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## **Climate change and health: framework for action 2017–2021**

### **Executive summary**

1. Rising global temperatures are affecting the intensity and frequency of heat waves and the incidence of extreme weather conditions such as flooding and droughts. Climate change poses serious, yet preventable, effects on human health and exacerbates morbidity and mortality, especially among vulnerable populations (the poor, the elderly, children, women and outdoor workers). Climate change is among the biggest global health threats of the 21st century.
2. Tackling climate change can also be considered the greatest global health opportunity of the century. It will entail commitment by Member States to an urgent agenda for integrating the management of health risks associated with climate change into health sector operational systems. In its envisaged role, the health sector must overcome challenges such as low awareness of the link between climate and health; lack of ownership and loose engagement in climate change processes and environmental health stewardship; weak technical and regulatory capacities within the health sector; and limited political commitment on climate change and funding for a health sector response.
3. The proposed framework for action on climate change and health is primarily intended for health sector officials, professionals and managers in the Region. It aims at building health systems' resilience in the face of climate change by providing a systematic agenda for mainstreaming the public health response to climate change within the health sector and other relevant sectors. This can be achieved by enhancing the capacity of health ministries to protect health in a variable and changing climate; and through anticipating, preventing, preparing for and managing climate-related health risks. The framework will also help to mobilize decision-makers in other health-determining sectors such as food, water and sanitation, municipalities, energy, transport and emergency management, among others.
4. The framework encompasses four key components: 1) establishing governance policy and leadership responsibilities for protecting health from climate change; 2) strengthening the resilience of health systems for instituting surveillance and response to climate-health impacts; 3) strengthening the health sector regulatory, monitoring and stewardship roles of the environmental and social determinants of health; and 4) catalysing multisectoral interventions and mobilization of support for health and climate action. Implementation of the framework requires coordinated technical support from WHO at all levels. WHO can also offer support in facilitating partnerships and accessing financial resources and funding mechanisms in order to augment the health sector response to climate change.

### **Introduction**

5. Climate change is one of the biggest global health threats of the 21st century. The Fifth Assessment Report of the Intergovernmental Panel on Climate Change projects a rise in global temperatures that will cause an increase in the intensity and frequency of heat waves and the incidence of extreme weather conditions, such as flooding and droughts. This is expected to adversely affect human health and increase mortality and morbidity, especially among vulnerable populations. The impacts of climate change on human health are complex and are expected to vary according to geographic location, socioeconomic conditions and ecological settings. While the effects of climate change are being increasingly felt and forecasts are presenting potentially disastrous risks to human health and welfare, tackling climate change could also be the greatest global health opportunity of the century (1,2). This entails commitments by Member States for an effective public health response to the climate change phenomenon.

6. In 2008, the 61st World Health Assembly endorsed resolution WHA61.19, establishing a joint mandate for work on climate change and health by WHO and Member States. Subsequently, the Regional Committee for the Eastern Mediterranean adopted resolution EM/RC55/R.8, which endorsed a regional framework for health sector action to protect health from climate change (3). The 136th session of the Executive Board endorsed the WHO global workplan on climate change and health 2014–2019. The 60th session of the Regional Committee in resolution EM/RC60/R.5 endorsed the regional strategy on health and the environment, and identified action on protecting health from climate change as one of the seven environmental health priorities in the Region. The pre-session of the 61st Regional Committee also discussed the public health response to climate change and air pollution in the Region. An urgent action agenda for mainstreaming the management of climate risks in the health sector was defined by the First and Second WHO Global Conference on Health and Climate in 2014 and 2016, respectively.

7. The framework for action on climate change and health proposed in this paper aims at guiding the health sector response to climate change in Member States of the Region. This includes: 1) establishing governance policy and leadership responsibilities for protecting health from climate change; 2) strengthening the resilience of health systems for instituting surveillance and response to climate-health impacts; 3) strengthening the health sector regulatory, monitoring and stewardship roles of the environmental and social determinants of health; and 4) catalysing multisectoral interventions and mobilization of support for health and climate action.

8. The proposed framework updates and refines the previous framework adopted in resolution EM/RC55/R.8, in view of cumulative data, experiences and developments worldwide since 2008.

### **Global context and response**

9. Evidence linking climate change and health continues to build, and there is increasing demand to assess thoroughly the health impacts of climate change. Adverse health effects resulting from climate change affect the entire world; however, health vulnerability and survivability are of particular concern in less developed countries and small island states, whereas linkages to air pollution and the need for clean energy are of high priority in industrial nations and emerging economies (4,5). Water scarcity, food security and sand storms are key concerns in the Eastern Mediterranean Region, while risks to health security from extreme weather events, infectious disease outbreaks and forced migration affect all countries.

10. Direct health effects of climate change include greater risk of injury and death due to intense heat waves and fires; increased risk of foodborne, waterborne, airborne and vector-borne diseases; increased risk of undernutrition in poor regions; excess morbidity and mortality due to heat exhaustion and heat strokes; and exacerbated cardiovascular and respiratory illnesses that arise from extreme weather events (heat waves, flooding, sand storms and air pollution episodes). Indirect health effects are those associated with the potential for mass displacement of communities and disruption of livelihoods in low-lying zones and small island states; increased risk of violent conflict associated with resource scarcity and population movements; and slowdown in economic growth, exacerbation of poverty and increase in health inequity (4,5).

11. WHO considers that climate change represents a fundamental threat to lives and well-being and has called for urgent global action to protect health from climate-related risks. WHO convened two global conferences on health and climate change (in Geneva, August 2014 and Paris, July 2016) to further enhance support for protecting health against climate risks. The two conferences aimed at strengthening the evidence base, monitoring the progress of health adaptation measures, and the health, economic and sustainable development benefits of mitigation policies by deriving the health benefits associated with climate change interventions.

12. The global conferences identified two main areas for public health engagement and response measures to climate change: adaptation to climate change, by taking proactive action to prepare the health system for the health risks of climate change; and advocacy to ensure that global emissions of climate pollutants are reduced to a sufficient extent to curtail global warming and protect public health.

13. The two response measures, as presented by WHO, demand monitoring and accountability to ensure that progress is achieved and maintained. For systematic and evidence-based progress monitoring, the 2nd Global Conference on Health and Climate endorsed the climate and health country profile project jointly developed by WHO and the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC). This process aims at providing ministers of health and other health stakeholders with evidence-based snapshots that are country-specific on climate hazards, health risks and opportunities for action.

14. Health has an increasingly high profile within the international climate change arena, particularly as focus moves from political negotiations and environmental triggering towards implementation of and linkage with the 2030 Agenda for Sustainable Development. The adoption of the Sustainable Development Goals (SDGs) provides an opportunity to position health at the centre of all goals, to synergize health (SDG 3) in a coherent manner with climate change (SDG 13), and link with other relevant SDGs such as water and sanitation (SDG 6), energy (SDG 7), and cities and communities (SDG 11).

15. The Paris Agreement of the twenty-first session of the Conference of the Parties to the UNFCCC (December 2015) emphasized the protection of public health from climate change. In the Agreement, government officials insisted that the profound effects on health should be given sufficient attention in the international debate on climate change. Consequently, the international health community has spearheaded efforts to increase climate resilience and decrease the health sectors' footprint in terms of pollution emissions. At the twenty-second Conference of the Parties in Marrakech, Morocco in November 2016, WHO together with the United Nations Environment Programme and the World Meteorological Organization launched a coalition on health, environment and climate change, with the main priority of providing joint concrete action to support Member States to address the health impacts of air pollution. Climate change and health is also the overarching theme of the health ministers' meeting of the G7 countries to be held in November 2017.

16. Nongovernmental initiatives that support climate change adaptation and mitigation (e.g. Health Care Without Harm) can yield substantial and immediate health benefits to protect human lives and welfare. Leading by example, the health sector can take intrinsic actions on accessing efficient, clean and renewable energy; promoting green health care buildings and green procurement and purchasing; augmenting environmental and health care waste management systems; and innovating other low-carbon models of health care. These opportunities will result in immediate health co-benefits, e.g. from lowering air pollution levels an environmental risk which kills 400 000 people each year in the Region: 1 in 8 annual deaths (6).

17. In collaboration with countries, WHO is well placed to steward these developments. Climate change and health is an active and growing area of work across WHO regions, with strong links to related programmes such as air pollution, water and sanitation, food and nutrition, and disaster preparedness. Leadership from WHO in this area, in collaboration with the joint health and environment ministerial structures in several regions, offers the potential to save lives and the environment as well as to transform climate change risks into public health opportunities. This transformation demands mobilization of financial resources to make the necessary investments in climate-resilient low-carbon health systems and health-promoting development schemes (such as greening the health sector). However, although the vast majority of developing countries have declared health impact to be a key consequence of climate change, health projects are still the least funded through the Green Climate Fund (only 1.5% of total disbursements) (6). So far, minimum financial resources have been allocated for adaptation and mitigation to increase health sectors' climate resilience and to sustain public health protection and promotion in the face of climate change.

### **Regional context, response and challenges**

18. The Fifth Assessment Report of the Intergovernmental Panel on Climate Change (7) reported that climate change has significant effects in the Eastern Mediterranean Region including rising average temperatures, aggravated water scarcity, frequent and severe heat waves, recurrent and strong dust storms, lasting droughts, crop production failures, and flood damage to human settlements and health facilities. Normally these are manifested in adverse effects to human health and welfare via increasing mortality and morbidity, especially among vulnerable populations. Indirect health effects of climate change are associated

with the disruption of livelihoods resulting from increased risk of violent conflicts pertinent to resource scarcity, population movements and slowdown in economic growth.

19. A systematic review of research evidence from countries of the Region (8) documented a regional trend of adverse climate impacts on health, such as increases in waterborne diseases, undernutrition, drowning, mortality and morbidity during heat waves, cardiovascular and respiratory illnesses, mental health stress, allergic reactions, pulmonary diseases due to dust storms and heat waves, and spread of vector-borne diseases (dengue, malaria, schistosomiasis and zoonotic cutaneous leishmaniasis). The review also found that research on the link between climate change and health is still scarce. There are abundant gaps in awareness and understanding of the linkages between climate change and health that may slow down mitigation and adaptation activities in the health sector.

20. Since 2005, WHO has initiated programmes of work on health and climate change. The Region participated in the WHO global project on piloting climate change adaptation 2009–2015 to protect human health, addressing health risks resulting from water scarcity in particular. Thereafter, WHO was involved in a consultative process with Member States, convening workshops and meetings to develop a regional framework for health sector action to protect health from climate change (3). This work was aligned with resolution WHA61.19 which recognized the imminent threats of climate change on health, establishing a global mandate for the work of WHO and Member States on health and climate change and outlining the major areas of action.

21. In 2008, the 55th session of the Regional Committee for the Eastern Mediterranean passed resolution EM/RC55/R.8 on climate change and health. The resolution specifically:

- endorsed a regional framework for health sector action in Member States to protect health from the effects of climate change;
- urged countries to implement the framework for action;
- urged countries to establish high-level effective coordination mechanisms for strengthening institutional capacity to protect health from climate change and to facilitate the engagement of the health sector in the national UNFCCC processes;
- urged countries to establish early warning capacity for climate-sensitive diseases by integrating environmental monitoring information with the existing health surveillance system.

22. The framework for health sector action articulated four pillars: 1) leadership and advocacy to position public health at the centre of national action strategies on climate change, including provision for health-promoting development policies in other sectors that determine health; 2) assessment of health vulnerability and strengthening of health systems' preparedness to cope with the changing disease burden of climate-sensitive diseases; 3) revitalizing the regulatory, stewardship and surveillance role of the ministries of health towards improving environmental health services; and 4) establishing institutional capacity within the ministries of health to facilitate work on protecting health from climate change.

23. Since the adoption of resolution EM/RC55/R.8, the health ministries in Lebanon, Syrian Arab Republic and Tunisia developed national frameworks for action on health and climate change, and included a chapter on health and climate change in their Second National Communication to the UNFCCC. Morocco and Tunisia also developed national adaptation strategies for health and climate change, and the Islamic Republic of Iran undertook the development of a national framework for action to protect health from climate change. In Jordan, a national assessment of health vulnerability due to climate change was conducted, and a national health and climate change strategy and action plan were developed. The Jordanian health workforce teams responsible for managing climate-sensitive diseases were trained on vulnerability assessment and adaptation work modalities to enhance health sector resilience.

24. In 2013, the 60th session of the Regional Committee for the Eastern Mediterranean adopted the regional strategy on health and the environment 2014–2019 (EM/RC60/R.5), which highlighted climate change and health as one of seven environmental health priorities in the Region. In 2014, the public health response to

climate change and air pollution was addressed during the pre-session of the 61st Regional Committee, as well as through several regional expert consultations.

25. In 2015, WHO initiated the development of climate and health country profiles for the 22 countries of the Region. So far, national profiles have been completed for Egypt, Islamic Republic of Iran, Kuwait, Morocco, Oman, Pakistan and Tunisia (9). Other countries have indicated interest in initiating their national profiles, and the work is under way.

26. Almost all countries in the Region (18 Member States) are signatories to the international agreements of the UNFCCC and are participating in its legally binding processes, such as the preparation of national communications and development of national adaptation measures and plans of action. However, to date, the health sector has not been fully engaged at the country level in processes such as reporting on the health impacts of climate change and in development of comprehensive health protection measures.

27. Health is still being treated as a peripheral matter to climate change, thereby impeding the development of an effective public health response in Member States (10). Challenges that must be addressed within the health sector include, but are not limited to: 1) low level of awareness of the strong link between climate and health; 2) lack of ownership, stewardship and engagement of the health sector in climate change processes; 3) weak institutional capacity within the health sector to secure its climate resilience and involvement in international/national climate debates; and 4) limited funding and resources for a health sector response to climate change.

### **Proposed framework for action on climate change and health**

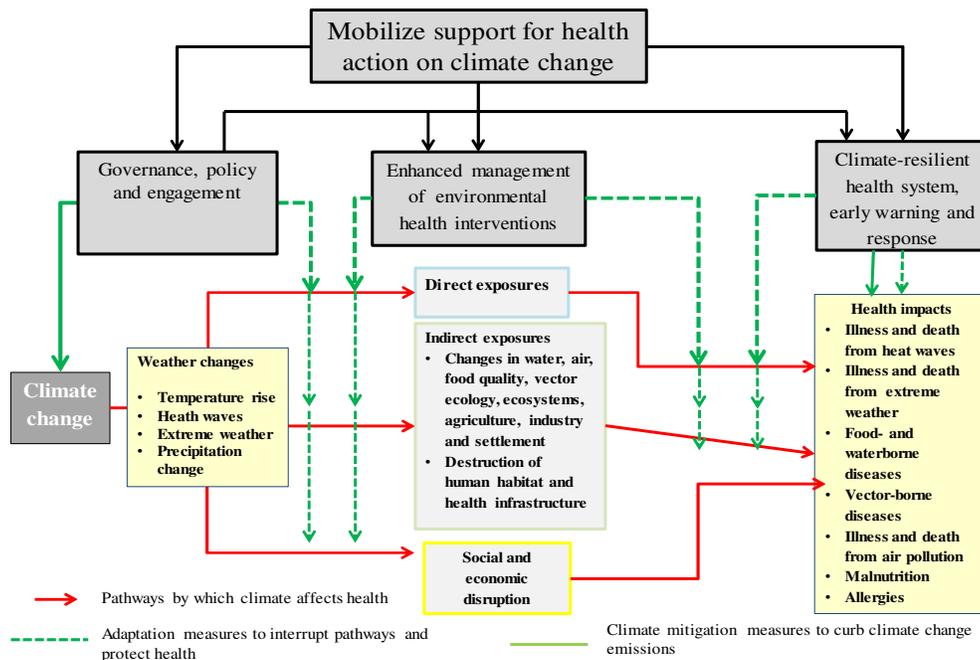
28. The proposed framework (Annex 1) for a national public health response to climate change has four key components.

- Governance policy and engagement for health protection from climate change.
- Climate resilient health systems – robust surveillance, early warning and response for climate-sensitive health impacts.
- Enhanced management of environmental health interventions, services and determinants.
- Mobilizing support for the public health response to climate change.

29. The framework builds on existing commitments on climate change and health adopted in resolutions WHA61.19, EM/RC55/R.8 and EM/RC60/R.5, as well as that endorsed by the 139th session of the Executive Board. The framework was developed in light of the outcomes of the WHO global conferences on health and climate in 2014 and 2016 and takes into account the experience of Member States of the Region since 2008.

30. The proposed framework is primarily intended for public health sector officials, professionals and managers. Its objective is to provide technical and policy guidance on public health programming, to increase health ministries' capacities for protecting health in a variable and changing climate. The framework should also help to mobilize decision-makers in other sectors related to health such as food, water and sanitation, municipalities, energy, transportation and emergency management. Fig. 1 shows the pathways for action in the proposed framework.

31. By implementing the four key components outlined in the framework, national public health systems will be better able to anticipate, prevent, prepare for and manage climate-related health risks. In particular, countries that are in the process of developing the health component of their national adaptation plans and nationally determined contributions under the UNFCCC should use the framework as a tool in designing a comprehensive response to the risks presented by short-term climate variability and long-term climate change. The framework also takes account of the need to ensure coherence with other relevant intergovernmental agreements, including the Sendai Framework for Disaster Risk Reduction 2015–2030 and the 2030 Agenda for Sustainable Development.



**Fig 1. Pathways for action on climate change and health**

## Conclusions

32. At global level there is growing momentum for work on climate change and health, with WHO leading the health sector response. The prominent profile of public health within the international climate change and sustainable development arena, such as in the Paris Agreement and the twenty-second and twenty-third Conference of the Parties to the UNFCCC, is evidence of awareness of the need to protect health from climate change. Health and climate is an expanding area of work across the WHO regions, with strong links to water and sanitation, air quality, energy, urbanization, housing, transportation and food and nutrition services. Yet protecting health from climate change remains a peripheral matter to the health sector in the Region.

33. The proposed framework is designed to build the resilience of health systems in the face of climate change, providing an agenda for action to mainstream the public health response to climate change within the health sector and other relevant sectors in countries. In this regard, the proposed framework builds upon and updates the action endorsed by the Regional Committee for the Eastern Mediterranean in its 55th session. The actions will be tailored in each Member State to respond to country-specific climate vulnerability mapping, and corresponding adaptation and mitigation schemes.

34. Implementation of the proposed framework for action will require coordinated technical support from WHO at all levels. WHO can also offer support in facilitating partnerships and accessing financial resources and funding mechanisms in order to augment the health system response to climate change.

35. It is critical to implement the framework nationally, monitor progress and exchange experiences. The climate and health country profiles, developed by WHO and the Secretariat of the UNFCCC, offer a systematic and quantitative reporting scheme of national progress on health and climate change. The Regional Committee is invited to endorse the framework for action on climate change and health, 2017–2021.

## Annex 1. Proposed framework for action on climate change and health in the Eastern Mediterranean Region

Strategic response target	Action by countries	WHO support
<b>Governance, policy and engagement for health protection from climate change</b>		
<p><b>Governance</b></p> <p>A focal point on health and climate change is assigned responsibility for facilitating and coordinating the development of the public health response to climate change</p>	<p>Establish a specific responsibility and accountability legal mechanism within the ministry of health for protecting health from climate change within and outside the health sector</p> <p>Designate a national health and climate focal point with clearly defined terms of reference and budgetary allocation to coordinate the health sector response to climate change</p> <p>Institute a coordination modality for the health and climate focal point entity to steer the development and implementation of the public health response to climate change.</p>	<p>Provide training and institutional capacity-building to designated health and climate focal point entities</p> <p>Share relative modalities, experiences and lessons learned from other Member States with designated health and climate focal point entities</p>
<p><b>Policy</b></p> <p>A national policy and action plan on health and climate change are developed and integrated with the national public health strategy and policy.</p>	<p>Develop a national policy, strategy and action plan on health and climate change</p> <p>Integrate the health and climate change policy and action plan into the national public health strategy and policy.</p>	<p>Share guidelines, strategies, experiences and lessons learned from other Member States on developing a national policy and action plan on health and climate change</p>
<p><b>Engagement</b></p> <p>The national health and climate change policy and action plan are well-integrated into the national climate change policy and action plans for climate adaptation and mitigation</p> <p>The designated national health and climate focal point is a member of the national delegation to the Conference of the Parties to the UNFCCC</p> <p>Health impact assessments of climate adaptation and mitigation measures are conducted within three health-determining sectors</p>	<p>Integrate the national health and climate change policy and action plan into the national climate change policy and action plans on climate change adaptation and mitigation</p> <p>Adequately represent the ministry of health in the main climate change processes at all levels (e.g. UNFCCC meetings, Conference of the Parties negotiations and national communications)</p> <p>Conclude agreements between the ministry of health and other ministries (of health-determining sectors), delineating specific roles and responsibilities in assessing the health impacts and benefits of climate change adaptation and mitigation policies</p>	<p>Share guidelines, strategies, experiences and lessons learned from other Member States on developing a national cross-sectoral collaboration mechanism on health and climate change</p>
<b>Climate resilient health systems – robust surveillance, early warning and response</b>		
<p>Surveillance and health information systems:</p> <p>Assessment of health vulnerability to climate change is completed and updated biennially with emerging evidence</p> <p>The health information system encompasses the health and climate change vulnerability and response data</p> <p>Early warning system on climate health risks is established</p>	<p>Undertake assessment of health vulnerability to climate change and evaluate the existing response and adaptation options within the health sector (i.e. vulnerability and adaptation assessments)</p> <p>Enhance disease surveillance, link with environmental monitoring and develop climate-based early warning systems</p> <p>Expand the geographic, population and seasonal coverage of health surveillance and control programmes for climate-sensitive diseases</p>	<p>Provide training and institutional capacity-building on climate risks, monitoring and surveillance, early warning, and vulnerability and adaptation assessments</p> <p>Share relevant health information system modalities development from other Member States</p>

Strategic response target	Action by countries	WHO support
<p>Response and health programmes:</p> <p>The strategic plans and operating procedures of national health programmes are revised to respond to climate risks</p>	<p>Update the strategic plans of national health programmes on climate-sensitive diseases, taking into account the outcome of the health vulnerability assessment</p> <p>Revise standard operating procedures within the public health system to respond to climate risks by providing health programme interventions</p>	<p>Share awareness-raising materials, norms and standards, and interventions regarding health and climate issues</p>
<p>Response and health workforce:</p> <p>70% of the ministry of health workforce in climate-sensitive health programmes are trained on health impacts and response to climate change</p> <p>Contingency plans are developed to respond to climate shock events</p>	<p>Develop human resources capacity via educational curricula and professional training of health personnel to ensure sufficient number of health workers are equipped to deal with the health risks posed by climate change</p> <p>Strengthen organizational preparedness capacity, with contingency planning for deployment and response (at national, provincial and local levels) in the case of acute climate shocks and crises, such as extreme weather events (e.g. flooding, drought, heat waves, etc.) and consequent outbreaks</p>	<p>Provide guidance on developing and delivering educational curricula and professional training of health personnel on health and climate change</p> <p>Share experiences, norms and standards, and planning regarding health and climate responses</p> <p>Provide training modules and capacity-building for health system preparedness and response to climate change</p>
<p>Response and health infrastructure and technologies:</p> <p>National assessment on the climate resilience of health infrastructures is generated</p> <p>National standards and building codes for health infrastructure and technologies are revised in view of climate vulnerability</p> <p>50% of health care facilities are equipped with climate-proofed infrastructure and supporting services</p>	<p>Assess systematically the vulnerability of health facilities and infrastructure in light of climate risk forecasts</p> <p>Revise specifications to include climate risk projections in the siting and construction, functioning and operation, energy and water supplies, and sanitation services of health care facilities</p> <p>Retrofit health facilities' infrastructure to increase operational efficiency, reduce environmental footprint and sustain health services to withstand and overcome extreme weather events (e.g. utilize renewable energy, water recycling, etc.)</p>	<p>Share specifications, norms and standards for climate-resilient health care facilities.</p> <p>Provide guidance on greening the health sector</p> <p>Facilitate networking with global initiatives (e.g. Health Care Without Harm)</p>
<b>Enhanced management of environmental health interventions</b>		
<p>Regulatory and surveillance roles of the ministry of health in the management of environmental health:</p> <p>Health evidence database is generated to support development of national regulations on the management of environmental health services (e.g. water supply, sanitation, food safety, etc.)</p> <p>Public health protection and promotion are well-streamlined within national regulations and policies on environmental health services and determinants</p> <p>Surveillance role of the ministry of health is strengthened in the integrated management of environmental health services and determinants</p>	<p>Collect and analyse information on environmental hazards and health outcomes</p> <p>Connect and integrate the monitoring and evaluation programmes of environmental risks with the health surveillance systems</p> <p>Improved national regulations and policies on key environmental health services and determinants (e.g. drinking water, air quality, food system, housing, transport, energy, waste management, health facilities) are promulgated to ensure health protection and promotion while addressing climate change</p> <p>Maintain independent surveillance by the ministry of health to evaluate effectiveness, compliance and health impacts of the environmental health services managed by other sectors (such as drinking water, sanitation, food safety, management of chemicals, etc.)</p>	<p>Share international/regional experiences, norms and standards on integrating climatic, meteorological and environmental monitoring and evaluation programmes with health surveillance systems</p>
<b>Mobilizing support for the public health response to climate change</b>		
<p><b>Mobilization</b></p> <p>Financial and human resources are secured to protect health from climate change</p>	<p>Mobilize financial and human resources to support the health response to climate change in the core functions of public health</p> <p>Mobilize financial resources to support the health sector in assessing the co-benefits of climate action in other health-determining sectors and to</p>	<p>Share international/regional networking and experiences on mobilizing national resources to protect health from climate change in the health and other sectors</p>

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Strategic response target	Action by countries	WHO support
Financial and human resources are available to the health sector to carry out health impact and co-benefit analyses of climate action options in health-determining sectors	identify climate actions that bring greatest benefits to health	Provide consultation to decision-makers and training and capacity-building development programmes to relevant professional staff
International funding mechanisms (e.g. Green Climate Fund) are accessed to conduct health-based adaptation measures and mitigation projects	Facilitate access to international funding opportunities and mechanisms (e.g. Green Climate Fund) for dissemination towards health-based adaptation measures and mitigation projects, including nationally determined contributions	Share international/regional networking and proposals for mobilizing funds from international monetary mechanisms

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