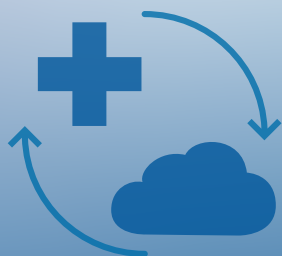


Ten years of the Paris Agreement

A global review of health in nationally determined contributions



Ten years of the Paris Agreement

A global review of health in
nationally determined contributions

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Abbreviations and acronyms

CSHRs	climate-sensitive health risks
EU	European Union
GHG	greenhouse gas
GST	Global Stocktake
HNAP	health national adaptation plan
L&D	loss and damage
NAP	national adaptation plan
NDC	nationally determined contribution
PM	particulate matter
SDG	Sustainable Development Goal
SLCP	short-lived climate pollutant
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organization



Introduction

Climate change is not a distant environmental threat, but a present and escalating public health emergency. It is fundamentally reshaping the determinants of health, with far-reaching consequences for communities, particularly most-at-risk populations such as children, women, older adults, Indigenous Peoples and persons with disabilities (1). For instance, in 2023, heat-related deaths of adults older than 65 years reached the highest level recorded to date and the global monetized value of heat-related deaths of this age group increased by 236% to US\$ 240 billion in 2023 compared with the 2000–2004 average (2). This highlights the significant and growing health burden of climate change, with disproportionate impacts on most-at-risk populations – in this case, older people. The changing climate drives a myriad of health risks, including injuries, waterborne, foodborne and vector-borne diseases, mental health challenges and health system disruption. Climate change undermines essential ecosystem services, such as air, food and water, with significant impacts on health. It also places additional stress on the already fragile and overburdened health systems of low- and middle-income countries (1).

What are nationally determined contributions 3.0?

Countries¹ are accelerating efforts to limit the impacts of climate change while safeguarding public health. One such effort is the development and implementation of nationally determined contributions (NDCs), which are country-specific national climate plans that set targets and actions for reducing greenhouse gas (GHG) emissions and increasing climate adaptation and resilience (3). NDCs are the main instruments through which governments implement the Paris Agreement at national level.

In 2015, countries communicated their first NDC; and their new or updated NDC in 2020. In line with the 5-year cycle of NDC enhancement, the third generation of NDCs (referred to as NDCs 3.0) were due

¹ Any reference to “countries” in this report should be understood to refer to “countries and areas”. Reference to “nationally determined contributions” is without prejudice to questions of status and should not be understood to imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

for submission in 2025, reflecting enhanced ambition and implementation-focused climate action and setting out countries' planned climate actions to 2035 (4).

Why include health?

Climate action is a public health imperative and a powerful argument for governments and communities to act. Protecting human health depends on ambitious mitigation efforts, particularly the transition away from fossil fuels, as phasing out of fossil fuels will improve air quality and thus respiratory and cardiovascular health as well as other organ systems;² and building climate-resilient health systems (1, 5).

Health integration across all components of NDCs promotes more ambitious climate commitments and supports coherence and synergy for health adaptation nationally and across sectors. Including health co-benefits in NDCs can provide a strong health argument for mitigation actions across all sectors, given the significant health gains from reducing GHG emissions (5–7). In addition, globally, the health sector contributes an estimated 5.2% of worldwide GHG emissions and can make contributions to economy-wide emissions reduction commitments (6). However, contributions to emissions vary among countries and it is critical to ensure health is integrated in the adaptation components of NDCs. The WHO *Quality criteria for integrating health into Nationally Determined Contributions (NDCs)* outlines six criteria for high-quality, robust and ambitious inclusion of health in NDCs³ based on the general structure of NDC documents (summarized in Annex 1) (8).

WHO is at the forefront of global efforts in supporting countries to integrate health in their national climate action plans, including NDCs 3.0. Key initiatives, such as the Alliance for Transformative Action on Climate and Health, support countries and the global climate and health community to accelerate action. The *WHO country support package on climate change and health* includes guidance and tools to support health integration in United Nations Framework Convention on Climate Change (UNFCCC) processes (9).

Global Stocktake results – health

The Global Stocktake (GST) is a periodic assessment process under the Paris Agreement that takes stock of global progress toward achieving the Agreement's long-term climate goals to inform NDC updates (10). The GST takes place every 5 years, with the first concluding in 2023 at COP28. The next GST, scheduled in 2028, aims to feed into the fourth round of NDCs (NDCs 4.0) due in 2030, which should be more ambitious than previous plans to help close the gap toward the Paris Agreement goals.

² For further information see the WHO series *Air quality, energy and health: science and policy summaries*. WHO; 2025 (<https://iris.who.int/handle/10665/382310>).

³ Healthy NDCs are national climate commitments that protect climate systems and advance human health and well-being for present and future generations.

In terms of adaptation, key health-related findings and outcomes of the 2023 GST include:

- The outcomes adopt the Global Goal on Adaptation, which includes a health-specific target.
- Targets in health-determining sectors are specified, related to improved resilience to water-related hazards (e.g. climate-resilient water supplies and sanitation), climate-resilient food systems, protection of ecosystems and biodiversity, and climate-resilient infrastructure and human settlements, reducing effects on livelihoods and protection of cultural heritage.

The 2023 GST urges countries to build resilience to climate change-related health impacts, strengthen climate-resilient health systems, and substantially reduce climate-related illness and death, particularly among the most vulnerable communities (10).

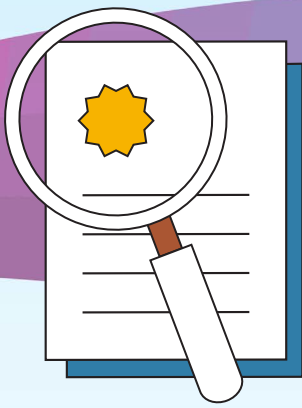
Purpose of this review

This assessment presents a global overview of health considerations in NDCs 3.0, highlighting examples of best practices as well as providing insights into how countries can enhance health integration while implementing climate action to achieve the Paris Agreement.

It complements the *Quality criteria for integrating health into Nationally Determined Contributions (NDCs)*⁴ (8), *Health in the nationally determined contributions (NDCs): a WHO review* (henceforth “2020 review”) (11) and the *2023 WHO review of health in nationally determined contributions and long-term strategies: health at the heart of the Paris Agreement* (henceforth “2023 review”) (12).

This assessment is intended to guide policy-makers and other stakeholders involved in the development of NDCs to prepare NDCs that are more health-inclusive across all relevant sectors to better protect human health through adequate adaptation actions, ambitious mitigation actions and rapid fossil fuel phase out.

⁴ This assessment is structured around the six components of the quality criteria for health integration in NDCs.



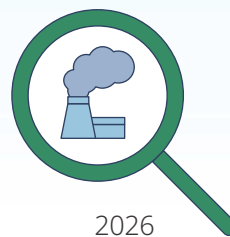
Headline findings

91% (128) of Parties⁵ mention health in their NDC.



59% (82) of Parties identify health co-benefits of climate mitigation in their NDC.

5% (4) quantify or monitor these benefits.



2026

22% (31) of Parties include stand-alone targets, measures or policies for the reduction of air pollution and/or short-lived climate pollutants (SLCPs).



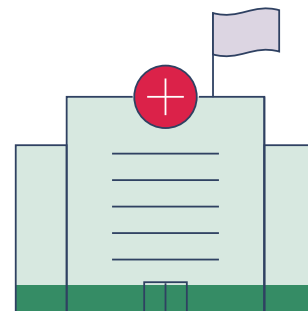
55% (77) of Parties include health-specific adaptation actions or targets.



59% (82) of Parties refer to climate-sensitive health risks (CSHRs) or outcomes in their NDC.



30% (21) of Parties include reference to health in the context of loss and damage (L&D).

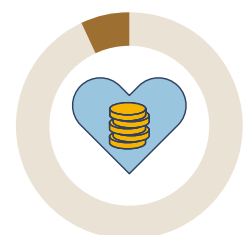


11% (15) of Parties include emissions reduction target or measure for the health sector.

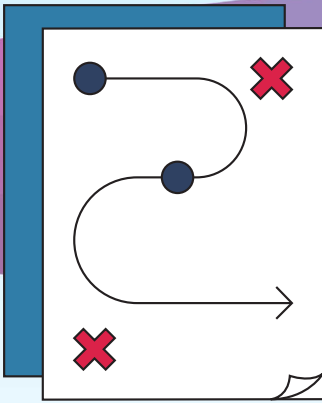
23% (32) of Parties estimate resources required to implement the health actions in the NDC.



7% (10) of Parties specified that at least a part of the climate-health finance target is unconditional.



⁵ The number of Parties in this document is equivalent to the number of countries that submitted an NDC. This includes the European Union (EU) NDC which represents 27 EU Member States. Therefore the number of NDCs analysed is 114 while the number of Parties is 140 (see [Methods](#) section).



Implications of the findings

Health is identified as a priority in national climate plans, evidenced by the mention of health considerations in a **large majority (91%) of the Parties' NDCs**. While many countries are already recognizing the importance of health in their climate strategies, there remains a valuable opportunity to strengthen this further.



Health co-benefits of mitigation action and air pollution targets

59% (82) of Parties identify a diverse range of health co-benefits of mitigation actions, including air pollution reduction, reflecting a substantial increase from 30% in the 2023 review. Only 5% (4) of these include the quantification or monitoring of these benefits.⁶

Reduced air pollution resulting from climate action offers significant health benefits. 22% of Parties (31) include measures to reduce air pollution or SLCs.

Identifying and quantifying health co-benefits and setting specific air pollution targets can strengthen the policy and economic case for climate mitigation, help countries justify stronger emissions reductions and lead to clear health benefits and significant improvements in life expectancy and well-being.

Targeting those air pollutants and emitting sectors that have a major impact on health, e.g. ozone and black carbon (see [Box 1](#)), in NDCs will result in maximum health gains. Other health benefits, although more difficult to quantify, can be gained through NDCs targeting those sectors responsible

⁶ Particulate matter (black carbon is a component of PM) and ozone are health-damaging pollutants for which health impacts quantification can be conducted. Not all air pollutants or SLCs directly impact health.

for pollutants that are precursors (e.g. methane, nitrogen oxides, volatile organic compounds) of health-damaging pollutants like ozone and fine particulate matter (PM). In countries that are Parties to the Convention on Long-Range Transboundary Air Pollution, the Gothenburg Protocol's binding PM_{2.5} targets represent a clear win-win opportunity, enabling aligned implementation that delivers on both air quality commitments and NDC targets. Parties are also encouraged to prioritize measures that reduce black carbon, as it is a component of PM (see [Box 1](#) for an assessment of black carbon in NDCs).

The results of this review highlight a clear potential to better leverage health evidence in advancing climate action.



Health sector mitigation

Only 11% of Parties (15 countries – three high income, five upper-middle income, five lower-middle income and two low income) include emissions reduction measures or targets for the health sector.

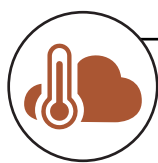
Health systems are responsible for an estimated 5% of global GHG emissions globally (6). This highlights opportunities for the health sector to contribute meaningfully to national climate targets, particularly for high-income countries whose GHG emission contributions are generally far greater than those of low-income countries (13), while maintaining the highest quality of care. Health sector mitigation action can also contribute to reductions in air pollution and health co-benefits.



Adaptation

Of the Parties, 59% (82) refer to CSHRs and outcomes and 55% (77) include health-specific adaptation actions or targets. Another 7% (10) refer to an adaptation plan, e.g. a national adaptation plan (NAP), in the context of health adaptation actions.

Inclusion of health adaptation by more than half of the Parties in their NDC shows that health adaptation and mitigation actions are increasingly aligned – turning climate action into a coherent strategy delivering joint gains for resilience, emissions reduction and population well-being.



Loss and damage to health

Health is mentioned in the context of loss and damage (L&D) by 29% of Parties (41) and selected financial implications of L&D to health are quantified in just three NDCs. This shows a considerable increase from the 2023 review where only 11% mentioned health in the context of L&D.

The identification and quantification of L&D to health are vital for gaining a clearer understanding of the risks, vulnerabilities and of the resources required to avert, minimize and address these impacts; integrating L&D to health into NDCs is a critical means of elevating its visibility and priority.



Finance

Regarding finance, 23% of Parties (32) estimate the resources required to implement health sector actions; however, only 7% (10) specify that at least some of the health-climate finance targets are unconditional.

Given the substantial and unmet health-climate finance needs, particularly for low-income countries, accelerating climate action will rely on strengthened commitments from countries with greater capacity, reflecting the principle of common but differentiated responsibilities.

Table 1 provides an overview of the results of assessed indicators for all three WHO reviews (2020, 2023, 2026). Overall, the results of this assessment show that health is considered a priority sector in the majority of NDCs, similar to the 2023 review. However, there remains a great opportunity to strengthen the depth, specificity and financial support of health-related climate actions. The next round of NDC enhancement in 2030 presents an important opportunity for countries to more fully and meaningfully integrate health co-benefits, include specific mitigation actions for the health sector, align national health adaptation planning, and allocate adequate resources to support effective implementation.

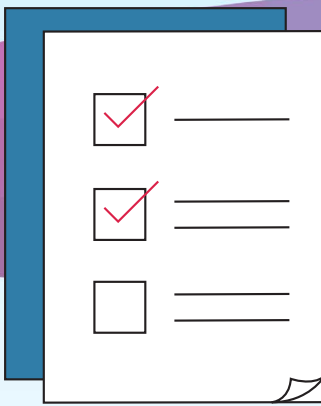
Table 1. Summary of key indicator trends for health in NDCs

Key indicator	2020 review (184 Parties)	2023 review (193 Parties)	NDCs 3.0 (2026) (140 Parties)
 Leadership and enabling environment			
Includes reference to human health and well-being	70%	91%	91%
Links NDC to health-related SDGs	N/A	23%	24%
Specifies that ministry of health (or equivalent national health agency) led the health contribution to the NDC	N/A	N/A	15%
Specifies an ongoing role of the ministry of health (or equivalent national health agency) in the NDC process	N/A	N/A	17%
 National circumstances and policy priorities			
Includes an evidence-based assessment of CSHRs or outcomes	10%	32%	36%
Identifies CSHRs or outcomes	47%	60%	59%
Quantifies CSHRs or outcomes	N/A	N/A	7% (of the 82 Parties that identify CSHRs)
 Mitigation			
Identifies health co-benefits of climate mitigation	10%	30%	59%
Quantifies and/or monitors the identified health co-benefits	1%	10%	5% (of the 82 Parties that identify health co-benefits)
Includes stand-alone targets, measures or policies for the reduction of air pollution including SLCPs	10%	16%	22%
Includes stand-alone emission reduction policies or targets for the health sector	N/A	11%	11%

Key indicator	2020 review (184 Parties)	2023 review (193 Parties)	NDCs 3.0 (2026) (140 Parties)
 Adaptation			
Includes health-specific adaptation actions or targets ^a	59%	63%	55%
Includes health in the adaptation actions in other sectors	N/A	N/A	38%
Links health adaptation to national health adaptation planning processes	21%	21%	51%
Identifies synergies between mitigation and adaptation for health	N/A	N/A	20%
 Loss and damage to health			
Refers to health risks, health outcomes or impacts on health systems and facilities when discussing climate-related L&D	N/A	11%	29%
Quantifies selected financial implications of L&D to health	N/A	N/A	7% (of the 41 Parties referring to L&D to health)
Includes interventions to address L&D to health	N/A	N/A	34% (of the 41 Parties referring to L&D to health)
 Finance			
Include estimated resources to implement the health measures in the NDC	N/A	N/A	23%
Is at least part of the climate-health finance target specified as unconditional?	4%	11%	7%

Notes: CSHRs – climate-sensitive health risks; L&D – loss and damage; N/A – not assessed/reported; NDC – nationally determined contribution; SDGs – Sustainable Development Goals.

^a A further 10 Parties (2026 review) referenced a separate health national adaptation plan (HNAP) or other document with health adaptation actions but did not include any detail in the NDC.



Methods

A content analysis of NDCs 3.0 communicated by 140 Parties⁷ to the Paris Agreement NDC 3.0 was conducted to assess the integration of health in NDCs. The 140 Parties' communications represent the third round of NDC submissions (NDCs 3.0) as listed by the UNFCCC (submitted between November 2024 and April 2026) and available on the UNFCCC's NDC Registry (as of 15 May 2026) (4) (see [Annex 2](#) for the list of Parties).

[Annex 3](#) shows the list of indicators assessed. The indicator framework used was a previously tested instrument adopted in the 2023 review. It was refined and updated for this current review considering the 2024 WHO *Quality criteria for integrating health into Nationally Determined Contributions (NDCs)* (8).

Five individuals conducted a total of 114⁸ NDC reviews (representing 140 Parties). More than half of the NDCs were assessed independently by two reviewers to ensure cross-validation and a shared understanding of the indicators. In cases of disagreement, the reasons for the different coding were examined, and if uncertainty remained, a third reviewer was consulted.

Data were collated in a Microsoft Excel spreadsheet and subsequently cleaned and analysed using Stata version 14 (StataCorp, College Station, TX, USA). Analyses were performed at the level of Parties listed by the UNFCCC to have submitted their NDC, noting that one submission (the EU NDC) represents 27 countries. [Annex 4](#) presents results using the number of NDCs (n = 114) as the denominator, in addition to the Party-based results (n = 140).

Documents in languages other than English were translated into English using Google Translate and DeepL Translate. To validate the accuracy of the translations, original documents were consulted

⁷ For the purpose of this review, the term "Party" is used to denote all 194 Parties to the Paris Agreement, as well as the USA, which submitted its NDC 3.0 before withdrawing from the Paris Agreement. This publication follows WHO style; however, it is noted that the terminology used in the context of the Paris Agreement may be at variance with that of WHO. The designations employed in this publication do not imply any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

⁸ 114 NDC documents were assessed including the NDC submitted by the EU on behalf of 27 countries. The analysis is conducted in relation to the number of Parties and not the number of documents.

during the assessments, and fluent speakers assessed a sample of original documents as part of the validation exercises.

Country examples were selected by document reviewers to demonstrate how health is reflected in nationally determined contributions (NDCs) across different geographic contexts, using WHO's quality criteria (8) as an analytical framework.

Limitations

There was significant heterogeneity among the documents in relation to the structure, scope and the level of sectoral detail. This review assessed only the data included in the NDC documents, and as such, may underestimate some aspects of the integration of health in the NDC process where this is not explicitly mentioned in the document. For example, the ongoing role of ministries of health in overall NDC coordination may not have been noted in the document whilst their engagement is occurring in practice and some Parties may include only national targets in the NDC and translate these to sectoral targets in other documents.

Additionally, the assessment of the indicators was subject to observer bias and inter-observer variability as reviewers' judgement was necessary for identification and classification of health-related content in NDCs 3.0 to some extent. Variations in terminology, framing and level of detail across NDCs 3.0 could lead to inconsistent interpretation.

This was addressed through the review of 64 documents by more than one reviewer. Discrepancies were discussed in validation meetings and decisions were reflected in the indicator definitions. Frequent discussions among the principal reviewers and authors were conducted to refine indicator definitions and promote consistency.

While the issues arising from the heterogeneity of the documents and potential misalignments between the documents and what occurs in practice cannot be resolved through validation processes, the assessment provides a unique and policy-relevant indication of global trends related to the integration of health in NDCs. In addition, the analysis highlights areas where Parties can improve transparency and inclusion of further detail in the future.



Findings: health in nationally determined contributions 3.0

Overall: **91%** (128) of Parties make a reference to health.

This corresponds to the finding of the 2023 WHO review:

91%
(175) (12).

The results section below is structured around WHO's *Quality criteria for integrating health in Nationally Determined Contributions (NDCs)* (8).



Leadership and enabling environment

Active ministry of health (or equivalent agency) leadership and an enabling environment for health integration in the NDC process are critical for meaningful integration of health and also support integration of climate considerations across public health programming and agendas.

Fig. 1. Ministry of health leadership

Only **15%** (21) of Parties specify in their NDC that the ministry of health led the health contribution.



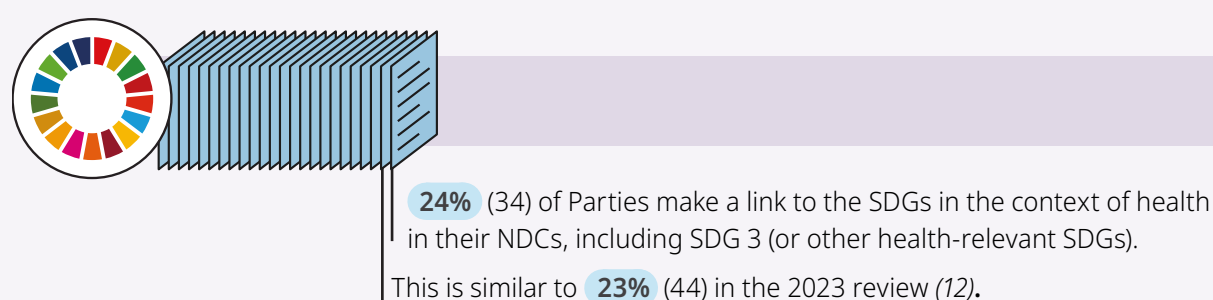
17% (24) of Parties specify an ongoing role for the ministry of health in the NDC process.



Even though few parties reported the ministry of health as the health lead it is likely that many more had involvement from the ministry of health, as evidenced by the results of the *2025 WHO health and climate change global survey*, which found that 60% of surveyed countries and areas (88 out of 145) reported the ministry of health contributed to the development of the country's NDC (14). Thirteen countries also reported the ministry of health provides training to build workforce capacity on climate change and health which includes health in NDCs (14).

For example, **Brunei Darussalam's** NDC identifies the ministry of health as the coordinating ministry for adaptation actions in the health and livelihood sector and **Cambodia's** NDC specifies ministry of health involvement in health-related adaptation measures.

Fig. 2. Synergies between climate action and sustainable development for health



Nigeria's NDC report identifies modal shifts in transportation which will reduce overall vehicular traffic and road traffic accidents, leading to improvements in air quality and health, and contributing towards achievement of SDGs. The NDC also aligns with SDG 3, highlighting that sustainable energy generation leads to better air quality, improving health and well-being.

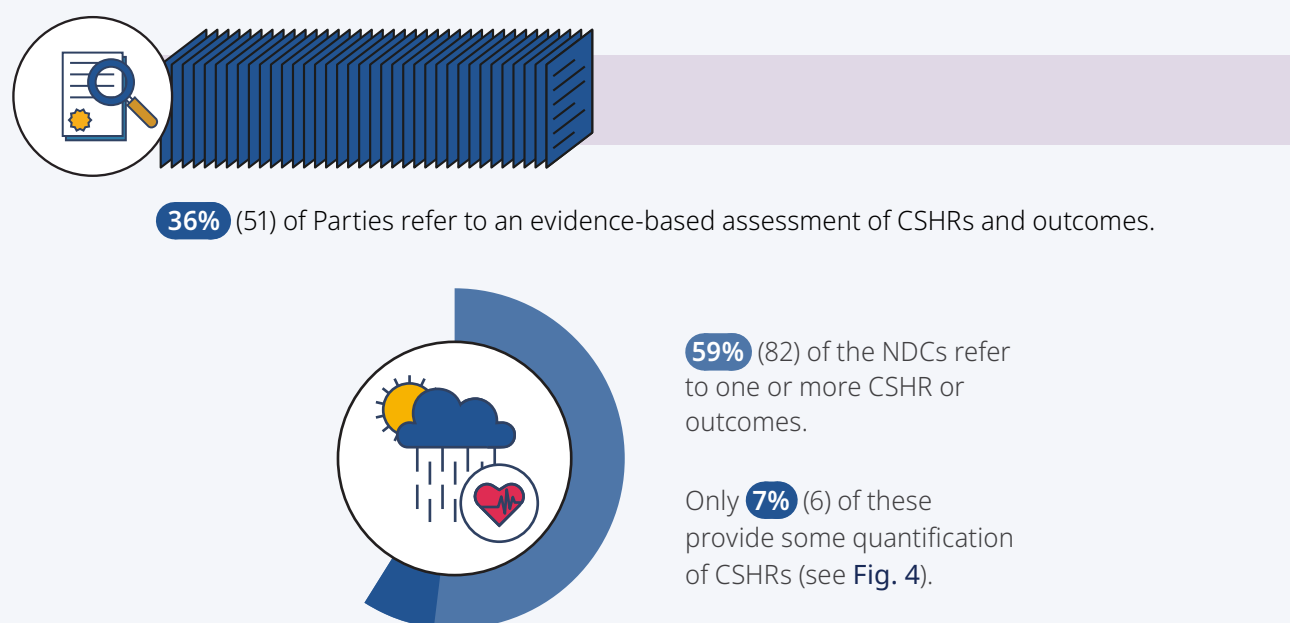
Fiji's NDC links L&D across all sectors, including L&D to health, with the SDGs impacted. For example, increased average ambient and sea-surface temperatures were linked to a range of health-related L&D, including impacts on water security and safety, food insecurity and malnutrition, vector-borne diseases and zoonoses, and mental and psychosocial health, with implications for SDGs 3, 5, 6 and 13.



National circumstances and policy priorities

To adequately include and address health considerations, NDCs should identify the national health context and vulnerabilities related to climate change, including existing health policy priorities and mandates, as well as current and projected risks to health. This review assessed the extent to which the NDCs describe a country's CSHRs.

Fig. 3. Identification and quantification of CSHRs and outcomes

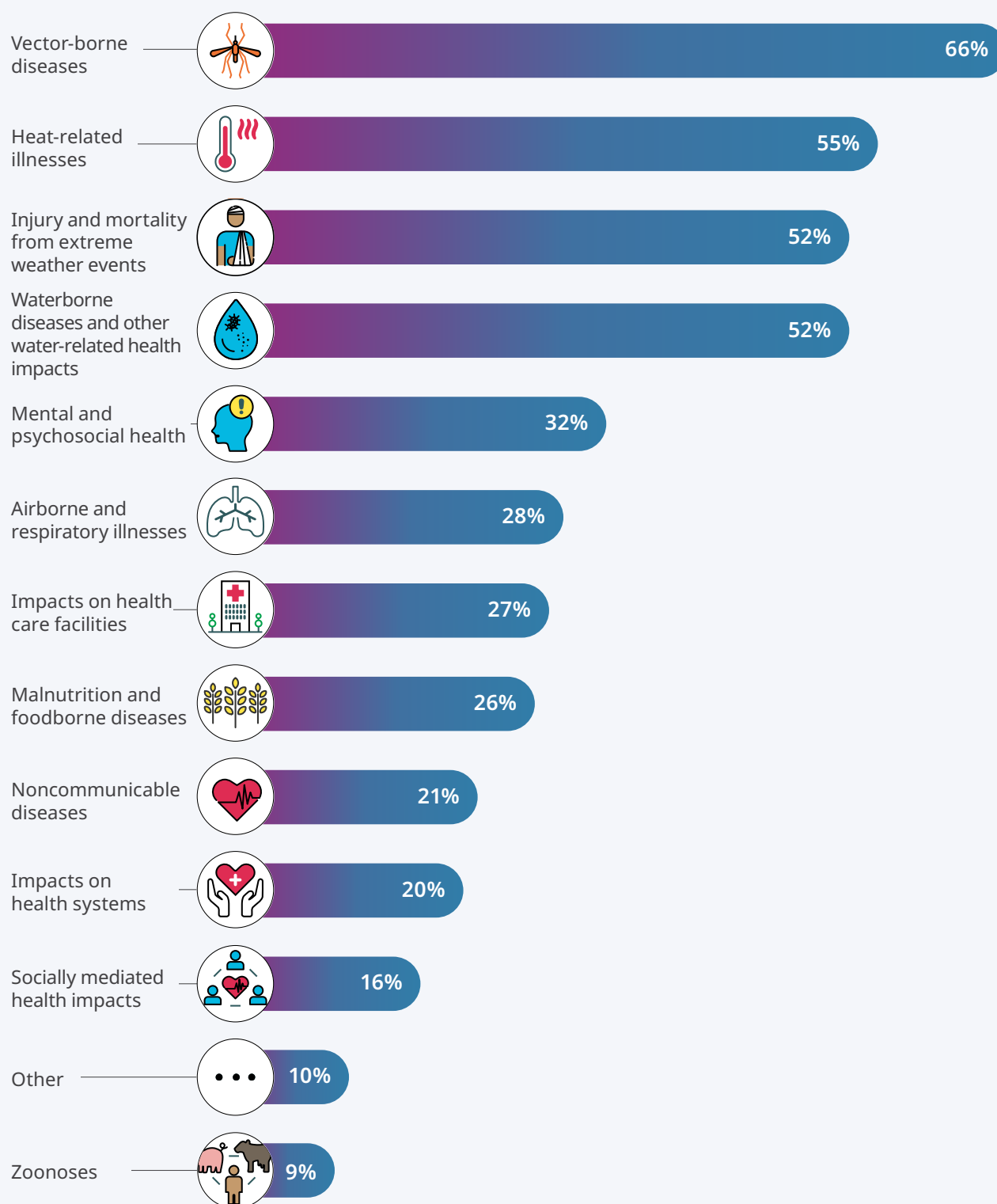


In the 2025 WHO health and climate change global survey, eight countries reported that a vulnerability and adaptation assessment informed the development of their NDC (out of 47 that reported having conducted a vulnerability and adaptation assessment since 2020) (14).

Liberia's NDC states that its health system is likely to face an increased burden of climate-sensitive diseases such as malaria, cholera and respiratory infections while flooding and heat stress also exacerbate public health risks in the country, particularly for children and older adults.

Lebanon's NDC reports that the health system is struggling to cope with increasing climate-related health risks, such as extreme weather events, heat-related mortality, waterborne diseases (cholera and typhoid), vector-borne diseases (malaria and leishmaniasis), respiratory conditions (asthma and chronic obstructive pulmonary disease), resulting in increasing hospital admissions. The NDC also highlights that the lack of climate-informed health planning has left health facilities vulnerable to extreme weather events, with heatwaves and power outages disrupting medical services.

The **Republic of Moldova's** NDC notes that 14% of the country's public health care facilities are at risk of flooding.

Fig. 4. Percentage of Parties referring to specific CSHRs and outcomes

Note: Percentages represent the proportion of the 82 Parties that refer to one or more CSHRs or outcomes.



Mitigation

The identification and, where feasible, quantification of the health co-benefits of mitigation actions provide strong arguments for more ambitious climate action and can be a key feature of NDCs. NDC mitigation commitments can be strengthened with the inclusion of air pollution targets and mitigation actions and targets for the health sector.

Fig. 5. Identification and quantification of health co-benefits

59% (82) of Parties identify health co-benefits of climate change mitigation in their NDC. This represents a substantial increase compared with the reviews in 2020 and 2023.

Only **5%** (4) of these quantify or monitor these benefits.

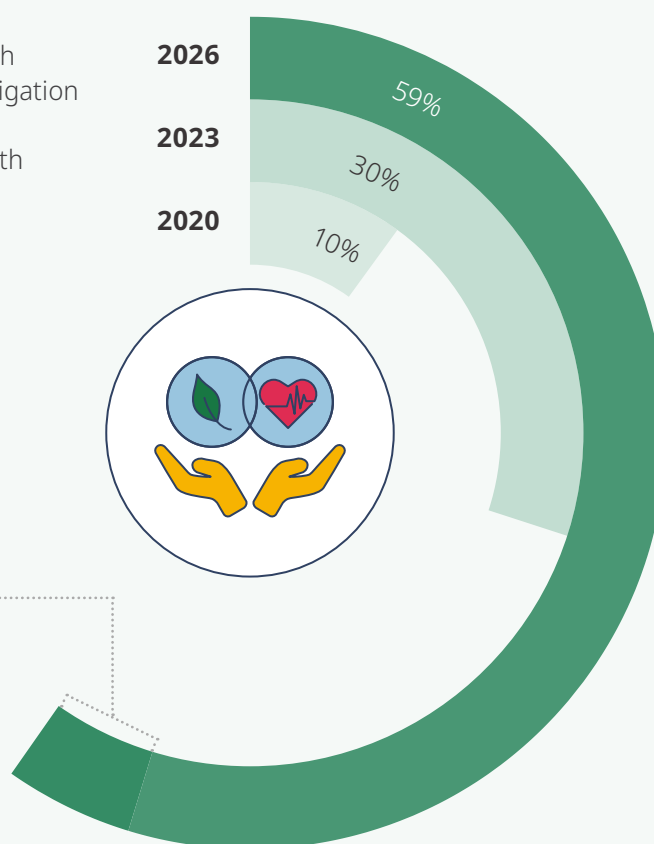


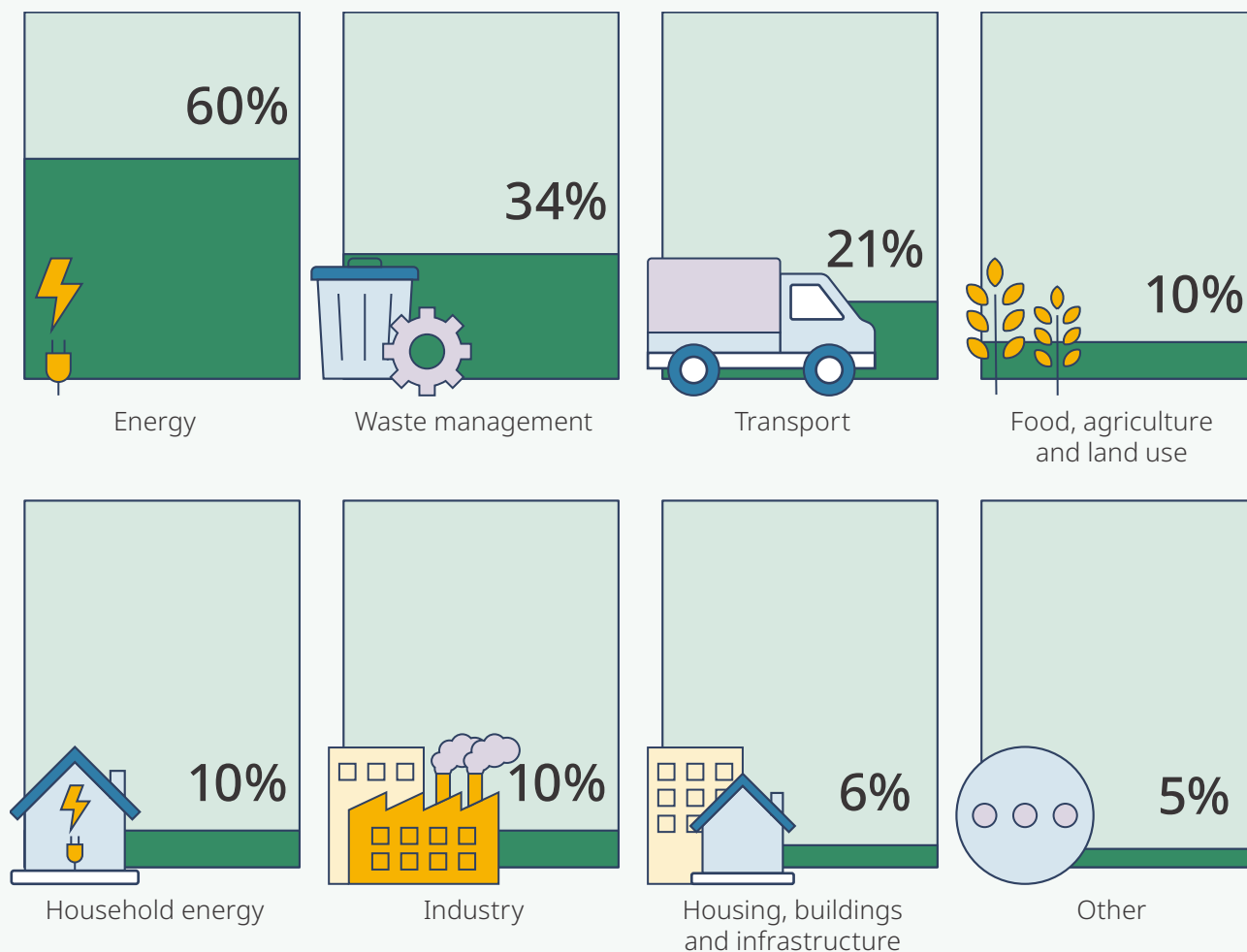
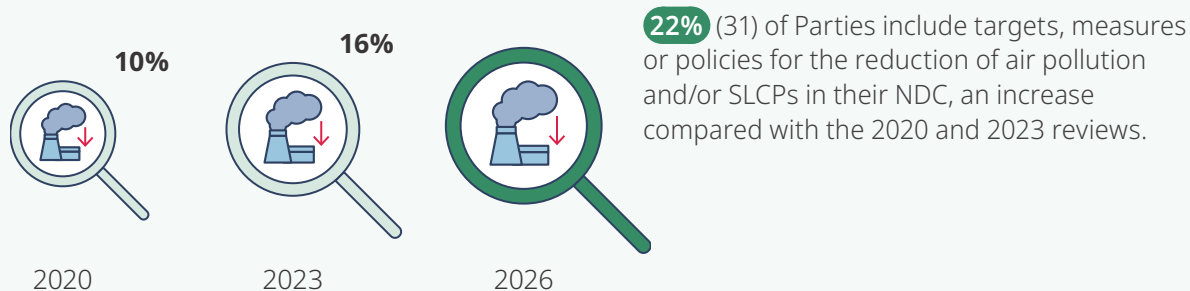
Fig. 6 shows the percentage of Parties that mention specific sectors contributing to health co-benefits.

Naoero's NDC, for example, indicates that the e-bike sharing service will promote healthier modes of transport and physical exercise resulting in health co-benefits.

Nigeria reports in its NDC that estimates of the public health co-benefits of cleaner air include the prevention of over 21 000 deaths and US\$ 7.2 billion in economic value annually.

Fig. 6. Percentage of Parties that identify health co-benefits of mitigation in each sector

Percentage of Parties (of the 82 that identified health co-benefits)

**Fig. 7. Air quality targets, measures and policies**

Chile's NDC includes three specific air quality targets in the mitigation component regarding improving air quality levels, with respect to PM_{2.5} concentrations, through actions on black carbon emissions.

- By 2030, reduce black carbon emissions by at least 25% compared with 2016.
- By 2035, reduce black carbon emissions by at least 30% compared with 2016.
- By 2035, achieve PM_{2.5} concentrations equal to or less than 18 µg/Nm³, moving towards the levels recommended by WHO.

The **USA's** NDC reports that the shift to clean energy under legislative frameworks such as the Bipartisan Infrastructure Law and the Inflation Reduction Act, alongside policies promoting electric vehicles, public transportation and active mobility, will reduce air pollution and vehicular emissions, resulting in improved urban air quality and better respiratory and cardiovascular health outcomes.



Box 1: Spotlight on black carbon as a contributor to climate change and ill-health

Some air pollutants, such as black carbon (a component of PM originating from burning of fossil fuels, biomass, waste etc.) and tropospheric (ground-level) ozone, are classified as SLCPs because they persist in the atmosphere for only days to months. Many of these pollutants harm human health and act as powerful climate forcers, contributing to near-term global warming as well as respiratory and cardiovascular disease (15). Mitigation of health-damaging SLCPs can deliver rapid co-benefits: immediate improvements in air quality and public health, alongside short-term climate cooling.

While the Paris Agreement primarily focuses on long-lived GHGs, growing recognition of SLCPs (increasingly referred to as super pollutants) has led several countries to highlight mitigation of these as near-term co-benefits. This has positioned SLCP mitigation as a complementary strategy that simultaneously addresses both climate change and public health outcomes. In particular, reducing black carbon emissions supports local adaptation and strengthens water and food security by limiting glacier melt, reducing extreme heat impacts and minimizing disruption to monsoon and weather patterns in directly impacted regions (16).

Analysis, led by the United Nations Development Programme and the Clean Air Fund, following country support for integration of air pollution and black carbon into NDCs 3.0 across a selection of countries, indicates that of 114 NDCs submitted by 1 June 2026 (including the joint submission by the 27 countries of the EU), 20 countries mentioned black carbon in their NDC 3.0, with five explicitly incorporating black carbon reduction targets (see Table 2). For example, several Latin American countries have set black carbon reduction goals, including Chile, Colombia, Costa Rica and Mexico. Chile commits to a 30% reduction in black carbon emissions by 2035 compared

with 2016 levels, while Colombia is even more ambitious, with a 40% reduction target relative to 2014. Costa Rica adopts a sectoral approach, with technology substitution and energy efficiency expected to deliver a 20% reduction in black carbon emissions by 2030 in the public transport and industrial sectors (relative to 2021 levels).

Notably, countries such as Cambodia, Mongolia, Nepal and Zambia have, for the first time, incorporated references to black carbon in their NDC. Zambia acknowledges the highest emitting sectors – residential buildings, industry, transport, energy, as well as forest fires – while Cambodia commits to monitoring actual reduction of non-GHG pollutants, specifically black carbon and dust, from combustion processes, and to incorporating black carbon into air quality regulatory frameworks and modelling efforts.

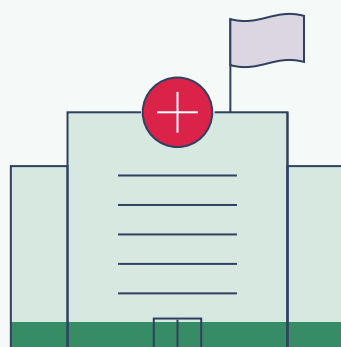
Many countries generate black carbon data through air quality monitoring or emissions inventories and, as illustrated by the cited examples, are well positioned to use this information to design, prioritize and evaluate targeted mitigation actions across sectors. Importantly, countries should also ensure a proper regulation of air pollutants to prevent the associated health harms.

Overall, black carbon offers a strategic entry point for countries to achieve near-term climate benefits while delivering immediate gains for air quality and health, making it a critical component of integrated climate and development policy.

Table 2. Examples of countries with a black carbon target in their NDC 3.0

Country	Black carbon target description
Chile	Reduce black carbon emissions by 25% by 2030 and 30% by 2035 , compared with 2016 levels.
Colombia	Reduce black carbon emissions by 40% by 2035 compared with 2014 levels.
Costa Rica	Implement sector-specific black carbon reduction targets by 2030 (compared with 2021 levels): 20% reduction in public transport and energy efficiency sectors, and 10% reduction in carbon-intensive transport.
Mexico	Reduce black carbon emissions by 35 800–39 700 tonnes (unconditional) or 32 600–35 799 tonnes (conditional) by 2035 , compared with business-as-usual.
Micronesia (Federated States of)	Reduce black carbon and methane emissions from diesel power generation by 65% by 2035 , compared with 2000 levels.

Fig. 8. Health sector mitigation targets and measures



11% (15) of Parties include emissions reduction targets, measures or policies for the health sector.

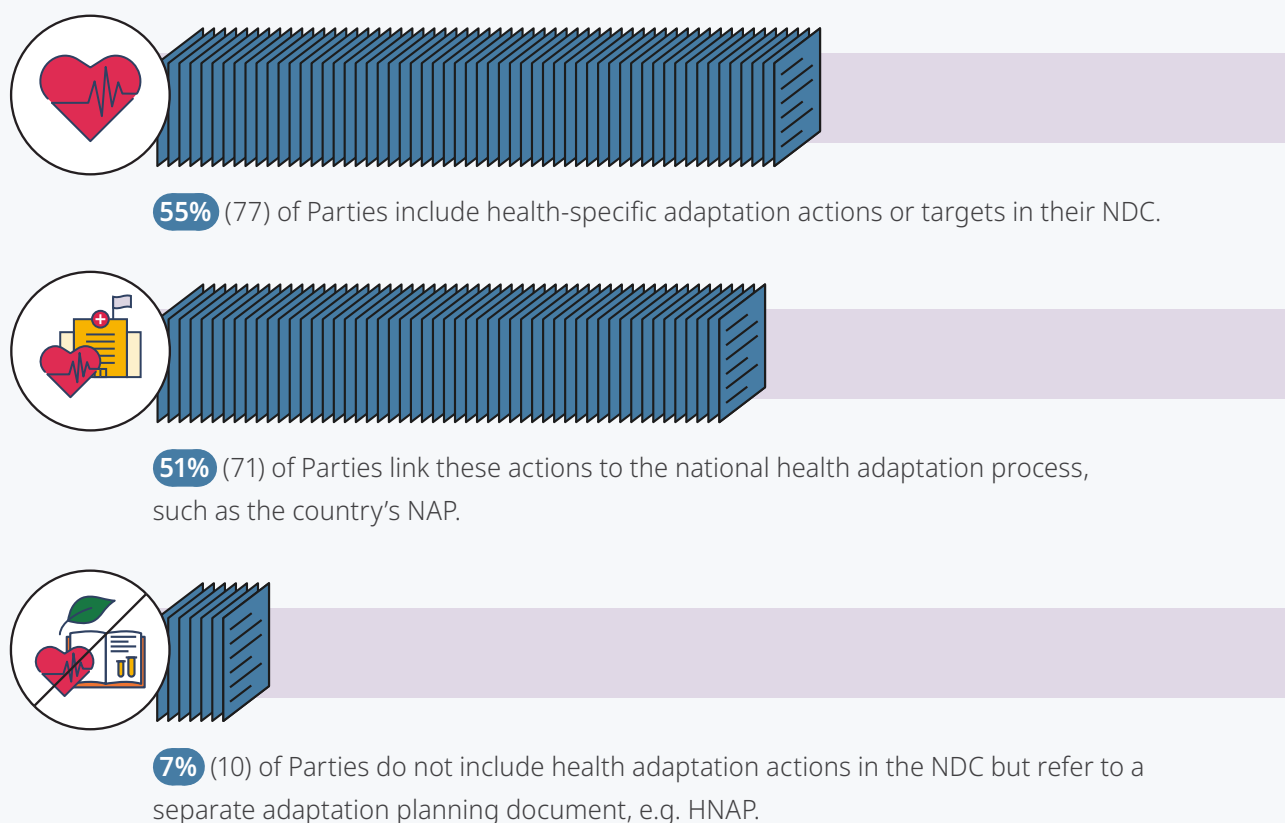
For example, **Nepal's** NDC sets out specific mitigation policies and measures for the health sector, such as:

- Upgrade 140 health care facilities by 2030 and 280 health care facilities by 2035 to be low carbon and climate resilient, including the use of solar photovoltaic backup.
- By 2030, an action plan on a low-carbon health system will be developed and implemented.
- By 2035, 75% of traditional anaesthetic gases will be replaced with low-GHG alternatives.



Adaptation

While NDCs have traditionally focused on commitments to reduce GHG emissions, countries have increasingly incorporated adaptation into their NDCs to emphasize its importance and to highlight inequities in both contributions to and impacts of climate change (3). Health should be positioned as a priority sector for adaptation with actions for both the health sector itself and other health-determining sectors, to comprehensively address the health risks of climate change. Health adaptation in the NDC should also be aligned with national adaptation planning processes, including HNAPs, to promote coherence, avoid duplication of efforts and maximize effectiveness and sustainability of adaptation measures.

Fig. 9. Health adaptation actions

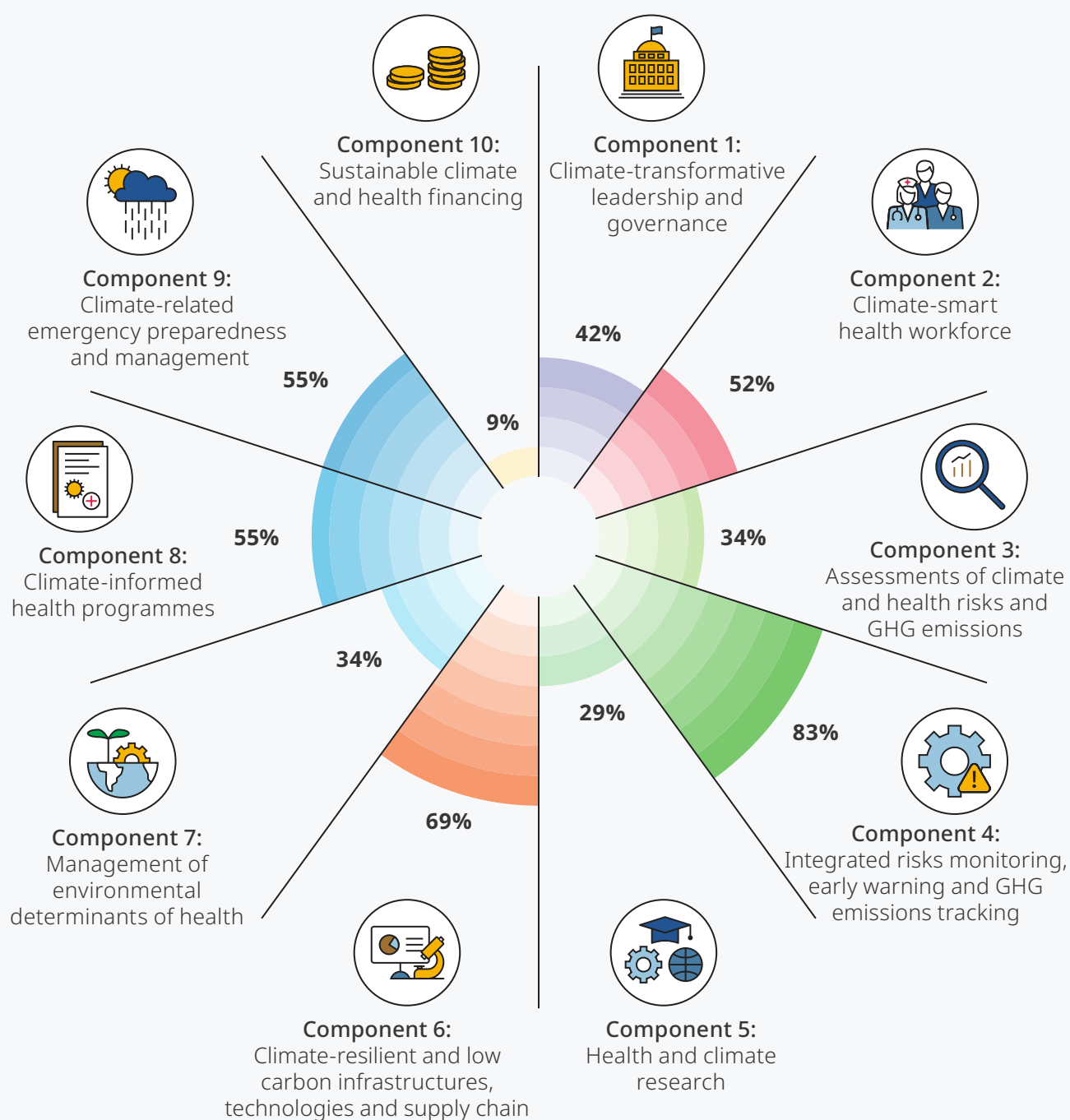
The focus for health in **Tuvalu's** NDC is mainstreaming climate change adaptation into the national health sector planning to address emerging climate-induced health risks and enhance public health capacity for disaster response.

Eswatini's NDC specifies two health-adaptation related targets and also describes a range of actions to achieve these targets:

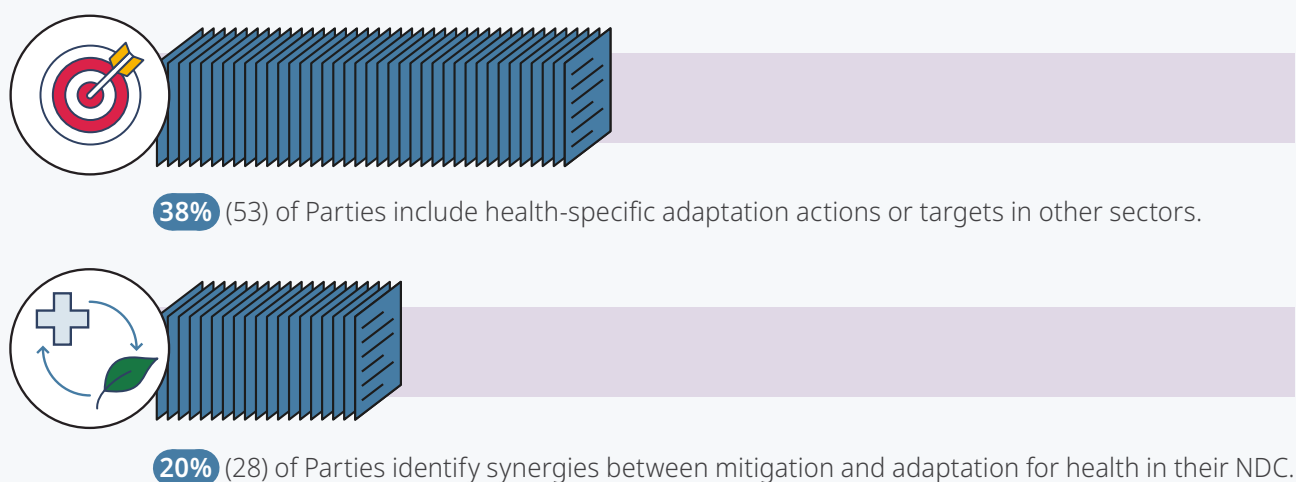
- Ensure 80% of health facilities remain operational during climate-related disasters by 2035, through resilient infrastructure (e.g. renewable energy and water storage) and emergency preparedness.
- Reduce climate-related mortality (from heatwaves, floods and vector-borne diseases) by 50% by 2035 compared with 2026 baseline.

The WHO *Operational framework for building climate resilient and low carbon health systems* (17) serves as a tool to support countries in planning health adaptation while also advancing climate change mitigation. It outlines 10 core components that offer a structured approach for strengthening climate resilience while reducing GHG emissions in health systems. For this assessment, adaptation actions identified in NDCs were mapped against these 10 components to evaluate the extent to which health system adaptation measures are addressed (see **Fig. 10**).

Fig. 10. Percentage of Parties that include health measures related to each component of the WHO *Operational framework for building climate resilient and low carbon health systems*



Note: Percentage of the 77 Parties that include health adaptation in their NDC.

Fig. 11. Additional health adaptation actions

Sierra Leone's NDC prioritizes energy transition strategies to protect health, well-being and safety by providing resilient, reliable and sustainable energy to health facilities.

Table 3 provides examples of health adaptation actions in other sectors.

Table 3. Examples of health adaptation actions and targets in other sectors included in NDCs

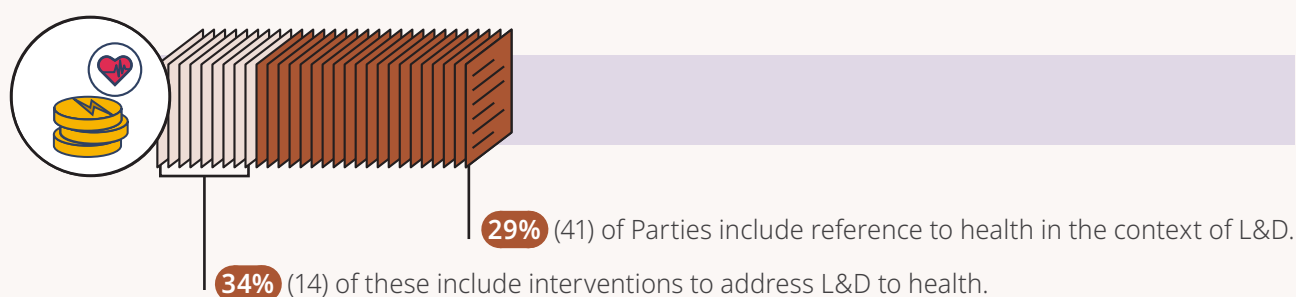
NDC 3.0	Health adaptation action or target	Sector
Armenia	Green infrastructure to reduce urban heat island effects.	Urban and infrastructure
Cambodia	Implement heat stress adaptation measures for industrial workers (range of specific actions included).	Industry/industrial processes and product use
Chile	By 2028, the "Innovation and Institutional Strengthening Program for Food Security" will have been implemented, which has the general objective of contributing to improving national food security through the strengthening of public agricultural services.	Food security
Liberia	Integrate fisheries in climate change adaptation and food security policies at the national level by 2027 (with a specified link to the health sector).	Fisheries
Maldives	Strengthen mental health support services for vulnerable groups to address climate-induced psychological impacts.	Gender, children and youth
Sri Lanka	Reduce post-harvest losses and promote value addition of crops in a changing climate to enhance food security (amongst other outcomes).	Agriculture
Suriname	Develop and enforce climate-resilient sanitation standards and pilot innovative, flood-resilient wastewater solutions in coastal towns to prevent public health crises and protect ecosystems.	Water, sanitation



Loss and damage to health

Loss and damage to health in NDCs can include non-economic L&D, such as the loss of human lives and cultural heritage loss; and economic L&D, such as damage to health infrastructure, loss of or damage to medical equipment and supplies, and increased health care costs. In order to address L&D to health, NDCs should include identification and quantification of L&D to health and relevant interventions to address this.

Fig. 12. Identification and quantification of L&D to health



The Marshall Islands' NDC reports that there have been many cases of Marshallese infrastructure, including health establishments, being destroyed or harmed by rising sea levels, coastal erosion and flooding.

Saint Lucia's NDC reports that the health sector is at risk of experiencing L&D due to intensified hurricanes, floods, droughts and other extreme weather events.

Rwanda's NDC highlights the non-economic losses of increasing temperatures and number of hot days, such as heat-related mortality and morbidity. In the context of extreme weather events, Rwanda's NDC identifies non-economic L&D to health and includes health care costs as part of its estimates of economic L&D.

To address non-economic L&D **Bangladesh's** NDC includes the integration of mental health and psychosocial support into climate disaster response and recovery programmes.

Belize's NDC proposes the following interventions to tackle L&D to health:

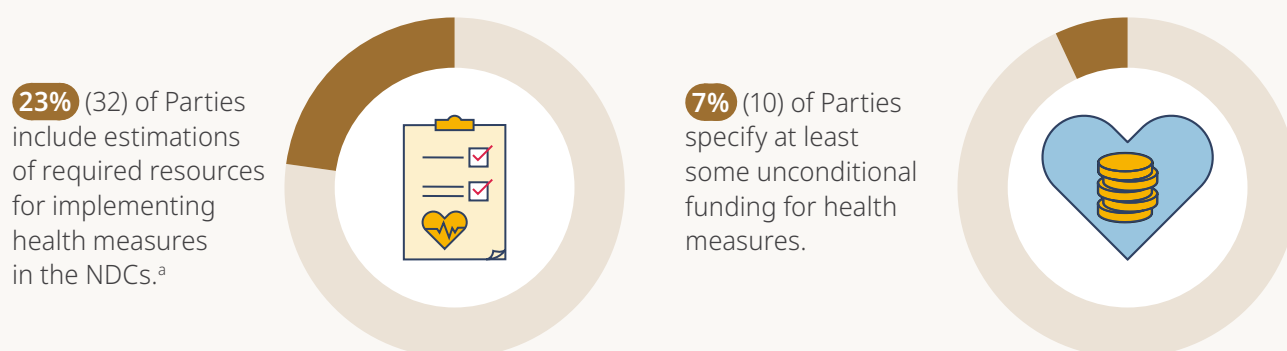
- Develop emergency health response plans and training for main hospitals and health centres.
- Create community-based health support networks including communication channels, check-in protocols and evaluation protocols for non-vector and vector-borne disease prevention.
- Establish regional partnerships for knowledge and lessons learned exchange and post-disaster rapid recovery.
- Create climate-resilient medical supply reserves for enhanced emergency response.



Finance

NDCs should include estimates of financial resources needed to implement health-related mitigation and adaptation actions and specification of both conditional and unconditional⁹ climate finance allocations, including through domestic budgets and international funding streams.

Fig. 13. Estimated cost of health-related NDC implementation

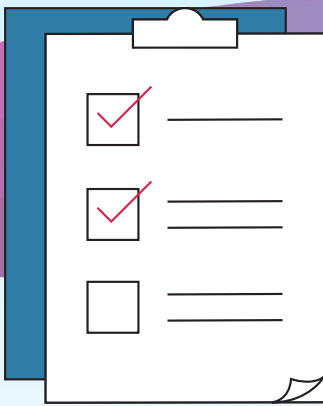


^a However, this often does not include the cost for the health sector to contribute to targets and commitments in other sectors, such as national renewable energy targets.

Vanuatu's NDC reports that health and nutrition commitments are estimated to cost approximately US\$ 62 million with almost US\$ 52 million designated as conditional funding. The health and nutrition cost estimates represent 4.96% of the NDC budget for 2025–2035.

Angola's NDC reports that the total estimated cost of implementing the identified health adaptation measures by 2035 is around US\$ 21 million.

⁹ A conditional contribution is a contribution that a country would undertake if international means of support are provided or other conditions are met. An unconditional contribution is financed from domestic sources.



Conclusion

The review of NDCs 3.0 demonstrates that countries continue to incorporate health considerations into their climate action plans; however, the extent and detail of this integration differ considerably between countries. This assessment highlights areas where health-related considerations could be enhanced, presenting an opportunity for future NDCs to strengthen and prioritize the integration of health issues within climate action plans. It also underscores the need for increased financing, with very few Parties identifying unconditional finance for health actions.

By reviewing the current state of health in NDCs 3.0, this review supports countries and stakeholders to seize a critical policy opportunity to elevate health as a core pillar of climate ambition, enhance resilience to current and future climate risks, and maximize the health co-benefits of climate action.

Looking ahead to the next round of NDC updates in 2030, there is a clear window of opportunity to build on the progress made towards health integration by enhancing overall ambition and using the available time to ensure more comprehensive, systematic and evidence-based inclusion of health across all sectors.

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Annex 1. Quality criteria for integrating health into nationally determined contributions

General NDC structure	Quality criteria for integrating health into NDCs
Leadership and enabling environment 	✓ The ministry of health leads the health contribution to NDCs ✓ Active engagement of the ministry of health in the NDC process ✓ Climate-informed health planning and programming and health-informed climate programming in key health-determining sectors ✓ Cross-sectoral coordination and policy coherence ✓ Coherence between national climate change and health policy processes
National circumstances and policy priorities 	✓ Introduction to document ✓ Information on national development context ✓ Existing policy priorities, including any existing legislative or regulatory mechanisms ✓ Climate change vulnerabilities and risks ✓ Other country-relevant information ✓ Population health and well-being is the ultimate goal and guiding principle of the NDC ✓ Description of the national health context ✓ Inclusion of existing health policy priorities and relevant climate change and health legislative and regulatory mandates ✓ Identification of health as vulnerable to climate change, and quantification of current and projected risks
Mitigation 	✓ Quantifiable information on reference point (including, as appropriate, a base year) ✓ Timeframes, scope and coverage of mitigation efforts ✓ Mitigation planning processes ✓ Assumptions and methodological approaches, including for estimating and accounting for anthropogenic GHG emissions and removals ✓ How the NDC is considered fair and ambitious in the light of national circumstances, and contributes towards prevention of dangerous anthropogenic interference with climate system ✓ Identification of health co-benefits of mitigation actions of key health-determining sectors ✓ Quantification of health co-benefits of mitigation actions of key health-determining sectors ✓ Prioritization of air pollution and SLCP reductions, including stand-alone health-based targets for reduction of air pollution ✓ Establishment of emission reduction targets for national health systems

General NDC structure		Quality criteria for integrating health into NDCs
Adaptation 	✓ Impacts, risks and vulnerabilities ✓ National adaptation priorities ✓ Implementation and support needs of, and provision of support to, developing country parties ✓ Implementation actions and plans for adaptation ✓ How adaptation actions contribute to mitigation and other international frameworks and conventions ✓ Gender-responsive adaptation action and traditional knowledge, knowledge of Indigenous Peoples and local knowledge systems related to adaptation, where appropriate	✓ Health is a priority sector for adaptation ✓ The NDC complements and supports national approaches to adaptation planning and implementation ✓ Integration of health in the adaptation targets of health-determining sectors ✓ Identification of synergies between mitigation and adaptation for health
Loss and damage to health 	✓ National circumstances on L&D from climate change ✓ Information on national efforts to avert, minimize and respond to L&D ✓ Financial considerations in relation to change to L&D, where appropriate	✓ Quantification of CSHRs and outcomes, including in health systems and facilities ✓ Quantification of financial implications of health-related L&D ✓ Inclusion of priority interventions to avert, minimize and address L&D to health and health systems and facilities
Finance 	✓ Information on projected levels of public financial resources provided or required, where appropriate ✓ Other means of implementation, including technology transfer and capacity building	✓ Estimation of resources required to implement health-related actions and policies in the NDC, including in other sectors ✓ Specification of the conditionality of climate finance for health actions and plans ✓ Use of health impacts and indicators as a basis to prioritize investments in key health-determining sectors
Implementation 	✓ Gap analysis ✓ Assessment of resource needs ✓ Detailed costing ✓ Prioritization of activities ✓ Plan and schedule for agreed implementation activities ✓ Monitoring and evaluation plan to feed into UNFCCC process and updating of NDCs	✓ Development of a health-sector implementation and capacity-building plan ✓ Translation of relevant national mitigation and adaptation targets into health sector targets, indicators and benchmarks ✓ Development of a health sector monitoring and evaluation plan, and inclusion of health indicators in the overall NDC monitoring and evaluation framework

Source: Quality criteria for integrating health into Nationally Determined Contributions (NDCs). WHO; 2024 (<https://iris.who.int/handle/10665/380214>).

Annex 2. NDCs 3.0 reviewed

UNFCCC Parties¹: Andorra, Angola, Armenia, Australia, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belize, Bhutan, Bolivia (Plurinational State of), Brazil, Brunei Darussalam, Burkina Faso, Burundi, Cabo Verde, Cambodia, Canada, Central African Republic, Chile, China, Colombia, Comoros, Costa Rica, Côte d'Ivoire, Cuba, Democratic Republic of the Congo, Djibouti, Ecuador, El Salvador, Eritrea, Eswatini, Ethiopia, European Union (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands [Kingdom of the], Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden), Fiji, Gabon, Georgia, Guinea, Honduras, Iceland, India, Indonesia, Iraq, Jamaica, Japan, Kazakhstan, Kenya, Kyrgyzstan, Lebanon, Liberia, Liechtenstein, Malaysia, Maldives, Marshall Islands, Mauritania, Mauritius, Mexico, Micronesia (Federated States of), Monaco, Mongolia, Montenegro, Morocco, Mozambique, Naoero, Nepal, New Zealand, Nicaragua, Nigeria, Niue, Norway, Pakistan, Palau, Panama, Paraguay, Peru, Qatar, Republic of Korea, Republic of Moldova, Russian Federation, Rwanda, Saint Lucia, Samoa, Sao Tome and Principe, Saudi Arabia, Serbia, Seychelles, Sierra Leone, Singapore, Solomon Islands, Somalia, South Africa, Sri Lanka, Suriname, Switzerland, Thailand, Tonga, Trinidad and Tobago, Tunisia, Türkiye, Tuvalu, Ukraine, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, United States of America², Uruguay, Uzbekistan, Vanuatu, Vatican City State, Venezuela (Bolivarian Republic of), Yemen, Zambia, Zimbabwe.

¹ For the purpose of this review, the term “Party” is used to denote all 194 Parties to the Paris Agreement, as well as the USA, which submitted its NDC 3.0 before withdrawing from the Paris Agreement. This publication follows WHO style; however, it is noted that the terminology used in the context of the Paris Agreement may be at variance with that of WHO. The designations employed in this publication do not imply any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

² “The United States of America is not a Party to the Paris Agreement. On 27 January 2025, the Government of the United States of America notified the Depository of its decision to withdraw from the Paris Agreement, which took effect on 27 January 2026 in accordance with Article 28, paragraphs 1 and 2, of the Agreement” NDC 3.0 [website]. Bonn: United Nations Framework Convention on Climate Change; 2026 (<https://unfccc.int/ndc-3.0>).

Annex 3. Indicator framework

Possible responses		
	Leadership and enabling environment	
	Does the NDC include any references to human health and well-being?	YES, NO
	Does the NDC explicitly make a link to SDG 3 and/or other health-relevant SDGs?	YES, NO, N/A (not applicable)
	Does the NDC specify that the ministry of health (or equivalent national health agency) led the health contribution to the NDC?	YES, NO, N/A
	Does the NDC specify an ongoing role of the ministry of health (or equivalent national health agency) in the NDC process?	YES, NO, N/A
	National circumstances and policy priorities	
	Does the NDC refer to an evidence-based assessment of CSHRs and outcomes, in order to inform its health adaptation priorities (e.g. a health vulnerability and adaptation assessment)?	YES, NO, N/A
	Does the NDC identify CSHRs or outcomes?	YES, NO, N/A
	If yes, which CSHRs or outcomes does it identify?	Airborne and respiratory illnesses; heat-related illness; injury and mortality from extreme weather events, malnutrition and foodborne diseases, mental and psychosocial health; noncommunicable diseases; vector-borne diseases; waterborne diseases and other water-related health impacts; zoonoses; impacts on health care facilities; health systems; general mention of health impacts; socially mediated CSHRs, such as conflict, migration, health inequities or others; other; N/A
	Does the NDC quantify CSHRs and outcomes (including in health systems and facilities)?	YES, NO, N/A

Possible responses		
	Mitigation	
	Does the NDC identify health co-benefits of climate mitigation?	YES, NO, N/A
	If yes, for which sector(s) does the NDC identify health co-benefits of climate mitigation?	Household energy; energy; transport; food agriculture and land use; industry, housing buildings and infrastructure; waste management; health; cross-sectoral or other sector; NA
	If yes, is at least one of the identified health co-benefits quantified and/or monitored?	YES, NO, N/A
	Does the NDC include stand-alone targets, measures or policies for the reduction of air pollution including SLCPs, as they pertain to population health?	YES, NO, N/A
	Does the NDC include stand-alone emission reduction policies or targets for the health sector?	YES, NO, N/A
	Adaptation	
	Does the NDC include health-specific adaptation actions or targets?	YES, NO, NO – refer, N/A
	If yes, which components of the WHO <i>Operational framework for building climate resilient and low carbon health systems</i> are included in the NDCs?	Component 1: Climate-transformative leadership and governance Component 2: Climate-smart health workforce Component 3: Assessments of climate and health risks and GHG emissions Component 4: Integrated risks monitoring, early warning and GHG emissions tracking Component 5: Health and climate research Component 6: Climate-resilient and low carbon infrastructures, technologies and supply chain Component 7: Management of environmental determinants of health Component 8: Climate-informed health programmes Component 9: Climate-related emergency preparedness and management Component 10: Sustainable climate and health financing; NA
	Does the NDC include health in the adaptation actions or targets of other sectors?	YES, NO, N/A

Possible responses

If yes, for which sector(s) does the NDC include health in adaptation actions or targets?

Does the NDC explicitly link health adaptation to national health adaptation planning processes (e.g. NAP, HNAP)?

YES, NO, N/A

Does the NDC identify synergies between mitigation and adaptation for health?

YES, NO, N/A



Loss and damage to health

Does the NDC explicitly refer to health risks, health outcomes, or impacts on health systems and facilities when discussing climate-related L&D?

YES, NO, N/A

Does the NDC quantify financial implications of health-related L&D?

YES, NO, N/A

Does the NDC include interventions to avert, minimize and/or address L&D to health (including L&D related to health systems and facilities)?

YES, NO, N/A



Finance

Does the NDC estimate the resources required to implement the health actions in the NDC?

YES, NO, N/A

Is at least part of the climate-health finance target unconditional (i.e. allocated from domestic budgets or resources)?

YES, NO, N/A

Annex 4. Results by NDC documents

Results in this report are analysed and presented by Party submission (n = 140) rather than by number of documents (n = 114). This approach gives greater weight to the EU submission, which represents 27 Parties in a single document; however, analysing by document would underestimate the commitments of these Parties. [Table A4](#) presents a comparison of the key indicators analysed by Party submission and by NDC documents.

Table A4. Summary of key indicators by number of Parties and number of NDC documents

Key indicator		NDCs 3.0 (2026) (140 Parties)	NDCs 3.0 (2026) (114 NDCs)
	Leadership and enabling environment		
	Includes reference to human health and well-being	91% (128)	89% (102)
	Links NDC to health-related SDGs	24% (34)	30% (34)
	Specifies that ministry of health (or equivalent national health agency) led the health contribution to the NDC	15% (21)	18% (21)
	Specifies an ongoing role of the ministry of health (or equivalent national health agency) in the NDC process	17% (24)	21% (24)
	National circumstances and policy priorities		
	Includes an evidence-based assessment of CSHRs or outcomes	36% (51)	22% (25)
	Identifies CSHRs or outcomes	59% (82)	72% (82)
	Quantifies CSHRs or outcomes	7% (6 of 82 Parties that identify CSHRs)	7% (6 of 82 Parties that identify CSHRs)
	Mitigation		
	Identifies health co-benefits of climate mitigation	59% (82)	49% (56)

Key indicator		NDCs 3.0 (2026) (140 Parties)	NDCs 3.0 (2026) (114 NDCs)
	Quantifies and/or monitors the identified health co-benefits	5% (4 of 82 Parties that identify health co-benefits)	7% (4 of 56 Parties that identify health co-benefits)
	Includes stand-alone targets, measures or policies for the reduction of air pollution including SLCPs	22% (31)	27% (31)
	Includes stand-alone emission reduction policies or targets for the health sector	11% (15)	13% (15)
	Adaptation		
	Includes health-specific adaptation actions or targets ^a	55% (77)	68% (77)
	Includes health in the adaptation actions in other sectors	38% (53)	46% (53)
	Links health adaptation to national health adaptation planning processes	51% (71)	62% (71)
	Identifies synergies between mitigation and adaptation for health	20% (28)	25% (28)
	Loss and damage to health		
	Refers to health risks, health outcomes or impacts on health systems and facilities when discussing climate-related L&D	29% (41)	36% (41)
	Quantifies selected financial implications of L&D to health	7% (3 of 41 Parties' referring to L&D to health)	7% (3 of 41 Parties' referring to L&D to health)
	Includes interventions to address L&D to health	34% (14 of 41 Parties referring to L&D to health)	34% (14 of 41 Parties referring to L&D to health)
	Finance		
	Includes estimated resources to implement the health measures in the NDC	23% (32)	28% (32)
	Is at least part of the climate-health finance target specified as unconditional?	7% (10)	9% (10)

Notes: CSHR – climate-sensitive health risks; L&D – loss and damage.

^a A further 10 Parties referenced a separate HNAP or other document with health adaptation actions but did not include any detail in the NDC.

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