infrastructure.

The inclusion of a climate and health nexus under the GGA is a landmark achievement, recognizing that climate adaptation cannot succeed without addressing health impacts. A health metric under the GGA health target is a critical component of adaptation reporting, ensuring that both quantitative and qualitative health data are central to adaptation progress and assessments.

This health-focused report illustrates a broader argument: adaptation is not just about infrastructure, policy, and finance — it is about protecting and empowering those who bear the least responsibility for the climate crisis but suffer its gravest consequences. As the world grapples with the operationalization of the GGA, the humanitarian and development sector can offer a significant contribution for justice- and vulnerability-centered climate adaptation action.

Impacts of climate change on health

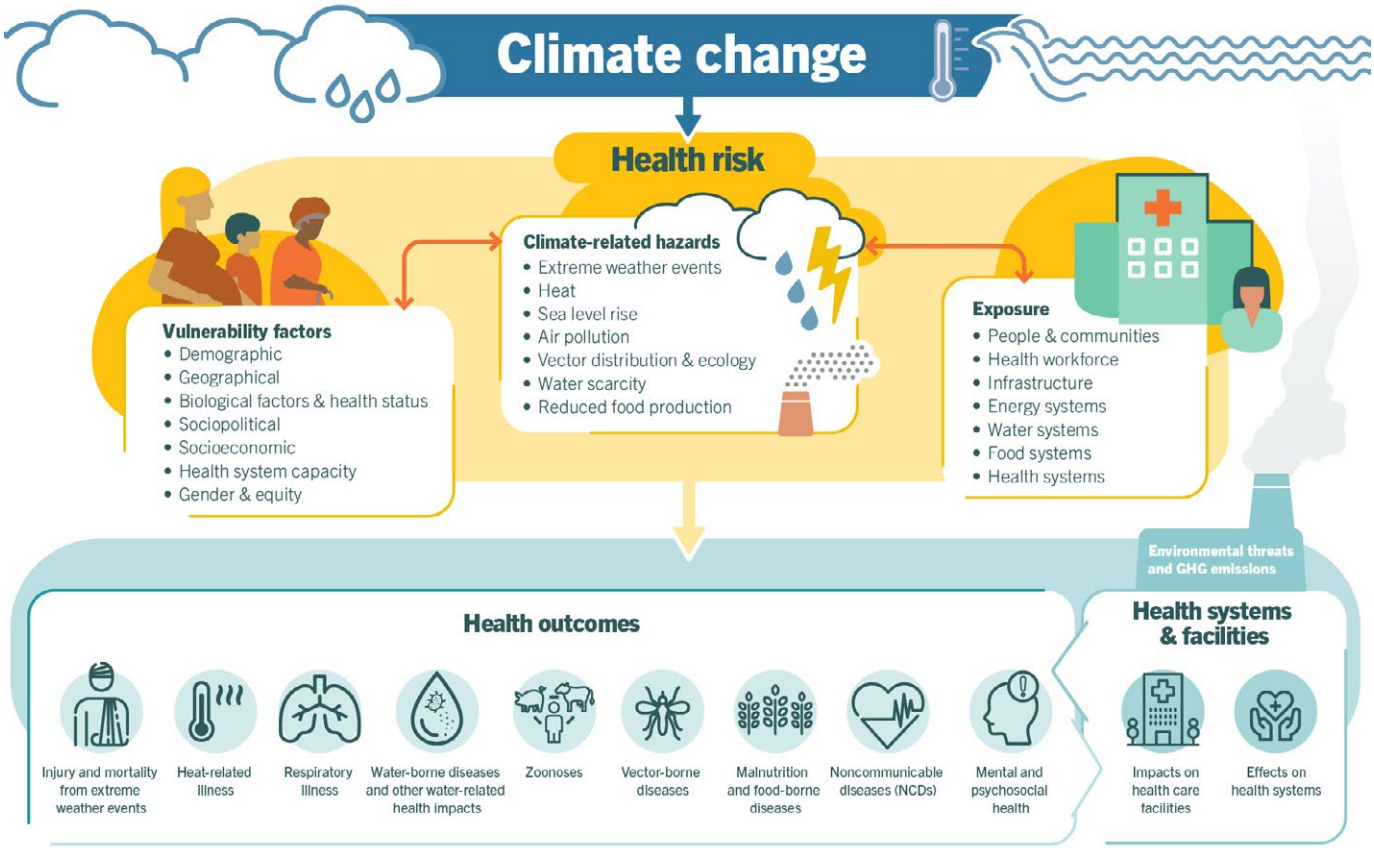
Despite decades of scientific evidence and policy frameworks aimed at tackling climate change, greenhouse gas emissions have reached record levels in recent years. In a stark illustration of misplaced priorities, governments spent USD 956 billion on fossil fuel subsidies in response to the price spike following Russia's invasion of Ukraine — more than triple the climate aid pledged to vulnerable countries. In the case of 15 countries, this subsidy even exceeds their entire health budgets (Romanello et al. 2025). Moreover, the World Bank estimates that the economic costs arising from the health impacts of climate change in low- and middle-income countries (LMICs) could reach USD 21 trillion — equivalent to roughly 1.3 % of their projected gross domestic product — by 2050 (World Bank, Inter-American Development Bank, KfW 2025).

The key greenhouse gases warming the Earth, including carbon dioxide and methane, pose both immediate and long-term dangers to human health. Some exacerbate illnesses rapidly; others erode health over time (GCHA 2025). Far from being a distant environmental concern, climate change has emerged as an immediate and escalating public health emergency, driving the burden of diseases worldwide.

Since COP26 in 2021, the World Health Organization (WHO) has consistently described climate change as "the single biggest health threat facing humanity," and emphasized that the health impacts of climate change disproportionately affect vulnerable populations, as inherent societal vulnerabilities magnify the impacts of cascading risk pathways (WHO 2021).

Climate change is increasingly destabilizing the planetary systems and environmental conditions upon which human life, health, and well-being depend (Romanello et al. 2025). As healthcare systems already operate under extreme weather conditions and climate impacts intensify globally, the climate crisis has evolved into a health crisis. Its multitude of health implications threatens to reverse progress in global health, particularly in universal health coverage (UHC), life expectancy, and vaccination rates (WHO 2023a).

Figure 1: Climate-sensitive health risks
Grafik: WHO, Source: www.who.int/news-room/fact-sheets/detail/climate-change-and-health



Across the globe — especially in Africa, South Asia, and Small Island Developing States — climate change is worsening ill-health, exacerbating morbidity, mortality, and vulnerability patterns (IPCC 2014a). By 2050, climate change is estimated to cause an excess of 250,000 deaths annually due to heat, undernutrition, malaria, and diarrheal diseases (WHO 2023b).

The impacts are both direct and indirect (IPCC 2014b):

- Direct effects include injuries and deaths from extreme weather events.
- Indirect effects encompass the spread of infectious diseases, water scarcity, land salination and desertification, food insecurity, and mental health challenges.

Shifting rainfall patterns are expanding malaria transmission zones, extreme weather events are overwhelming sanitation systems and triggering diarrheal outbreaks, and urban air pollution is increasing the burden of respiratory and cardiovascular diseases.

The 2025 Global Report of the Lancet Countdown on Climate and Health — the largest annual analysis of its kind — reveals a devastating toll: Millions of people die each year due to insufficient climate action. Every country now faces some combination of extreme heat, water scarcity, food insecurity, and changing patterns of infectious diseases. Higher temperatures, combined with growing vulnerable populations (younger and older individuals), have led to a 63 % increase in heat-related deaths since the 1990s, reaching an estimated average of 546,000 deaths per year between 2012 and 2021. Additionally, the incidence of extreme rainfall — linked to flooding, landslides, and their health consequences — has increased across 64 % of the world's land surface between 1961 and 2024 (Romanello et al. 2025).

Climate change is also aggravating the burden of infectious diseases worldwide (Semenza, Rocklöv, Ebi, 2022). Many pathogens (microorganisms like viruses, bacteria, and parasites that cause disease), vectors (organisms that transmit pathogens without necessarily causing disease), hosts (a human, animal, or plant that harbors and supports the growth and reproduction of pathogens), and disease transmission dynamics are highly sensitive to climatic changes (Mora et al. 2022). Climate-sensitive infectious diseases — such as vector-borne illnesses like malaria, dengue, Zika, and chikungunya, as well as tick-borne diseases like Lyme disease and encephalitis — are spreading to new geographies. Longer transmission seasons, particularly under higher greenhouse gas emission scenarios, are becoming more common due to enhanced climatic suitability for disease-carrying vectors like mosquitoes.

While the immediate impacts — such as disrupted critical infrastructure, death, injury, displacement, and reduced access to care — may appear similar worldwide, the compounding effects and recovery capacity differ sharply across regions and countries. Many climate-induced health threats are endemic in low-resource settings and unequally distributed across societies. Paradoxically, those who contribute the least to the climate emergency are often the most exposed and least equipped to cope with its consequences.

However, statistical evidence remains limited for developing countries, partly due to a lack of scientific diversity in climate research. The limited data available aggravates the

Women and girls burden — Gender Disparities

- Women and girls face disproportionate impacts, including increased time spent fetching water during droughts.
- Higher rates of gender-based violence (GBV) following extreme weather events.
- Severe maternal and reproductive health complications during heatwaves.



Kenia Women fetch water from a public water point in Basir. Women and girls are often among those most affected by the impacts of climate change.

impact in Small Island Developing States, Africa, and Asia, the regions experiencing the greatest increases in heatwave exposure in recent years (Romanello et al. 2025). Only 2 % of climate change research funding goes to Global South institutions, and a mere 3.8 % is spent on Africa (European Chair for Sustainable Development and Climate Transition 2025).

According to the Africa Centres for Disease Control and Prevention (Africa CDC), a review of over 2,000 public health events between 2001 and 2021 revealed that more than half were linked to climate change. Climate impacts are exacerbating existing health vulnerabilities and imposing additional strain on already fragile health systems, which often operate under low public health insurance coverage and face significant out-of-pocket expenses during climate-induced health hazards (Africa CDC 2025).

Water and food systems are also under threat: Rates of severe stunting from undernutrition in children under five were projected to increase by 23 % in sub-Saharan Africa and 62 % in South Asia (Lloyd, Kovats, Chalabi 2011). For instance, the recent droughts in the Horn of Africa (2020—2022) interacted with underlying vulnerabilities — poverty, malnutrition, insufficient health services and infrastructure, state fragility, and conflict — to worsen outcomes, leaving over 4 million people food-insecure (Kimutai et al. 2025). Yet, only 14 % of sub-Saharan African countries have fully functional health surveillance systems capable of integrating climate-related health data, and a mere 20 % of African countries have integrated policy frameworks that link climate action with health outcomes (Africa CDC 2025). A 2022 study by the African Development Bank further noted that over 80 % of health sector interventions in African countries lack integration with climate adaptation strategies, severely limiting their impact (AFDB 2022).

The evidence presented here underscores a critical reality: Climate change is a defining public health challenge of our time. The disproportionate impacts on vulnerable populations, the strain on health systems, and the urgent need for integrated adaptation action demand a robust policy response. While immediate mitigation of greenhouse gas emissions is the most effective policy to prevent future harms, an effective response to imminent climate-induced health threats, with a focus on effective adaptation and long-term resilience-building measures, is needed. The next chapter will focus on the most relevant policy frameworks and initiatives designed to address the climate and health nexus.



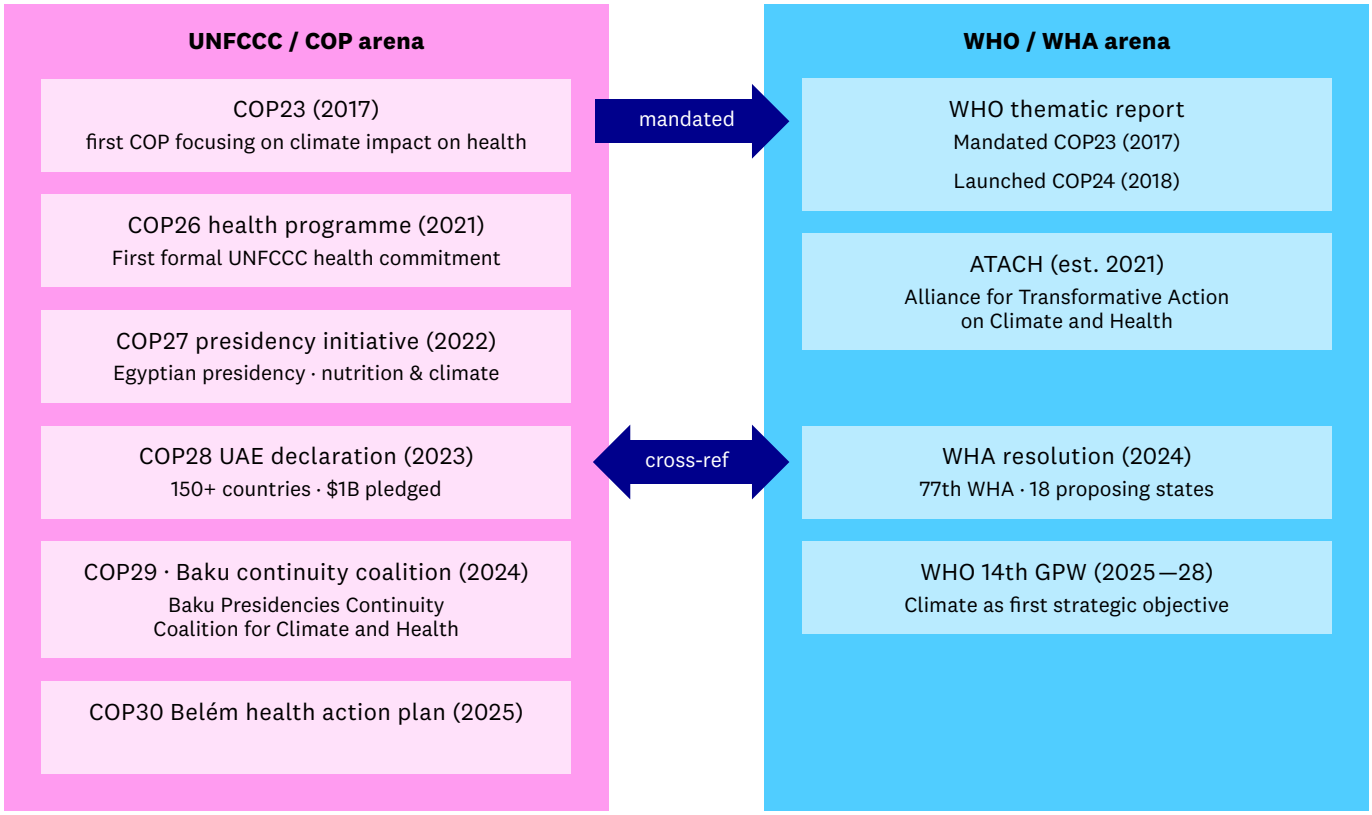
Burundi Water means life: A hand-washing station built by Claudine Kankindi

Multilateral climate and health policies, agreements, and funding schemes

Climate and health have gained increasing political visibility within the UNFCCC, yet COP30 did not establish a specific health negotiating agenda item, despite explicit requests from some African countries to include it in the official agenda. Instead, health remains embedded across multiple negotiations, with the Global Goal on Adaptation (GGA) currently serving as the primary workstream for anchoring health within the UNFCCC.

Historically, the integration of climate and health policies began around natural disaster management and addressing the health impacts of extreme weather events, such as droughts, cyclones, wildfires, and floods. Since then, the field has expanded significantly and now encompasses a complex, multifaceted catalog of challenges for public health and healthcare systems.

Figure 2: Relevant UNFCCC and WHO policy frameworks and initiatives



While health is recognized as one of the seven key components of human development and security (UNDP 1994), and approximately 200 national laws and policies regarding the climate and health nexus now exist globally (LSE 2026), health was long absent from UN climate summits. Until 2015, the climate and health nexus, along with the broader climate impacts on health, remained an underexplored multilateral theme and was largely missing from UN documents. Given the health sector's vast and complex interconnections with climate change, this omission represents a major oversight.

The climate and health nexus was first systematically raised during climate negotiations at COP23 in Bonn (2017), when the Fijian COP Presidency mandated the WHO to prepare a thematic report (WHO 2017). The COP24 Special Report: Health and Climate Change was launched the following year at COP24 (WHO 2018). However, it was not until COP26 in Glasgow (2021) that the UNFCCC negotiations and the Paris Agreement formally included a Health Programme (WHO 2022). For the first time, COP26 made an explicit health commitment: building climate-resilient, low-carbon, sustainable health systems to protect populations from the effects of climate change. To operationalize these commitments, the WHO established the Alliance for Transformative Action on Climate and Health (ATACH), the WHO-led mechanism and platform for climate and health nexus coordination, knowledge exchange, and best practice sharing. While COP27 (2022) did not explicitly elevate the climate and health nexus within the UNFCCC, the Egyptian Presidency, in partnership with the WHO and the Food and Agriculture Organization (FAO), launched the Initiative on Climate Action and Nutrition (I-CAN). This initiative marked the first global effort to formally integrate climate action with nutrition, recognizing the bidirectional relationship between climate change and food security (COP27 2022). COP28 (2023), marked another milestone with the first COP28 Health Day, the COP28 UAE Declaration on Climate and Health, the first Climate and Health Ministerial Meeting, and several official COP28 documents referencing the climate and health nexus (COP28 2023).

The COP28 UAE Declaration on Climate and Health was endorsed by more than 150 countries and supported by aggregated pledges of USD 1 billion, raised from countries, global funds, multilateral development banks, and philanthropies (COP 28 2023). However, most of the pledged funding was not new or additional: Approximately USD 800 million was pre-committed and pre-earmarked and is not yet available (Shetty 2024). China and Turkey signed the Declaration after the official deadline, while South Africa, India, Russia, and Saudi Arabia did not sign, citing reservations about committing to reducing fossil fuel use in the health sector. As a political declaration, it acknowledges the health impacts of climate change, but remains a nonbinding, aspirational call to action.

The Declaration has two main objectives:
1. Resilient and low-carbon healthcare systems.
2. Resilient communities, with a specific focus on the most vulnerable populations.

Its ambition is to bring the UNFCCC and WHO processes closer together, working toward better integration and synergies between the climate and health sectors. The COP28 also adopted three decisions with a health reference: the decision on the UAE Just Transition work programme, the decision on the Glasgow–Sharm el-Sheikh work program, and the decision on the operationalization of the new funding arrangements, including the Fund for responding to Loss and Damage (FRLD). Moreover, four other official COP28 documents — the Emirates Framework for Global Climate Resilience, the COP28 UAE Declaration on Sustainable Agriculture, Resilient Food Systems, and Climate Action, the COP28 Declaration on Climate, Relief, Recovery And Peace, and the Climate and Health Declaration — contain a health reference (UNFCCC 2024b).

COP28 also saw a record number of health ministers and senior health officials attending the first Climate and Health Ministerial Meeting, with 49 health ministers present. The Health Pavilion, convened by the WHO and Wellcome Trust, hosted some 1,900 climate and health community members, where many innovative ideas were discussed.

In the aftermath of COP28, WHO member states adopted a Climate Change and Health Resolution at the 77th WHA on May 29, 2024. The Resolution identifies climate change as a major threat to public health, catalogs existing threats, and sets out a framework for building climate-resilient and sustainable health systems. While the WHO's 13th General Programme of Work (2018—2023) did not include a specific climate priority, the newly adopted 14th General Programme of Work (2025—2028) features transformative action on climate and health as the first of six strategic objectives (WHO 2024).

The Resolution includes cross-textual references to previous WHA decisions and WHO climate and health nexus documents (dating back to 2008), mandating work on climate, environment, and health, as well as air pollution, chemicals, and waste. It highlights the ambition to decrease the carbon footprint of the health sector (estimated at 5 % of total global carbon emissions) and the need to integrate climate considerations into health monitoring systems. The Resolution also calls on national governments to actively participate in the ATACH; it references the UNFCCC, the Paris Agreement, the Intergovernmental Panel on Climate

Change (IPCC), the Sustainable Development Goals (SDGs), finance, research, science, gender, and vulnerability. It urges countries to pursue multilateral collaboration and adopt the "One Health" approach, integrating human, animal, and environmental health systems.

The main aspects of these major climate and health international frameworks include the following:

- Both the Climate and Health Declaration and the WHA Resolution emphasize the need for multilateral collaboration and a "One Health" approach.
- However, unlike the Climate and Health Declaration, the WHA Resolution explicitly mentions the climate justice principles of the UNFCCC "Common but Differentiated Responsibilities (CBDR)" and also Loss and Damage (L&D).
- Similar to the Climate and Health Declaration, the WHA Resolution does not include any reference to an explicit fossil fuel phase-out, raising concerns about complacency and distraction within the health sector.

Global health and climate funds like the Green Climate Fund (GCF) and the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM) have been developing synergies and funding windows to support the climate-health nexus, and multilateral development banks (MDBs) adopted a Joint Framework for Aligning their Activities with the Goals of the Paris Agreement, with health among its four governance principles (World Bank 2017). They also established a Working Group for Climate and Health Finance. Finally, the World Bank introduced a new strategic focus on climate, poverty, and health and established a new Climate and Health Program (World Bank 2023).



COP 27 Sharm El-Sheikh ACT Alliance protesters calling for climate justice.

Debt and health expenditure contrast

Debt servicing obligations in low- and middle-income countries outpace education and public healthcare budgets, severely restricting adaptation capacity.

At COP29 in 2024, the Baku COP Presidencies Continuity Coalition for Climate and Health was established in collaboration with the WHO (WHO 2024b). Its main objective was to priotize health within the global climate agenda. The coalition aims to build on commitments from past COPs and global agreements, ensuring meaningful follow-up every year.

The following year, to highlight the central role of health equity in climate adaptation, the Brazilian Presidency of COP30 joined forces with the WHO and adopted the Belém Health Action Plan (BHAP), which seeks to integrate health resilience across the UNFCCC (WHO 2025). The Climate and Health Funders Coalition committed USD 300 million to support the implementation of the BHAP (Wellcome Trust 2025). At COP30, countries were also expected to submit their renewed Nationally Determined Contribution (NDC) plans. The WHO analyzed the NDCs available in 2023 and found that 91% included health considerations, compared to 70% in 2019. The healthcare sector was one of the three sectors most often prioritized for adaptation in these plans, with countries most frequently referencing the health co-benefits of climate action (WHO 2023c). However, health in the new UNFCCC-mandated Biennial Transparency Reports (BTRs) of 2024 — the most comprehensive national source of information on adaptation implementation worldwide available — had one of the lowest reporting levels among thematic areas (UNEP 2025).

Beyond these encouraging signals in terms of declarations and pledges, it is critical to understand where health has become part of the formal UNFCCC negotiation agenda. While health has been embedded across multiple UNFCCC negotiation agendas — such as the decarbonization of health systems in the mitigation agenda, health-related impacts in the non-economic loss and damage agenda, the transition of the healthcare workforce in the just transition agenda, and health-specific references in the finance, technology transfer, capacity-building, and empowerment agendas — it has most decisively entered the UNFCCC negotiations through the GGA agenda. Hence, for health advocates, the GGA negotiations hold particular significance.

Analysis of the Global Goal on Adaptation

Adaptation policy framework

Figure 3: Observed impacts of climate change on human systems
Source: www.ipcc.ch/report/ar6/wg2/

	Impacts on health and wellbeing			
Human systems	**Infectious diseases**	**Health, malnutrition and other**	**Mental health**	**Displacement**
Global	⊖	⊖	⊖	⊖
Africa	⊖	⊖	⊖	⊖
Asia	⊖	⊖	⊖	⊖
Australasia	⊖	⊖	⊖	Not assessed
Central and South America	⊖	⊖	Not assessed	⊖
Europe	⊖	⊖	⊖	⊖
North America	⊖	⊖	⊖	⊖
Small Islands	⊖	⊖	⊖	⊖
Arctic	⊖	⊖	⊖	⊖
Cities by the sea	○	⊖	Not assessed	⊖
Mediterranean region	⊖	⊖	Not assessed	⊖
Mountain regions	⊖	⊖	⊖	⊖

Confidence in attribution to climate change

High or very high **Medium** **Low**

Evidence limited, insufficient

Impacts on human systems

Increasing adverse impacts

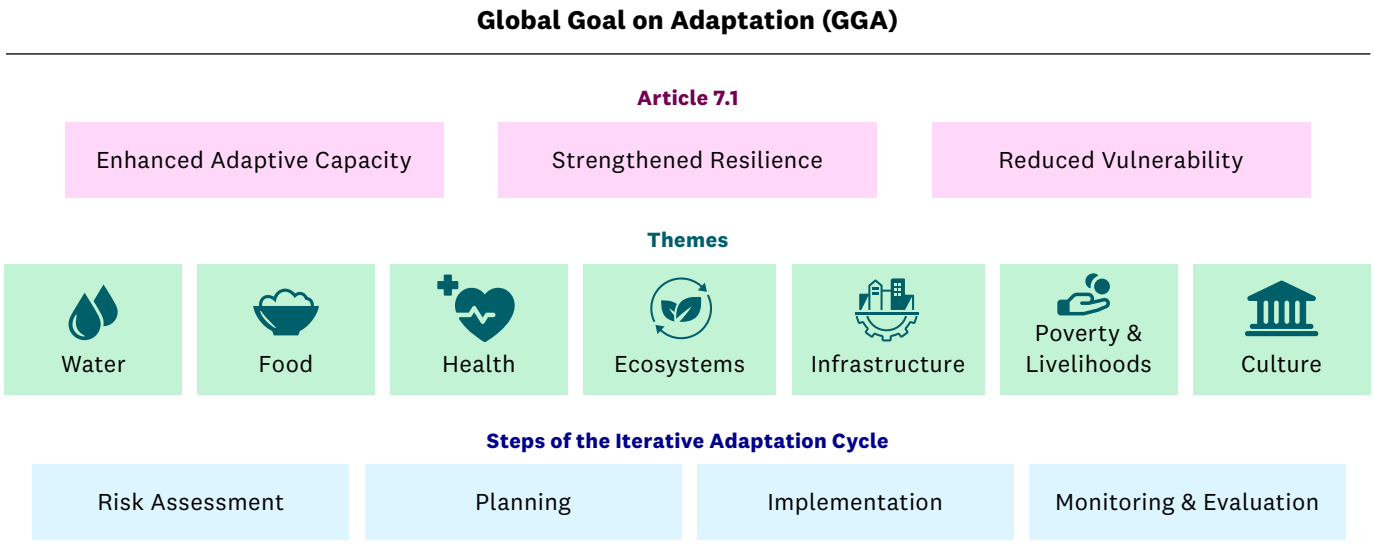
Increasing adverse and positive impacts

While several UNFCCC work programs and initiatives advanced adaptation, such as the 2005 Nairobi Work Programme on impacts, vulnerability, and adaptation, and the 2010 Cancun Adaptation Framework, it was not until the 2015 Paris Agreement that adaptation gained central legitimacy in international climate policy (Nassef 2026).

The Paris Agreement (PA) introduced a "Nationally Determined Contributions" (NDCs) approach, requiring submissions from all signatory countries. The PA also included several provisions for climate adaptation, such as developing National Adaptation Plans (NAPs), mobilizing finance for climate adaptation, and establishing the Global Goal on Adaptation (GGA).

The establishment of the GGA was first proposed by the African Group of Negotiators (AGN) in 2013, with the ambition of elevating adaptation to the same level as mitigation. The AGN advocated for a collective commitment to address the disproportionate impacts of climate change on developing countries, which bear the brunt of the crisis despite contributing the least to it. The GGA was established under Article 7.1 of the Paris Agreement, with the purpose of "enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change, with a focus on supporting sustainable development and ensuring an adequate adaptation response in the context of global temperature goals."

Figure 4: Key components of the GGA process
Source: GGA structure from IPI, Decoding the Global Goal on Adaptation



Following the Paris Agreement (PA), the operationalization of the GGA framework was slow during its first decade, due to the context-specific nature of adaptation and political disagreements over finance and accountability. For years after Paris, the GGA received limited attention, with no clear framework or indicators to measure progress. The operationalization of the GGA framework began with the two-year Glasgow-Sharm el-Sheikh Work Programme launched at COP26. It continued with the adoption of the UAE Framework for Global Climate Resilience at COP28 and the launch of another two-year work program, the UAE-Belém Work Programme (2024—2025) at COP28, and the Belém to Addis Vision (2025—2027) at COP30 (SLYCAN Trust 2025). The GGA framework is not just a tool for reporting or the Global Stocktake. It is also meant to guide international adaptation action and enhance support for developing countries.

The historical evolution of the GGA reflects a broader shift in international climate policy — from a mitigation-centric approach to one that recognizes the urgent need for adaptation, particularly for the Global South. The following chapters explore how to translate this recognition into a complex financial, political and technical landscape within the UNFCCC system.

Adaptation finance framework

Under Article 9.1 of the Paris Agreement, developed countries are legally bound to provide climate finance to developing nations for mitigation and adaptation. Yet, the reality falls far short of the promise (Hirsch, Ahmed 2024). While climate finance has grown in recent years, it remains a fraction of what is needed — particularly for adaptation and Loss and Damage, the two areas most critical for addressing vulnerability. Worse still, much of this finance lacks a clear definition, transparency, and credibility. In some cases, climate finance can even exacerbate inequities, and deepen gaps in human rights, accountability, and participatory governance (Chowdhury, Jomo 2022).

The disparity is staggering: Developed countries have promised to developing countries to provide USD 100 billion of climate finance for mitigation and adaptation action annually by 2025, and confirmed it in the legally-binding Paris Agreement, and to double the adaptation funding by 2025 based on the provision in 2019. But the official development and humanitarian assistance has plummeted (CPI 2025). COP29 (2024) set a new financial target, known as the New Collective Quantified Goal (NCQG): USD 300 billion annually by 2035 for developing countries for mitigation and adaptation, primarily through grants and low-interest loans (UNFCCC 2024c), with a complementary broader commit-

ment to mobilize USD 1.3 trillion per year from all sources. Yet, these promises remain aspirational. In response to the NCQG adoption, the Baku to Belém Roadmap was designed to guide multilateral climate funds, G20, and multilateral development banks, but its success hinges on political will (UNFCCC 2024d).

Critically, the New Collective Quantified Goal (NCQG) failed to earmark a concrete amount for adaptation finance, adding another layer of complexity. At COP26 in 2021 in Glasgow, developed countries committed to at least doubling adaptation finance to reach USD 40 billion by 2025 (UNFCCC 2021) — a goal they claim to be on track to meet (OECDa 2025). While negotiating NCQG, developing countries established a "triple the double" benchmark and called for predictable funding pathways towards at least USD 120 billion by 2030 and USD 150 billion by 2035 — a demand rooted in equity and justice, given their minimal contribution to the climate crisis (Hirsch, Ahmed 2024).

The adaptation needs are growing: Developing countries require USD 310—365 billion annually by 2035, while current adaptation finance stands at only USD 26 billion in 2023 — making the gap 12—14 times greater than what is currently provided. The gap is widening, not closing: International public adaptation finance from developed to developing countries actually fell — from USD 28 billion in 2022 to USD 26 billion in 2023 — meaning developing countries are receiving less than 10 % of the money they need to adapt (UNEP 2025). In parallel, the need for development and humanitarian aid is growing exponentially, with climate change as a decisive driver. Yet, available financing is not sustainable. Climate change not only increases humanitarian and development needs but also hinders response efforts, disrupting supply routes and raising commodity prices. Since 2000, there has been an 800 % increase in climate-related needs within humanitarian appeals, and the UN Office for the Coordination of Humanitarian Affairs (OCHA) has spent an average of 27 % of its budget on extreme weather-related crises annually since 2006 (OCHA 2025).

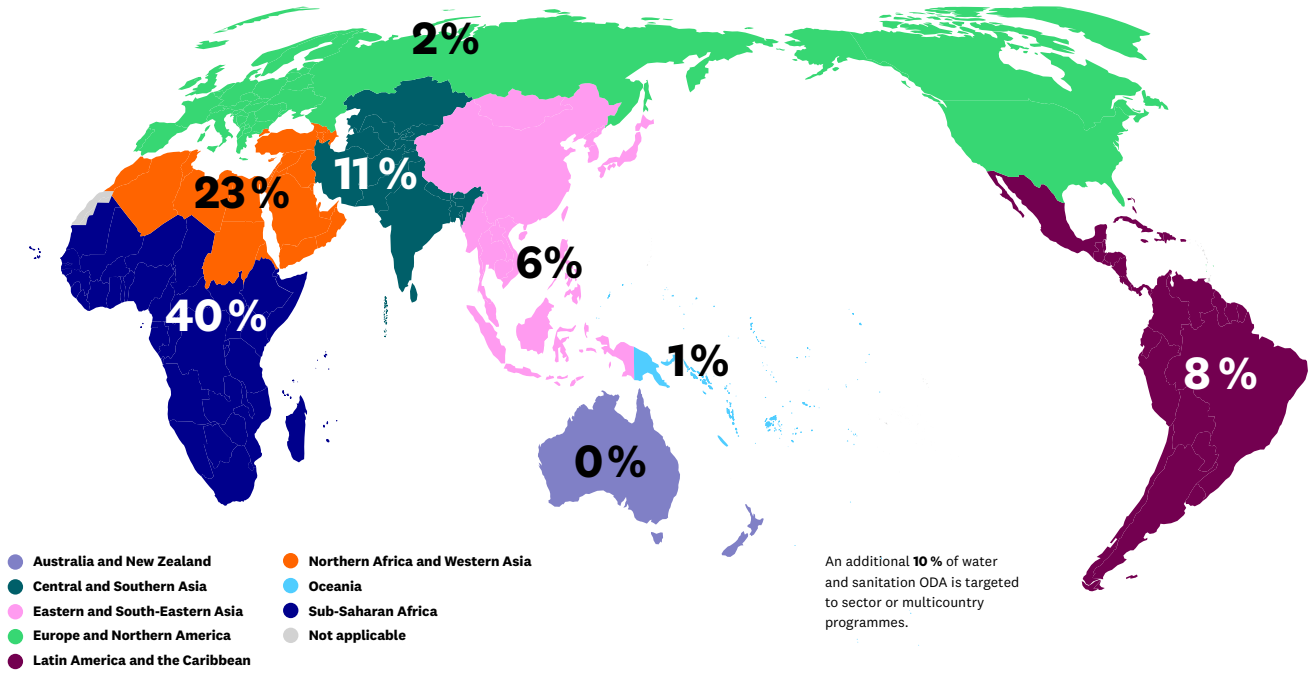
The Adaptation Financing Gap

USD 956 Billion spent globally on fossil fuel subsidies vs. < USD 26 Billion allocated for international adaptation finance

The distribution of climate finance is also highly unequal. Africa receives only around 3—4 % of global climate finance, despite being one of the regions most vulnerable to climate impacts (UNEP 2025). Moreover, the countries that are poorest, most fragile, and most exposed to climate risks often face the greatest barriers to accessing adaptation finance. Closing this financing gap is therefore essential not only for climate resilience but also for climate justice and equitable development. Hence, adaptation finance faces a major funding gap that needs to be addressed in line with the polluter-pays principle, ensuring that those most responsible for climate change contribute fairly to the costs of adaptation (Brot für die Welt 2025). Meanwhile, 3.4 billion people live in countries where debt servicing eclipses spending on health or education — much of this debt tied to climate-related disasters (OECD 2025b).

At COP30 (2025), which took place after the International Court of Justice's Advisory Opinion had reaffirmed developed countries' legal obligations, nations endorsed a political commitment to triple adaptation finance provided in 2025 — but delayed the timeline from 2030 to 2035, while they did not affirm commitment to the baseline of USD 40 billion provided in 2025. However, they also agreed to further discuss Article 2.1(c) of the Paris Agreement, which mandates aligning (50/50) global financial flows with both mitigation and adaptation goals (UNFCCC 2025).

Figure 5: Percentage of global water and sanitation ODA commitments directed to each SDG region, 2023
Source: OECD-CRS, 2025.



Note: SDG regional groupings were used for regional analyses to ensure consistency with SDG reporting. SDG regions are based on the Standard Country or Area Codes for Statistical Use (known as M49) and are primarily based on geographical location. More information is available at https://unstats.un.org/sdgs/indicators/regional-groups/.
Map production: Water, Sanitation, Hygiene and Health, WHO.

Despite increasing recognition of climate change as a major threat to global health, the health sector has received only a small fraction of adaptation finance (UNEP 2025, Wilkens, Taenzler 2025). According to the 2025 Adaptation Report, only 4 % of multilateral climate adaptation funding was allocated to health between 2019 and 2023, underscoring the persistent underfunding of health-related adaptation needs. These financial negotiations underscore a broader tension: While the Paris Agreement and COPs set ambitious targets, the mechanisms to achieve them remain woefully inadequate. However, international climate finance from developed to developing countries is central to the Paris Agreement's architecture and the operationalization of the Global Goal on Adaptation (GGA) — a process where the stakes for climate justice and climate-resilient health sectors could not be higher. The UNFCCC negotiations have become increasingly polarized, with developed and emerging countries locked in disputes. That risks a collapse of the multilateral process and undermines the needs of the poorest and most vulnerable countries for real climate action. Central to this deadlock is GGA, a cornerstone of climate adaptation infrastructure that encompasses solidarity in finance, capacity-building, and technology development and transfer.



Multilateral climate adaptation 2019—2023

< 4 %

health sector

Political and technical GGA negotiations framework

Established under the Paris Agreement, the GGA aims to enhance adaptive capacity, strengthen resilience, and reduce vulnerability to climate change, contributing to sustainable development and ensuring an adequate adaptation response in the context of global temperature goals. In 2021, the IPCC reported slow progress on adaptation since the signing of the PA, noting that most observed adaptation efforts remain fragmented, small-scale, and incremental (IPCC 2021). In response, state and non-state actors initiated concerted efforts to develop the international climate adaptation infrastructure and tackle the widening adaptation gap. Moreover, the operationalization of the GGA took place amid longstanding efforts to develop coherence across the UNFCCC adaptation architecture, spanning both the Convention and the Paris Agreement, while avoiding duplication across multiple adaptation workstreams.

A political breakthrough at COP26 in 2021 saw countries agree to develop a framework for the GGA by launching the two-year Glasgow-Sharm el-Sheikh Work Program. This initiative aimed to develop tangible adaptation targets and clarify concepts, objectives, and methodologies, marking the start of structured negotiations to track adaptation progress.

COP28 in 2023 made significant progress in operationalizing the GGA. Under the UAE Framework for Global Climate Resilience, countries outlined seven thematic and four policy cycle targets for the GGA, with timelines ranging from 2027 to 2030 and beyond. The thematic targets include: water supply and sanitation, food and agricultural production, health impacts and services, ecosystems and biodiversity, infrastructure and human settlements, poverty eradication and livelihoods, and cultural heritage and knowledge. The policy cycle indicators are: impact, vulnerability, risk assessment, as well as planning, implementation, monitoring, evaluation, and learning. Indicators were developed to track climate adaptation progress against these targets (Fielding 2024).

Figure 6: Timeline of the GGA work programmes
Source: SLYCAN Trust, www.slycantrust.org/knowledge-resources/technical-briefing-understanding-the-global-goal-on-adaptation

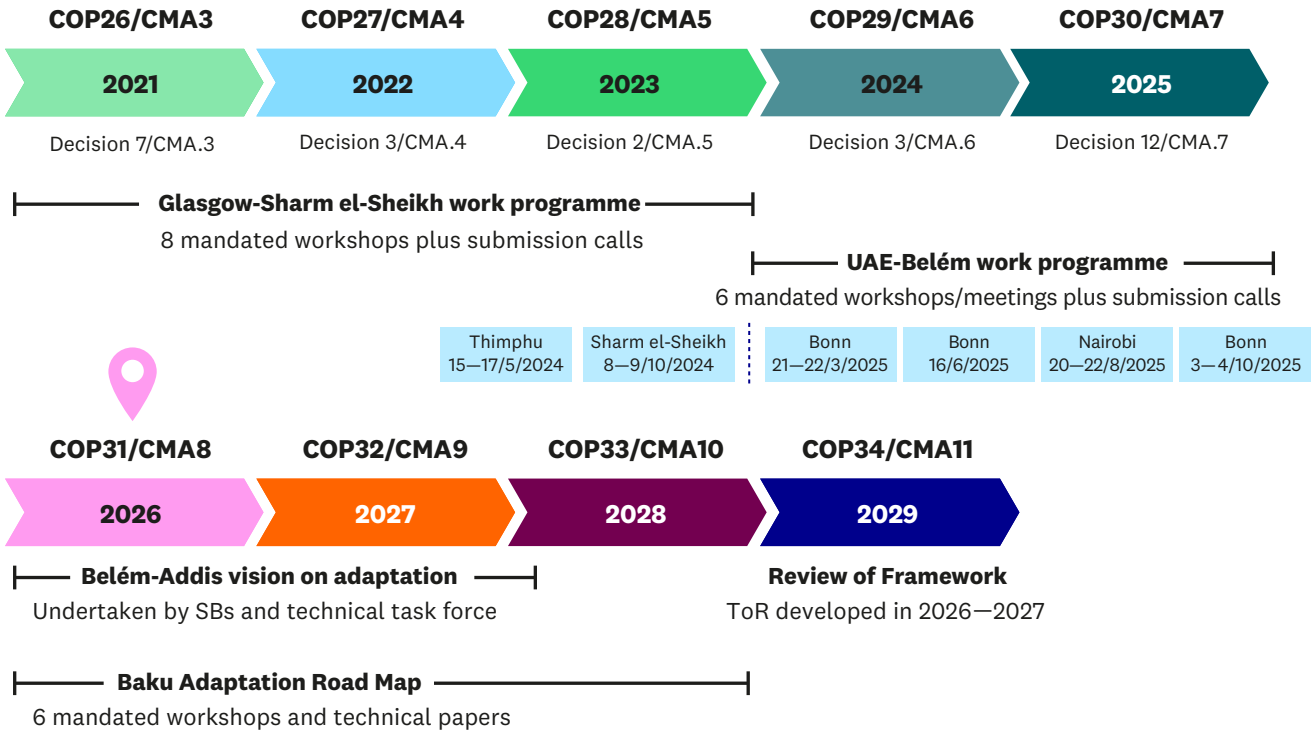
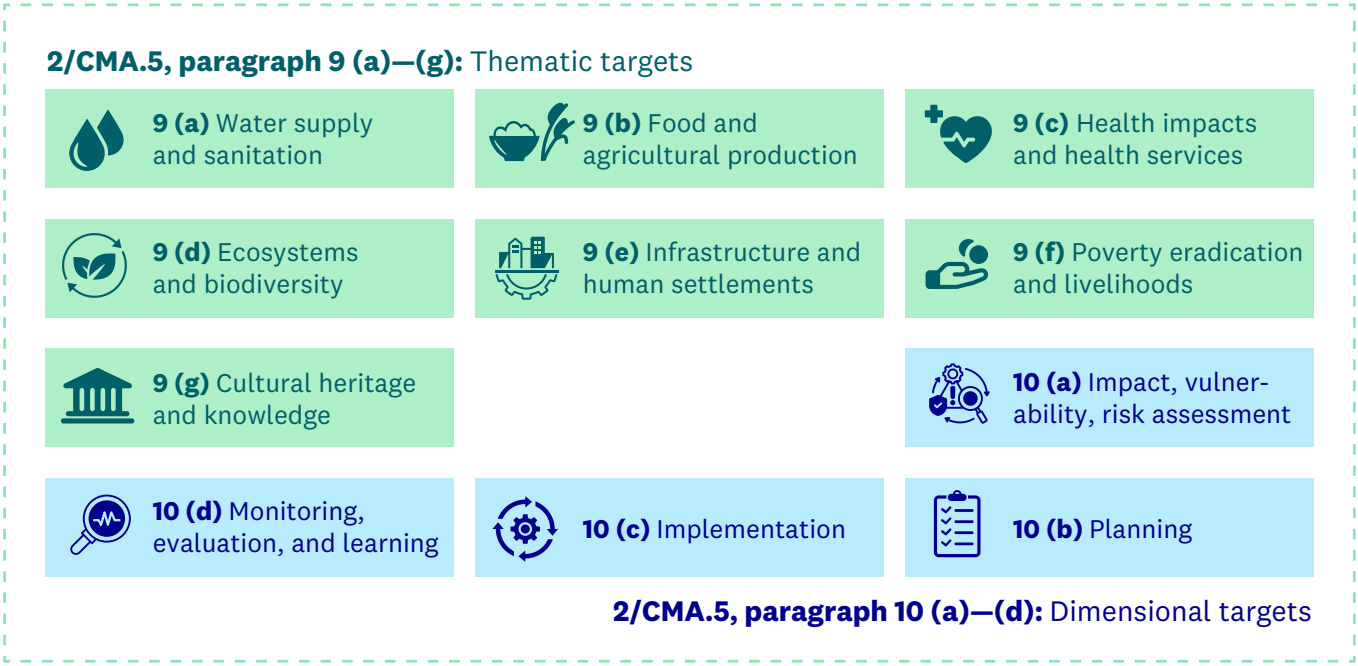


Figure 7: Targets under the UAE Framework for Global Climate Resilience
Source: SLYCAN Trust, www.slycantrust.org/knowledge-resources/technical-briefing-understanding-the-global-goal-on-adaptation



COP28 also adopted the two-year UAE-Belém Work Program for developing indicators to track progress in closing the adaptation gap across the eleven targets. Countries and non-state actors were invited to submit relevant indicators. Save the Children, together with UNICEF, YOUNGO, Young Lives, and UNFPA, have been advocating to ensure that children and youth and their unique climate and health vulnerabilities, i.e. child malnutrition, water-borne diseases, and mental health, are central to the development of the Global Goal on Adaptation (GGA) framework (UNICEF 2025).

During the mid-term session (SB60) in June 2024, countries adopted criteria for mapping existing indicators and initiated a process to select experts (September—October 2024) from across the globe. These experts were tasked with synthesizing and reviewing submitted indicators to identify useful metrics for tracking adaptation progress across different thematic areas and dimensions — based on the eleven targets (see figure 7). In October 2024, experts were mandated under the UNFCCC to operationalize the GGA targets with proposing indicators, including indicators for the climate and health nexus and climate-sensitive burden of diseases. Their task was to develop a concise, globally relevant set of indicators to provide the global climate adaptation infrastructure and metrics for tracking adaptation progress.

At COP29 in 2024, the GGA operationalization process under the UAE Framework for Global Climate Resilience and the UAE-Belém Work Program resulted in a decision attempting to provide clarifying guidelines for developing the indicators. For the first time, the decision included an explicit reference to the global applicability of indicators. However, this was conflated with the requirement that indicators also align with local contexts. The process aimed to develop a set of no more than 100 manageable indicators in the form of a menu, from which parties could select the most relevant ones. The newly appointed Chairs of the UNFCCC Subsidiary Bodies[1] were to oversee the development of a unified approach and methodology. Seven experts on the climate and health nexus were expected to coordinate with the other 71 mandated experts on other thematic and

1 UNFCCC has two permanent subsidiary bodies that play a crucial role in advancing its objectives: the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI). These bodies are institutional frameworks for the COPs.

process goals, though they were principally free to determine the form of this common approach and further criteria "as appropriate." The GGA work was also expected to draw on existing reporting processes from other relevant multilateral frameworks, such as the Sustainable Development Goals, the Sendai Framework for Disaster Risk Reduction, and the Kunming-Montreal Global Biodiversity Framework. The GGA reporting was to be linked to IPCC and national reporting processes, informed by the work of national statistical offices. COP29 also evoked the need for implementation support for developing states. Adding a complex layer of "enabling factors" to the established framework of "means of implementation," which left the issue obscured and undetermined.

Following COP29, technical experts undertook an ambitious exercise, reviewing over 9,500 proposals previously submitted by countries and other stakeholders. Through a rigorous refinement process, this list was reduced to 490 and ultimately to 100 indicator options for all thematic targets, including ten for climate and health nexus.

The GGA negotiations at COP30 in 2025 unfolded particularly salient within a complex institutional and political landscape, with heightened expectations surrounding the adoption of GGA indicators. While countries initially worked with the expert list of 100 indicators, they ultimately decided to adopt a list of 59 indicators, including eight for the climate and health nexus. They also introduced a two-year policy alignment process under the Belém to Addis Vision (Rubial, Fernández, Laguzzi 2026).

While it was broadly expected that the political elements of the COP30 GGA negotiations would center on Means of Implementation (MoI), parties chose instead to reopen the entire set of 100 indicators prepared by the GGA technical expert group. In response, the COP30 Presidency of Brazil intervened by introducing a substantially revised and consolidated indicator list — the Belém Adaptation Indicators. This list was incorporated directly into the Presidency's draft decision and presented to parties as part of the broader decision package, named "Mutirão" (collective efforts), on a take-it-or-leave-it basis, leaving no opportunity for further textual engagement. Parties ultimately accepted the Brazilian package to preserve the multilateral process, but the circumstances raise important procedural questions. The origin of several modifications — none of which are known to have been explicitly proposed by countries — has prompted debate about the extent to which this outcome fully conforms to the conventionally consensus-based, party-driven norms of COP decision-making. The result is seen by some observers as favoring countries that sought to weaken or delay evidence-based global adaptation action (Kuhl et al. 2025).

The substantive differences between the expert-developed list and the list developed by the COP30 Presidency and adopted by countries are significant. The expert indicator set was reduced from 100 to 59, with numerous deletions, additions, and rewordings. Several changes may undermine clarity, technical measurability, and reporting feasibility. While the political value of reaching an agree-



Somalia Water in excess, but drinking water is lacking: the "Sustainable Development & Peace Building Initiatives" are supporting the local population amid a flood disaster.

ment is broadly welcomed, substantial additional technical work will be needed during upcoming COPs to restore coherence and feasibility.

One of the most challenging aspects of the COP30 decision is the explicit instruction not to develop globally standardized methodologies or common data-collection systems. This reflects concerns from some parties about potential compliance frameworks threatening national sovereignty or the use of indicators to restrict access to climate finance — a context not evoked by prior technical work or COP mandates. While the decision strongly reiterates sovereignty safeguards — emphasizing that indicators are voluntary, non-comparable, non-prescriptive, and cannot be used for funding conditionality — tensions remain. Some countries continue to assume that stronger reporting will facilitate finance access, while others fear it will disadvantage countries with limited reporting capacity. However, the absence of common methodologies significantly constrains the potential for global aggregation, raising the likelihood of divergent national interpretations and overly burdensome, incoherent reporting processes. A unified technical assistance effort, particularly for developing countries, would better serve these needs.

The adopted list also leaves gaps. Not all components of the eleven GGA thematic and policy cycle targets are covered; for example, elements of targets 9(f) on Poverty Eradication and Livelihoods and 10(b) on Planning are missing. Some new indicators rely on problematic assumptions, including unfeasible attribution requirements, unclear definitions, or excessive reporting burdens. The data disaggregation by climate vulnerability is also missing despite climate vulnerability being one of the GGA centers. Nevertheless, the preservation of the expert-developed list as a formally referenced "knowledge product" ensures that the scientific foundation and emphasis on data disaggregation remains available for future refinement. The decision explicitly calls for further work, providing an essential opportunity to address unresolved scientific and methodological challenges, and highlights both the progress and the persistent challenges in global climate adaptation efforts.

GGA importance for Global South countries

Adaptation measures are essential to prevent further harm to socioecological systems globally, but they are particularly critical for countries at the frontline of climate change impacts. While immediate effects — such as disruption of social and economic life, injury, displacement, and limited access to healthcare — may be similar worldwide, the compounding crises that follow and the capacity to recover vary significantly.

The GGA is designed to track global progress on adaptation through the aggregation of national-level reporting, informing budgeting, early warning systems, policy-making, and resource allocation. It is essential that the GGA infrastructure is developed as a system-wide approach, in which developing countries contribute and track the progress of adaptation interventions collectively with developed countries — not through siloed or ad hoc external research contributions.

Moreover, reporting on the GGA set of indicators will require overcoming constraints related to data availability, accessibility, and analytical capacity in many developing countries. While COP decisions urge that the new GGA framework should bring no additional reporting burden on countries, it is almost certain that more capacity and resources will be needed. Data sharing, institutional cooperation, and financing from climate science, environmental epidemiology, public health, and global health are among the principal advantages of developing native capacities in research, policy, and technological innovation for effective adaptation interventions in developing countries. Shortages of expert statistical capacity, resources, and barriers to data availability — such as weak data collection systems and legal barriers to data sharing in developing countries — could be mitigated through effective data sharing, cooperation, and collective capacity building. However, this evidence and knowledge production requires political leadership at this uncertain science-policy interface, ensuring that necessary interventions are not delayed due to a lack of the highest scientific certainty about climate attribution.

From an equity and social vulnerability perspective, the GGA is one of the most important platforms to explore what equity means in international climate policy. It is central to understand how climate- and non-climate-related drivers of vulnerability interact with one another; addressing social risks and opportunities in climate change mitigation; identifying appropriate operational and policy entry points for building societal resilience and adaptation to natural disasters, climate variability, and change; and minimizing the risks of elite capture and social exclusion in such forms of climate action (Kuhl et al. 2025).

While acknowledging that current global financial flows for adaptation are insufficient, the GGA decisions also emphasize the support needed for developing states in their adaptation efforts. To close the widening adaptation gap across all regions, developing countries need to determine the level of support required for their climate adaptation actions. The GGA infrastructure will bring more clarity, transparency, and accountability to the chronically underfunded climate adaptation fields.

As the healthcare sector represents 10 % of the global economy and is one of the largest employers in the world, it is one of the most relevant thematic areas for climate adaptation. On a promising note, the Global Health and Climate Alliance found that several African countries have set ambitious climate targets in their Nationally Determined Contributions (NDCs), national climate action plans submitted by each country under the Paris Agreement and updated every five years, that explicitly aim to protect public health (Aleina, Beagley 2025). This indicates a high level of awareness and commitment. Similarly, the WHO observed that poorer and climate-vulnerable countries were more likely to address health in their NDCs. Higher levels of population exposure to temperature changes and ambient air pollution were also associated with greater health coverage in these national plans. In contrast, developed countries were more likely to omit health from their NDCs entirely (WHO 2023c).

GGA Climate-Health Nexus Indicators

In the health context, effective climate adaptation focuses on minimizing unnecessary suffering and addressing avoidable climate-sensitive diseases. Among the seven thematic targets of the GGA, the health target (Target 9c, see figure 7, page 20) emphasizes strengthening resilience against climate-related health impacts, promoting climate-resilient health systems, and reducing climate-related morbidity and mortality, particularly in vulnerable communities. A climate and health metric under the GGA is a critical component of adaptation reporting, as it contributes to recognizing both quantitative and qualitative aspects of health data as a key part of adaptation assessments.

The process of developing GGA health indicators reflects both the ambition and complexity of the GGA framework. From an initial pool of around 900 health-related submissions received by the UNFCCC Secretariat and the Adaptation Committee (UNFCCC 2024e) — with only 130 indicators submitted by African groups (Adhiambo et al. 2024) — the list was reduced to 747 after removing duplicates. By June 2025, experts narrowed this further to 62 indicators, and by September 2025, just ten remained (UNFCCC 2025b). The final expert set included ten dedicated health indicators — but these were only partially adopted at COP30 — along with numerous cross-cutting indicators embedded in other thematic areas and the policy cycle framework. The primary objective was to identify metrics that meaningfully capture adaptation efforts in reducing adverse health outcomes directly attributable to climate change, rather than merely measuring exposure to climate-sensitive health burdens.

The selection of indicators reflected the latest scientific knowledge on climate-related hazards, drawing from healthcare systems and public health databases with known causal links to climate change. Experts prioritized the most appropriate statistical methodologies available, considering their technical maturity and accessibility across most countries. These indicators focus on tracking excess mortality and morbidity caused by climate change, including deaths, disease incidence, and hospital admissions. The primary measures include numbers or rates of health-related events, such as cases of incident disease, hospitalizations, and deaths.

However, the complex and multifactorial nature of climate-health relationships — and limited historical data availability — complicates attribution. This prompted experts and negotiators to balance the ambition of having the "best indicators" with the pragmatism of leveraging existing international frameworks with readily available indicators. Many climate-sensitive health issues are documented, but exact causal pathways remain poorly understood. For example, universal health coverage (UHC) is a critical measure of climate adaptation effectiveness, but it must be adjusted to reflect climate vulnerability and adaptation readiness. UHC means that all people and communities receive the health services they need — of sufficient quality to be effective — without exposing users to financial hardship. It covers the full continuum of essential health services, from health promotion to prevention, treatment, rehabilitation, and palliative care across the life course. While research on climate attribution is advancing rapidly, incorporating this element may become feasible in the future (Schaeffer et al. 2025).



Ethiopia During periods of drought, nomads have to travel long distances to reach the nearest water source.

The COP30 negotiations on the development of indicators to measure progress on the Global Goal on Adaptation (GAA) resulted in a provisional set of 59 indicators, eight of which relate to health, namely:

Decision X/CMA7, the health thematic indicators, (paragraph 5) (UNFCCC 2025c):
"The indicators for assessing progress under target 9(c), attaining resilience against climate change related health impacts, promoting climate-resilient health services and significantly reducing climate-related morbidity and mortality, particularly in the most vulnerable communities, are as follows:

(1) Rate of mortality associated with climate impacts compared with counterfactual rates, including as an outcome of adaptation actions or coverage of early warning systems where applicable;
(2) Level of incidence of climate-sensitive infectious diseases, including as an outcome of adaptation actions where applicable;
(3) Rate of morbidity associated with climate impacts compared with counterfactual rates, including as an outcome of adaptation actions where applicable;
(4) Proportion of the population vulnerable to climate change with access to mental health and psychosocial support;
(5) Extent to which climate health services have remained at full capacity during and following climate-related events relative to pre-event service capacity;
(6) Percentage of health facilities that are resilient to climate-related hazards under different warming scenarios, as appropriate for regions and contexts, including as an outcome of adaptation actions where applicable;
(7) Coverage of essential health services that are supported by adaptation measures to ensure continuity during and following climate-related events;
(8) Proportion of health practitioners who have received capacity-building support pertaining to climate change adaptation and health."

This set of health indicators covers a wide range of climate adaptation topics, including heat-related mortality and illness, mental health, resilience of health facilities in the face of extreme weather events, capacities of health services and health workforce to withstand climate shocks, and infectious, food- and water-borne diseases. However, given the strong interlinkages between the thematic targets of health, water, food, biodiversity, infrastructure, and poverty, disrupting the integrity of the full set of indicators proposed by the experts might have resulted in some gaps.

Comparison of Health Indicators: Experts vs. COP30 Belém Adaptation

Experts' Indicators	COP30 Belém Adaptation Indicators
9c01 Change in the rate of mortality associated with heat exposure	9(c)-1 Rate of mortality associated with climate impacts compared with counterfactual rates
9c02 Change in the incidence of climate-sensitive infectious diseases (dengue, chikungunya, Zika, tick-borne encephalitis (TBE), West Nile fever (WNF), malaria, and diarrheal diseases)	9(c)-2 Level of incidence of climate-sensitive infectious diseases, including as an outcome of adaptation actions where applicable
9c03 Change in the annual rate of reported heat-related occupational injuries and deaths	9(c)-3 Rate of morbidity associated with climate impacts compared with counterfactual rates
9c04 Extent of implementation of Mental Health and Psychosocial Support (MHPSS) preparedness and response for climate change-sensitive events	9(c)-4 Proportion of the population vulnerable to climate change with access to mental health and psychosocial support
9c05 Number of destroyed or damaged health facilities and number of disruptions to health services associated with climate-related events	9(c)-5 Extent to which climate health services have remained at full capacity during and following climate-related events
9c06 Percentage of health facilities built or retrofitted to be climate-resilient, based on national, regional, or global guidance	9(c)-6 Percentage of health facilities that are resilient to climate-related hazards under different warming scenarios
9c07 Universal Health Coverage (UHC): coverage of essential health services (SDG 3.8.1)	9(c)-7 Coverage of essential health services that are supported by adaptation measures to ensure continuity during and following climate-related events
9c08 Level of operationalization of climate-informed health early warning systems for climate change-related health risks accessible to vulnerable groups	9(c)-8 Proportion of health practitioners who have received capacity-building support pertaining to climate change adaptation and health
9c09 Level of implementation of climate change and health vulnerability and adaptation assessment	(No direct equivalent in COP30 list)
9c10 Proportion of the ministry in charge of health workforce that has received training on climate change and health in the last two years	(No direct equivalent in COP30 list)

Despite technical challenges and vague conceptual definitions — compounded by the UNFCCC political process — the inclusion of eight health-relevant indicators represents progress. During negotiations, some countries even proposed deleting all health indicators, while others insisted they should draw on existing international indicator frameworks, "rather than reinventing the wheel" (Fielding 2024). These indicators span many of the major climate-health pathways for which at least some data exist. For example, health-facility resilience is conceptually vague and highly context-dependent, complicating its global applicability. Indicators relying on counterfactual models pose additional challenges, as national statistical systems may not be prepared to compute such estimates. Methodologies for these climate and health GGA indicators have yet to be determined. However, if supported by robust methodological development, these indicators could form the basis of a critical global adaptation monitoring framework for climate and health synergies. They also present an opportunity for champion states and their coalitions to define them in more precise and comprehensible terms.

Since the Belém Adaptation Indicators adopted by the COP30 in 2025 are the outcome of a combined expert and political process — and many serve as placeholders for complex climate and health synergies that are yet to be developed in some cases — the following analysis will not adopt the same format for each indicator. Instead, we cluster them and highlight some of the relevant aspects of these eight COP30 indicators for developing and humanitarian fields. Some of these aspects, i.e., heat, food and water-borne diseases, air pollution, and occupational health, are not explicitly mentioned among the Belém Adaptation Indicators.

Climate-induced morbidity and mortality

Belém Adaptation Indicators 9(c)-1 and 9(c)-2

Climate-induced excess mortality and morbidity indicators track how much climate change aggravates, intensifies, and widens the spread of health problems. For example, extreme high air temperatures can lead to illnesses serious enough to require hospitalization and contribute directly to deaths from cardiovascular and respiratory diseases, particularly among elderly populations.

These indicators should also capture the effects of proactive adaptation measures. While generally well-designed, they are difficult to measure because they require distinguishing between climate-related and non-climate-related mortality and morbidity, as well as attributing changes to adaptation actions. This dual aspect prompted some countries at COP30 to argue that these metrics belong under loss and damage rather than adaptation.

Most statistical offices collect standard health outcomes, such as deaths, illness incidents, and hospital admissions. Hospital admissions provide valuable insights into serious, but non-fatal, illnesses and the burden on healthcare systems. While some data are disaggregated by age and gender, the SOSCHI project emphasizes that most mortality and morbidity datasets are based on simple administrative data and do not include information on disability status and other vulnerabilities (UK Office for National Statistics 2026a). Measuring changes in these outcomes in relation to climate adaptation interventions would require new methodologies and models, as there are currently no reliable methods for tracking how climate adaptation reduces mortality and morbidity (Romanello et al. 2025).

Heat and occupational health

Belém Adaptation Indicators 9(c)-1 and 9(c)-2

The COP30 indicators on mortality and morbidity are broad, functioning more as placeholders for complex issues than as measurable metrics. They would likely require prioritization — selecting a manageable set of climate impacts to collect data on — perhaps initially focusing on extreme heat.

Most known climate change impacts on non-communicable diseases (NCDs) are mediated through heat (UK Office for National Statistics 2026b). Mortality statistics attributing variations to temperature changes are relatively new —evidence was not collected before 2010 — but are now tracked through proxies such as cardiovascular, respiratory, diabetic, and chronic kidney diseases, hospital admissions, and deaths attributable to excessive heat (UK Office for National Statistics 2026b). Another health impact of climate-induced excessive heat is an increased risk during pregnancy, childbirth, and postpartum periods, including preterm birth, stillbirth, congenital anomalies, gestational diabetes, and obstetric complications (Lakhoo et al., 2024). There is also evidence that mental health and infectious diseases are affected by excessive heat.

While exposure to heat waves and temperatures that exceed safe thresholds, as well as heat-related deaths, are increasing (Romanello et al. 2025), the Belém Adaptation Indicators do not include a dedicated indicator on heat-related health impacts, despite strong evidence and established methodologies.

There is also no GGA indicator addressing heat exposure to occupational health, even though climate change is recognized as a driver of environmental and occupational

hazards (Dasgupta et al. 2024). A major aspect is increased exposure to heat, particularly for agricultural and outdoor workers (Nowrouzi-Kia et al. 2026). The intensification of excessive heat not only jeopardizes workers' health, but also undermines economic safety and resilience, as well as the potential for decent work globally. This is a relatively well-documented area of climate-health hazards, with many countries having established systems for recording occupationally related injuries and deaths. The International Labour Organization (ILO) and Eurostat's Global Activity Limitation Indicator (GALI) collate relevant statistics internationally.

The interconnected nature of climate and health extends beyond heat and occupational hazards to infectious diseases, where climate change is reshaping disease transmission patterns.



Somalia Mother and child waiting to get assistance at a health centre in Baidoa

Infectious diseases

Belém Adaptation Indicator 9(c)-2

Over half of all known human pathogens are climate-sensitive (Mora et al. 2022). These include vector-borne diseases such as malaria, Zika, chikungunya, dengue, West Nile fever, and yellow fever, as well as tick-borne diseases like Lyme disease, encephalitis, and leishmaniasis (Semenza, Rocklöv, Ebi 2022). Climate change also increases contact between humans and wildlife, triggering zoonotic diseases. Unsustainable consumption, agricultural intensification, and wildlife trade further increase these interactions (Adrian et al. 2023). However, climate-sensitive zoonotic diseases are considered less urgent than vector-borne diseases, and further research is needed to understand their impact (UK Office for National Statistics 2026b).

Malaria remains the most common vector-borne disease globally and causes the highest burden of mortality and morbidity. Its prevalence is determined primarily by mosquito populations, which depend on ambient temperature and water availability. Dengue and Zika exhibit similar climate sensitivities (UK Office for National Statistics 2026a). When it comes to malaria, children under five years old and newborns are the single most vulnerable demographic on earth. Globally, children in this age group account for roughly 75 % to 76 % of all malaria deaths (WHO 2025b).

Over half of the global population is projected to be exposed to mosquito-borne diseases by 2080.
Malaria and dengue expanding into higher altitudes and previously non-endemic zones due to warming temperatures.

Due to climate change, many of these diseases can now be transmitted across broader geographical spaces and temperature ranges than previously recognized. For example, recent research shows chikungunya spreading in Europe (Tegar et al. 2026). Increased and prolonged rainfall, along with rising temperatures, influence disease transmission by expanding mosquito and vector breeding.

Most existing indicators focus on tracking specific examples of climate-related infectious diseases. For instance, the topic of vector-borne diseases was initially represented solely by an indicator on malaria. However, while the newly updated United Nations Statistic Division (UNSD) Climate Change Global Set Indicator 45 tracking "incidence of heat- and cold-related illnesses or excess mortality" was developed primarily to track malaria, it can now be extended to epidemiologically similar diseases such as dengue and Zika (UNSD 2026). Similarly, the expert proposal for the climate-sensitive infectious diseases indicator allowed countries to select the most relevant diseases for their national and regional contexts, providing flexibility without requiring irrelevant reporting (UNFCCC 2025d). The infectious disease indicator adopted at COP30, however, is ambiguously worded and could unintentionally imply maladaptive linkages between disease outcomes and adaptation interventions.

Tracking climate-sensitive diseases is complex, as it requires factoring in healthcare system readiness — surveillance, early warning systems, vaccination rates, vector control, testing and treatment availability — as well as geographical and meteorological differences.

Some intersections are also observed between climate change and antimicrobial resistance (AMR), where microorganisms develop resistance to antimicrobial treatments. Infectious diseases, increasingly emerging and re-emerging due to climate change, may not respond to available antibiotics because of AMR. While the cascading effects of climate change and AMR pose significant public health challenges, there are also positive synergies in ecosystem management, food system adaptation, disease surveillance, and waste and water management policies (Bavel et al. 2024). However, evidence on this complex causal relationship remains insufficient and inconclusive, and further research is needed to inform effective adaptation actions (Kalanxhi, Laxminarayan 2026).

Water-borne diseases

Belém Adaptation Indicators 9(c)-1,-2,-3

While there is no specific GGA indicator adopted at COP30 focusing on water-borne diseases, integrating health and water indicators is critical. Indirect deaths from natural disasters — such as storms and floods — through contaminated water and outbreaks of cholera or rotavirus (which cause diarrhea) are rising and now exceed direct fatalities from disasters (Gates 2025). Today, people caught in storms and floods are more likely to die from waterborne diseases than from drowning. This shift is attributed to improved water, sanitation, and hygiene (WASH) systems, warning systems, and more resilient buildings (Smith et al. 2014), even as climate change threatens to reverse these gains (Zhou et al. 2025; Asare, Warren, Pitzer 2022).

Diarrheal diseases are used as a proxy indicator for climate-sensitive water-borne diseases and water-related health impacts (e.g., leptospirosis, cryptosporidium) (Levy, Smith, Carlton 2018). The required data are likely to be routinely available in most affected countries (UK Office for National Statistics 2026b). Diarrheal diseases are the most common form of water-borne illness globally and cause substantial mortality and morbidity, particularly among children. They are reported to kill more than a million people annually (Gates 2025). Research from Ghana shows that climate change contributes to spikes in diarrheal disease, highlighting the interaction between weather extremes and vulnerabilities in water and sanitation systems (Boafo et al. 2024). Associations with climate change are primarily through changes in rainfall patterns and flooding, though heat waves and droughts are also relevant. Temperature, rainfall, and humidity directly influence pathogen survival in contaminated environments, increasing the risk of resurgence in previously controlled or low-transmission areas (UNICEF 2025a).

Food-borne diseases and malnutrition

Belém Adaptation Indicators 9(c)-1,-2,-3

Climate-induced shocks, such as droughts, floods, heat waves, and shifting pest and disease patterns, are major drivers of food insecurity and malnutrition (FAO 2026). These events disrupt food production, particularly in vulnerable regions like parts of Africa and Central/South America, leading to increased malnutrition rates. Malnutrition currently costs an estimated USD 3.5 trillion per year in lost productivity and healthcare (IPCC 2021). Based on current climate scenarios, UNICEF estimates that by 2050, climate change will leave an additional 28 million children acutely malnourished (wasted) and 40 million chronically malnourished (stunted) globally (UNICEF 2025a).

The food system is one of the highest-risk sectors, as climate-related impacts are expected to increase resource scarcity and reduce food security. Impacts include reduced access to freshwater, crop yield losses, price volatility for agricultural commodities, increased damage from weeds and pests, and substantial losses to land-based ecosystems and their functions related to agricultural production, food security, and rural livelihoods. In sub-Saharan Africa, for example, extreme weather events have led to a significant increase in food insecurity, directly affecting nutritional outcomes and health, particularly among children under five (Bachwenkizi et al. 2026).

Malnutrition Projections for Children by 2050 due to climate change

28 million

additional acutely malnourished (wasted) children.

40 million

additional chronically malnourished (stunted) children.



Burundi Aline Ndayishimize with her daughter at a workshop on malnutrition in young children.

Among the most common and climate-sensitive food-borne diseases are salmonella, cholera, and vibrio, which cause gastroenteritis, wound infections, and septicaemia. Salmonella is the second most frequently reported bacterial food-borne infection. Its main reservoir is warm-blooded animals, including livestock and wildlife, with poultry (and eggs) presumed to be the most important source of human infections. Most salmonella strains do not usually cause symptoms in animals (Semenza, Rocklöv, Ebi 2022).

The Standards for Official Statistics on Climate-Health Interactions (SOSCHI), a project led by the UK Office of National Statistics, developed an indicator tracking climate-induced (although not yet climate adaptation relevant) malnutrition, covering (UK Office for National Statistics 2026a):

- Incidence of stunting associated with extreme precipitation
- Incidence of stunting associated with extreme temperature
- Incidence of stunting associated with drought

Because children's food insecurity experience often differs from adults and young children are at most risk of malnutrition driven by food insecurity, it is also important to specifically track the childhood age group development (UNICEF 2025b).

Air pollution

Belém Adaptation Indicators 9(c)-1 and 9(c)-3

There is no specific air pollution indicator in the Belém Adaptation Indicators, but some evidence on climate-induced air pollution can be included under the mortality and morbidity indicators. The mandated experts initially considered proposing a proxy indicator tracking asthma incidents, but this was eliminated in later stages.

This is questionable, as air pollution is a major global health concern, responsible for an estimated 6.7 million premature deaths annually, according to the WHO, making it one of the leading environmental health risks. Climate change influences key components of air quality, including ground-level ozone, particulate matter, allergens, wildfires, and dust storms — all of which are exacerbated by rising temperatures and extreme weather events. Among the most harmful pollutants is particulate matter less than 2.5 micrometers in diameter (PM2.5), with wildfire-derived PM2.5 believed to be more toxic than PM2.5 from other sources. Long-term exposure to air pollution is linked to acute and chronic conditions, such as lung cancer, asthma, chronic obstructive pulmonary disease (COPD), and increased risks of cardiovascular diseases, like heart disease and high blood pressure (PAHO 2018).

The health effects of long-term exposure to air pollution, exacerbated by climate change, are recognized as a major global public health issue (Deng et al. 2020). However, no scientifically validated and tested indicator methodology is currently available to estimate the climate-impacted health effects of PM2.5 and wildfire exposure, as the granularity of data required (daily counts) is difficult for many — especially developing — countries to achieve (UNSD 2026).

While there is no Belém Adaptation Indicators adopted by COP30 measuring health outcomes of climate-induced air pollution, the SOSCHI Project proposed in early 2026 to update the United Nations Statistical Division (UNSD) Indicator 46 on climate-induced air pollution to track health impacts of important forms of climate-related air pollution. The updated indicator now measures: the mortality attributable to short-term effects of outdoor air quality (PM2.5 — microscopic fine particulate matter that can penetrate into the lungs and bloodstream), mortality attributable to effects of wildfire smoke (PM2.5), and mortality attributable to long-term effects of outdoor air quality, and can serve as a source for future GGA indicators update (UK Office for National Statistics 2022).

Resilient healthcare systems during extreme weather events

Belém Adaptation Indicators 9(c) -5,-6,-7

As climate change intensifies extreme weather events, the resilience of healthcare systems becomes increasingly critical. Climate change is increasing the intensity and frequency of these events, causing excessive injuries and deaths — both directly and through disruptions to critical healthcare infrastructure. It is vital that healthcare systems are rebuilt or retrofitted to maintain their capacity during climate-induced extreme events (WHO 2026).

According to the World Meteorological Organization (WMO), only 23 % of Ministries of Health used meteorological information to monitor climate-sensitive health risks such as heat stress in 2025. This highlights a significant gap in integrating WMO data into health ministries globally. However, the new WHO-WMO Joint Climate and Health Program aims to strengthen the integration of climate, environment, and health sciences and services. Targeting at least 80 developing countries in Africa, Latin America, and Asia, the initiative seeks to foster more effective linkages between national meteorological agencies and ministries of health, accelerating the uptake of climate and weather science by public health policymakers and practitioners (WMO 2026).

Countries with comprehensive and integrated early warning systems (EWS) have six to eight times lower mortality during disasters (WMO 2025). Strengthening EWS for climate-sensitive health hazards is fundamental under accelerating climate change conditions. EWS are tools for detecting and predicting impending extreme weather or disease outbreaks, and delivering accessible warnings to relevant populations, thereby triggering early health-protective responses. An EWS is an information system designed to support decision-making by national and local institutions, enabling vulnerable groups to take action to mitigate risks. EWS improves coordination among stakeholders — such as local epidemiologists, meteorologists, entomologists, national and local management agencies, and public communication channels — used to disseminate warning information. Effective risk monitoring and EWS can prevent illness, injury, and death when coupled with adequate communication and response capacity. EWS can also increase the effectiveness of disease control by intervening before or at the beginning of an epidemic curve.

Climate hazards affect both people's health and the facilities built to protect it, making it essential to measure the percentage of health facilities built or retrofitted to be climate-resilient and withstand extreme climate events. Several climate-related disaster event indicators are compatible with the Sendai Framework for Disaster Risk Reduction and could be repurposed for tracking GGA and climate adaptation progress. For example, Sendai Target A (mortality by disasters) and Target G (increasing the availability of and access to multi-hazard early warning systems by 2030) contribute to reducing the reporting burden on countries (UNDRR 2015). With the growing number and intensity of climate-related disasters, ensuring the continued functioning of health facilities and services becomes ever more important. Tracking changes over time should assess the adaptation effectiveness of health sector services and infrastructure against climate-related disasters. These indicators are key to understanding the level of climate-resilient infrastructure or systems in place to ensure service continuity during climate-related events.



Honduras After climate-related disasters, such as this one following Hurricane Iota, providing healthcare is particularly challenging.

Of the international indicators that track injury and mortality from extreme weather events, those focusing on flooding and wildfire smoke are the most developed (UK Office for National Statistics 2026b). Indicators on resilient health facilities are collected by the WHO Climate and Health Global Survey and can be integrated into the GGA process (WHO 2021). The Universal Health Coverage (UHC) indicator (Indicator g) is broad but central to climate resilience-building. Climate change intensifies existing health burdens and introduces new challenges, increasing the frequency and severity of extreme weather events that can damage health infrastructure and disrupt service delivery. Strong UHC systems build resilience by maintaining continuity of care during climate shocks, supporting vulnerable populations disproportionately affected by climate hazards, and enabling effective emergency preparedness and response. By tracking progress in UHC, this indicator provides a measure of whether adaptation is translating into equitable, affordable, and continuous access to quality health services. Some evidence can be collected from the UHC Survey, but additional work is needed to define which aspects of UHC are supported by climate adaptation actions.



DR Congo A health worker consults with a patient. Awareness of climate-related health risks is becoming increasingly important.

Mental health

Belém Adaptation Indicator 9(c)-4

Among the Belém Adaptation Indicators is an indicator monitoring the preparedness of mental health and psychosocial support during climate-induced events that expose people to potentially traumatic experiences, increasing the risk of depression, substance misuse, or post-traumatic stress disorder.

Climate change is making extreme weather events more frequent and intense, exposing people to traumatic experiences such as the loss of loved ones and serious injuries, thereby increasing the risk of mental health problems such as depression, substance misuse, or post-traumatic stress disorder (United for Global Mental Health 2025). Some studies indicate that people living with certain mental health conditions are at higher risk of dying during heat waves. Others have shown that long-term exposure to air pollution and nitrogen dioxide (NO2) may increase the risk of depression and anxiety (EEA 2026). Moreover, climate anxiety — particularly among young people — is observed to threaten mental health and well-being (Novais 2022).

The UNSD Indicator 45, which tracks the incidence of heat- and cold-related illnesses or excess mortality, includes a sub-component focusing on mortality from suicide attributable to excess heat. The association between suicide and climate-induced extreme heat involves interacting factors such as disrupted sleep patterns and reduced access to coping mechanisms like outdoor physical activity and socializing during extreme heat (UK Office for National Statistics 2026a). This is the most statistically developed area of climate change's impact on mental health, while alternative data on mental health — such as hospital diagnoses — vary widely due to differences in healthcare organization, diagnostic practices, record availability and reliability, cultural and linguistic issues, and stigma around mental illness (UK Office for National Statistics 2026a). Some experts suggested that this indicator, tracking suicide as an extreme case of mental distress and health harm induced by climate change, should be put forward as a proxy for measuring climate's impact on mental health under the GGA framework. However, there was no consensus among climate-mental health experts, and the GGA experts eventually decided to focus on measuring the preparedness and support of mental health services during climate hazard events as a proxy indicator. This could include hospitalizations for mental health reasons attributed to extreme heat and other climate-induced events.

The adopted Belém Adaptation Indicator for mental health support during climate-induced extreme events contains two components: one focused on services and the other on climate adaptation impact, the latter being significantly more difficult to track. It also requires identifying which populations are most sensitive to climate-induced mental health challenges. This indicator builds on the WHO's approach towards mental health promotion, newly adapting it to climate change-related events (WHO 2025c).

Capacities of healthcare professionals
Belém Adaptation Indicator 9(c)-8

Climate change may increase local demand for health services, potentially altering the number of health workers required, the skills mix needed, and their competencies. The availability of a healthcare workforce with the capacity to act on climate change and health is a fundamental determinant of overall climate resilience, as it strongly predicts the ability of health systems to provide services during extreme weather events (Chen et al. 2025).

Thus, the health workforce is key to adaptation, building climate resilience, and ensuring the environmental sustainability of health systems. Health workforce competencies can be developed through pre-service education, lifelong learning, and mentoring. Required skills include understanding and using climate information for health interventions and decision-making, engaging in cross-sectoral action, and conducting research, assessments, and interventions.

During the development of the GGA indicators, the mandated experts agreed to move most process-related health indicators focused on planning, impact, vulnerability, risk assessment, implementation, and the monitoring and evaluation of healthcare policies to the policy cycle targets. However, one key metric — capacity-building among the health workforce (Indicator 9c10) — was retained. Strengthening the capacity of health professionals to identify, manage, and respond to climate-related hazards is fundamental to building climate-resilient health systems.

This indicator is compatible with the existing WHO Climate and Health Global Survey and can be tracked by integrating this evidence into the GGA process. However, rather than merely tracking the number of training and support provided, the methodology could focus on measuring changes in behavior and practices. Another important consideration is how civil society organizations will be involved in developing, implementing, and evaluating these guidelines and training modules.



Madagascar Save the Children staff member raises awareness about climate change and its impacts.

Role of non-state actors and civil society organizations

In developing, implementing, and monitoring and evaluating of climate and health policies and programs

The development and implementation of GGA health indicators highlight the critical need for robust, inclusive, and adaptive frameworks to address the climate and health nexus. However, the success of these indicators — and the broader GGA — depends not only on governmental and intergovernmental efforts, but also on the active engagement of civil society. One of the key GGA requirements is ensuring both global and local applicability. Civil society organizations (CSOs) can enhance alignment with local contexts and establish reporting mechanisms that engage non-state actors, ensuring that adaptation efforts are grounded in community needs.

Furthermore, the effectiveness of climate adaptation interventions depends on a nuanced understanding of vulnerability — not just as exposure to risk, but as a combination of exposure, sensitivity, and adaptive capacity. CSOs are vital in advocating for policies that address the needs of the most vulnerable communities in the local context and ensuring that climate adaptation action is equitable, effective and grounded in human rights and social inclusion approaches. Civil society is particularly well-positioned when it comes to outreach and mobilizing of vulnerable groups and with facilitating access to information, decision-making, and justice; addressing discrimination and inequity, and promoting inclusion.

Humanitarian and development actors are increasingly mainstreaming climate adaptation into traditional programs such as education, health, nutrition, water, and livelihoods, and this positions themselves as one of the most important stakeholders in the emerging climate and health nexus policy. They are doing so by creating a seamless transition from emergency response to sustainable development and climate adaptation.

The sector's contributions are multifaceted. International humanitarian and development aid organizations as well as civil society organizations collect and analyse data on climate impacts, identifying trends and informing evidence-based interventions. These interventions are frequently based on local knowledge. This data is not yet systematically channeled into reporting under the UNFCCC, WHO, or other international frameworks. However, these organizations are often more concentrated on covering the matrix of vulnerable districts and communities at regional, national, and local levels. They could become a supplementary source but also an essential foundation for evidence-based, inclusive adaptation policy.



COP 29 Baku Civil society participation is crucial to embedding human rights principles, such as gender equality, in climate policy.

They also enhance early warning systems and community preparedness for climate-related disasters — such as floods, droughts, and hurricanes — while investing in anticipatory action frameworks to trigger interventions before disasters strike. As bridges between global climate science and local practice, they translate complex data into actionable insights and participatory planning for communities and policymakers. Furthermore, they also support the construction of climate-resilient infrastructure, such as water systems and shelters designed to withstand extreme weather. Practical examples of their interventions include introducing drought-resistant crop varieties, rainwater harvesting, and agroforestry in drought-prone regions to improve food security; restoring mangroves and building flood barriers in coastal areas to protect against storm surges. In health programs, humanitarian and development actors train healthcare workers to recognize and treat climate-sensitive diseases and ensure clinics are stocked with supplies ahead of predicted outbreaks, and implement heat-resistant housing materials and cooling centres in urban slums to combat rising temperatures. Advocacy is equally vital: Humanitarian

and development organizations push for climate policies that protect vulnerable populations, including displaced communities and low-income groups, and they champion international agreements and funding mechanisms, such as the Green Climate Fund, Adaptation Fund, Global Climate Facility, and Fund for Responding to Loss and Damage, to advance climate justice. Some international civil societies, including the Save the Children Fund, are accredited as official partners to these funds and implement a large share of the projects.[2]

CSOs can help build expertise and production capabilities within developing countries' public institutions, fostering a model of governance that is inclusive, transparent, and accountable to communities. This is especially critical in addressing social dimensions of climate impacts, such as excess heat, where CSO involvement is indispensable. Hence, to strengthen climate and health governance, CSOs must play a central role in systematic monitoring of climate change outcomes.

The Adaptation Fund's pioneering of direct access — such as the Southern Africa freshwater project, the first community-driven direct-action funding — demonstrates how simplified access modalities and streamlined processes can empower local actors (Adaptation Fund 2021). Adopting principles for locally led adaptation, as the Fund did in 2019, further underscores the importance of CSO engagement in shaping and implementing adaptation strategies.

Exposure, vulnerability, and the nature of climate hazards are not fixed; they are deeply influenced by socioeconomic and demographic factors. CSOs are well-positioned to challenge the assumption that these factors are "givens" and advocate for policies that address their root causes. By doing so, they can ensure that climate and health nexus adaptation policies are not only effective but also just, leaving no one behind.

Non-state actors, like CSOs, churches, and faith-based organizations, need to be included and contribute to developing this critical climate adaptation infrastructure. Most of the religious beliefs are linked to the management of ecosystems, with churches acting as guardians and caretakers of God's creation (of nature) through multiple versions of eco-theology.



COP 30 Belém Indigenous Peoples demonstrate for the protection of their rights, territories, and their crucial role in addressing the climate crisis.

Therefore, the role of civil society organizations in shaping the GGA framework, targets, indicators, and reporting mechanisms is crucial. They are well placed to identify structural barriers that impede effective, climate-resilient health service delivery and data collection, develop practical recommendations from their multilateral, international and bilateral projects into the official UNFCCC monitoring system, and support the strengthening of national climate and health and climate adaptation reporting capacities. Therefore, it is important that the UNFCCC process maintains a balance between negotiated formats (exclusive to countries) and non-negotiated formats where CSO expertise is effectively incorporated (Rubial, Fernández, Laguzzi 2026).

2 The Save the Children Fund is currently implementing two climate and health-focused GCF-funded projects in Lao PDR and Malawi.

Bridging Climate and Health in African Remote Communities



Judith Asin
Pharmacist and program leader at the Ecumenical Pharmaceutical Network (EPN)

Judith Asin, a pharmacist and program leader at the Ecumenical Pharmaceutical Network (EPN), offers a ground-level and front-row perspective on the urgent need to integrate health into climate adaptation frameworks. Her work, rooted in faith-based healthcare, reveals how climate hazards are progressively overwhelming health systems with devastating impacts on vulnerable communities and why adaptive, equity-centered policies are critical. It also exemplifies how faith-based organizations — often the only health service providers in remote and hard-to-reach communities in Africa — are stepping into addressing negative climate impacts on health.

"Many of the healthcare facilities of EPN members are in regions where the government isn't present," she explains. "In many areas, faith-based facilities provide 40 % of healthcare, [...] We're filling gaps — ensuring no one is left behind." EPN's 149 member organizations, spanning 38 countries — including 27 in Africa, serve vulnerable communities that rely heavily on faith-based health providers.

Judith's first-hand professional experiences underscore the human toll of climate inaction. In 2023—2024, Zambia's cholera outbreak — fuelled by floods that contaminated drinking water — overwhelmed health systems. "We saw over 20,000 cases," she recalls. "Facilities couldn't cope. The government had to convert the national stadium into a treatment centre." Similarly, in Cameroon, landslides blocked access to health facilities, displacing communities and straining already fragile systems. In Kenya's arid north, drought has pushed malnutrition rates to 53 % among children, a crisis she describes as "unprecedented." "These aren't isolated events," she warns. "They're the new normal, and our health systems aren't prepared."

EPN's approach combines capacity building with climate adaptation and highlights the advantages of localized, adaptive interventions. It is rooted in both practical adaptation and a commitment to justice. Judith's team focuses on infection prevention and control (IPC), waste management, and training healthcare workers to assess climate risks. "We're introducing risk assessment tools, so facilities can prepare," she says. "But adaptation isn't just about reactive measures — it's about building resilience before disasters strike." For example, during Zambia's cholera crisis, EPN supported IPC committees to ensure that handwashing stations and personal protective equipment (PPEs) were available — small but critical steps mitigating the outbreak's impact. Civil society organizations often serve marginalized groups, including pastoralists, the elderly, and displaced communities.

> "Health was an afterthought in climate policy. Now, we're playing catch-up. We need adaptive public health systems, and we need to work together — governments, civil society, and the private sector."



Simbabwe Supplying drinking water is a difficult task in remote areas of Africa. Brot für die Welt's partner organisation MeDRA relies on solar-powered pumps, as seen here in the village of Mbizvon.

Judith critiques the siloed nature of climate and health policymaking. For example, Kenya's climate and health strategy for 2024—2029 (Ministry of Health, Republic of Kenya, 2023), she notes, was developed by an inter-ministerial task force — but civil society, including EPN, was only consulted in the final stages. "We were brought in when the document was nearly finalized," she says. "That's not real collaboration." She contrasts this with Kenya's antimicrobial resistance (AMR) strategy, where stakeholders were involved from the start. "Early engagement leads to better policies," she argues. EPN is now pushing for greater inclusion in the national and international climate policy process, including the Global Goal on Adaptation (GGA).

Financing remains a critical bottleneck. "Climate change isn't a priority in health budgets," she observes. "Governments focus on competing needs, but climate impacts — like cholera or malnutrition — are already straining systems." She calls for targeted financing and social protection for vulnerable groups, such as pastoralist communities in Kenya's north, where drought and insecurity compound health risks. She also urges donors to support context-sensitive, community-trusted models of care. Unlike private sector companies, civil society organizations are accountable to communities, not shareholders. "Pharma companies might sell heat-stable drugs, but they're not investing in the systems that deliver them," she says.



Kenya The Ecumenical Pharmaceutical Network is committed to strengthening the healthcare system in Africa.

Judith acknowledges that global platforms like UNFCCC and COPs and decisions on establishing a GGA have raised awareness of the climate-health nexus domestically. "Since the COPs started discussing health, there has been more attention," she says. Yet, she warns that political will and funding remain inadequate. "Health was an afterthought in climate policy," she reflects. "Now, we're playing catch-up." She points to the COP28 climate-health declaration which was supported by a cumulative of $1 billion — but follow-through has been unclear. "Accountability is missing," she asserts. "We need mechanisms to track these commitments."

For Judith, the path forward is clear: integrate climate adaptation into public health, strengthen disaster preparedness, and ensure equitable access. "We need adaptive public health systems," she urges. "And we need to work together — governments, civil society, and the private sector."

How Ethiopian Churches Are Responding to the Climate-Health Crisis



Tewaney Seifesellassie
Senior Climate Advisor at the Ethiopian Orthodox Church Development and Interchurch Aid Commission

> "Health can't be marginalized in climate policy .We need global solidarity — debt relief, climate finance, and policies that prioritize the most vulnerable."

Intensifying climate impacts in Ethiopia — droughts, floods, and extreme heat — represents a public health emergency and threat to healthcare systems. Tewaney Seifesellassie, Senior Climate Advisor at the Ethiopian Orthodox Church Development and Interchurch Aid Commission, offers a ground-level perspective on how climate hazards are reshaping health outcomes and what this means for global and national adaptation efforts. His insights underscore the urgent need for integrated policies, equitable financing, and community-centered solutions to build resilience in one of Africa's most climate-vulnerable nations that will host the COP32 in 2027.

Since 1980, the country has experienced more than ten severe droughts, each triggering cascading health crises: malnutrition spikes, malaria outbreaks, and mass displacement. In 2024 alone, 7.3 million people were affected by malaria, a disease closely linked to changing rainfall patterns and rising temperatures, according to Tewaney. Regions like Oromia, Benishangul-Gumuz, and the Somali and Afar areas are particularly hard-hit, where droughts have pushed malnutrition rates to emergency levels. Floods, too, have devastated communities in Gambela and South Omo, contaminating water sources and fuelling cholera and typhoid outbreaks. These climate-induced health crises are not isolated events, as Tewaney notes, "Climate change is not just an environmental issue — it's a health emergency that demands adaptive policies and urgent action."

Conflict, often exacerbated by climate-induced resource scarcity, has further strained Ethiopia's healthcare infrastructure. In Tigray and Amhara, where disputes over fertile land — aggravated by drought and soil degradation — have escalated into violence, destroying 80 % of hospitals in some regions. "When land becomes scarce, tensions rise, and health systems collapse," Tewaney explains and adds that "These conflicts are climate-induced in many ways." The result is a fragile healthcare network ill-equipped to withstand climate-induced extreme weather events.

In this context, the Ethiopian Orthodox Church and its civil society partners are often the first — and sometimes the only — responders. "We provide humanitarian aid, rebuild clinics, and advocate for those who are left behind," Tewaney says. Their work spans emergency relief, healthcare reconstruction, and long-term climate adaptation and resilience-building. During droughts, they distribute food and water; after floods, they restore damaged health facilities. They also train local healthcare workers to recognize and respond to climate-sensitive diseases like malaria and malnutrition. "Our role isn't just about aid," Tewaney emphasizes. "It's about dignity, justice, and ensuring no one is forgotten."

Ethiopia's National Adaptation Plan (NAP) (Ethiopia 2019), adopted in 2021, includes health as one of its 18 pillars — a recognition of the climate-health nexus. However, implementation has been hampered by critical gaps. A civil society evaluation coordinated by Tewaney's organization identified transboundary climate risks as a major oversight. Pastoralist communities living in border regions — such as those between Ethiopia, Kenya, and Somalia — are particularly vulnerable, yet national adaptation strategies often fail to address their needs. "These groups fall through the cracks," Tewaney says. "We need transboundary early warning systems and coordinated adaptation efforts to protect them, inclusive healthcare access, and financing that reaches the grassroots." Another challenge is disjointed data systems that hinder effective monitoring and response. Without robust data, policymakers struggle to track and respond to the incidents of climate-sensitive disease outbreaks like malaria or anticipate where the next drought-induced malnutrition crisis will strike. Their advocacy extends to international forums, where they demand that climate finance mechanisms prioritize local, community-led solutions over top-down approaches.

Financing remains the most significant barrier to implementing Ethiopia's adaptation goals. The country's 2019 Climate Resilient Green Economy Strategy (with embedded adaptation goals) requires $25 billion (Ethiopia 2019), yet only 10 % of the expected climate financing has been secured. Compounding this, 66 % of Ethiopia's national revenue is diverted to debt servicing (Hailu 2025), leaving minimal resources for health,

education, or climate adaptation. “We’re in a debt crisis,” Tewaney emphasizes.“ Climate adaptation can’t happen without addressing this financial strain.” “We’re doing what we can, but we can’t replace systemic change,” Tewaney admits. “We need global solidarity — debt relief, climate finance, and policies that prioritize the most vulnerable.” The result is a zero-sum game where health budgets are channelled to respond to climate disasters, further weakening an already fragile system.

Despite these challenges, Ethiopia’s faith-based civil society organizations and churches are demonstrating how localized, community-centred adaptation can work. The Ethiopian Orthodox Church, for example, manages 400,000 hectares of church forests, which sequester an estimated 2 million tonnes of CO_2 annually. “These forests have been protected for centuries, not because of climate policies, but because of our theological commitment to ‘care for creation,’” Tewaney explains. The church’s teachings on environmental stewardship — rooted in biblical principles — have made it an unintentional pioneer in climate adaptation. “We’ve been doing this long before the world started talking about net-zero,” he notes. For COP32, he plans to showcase these indigenous solutions as proof that faith, civil society, and climate action go hand in hand.

Tewaney’s message to the global climate adaptation community is clear: “Health can’t be marginalized in climate policy,” he asserts. “We need adaptive health systems, transboundary cooperation, and financing that prioritizes the most vulnerable. Without these, we’ll continue to suffer under crises that could have been prevented.” As Ethiopia prepares to host COP32, Tewaney’s work serves as a reminder that effective adaptation requires not just technical solutions but a commitment to equity, community engagement, and the political will to act.



Ethiopia A reliable supply of drinking water in arid and drought-prone areas of Ethiopia is one of the key measures for adapting to climate change.

Closing the Gap Between National Policy and Local Implementation



Kuber Adhikari
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In Laos, climate change poses an escalating threat to vulnerable populations, particularly women, children, ethnic minorities, and remote rural communities. Frontline observations highlight an "increased incidence and geographical spread of climate-sensitive diseases such as vector-borne diseases (dengue fever) and water-borne diseases," triggered by shifting rainfall patterns and rising temperatures. Extreme weather events frequently cause "damage to health infrastructure and disruptions to healthcare delivery," compounding climate-induced food insecurity and severely undermining maternal and child health outcomes. Experience from GCF-funded initiatives reveals that "rural health facilities often face challenges related to emergency preparedness, service continuity, and limited capacity to respond to climate-sensitive health risks."

To build resilience, priority interventions must span disaster risk reduction, public health surveillance, and locally led adaptation. Strengthening health facility infrastructure, training staff, and integrating climate data for disease modeling are critical steps to prepare for climate shocks. While the Lao government has increasingly recognized these threats by embedding health adaptation into its NDC 3.0 and supporting the implementation of the Health National Adaptation Plan (HNAP), structural execution challenges remain.

The policy development process is primarily driven by national ministries, such as the Ministry of Health and the Ministry of Natural Resources and Environment, alongside technical development partners like WHO, UNICEF, and Save the Children. However, non-state actors face a distinct divide in influence: "The role of CSOs is more active and prominent on implementation than in policy development." Moving forward, systematic community participation and local accountability mechanisms need substantial reinforcement to ensure policies truly reflect grassroots realities.

> "Important gaps remain at sub-national levels. Provincial and district-level officials have limited understanding of national climate-resilience strategies, frameworks, and coordination mechanisms."

A major bottleneck to effective response is the stark capacity divide across governance levels. While high-level decision-makers demonstrate growing understanding — spurring national initiatives like the Safe, Clean, Green, Climate-Resilient Healthcare Facility framework — knowledge drops off sharply outside the capital. As field reporting emphasizes: "Important gaps remain at sub-national levels. Provincial and district-level officials have limited understanding of national climate-resilience strategies, frameworks, and coordination mechanisms." Moreover, many frontline healthcare workers have received "limited training on climate-sensitive diseases and climate-resilient health service delivery," leaving them ill-equipped to handle climate-induced surges in illness.

At the global and strategic level, organizations active in Laos align their efforts with UNFCCC climate adaptation frameworks, WHO health system guidance, and Locally Led Adaptation (LLA) principles. Addressing these intersectional risks requires commitment to health equity. Climate hazards disproportionately affect marginalized groups through limited access to emergency services and ethnolinguistic barriers to health information.

Promoting true resilience demands that equity be built into every stage of planning. Actionable solutions must focus on prioritizing underserved areas, integrating gender, disability, and social inclusion into program design, and direct funding mechanisms to local levels. Most importantly, policy design and financial investment must respect local heritage, ensuring that "indigenous knowledge and community priorities inform adaptation investments" to safeguard the health of all communities across Laos.



Laos Community Adaptation planning guideline training

Call for action at COP31 and COP32

Advocacy for effective, relevant, and science-informed GGA climate and health indicators

COP30 left many unresolved questions regarding the implementation, sequencing, and governance of the Global Goal on Adaptation (GGA). The two-year policy alignment process under the Belém to Addis Vision on Adaptation remains loosely defined, with limited clarity on which policies it must align with. At SB64, held in Bonn in June 2026, GGA negotiations collapsed into Rule 16 after deep divisions between developed and developing nations over adaptation finance commitments and task force governance.[3] Despite late-stage compromises, a "take-it-or-leave-it" text was rejected, and Head of Delegation talks failed. This lack of consensus leaves the adaptation agenda highly contentious heading into COP31, stalling critical progress for vulnerable communities.

Ideally, the adopted indicators should serve as placeholders within an iterative, science-informed UNFCCC multilateral process. To move forward, an agreement on common definitions — such as climate-resilient health systems, climate health services, and climate determinants of public health — is urgently needed, as most of the concepts used in the GGA framework are not yet standardized.

Greater synergies are also required between global climate and health institutions and funding sources to maximize the effectiveness of limited resources. Aligning the GGA with the COP30 Belém Health Action Plan for Adaptation of the Health Sector to Climate Change — and integrating it with the WHO Climate and Health Frameworks under the Alliance for Action on Climate Change and Health (ATACH) — will be vital to ensure coherence across institutions. COP29 affirmed that the GGA would remain a standing agenda item beyond COP30, an important institutional development that could help consolidate adaptation discussions under a single, coherent framework. Furthermore, integrating and creating synergies with other global health frameworks — such as One Health and Planetary Health — would further strengthen the GGA process.[4] The next COPs could also invest in identifying globally recognized health data collection tools (e.g., the Global Burden of Disease, SDGs, Sendai Framework, and UNSD climate statistics) and consider adopting their tier-system methodology.

While the political agreement at COP30 marked a step forward, the technical foundations of the adopted indicators require significant strengthening. The next phase must focus on pilot testing to assess feasibility, even if initially limited to a small group of willing countries. Developing metadata will be central to this process. For most indicators proposed by technical experts (UNFCCC 2025d), partial metadata already exists, but for those newly introduced by the COP30 Presidency (UNFCCC 2025c), development must begin from scratch. Under optimal conditions — with adequate resources, established international custodian agencies, and strong engagement from national statistical systems — metadata creation could take three to six months. This work must include testing, refinement, contextualization, and population of the indicators. In several cases, it will also require a careful assessment of whether coherent methodologies can be developed at all. In this regard, the ATACH Task Team on Climate Change and Health Indicators (WHO 2026b), the Standards for Official Statistics on Climate-Health Interactions (SOSCHI) project, led by the UK Office of National Statistics (SOSCHI 2022), and the Monitoring of Climate Change-related Health Aspects (MOCCHA) project, led by the Robert Koch Institute in Germany (RKI 2025), stand as promising initiatives in tracking and integrating the climate-health nexus at global and national levels.

The persistent inequities in data availability present a major challenge. Many proposed indicators have been developed by high-income countries with sophisticated data infrastructure, while African countries — despite experiencing a disproportionate share of climate vulnerability — contribute comparatively little to the global climate-health evidence base. The majority of existing research is produced externally, limiting its relevance for national monitoring and decision-making and reducing opportunities for local ownership.

3 In UNFCCC negotiations, Rule 16 is a procedural tool used when negotiators cannot agree on an agenda item. It means that, because discussions stalled and no formal conclusion was reached, the topic is automatically deferred to the next session without a decision.

4 One Health integrates human, animal, and environmental health, recognizing their interdependence to address global challenges like zoonotic diseases and antimicrobial resistance. Planetary Health focuses on the health of human civilization and the natural systems on which it depends, emphasizing sustainability and ecosystem balance.

To address these barriers, support for means of implementation — finance, capacity-building, and technology development and transfer — must become a high priority. Beyond the question of how much adaptation finance will be mobilized, attention must also turn to the nature of that finance. Access to new and additional finance, particularly grant-based funding, and effective modalities for local access are essential to ensure that developing countries can invest in adaptation without exacerbating debt burdens. For the GGA to succeed, developing countries must receive adequate financial and technical support to meet reporting expectations and implement effective adaptation actions. In this regard, COP31 and COP32 should contribute to rebalancing global climate governance, giving developing countries a stronger voice and better access to resources.

A major concern revolves around the disaggregation of data by social vulnerability, which — although mentioned in the COP30 decision — remains entirely voluntary for Parties. Socially differentiated impacts lie at the core of adaptation policy, and the capacity to monitor exposure, sensitivity, and adaptive capacity across gender, age, income, disability, Indigenous identity, and other context-specific dimensions is indispensable for an equitable GGA. The original expert indicator list, attached to the COP30 decision as a knowledge product, includes a detailed disaggregation column to guide countries and international agencies in developing metrics that reflect vulnerabilities rather than national averages.

While most countries have policies and plans to reach vulnerable populations disproportionately affected by climate change, far fewer have measures to monitor or finance them. Credible indicators disaggregated by social vulnerability are essential for budget advocacy. Without trusted metrics embedded in official systems, ministries will struggle to justify allocations from national treasuries or align investments across sectors. Within the UNFCCC, the lack of such disaggregation risks masking intra-country inequities and undermining the credibility of the GGA process. Failing to socially disaggregate data would render the indicators unsuitable for monitoring climate impacts on vulnerable communities or assessing whether adaptation efforts are effective. Needless to emphasize the contribution of non-state actors in collection and reporting on climate vulnerable communities, as their projects are often concentrated on covering the matrix of vulnerable districts and communities at regional, national, and local levels.

Institutional clarity remains another critical gap. The membership and operational modalities of the mandated Expert Task Force were not confirmed until the next Subsidiary Bodies session in Bonn in June 2026, delaying the start of technical work. The COP30 decision also calls for a comprehensive Technical Paper to guide the use of indicators, identify gaps and synergies, and support the alignment of National Adaptation Plans (NAPs) with the GGA. This paper will be a critical entry point for expert communities to contribute to the next stage of work towards establishing an effective climate adaptation infrastructure.

Custodian agencies for many indicators remain unresolved. Some existing custodians may be hesitant to commit to such a political process, while some Parties resist assigning roles to agencies outside the UNFCCC, despite the fact that no existing UNFCCC body has the technical capacity or resources to manage indicator development and data governance at the required scale. This issue must be resolved urgently to ensure methodological integrity and equitable support for developing countries.

The COP30 outcome on the GGA represents a politically significant but technically fragile step forward. The technical tools are now generally defined, but the challenge lies in bridging the gap between scientific complexity and policy action, building institutional capacity, and securing the political, financial, and administrative commitments needed for success. The Belém Adaptation Indicators provide a starting point, not an endpoint. Their credibility — and their ability to support effective adaptation in a rapidly warming world — will depend on a sustained commitment to scientific integrity across all GGA targets.

Looking ahead to COP31 and COP32, the focus must shift to operationalizing these indicators in a way that is inclusive, equitable, and responsive to the needs of the most vulnerable. This will require not only technical refinement but also political will, financial resources, and a renewed emphasis on global solidarity. The road ahead is complex, but the stakes — protecting human health in the face of climate change — could not be higher.

The inclusion of a Health Thematic Day at COP31 in 2026 — explicitly centered on dynamic and resilient health systems — signals a growing recognition of the climate-health nexus as a policy priority. However, the true test of this commitment will be whether the Presidency can catalyze negotiations to operationalize this nexus through concrete, equity-centered frameworks and binding mechanisms.

Policy recommendations

UNFCCC stakeholders

- Maintain a strong multilateral approach centered on equity, rights, and justice, and aligned with the priorities of climate-vulnerable countries and frontline communities.
- Disaggregate all indicators by social vulnerabilities: age, gender, disability, and other categories to measure adaptation's impact on vulnerable populations.
- Prioritize indicators reflecting the unique vulnerabilities of children under five and marginalized groups.
- Foster collaboration between health ministries, environmental ministries, meteorological offices, and disaster managers to integrate climate services.
- Support integrating weather and climate information into health planning and response efforts.
- Organize workshops under the Baku Adaptation Roadmap (BAR) to address data disaggregation challenges.
- Integrate CSO and local perspectives early in climate-health strategy development and in COP negotiations, including the GGA.
- Support the change from traditional notions of capacity building toward capacity sharing, recognizing reciprocal learning between institutions in the Global South and Global North.
- Bridge the gap and accelerate the translation of scientific evidence on climate-health nexus into routine decision-making.
- Support national ownership, long-term systems financing, and the integration of climate–health evidence into the routine machinery of government and health protection planning.

Policy Development

- Focus on solution-oriented policy, aligning indicators with existing frameworks.
- Align the GGA and COP30 Belém Health Action Plan (BHAP) with WHO Climate and Health Frameworks.
- Support countries in transitioning from pilot projects to permanent systems through sustained collaboration.
- Emphasize national ownership, long-term financing, and integration of climate-health evidence.
- Review adaptation frameworks, policies, and indicators for potential maladaptation to ensure net benefits for society and the environment.
- Elaborate climate and health nexus connections with economic costs and highlight the mitigation co-benefit of health programming. The healthcare sector represents 10 % of the global economy, and it is one of the largest employers in the world.

Finance

- Ensure that international budgets of developed countries reflect “The polluter pays” principle, particularly in funding streams for humanitarian aid, development, climate action, and global health.
- Ensure that developing countries, especially the poorest and most vulnerable countries, have the resources, knowledge, and policy space required to achieve climate-resilient development.
- Advocate for increased grant-based climate adaptation finance to reduce debt burdens.
- Ensure subnational and non-state actors have direct access to finance and support for national/subnational reporting systems.
- Advocate for timely, equitable, and unconditional access of developing states to liquidity and macroeconomic stability tools.
- Advocate for increased donor investments in non-state actors from LMICs and LDCs.
- Shift resources from externally driven research toward locally led analysis, technology transfer and development, and innovations that reflect local contexts and strengthen ownership.
- The international community should triple adaptation finance based on the Glasgow promise to provide at least 120 billion USD by 2030 and 150 billion USD by 2035.

Conclusion

The intersection of climate change and health represents one of the most pressing challenges of our time. As global temperatures rise, the health impacts of climate change — from heat-related mortality to the spread of infectious diseases — are becoming increasingly severe, particularly for vulnerable populations in the Global South. The Global Goal on Adaptation (GGA), established under the Paris Agreement, offers a critical framework for addressing these challenges, but its success hinges on robust implementation, equitable financing, and inclusive governance.

The evolution of the GGA reflects a growing recognition of adaptation as a cornerstone of climate policy. From its origins in the Kyoto Protocol's mitigation-focused approach to its current emphasis on resilience and equity, the GGA has gradually expanded to encompass a broader range of climate impacts, including health. However, the process has not been without challenges. Political disagreements, data inequities, and institutional gaps have slowed progress, particularly in ensuring that the most vulnerable communities — who contribute the least to climate change but suffer its worst effects — are adequately supported.



Somalia Civil society organisations such as the 'Sustainable Development and Peace Building Initiative' play a crucial role in tackling the consequences of the climate crisis.

The adoption of the Belém Adaptation Indicators at COP30 marked a significant milestone, providing a foundation for tracking progress on climate and health adaptation. Yet, these indicators remain a work in progress. Technical refinements, pilot testing, and metadata development are urgently needed to ensure that the indicators are both scientifically rigorous and practically feasible. Moreover, the lack of standardized methodologies and custodian agencies poses risks to data integrity and comparability, particularly for developing countries that already face significant capacity constraints.

Civil society organizations have emerged as vital partners in this process. From advocacy and monitoring to on-the-ground implementation, CSOs play a crucial role in ensuring that adaptation efforts are inclusive and responsive to local needs. Their involvement is particularly critical in addressing the gaps in data availability and social disaggregation, which are essential for designing equitable adaptation policies. As the negotiations on the GGA move forward, the active engagement of CSOs — alongside governments, international agencies, and scientific communities — will be essential for bridging the gap between global commitments and local action.

Looking ahead, COP31 in 2026 and COP32 in 2027 present an opportunity to consolidate and build on the progress made at previous COPs. Key priorities include securing adequate financing for climate-health nexus adaptation, strengthening institutional capacity, and ensuring that the voices of vulnerable communities are heard in global decision-making. The success of the GGA will ultimately depend on its ability to deliver tangible benefits to those who need them most — protecting health, reducing inequities, and building resilience in a warming world. In this endeavor, global solidarity, scientific integrity, and a commitment to justice must guide the way forward.

Abbreviations

AP	Adaptation Committee
AMR	Antimicrobial resistance
ATACH	Alliance for Action on Climate Change and Health at WHO
BAI	Belém Adaptation Indicators
BAR	Baku Adaptation Roadmap
BHAP	COP30 Belém Health Action Plan
CDC	Centre for Disease Control
COPs	Annual Conferences of Parties
COPD	Chronic obstructive pulmonary disease
CSO	Civil society organizations
DRR	Disaster Risk Reduction
EWS	Early Warning Systems
FAO	Food and Agriculture Organization
FRLD	Fund for Responding to Loss and Damage
GCF	Global Climate Fund
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GGA	Global Goal on Adaptation
ICJ	International Court of Justice
ILO	International Labor Organization
IPC	Infection, prevention, and control
I-CAN	Initiative on Climate Action and Nutrition
LEG	Least Developed Countries Expert Group
LDCs	Least Developed Countries
LMICs	Low and Middle Income Countries
MOCCHA	Monitoring of Climate Change-related Health Aspects project, led by the Robert Koch Institute in Germany
NAPs	National Adaptation Plans
NCDs	Non-communicable diseases
NDCs	Nationally Determined Contributions
NCQG	New Collective Quantified Goal
OCHA	UN Office for the Coordination of Humanitarian Affairs
SOSCHI	Standards for Official Statistics on Climate-Health Interactions project led by the UK Office of National Statistics
UHC	Universal Health Coverage
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations International Children's Emergency Fund
UNSD	United Nations Statistical Division
WASH	Water, sanitation, hygiene
WFP	World Food Programme
WHA	World Health Assembly
WHO	World Health Organization
WHS	World Health Summit
WMO	World Meteorological Organization

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