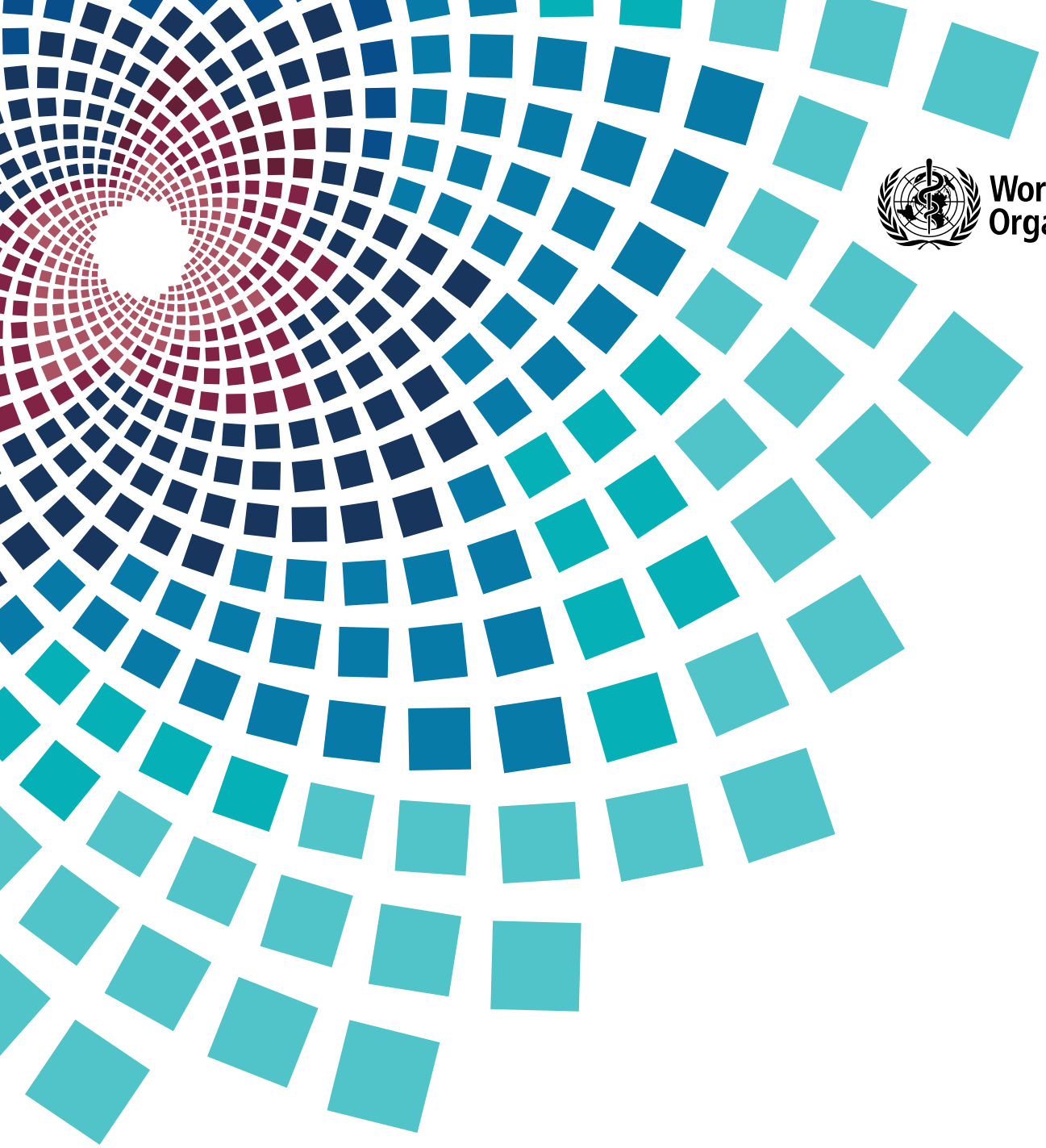
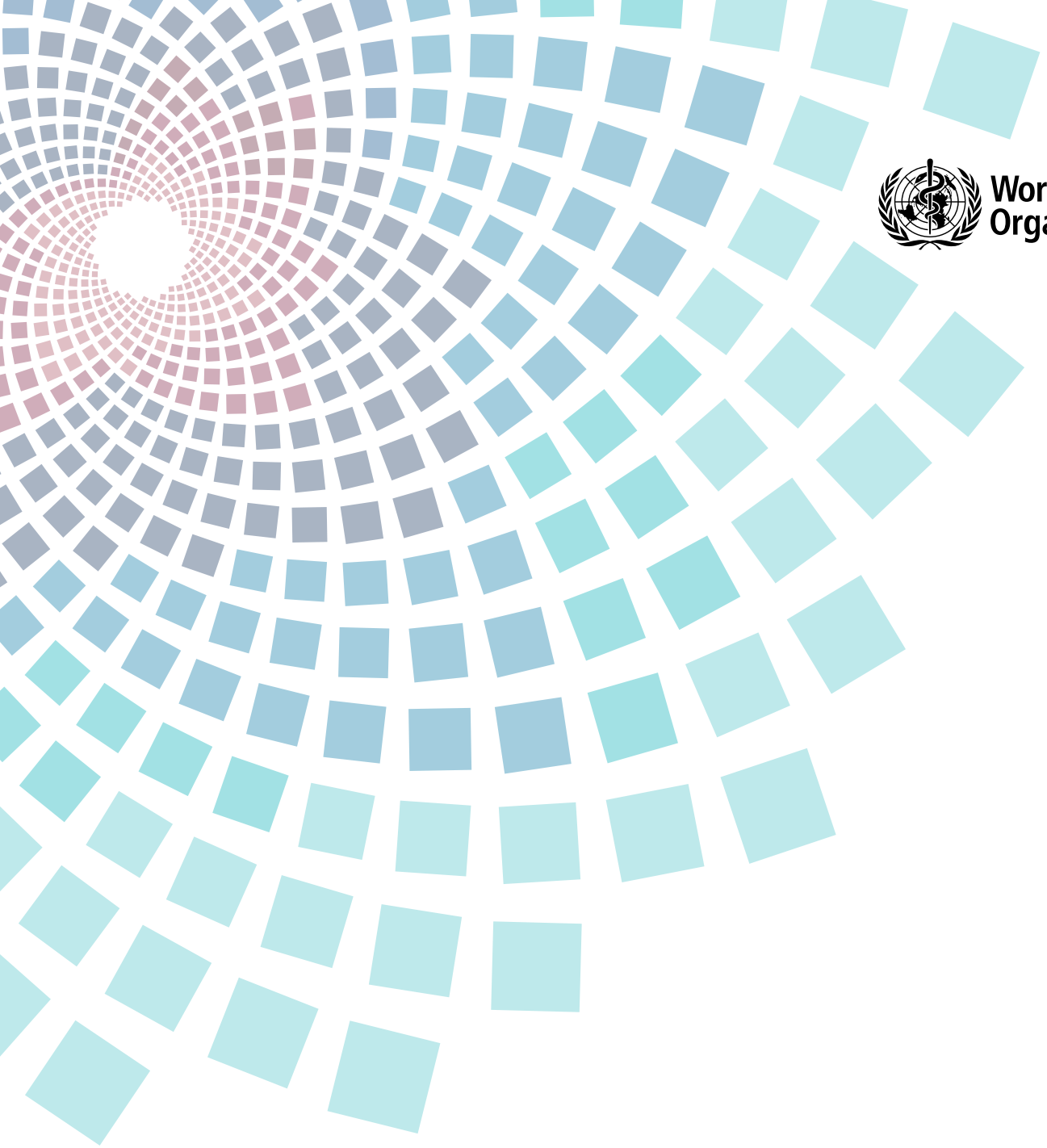


World Health Organization

2021 WHO health and climate change global survey report



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Contents

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Acronyms and abbreviations

BAR-HAP	Benefits of Action to Reduce Household Air Pollution
CaRBonH	Carbon Reduction Benefits on Health
FEBA	Friends of Ecosystem-based Adaptation
HEWS	Health early warning systems
HICs	High-income countries
HNAP	Health National Adaptation Plan
IUCN	International Union for the Conservation of Nature
LLMICs	Low-and-lower-middle-income countries
MoU	Memorandum of understanding
NAP	National Adaptation Plan
NBSAP	National biodiversity strategy and action plan
NDC	Nationally determined contribution
OECD	Organisation for Economic Co-operation and Development
SIDS	Small island developing states
UMICs	Upper-middle-income countries
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
V&A	Vulnerability and adaptation
WHO	World Health Organization

List of figures, tables and boxes

Main findings

1 Approximately two thirds of surveyed countries (67%) have conducted a climate change and health vulnerability and adaptation assessment or are currently undertaking one. Assessment findings are informing health policies and programmes but continue to have a limited influence on the allocation of human and financial resources (Chapter 1).

2 Over three quarters of surveyed countries (77%) have developed or are currently developing national health and climate change plans or strategies. However, implementation is impeded by insufficient financing, human resource constraints, and limited research, evidence, technologies and tools (Chapter 2).

3 About half of surveyed countries (52%) reported that the COVID-19 pandemic has had a significant impact on their work to protect health from climate change, diverting health personnel and resources and slowing the implementation of protective measures (Chapter 2). Just one third of country respondents (33%) have taken the opportunity to include climate change and health considerations in their plans for recovery from COVID-19 (Chapter 2).

4 There is progress in developing multi-sectoral collaboration on policies and programmes related to health and climate change. Established coordination mechanisms most frequently (>75%) included representation from stakeholders or sectors addressing the environmental determinants of health, such as safe water, sanitation and hygiene services, clean air and meteorological services. Representation of stakeholders or sectors focused on the structural and social determinants of health, such as education, urban planning, housing, energy and transportation systems, was less common (40–50% of coordination mechanisms) (Chapter 2).

5 Less than 40% of countries currently include weather and climate information in their health surveillance systems for climate-sensitive diseases. Most commonly, countries have climate-informed health surveillance systems for vector-borne, waterborne, airborne or respiratory diseases (Chapter 3).

6 Only one third of surveyed countries have climate-informed health early warning systems for heat-related illness (33%) or injury and mortality from extreme weather events (30%) despite strong evidence that these risks are increasing around the world (Chapter 3).

7 The health workforce is increasingly informed and trained on the connection between climate change and health (some level of training conducted in 42% of countries), but further efforts are needed to ensure capacity-building covers a comprehensive set of relevant skills and is routinely integrated into health workforce development (Chapter 3).

8 A growing number of countries (27%) have conducted assessments of the climate resilience of their health care facilities (Chapter 3).

9 Only a small proportion of ministries of health in low-and-lower-middle-income countries (28%) are currently receiving international funds to support climate change and health work. Access to international funds, including multilateral climate funds, needs to be substantially scaled up to reach the levels required to protect health from climate change (Chapter 4).

10 Countries have significantly increased health considerations in their nationally determined contributions. Almost all (94%) of 142 new or updated nationally determined contributions published in 2020–2021 mention health, compared to 70% of 184 nationally determined contributions in 2019. The health benefits of climate mitigation are now referenced in 28% of new or updated nationally determined contributions, up from 10% in 2019 (Chapter 5).

Summary table of
10 key health and climate change indicators

Key indicator[1]	2018	2021
Evidence for decision-making		
Percentage of countries that have conducted[2] a climate change and health vulnerability and adaptation assessment	48%	51%
Leadership and governance		
Percentage of countries with a national health and climate change plan or strategy in place[3]	50%	52%
Percentage of countries that identify insufficient finance as a barrier to implementing their national health and climate change plan or strategy	56%	70%
Percentage of ministries of health with a climate change and health focal point		85%
Percentage of ministries of health that have established a multi-stakeholder mechanism on health and climate change that is currently operational		54%
Percentage of ministries of health that have conducted public health campaigns to raise awareness on health and climate change		44%
Implementation		
Percentage of countries that have assessed the climate resilience of at least one health care facility		27%
Percentage of countries that have assessed the environmental sustainability of at least one health care facility		23%
Finance		
Percentage of ministries of health in low-and-lower-middle-income countries currently receiving international funds for health and climate change work		28%
Promoting health benefits of climate mitigation		
Percentage of countries that have conducted an assessment(s) of the health benefits of their national climate mitigation policies		16%

[1] Three indicators were common between the 2018 global survey and the 2021 global survey. Progress on these indicators are tracked here. Progress on all ten key indicators will be tracked in future survey cycles.

[2] Countries reported on assessments that had been conducted (completed) and those under development. This indicator tracks assessments that have been conducted and does not include those under development.

[3] Countries reported on plans or strategies that were completed and those under development. This indicator tracks plans or strategies that have been completed and does not include those under development.

About this report

Mounting an effective response to the health risks posed by climate change is now urgent for all countries. The consequences of the climate emergency are severe for population health and health systems and further drive health and social inequities *(1)*.

The *2021 WHO health and climate change global survey report* provides a valuable snapshot of the overall progress governments have made in addressing the health risks of climate change. The findings on key health and climate change indicators aim to empower policy makers to: make informed decisions on the implementation of policies and plans; identify evidence gaps; and better understand the barriers to achieving adaptation and resilience priorities in the health sector while maximizing the health benefits of sector-wide climate mitigation efforts.

The health response to climate change is taking place within the context of the ongoing COVID-19 pandemic, continued environmental degradation and biodiversity loss, socio-economic inequities, and a chronic under-investment in health systems *(2)*. Throughout this report, when possible, we attempt to provide findings on these inter-related challenges.

The global survey report is based on a triennial, voluntary survey sent to all 194 WHO Member States and a small number of non-Member Territories. It is completed by ministries of health in consultation with other health stakeholders, ministries and institutions.

Participation in the survey has grown substantially over the years. In 2015, 40 countries[4] responded to the survey. This grew to 101 country respondents in 2018 *(3)*. Despite the COVID-19 pandemic and its demands on ministries of health, participation remained high in this third cycle, with 95 country respondents.

Further information on the 2021 WHO health and climate change global survey methods, including a complete list of participating countries, data collection and validation procedures, can be found in Annex 1.

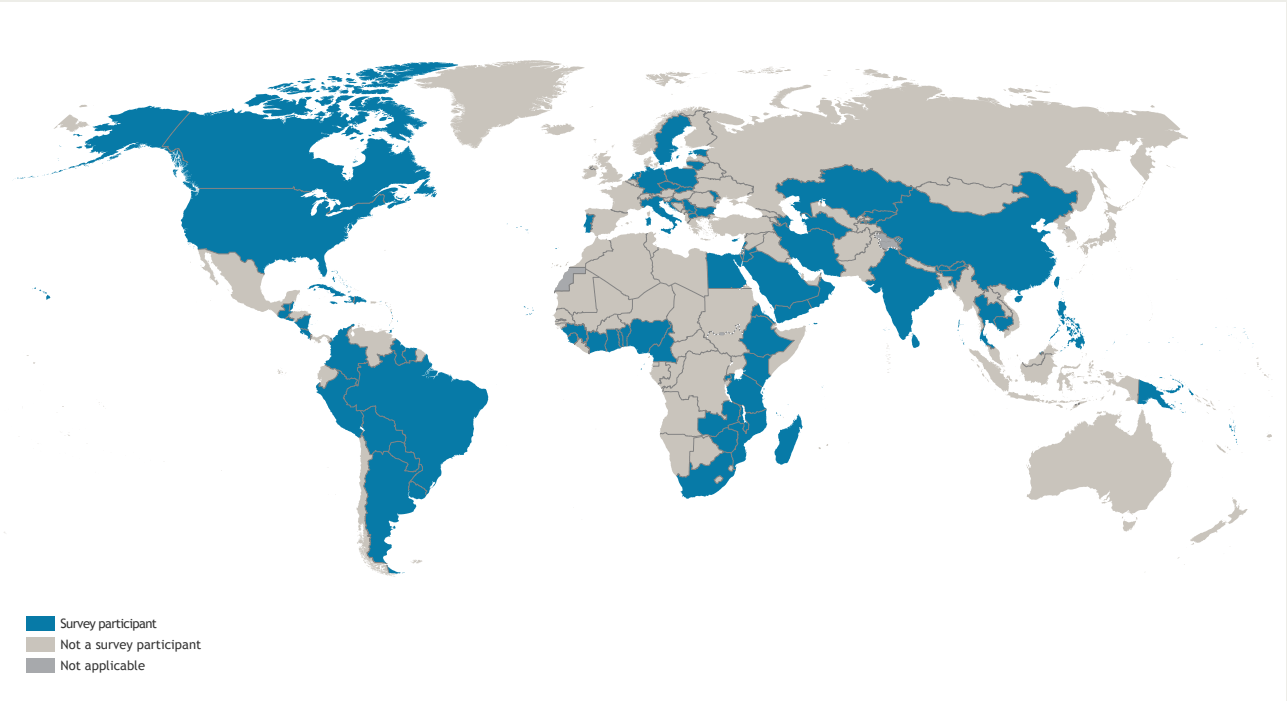
This report is complemented by a dynamic data dashboard that can be found at:
https://www.who.int/activities/monitoring-science-and-evidence-on-climate-change-and-health/health-and-climate-global-survey

[4] For the purpose of this survey, the term "country" is used to denote all Member States and non-Member territories and areas that participated in the survey. This is for simplification of the reporting language but does 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.

2021 WHO HEALTH AND CLIMATE CHANGE GLOBAL SURVEY PARTICIPATION

95
total number of country participants

FIGURE 1
Participation in the 2021 WHO health and climate change global survey



Data Source: Survey respondents (ministries of health)
Map Production: WHO GIS Centre for Health, DNA/DDI
Map Creation Date: **19 October 2021**

World Health Organization

TABLE 1

2021 WHO health and climate change global survey participation by WHO region

WHO region	List of participating countries and areas	Number of participating countries and areas	Proportion of WHO region represented[5]
African Region	Benin, Cameroon, Cabo Verde, Comoros, Côte d'Ivoire, Eritrea, Ethiopia, Ghana, Guinea, Kenya, Madagascar, Malawi, Mozambique, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, Sierra Leone, South Africa, Togo, United Republic of Tanzania, Zambia, Zimbabwe	23	49%
Region of the Americas	Argentina, Bahamas, Barbados, Belize, Bolivia (Plurinational State of), Brazil, British Virgin Islands, Canada, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Guyana, Haiti, Jamaica, Nicaragua, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Suriname, Trinidad and Tobago, United States of America, Uruguay	28	78%
Eastern Mediterranean Region	Bahrain, Egypt, Iran (Islamic Republic of), Jordan, Lebanon, occupied Palestinian territory, including East Jerusalem, Oman, Saudi Arabia, Yemen	9	41%
European Region	Azerbaijan, Bulgaria, Croatia, Cyprus, Czechia, Estonia, Germany, Israel, Italy, Kazakhstan, Kyrgyzstan, Lithuania, Netherlands, North Macedonia, Poland, Portugal, Republic of Moldova, San Marino, Serbia, Slovakia, Sweden, Turkmenistan	22	42%
South-East Asia Region	Bhutan, India, Sri Lanka, Thailand	4	36%
Western Pacific Region	Brunei Darussalam, Cambodia, China, Marshall Islands, Micronesia (Federated States of), Palau, Papua New Guinea, Philippines, Vanuatu	9	33%

TABLE 2

2021 WHO health and climate change global survey participation by World Bank income group classification (4)

World Bank income group classification	Number of country participants
High-income	28
Upper-middle-income	28
Lower-middle-income	29
Low-income	10

[5] The proportion of each WHO region represented in the survey is based on the total number of Member State and non-Member territory and area respondents compared to the total number of Member States in the WHO region. The total number of Member States per region: African region, 47 Member States; Region of the Americas, 36 Member States including one non-Member Territory; Eastern Mediterranean Region, 22 Member States including one area; European Region, 53 Member States; South-East Asia Region, 11 Member States; Western Pacific Region, 27 Member States.

CHAPTER 1

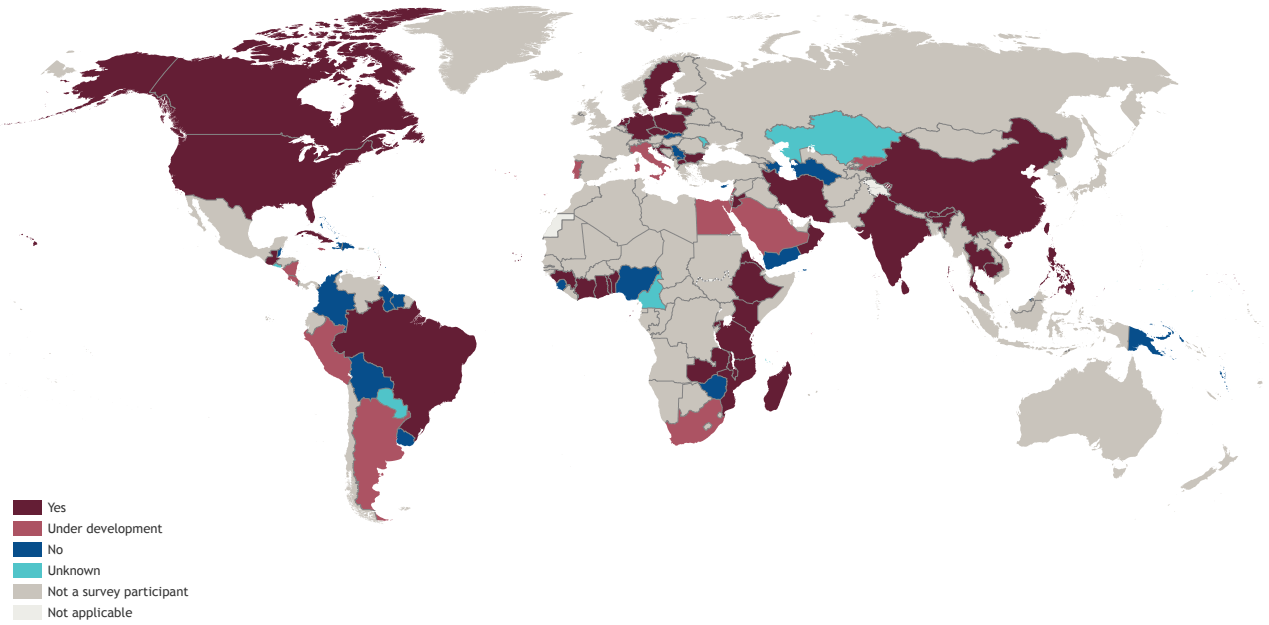
Evidence for decision-making

Climate change and health vulnerability and adaptation assessments

A critical first step in responding to the health risks posed by climate change is to establish an evidence base to support decision-making. A climate change and health vulnerability and adaptation (V&A) assessment *(5)* allows countries to: understand the health risks from current and future climate hazards; evaluate which populations are most vulnerable to the health impacts of climate change; identify gaps in current policies and programmes aimed at reducing the risks; and identify and prioritize effective adaptation interventions to respond. Assessments provide insight into the linkages between climate and health within the assessment area (e.g. health system, health care facility, community, region). They serve as a baseline assessment against which changes in risk and the effectiveness of protective measures can be monitored. Finally, they provide an opportunity to build capacity and to strengthen the case for investment in health protection. Ideally, a climate change and health V&A assessment is conducted before the development of a national health and climate change plan and is periodically updated *(6)*.

Fifty-one per cent of surveyed countries (48 out of 95) have conducted at least one climate change and health V&A assessment. Another 17% of countries (16 out of 95) are currently undertaking an assessment.

FIGURE 2 Map of countries and areas that have conducted a climate change and health V&A assessment (95 country respondents)



Data Source: Survey respondents (ministries of health)
Map Production: WHO GIS Centre for Health, DNA/DDI
Map Creation Date: **19 October 2021**

World Health Organization

Approximately two thirds of countries (64 out of 95) have either conducted a climate change and health V&A assessment or are currently carrying out an assessment. Nineteen countries reported that they had conducted more than one climate change and health V&A assessment.

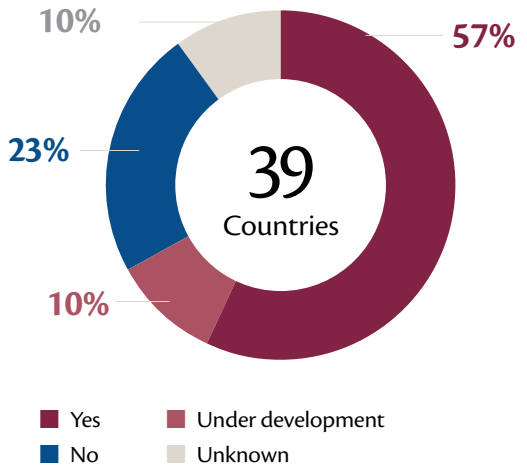
While most countries indicated that assessments were conducted at the national level, ten countries reported that at least one assessment was conducted at subnational level and one country reported that an assessment was conducted at health care facility level (e.g. hospital).

There has been only a modest increase in the proportion of countries that have completed a climate change and health V&A assessment, 51% (48 out of 95), compared to the findings in the 2018 WHO health and climate change global survey, 48% (48 out of 101) *(3)*. It should be noted that a precise comparison is not possible, as the list of countries that responded in 2021 is not identical to those that responded in 2018. Nonetheless, these estimates are reasonably consistent with an independent desk review of documents published across all 194 Member States *(7)* which gave a similar percentage (47%, 92 out of 194), with comparable results for those countries that appeared in both the survey and the desk review. The desktop review did note, however, that low-and-lower-middle-income countries (LLMICs) often face limited data availability and a lack of resources to conduct assessments. By contrast, in some High-income countries (HICs), the health sector was included in well-resourced, comprehensive, multi-sector V&A assessments *(7)*. Given these differences, results for LLMICs are presented separately.

Having a recent or updated climate change and health V&A assessment allows health ministries to: strengthen evidence of the links between climate change and health outcomes; evaluate the effectiveness of existing interventions to protect health; and adjust priorities to meet changing or intensifying climate risks and resource needs *(8)*. Most countries have conducted a new or updated an existing assessment (Figure 4).

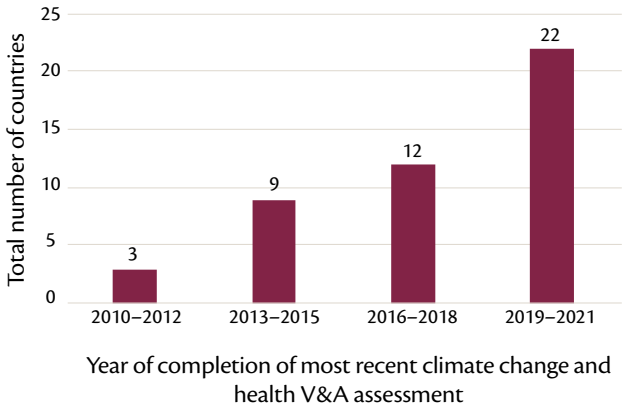
Fifty-seven per cent of surveyed LLMICs (22 out of 39) have conducted a climate change and health V&A assessment (Figure 3).

FIGURE 3 Percentage of LLMICs that have conducted a climate change and health V&A assessment (39 country respondents)



Over 70% of climate change and health V&A assessments (34 out of 46) have been completed or updated within the past five years (Figure 4).

FIGURE 4 Year in which the most recent climate change and health V&A assessment was completed, by total number of countries with a completed assessment in that time period[6] (46 country respondents)



[6] If countries reported that they had conducted more than one climate change and health V&A assessment, the most recent assessment was used in this analysis.

Qualitative analysis of climate change and health V&A assessment documents

Country respondents were asked to submit their climate change and health V&A assessment documents as part of their survey submission. A qualitative analysis (see Annex 3 for further details) was undertaken as part of the survey validation process and to provide a basic summary of their scope and content. This review of documents was not meant to evaluate the quality or comprehensiveness of assessments. Forty-three assessments from thirty-two countries were included in this analysis.[7]

Since national priorities are different, the objectives, scope and content of the assessments differed. Some of the assessments were part of a broader sector-wide climate change V&A assessment that included health, while others were specifically climate change and health V&As conducted by the health sector. Some were broad in scope, while others focused only on priority health outcomes for which surveillance data was available.

Summary of 43 assessments

Methods and approach

- 21 used a solely qualitative approach; 19 a mixed approach; and 3 a solely quantitative approach.
- 31 provided projections of future health risks
- 38 included adaptation options or priority actions[8]
- 4 included costing of adaptation options/actions
- 24 identified vulnerable regions
- 26 mentioned vulnerable populations, most often children and older people
- None of the assessments included sex-disaggregated data; twelve mentioned gender differences in certain climate-sensitive health risks

Number of assessments that identified climate-sensitive health risks

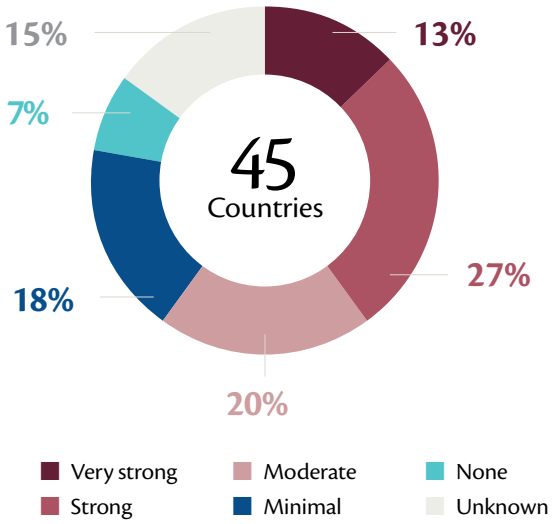
- 36 vector-borne, waterborne or foodborne disease risks
- 25 injuries and death from extreme weather events
- 25 airborne and respiratory diseases
- 24 heat-related illnesses
- 14 noncommunicable diseases
- 13 malnutrition and food safety and security
- 12 zoonotic diseases
- 8 mental and psychosocial health
- 4 impact on health care facilities (and infrastructure)

[7] Countries were asked to submit all their current and past climate change and health V&A assessments. Therefore, multiple documents may have been received from countries. Fifty-eight documents were received but only 43 documents were included in the analysis. Some documents were excluded because they were supplementary documents, they could not be translated, or the documents were not considered V&A assessments.

[8] Five assessments did not have proposed adaptation options or priority actions as these may be identified/included in a national health and climate change plan or strategy. The qualitative analysis also considered whether the climate change and health V&A assessments identified current adaptation measures or assessed adaptive capacity but further investigation is required to provide a summary of results.

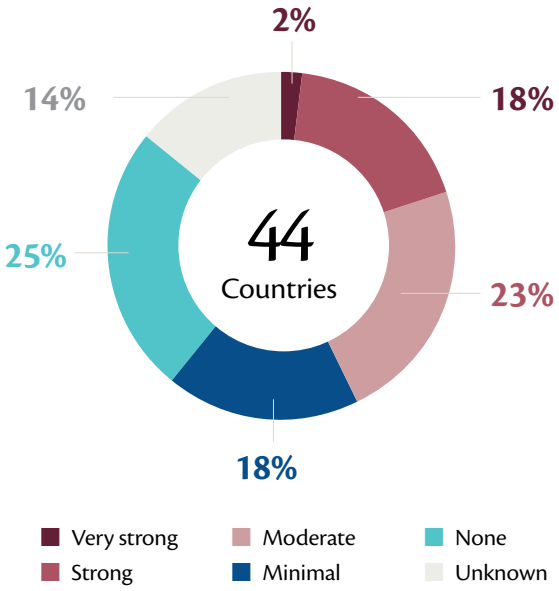
Forty per cent of countries (18 out of 45) reported climate change and health V&A assessment findings had a "very strong" or "strong" influence on health policy-setting or health programmes[9] (Figure 5).

FIgure 5 The influence of climate change and health V&A assessment findings on policy-setting (45 country respondents)



Only 20% of countries (nine out of 44) reported climate change and health V&A assessment findings had a "very strong" or "strong" influence over the allocation of human and financial resources within the ministry of health[10] (Figure 6).

FIGURE 6 The influence of climate change and health V&A assessment findings on the allocation of human and financial resources within the ministry of health to address health risks of climate change (44 country respondents)



Further information would be necessary to assess reasons for any disconnect between assessment findings and decisions on resource allocation, including any deficiencies in the quality or relevance of the assessments, of coordination between assessment and prioritization processes, or alternative explanations. Of note, there was no observed relationship between the level of influence of assessment findings and the date of completion of the most recent climate change and health V&A assessment (see Annex 3 for supplementary figures).

[9] Specifically, countries were asked if the assessment findings resulted in the development of new or the revision of existing health policies and/or programmes.

[10] Specifically, countries were asked if the assessment findings influenced the allocation of human and financial resources within the ministry of health to address health risks of climate change.

CHAPTER 2

Leadership and governance

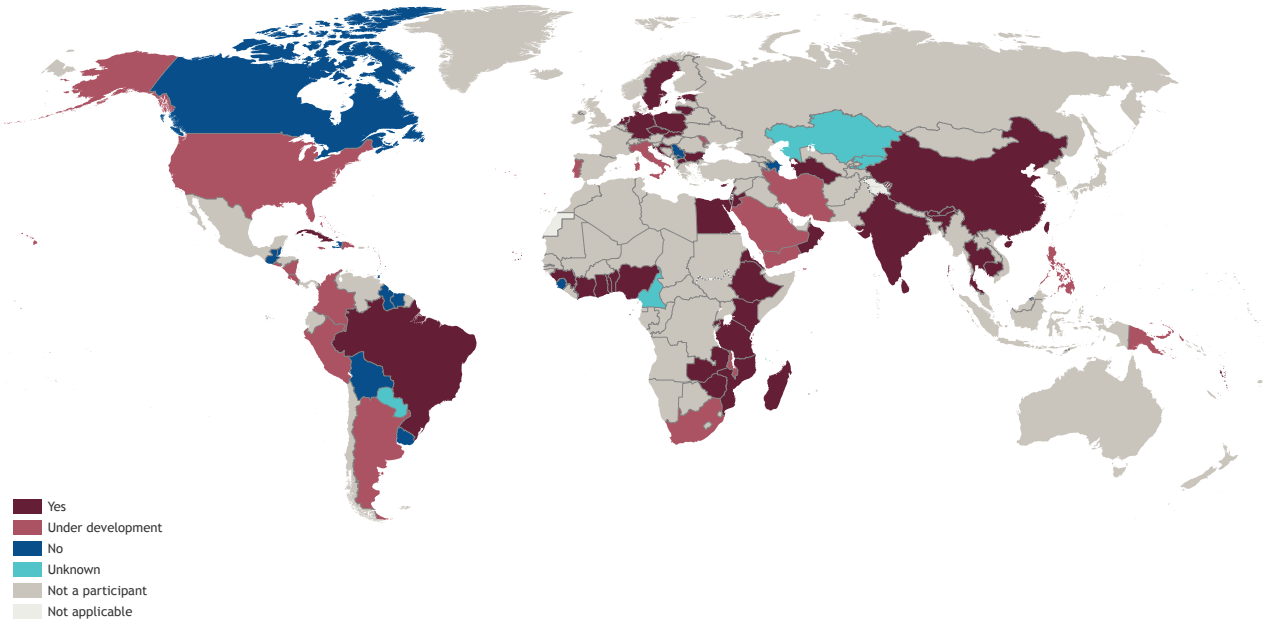
National health and climate change plans or strategies

A national health and climate change plan or strategy considers the health risks of climate change and outlines health adaptation and resilience priorities. It could be part of a broader multisectoral national climate change plan or strategy that includes health. It could also be a plan developed by the ministry of health as part of the National Adaptation Plan (NAP) process, commonly referred to as a Health National Adaptation Plan (HNAP) (see Box 1) *(9)*. Such plans or strategies are vitally important in identifying actions to tackle the health impacts of climate change and for developing robust plans for specific climate-related events. The COVID-19 pandemic has demonstrated how crucial it is that health systems are prepared for a range of shocks and stresses, with clear strategies in place that can be implemented immediately *(10)*.

Almost 60% of LLMICs (23 out of 39) have a national health and climate change plan or strategy in place. Thirty-six per cent of upper-middle-income countries (UMICs) (10 out of 28) and 57% of HICs (16 out of 28) report to have plans or strategies in place.

Fifty-two per cent of respondent countries (49 out of 95) have a national health and climate change plan or strategy in place. Another 25% of countries (24 out of 95) have a plan or strategy under development (Figure 7).

FIGURE 7 Map of countries and areas with a national health and climate change plan or strategy in place (95 respondents)



Data Source: Survey respondents (ministries of health)
Map Production: WHO GIS Centre for Health, DNA/DDI
Map Creation Date: **19 October 2021**

World Health Organization

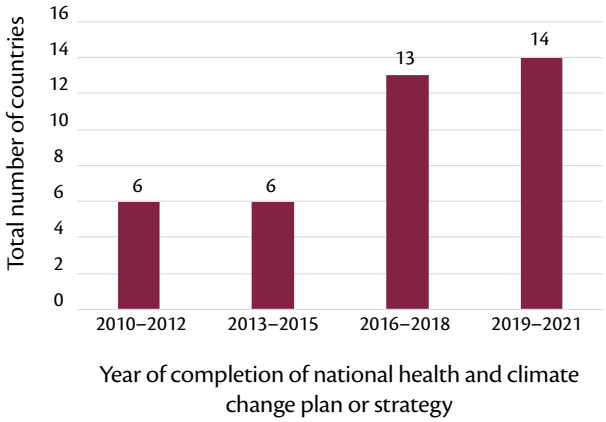
Thirty-three out of 49 countries reported that their national health and climate change plan or strategy was developed as part of their NAP process.

Forty-two out of 49 countries reported that the ministry of health either led the development of their national health and climate change plan or strategy (24 countries) or provided inputs on the health component of a national climate change plan or strategy that included the health sector (18 countries). Four countries reported that other ministries lead the development of the plans or strategies without inputs from the ministry of health. In these cases, the lead institutions were the ministry of environment, ministry of social affairs, or a climate change directorate. Three countries did not provide a response.

Similar to V&A assessments, national health and climate change plans and strategies are periodically updated and often these plans or strategies cover a certain time period (e.g. 2020–2025). For this reason, the status of a country's plan may change over time. For example, if a country reports that a plan is "under development" it may be the first time a plan or strategy is being developed or it may indicate that their existing plan or strategy is out of date and they are in the process of updating it.

Over two-thirds of national health and climate change plans or strategies (27 out of 39) have been developed within the last five years (Figure 8).

FIGURE 8 The year in which national health and climate change plans or strategies were completed,[11] by number of countries in the time period (of 49 countries that had a plan, information was not available for 10 countries)



BOX 1 HNAPS

An HNAP is defined by WHO as a plan developed by the ministry of health as part of the National Adaptation Plan (NAP) process *(5,8)*. The development of the HNAP is an integrated part of the overall climate change response. HNAPs outline actions that build climate-resilient health and health systems that can anticipate, absorb and respond to a changing climate to ensure the protection of population health.

HNAP development is essential for:

- prioritizing actions that address the health impacts of climate change at all levels of planning
- linking the health sector to national and international climate change agendas
- promoting and facilitating coordinated and inclusive climate change and health planning among health stakeholders
- enhancing health sector access to climate funding *(9)*

Health is often identified in NAPs as a high-priority sector that is vulnerable to climate change. However, the extent to which health is addressed in NAPs varies considerably. In certain contexts, the development of an HNAP by the ministry of health can help enable a more comprehensive adaptation approach for the health sector *(11)*.

[11] Countries reported on the year of completion or the year of publication of the national health and climate change plan or strategy.

Qualitative analysis of national health and climate change plans and strategies

Country respondents were asked to submit their national health and climate change plans or strategies as part of their survey submission.[12] A qualitative assessment of 31 documents submitted by 30 countries was undertaken (see Annex 3 for further details) as part of the survey validation process and to provide a basic summary of their scope and content. This review of documents was not meant to evaluate the quality or comprehensiveness of plans and and strategies.

There was a wide range in the scope of the submitted plans and strategies. Approximately half had a specific focus on climate change and health, while the others were broader climate change strategies or plans with components or chapters covering health.

Summary of 31 plans and strategies

Methods and approach

- 25 included adaptation actions related to climate-informed health surveillance and early warning systems (most common)
- 21 included adaptation actions related to environmental determinants of health
- 20 included adaptation actions related to the health workforce
- 9 included plans for monitoring and evaluation of implementation
- 7 included a resource plan for the adaptation actions
- 8 identified vulnerable regions
- 11 mentioned gender considerations
- 17 mentioned vulnerable populations, most often children and older people
- 9 included health co-benefits of mitigation actions or proposed mitigation actions in the health sector

Number of plans or strategies that identified climate-sensitive health risks

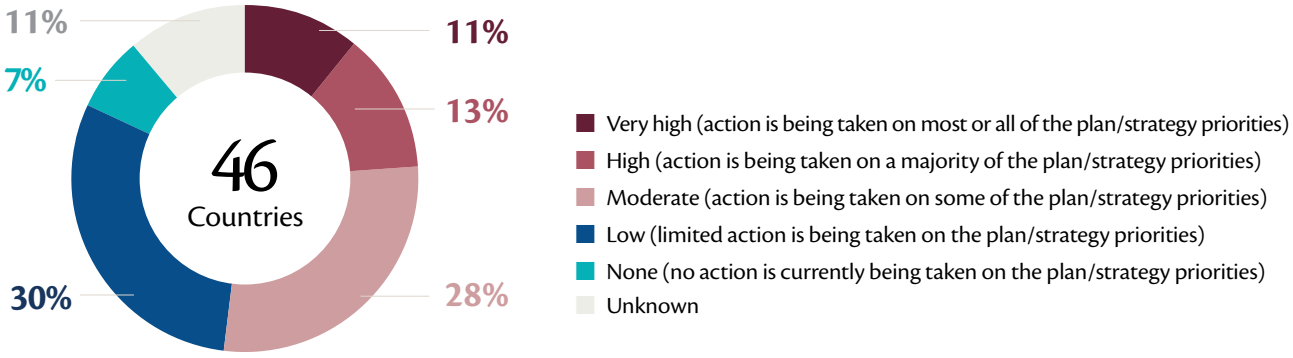
- 23 vector-borne diseases
- 22 waterborne or foodborne diseases
- 20 respiratory diseases
- 17 injuries and death from extreme weather events
- 15 heat-related illnesses
- 12 malnutrition and food safety and security
- 10 noncommunicable diseases
- 7 zoonotic diseases
- 9 mental and psychosocial health
- 6 impact on health care facilities (and infrastructure)

[12] Countries were requested to submit all their current and past national health and climate change plans and strategies. Therefore, multiple documents may have been received from countries. Fifty-five documents were received but only 31 were included in the analysis. Some document were excluded from the analysis if they were not the most recent plan or strategy submitted by a country, if they could not be translated, if they were supplementary documents or if they were not a plan or strategy.

Implementation of national health and climate change plans or strategies

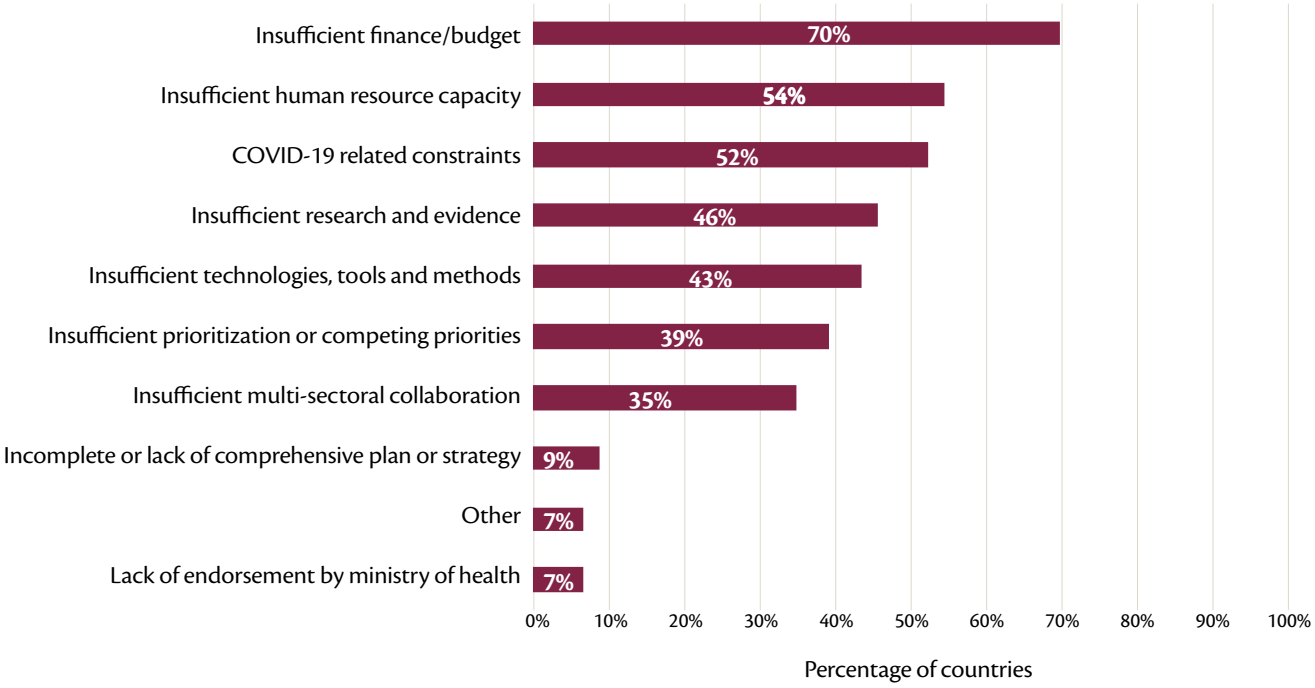
Only a quarter of surveyed countries (11 out of 46) have reached a 'high' or 'very high' level of implementation of their plans or strategies (Figure 9).

FIGURE 9 Level of implementation of national health and climate change plans or strategies (46 country respondents)



Insufficient finance was the main barrier to the implementation of national health and climate change plans and strategies (Figure 10).

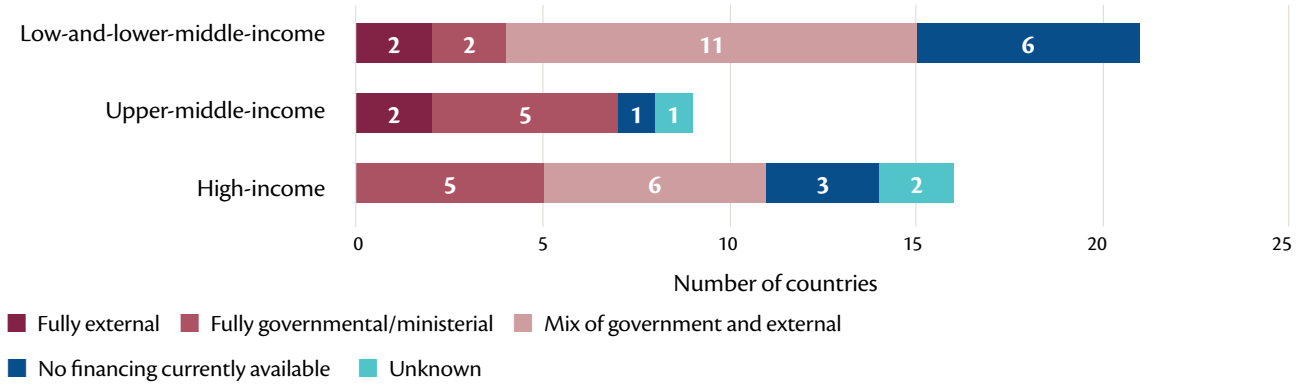
FIGURE 10 Main barriers to implementation of national health and climate change plans or strategies (46 country respondents, multiple responses possible)



Countries identified: insufficient finance, 70% (32 out of 46 countries); human resource constraints, 54% (25 out of 46 countries); insufficient research and evidence, 46% (21 out of 46 countries); and a lack of technologies and tools, 43% (20 out of 46 countries), as some of the key barriers to fully implementing their national health and climate change plans or strategies. The ongoing COVID-19 pandemic was cited as a constraint in over half of respondent countries (24 out of 46) (for further discussion, see Box 2). Over one third of countries (16 out of 46) reported that a lack of multi-sectoral collaboration was a barrier to implementing their plans, suggesting that components of the plans, their prioritization or required resources are reliant on a broader sector-wide coordinated response.

Sixty-two per cent of LLMICs (13 out of 21) reported that they rely on some level of external funding for the implementation of their national health and climate change plans or strategies. Twenty-nine per cent of LLMICs (six out of 21) reported having no funding available to implement their national health and climate change plans or strategies (Figure 11).

FIGURE 11 Current sources of funding for the implementation of national health and climate change plans or strategies, by World Bank income group classification (46 country respondents)



BOX 2 The COVID-19 pandemic

The COVID-19 pandemic has been one of the most catastrophic disease outbreaks in the last century. To date, there have been more than 244 million cases and more than 4.9 million deaths globally *(12)*. In addition to the global case numbers and deaths, other health impacts include illnesses going untreated and undiagnosed, mental health suffering, and funding to pay for COVID-19 vaccination, treatment and health care, likely removing funding from other critical health outcomes.

There are important lessons to be learned from the COVID-19 pandemic that are relevant to climate change and can help inform a stronger approach to tackling the climate crisis. These include: the vulnerability of health systems around the world to shocks; the risk of health emergencies exacerbating existing inequalities (e.g. in health, poverty, gender, race, age); the need for international cooperation in response to large-scale health emergencies; and that inaction can be costly for health, society and economies.

Furthermore, as the world recovers from the pandemic, there is a unique opportunity to build a healthier, more just, and more sustainable future. The *WHO manifesto for a healthy recovery from COVID-19* outlines six prescriptions that promote climate action and good health *(9)*.

WHO conducted a qualitative analysis of 142 new or updated Nationally Determined Contributions (NDCs) under the Paris Agreement for inclusion of health and found that 76% of the 142 NDCs considered COVID-19 recovery in relation to their climate commitments, with 42% of NDCs highlighting the need for a healthy, green recovery from COVID-19, and 32% of NDCs indicating the economic impacts of the pandemic might impede the achievement of national climate goals *(13)*.

According to the 2021 WHO health and climate change global survey findings:

- 52% of surveyed countries (24 out of 46) identified COVID-19-related constraints as a challenge to implementing their national health and climate change plans or strategies and indicated that the continued burden of the pandemic response may limit national health authorities' abilities to plan and prepare for climate-related health stresses and shocks.

- 33% of countries (17 out of 52) for which data was available have included climate change and health considerations in their COVID-19 recovery packages. This could indicate a missed opportunity to ensure a coordinated approach to COVID-19 recovery and climate action going forward. Notably, an additional 42 surveyed countries responded 'unknown', indicating a significant gap in information on this issue.

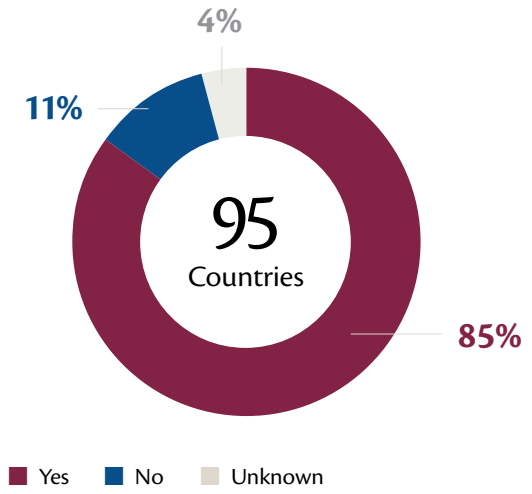
Multisectoral collaboration

Governments, civil society and communities increasingly recognise that an effective response to climate change requires collaboration across all sectors. Sharing knowledge, evidence and innovation supports the horizontal development of policies and programmes needed to combat climate change. Effective leadership ensures the health risks posed by climate change are understood, health adaptation is prioritized and opportunities for health co-benefits from climate action are optimized *(14)*.

Health and climate change focal points can work within the health sector and between sectors to provide coordination and expertise on policy, programmes and practices related to health and climate change.

Eighty-five per cent of countries (81 out of 95) have a designated focal point responsible for health and climate change in their ministry of health (Figure 12).

FIGURE 12 Percentage of countries in which the ministry of health has a designated focal point responsible for health and climate change (95 country respondents)



Health workers are trusted voices. As such, they can play a powerful role in public and political engagement with climate-related health issues. The health workforce plays a particularly important role in community-level engagement, helping prepare communities for climate change and ensuring they have the information they need to respond to climate impacts *(14)*.

Forty-four per cent of ministries of health (41 out of 94) have implemented national public health campaigns on climate change and health.

Multi-stakeholder mechanisms

In 54% of countries (51 out of 95), the ministry of health has established a multi-stakeholder mechanism (e.g. a task force or committee) on health and climate change that is currently operational (Figure 13).

FIGURE 13 Percentage of countries in which the ministry of health has established a multi-stakeholder mechanism on health and climate change that is currently operational (95 country respondents)

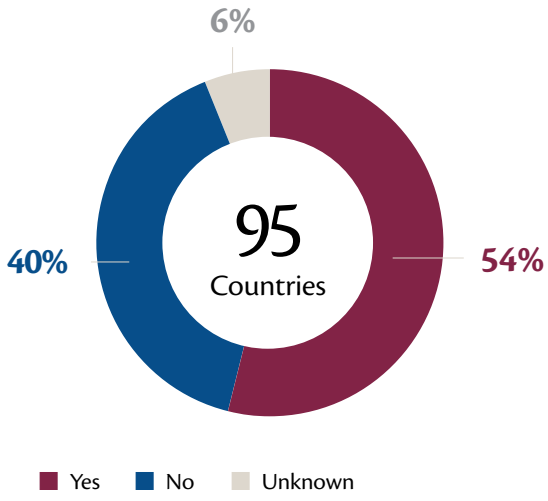


Figure 14 Number of countries that reported participation of specified health programme or cross-cutting area in their multi-stakeholder mechanism on health and climate change (51 country respondents)

Health programmes and cross-cutting areas

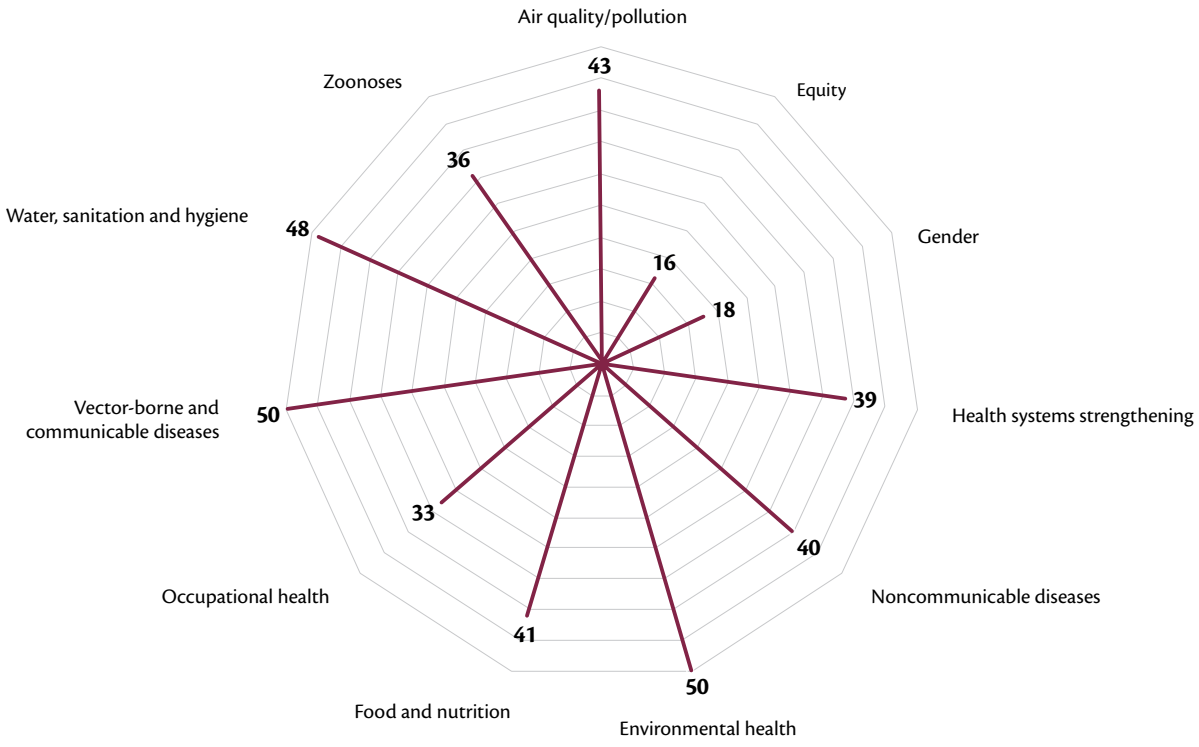


Figure 15 Number of countries that reported participation of specified ministry or sector in their multi-stakeholder mechanism on health and climate change (51 country respondents)

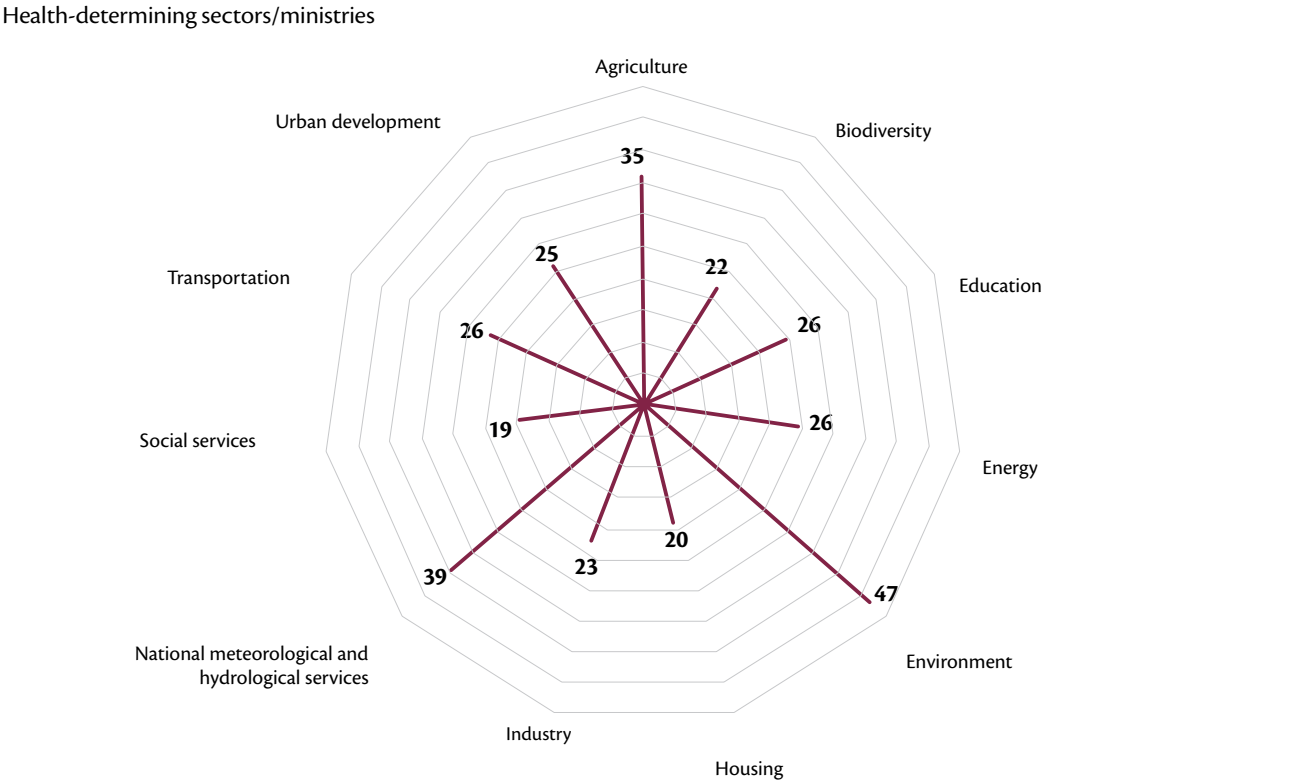
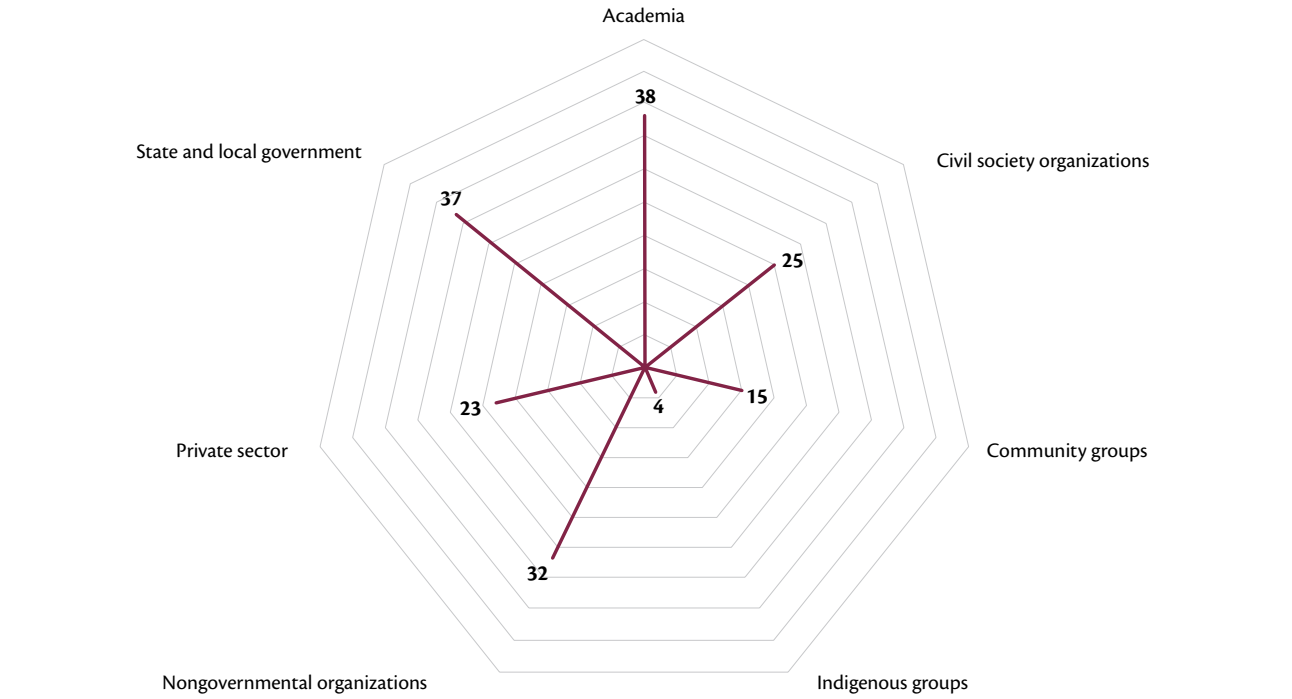


Figure 16 Number of countries that reported participation of specified stakeholders or experts in their multi-stakeholder mechanism on health and climate change (51 country respondents)



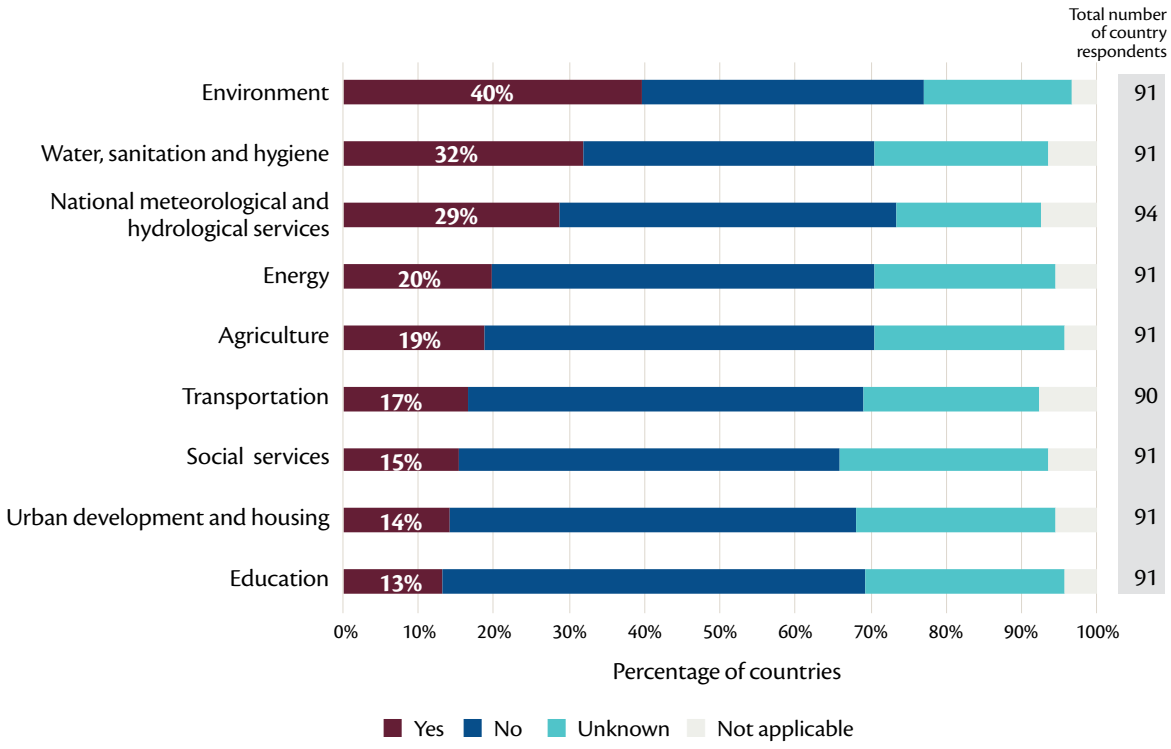
The survey findings indicated that structures to support intersectoral collaboration on policies and programmes related to health and climate change are established in many countries. Participation in multi-stakeholder mechanisms on health and climate change tended to be highest in those health programmes or sectors related to environmental risks to health. For example, over 90% of countries (47 out of 51) reported participation of the environment ministry or sector, 94% (48 out of 51) from water, sanitation and hygiene programmes, and 84% (43 out of 51) from air quality programmes. Health programmes related to vector-borne and communicable diseases and food and nutrition also appeared to be highly represented in multi-stakeholder collaboration mechanisms on health and climate change, 98% (50 out of 51) and 80% (41 out of 51) of countries respectively (Figures 14–16).

Structural and social determinants of health, such as education, equity, gender, urban planning, housing, energy and transportation systems, appeared to be less represented, often in less than half of established multi-sectoral mechanisms. This indicates a potentially missed opportunity to identify and optimize the health benefits of adaptation and mitigation efforts in other sectors. The findings also revealed very low representation of community groups and indigenous groups in these multi-stakeholder mechanisms on health and climate change, 29% (15 out of 51) and 8% (four out of 51) of countries respectively (Figures 14–16).

Formal multi-sectoral agreements

Only around one fifth of countries have established formal agreements on health and climate change policy or programmes between the ministry of health and other key health-determining sectors, such as energy, agriculture and transportation (Figure 17).

FIGURE 17 Percentage of countries that reported having formal agreements in place between the ministry of health and other health- determining sectors on health and climate change policy and programmes



Although collaboration on health and climate change through multi-stakeholder mechanisms is reportedly high among several countries, far fewer countries reported having established formal agreements such as memorandums of understanding (MoUs) between the ministry of health and other sectors that define specific roles and responsibilities on climate and health policy or programmes.

Forty per cent of responding countries (36 out of 91) had MoUs in place between the ministry of health and the environment sector and 32% (29 out of 91) in the water, sanitation and hygiene sector.

Notably, only about 29% of health ministries (27 out of 94) had formal agreements in place with national meteorological and hydrological services on health and climate change (Figure 17). Climate services help health decision-making by providing information about hazardous weather and climate conditions that can impact population health and health facilities *(15)*. A formal collaboration between these sectors could strengthen the accessibility and use of meteorological data and forecasts in areas such as health surveillance and early warning systems, allowing the health sector to be prepared for and respond to climate-related threats in a timely and effective manner (see Chapter 3 for further findings).

BOX 3 Biodiversity, climate change and health

Biodiversity, climate change and health are intrinsically linked. Populations receive numerous health and well-being benefits from clean air, water, soil and forest ecosystems (16). Climate change threatens our terrestrial and marine ecosystems by disrupting hydrological systems and freshwater supplies; causing land degradation and loss of biodiversity; impeding food and agricultural production; and causing ocean acidification (17,18).

Furthermore, the loss of biodiversity and ecosystems exacerbates climate change by releasing stored carbon into the atmosphere and by removing natural environments that act as carbon sinks.

In 2021, WHO, the International Union for the Conservation of Nature (IUCN) and the Friends of Ecosystem-based Adaptation (FEBA) network established a new expert working group on biodiversity, climate, One Health and nature-based solutions. The expert working group will support work across One Health and nature-based solutions by:

1. Identifying co-benefits and trade-offs for human and ecosystem health
2. Strengthening social and ecological resilience
3. Supporting a healthy, green and just recovery from COVID-19 (19)

Forty country respondents in this survey indicated they had a national plan, strategy or platform in place or under development to address health and biodiversity considerations.

- 25 country respondents had National Biodiversity Strategies and Action Plans (NBSAPs)
- 20 country respondents had One Health multi-sectoral initiatives
- 13 country respondents had national multi-stakeholder nutrition initiatives

CHAPTER 3

Implementation

Climate-informed health surveillance and early warning systems

Weather and climate conditions have a significant impact on the incidence and geographical distribution of several diseases. Extreme weather events, such as heatwaves, floods and droughts, alter disease transmission ecologies and population vulnerability, thereby influencing the risk of climate-sensitive diseases *(20)*. Given this, developing climate-informed health surveillance systems can greatly enhance the capacity of health systems to prepare for and adapt to increasing climate-sensitive disease risks and outbreaks. This involves integrating multiple surveillance systems (e.g. disease surveillance and weather surveillance) to improve the use of information for detecting, investigating and responding to public health threats. This integration of data, therefore, improves the flow of surveillance information throughout the health system *(20)*.

Countries differ in the climate-sensitive health risks that pose the greatest threat to their populations or health systems. This may partly account for different levels of progress in the development of climate-informed health surveillance systems[13] by specific climate-sensitive health risk.

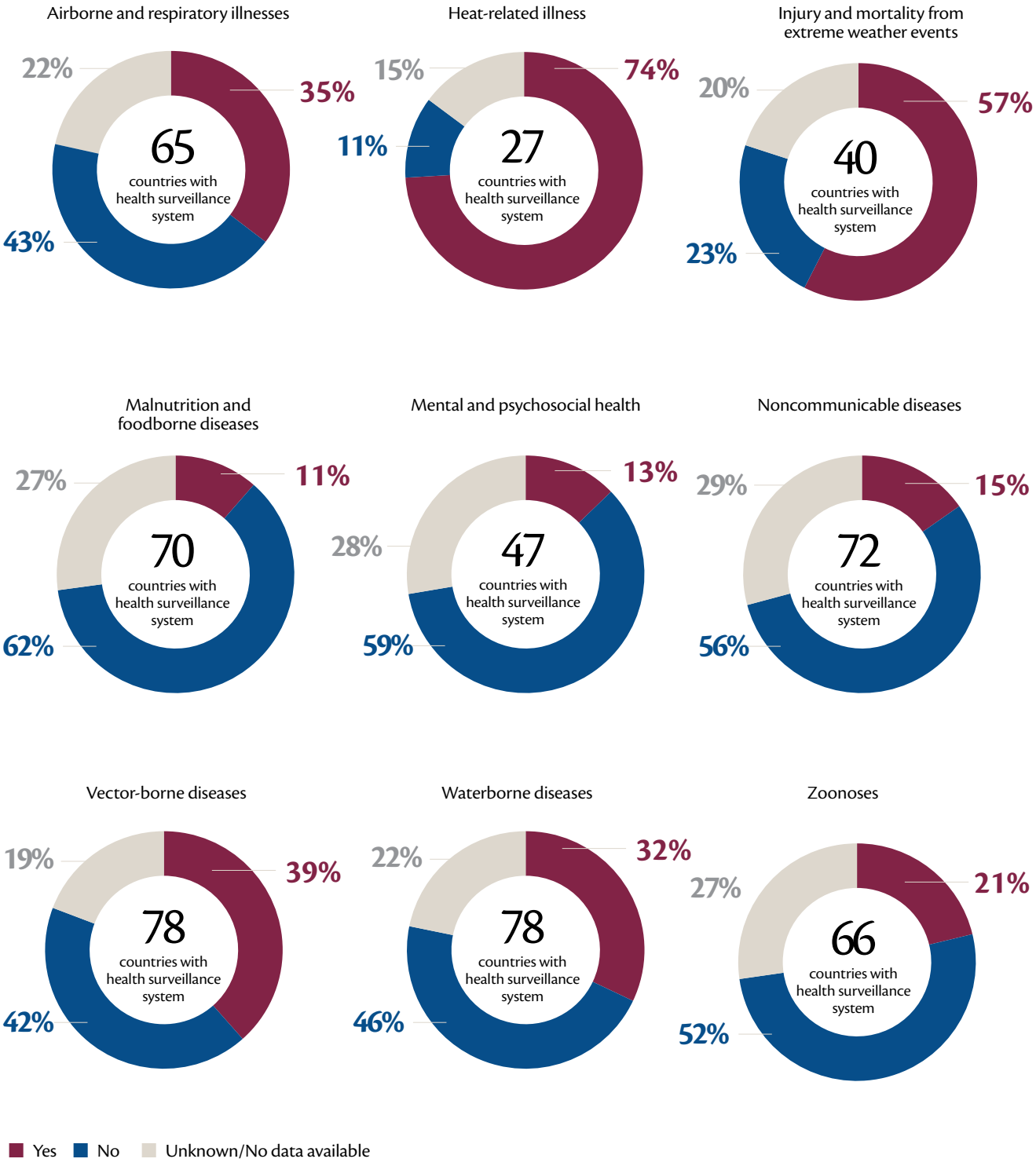
Most commonly, countries have climate-informed health surveillance systems for: vector-borne diseases, 39% of countries (30 out of 78); waterborne diseases, 32% of countries (25 out of 78); or airborne and respiratory diseases, 35% of countries (23 out of 65) (Figure 18).

Few countries have climate-informed health surveillance systems in place for malnutrition and foodborne diseases, 11% (eight out of 70 countries); zoonoses, 21% (14 out of 66 countries); and mental and psychosocial health, 13% (six out of 47 countries) (Figure 18).

For health risks associated with extreme weather events, such as storms, flooding and heatwaves, only a small proportion of countries reported having health surveillance systems in place. However, where countries do have health surveillance systems in place, a high percentage of the countries reported that these systems included meteorological information (57% and 74%, respectively) (Figure 18).

[13] Climate-informed health surveillance systems, in this survey, refers to health surveillance systems that include meteorological information, where meteorological information refers to either short-term weather information, seasonal climate information, or long-term climate information.

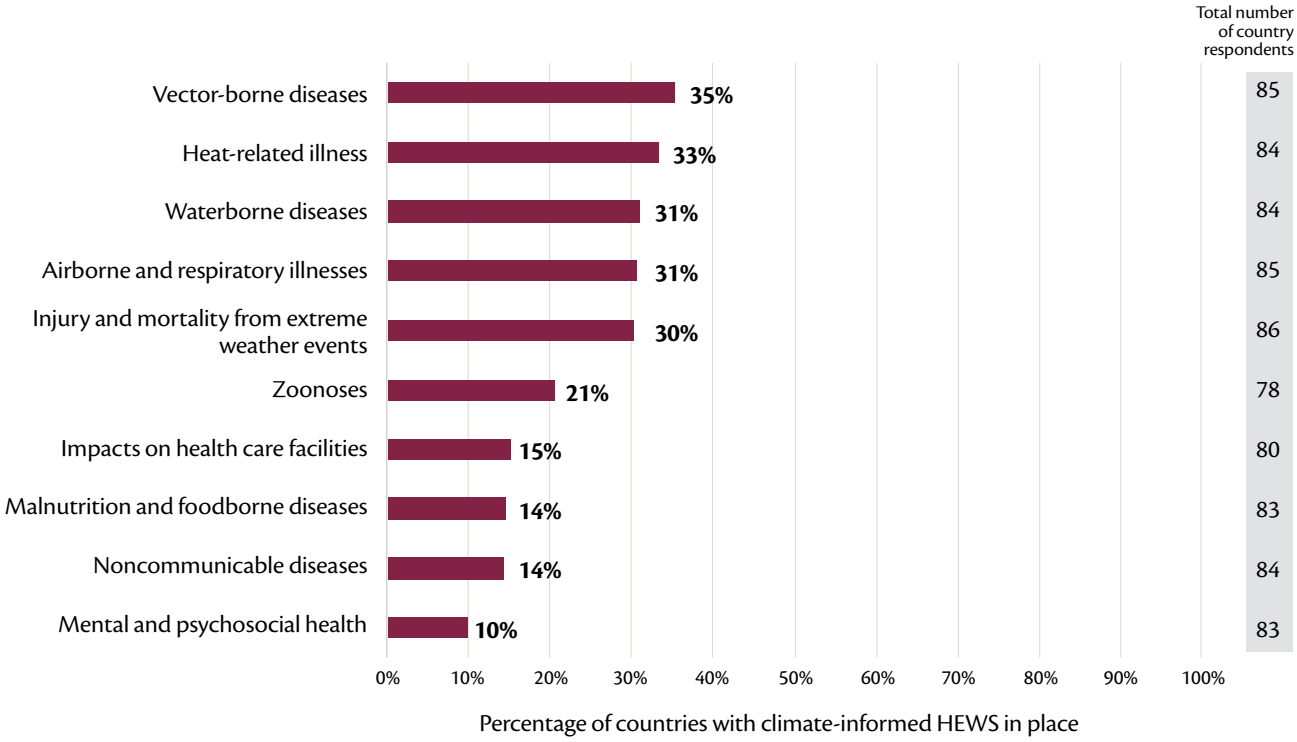
FIGURE 18 Number of surveyed countries that reported having a health surveillance system in place (centre of chart) and what percentage of these health surveillance systems include meteorological information (95 country respondents)



Health early warning systems (HEWS) aim to anticipate risks and trigger early responses to avoid or reduce the impact of health emergencies or disease outbreaks. In the context of a rapidly changing climate and environment, HEWS that use weather and climate information can increase the effectiveness of these tools and help build climate-resilient health systems *(20)*.

Approximately one third of countries reported having climate-informed HEWS in place for vector-borne, waterborne, airborne diseases or heat-related illnesses (Figure 19).

FIGURE 19 Percentage of countries that reported having a climate-informed HEWS (number of country respondents shown in figure)



Fifteen per cent of countries (12 out of 80) reported having climate-informed in place for impacts on health care facilities.

Of the small proportion of countries with climate-informed HEWS in place, between 40% to 75% of these systems had been evaluated, where evaluation, in the context of this survey, was defined as the assessment of the key components, design and application of the climate-informed HEWS related to the indicators used, statistical performance, operational aspects and communication, as well as cost effectiveness.

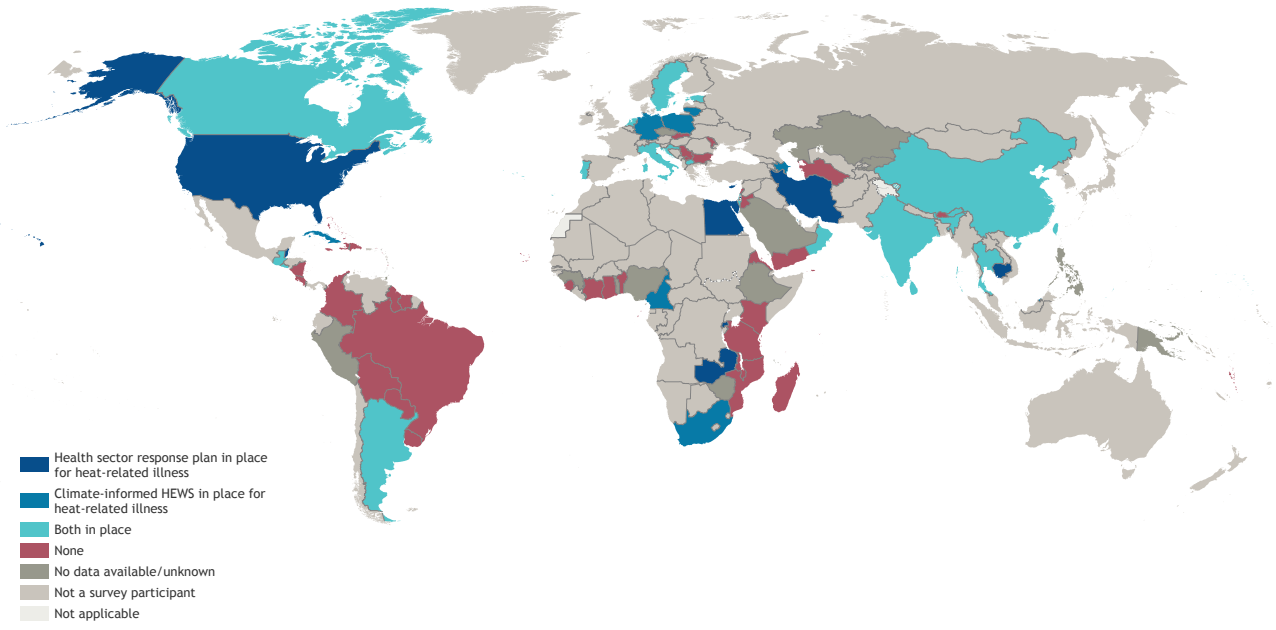
Notably, a high proportion of countries (from 15% to 30%) responded "unknown", indicating further data collection and validation on climate-informed HEWS may be needed to strengthen these findings.

Focus on heat-related health risks

Heatwaves, prolonged periods of excessive heat, can pose a particular threat to human health, resulting in illness and loss of life, livelihoods and socio-economic security. Extreme heat also contributes to the deterioration of environmental determinants of health, such as air, soil and water. The health impacts of heatwaves include heat rash, heat cramps, dehydration, heat exhaustion, heat stroke and death. The recent Sixth Assessment Report from the Intergovernmental Panel on Climate Change (IPCC) addressing the physical science basis for climate change has made it clear that "human-induced climate change is already affecting many weather and climate extremes in every region across the globe"[14] and the frequency and intensity of hot extremes has risen in most regions since the 1950s *(21)*. The Lancet Countdown on Health and Climate Change reports that across the globe, there has been an increase in population vulnerability and exposure to heatwaves *(22)*. At particularly high risk of heat-related illness or death are older adults (>65 years old), children, people with pre-existing medical conditions, outdoor workers, people living in poverty and those who are socially isolated. Figure 20 provides a focused look at country reported data on climate-informed HEWS and the existence of health sector response plans for heat-related illness.

Approximately 39% of countries (37 out of 95) reported having a climate-informed HEWS or a health sector response plan in place for heat-related illness.

FIGURE 20 Map of countries and areas with climate-informed HEWS or health sector response plans for heat-related illness (95 respondents)



Data Source: Survey respondents (ministries of health)
Map Production: WHO GIS Centre for Health, DNA/DDI
Map Creation Date: **28 October 2021**

World Health Organization

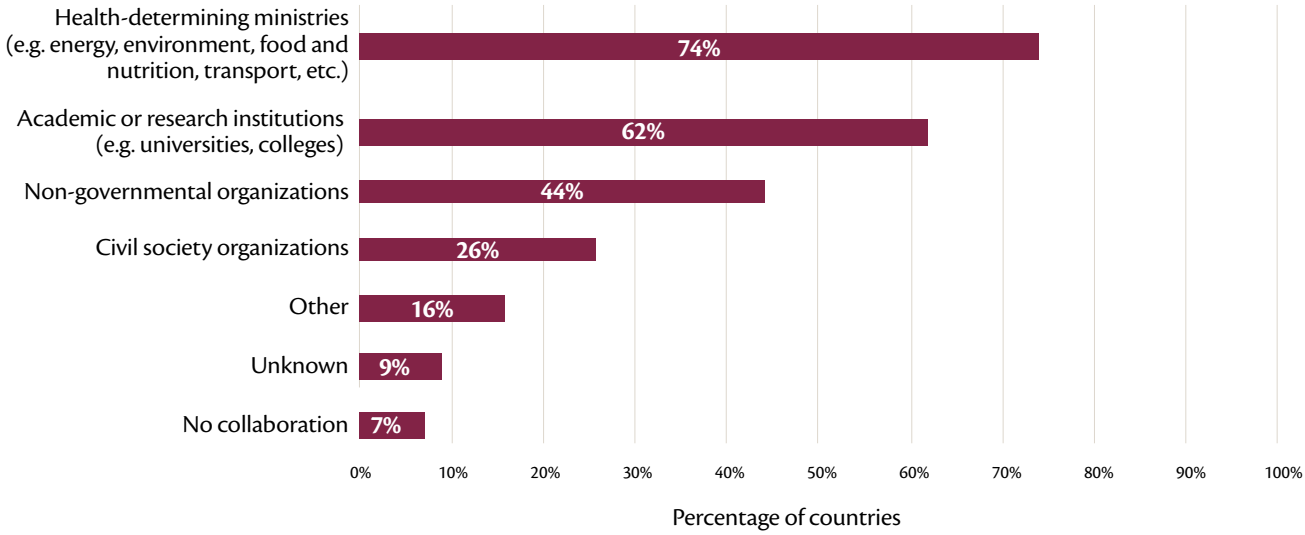
[14] The IPCC Sixth Assessment cycle includes reports from three Working Groups, a Synthesis Report and three Special Reports. The *Working Group I contribution to the Sixth Assessment Report, Climate Change 2021: The Physical Science Basis* is the first to be released in this cycle.

Health and climate change research

Health and climate change research is a critical component of ensuring that health programmes are climate-informed, robust and up to date. Research, from the local to global level, can be used to improve knowledge and understanding of such areas as: current and future climate hazards, and their expected impacts on health and well-being; preparedness of communities and local health services for climate-related stresses and shocks; and methods for assessing the effectiveness of policies and programmes *(14)*.

Seventy-four per cent of countries (70 out of 95) reported some inter-ministerial collaboration on health and climate change research. By contrast, only around a quarter of countries (25 out of 95) reported research collaboration between the ministry of health and civil society organizations (Figure 21).

FIGURE 21 Percentage of countries that reported collaboration between the ministry of health and other institutions to strengthen evidence or research on climate change and health (95 country respondents, multiple responses possible)



Fourteen countries reported "other" research collaboration. Examples included collaborations between the ministry of health and local or provincial governments, national indigenous organizations, the United Nations (UN), WHO, and the National Red Cross and Red Crescent Society.

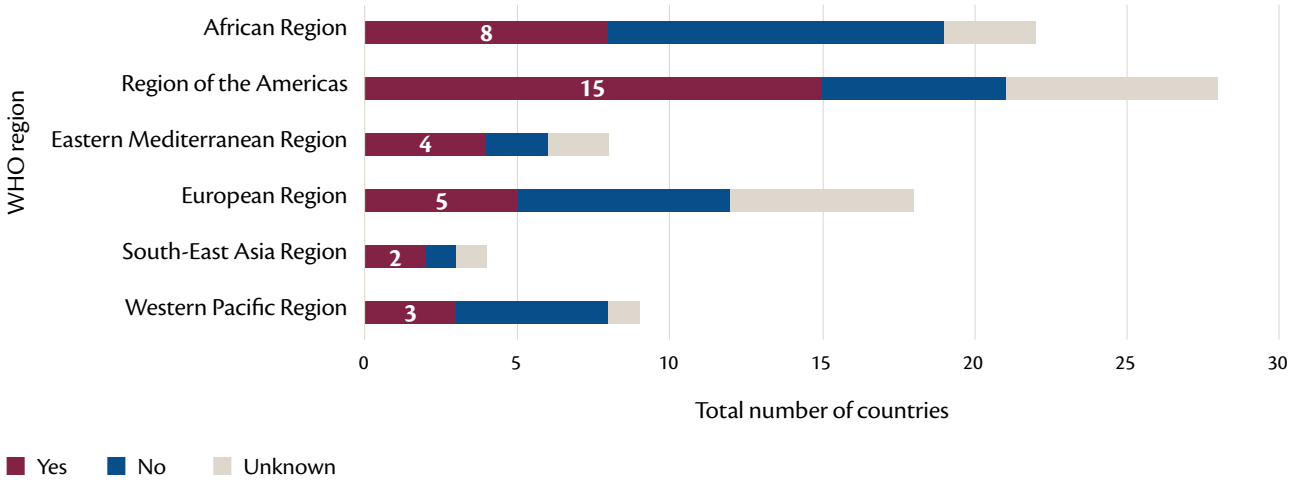
These findings indicate that collaboration on health and climate change research is established in most countries, but further information would be required to understand whether the level of research on climate change and health is sufficient, well-resourced, and how the research results are used.

Health workforce

In many ways, the health workforce is on the frontline of climate change. Health systems are reliant upon an effective health workforce to achieve the best possible health outcomes in the face of climate hazards. Core competencies in health care workers are required to cope with rising climate-related health impacts *(23)*. These competencies can be strengthened with training, education, mentoring and knowledge sharing. Specifically, the health workforce can be supported to better understand and use climate information for health decision-making; engage in cross-sectoral monitoring; conduct research and interventions; and effectively manage evolving risks to health and health system performance *(14)*.

Forty-two per cent of countries (37 out of 89) reported that some ministry of health personnel received training in health and climate change in the past two years.[15]

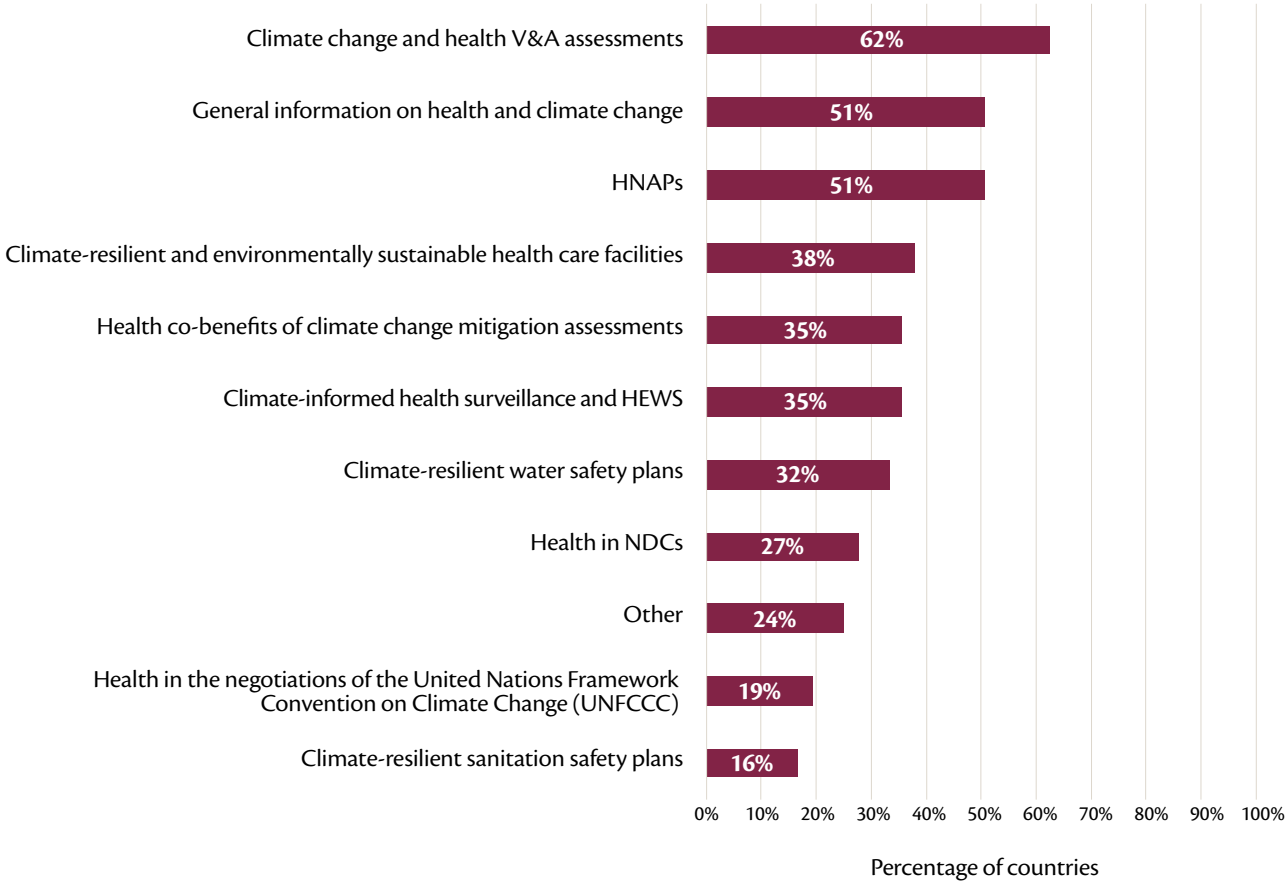
FIGURE 22 Number of countries, by WHO region, that reported ministry of health personnel had received training on climate change and health in the past two years (89 country respondents)



Of the 37 countries in which health personnel have received some training in health and climate change areas, most frequently this training had covered climate change and health V&A assessments (62%) and HNAPs (51%) (Figure 22).

[15] Ministry of health personnel includes both staff in environmental health and climate programmes but also staff in other health programmes. The proportion of the health staff that received training is not reflected in these findings, therefore it refers to at least some health personnel receiving some training.

FIGURE 23 Percentage of countries that reported ministry of health personnel had received training on health and climate change in the past two years, by training topic (37 country respondents, multiple responses possible)



As LLMICs are some of the countries most vulnerable to the health impacts of climate change, health workforce capacity-building is critically important. In considering the 13 LLMICs in which some health personnel have received training in health and climate change, most frequently (eight countries) these reported to have received training on climate change and health V&A assessments. Only three out of 13 LLMICs reported that ministry of health personnel had received any training on climate-resilient water safety plans and two LLMICs on climate-resilient sanitation safety plans.

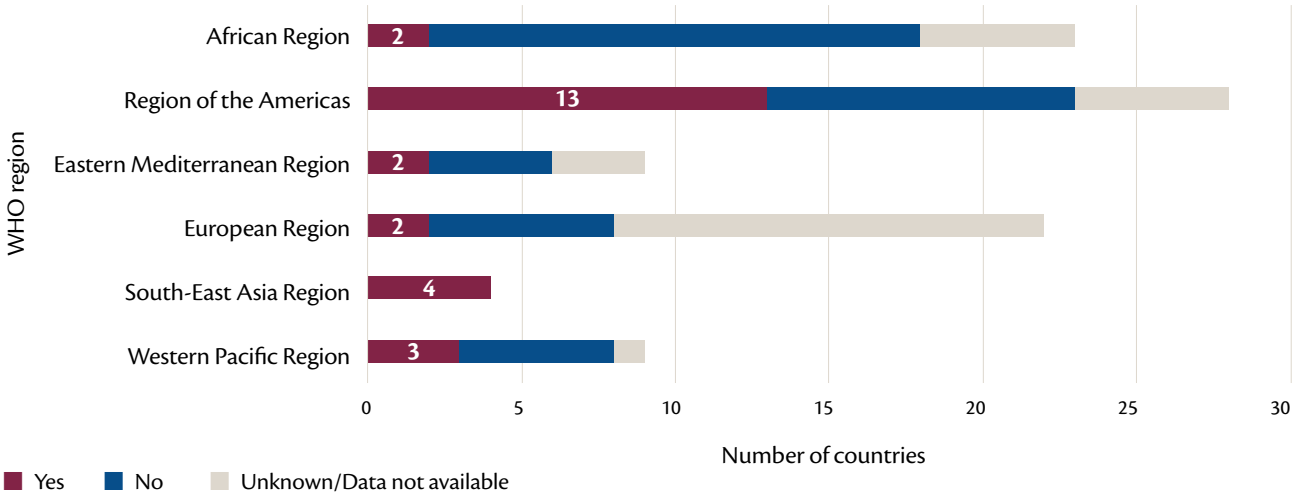
Climate-resilient and environmentally sustainable health care facilities

Health care facilities can range from small health clinics to large hospitals. All types of health care facilities are vulnerable to climate change and other environmental stresses *(24)*. Climate-resilient and environmentally sustainable health care facilities are better able to anticipate, respond to, cope with, recover from, and adapt to climate-related shocks and stresses. Reducing the health impacts of climate change requires ensuring that health systems and facilities can withstand potential climatic shocks and stresses, manage the health fallout from climate-related events, and continue to deliver health care to those who need it.

Health care facilities themselves can contribute to environmental degradation and climate change. It is estimated that the health sector is responsible for around 4.4% of global greenhouse gas emissions *(25)*, from areas such as energy consumption for the provision of health services, procurement of products and technologies, transport, and waste disposal. Climate-resilient and environmentally sustainable health care facilities reduce the health sector's environmental and climate impact by optimizing the use of resources and minimising greenhouse gas emissions, air pollutants and waste *(24)*.

Twenty-seven per cent of countries (26 out of 95) have assessed the climate resilience of at least one of their health care facilities (Figure 24).

FIGURE 24 Number of countries that reported at least one health care facility had been assessed for climate resilience (95 country respondents)

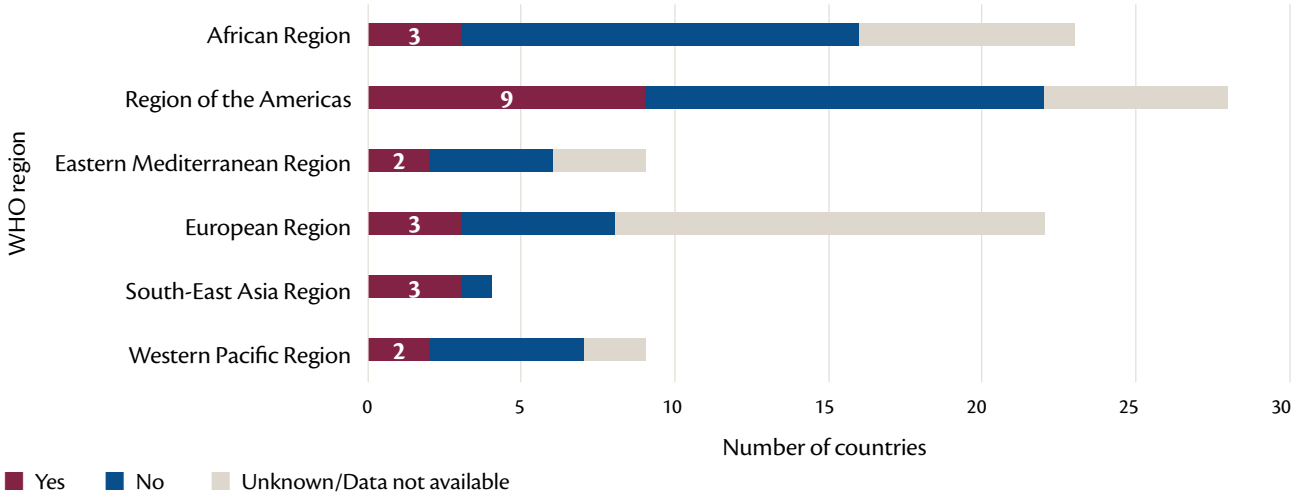


Data for 17 country respondents provided preliminary estimates of the proportion of total public health care facilities that had been assessed for climate resilience in countries. Of these, 47% (eight out of 17) had assessed 10% or less of all public health care facilities and 35% (six out of 17) had assessed between 11% and 50% of all public health care facilities. Three remaining countries reported to have assessed nearly all pubic health care facilities; it is worth noting, these were in small island developing states (SIDS) with a low number of health care facilities.

While these findings provide a sense of the level of uptake of assessments of health care facilities for climate resilience in countries, it does not indicate the coverage, scope and comprehensiveness of these assessments. The findings also do not provide information on the measures that have been taken to strengthen the climate resilience and environmental sustainability of health care facilities. These findings therefore can be considered a first step towards incorporating global indicators on Climate-resilient and environmentally sustainable health care facilities in the WHO health and climate change global survey.

Twenty-three per cent of countries (22 out of 95) have assessed the environmental sustainability of at least one of their health care facilities (Figure 25).

FIGURE 25 Number of countries that reported at least one health care facility had been assessed for environmental sustainability (95 country respondents)



CHAPTER 4

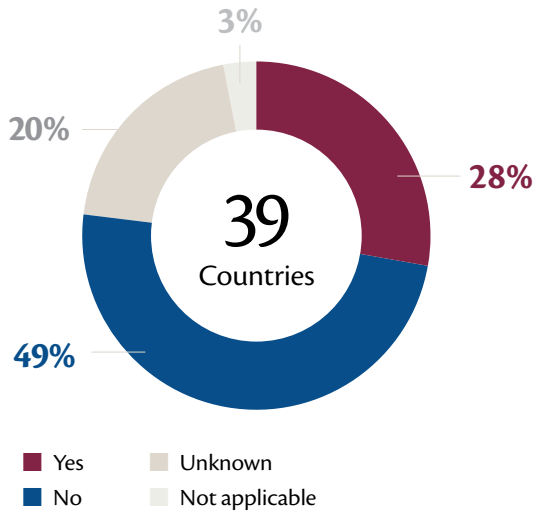
Finance

Access to international climate funds

Climate finance is essential for health adaptation and mitigation. Often, the most climate change vulnerable countries in the world have the highest burden of disease and lack sufficient resources to adequately prepare for and protect against the scale of climate impacts they face. Funding mechanisms offer such countries means of accessing finance to implement climate projects that will help reduce the impacts of climate change on their population. Under the UNFCCC, Parties committed to mobilising US$ 100 billion a year by 2020 to help LLMICs adapt to climate change and promote low-carbon development *(26,27)*.

Only 28% of LLMICs (11 out of 39) reported that the ministry of health is currently receiving international funds to support their health adaptation and mitigation activities (Figure 26).

FIGURE 26 Percentage of LLMICs that reported that the ministry of health is currently receiving international funds to support health and climate change work (39 country respondents)

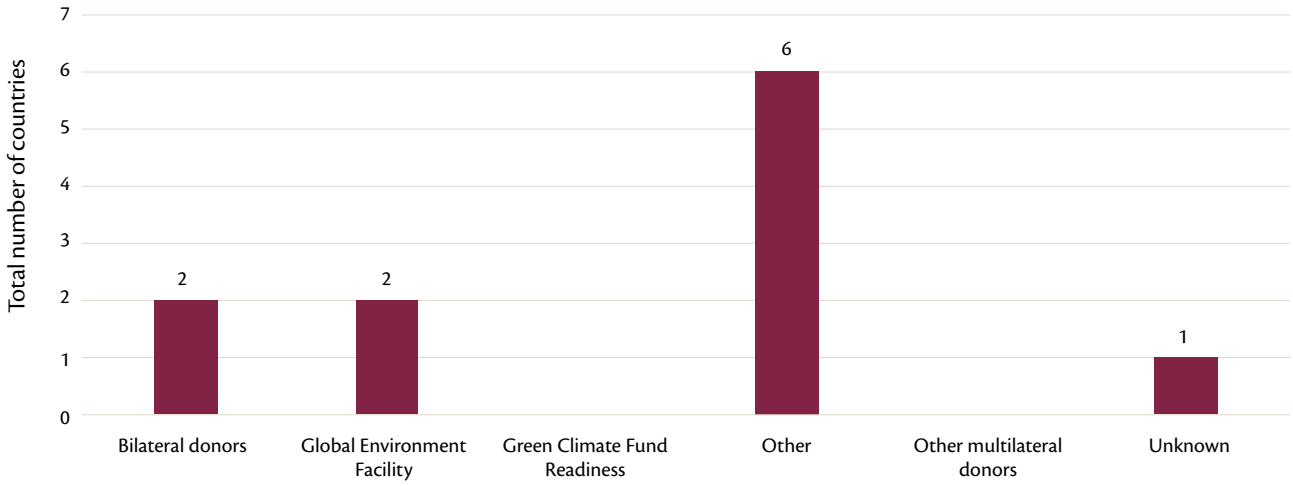


Although climate funding rose year-on-year to try to meet this target, initial data suggests the US$ 100 billion finance target was not met by 2020 *(28)*. In 2018, estimates from the Organisation for Economic Co-operation and Development (OECD) showed climate financing reached US$ 78.9 billion *(29)*. However, some estimates suggest that "new and additional" funding is short of the US$ 100 billion target by as much as 50% *(30)*. Insufficient climate financing raises enormous challenges for vulnerable countries around the world, which rely on funding support to implement measures to improve their climate resilience and adapt to specific climate impacts. If climate financing does not meet the level required, we risk exacerbating existing global, regional and local inequalities. In addition, health is neglected even within adaptation funding. Previous reviews have indicated that only approximately 2% of adaptation funding, and 0.5% of overall funding from multilateral climate finance sources is allocated to projects that explicitly aim to protect or improve human health.[16]

There are finance mechanisms from public, private and alternative sources that countries can access. These include the Global Environment Facility, Green Climate Fund, Special Climate Change Fund, Least Development Countries Fund, and the Adaptation Fund *(31)*.

[16] These figures are based on reviews of the Climate Funds Update database.

Figure 27 Source of international funds being received by ministries of health for health and climate change work (10 country respondents, multiple responses possible if multiple donor awards were being received)[17]



In addition to these eleven LLMICs, six SIDS, classified as upper-middle-income and HICs, had received international funds for climate change and health activities. These funds came from Green Climate Fund Readiness awards (two SIDS) and other bilateral donors (four SIDS).

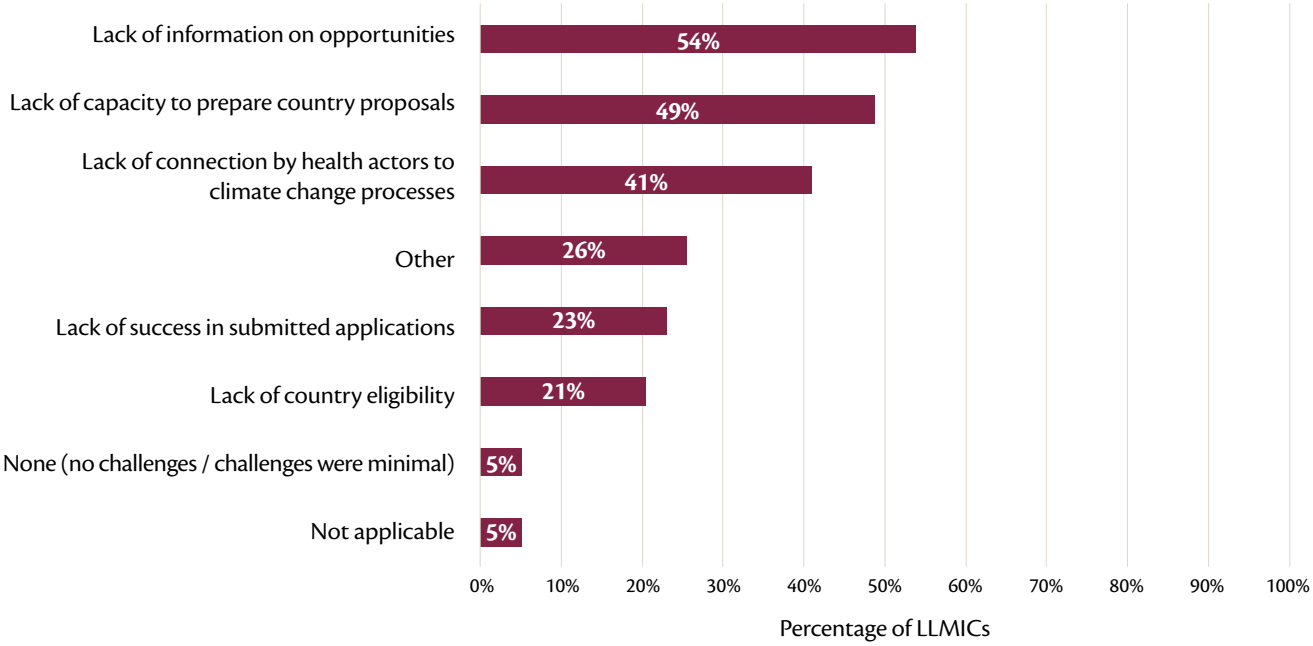
Eight LLMICs provided data on the amount of the international climate funds currently being received. Preliminary findings indicate the amount of the multi-year awards ranged from US$ 5000 to US$ 900 000. Most countries were receiving less than US$ 500 000.

Most often, international funds were focused on multiple initiatives, including conducting climate change and health V&A assessments (seven countries), implementing climate-informed health programmes (six countries), developing HNAPs (five countries) and strengthening the climate resilience and environmental sustainability of health care facilities (five countries).

[17] Of the six LLMICs that cited "other", these sources were listed as: WHO, the United Nations Development Programme, and ad-hoc activities of technical and financial partners. Bilateral donors that were specified included: Flanders and the Foreign, Commonwealth & Development Office of the United Kingdom, FCDO (formerly the Department for International Development, DFID).

A lack of information on opportunities, a lack of capacity to prepare proposals and a disconnect from climate processes are the main barriers that ministries of health in LLMICs face in accessing international climate funds for health and climate change activities (39 country respondents) (Figure 28).

FIGURE 28 Greatest challenges the ministry of health has faced in accessing international funds for health and climate change work (39 country respondents, multiple responses possible)[18]



[18] 'Other' barriers cited by LLMICs included COVID-19 constraints, lack of prioritization, insufficient inclusion of health issues in national adaptation plans, lack of ministry representation, and/or climate funds being managed by other ministries or institutions.

CHAPTER 5

Promoting health co-benefits of climate change mitigation

Assessments of the health co-benefits of climate change mitigation

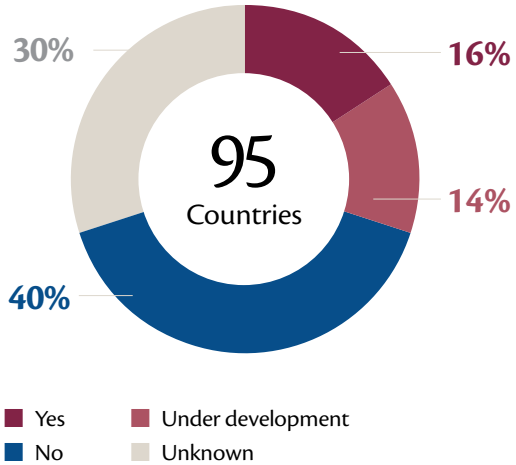
Evidence shows that there are substantial health co-benefits from taking ambitious climate mitigation and adaptation action across sectors like energy, transport, housing, agriculture and industry. Health gains and their associated economic savings can provide an important incentive for governments to raise their climate ambition. Recent studies have shown that the economic savings from improved health outcomes of reaching commitments under the Paris Agreement would far outweigh climate mitigation costs *(32)*.

However, some mitigation policies may not maximize potential health gains and some could potentially cause harm to health. As such, it is important that countries continue to strengthen the evidence of health benefits from climate mitigation action and that health stakeholders are fully involved with climate processes at all levels, to ensure health considerations are well understood, appreciated, and accounted for when developing national policies to address climate change *(1)*.

Of the small number of countries that reported to have conducted an assessment of the health co-benefits of mitigation action, preliminary findings indicate that only two included a quantitative assessment of the health gains of mitigation action. A number of the reported qualitative assessments seemed to consider health benefits from both mitigation and adaptation actions.

Only 16% of countries (15 out of 95) have conducted an assessment of the health co-benefits of national climate mitigation policies.[19]

FIGURE 29 Percentage of countries that reported having conducted at least one assessment of the health co-benefits of national climate mitigation policies (95 country respondents)



[19] Countries were asked if they had completed at least one assessment of a national climate mitigation policy or policies. Countries were able to note if multiple assessments had been completed.

Health in NDCs

NDCs outline each country's commitment to reduce greenhouse gas emissions in order to achieve the goal of the Paris Agreement. It is expected that every five years countries will increase their climate mitigation ambition through successive, updated NDCs *(33)*. The inclusion of health considerations in NDCs is important to identify the health impacts of climate change, outline health adaptation and resilience priorities, and present evidence of the health co-benefits of climate mitigation policies in order to strengthen the health argument for accelerating climate action.

Findings from the 2021 WHO Global Health and Climate Change Global Survey indicate that in 43% of countries (39 out of 90) the ministry of health contributed to the development of the country's NDC.

WHO conducted a qualitative analysis of 142 new and updated NDCs in 2020–2021 *(13)*, to better understand current health inclusion in NDCs and to compare the findings with a previous analysis of 184 NDCs in December 2019 *(34)* (Table 3).

TABLE 3 Findings from a qualitative analysis of health inclusion in NDCs

Health consideration	Percentage of 184 NDCs in 2019	Percentage of 142 new or updated NDCs in 2020–2021	Summary of change
Health is mentioned in NDC	**70%**	**94%**	**▲ 24%**
Health adaptation priorities are mentioned in NDC	**84%**	**61%**	**▼ 23%**
Health co-benefits of climate mitigation are referenced in NDC	**10%**	**28%**	**▲ 18%**
Health co-benefits of mitigation are quantified in NDC	**1%**	**10%**	**▲ 9%**

Compared with the first round of NDCs, there was a significant increase in the references made to the health co-benefits of climate policies, targets or interventions (28% of NDCs in 2020–2021 compared with 10% in 2019).

Although there was an increase in the percentage of NDCs that included the quantification of health co-benefits of mitigation (from 1% to 10%), the number remains quite low. Scaling up national assessments in this area will help strengthen evidence for policy-setting. WHO collaborates with governments, national experts and international organizations to quantify the health and economic benefits of NDCs. National research studies in Pakistan, Colombia, Nigeria and Rwanda have investigated the health and economic gains through reduced air pollution expected if countries achieve their NDC targets *(35)*. These studies have also piloted the WHO Carbon Reduction Benefits on Health (CaRBonH) and the WHO Benefits of Action to Reduce Household Air Pollution (BAR-HAP) tools for estimating the climate, health and economic benefits of NDCs *(36,37)*.

Sixty-one per cent of 142 NDCs now include health adaptation targets or actions. This number is lower than in the 2019 analysis, most likely reflecting that a number of LLMICs had not yet submitted their new or updated NDCs at the time of this analysis because those countries tend to include health adaptation at a much higher rate than HICs. Health is one of the three sectors most often prioritized for adaptation in the NDCs, along with water and agriculture.

Progress has clearly been made on including health considerations in NDCs. Strengthening evidence on health and climate change and ensuring the active representation of health stakeholders in the development and implementation of NDCs will further advance these efforts.

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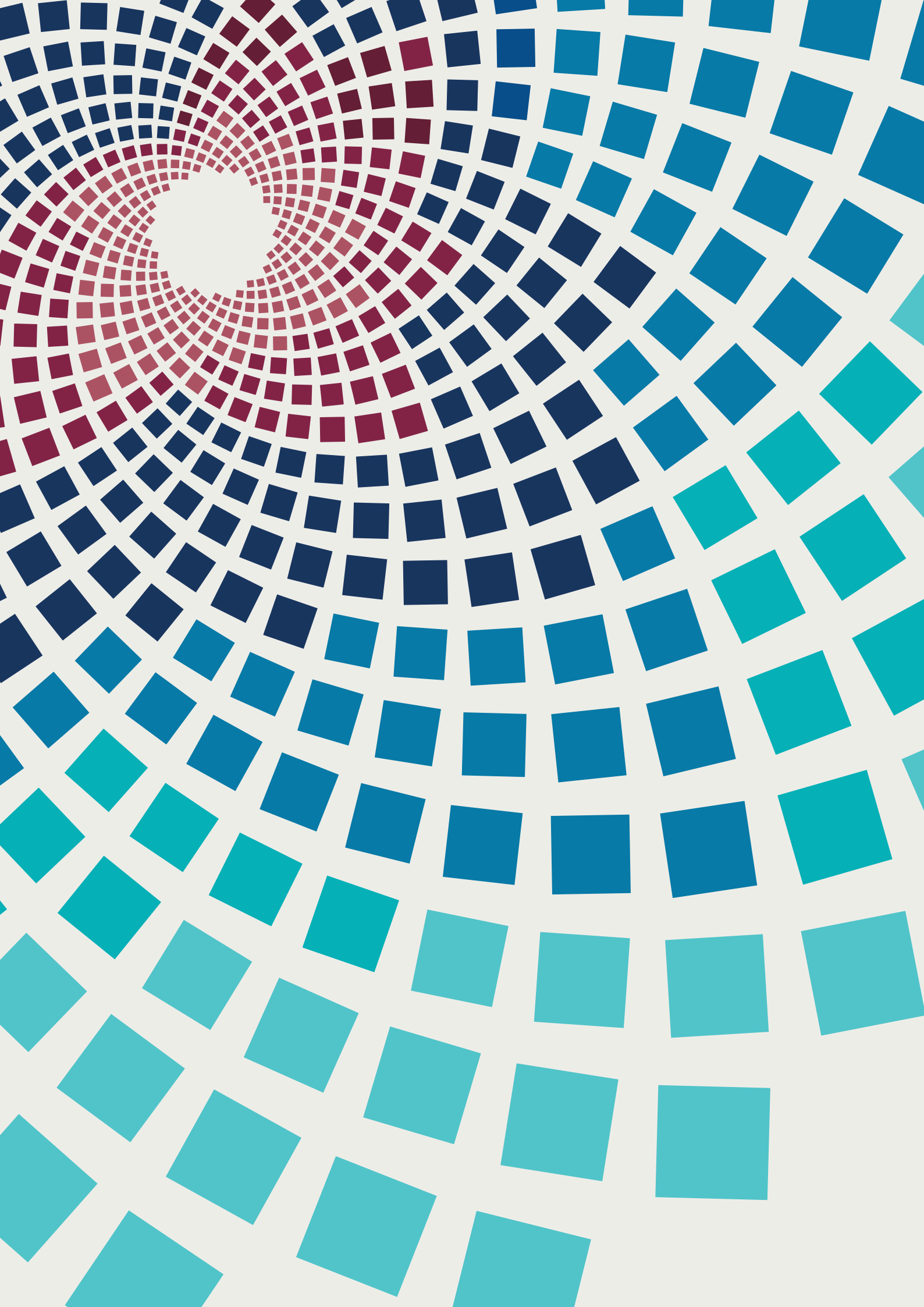


Annexes

ANNEX 1

Survey methodology

Introduction

The WHO health and climate change global survey is conducted every three years. All 194 WHO Member States and non-Member Territories are invited to participate in the voluntary online survey. The 2021 Global Survey was launched in March 2021 and final submissions were requested by August 2021. A number of countries requested extensions due to the ongoing pandemic response and therefore additional submissions were received in September and October 2021. The survey questionnaire was translated and available online in all six official UN languages.

Participation in the survey has grown substantially over the years. In 2015, 40 countries[20] responded to the survey. This grew to 101 country respondents in 2018 *(3)*. Despite the COVID-19 pandemic and its demands on ministries of health, participation remained high in this third cycle with 95 country respondents.

List of 95 country respondents

Argentina, Azerbaijan, Bahamas, Bahrain, Barbados, Belize, Benin, Bhutan, Bolivia (Plurinational State of), Brazil, British Virgin Islands, Brunei Darussalam, Bulgaria, Cabo Verde, Cambodia, Cameroon, Canada, China, Colombia, Comoros, Costa Rica, Côte d'Ivoire, Croatia, Cuba, Cyprus, Czechia, Dominica, Dominican Republic, Egypt, El Salvador, Eritrea, Estonia, Ethiopia, Germany, Ghana, Grenada, Guatemala, Guinea, Guyana, Haiti, India, Iran (Islamic Republic of), Israel, Italy, Jamaica, Jordan, Kazakhstan, Kenya, Kyrgyzstan, Lebanon, Lithuania, Madagascar, Malawi, Marshall Islands, Micronesia (Federated States of), Mozambique, Netherlands, Nicaragua, Nigeria, North Macedonia, occupied Palestinian territory, including East Jerusalem, Oman, Palau, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Republic of Moldova, Rwanda, Saint Kitts and Nevis, Saint Lucia, San Marino, Sao Tome and Principe, Saudi Arabia, Serbia, Seychelles, Sierra Leone, Slovakia, South Africa, Sri Lanka, Suriname, Sweden, Thailand, Togo, Trinidad and Tobago, Turkmenistan, United Republic of Tanzania, United States of America, Uruguay, Vanuatu, Yemen, Zambia, Zimbabwe.

Country consultation process

The global survey is completed by ministries of health in consultation with other health stakeholders, ministries and institutions.

Of the 95 country submissions, 69 surveys were completed in consultation with one to six different stakeholders, ministries or institutions. Five countries consulted between 10 to 12 stakeholders, ministries or institutions. Fifteen countries did not consult with other entities or health programmes. Most often, ministry of health focal points consulted with other public or environmental health programmes (47 out of 95), followed by environment or climate change ministries or government departments or agencies (32 out of 95), epidemiology and disease control units (18 out of 95), UN agencies including WHO (eight out of 95), academia/research institutions (seven out of 95), disaster management departments, the ministry of finance (three out of 95), other ministries (six out of 95), and national meteorological and hydrological services (three out of 95).

[20] For the purpose of this survey, the term "country" is used to denote all Member States and non-Member territories and areas that participated in the survey. This is for simplification of the reporting language but does 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.

Data quality and validation

Validation of the 2021 country reported data was undertaken in multiple steps. First, survey responses were reviewed for missing information or inconsistencies with follow-up questions directed to survey respondents. A summary of responses was shared with WHO regional focal points and key informants for review, comments and validation. Source documents including national health strategies and plans, and climate change and health vulnerability and adaptation assessments were collected. A desktop review of these source documents was conducted to compare with survey results with follow-up to survey respondents to seek clarification or additional documentation. Findings were also cross referenced with existing external publications. Data were collected detailing all the ministries, institutions and national stakeholders that provided contributions to or review of the survey responses in order to provide insight into the national consultation process of each survey submission. Finally, all respondents reviewed and acknowledged the WHO data policy statement on the use and sharing of data collected by WHO in Member States outside the context of public health emergencies.

Of note, due to the ongoing pandemic, the standard data collection procedures were modified to reduce the reporting burden on countries that wished to participate in the Global Survey but that were facing human resource constraints due to pandemic response. In eight cases, WHO prepared pre-filled survey questionnaires with data provided by ministries of health in the previous 2018 survey cycle or using data the countries had published in the 2020/2021 WHO UNFCCC health and climate change country profile when available. These countries were requested to review, revise, and complete the hard copy questionnaires. These hard copy questionnaires were then entered into the online platform by WHO. The same data validation steps as described above were then followed.

Additionally, a number of countries requested an extension of the reporting period. As such, there may be a slight increase in the total number of participating countries in the *WHO health and climate change global survey report* after the time of the publication of the report and an online dynamic data dashboard will reflect any updated data and findings as required with specified version time and date.

ANNEX 2

Summary of country responses

Country or Area	Has your country conducted a climate change and health vulnerability and adaptation assessment(s)?[a]	Year of completion of latest assessment	Did the results of the latest assessment result in the development of new or revision of existing health policies or programmes?	Did the results of the latest assessment influence the allocation of human and financial resources within the ministry of health to address health risks of climate change?
Argentina	●			
Azerbaijan	✗			
Bahamas	✗			
Bahrain	✓	2020	Strongly	Strongly
Barbados	✗			
Belize	✗			
Benin	✓	2020	Minimally	No
Bhutan	✓	2013	Strongly	Moderately
Bolivia (Plurinational State of)	✗			
Brazil	✓	2020	Strongly	No
British Virgin Islands	▮			
Brunei Darussalam	✗			
Bulgaria	✓	2020	Unknown	Unknown
Cabo Verde	✓	2017	Moderately	Minimally
Cambodia	✓	2019	Strongly	Strongly
Cameroon	▮			
Canada	✓	2021		
China	✓	2021	Unknown	Unknown
Colombia	✗			
Comoros	▮			
Costa Rica	●			
Côte d'Ivoire	✓	2015	No	No
Croatia	✓	2019	Unknown	Moderately
Cuba	✓	2020	Moderately	Moderately
Cyprus	✗			
Czechia	✓	2017	Unknown	No
Dominica	✓	2017	Moderately	No
Dominican Republic	✗			
Egypt	●			
El Salvador	▮			
Eritrea	✓	2020	Minimally	Minimally
Estonia	✓	2016	Moderately	Minimally
Ethiopia	✓	2015	Strongly	Strongly
Germany	✓	2021	Strongly	Strongly
Ghana	✓	2016	Minimally	No
Grenada	✓	2016	Strongly	Moderately
Guatemala	✓	2020	No	No
Guinea	✓	2017	Minimally	No
Guyana	✗			
Haiti	✗			
India	✓			
Iran (Islamic Republic of)	✓	2020	Unknown	Unknown
Israel	●			
Italy	●			
Jamaica	●			
Jordan	✓	2012	Minimally	No
Kazakhstan	▮			
Kenya	✓	2017	Very strongly	No
Kyrgyzstan	●			
Lebanon	●			
Lithuania	✓	2014	Moderately	Moderately

Country or Area	Has your country conducted a climate change and health vulnerability and adaptation assessment(s)?[a]	Year of completion of latest assessment	Did the results of the latest assessment result in the development of new or revision of existing health policies or programmes?	Did the results of the latest assessment influence the allocation of human and financial resources within the ministry of health to address health risks of climate change?
Madagascar	✓	2015	Very strongly	Minimally
Malawi	✓	2016	Moderately	Minimally
Marshall Islands	✓	2019	Strongly	Strongly
Micronesia (Federated States of)	▮			
Mozambique	✓	2019	Strongly	Unknown
Netherlands	✓	2014	Minimally	Minimally
Nicaragua	●			
Nigeria	✗			
North Macedonia	✓	2010	Strongly	Moderately
occupied Palestinian territory, including East Jerusalem	●			
Oman	✓	2019	Unknown	Unknown
Palau	✓	2015	Moderately	Strongly
Papua New Guinea	✗			
Paraguay	▮			
Peru	●			
Philippines	✓	2016	Very strongly	Moderately
Poland	✓	2020	Minimally	
Portugal	●			
Republic of Moldova	▮			
Rwanda	✓	2015	Very strongly	Very strongly
Saint Kitts and Nevis	✗			
Saint Lucia	✓		Strongly	Moderately
San Marino	●			
Sao Tome and Principe	✓	2012	Strongly	Strongly
Saudi Arabia	●			
Serbia	✗			
Seychelles	●			
Sierra Leone	✗			
Slovakia	✗			
South Africa	●			
Sri Lanka	✓	2016	Moderately	Minimally
Suriname	✗			
Sweden	✓	2021	Unknown	Unknown
Thailand	✓	2016	Moderately	Moderately
Togo	✓	2020	Very strongly	Strongly
Trinidad and Tobago	✓	2019	No	No
Turkmenistan	✗			
United Republic of Tanzania	✓	2015	Minimally	Minimally
United States of America	✓	2020		
Uruguay	✗			
Vanuatu	✗			
Yemen	✗			
Zambia	✓	2020	Very strongly	Moderately
Zimbabwe	✗			

✓ Yes

● Under development

✗ No

▮ Unknown

[a] A vulnerability and adaptation assessment is a process and a tool that allows countries to evaluate which populations are most vulnerable to different kinds of health effects from climate change, to identify weaknesses in the systems that should protect them, and to specify interventions to respond. Assessments can also improve evidence and understanding of the linkages between climate and health within the assessment area, serve as a baseline analysis against which changes in disease risk and protective measures can be monitored, provide the opportunity for building capacity, and strengthen the case for investment in health protection. NOTE: It is possible that multiple assessments have been conducted, for example, at national or subnational levels.

Country or Area	Is there a national health and climate change plan/strategy in place?[b]	Year when the national health and climate change plan or strategy was completed	Please describe the level of implementation of the national health and climate change plan or strategy?
Argentina	Under development		
Azerbaijan	No		
Bahamas	Under development		
Bahrain	Under development		
Barbados	No		
Belize	No		
Benin	Yes		Unknown
Bhutan	Yes	2019	●●○○
Bolivia (Plurinational State of)	No		
Brazil	Yes	2017	●●○○
British Virgin Islands	No		
Brunei Darussalam	No		
Bulgaria	Yes	2019	Unknown
Cabo Verde	Yes	2012	●●○○
Cambodia	Yes	2020	●●●○
Cameroon	Unknown		
Canada	No		
China	Yes		
Colombia	Under development		
Comoros	Unknown		
Costa Rica	Under development		
Côte d'Ivoire	Yes		●○○○
Croatia	Yes	2020	●●○○
Cuba	Yes	2015	●●○○
Cyprus	Yes	2017	○○○○
Czechia	Yes	2015	●○○○
Dominica	Under development		
Dominican Republic	Under development		
Egypt	Yes	2017	●●○○
El Salvador	Under development		
Eritrea	Yes	2017	○○○○
Estonia	Yes	2016	●○○○
Ethiopia	Yes	2017	●●○○
Germany	Yes	2020	●●●●
Ghana	Yes	2014	●○○○
Grenada	No		
Guatemala	No		
Guinea	Yes		●○○○
Guyana	No		
Haiti	No		
India	Yes	2021	●●●○
Iran (Islamic Republic of)	Under development		
Israel	Yes	2018	●○○○
Italy	Under development		
Jamaica	Under development		
Jordan	Yes	2012	○○○○
Kazakhstan	Unknown		
Kenya	Yes	2016	●●○○
Kyrgyzstan	Unknown		
Lebanon	Yes	2021	●○○○
Lithuania	Yes	2012	●●●●

Country or Area	Is there a national health and climate change plan/strategy in place?[b]	Year when the national health and climate change plan or strategy was completed	Please describe the level of implementation of the national health and climate change plan or strategy?
Madagascar	Yes		●○○○
Malawi	Under development		
Marshall Islands	Yes	2020	●●○○
Micronesia (Federated States of)	Unknown		
Mozambique	Yes	2017	●●○○
Netherlands	Yes	2016	Unknown
Nicaragua	Under development		
Nigeria	Yes		●○○○
North Macedonia	Yes	2011	●●●●
occupied Palestinian territory, including East Jerusalem	Under development		
Oman	Yes	2019	●●●○
Palau	Yes	2015	●●●●
Papua New Guinea	Under development		
Paraguay	Unknown		
Peru	Under development		
Philippines	Under development		
Poland	Yes	2013	Unknown
Portugal	Under development		
Republic of Moldova	Under development		
Rwanda	Yes	2011	●●●●
Saint Kitts and Nevis	Yes	2018	●○○○
Saint Lucia	Under development		
San Marino	Yes	2015	●●○○
Sao Tome and Principe	Yes		●●●○
Saudi Arabia	Under development		
Serbia	No		
Seychelles	Yes	2012	●○○○
Sierra Leone	No		
Slovakia	Yes	2019	●●○○
South Africa	Under development		
Sri Lanka	Yes		
Suriname	No		
Sweden	Yes	2018	●●○○
Thailand	Yes	2021	●●●○
Togo	Yes		●○○○
Trinidad and Tobago	No		
Turkmenistan	Yes	2020	●●●○
United Republic of Tanzania	Yes	2018	●○○○
United States of America	Under development		
Uruguay	No		
Vanuatu	Yes	2021	Unknown
Yemen	Under development		
Zambia	Yes	2019	●○○○
Zimbabwe	Yes		

✓ Yes

● Under development

✗ No

▮ Unknown

●●●● Very high (action is being taken on most or all of the plan/strategy priorities)

●●●○ High (action is being taken on a majority of the plan/strategy priorities)

●●○○ Moderate (action is being taken on some of the plan/strategy priorities)

●○○○ Low (limited action is being taken on the plan/strategy priorities)

○○○○ None (no action is currently being taken on the plan/strategy priorities)

[b] In this questionnaire, a national health and climate change plan/strategy is a government plan or strategy that considers the health risks of climate change, and health adaptation and/or health resilience to climate change. It could be part of a broader national climate change plan/strategy that includes health.

Country or Area	Are climate change and health considerations included in COVID-19 recovery packages in your country?
Argentina	✗
Azerbaijan	
Bahamas	
Bahrain	
Barbados	
Belize	✗
Benin	
Bhutan	✓
Bolivia (Plurinational State of)	✗
Brazil	✗
British Virgin Islands	✗
Brunei Darussalam	✗
Bulgaria	
Cabo Verde	✓
Cambodia	✗
Cameroon	
Canada	✓
China	✓
Colombia	✓
Comoros	
Costa Rica	
Côte d'Ivoire	
Croatia	✗
Cuba	✓
Cyprus	
Czechia	✗
Dominica	
Dominican Republic	✗
Egypt	
El Salvador	
Eritrea	✗
Estonia	✗
Ethiopia	✓
Germany	✓
Ghana	✗
Grenada	
Guatemala	✗
Guinea	
Guyana	
Haiti	✗
India	
Iran (Islamic Republic of)	
Israel	
Italy	
Jamaica	✓
Jordan	✗
Kazakhstan	
Kenya	✗
Kyrgyzstan	
Lebanon	
Lithuania	

Country or Area	Are climate change and health considerations included in COVID-19 recovery packages in your country?
Madagascar	✓
Malawi	✗
Marshall Islands	✗
Micronesia (Federated States of)	
Mozambique	
Netherlands	
Nicaragua	✗
Nigeria	✓
North Macedonia	✓
occupied Palestinian territory, including East Jerusalem	✓
Oman	
Palau	✓
Papua New Guinea	
Paraguay	✗
Peru	
Philippines	✓
Poland	
Portugal	
Republic of Moldova	
Rwanda	✓
Saint Kitts and Nevis	
Saint Lucia	✗
San Marino	✗
Sao Tome and Principe	✓
Saudi Arabia	
Serbia	
Seychelles	✗
Sierra Leone	✗
Slovakia	✗
South Africa	
Sri Lanka	✗
Suriname	✗
Sweden	
Thailand	✗
Togo	✗
Trinidad and Tobago	
Turkmenistan	✗
United Republic of Tanzania	✗
United States of America	✗
Uruguay	
Vanuatu	✗
Yemen	
Zambia	
Zimbabwe	✗

✓ Yes

✗ No

Unknown

Country or Area	Does the ministry of health have a designated focal point responsible for health and climate change?
Argentina	✓
Azerbaijan	✗
Bahamas	✓
Bahrain	✓
Barbados	✓
Belize	✓
Benin	✓
Bhutan	✓
Bolivia (Plurinational State of)	▮
Brazil	✓
British Virgin Islands	✓
Brunei Darussalam	✓
Bulgaria	▮
Cabo Verde	✓
Cambodia	✓
Cameroon	✗
Canada	✓
China	✓
Colombia	✓
Comoros	▮
Costa Rica	✓
Côte d'Ivoire	✓
Croatia	✓
Cuba	✓
Cyprus	✗
Czechia	✓
Dominica	✓
Dominican Republic	✓
Egypt	✓
El Salvador	✓
Eritrea	✓
Estonia	✗
Ethiopia	✓
Germany	✓
Ghana	✓
Grenada	✓
Guatemala	✓
Guinea	✓
Guyana	✓
Haiti	✗
India	✓
Iran (Islamic Republic of)	✓
Israel	✓
Italy	✓
Jamaica	✓
Jordan	✓
Kazakhstan	✓
Kenya	✓
Kyrgyzstan	✓
Lebanon	✓
Lithuania	✓

Country or Area	Does the ministry of health have a designated focal point responsible for health and climate change?
Madagascar	✓
Malawi	✓
Marshall Islands	✓
Micronesia (Federated States of)	✓
Mozambique	✓
Netherlands	✓
Nicaragua	✓
Nigeria	✓
North Macedonia	✓
occupied Palestinian territory, including East Jerusalem	✓
Oman	✓
Palau	✓
Papua New Guinea	✓
Paraguay	▮
Peru	✓
Philippines	✓
Poland	✗
Portugal	✓
Republic of Moldova	✗
Rwanda	✓
Saint Kitts and Nevis	✓
Saint Lucia	✓
San Marino	✓
Sao Tome and Principe	✓
Saudi Arabia	✓
Serbia	✓
Seychelles	✓
Sierra Leone	✗
Slovakia	✓
South Africa	✓
Sri Lanka	✓
Suriname	✓
Sweden	✓
Thailand	✓
Togo	✓
Trinidad and Tobago	✓
Turkmenistan	✗
United Republic of Tanzania	✓
United States of America	✓
Uruguay	✓
Vanuatu	✗
Yemen	✓
Zambia	✓
Zimbabwe	✓

✓ Yes

✗ No

▮ Unknown

Country or Area	Has the ministry of health established a multi-stakeholder mechanism on health and climate change that is currently operational (e.g. task force or committee)?[c]
Argentina	✓
Azerbaijan	✗
Bahamas	✓
Bahrain	✓
Barbados	✗
Belize	✗
Benin	✗
Bhutan	✗
Bolivia (Plurinational State of)	✗
Brazil	✗
British Virgin Islands	✗
Brunei Darussalam	✓
Bulgaria	
Cabo Verde	✓
Cambodia	✓
Cameroon	✗
Canada	✓
China	✗
Colombia	✓
Comoros	✗
Costa Rica	✗
Côte d'Ivoire	✓
Croatia	✓
Cuba	✓
Cyprus	✗
Czechia	✓
Dominica	✗
Dominican Republic	✓
Egypt	✗
El Salvador	✓
Eritrea	✗
Estonia	✓
Ethiopia	✓
Germany	✓
Ghana	✗
Grenada	✓
Guatemala	✗
Guinea	✓
Guyana	✓
Haiti	✗
India	✓
Iran (Islamic Republic of)	✓
Israel	✓
Italy	✓
Jamaica	✗
Jordan	✗
Kazakhstan	
Kenya	✓
Kyrgyzstan	✓
Lebanon	
Lithuania	✓

Country or Area	Has the ministry of health established a multi-stakeholder mechanism on health and climate change that is currently operational (e.g. task force or committee)?[c]
Madagascar	✓
Malawi	✓
Marshall Islands	✓
Micronesia (Federated States of)	✓
Mozambique	✓
Netherlands	✓
Nicaragua	✗
Nigeria	✓
North Macedonia	✓
occupied Palestinian territory, including East Jerusalem	✓
Oman	✓
Palau	✓
Papua New Guinea	✗
Paraguay	▮
Peru	✓
Philippines	✓
Poland	✗
Portugal	✓
Republic of Moldova	✗
Rwanda	✗
Saint Kitts and Nevis	✗
Saint Lucia	✗
San Marino	✓
Sao Tome and Principe	✗
Saudi Arabia	✓
Serbia	✗
Seychelles	✗
Sierra Leone	✗
Slovakia	✗
South Africa	✓
Sri Lanka	✓
Suriname	✓
Sweden	✓
Thailand	✓
Togo	✗
Trinidad and Tobago	▮
Turkmenistan	✓
United Republic of Tanzania	✓
United States of America	✗
Uruguay	✗
Vanuatu	✗
Yemen	✓
Zambia	✗
Zimbabwe	▮

✓ Yes

✗ No

▮ Unknown

[c] The multi-stakeholder mechanism could be either internal (health ministry only) or external (between the health ministry and other health-determining sectors, organizations and experts). Information regarding participants will be requested in the next question.

	For the following health determining sectors, please indicate if there is a joint memorandum of understanding or other agreement in place between the ministry of healthand this sector/ministry which defines specific roles and responsibilities in relation to health and climate change policy or programmes				
Country or Area	**Agriculture**	**Education**	**Energy**	**Environment**	**National meteorological and hydrological services**
Argentina	✗	✗	✗		✗
Azerbaijan	✗	✗	✗	✗	✗
Bahamas	◆	◆	◆	✓	◆
Bahrain	✓	✓	✓	✓	✓
Barbados	✗	✗	✗	✗	✗
Belize	✗	✗	✗	✗	✗
Benin					
Bhutan	✗	✗	✗	✓	✓
Bolivia (Plurinational State of)	✗		✗	✗	✗
Brazil	✗	✗	✗	✓	✓
British Virgin Islands	✗	✗	✗	✗	✗
Brunei Darussalam	✗	✗	✗	✗	✗
Bulgaria					
Cabo Verde	✓	✓	✓	✓	✓
Cambodia					
Cameroon	✗	✗	✗	✗	✗
Canada					
China	◆	◆	◆	◆	◆
Colombia	✗	✗	✗	✗	✗
Comoros	✗		✗		
Costa Rica	✗	✗	✗	✗	✗
Côte d'Ivoire	✗	✗	✗	✗	✗
Croatia	◆	◆	◆	◆	◆
Cuba	✓	✓	✓	✓	✓
Cyprus				✓	✓
Czechia					
Dominica	✗	✗	✗	✗	✗
Dominican Republic	✗	✗	✗	✗	✗
Egypt	✓	✗	✗	✓	✗
El Salvador					
Eritrea	✗	✗	✗	✗	✗
Estonia	✗	✗	✗	✗	✗
Ethiopia	✓	✗	✓	✓	✓
Germany	✓	✓	✓	✓	✓
Ghana	✗	✗	✗	✗	✗
Grenada				✓	
Guatemala	✗	✗	✗	✗	✗
Guinea				✓	
Guyana	✗	✗	✗	✗	✗
Haiti	✗	✗	✗	✗	✗
India	✓		✓	✓	✓
Iran (Islamic Republic of)					
Israel	✓		✓	✓	✓
Italy					
Jamaica	✗	✗			✗
Jordan	✗	✗	✗	✗	✗
Kazakhstan			✗		✗
Kenya	✗	✗	✓	✓	✓
Kyrgyzstan					
Lebanon				✗	
Lithuania	✗	✗	✗	✓	✓

	For the following health determining sectors, please indicate if there is a joint memorandum of understanding or other agreement in place between the ministry of health and this sector/ministry which defines specific roles and responsibilities in relation to health and climate change policy or programmes				
Country or Area	**Agriculture**	**Education**	**Energy**	**Environment**	**National meteorological and hydrological services**
Madagascar	✗	✗	✗	✓	✗
Malawi	✗	✗	✗	✗	✓
Marshall Islands	✓	✓	✓	✓	✓
Micronesia (Federated States of)	✓	▮	◆	✓	◆
Mozambique					✓
Netherlands	✓	✗	▮	✓	✓
Nicaragua	✓	✓	✓	✓	✓
Nigeria	✗	✗	✗	✗	✗
North Macedonia	▮	✓	✓	✓	✓
occupied Palestinian territory, including East Jerusalem	▮	✓	▮	✓	▮
Oman	✓	✓	✓	✓	✓
Palau	✗	✗	✗	✗	✗
Papua New Guinea	✗	✗	✗	✗	✗
Paraguay	▮	✗	✗	▮	✗
Peru	✗	✗	✗	✗	✗
Philippines	✗	✗	✓	✓	✗
Poland	✗	✗	✓	✓	✗
Portugal	▮	▮	▮	✓	✓
Republic of Moldova	✗	✗	✗	✓	✗
Rwanda	✓	✓	✓	✓	✓
Saint Kitts and Nevis	✗	✗	✗	✗	✗
Saint Lucia	✗	✗	✗	✗	✗
San Marino	◆	◆	◆	◆	◆
Sao Tome and Principe	✗	✗	✗	▮	✗
Saudi Arabia	▮	✗	▮	▮	◆
Serbia	▮	▮	▮	▮	✓
Seychelles	▮	▮	▮	✓	▮
Sierra Leone	✗	✗	✗	✗	✗
Slovakia	▮	▮	▮	▮	▮
South Africa	▮	▮	▮	✓	▮
Sri Lanka	✗	✗	✗	✓	✗
Suriname	✗	✗	✗	✗	✗
Sweden	✓	✗	✓	✓	✓
Thailand	✓	✓	✓	✓	✓
Togo	▮	▮	▮	▮	▮
Trinidad and Tobago	✗	✗	✗	✗	✗
Turkmenistan					
United Republic of Tanzania	✗	✗	✗	✗	✓
United States of America					✓
Uruguay	✗	✗	✗	✗	✗
Vanuatu	✗	✗	✗	✗	✓
Yemen	✓	✓	✓	✓	◆
Zambia	✗	✗	✗	✗	✗
Zimbabwe	✗	✗	✗	✓	✗

✓ Yes ▮ Unknown

✗ No ◆ Not applicable

	For the following health determining sectors, please indicate if there is a joint memorandum of understanding or other agreement in place between the ministry of health and this sector/ministry which defines specific roles and responsibilities in relation to health and climate change policy or programmes			
Country or Area	**Social services**	**Transportation**	**Urban development and housing**	**Water, sanitation and hygiene**
Argentina	✗	✗	✗	✗
Azerbaijan	✗	✗	✗	✗
Bahamas	◆	◆	◆	◆
Bahrain	▮	✓	✓	✓
Barbados	✗	✗	✗	✗
Belize	✗	✗	✗	✗
Benin	✗	▮	▮	▮
Bhutan	◆	✗	✗	✓
Bolivia (Plurinational State of)	▮	▮	▮	✗
Brazil	✗	✗	✗	✗
British Virgin Islands	✗	✗	✗	✗
Brunei Darussalam	✗	✗	✗	✗
Bulgaria	▮	▮	▮	▮
Cabo Verde	✓	✓	✓	✓
Cambodia	▮	▮	▮	▮
Cameroon	✗	✗	✗	✗
Canada	▮	▮	▮	▮
China	◆	◆	◆	◆
Colombia	✗	✗	✗	✗
Comoros	▮		▮	▮
Costa Rica	✗	✗	✗	✗
Côte d'Ivoire	✗	✗	✗	✗
Croatia	◆	◆	◆	◆
Cuba	✗	✓	✓	✓
Cyprus				
Czechia	▮	▮	▮	▮
Dominica	✗	✗	✗	✗
Dominican Republic	✗	✗	✗	✗
Egypt	✓	✓	✗	✓
El Salvador	▮	▮	▮	▮
Eritrea	✗	✗	✗	✗
Estonia	✗	✗	✗	✗
Ethiopia	✓	✓	✗	✓
Germany	✓	✓	✓	✓
Ghana	✗	✗	✗	✗
Grenada	▮	▮	▮	▮
Guatemala	✗	✗	✗	◆
Guinea	▮	▮	▮	▮
Guyana	✗	✗	✗	✗
Haiti	✗	✗	✗	✗
India	▮	✓	✓	✓
Iran (Islamic Republic of)	▮	▮	▮	▮
Israel	✓	▮	▮	✓
Italy	▮	▮	▮	▮
Jamaica	✗	✗	✗	✓
Jordan	✗	✗	✗	✗
Kazakhstan	▮	✗	✗	▮
Kenya	✗	✗	✗	✓
Kyrgyzstan	▮	▮	▮	▮
Lebanon	▮	▮	▮	▮
Lithuania	✗	✗	✗	✗

	For the following health determining sectors, please indicate if there is a joint memorandum of understanding or other agreement in place between the ministry of health and this sector/ministry which defines specific roles and responsibilities in relation to health and climate change policy or programmes			
Country or Area	**Social services**	**Transportation**	**Urban development and housing**	**Water, sanitation and hygiene**
Madagascar	✓	✗	✗	✗
Malawi	✗	✗	✗	✗
Marshall Islands	✓	✓	✓	✓
Micronesia (Federated States of)	✓	◆	◆	✓
Mozambique				
Netherlands	▮	✓	✓	▮
Nicaragua	◆	◆	▮	✓
Nigeria	✗	✗	✗	✓
North Macedonia	✓	✓	✓	✓
occupied Palestinian territory, including East Jerusalem	▮	✓	▮	✓
Oman	▮	✓	✓	✓
Palau	✗	✗	✗	✗
Papua New Guinea	✗	✗	✗	✗
Paraguay	✗	✗	✗	✗
Peru	✗	✗	✗	✗
Philippines	✗	✗	✗	✓
Poland	✗	✗	✗	✓
Portugal	✓	▮	▮	✓
Republic of Moldova	✗	✗	✗	▮
Rwanda	✓	✓	✓	✓
Saint Kitts and Nevis	✗	✗	✗	✗
Saint Lucia	✗	✗	✗	✗
San Marino	◆	◆	◆	◆
Sao Tome and Principe	✗	✗	✗	✗
Saudi Arabia	▮	◆	▮	▮
Serbia	▮	▮	▮	✓
Seychelles	▮	▮	▮	▮
Sierra Leone	✗	✗	✗	✗
Slovakia	▮	▮	▮	▮
South Africa	▮	▮	▮	▮
Sri Lanka	✗	✗	✗	✓
Suriname	✗	✗	✗	◆
Sweden	✓	✓	✓	✓
Thailand	✓	✓	✓	✓
Togo	▮	▮	▮	▮
Trinidad and Tobago	✗	✗	✗	✗
Turkmenistan				
United Republic of Tanzania	✗	✗	✗	✓
United States of America				
Uruguay	✗	✗	✗	✗
Vanuatu	✗	✗	✗	✗
Yemen	✓	▮	✓	✓
Zambia	✗	✗	✗	✗
Zimbabwe	✗	✗	✗	✓

✓ Yes ▮ Unknown

✗ No ◆ Not applicable

	Airborne and respiratory illnesses				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Argentina	✓	✓	✓	✗	✗
Azerbaijan	✓	✓	✓	✓	✓
Bahamas	✓	✗	✗	✗	✓
Bahrain	✓	✓	▮	◆	▮
Barbados	✓	✗	✗	✗	✗
Belize	✓	✗	✗	✗	✓
Benin	✗	✗	✗		▮
Bhutan	✓	✓	✗	✗	✓
Bolivia (Plurinational State of)	✗	✗	✗	✗	▮
Brazil	✓	✓	✗	✗	✓
British Virgin Islands	✗	✗	✗	✗	✗
Brunei Darussalam	✓	✓	✓	✓	
Bulgaria	✓	✗	✗	✗	▮
Cabo Verde	✓	✗	✗	✗	✓
Cambodia	✓	▮	✗		✓
Cameroon	✗	✗	✗	▮	✗
Canada	✓	✗	✗	◆	▮
China	✓	✓	✓	✓	✓
Colombia	✗	✗	▮	✗	✗
Comoros					▮
Costa Rica	✓	✗	✗	◆	✗
Côte d'Ivoire	✗	✗	✗	✗	✗
Croatia	✓	✓	✓	✓	✓
Cuba	✓	✓	✓	✓	✓
Cyprus	✓				
Czechia	✓				
Dominica					
Dominican Republic	✓	◆	✓	✗	▮
Egypt	✓	✗	✗	✗	✓
El Salvador	✓	▮	✓	▮	✗
Eritrea	✓	✗	✗	✗	✗
Estonia	✓	✗	✗	✗	✗
Ethiopia	✓	✓	✓	▮	✓
Germany	✓	✗	✓	✗	◆
Ghana	✓	✗	✗	✗	✗
Grenada	✗	✗	✗	◆	◆
Guatemala	✓	✓	✓	▮	✓
Guinea	✓	✗	✗	◆	✓
Guyana	✗	✗	✗	✗	✗
Haiti	✓	✗	✗	✗	✗
India	✓	✓	✓	✓	✓
Iran (Islamic Republic of)	▮	▮	▮	▮	✓
Israel	✓	✓	✓	✓	✓
Italy	✓				✓
Jamaica	✓	✗	✗	◆	✓
Jordan	✓	✗	✗	◆	
Kazakhstan	✓	✓	▮	▮	▮
Kenya	✓	✗	✗	✗	✗
Kyrgyzstan	▮	▮	▮	▮	▮
Lebanon	✗	✗	✗	✗	✗
Lithuania			✓		

	Airborne and respiratory illnesses				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Madagascar	✓	✓	✓	✗	✗
Malawi	✗	✗	✗	✗	✗
Marshall Islands	✓	✓	✓	✓	✓
Micronesia (Federated States of)					
Mozambique	✓	✗	✗	✗	✗
Netherlands	✓	✓	✓	▮	▮
Nicaragua	✓	✗	✗	✗	✓
Nigeria	✓	▮	▮	▮	▮
North Macedonia	✓	✓	✓	✓	✓
occupied Palestinian territory, including East Jerusalem	▮	▮	▮	▮	✓
Oman	✓	▮	✓	✓	✓
Palau	✓	✓	✓	✓	✓
Papua New Guinea	▮	▮	▮	▮	▮
Paraguay	✓	▮	✗	✗	✓
Peru	✗				
Philippines					
Poland	✓	▮	◆	▮	✗
Portugal	▮	▮	▮	▮	▮
Republic of Moldova	✗	▮	✗	✗	✗
Rwanda	✓	▮	▮	▮	✓
Saint Kitts and Nevis	✓	✗	✗	✗	✗
Saint Lucia	✓	✗	✗	✗	✓
San Marino					
Sao Tome and Principe	✓	✓	✓	▮	✓
Saudi Arabia	▮	▮	✓	✓	✓
Serbia	◆	✗	✗	✗	✗
Seychelles	✓	✓	✓	▮	✗
Sierra Leone	✓	✗	✗	✗	✓
Slovakia	✓	✗	✗	✗	✓
South Africa	✓	▮	✓	▮	▮
Sri Lanka	✓	✗	✓	✗	✗
Suriname	✓	✗	✗	✗	▮
Sweden	✗	◆	✗	◆	✓
Thailand	✓	✓	✓	▮	✓
Togo	✗	◆	◆	◆	◆
Trinidad and Tobago	▮	▮	▮	▮	
Turkmenistan	✓		✗	✗	✗
United Republic of Tanzania	✗	✗	✗	✗	✓
United States of America	✓	✓	✗	✗	✓
Uruguay	✗	✗	✗	✗	✗
Vanuatu	✓	✗	✗	✗	✗
Yemen	✓	✗	▮	▮	✗
Zambia	✓	✗	✗	✗	✓
Zimbabwe	✓				

✓ Yes

✗ No

▮ Unknown

◆ Not applicable

[d] Meteorological information refers to either short-term weather information, seasonal climate information or long-term climate information.

[e] Evaluated in this context, means the key components, design and application of climate-informed EWS have been evaluated, with a focus on aspects related to the indicators used, statistical performance, operational aspects and communication, as well as cost-effectiveness.

	Heat-related illness				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Argentina	✓	✓	✓	✓	✓
Azerbaijan	✓	✓	✓	✓	✗
Bahamas	✗	✗	✗	✗	✗
Bahrain	✓	✓	✓	✓	▮
Barbados	▮	▮	▮	▮	▮
Belize	✗	✗	✗	✗	✓
Benin	✗	✗	✗	✗	✗
Bhutan	✗	✗	◆	◆	✗
Bolivia (Plurinational State of)	✗	✗	✗	✗	✗
Brazil	✗	✗	✗	✗	✗
British Virgin Islands	✗	✗	✗	✗	✗
Brunei Darussalam	✓	✓	✓	✓	
Bulgaria	✗	✗	✗	✗	✗
Cabo Verde	✓	✗	✗	✗	✗
Cambodia	▮	▮	✗		✓
Cameroon	✗	✗	✓	▮	✗
Canada	✗	◆	✓	▮	✓
China	✓	✓	✓	✓	✓
Colombia	✗	✗	▮	✗	✗
Comoros					
Costa Rica	✓	✗	✗	◆	✗
Côte d'Ivoire	✗	✗	✗	✗	✗
Croatia	✓	✓	✓	✓	✓
Cuba	✗	✗	✓	✗	✗
Cyprus	✓	✓			✓
Czechia	✗				
Dominica					
Dominican Republic	✗	✗	✗	✗	▮
Egypt	✓	✓	✗	✗	✓
El Salvador	▮	▮	✓	▮	✓
Eritrea	✗	✗	✗	✗	✗
Estonia	✓	✓	✓	✗	✓
Ethiopia					
Germany	✓	✓	✓	✓	◆
Ghana	✗	✗	✗	✗	✗
Grenada	▮	▮	▮	▮	▮
Guatemala	✗		✓	▮	✓
Guinea	▮	◆	◆	◆	◆
Guyana	✗	✗	✗	✗	✗
Haiti	✗	✗	✗	✗	✗
India	✓	✓	✓	✓	✓
Iran (Islamic Republic of)	▮	▮	▮	▮	✓
Israel	✓	✓	✓	▮	✓
Italy	✓	✓	✓	✓	✓
Jamaica	✗	✗	✗	◆	✗
Jordan	✗	✗	✗	◆	
Kazakhstan	▮	▮	▮	▮	▮
Kenya	✗	✗	✗	✗	✗
Kyrgyzstan	▮	▮	▮	▮	▮
Lebanon	◆	✗	✗	✗	✗
Lithuania			✓		

	Heat-related illness				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Madagascar	✗	✗	✗	✗	✗
Malawi	✗	✗	✗	✗	✗
Marshall Islands	✓	✓	✓	✓	✓
Micronesia (Federated States of)					
Mozambique	✗	✗	✗	✗	✗
Netherlands	▮	▮	✓	▮	✓
Nicaragua	✗	✗	✗	✗	✗
Nigeria	✓	▮	▮	▮	▮
North Macedonia	✓	✓	✓	✓	✓
occupied Palestinian territory, including East Jerusalem	▮	▮	▮	▮	✓
Oman	✓	▮	✓	✓	✓
Palau	✓	✓	✓	✓	✓
Papua New Guinea	▮	▮	▮	▮	▮
Paraguay	✗	✗	✗	✗	✗
Peru	✗				
Philippines					
Poland	✓	✓	✓	▮	✗
Portugal	✓	✓	✓	✓	✓
Republic of Moldova	✗	✗	✗	✗	✗
Rwanda	✓	▮	▮	▮	✓
Saint Kitts and Nevis	✗	✗	✗	✗	✗
Saint Lucia	✗	✗	✗	✗	✗
San Marino					
Sao Tome and Principe	✗	✗	✗	✗	✗
Saudi Arabia	▮	▮	▮	▮	▮
Serbia	✗	✗	✗	✗	✗
Seychelles	✗	✗	✗	✗	✗
Sierra Leone	✗	✗	✗	✗	✗
Slovakia	▮	✗	✗	✗	▮
South Africa	✓	▮	✓	▮	▮
Sri Lanka	✗		✓	✗	✓
Suriname	✗	✗	✗	✗	✗
Sweden	✓	✗	✓	✓	✓
Thailand	✓	✓	✓	✓	✓
Togo	✗	◆	◆	◆	◆
Trinidad and Tobago	▮	▮	▮	▮	
Turkmenistan	✗	✗	✗	✗	✗
United Republic of Tanzania	✗	✗	✗	✗	✗
United States of America	✓	✓			✓
Uruguay	✗	✗	✗	✗	✗
Vanuatu	✗	✗	✗	✗	✗
Yemen	✗	✗	✗	✗	✗
Zambia	✗	✗	✗	✗	✓
Zimbabwe					

✓ Yes
✗ No
▮ Unknown
◆ Not applicable

[d] Meteorological information refers to either short-term weather information, seasonal climate information or long-term climate information.
[e] Evaluated in this context, means the key components, design and application of climate-informed EWS have been evaluated, with a focus on aspects related to the indicators used, statistical performance, operational aspects and communication, as well as cost-effectiveness.

	Injury and mortality from extreme weather events				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Argentina	✓	✓	✗	✗	✗
Azerbaijan	✓	✓	✓	✓	✗
Bahamas	✓	✗	✗	✗	✓
Bahrain	✓	✓	◆	◆	◆
Barbados	▮	▮	▮	▮	▮
Belize	✗	✗	✗	✗	✓
Benin	▮	▮	▮	▮	▮
Bhutan	✓	✗	✓	✗	✗
Bolivia (Plurinational State of)	✗	✗	✗	✗	▮
Brazil	✓	✓	✗	✗	✓
British Virgin Islands	✗	✗	✗	✗	✓
Brunei Darussalam	✓	✓	✓	✓	
Bulgaria	✗	✗	✗	✗	✗
Cabo Verde	✓	✗	✗	✗	✓
Cambodia	✓	▮	✗		✓
Cameroon	✗	✗	✗	▮	✗
Canada	✓	✓	✓	✗	✓
China	✓	✓	✓	✓	✓
Colombia	✗	✗	▮	✗	✗
Comoros					
Costa Rica	▮	▮	✗	◆	▮
Côte d'Ivoire	✗	✗	✗	✗	✗
Croatia	✓	✓	✓	▮	✓
Cuba	✓	✓	✓	✓	✓
Cyprus					
Czechia	✓	✓	✓		
Dominica					
Dominican Republic	✓	◆	✗	✗	▮
Egypt	✓	✗	✗	✗	✓
El Salvador	✓	▮	✓	▮	✓
Eritrea	✗	✗	✗	✗	✗
Estonia	✓	✗	✗	✗	✗
Ethiopia	✓	✓	✓	✓	✓
Germany	✓	✓	✓	✓	◆
Ghana	✗	✗	✗	✗	✗
Grenada	▮	▮	▮	▮	▮
Guatemala	✗	✗	✓	▮	✓
Guinea	▮	◆	◆	◆	◆
Guyana	✗	✗	✗	✗	✗
Haiti	✓	✗	✗	✗	✗
India	▮	▮	▮	▮	▮
Iran (Islamic Republic of)	▮	▮	▮	▮	✓
Israel	✓	✓	✓	▮	✓
Italy					
Jamaica	✓	✗	✗	◆	✓
Jordan	✗	✗	✗	◆	
Kazakhstan	✓	✓	▮	▮	▮
Kenya	✗	✗	✗	✗	✗
Kyrgyzstan	▮	▮	▮	▮	▮
Lebanon	✗	✗	✗	✗	✗
Lithuania			✓		

	Injury and mortality from extreme weather events				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Madagascar	✓	✓	✓	✗	✗
Malawi	✗	✗	✗	✗	✗
Marshall Islands	✓	✓	✓	✓	✓
Micronesia (Federated States of)					
Mozambique	✓	✗	✗	✗	✓
Netherlands	▮	▮	✓	▮	✓
Nicaragua	✗	✗	✗	✗	✗
Nigeria	✓	▮	▮	▮	▮
North Macedonia	✓	✓	✓	✓	✓
occupied Palestinian territory, including East Jerusalem	▮	▮	▮	▮	✓
Oman	✓	▮	✓	✓	✓
Palau	✓	✓	✓	✓	✓
Papua New Guinea	▮	▮	▮	▮	▮
Paraguay	▮	✗	✗	✗	✗
Peru	✗				
Philippines					
Poland	✓	◆	✓	▮	✗
Portugal	✓	✓	✓	✓	✓
Republic of Moldova	✗	✗	▮	✗	✗
Rwanda	✓	▮	▮	▮	✓
Saint Kitts and Nevis	✗	✗	✗	✗	✗
Saint Lucia	✗	✗	✗	✗	✗
San Marino					
Sao Tome and Principe	✓	✓	✓	✗	✗
Saudi Arabia	▮	▮	▮	▮	▮
Serbia	▮	✗	✗	✗	✗
Seychelles	✗	✗	✗	✗	✓
Sierra Leone	✗	✗	✗	✗	✗
Slovakia	▮	✗	✗	✗	▮
South Africa	✓	▮	✓	▮	▮
Sri Lanka	✓	✓	✓	▮	✓
Suriname	✗	✗	✗	✗	✗
Sweden	✓	✗	✓	✓	✓
Thailand	✓	✓	▮	▮	✓
Togo	✗	◆	◆	◆	◆
Trinidad and Tobago	▮	▮	▮	▮	
Turkmenistan	✗	✗	✗	✗	✗
United Republic of Tanzania	✗	✗	✗	✗	✗
United States of America	✓	✓	✗	✗	✓
Uruguay	✗	✗	✗	✗	✗
Vanuatu	✗	✗	✗	✗	✗
Yemen	✗	✗	✗	✗	✗
Zambia	✗	✗	✗	✗	✓
Zimbabwe	✗				

✓ Yes
✗ No
▮ Unknown
◆ Not applicable

[d] Meteorological information refers to either short-term weather information, seasonal climate information or long-term climate information.
[e] Evaluated in this context, means the key components, design and application of climate-informed EWS have been evaluated, with a focus on aspects related to the indicators used, statistical performance, operational aspects and communication, as well as cost-effectiveness.

	Malnutrition and foodborne diseases				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Argentina	▮	▮	▮	▮	▮
Azerbaijan	✓	✓	✓	✓	✗
Bahamas	✓	✗	✗	✗	✓
Bahrain	✓	✓	✓	✓	✓
Barbados	✓	✗	✗	✗	✓
Belize	✓	✗	✗	✗	✗
Benin	✓	▮	▮	▮	▮
Bhutan	✓	✗	✗	✗	✓
Bolivia (Plurinational State of)	▮	✗	✗	✗	▮
Brazil	✓	✗	✗	✗	✓
British Virgin Islands	✓	✗	✗	✗	✓
Brunei Darussalam	✓	✓	▮		
Bulgaria	✗	✗	✗	✗	▮
Cabo Verde	✓	✗	✗	✗	✓
Cambodia	✓	▮	✗		✓
Cameroon	✗	✗	✗	▮	✗
Canada	✓	✗	◆	◆	✓
China	✓	✗	✗	✗	✓
Colombia	✗	✗	▮	✗	✗
Comoros					
Costa Rica	✓	✗	✗	◆	✗
Côte d'Ivoire	✗	✗	✗	✗	✗
Croatia	✓	✗	✗	✗	✓
Cuba	✓	✓	✓	✗	✓
Cyprus	✓				
Czechia	✓				
Dominica					
Dominican Republic	✓	◆	✗	✗	▮
Egypt	✓				
El Salvador	✓	▮	✓	▮	✓
Eritrea	✓	✗	✗	✗	✗
Estonia	✓	✗	✗	✗	✗
Ethiopia	✓	✓	✓	▮	✓
Germany	✓	✗	✓	✗	◆
Ghana	✗	✗	✗	✗	▮
Grenada	✓	▮	▮	▮	▮
Guatemala	✓	✗	✗	✗	✓
Guinea	✓	▮	◆	◆	✓
Guyana	✓	✗	✗	✗	✓
Haiti	✓	✗	✗	✗	✗
India	▮	▮	▮	▮	▮
Iran (Islamic Republic of)	▮	▮	▮	▮	✓
Israel	✓	✗	✓	✓	✓
Italy					
Jamaica	✓	✗	✗	◆	✓
Jordan	✓	✗	✗	▮	
Kazakhstan	✓	✓	▮	▮	▮
Kenya	✓	✗	✗	✗	✗
Kyrgyzstan	▮	▮	▮	▮	▮
Lebanon	▮	✗	✗	✗	▮
Lithuania					

	Malnutrition and foodborne diseases				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Madagascar	✓	✗	✓	✗	✗
Malawi	✗	✗	✗	✗	✓
Marshall Islands	✓	✓	✓	✓	✓
Micronesia (Federated States of)					
Mozambique	✓	✗	✗	✗	✗
Netherlands	✓	◆	✓	▮	▮
Nicaragua	✓	✗	✗	✗	▮
Nigeria	✓	▮	▮	▮	▮
North Macedonia	✓	✗	▮	▮	✓
occupied Palestinian territory, including East Jerusalem	▮	▮	▮	▮	✓
Oman	✓	▮	▮	▮	✓
Palau	✓	✗	✓	✓	✓
Papua New Guinea	▮	▮	▮	▮	▮
Paraguay	✓	▮	▮	▮	▮
Peru	✓	✗			
Philippines					
Poland	✓	◆	◆	▮	✗
Portugal	▮	▮	▮	▮	▮
Republic of Moldova	✗	▮	✗	✗	✗
Rwanda	✓	▮	▮	▮	✓
Saint Kitts and Nevis	✓	✗	✗	✗	✗
Saint Lucia	✓	✗	✗	✗	✗
San Marino					
Sao Tome and Principe	✓	✗	✗	✗	▮
Saudi Arabia	✓	▮	▮	▮	✓
Serbia	✓	✗	✗	✗	✗
Seychelles	✓	✗	✗	✗	✗
Sierra Leone	✓	✗	✗	✗	✗
Slovakia	✓	✗	✗	✗	✓
South Africa	✓	▮	✓	▮	▮
Sri Lanka	✓	✗	✗	◆	✓
Suriname	✓	✗	✗	✗	✓
Sweden	✓	✗	✗	◆	✓
Thailand	✓	▮	▮	▮	✓
Togo	✓	✗	✗	◆	✓
Trinidad and Tobago	▮	▮	▮	▮	
Turkmenistan	✗	✗	✗	✗	✗
United Republic of Tanzania	✓	✗	✗	✗	✓
United States of America	✓	✗	✗	✗	✓
Uruguay	✓	✗	✗	✗	✗
Vanuatu	✓	✗	✗	✗	✗
Yemen	✓	✗	✗	✗	▮
Zambia	✓	✗	✗	✗	✓
Zimbabwe	✓				

✓ Yes
✗ No
▮ Unknown
◆ Not applicable

[d] Meteorological information refers to either short-term weather information, seasonal climate information or long-term climate information.
[e] Evaluated in this context, means the key components, design and application of climate-informed EWS have been evaluated, with a focus on aspects related to the indicators used, statistical performance, operational aspects and communication, as well as cost-effectiveness.

	Mental and psychosocial health				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Argentina	▮	▮	▮	▮	▮
Azerbaijan	✓	✗	✗	✗	✗
Bahamas	✓	✗	✗	✗	✓
Bahrain	✓	✓	✓	✓	✓
Barbados	✓	▮	▮	▮	▮
Belize	✓	✗	✗	✗	✗
Benin	✓	▮	▮	▮	▮
Bhutan	✓	✗	✗	✗	▮
Bolivia (Plurinational State of)	▮	✗	✗	✗	▮
Brazil	✓	✗	✗	✗	✓
British Virgin Islands	✓	✗	✗	✗	✓
Brunei Darussalam	✓	✗	▮	▮	
Bulgaria	✓	✗	✗	✗	▮
Cabo Verde	✓	✗	✗	✗	✓
Cambodia	✓	▮	✗		✓
Cameroon	✗	✗	✗	✗	✗
Canada	✓	✗	◆	◆	▮
China	✗	✗	✗	✗	✗
Colombia	✗	✗	▮	✗	✗
Comoros					
Costa Rica	✓	✗	✗	◆	✗
Côte d'Ivoire	✗	✗	✗	✗	✗
Croatia	✓	✗	✓	▮	✓
Cuba	✓	✓	✗	✗	✓
Cyprus					
Czechia					
Dominica					
Dominican Republic	▮	✗	✗	✗	▮
Egypt	✓	✗	✗		
El Salvador	✓	▮	✓	▮	✓
Eritrea	✓	✗	✗	✗	✗
Estonia	✗	✗	✗	✗	✗
Ethiopia					
Germany	✓	✓	✓	✓	◆
Ghana	✓	✗	✗	✗	▮
Grenada	✓	▮	▮	▮	▮
Guatemala	✓	◆	◆	◆	✓
Guinea	▮	◆	◆	◆	▮
Guyana	✓	✗	✗	✗	✓
Haiti	✗	✗	✗	✗	✗
India	▮	▮	▮	▮	▮
Iran (Islamic Republic of)	▮	▮	▮	▮	✓
Israel	✓	✗	▮	▮	▮
Italy					
Jamaica	✓	✗	✗	◆	✓
Jordan		✗	✗	◆	
Kazakhstan	▮	▮	▮	▮	▮
Kenya	✗	✗	✗	✗	✗
Kyrgyzstan	▮	▮	▮	▮	▮
Lebanon	✗	✗	✗	✗	✗
Lithuania			✓		

	Mental and psychosocial health				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Madagascar	✗	✗	✗	✗	✗
Malawi	✗	✗	✗	✗	✗
Marshall Islands	✓	✓	✓	✓	✓
Micronesia (Federated States of)					
Mozambique	✓	✗	✗	✗	✗
Netherlands	▮	✗	▮	▮	▮
Nicaragua	✓	✗	✗	✗	✓
Nigeria	✓	▮	▮	▮	▮
North Macedonia	✓	✓	▮	▮	✓
occupied Palestinian territory, including East Jerusalem	▮	▮	▮	▮	✓
Oman	✓	▮	▮	▮	✓
Palau	✓	✗	✓	✓	✓
Papua New Guinea	▮	▮	▮	▮	▮
Paraguay	✓	✗	✗	✗	✗
Peru					
Philippines					
Poland	✓	◆	✗	▮	✗
Portugal	▮	▮	▮	▮	▮
Republic of Moldova	▮	✗	✗	✗	✗
Rwanda	✓	▮	▮	▮	✓
Saint Kitts and Nevis	✓	✗	✗	✗	✗
Saint Lucia	✓	✗	✗	✗	✗
San Marino					
Sao Tome and Principe	✓	◆	✗	✗	✗
Saudi Arabia	▮	▮	▮	▮	▮
Serbia	✓	✗	✗	✗	✗
Seychelles	✗	✗	✗	✗	✗
Sierra Leone	✗	✗	✗	✗	✗
Slovakia	▮	✗	✗	✗	▮
South Africa	✓	▮	✓	▮	▮
Sri Lanka	▮	✗	✗	◆	▮
Suriname	✗	✗	✗	✗	✗
Sweden	✓	✓	✗	◆	✓
Thailand	▮	▮	▮	▮	✓
Togo	✓	✗	✗	◆	✓
Trinidad and Tobago	▮	▮	▮	▮	
Turkmenistan	✓	✗	✗	✗	✗
United Republic of Tanzania	✗	✗	✗	✗	✗
United States of America					
Uruguay	✗	✗	✗	✗	✗
Vanuatu	✗	✗	✗	✗	✗
Yemen	▮	▮	▮	▮	▮
Zambia	✓	✗	✗	✗	✓
Zimbabwe	✓				

✓ Yes

✗ No

▮ Unknown

◆ Not applicable

[d] Meteorological information refers to either short-term weather information, seasonal climate information or long-term climate information.

[e] Evaluated in this context, means the key components, design and application of climate-informed EWS have been evaluated, with a focus on aspects related to the indicators used, statistical performance, operational aspects and communication, as well as cost-effectiveness.

	Noncommunicable diseases				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Argentina	✓	✗	✗	✗	✗
Azerbaijan	✓	✓	✗	✗	✓
Bahamas	✓	✗	✗	✗	✓
Bahrain	✓	✓	✓	✓	✓
Barbados	✓	▮	▮	▮	▮
Belize	✓	✗	✗	✗	✗
Benin	✓	▮	✗	▮	▮
Bhutan	✓	✗	✗	✗	✗
Bolivia (Plurinational State of)	✗	✗	✗	✗	▮
Brazil	✓	✗	✗	✗	✓
British Virgin Islands	✓	✗	✗	✗	✓
Brunei Darussalam	✓	✓	▮	▮	
Bulgaria	✓	✗	✗	✗	✓
Cabo Verde	✓	✗	✗	✗	✓
Cambodia	✓	▮	✗		✓
Cameroon	✗	✗	✗	✗	✗
Canada	✓	✗	◆	◆	▮
China	✓	✓	✓	✓	✓
Colombia	✗	✗	▮	✗	✗
Comoros					
Costa Rica	✓	✗	✗	◆	✗
Côte d'Ivoire	✗	✗	✗	✗	✗
Croatia	✓	✗	✓	▮	✓
Cuba	✓	✓	✓	✓	✓
Cyprus					
Czechia	✓				
Dominica					
Dominican Republic	✓	✗	✗	✗	▮
Egypt	✓	✗	✗	✗	✓
El Salvador	✓	▮	✓	▮	✓
Eritrea	✓	✗	✗	✗	✗
Estonia	✓	✗	✗	✗	✗
Ethiopia					
Germany	✓	✓	✓	✗	◆
Ghana	✓	✗	✗	✗	✓
Grenada	✓	▮	▮	▮	▮
Guatemala	✓	◆	◆	◆	✓
Guinea	✓	▮	◆	◆	✓
Guyana	✓	✗	✗	✗	✓
Haiti	✓	✗	✗	✗	✗
India	✓	▮	▮	▮	▮
Iran (Islamic Republic of)	▮	▮	▮	▮	✓
Israel	✓	✓	✓	✓	✓
Italy	✓				
Jamaica	✓	✗	✗	◆	✓
Jordan	✓	✗	✗	◆	
Kazakhstan	✓	✓	▮	▮	▮
Kenya	✓	✗	✗	✗	✗
Kyrgyzstan	▮	▮	▮	▮	▮
Lebanon	✗	✗	✗	✗	✗
Lithuania			✓		

	Noncommunicable diseases				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Madagascar	✓	✗	✗	✗	✗
Malawi	✗	✗	✗		✗
Marshall Islands	✓	✓	✓	✓	✓
Micronesia (Federated States of)					
Mozambique	✓	✗	✗	✗	✗
Netherlands	✓	▮	▮	▮	◆
Nicaragua	✓	✗	✗	✗	✓
Nigeria	✓	▮	▮	▮	▮
North Macedonia	✓	✓	✓	✓	✓
occupied Palestinian territory, including East Jerusalem	▮	▮	▮	▮	✓
Oman	✓	▮	▮	▮	✓
Palau	✓	✗	✓	✓	✓
Papua New Guinea	▮	▮	▮	▮	▮
Paraguay	✓	✗	✗	✗	✗
Peru	✓	✗			
Philippines					
Poland	✓	◆	✗	▮	✗
Portugal	▮	▮	▮	▮	▮
Republic of Moldova	▮	✗	▮	✗	✗
Rwanda	✓	▮	▮	▮	✓
Saint Kitts and Nevis	✓	✗	✗	✗	✗
Saint Lucia	✓	✗	✗	✗	✓
San Marino					
Sao Tome and Principe	✓	◆	✗	✗	✗
Saudi Arabia	✓	▮	▮	▮	✓
Serbia	✓	✗	✗	✗	◆
Seychelles	✓	✗	✗	✗	✓
Sierra Leone	◆		◆	◆	◆
Slovakia	▮	✗	✗	✗	▮
South Africa	✓	▮	✓	▮	▮
Sri Lanka	✓	✗	◆	◆	✓
Suriname	✓	◆	✗	✗	✓
Sweden	✓	◆	✗	◆	✓
Thailand	✓	▮	▮	▮	✓
Togo	✓	✗	✗	◆	✓
Trinidad and Tobago	✓	▮	▮	▮	
Turkmenistan	✓	✗	✗	✗	✗
United Republic of Tanzania	✓	✗	✗	✗	✓
United States of America	✓	✓	✗	✗	✓
Uruguay	✓	✗	✗	✗	◆
Vanuatu	✗	✗	✗	✗	◆
Yemen	✓	✗	✗	✗	▮
Zambia	✓	✗	✗	✗	✓
Zimbabwe	✓				

✓ Yes

✗ No

▮ Unknown

◆ Not applicable

[d] Meteorological information refers to either short-term weather information, seasonal climate information or long-term climate information.

[e] Evaluated in this context, means the key components, design and application of climate-informed EWS have been evaluated, with a focus on aspects related to the indicators used, statistical performance, operational aspects and communication, as well as cost-effectiveness.

	Vector-borne diseases				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Argentina	✓	✓	▮	▮	▮
Azerbaijan	✓	✓	✗	✗	✓
Bahamas	✓	✗	✗	✗	✓
Bahrain	✓	▮	✓	✓	✓
Barbados	✓	✓	✓	✗	✓
Belize	✓	✗	✓	✗	✓
Benin	✓	▮	✗		
Bhutan	✓	✓	✓	✗	✓
Bolivia (Plurinational State of)	✓	✗	✗	✗	✓
Brazil	✓	✗	✗	✗	✓
British Virgin Islands	✓	✗	✗	✗	✓
Brunei Darussalam	✓	✓	✓	✓	
Bulgaria	✓	✗	✗	✗	▮
Cabo Verde	✓	✓	✗	✗	✓
Cambodia	✓	▮	✗		✓
Cameroon	✗	✗	✗	✗	✗
Canada	✓	✗	◆	◆	✓
China	✓	✗	✗	✗	✓
Colombia	✗	✗	▮	✗	✗
Comoros					
Costa Rica	✓	✗	✗	◆	✗
Côte d'Ivoire	✓	✓	✓	✓	✓
Croatia	✓	✗	✓	✓	✓
Cuba	✓	✓	✓	✓	✓
Cyprus	✓				
Czechia	✓	✓	✓		
Dominica					
Dominican Republic	✓	✓	✓	✗	▮
Egypt	✓	✗	✗	✗	✓
El Salvador	✓	▮	✓	▮	✓
Eritrea	✗	✗	✗	✗	✗
Estonia	✓	✗	✗	✗	✗
Ethiopia	✓	✓	✓	▮	✓
Germany	✓	✗	✓	✗	◆
Ghana	✓	✗	✗	✗	▮
Grenada	✓	▮	▮	▮	▮
Guatemala	✓	✓	✓	✓	✓
Guinea	✓	✓	▮	◆	✓
Guyana	✗	✗	✗	✗	✓
Haiti	✓	✗	✗	✗	✗
India	✓	▮	▮	▮	▮
Iran (Islamic Republic of)	▮	▮	▮	▮	✓
Israel	✓	✓	✓	▮	✓
Italy	✓				
Jamaica	✓	✗	✗	◆	✓
Jordan	✓	✗	✗	◆	
Kazakhstan	▮	▮	▮	▮	▮
Kenya	✓	✗	✗	✗	✗
Kyrgyzstan	▮	▮	▮	▮	▮
Lebanon	▮	✗	✗	✗	▮
Lithuania					

	Vector-borne diseases				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Madagascar	✓	✓	✓	✗	✗
Malawi	✓	✓	✓	✗	✗
Marshall Islands	✓	✓	✓	✓	✓
Micronesia (Federated States of)					
Mozambique	✓	✓	✗	✗	✗
Netherlands	✓	▮	✓	▮	▮
Nicaragua	✓	✗	✗	✗	✓
Nigeria	✓	▮	▮	▮	▮
North Macedonia	✓	✓	✓	✓	✓
occupied Palestinian territory, including East Jerusalem	▮	▮	▮	▮	✓
Oman	✓	✓	✓	✓	✓
Palau	✓	✓	✓	✓	✓
Papua New Guinea	▮	▮	▮	▮	▮
Paraguay	✓	▮	▮	▮	▮
Peru	✓	✗			
Philippines					
Poland	✓	✓	✓	▮	✗
Portugal	✓	✗	✓	✓	✓
Republic of Moldova		▮	✓	✓	✗
Rwanda	✓	▮	▮	▮	✓
Saint Kitts and Nevis	✓	✓	✗	✗	✗
Saint Lucia	✓	✗	✗	✗	✓
San Marino					
Sao Tome and Principe	✓	✗	✗	✗	✓
Saudi Arabia	✓	▮	▮	▮	✓
Serbia	✓	✓	✓	◆	✗
Seychelles	✓	✓	✓	▮	✓
Sierra Leone	✓	✓	✗	✗	✗
Slovakia	✓	✗	✗	✗	✓
South Africa	✓	▮	✓	▮	▮
Sri Lanka	✓	✓	✓	▮	✓
Suriname	✓	✗	✗	✗	✓
Sweden	✓	✗	✗	◆	✓
Thailand	✓	✓	▮	▮	✓
Togo	✓	✓	✓	✗	✓
Trinidad and Tobago	✓	✓	▮	▮	
Turkmenistan	✓	✗	✗	✗	✗
United Republic of Tanzania	✓	✗	✗	✗	✗
United States of America	✓	✗	✗	✗	✓
Uruguay	✓	✗	✗	✗	✗
Vanuatu	✓	✗	✗	✗	✗
Yemen	✓	✗	✗	✗	▮
Zambia	✓	✗	✗	✗	✓
Zimbabwe	✓				

✓ Yes

✗ No

▮ Unknown

◆ Not applicable

[d] Meteorological information refers to either short-term weather information, seasonal climate information or long-term climate information.

[e] Evaluated in this context, means the key components, design and application of climate-informed EWS have been evaluated, with a focus on aspects related to the indicators used, statistical performance, operational aspects and communication, as well as cost-effectiveness.

	Waterborne diseases and other water-related health outcomes				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Argentina	✓	✗	✗	✗	✗
Azerbaijan	✓	✓	✓	✓	✓
Bahamas	✓	✗	✗	✗	✓
Bahrain	✓	✓	✓	✓	✓
Barbados	✓	✗	✗	✗	✓
Belize	✓	✗	✗	✗	✗
Benin	✓				
Bhutan	✓	✓	✓	✗	✓
Bolivia (Plurinational State of)	✗	✗	✗	✗	✗
Brazil	✓	✗	✗	✗	✓
British Virgin Islands	✓	✗	✗	✗	✓
Brunei Darussalam	✓	✓	✓	✓	
Bulgaria	✓	✗	✗	✗	▮
Cabo Verde	✓	✓	✗	✗	✓
Cambodia	✓	▮	✗		✓
Cameroon	✗	✗	✗	✗	✗
Canada	✓	✗	◆	◆	✓
China	✓	✗	✗	✗	✓
Colombia	✗	✗	▮	✗	✗
Comoros					
Costa Rica	✓	✗	✗	◆	✗
Côte d'Ivoire	✓	✓	✓	✓	✓
Croatia	✓	✗	✓	▮	✓
Cuba	✓	✓	✗	▮	✓
Cyprus	✓				
Czechia	✓				
Dominica					
Dominican Republic	✓	✓	✓	✗	▮
Egypt	✓	✗	✗	✗	✓
El Salvador	✓	▮	✓	▮	✓
Eritrea	✓	✗	✗	✗	✗
Estonia	✓	✗	✓	✗	✗
Ethiopia	✓	✓	✓	▮	✓
Germany	✓	✗	✓	✓	◆
Ghana	✓	✗	✗	✗	✗
Grenada	✓	▮	▮	▮	▮
Guatemala	✓	✓	✗	✗	✓
Guinea	✓	✓	✓	▮	✓
Guyana	✓	✗	✗	✗	✓
Haiti	✓	✗	✗	✗	✗
India	✓	▮	▮	▮	▮
Iran (Islamic Republic of)	▮	▮	▮	▮	✓
Israel	✓	▮	✓	✓	✓
Italy					
Jamaica	✓	✗	✗	◆	✓
Jordan	✓	✗	✗	◆	
Kazakhstan	✓	✓	▮	▮	▮
Kenya	✓	✗	✗	✗	✗
Kyrgyzstan	▮	▮	▮	▮	▮
Lebanon	▮	✗	✗	✗	✗
Lithuania			✓		

	Waterborne diseases and other water-related health outcomes				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Madagascar	✓	✓	✓	✗	▮
Malawi	✓	✓	✓	✗	✗
Marshall Islands	✓	✓	✓	✓	✓
Micronesia (Federated States of)					
Mozambique	✓	✗	✗	✗	✗
Netherlands	✓	▮	✓	▮	▮
Nicaragua	✓	✗	✗	✗	✓
Nigeria	✓	▮	▮	▮	▮
North Macedonia	✓	✓	✓	✓	✓
occupied Palestinian territory, including East Jerusalem	▮	▮	▮	▮	✓
Oman	✓	▮	▮	▮	✓
Palau	✓	✓	✓	✓	✓
Papua New Guinea	▮	▮	▮	▮	▮
Paraguay	✓	✗	✗	✗	✗
Peru	✓	✗			
Philippines					
Poland	✓	◆	✓	▮	✗
Portugal	✓	✗	✓	▮	✓
Republic of Moldova	✓	✗	▮	✗	▮
Rwanda	✓	▮	▮	▮	✓
Saint Kitts and Nevis	✗	✗	✗	✗	✗
Saint Lucia	✓	✗	✗	✗	✓
San Marino					
Sao Tome and Principe	✓	✓	▮	▮	✓
Saudi Arabia	✓	▮	▮	▮	✓
Serbia	✓	✗	✗	✗	✗
Seychelles	✓	✓	✓	▮	✗
Sierra Leone	✓	✓	✗	✗	✗
Slovakia	✓	✗	✗	✗	✓
South Africa	✓	▮	✓	▮	▮
Sri Lanka	✓	✗	✗	◆	✓
Suriname	✓	✗	✗	✗	✓
Sweden	✓	✓	✗	◆	✓
Thailand	✓	✓	✓	✓	✓
Togo	✓	✓	✓	✗	✓
Trinidad and Tobago	✓	✓	▮	▮	
Turkmenistan	✓	✗	✗	✗	✗
United Republic of Tanzania	✓	✗	✗	✗	✓
United States of America	✓	✓	✗	✗	✓
Uruguay	✗	✗	✗	✗	✗
Vanuatu	✓	✗	✗	✗	✗
Yemen	✓	▮	✗	▮	▮
Zambia	✓	✗	✗	✗	✓
Zimbabwe	✓				

✓ Yes
✗ No
▮ Unknown
◆ Not applicable

[d] Meteorological information refers to either short-term weather information, seasonal climate information or long-term climate information.
[e] Evaluated in this context, means the key components, design and application of climate-informed EWS have been evaluated, with a focus on aspects related to the indicators used, statistical performance, operational aspects and communication, as well as cost-effectiveness.

	Zoonoses				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Argentina	✓	▮	✗	✗	✗
Azerbaijan	✓	✓	✓	✓	✓
Bahamas	✓	✗	✗	✗	✓
Bahrain	✓	✓	✓	✓	✓
Barbados	✓	✗	✗	✗	✓
Belize	✓	✗	✗	✗	✗
Benin	▮				
Bhutan	✓	✓	✓	✗	✗
Bolivia (Plurinational State of)	✓	✗	✗	✗	▮
Brazil	✓	✗	✗	✗	✓
British Virgin Islands	✓	✗	✗	✗	✓
Brunei Darussalam	✓	✓	✓	✓	
Bulgaria	✓	✗	✗	✗	▮
Cabo Verde					
Cambodia	✓	▮	✗		✓
Cameroon	✗	✗	✗	✗	✗
Canada	✓	✗	◆	◆	✓
China	✓	✗	✗	✗	✓
Colombia	✗	✗	▮	✗	✗
Comoros					
Costa Rica	▮	▮	✗	◆	▮
Côte d'Ivoire	✗	✗	✗	✗	✗
Croatia	✓	✗		▮	✓
Cuba	✓	✓	✗	▮	✓
Cyprus	✓				
Czechia	✓				
Dominica					
Dominican Republic	✓	✓	✓	✗	▮
Egypt					
El Salvador	✓	▮		▮	✓
Eritrea	✓	✗	✗	✗	✗
Estonia	✓	✓	✓	✗	✗
Ethiopia					
Germany	✓	✗		✗	◆
Ghana	✓	✗	✗	✗	▮
Grenada	✓	▮	▮	▮	▮
Guatemala	✓	✗		✗	✓
Guinea	✓	▮	◆	◆	✓
Guyana	✓	✗	✗	✗	✓
Haiti	✓	✗	✗	✗	✗
India	✓	▮	▮	▮	▮
Iran (Islamic Republic of)	▮	▮	▮	▮	✓
Israel	✓	✗		✓	✓
Italy	✓				
Jamaica	✓	✗	✗	◆	✓
Jordan	✓	✗	✗	◆	
Kazakhstan	✓	✓	▮	▮	▮
Kenya	✓	✗	✗	✗	✗
Kyrgyzstan	▮	▮	▮	▮	▮
Lebanon	▮	▮	▮	▮	▮
Lithuania					

	Zoonoses				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Madagascar	✓	✗	✗	✗	▮
Malawi	✗	✗	✗	✗	✗
Marshall Islands	✓	✓	✓	✓	✓
Micronesia (Federated States of)					
Mozambique	✓	✗	✗	✗	✗
Netherlands	✓	▮		▮	▮
Nicaragua	✓	✗	✗	✗	✓
Nigeria	✓	▮	▮	▮	▮
North Macedonia	✓	✓	▮	▮	✓
occupied Palestinian territory, including East Jerusalem	▮	▮	▮	▮	✓
Oman	✓	▮	▮	▮	✓
Palau	✓	✓	✓	✓	✓
Papua New Guinea	▮	▮	▮	▮	▮
Paraguay	✓	✗	✗	✗	✗
Peru	✓	✗			
Philippines					
Poland	✓	◆	◆	▮	✗
Portugal	▮	▮	▮	▮	▮
Republic of Moldova	▮	✗	✗	✓	▮
Rwanda	✓	▮	▮	▮	✓
Saint Kitts and Nevis	✓	✓	✗	✗	✗
Saint Lucia	▮				
San Marino					
Sao Tome and Principe	✓	✓	▮	▮	▮
Saudi Arabia	▮	▮	▮	▮	▮
Serbia	✓	✗	✗	✗	✗
Seychelles	✗	✗	✗	✗	✗
Sierra Leone	✓	✓	✗	✗	✗
Slovakia	✓	✗	✗	✗	✓
South Africa	✓	▮		▮	▮
Sri Lanka	✓	✗		✓	✓
Suriname	✗	✗	✗	✗	✗
Sweden	✓	✗	✗	◆	✓
Thailand	✓	▮	▮	▮	✓
Togo	✓	✗	✗	◆	▮
Trinidad and Tobago	✓	▮	▮	▮	
Turkmenistan	✓	✗	✗	✗	✗
United Republic of Tanzania	✓	✗	✗	✗	✓
United States of America					
Uruguay	✓	✗	✗	✗	✗
Vanuatu	✗	✗	✗	✗	✗
Yemen	▮	▮	▮	▮	▮
Zambia	✓	✗	✗	✗	✓
Zimbabwe	✓				

✓ Yes

✗ No

▮ Unknown

◆ Not applicable

[d] Meteorological information refers to either short-term weather information, seasonal climate information or long-term climate information.

[e] Evaluated in this context, means the key components, design and application of climate-informed EWS have been evaluated, with a focus on aspects related to the indicators used, statistical performance, operational aspects and communication, as well as cost-effectiveness.

	Impacts on health care facilities				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Argentina	✗	✗	✗	✗	✗
Azerbaijan	✗	✗	✗	✗	✗
Bahamas	✓		✗	✗	▮
Bahrain	✓	✓	✓	✓	✓
Barbados	✗	✗	✗	✗	✗
Belize	✗	✗	✗	✗	✗
Benin	✗				
Bhutan	✗	✗	✗	✗	▮
Bolivia (Plurinational State of)	✗	✗	✗	✗	▮
Brazil	✓	✗	✗	✗	✓
British Virgin Islands	✓	✗	✗	✗	✗
Brunei Darussalam	✓	✓	✓	✓	
Bulgaria	✓	✗	✗	✗	▮
Cabo Verde	✓	✓	✗	✗	✗
Cambodia	✓	▮	✗		✓
Cameroon	✗	✗	✗	✗	✗
Canada	✗	◆	◆	◆	▮
China	✗	✗	✗	✗	✗
Colombia	✗	✗	▮	✗	✗
Comoros					
Costa Rica	▮	▮	✗	◆	▮
Côte d'Ivoire	✗	✗	✗	✗	✗
Croatia	✓	✗	✓	▮	✓
Cuba	✓	✓	✓	✓	✓
Cyprus					
Czechia	✗				
Dominica					
Dominican Republic	✓	✓	✓	✗	▮
Egypt			✗		
El Salvador	✓	▮	✓	▮	▮
Eritrea	✗	✗	✗	✗	✗
Estonia	✗	✗	✗	✗	✗
Ethiopia	▮		✗	▮	✓
Germany					
Ghana	✗	✗	✗	✗	✗
Grenada	▮	▮	▮	▮	▮
Guatemala	✓	✗	✓	✓	✓
Guinea	▮	◆	◆	◆	▮
Guyana	✗	✗	✗	✗	✓
Haiti	✓	✗	✗	✗	✗
India	▮	▮	▮	▮	▮
Iran (Islamic Republic of)	▮	▮	▮	▮	✓
Israel	▮	▮	▮	▮	▮
Italy					
Jamaica	✓	✗	✗	✗	✓
Jordan	✗	✗	✗	◆	
Kazakhstan	▮	▮	▮	▮	▮
Kenya	✗	✗	✗	✗	✗
Kyrgyzstan	▮	▮	▮	▮	▮
Lebanon	✗	✗	✗	✗	✗
Lithuania					

	Impacts on health care facilities				
Country or Area	Health surveillance system exists?	Health surveillance system includes meteorological information?[d]	Climate-informed health early warning system in place?	Climate-informed health early warning system has been evaluated?[e]	Health sector response plan in place?
Madagascar	✗	✗	✗	✗	✗
Malawi	✗	✗	✗	✗	✗
Marshall Islands	✓	✓	✓	✓	✓
Micronesia (Federated States of)					
Mozambique	✗	✗	✗	✗	✗
Netherlands	▮	▮	▮	▮	▮
Nicaragua	✗	✗	✗	✗	✗
Nigeria	✓	▮	▮	▮	▮
North Macedonia	✓	✓	✓	✓	✓
occupied Palestinian territory, including East Jerusalem	▮	▮	▮	▮	✓
Oman	▮	▮	▮	▮	▮
Palau	✓	✓	✓	✓	✓
Papua New Guinea	▮	▮	▮	▮	▮
Paraguay	▮	✗	✗	✗	✗
Peru					
Philippines					
Poland	✓	◆	◆	▮	✗
Portugal	▮	▮	▮	▮	▮
Republic of Moldova		▮	✗	▮	▮
Rwanda	✓	▮	▮	▮	✓
Saint Kitts and Nevis	✗	✗	✗	✗	✗
Saint Lucia	✓	✗	✗	✗	✓
San Marino					
Sao Tome and Principe	✓	✗	✗	✗	✓
Saudi Arabia	▮	▮	▮	▮	▮
Serbia	▮	▮	✗	✗	✗
Seychelles	✗	✗	✗	✗	✗
Sierra Leone					
Slovakia	▮	✗	✗	✗	▮
South Africa	✓	▮	✓	▮	▮
Sri Lanka	✓	✗	✗	◆	✓
Suriname	✗	✗	✗	✗	✗
Sweden	✓	✗	✗	◆	✓
Thailand	✓	✓	✓	✓	✓
Togo	✗	◆	◆	◆	✗
Trinidad and Tobago	▮	▮	▮	▮	
Turkmenistan	✗	✗	✗	✗	✗
United Republic of Tanzania	✗	✗	✗	✗	✗
United States of America					
Uruguay	✗	✗	✗	✗	✗
Vanuatu	✗	✗	✗	✗	✗
Yemen	✓	✗	✗	✗	✗
Zambia	✗	✗	✗	✗	✗
Zimbabwe					

✓ Yes

✗ No

▮ Unknown

◆ Not applicable

[d] Meteorological information refers to either short-term weather information, seasonal climate information or long-term climate information.

[e] Evaluated in this context, means the key components, design and application of climate-informed EWS have been evaluated, with a focus on aspects related to the indicators used, statistical performance, operational aspects and communication, as well as cost-effectiveness.

Country or Area	Have any of your country's public health care facilities been assessed for climate resilience?[f]	Have any of your country's public health care facilities been assessed for environmental sustainability?[g]
Argentina	✗	✗
Azerbaijan	✗	✗
Bahamas	✓	✓
Bahrain	✓	✓
Barbados	✗	✗
Belize	✓	✗
Benin	✗	✗
Bhutan	✓	✗
Bolivia (Plurinational State of)	✗	✗
Brazil	▮	▮
British Virgin Islands	✓	✓
Brunei Darussalam	✗	✗
Bulgaria	✗	▮
Cabo Verde	✗	✓
Cambodia	✗	✗
Cameroon	✗	▮
Canada	✓	✓
China	✗	✗
Colombia	▮	▮
Comoros	✗	✗
Costa Rica	✗	✗
Côte d'Ivoire	✗	✗
Croatia	✓	✓
Cuba	✓	✓
Cyprus	✗	✗
Czechia	▮	▮
Dominica	✓	▮
Dominican Republic	✗	✗
Egypt	✗	✗
El Salvador	▮	▮
Eritrea	✗	✗
Estonia	▮	▮
Ethiopia	✗	✗
Germany	▮	▮
Ghana	✗	✗
Grenada	✓	✓
Guatemala	✓	✗
Guinea	✗	✗
Guyana	✓	✓
Haiti	✗	✗
India	✓	✓
Iran (Islamic Republic of)	✓	▮
Israel	▮	▮
Italy		
Jamaica	✓	✓
Jordan	✗	✗
Kazakhstan	▮	▮
Kenya	✗	✗
Kyrgyzstan	▮	▮
Lebanon	✗	✗
Lithuania	▮	▮

Country or Area	Have any of your country's public health care facilities been assessed for climate resilience?[f]	Have any of your country's public health care facilities been assessed for environmental sustainability?[g]
Madagascar	✗	✗
Malawi	✓	✗
Marshall Islands	✓	✓
Micronesia (Federated States of)	▮	▮
Mozambique	▮	▮
Netherlands	▮	✓
Nicaragua	✗	✗
Nigeria	▮	▮
North Macedonia	▮	▮
occupied Palestinian territory, including East Jerusalem	▮	✓
Oman	▮	▮
Palau	✓	✓
Papua New Guinea	✗	✗
Paraguay	▮	✗
Peru	▮	▮
Philippines	✓	▮
Poland	▮	▮
Portugal	▮	▮
Republic of Moldova	✗	✗
Rwanda	✓	✓
Saint Kitts and Nevis	✗	✓
Saint Lucia	✓	✗
San Marino	▮	▮
Sao Tome and Principe	✗	✓
Saudi Arabia	▮	▮
Serbia	✗	✗
Seychelles	▮	▮
Sierra Leone	✗	✗
Slovakia	▮	▮
South Africa	▮	▮
Sri Lanka	✓	✓
Suriname	✗	✗
Sweden	✓	✓
Thailand	✓	✓
Togo	▮	▮
Trinidad and Tobago	✓	▮
Turkmenistan		
United Republic of Tanzania	✗	✗
United States of America	✓	✓
Uruguay	✗	✗
Vanuatu	✗	✗
Yemen	✗	✗
Zambia	✗	▮
Zimbabwe	✗	✗

✓ Yes

✗ No

▮ Unknown

◆ Not applicable

[f] For the purpose of this question, assessing climate resilience of health care facilities refers to a process whereby health planners and/or health care facility managers would assess whether a health care facility is able to respond to, recover from and adapt to climate-related shocks and stresses while leveraging opportunities to enhance functions and services.

[g] Os dolupta temped eaqui dollandis vid quist, utemperit ad es re volut et aut eaquod et omnihil ignimpor sinvel molupti ustias nulliatem quodistpta temped eaqui dollandis vid quist, utemperit ad es re volut et aut eaquod et omnihil ignimpor sinvel molupti ustias nulliatem quodistpta temped eaqui dollandis vid quist, utemperit ad es re volut et aut eaquod et omn

Country or Area	Is the ministry of health currently receiving international funds to support climate change and health work?
Argentina	◆
Azerbaijan	✗
Bahamas	✓
Bahrain	▮
Barbados	✗
Belize	✓
Benin	▮
Bhutan	✗
Bolivia (Plurinational State of)	✗
Brazil	◆
British Virgin Islands	✗
Brunei Darussalam	✗
Bulgaria	✓
Cabo Verde	✗
Cambodia	✓
Cameroon	▮
Canada	✗
China	✗
Colombia	✓
Comoros	▮
Costa Rica	✗
Côte d'Ivoire	✗
Croatia	✓
Cuba	▮
Cyprus	✗
Czechia	✗
Dominica	▮
Dominican Republic	✗
Egypt	✓
El Salvador	▮
Eritrea	✗
Estonia	✗
Ethiopia	✗
Germany	◆
Ghana	✗
Grenada	✓
Guatemala	✓
Guinea	✓
Guyana	✓
Haiti	✗
India	✗
Iran (Islamic Republic of)	▮
Israel	✗
Italy	
Jamaica	✓
Jordan	✗
Kazakhstan	▮
Kenya	✗
Kyrgyzstan	▮
Lebanon	▮
Lithuania	✗

Country or Area	Is the ministry of health currently receiving international funds to support climate change and health work?
Madagascar	✗
Malawi	✓
Marshall Islands	✓
Micronesia (Federated States of)	▮
Mozambique	✓
Netherlands	▮
Nicaragua	✗
Nigeria	✗
North Macedonia	✗
occupied Palestinian territory, including East Jerusalem	▮
Oman	▮
Palau	✗
Papua New Guinea	✗
Paraguay	▮
Peru	✗
Philippines	✓
Poland	✗
Portugal	▮
Republic of Moldova	▮
Rwanda	◆
Saint Kitts and Nevis	▮
Saint Lucia	✓
San Marino	✗
Sao Tome and Principe	✗
Saudi Arabia	✗
Serbia	✗
Seychelles	✗
Sierra Leone	✗
Slovakia	✗
South Africa	✗
Sri Lanka	✓
Suriname	✗
Sweden	✗
Thailand	✓
Togo	✓
Trinidad and Tobago	▮
Turkmenistan	✗
United Republic of Tanzania	✓
United States of America	✗
Uruguay	▮
Vanuatu	✗
Yemen	✗
Zambia	✓
Zimbabwe	✗

✓ Yes

✗ No

▮ Unknown

◆ Not applicable

Country or Area	Has there been an assessment(s) of the health co-benefits of your country's climate change mitigation policies?[h]
Argentina	✓
Azerbaijan	✗
Bahamas	✗
Bahrain	✓
Barbados	✗
Belize	▮
Benin	✗
Bhutan	✗
Bolivia (Plurinational State of)	✗
Brazil	✗
British Virgin Islands	▮
Brunei Darussalam	✓
Bulgaria	✗
Cabo Verde	✗
Cambodia	●
Cameroon	▮
Canada	▮
China	✓
Colombia	●
Comoros	▮
Costa Rica	▮
Côte d'Ivoire	●
Croatia	▮
Cuba	✓
Cyprus	▮
Czechia	▮
Dominica	✗
Dominican Republic	✗
Egypt	●
El Salvador	▮
Eritrea	✗
Estonia	✓
Ethiopia	▮
Germany	✗
Ghana	✗
Grenada	✗
Guatemala	✓
Guinea	✗
Guyana	✗
Haiti	✗
India	▮
Iran (Islamic Republic of)	●
Israel	✗
Italy	
Jamaica	●
Jordan	✗
Kazakhstan	▮
Kenya	✗
Kyrgyzstan	✗
Lebanon	✓
Lithuania	✗

Country or Area	Has there been an assessment(s) of the health co-benefits of your country's climate change mitigation policies?[h]
Madagascar	✗
Malawi	●
Marshall Islands	✓
Micronesia (Federated States of)	▮
Mozambique	✗
Netherlands	✓
Nicaragua	✗
Nigeria	●
North Macedonia	●
occupied Palestinian territory, including East Jerusalem	▮
Oman	✓
Palau	▮
Papua New Guinea	✗
Paraguay	▮
Peru	✗
Philippines	●
Poland	✗
Portugal	▮
Republic of Moldova	▮
Rwanda	▮
Saint Kitts and Nevis	✗
Saint Lucia	✓
San Marino	▮
Sao Tome and Principe	✓
Saudi Arabia	●
Serbia	▮
Seychelles	▮
Sierra Leone	✗
Slovakia	▮
South Africa	▮
Sri Lanka	✓
Suriname	✗
Sweden	✗
Thailand	●
Togo	▮
Trinidad and Tobago	▮
Turkmenistan	✗
United Republic of Tanzania	●
United States of America	▮
Uruguay	✗
Vanuatu	✗
Yemen	✗
Zambia	✗
Zimbabwe	✓

✓ Yes

● Under development

✗ No

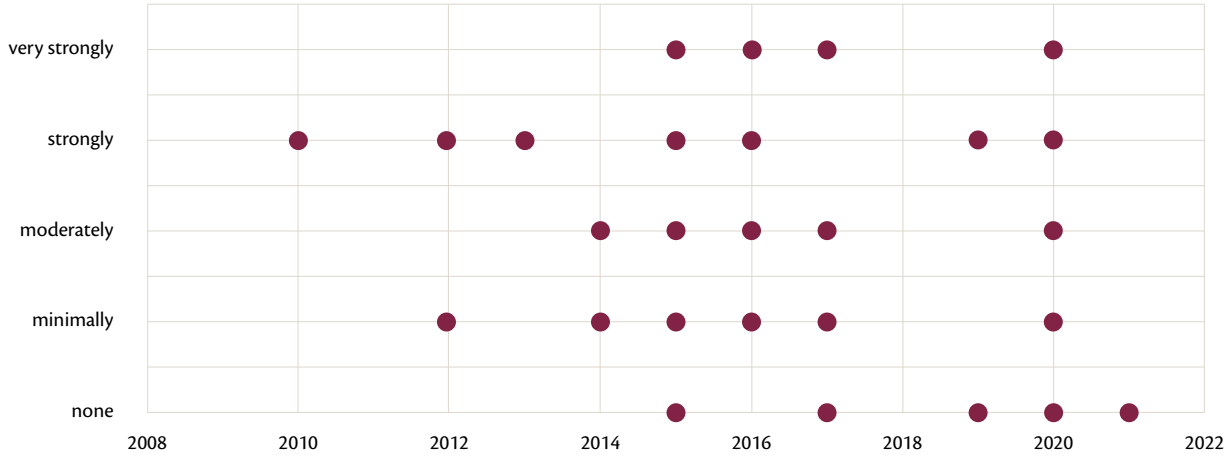
▮ Unknown

[h] The health co-benefits of climate change mitigation refer to the potential human health benefits that may be gained from implementing policies that cut greenhouse gas emissions and/or short lived climate pollutants and promote low-carbon, sustainable societies. For example, efforts to reduce GHG emissions in the transport sector can result in reduced air pollution and higher levels of physical activity such as cycling or walking consequently lowering the risks of respiratory diseases, cardio-vascular diseases, diabetes and obesity. Conversely, some climate mitigation policies may cause harm to human health or may not maximize potential health gains. Climate mitigation policy in this context could refer to those outlined in your NDC or other national or subnational climate mitigation policies. Assessment(s) could be qualitative and/or quantitative.

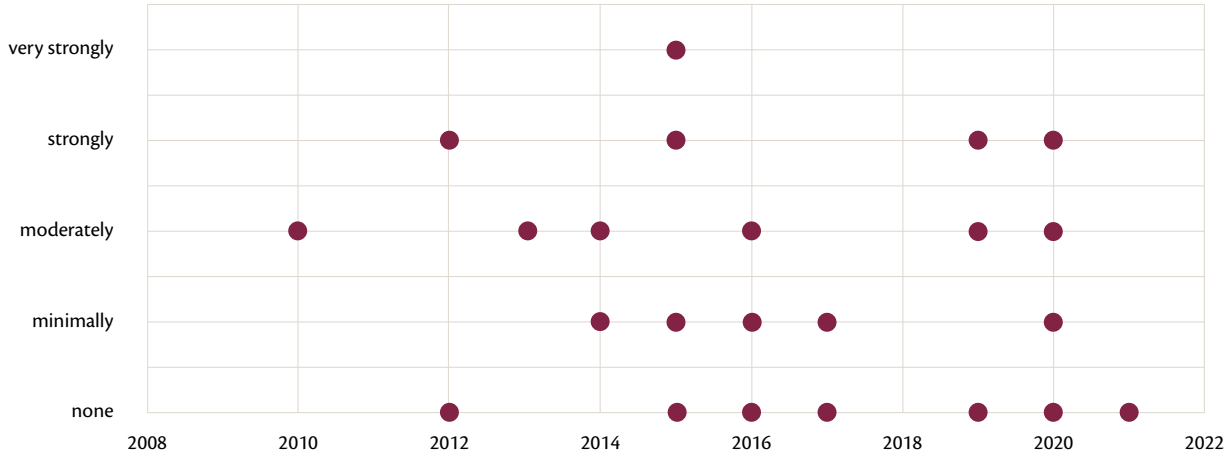
ANNEX 3

Supplementary figures and information

Influence of V&A assessment findings on health policy and programmes



Influence of V&A assessment findings on allocation of resources



Summary of methods for qualitative analysis of submitted documents

The qualitative analysis of climate change and health V&A assessments was undertaken primarily as a survey validation step for documents that were collected as part of the 2021 WHO Health and Climate Change Global Survey. Approximately 58 documents or links to documents were collected but only 43 documents were included in the analysis. Some excluded documents were supplementary documents or were not considered V&A assessments. A small number of documents were not able to be translated. The links to other documents were not always active. Inclusion criteria were documents that addressed health-related vulnerabilities or risks. Identification of adaptation options was not an inclusion criteria. The analysis was performed by reviewing the content of assessments based on 41 variables. For example, type of document, level of assessment, year of publication, assessment approach (qualitative; mixed; qualitative), mention of recurrent assessment, baseline indicators, inclusion of key climate sensitive diseases, impact on health care facilities, future health risks included, etc.

The qualitative analysis of national health and climate change plans or strategies was undertaken primarily as a survey validation step for documents that were collected as part of the 2021 WHO Health and Climate Change Global Survey. Approximately 55 documents were collected or a link was provided but only 31 documents were included in the analysis. Some excluded documents were supplementary documents. A small number of documents were not able to be translated. Inclusion criteria were documents that included adaptation measures or strategic actions defined for the health sector. Exclusion criteria included documents in which only a mention of the impacts of climate change on human health was present but adaptation actions, options or measures were not specified. The analysis was performed by reviewing the content of strategies or plans based on 62 variables. For example, type of document, year of publication, time period covered by document, total number of pages with focus on health, inclusion of components from HNAP quality criteria (6), inclusion of key climate sensitive health risks, inclusion of specific vulnerable population groups, inclusion of mitigation actions, etc.

Although the qualitative analysis was a basic review of the scope and content of the documents submitted for the global survey, further analysis would be required to assess the comprehensiveness of assessments, plans or strategies.

World Health Organization

For further information please contact:

Climate Change and Health Unit
Department of Environment,
Climate Change and Health
World Health Organization

Email: climatehealth@who.int
Webpage: https://www.who.int/health-topics/climate-change

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