



World Health
Organization
REGIONAL OFFICE FOR Europe



POLICY BRIEF

HEALTH AND CLIMATE ACTION



Key messages

Taking action on one SDG gets results in others: health runs through every SDG.

3 GOOD HEALTH AND WELL-BEING



ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES.

13 CLIMATE ACTION



TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS.*

Climate change is already having a serious impact on human lives and health. It threatens the basic elements we all need for good health – clean air, safe drinking water, nutritious food supply and safe shelter – and will undermine decades of progress in global health. We can't afford to delay action any further.

Dr Tedros Adhanom Ghebreyesus, Director-General of WHO (1)

- Climate change has led to changes in the frequency and intensity of extreme weather events, rising sea levels and changing patterns in infectious disease distribution. These are projected to continue for many decades to come, with further impacts on people and ecosystems (2–4).
- Climate change is projected to lead to an increase in migration, conflicts over natural resources and political instability, thus impacting the economic, environmental and social determinants of health.
- The level of effects on population health will be dependent on people's level of exposure; their personal characteristics, such as age, education, income and health status; and their access to services, including health, social and communication services.
- There is no time to lose. Greenhouse gas emissions must be cut to almost half by 2030 to avert significant global consequences for society and the planet. Reducing emissions to limit further temperature increases to 1.5 °C above pre-industrial levels is still possible, but substantial scaling-up of technological, economic, institutional and behavioural changes are necessary.
- Reducing greenhouse gas emissions can provide immediate benefits for health, the economy and society by saving lives, reducing diseases and increasing societal well-being (2). The cost savings of the health cobenefits achieved by policies to cut greenhouse gas emissions are substantial (5,6).

* Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.



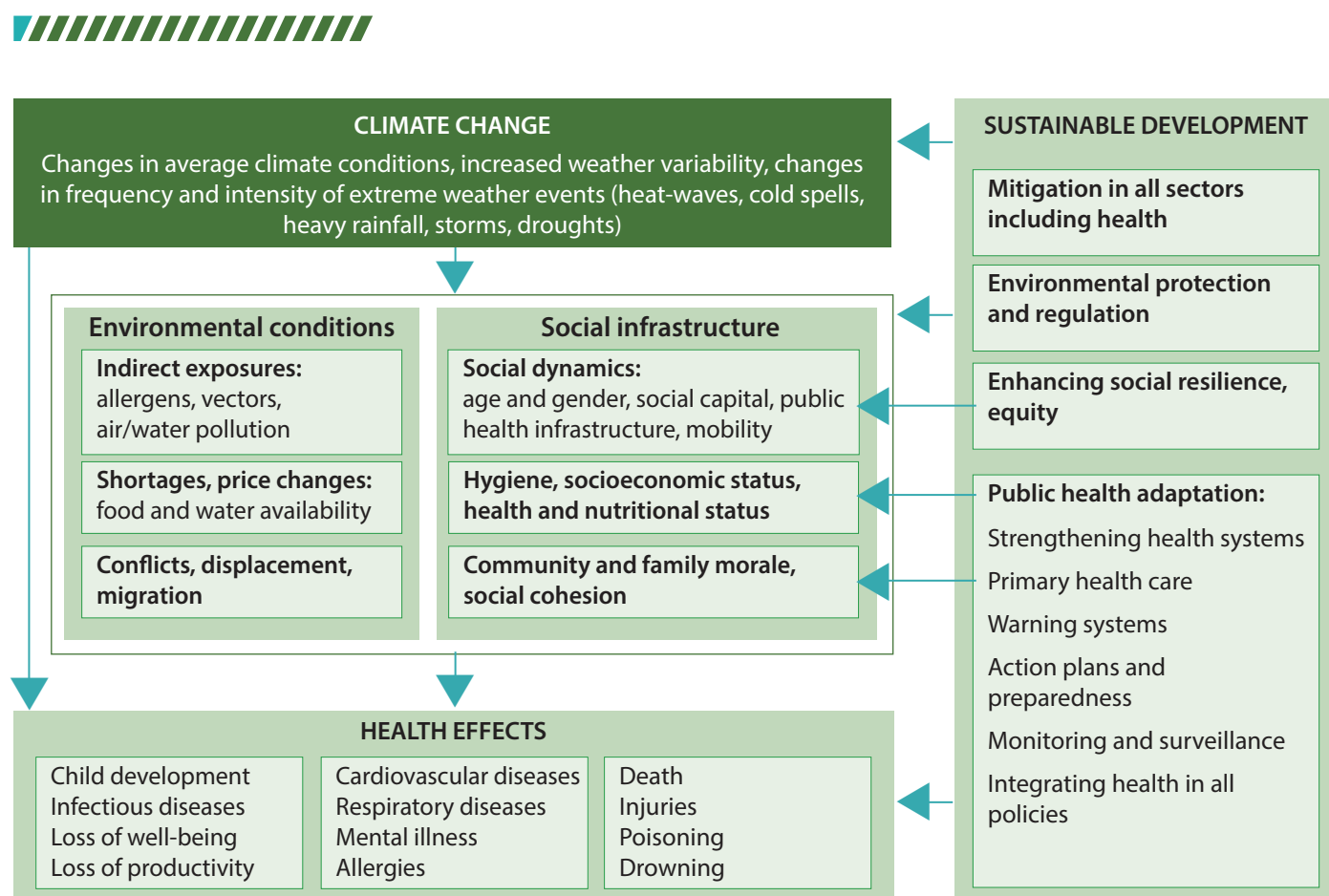
/// The Paris Agreement (7), endorsed by all Member States of the WHO European Region, sets ambitious aims to curb greenhouse gas emissions but also commits countries to strengthen adaptation (prevention, protection and response measures), which urgently needs to be scaled up. This includes implementing plans that should protect human health from the impacts of climate change. Yet by 2015, only 24 out of the 53 Member States of the WHO European Region had included health in their national adaptation strategies (8).

Climate change and health

////// The connections

Climate change is threatening the overall progress made in reducing the global burden of diseases and injuries. Changes already observed include the climate getting hotter, rainfall patterns changing, ice melting, permafrost thawing and sea levels rising. The potential health impacts of climate change and its increasing variability are wide ranging. Direct impacts from temperature increases include heat-waves, storms, forest fires, changes in the safety and security of water supplies, floods and droughts. Indirect impacts can arise from the effects of climate change on biodiversity and ecosystems; vector distribution and disease-transmission pathways; distribution of allergens; and agriculture, food supplies and quality of food. The pathways by which climate change can affect health have been outlined in a number of conceptual frameworks (2,3,9). These health effects range from loss of well-being and productivity to disease and death. European populations will not be spared – climate change and its impacts recognize no borders (Fig. 1) (2,6,10).

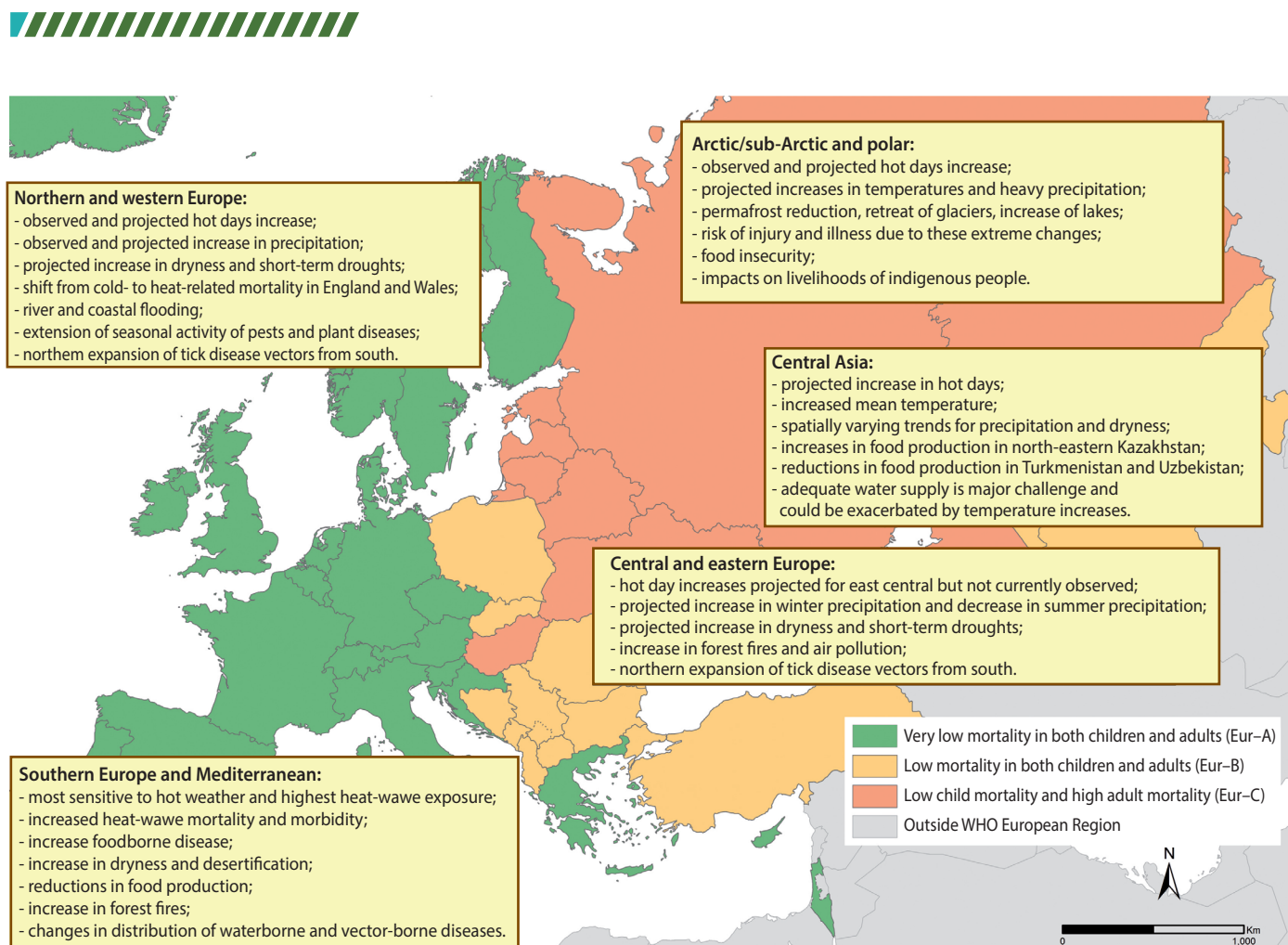
Fig. 1. Pathways of climate change, sustainable development and health



Source: WHO Regional Office for Europe, 2017 (2) and adapted from Smith et al., 2014 (9); Watts et al., 2015 (3).

Vulnerability to weather and climate change depends on people's level of exposure, their personal characteristics (e.g. age, education, income, occupation and health status) and their access to services, including health, social and communication services. Elderly people, children, people with chronic cardiac and respiratory diseases, outdoor workers, migrants and homeless people are particularly susceptible (11,12). The health impacts of climate change also depend on the settings and geographical areas (Fig. 2) (2,4).

Fig. 2. Climate change in the WHO European Region



Source: WHO Regional Office for Europe, 2017 (2) and adapted from Kovats et al., 2014 (4).

Overall, 70% of Europeans live in urban areas, where health effects have mainly been observed in relation to air pollution, water shortages, flooding, allergens and heat-waves. Climate change has a direct impact on cities because of the particular microclimate created by infrastructure and building characteristics. It makes cities more sensitive to heat-waves and other climatic hazards, and urban populations are at risk of multiple exposures; for example, synergistic effects of air pollution also increase the health risks associated with high temperatures. Increased frequency of hot days and warm spells will exacerbate urban heat-island effects, causing heat-related health problems.

Rural communities are at risk of water scarcity, reduced agricultural production, food insecurity and disease transmission. Individuals living in rural and remote areas may be at increased risk of ill health because of limited access to health services and generally higher levels of social and economic disadvantage, depending on the country or region (9).

Acting on climate change directly improves health. This can arise through several pathways, including through reduced air pollution, increased physical activity and dietary change. The health cobenefits resulting from such measures can help to address existing global health issues, such as mortality from cardiovascular and respiratory diseases, obesity, diabetes and other noncommunicable diseases (13).

Facts and figures



Extreme temperatures



- /// Since the mid 1990s, heat-waves have been the deadliest extreme weather event in the WHO European Region, causing more than 100 000 premature deaths (9). Age, pre-existing medical conditions and social isolation are among the key factors that put people at higher risk of dying from heat and exposure to extreme temperatures.
- /// Heat-related deaths are increasing. Several extreme heat-waves have occurred since 2000 (in 2003, 2006, 2007, 2010, 2014, 2015 and 2016) (2). The heat-wave during the summer of 2003 provoked more than 70 000 premature deaths across Europe (14). In 2010, many eastern European cities recorded extremely high temperatures, particularly in the Russian Federation where the deaths attributable to these high temperatures were estimated at around 55 000 (15).
- /// The length, frequency and intensity of heat-waves are projected to increase in the future, which will lead to an increase in heat-attributable deaths unless effective adaptation measures are taken (2,10,16).
- /// Climate change brings not only extreme heat but also cold spells. Prolonged cold spells affect physiological and pathological health, especially among elderly people and those with respiratory and cardiovascular diseases.
- /// Many cold-related deaths occur on only moderately cold days; moderate cold is responsible for a higher proportion of deaths than moderate heat (17).
- /// Homeless people are 6–10 times more likely to die from hypothermia than the general population in moderate cold stress conditions (18,19).
- /// The risk from moderate cold is expected to continue to account for most of the temperature-related risk throughout this century (20).



Droughts



- /// Climate change risks associated with increases in drought frequency and magnitude include impacts on quality and quantity of freshwater resources and thus on the safety and security of drinking water supplies, algae bloom and eutrophication; reduction in food safety and security; and impacts on mental health (21).
- /// In the WHO European Region, the areas under high water stress are estimated to increase from 19% in 2007 to 35% by the 2070s, by which time the number of additional people affected is expected to reach 16 million to 44 million (2).



Floods

- /// Floods registered since 1991 have caused the death of more than 2000 people in the WHO European Region, affected 8.7 million others and generated at least €72 billion in losses (9).
- /// Two thirds of the deaths associated with flooding occur from drowning; the rest result from physical trauma, heart attacks, electrocution, carbon monoxide poisoning or fire associated with flooding. Heavy rain is likely to become more frequent in many parts of the WHO European Region.
- /// For a medium emissions scenario and in the absence of effective adaptation measures, it is estimated that river flooding will affect about 300 000 people per year in Europe by the 2050s and 390 000 people by the 2080s. If no additional adaptation measures are taken, the number of people affected by coastal flooding in the European Union at the end of the 21st century is estimated to range from 775 000 to 5.5 million annually, depending on the emissions scenario. Two thirds of projected deaths would occur in western Europe (22).



Vector-borne diseases



- /// Climate change has led to, and is continuing to lead to, changes in the distribution of disease vectors including the castor bean tick (*Ixodes ricinus*), which transmits tick-borne encephalitis, Lyme disease and other viral and bacterial pathogens; the Asian tiger mosquito (*Aedes albopictus*), which can transmit several diseases including dengue, chikungunya and Zika; and the *Phlebotomus* species of sandflies, which transmits leishmaniasis.
- /// High temperature anomalies in summer 2010 were the most important determinant of the 2010 West Nile virus outbreak in Europe, in particular in south-eastern Europe (2,10,23,24).
- /// West Nile virus risk has been projected to 2025 and 2050, keeping other variables constant (such as bird migratory routes, water index and state of vegetation); the results indicated a continuous extension of regions with an increased risk of West Nile virus infections, mainly at the fringes of the regions of transmission (25).



Allergic disorders

- /// Over 24% of adults living in Europe suffer from various allergies, including severe asthma, while the proportion of children is 30–40% and rising (2). Pollens and spores produced by plants are common allergens and trigger allergies. Climate change-induced alterations in their production, distribution and allergenicity may lead to increases in allergic disorders.
- /// Emergency calls for exacerbations of asthma among children are significantly associated with springtime pollen concentrations. An increase in the concentration of *Ambrosia* pollen by 10 grains/m³ may increase hospital admissions for respiratory disorders by 25%. Emerging evidence indicates that increases in atmospheric carbon dioxide concentrations may increase the amount of allergenic pollen produced by *Ambrosia* species (12).

Noncommunicable diseases



- Unhealthy dietary patterns have negative effects for the individual, as well as for the environment. Reduction of consumption of animal products would reduce climate change-induced pollutant emissions, support improving nutrition and reduce the burden of cardiovascular diseases. For example, a 30% reduction in the adult consumption of saturated fat from animal sources has been estimated to reduce heart disease in the United Kingdom population by around 15% (2,26).
- Increased active individual transport would result in increased physical activity and reduced noise through reduced car use, with the added benefit of reduced air pollution.

Air pollution

- Nearly all air pollutants other than carbon dioxide that alter the climate (such as black carbon and ozone-producing gases) have direct effects on health: 482 000 deaths in the WHO European Region were attributable to ambient air pollution in 2012 (27).

Priorities for action: what now?

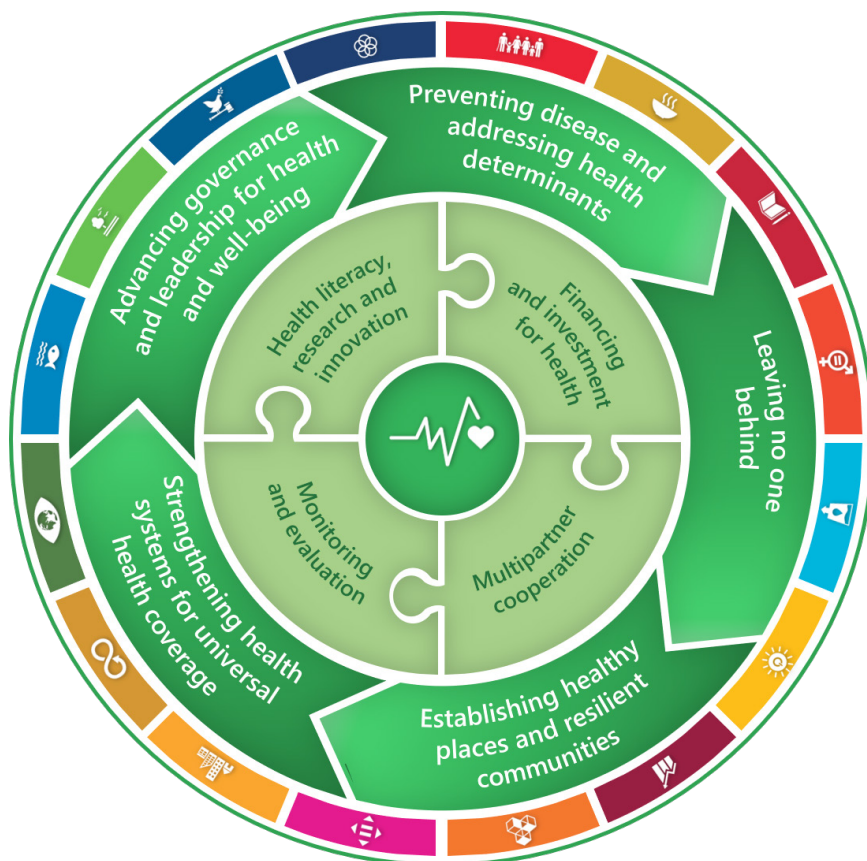
Urgent action to halt climate change and deal with its impacts is integral to the successful implementation of the SDGs. Member States of the WHO European Region committed to the United Nations Framework Convention on Climate Change (UNFCCC (28)) and then in 2015 to the Paris Agreement (7), and the 2030 Agenda for Sustainable Development (2030 Agenda (29)). In addition, WHO European Member States endorsed the recommendations of various environment and health ministerial conferences and the SDG Roadmap (30). This Roadmap proposes ways in which countries can address health and its determinants and make investments for health through evidence-based policies across sectors and across the SDGs.

There are two main priorities for climate action:

- mitigation, meaning the reduction of greenhouse gas emissions; and
- adaptation, meaning to increase the resilience to deal with climate change effects.

These priorities are reflected in the 2030 Agenda, where low carbon and resilient development action is the aim in various SDGs (e.g. 1, 7, 8, 11, 12, 13, 14, 15 and 16), in the Paris Agreement, and in the five strategic directions of the Roadmap (Fig. 3).

Fig. 3. The strategic directions and enablers of the WHO SDG roadmap



Advancing governance and leadership for health and well-



Government action sets the direction of travel. If the political will is there, countries can make climate change, the green economy and health a national priority. All Member States of the WHO European Region are parties to the UNFCCC and agreed to protect the climate system for the benefit of present and future generations, based on equity and in accordance with their common but differentiated responsibilities and capabilities (28). The Paris Agreement (7) urged that the increase in the global average temperature should be held well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 °C.

Member States of the WHO European Region have made very substantial commitments to reducing their greenhouse gas emissions. The combined commitment of the 53 Member States is equivalent to reducing overall greenhouse gas emissions in the Region by 26% by 2030, estimated in comparison with baseline emissions in 1990. Most Member States have set targets to reduce carbon emissions below 1990 levels, while others have set emission caps or intend to reduce future emission growth rates relative to a “business as usual” scenario. Further reductions could be achieved through international cooperation, knowledge sharing and financial support (31).

In many European countries, responding to climate change is a cross-government priority. It requires the health sector to work in a coordinated manner with other actors, often under a single climate change strategy and coordinating mechanism, as well as within its own sector to define adequate measures.

In the WHO European Region, the European Environment and Health Process provides strategic policy direction in climate change and health. With the 2017 Declaration of the Sixth Ministerial Conference on Environment and Health (Ostrava Declaration (32)), Member States committed to establish national portfolios of action on environment and health, including climate change. The Declaration proposed a list of possible measures to be included in the national portfolios (Box 1) (33).

Box 1. Recommendations to advance the implementation of the Ostrava Declaration, 2017

The overall objective of strengthening adaptive capacity and resilience to climate change-related health risks and supporting measures to mitigate climate change and achieve health cobenefits were as follows.

TARGET 13-1



- Develop and implement a national strategy or action plan for public health adaptation to climate change as an independent policy or within wider national adaptation policies, as well as natural disaster risk reduction policies.

TARGET 13-2



- Assess climate change risks to health in relevant national policies, strategies and plans.
- Include, on a voluntary basis, health considerations within Member States' commitments to the United Nations Framework Convention on Climate Change.

TARGET 13-3



- Consider climate change adaptation and mitigation in the development of specific environment and health policies, such as those on air quality, water and sanitation, and others, bearing in mind that the cornerstones of adaptation are proper health protection infrastructure and housing standards.

- Strengthen natural risk reduction policies and early-warning surveillance and preparedness systems for extreme weather events and climate-sensitive disease outbreaks.

TARGET 13-A



- Develop information, tools and methodologies to support authorities and the public to increase their resilience against extreme weather and climate health risks.

- Include the health aspects of climate change in education curricula, non-formal education and workforce continuing professional education.

TARGET 13-B



- Scale up public communication and awareness-raising campaigns on climate change and health.

- Conduct or update national health vulnerability, impact and adaptation assessments of climate change.

- Support research on the effectiveness, cost and economic implications of climate change and health interventions, with a particular focus on mutual cobenefits.

At the global level, the WHO thirteenth General Programme of Work (GPW13), accepted by all 193 WHO Member States, highlighted the importance of addressing climate change and health. It set the goal of the "triple billion": 1 billion more people benefiting from universal health coverage, 1 billion more people better protected from health emergencies and 1 billion more people enjoying better health and well-being (34).

Aligned with the GPW13 and the 2030 Agenda, the WHO Regional Committee for Europe's Global Strategy on Health, Environment and Climate Change (35) aims to provide a vision and way forward on how the world and its health community need to respond to environmental health risks and challenges until 2030, and to ensure safe, enabling and equitable

environments for health by transforming our way of living, working, producing, consuming and governing. It asks for stronger protection, prevention and promotion. The strategy needs to be supported by a strengthened health sector, adequate governance mechanisms and enhanced communication creating a demand for healthy environments.



Preventing disease and addressing health determinants



Climate change aggravates many of the social, economic and environmental determinants of health. The SDGs present a major opportunity to embed activity on the determinants of health across all sectors of policy-making, and through engagement with a wide range of stakeholders. In the era of climate change, this becomes particularly important in sectors such as agriculture, food, housing and social protection. Most measures and policies to reduce greenhouse gas emissions can benefit human health if adequately designed and implemented (Case study 1).

Carbon-cutting policies that are known to provide health benefits include those that reduce emissions of health-damaging pollutants (e.g. black carbon, methane and ground-level ozone) through changes in energy production and efficiency towards renewable energy, sustainable transportation, agriculture, industry and control of landfills (Table 1) (1,37).

Case study 1. A new tool calculates how many lives will be saved by implementing the Paris Agreement (and implementing both SDG 13 and SDG 3)

In preparation for the Paris Agreement, only 18% of the 53 WHO European Member States referred to health in their list of intended nationally determined contributions when outlining commitments to achieving climate-related policy goals and targets, compared with 67% of countries globally (36).

To make it easier for countries to predict the benefits to health, the Carbon Reduction Benefits on Health (CaRBonH) calculation tool, produced by the WHO Regional Office for Europe, can be used to quantify the physical and economic consequences for human health achieved through improvements in country-level air quality from domestic carbon reductions, specifically policy mitigation actions and measures as reported in a country's intended nationally determined contributions (31). The estimate of annual preventable premature mortality could amount to 138 000 deaths across the whole Region. In economic terms, the benefit of reduced emissions is equivalent to a savings of US\$ 244 billion to US\$ 564 billion, or 1–2% of the WHO European Region's gross domestic product at purchasing power parity. The saved cost from reduction in illnesses (US\$ 34.3 billion) amounts to 6–14% of the total economic benefit.



Table 1. Health gains of selected climate change mitigation activities

Mitigation activity	Certainty of major effect on short-lived climate pollutants	Aggregate level of potential health benefit	Main health benefits	Potential level of reduction in carbon dioxide
Transport				
Support for active (and rapid mass) transport	High	High	Improved air quality Increased physical activity Reduced noise Fewer road traffic injuries	High
Higher standards for vehicle emissions and efficiency	High	Medium–high	Improved air quality	High
Ultra-low-sulfur diesel with diesel particle filters	Medium–high	Medium	Improved air quality	None
Agriculture				
Promote healthy diets low in red meat and processed meats and rich in plant-based foods	High	High	Reduced obesity and diet-related noncommunicable diseases	Medium–high
Reduce food waste	Medium–high	Low–medium	Reduced food insecurity/ undernutrition	Medium–high
Reduced open burning of agricultural fields	Medium	Low–medium	Improved air quality	Low
Household air pollution and building design				
Low-emission cookstoves and/or fuel switching to reduce solid fuel use	Medium–high	High	Improved air quality Fewer burns	Medium
Passive design principles	Low–medium	Medium	Improved indoor air quality Temperature-related morbidity and mortality	Medium
Energy supply, electricity				
Switch from fossil fuels to renewables for large-scale power production	Low	High (coal/oil), low–medium (gas)	Improved air quality Fewer occupational injuries	High (coal/oil), medium–high (gas)
Control of fugitive emissions from fossil fuel industry	High	Low	Improved air quality	Low–medium
Waste management				
Landfill gas recovery	Medium	Low	Improved air quality	Low–medium

Source: adapted from World Health Organization, 2015 (37), 2018 (1).



Establishing healthy places, settings and resilient communities



Adaptation is necessary both to address the burden of disease from climate change and to strengthen public health and health services. Creating climate-resilient communities includes managing climate change impacts by applying well-known and tested public health and health service interventions, such as education, vaccination, vector control, water and sanitation services, food hygiene and inspections, nutritional supplements, primary and mental health care, disease surveillance and disaster preparedness. The evidence suggests that there is a very high benefit–cost ratio for health adaptation, and that higher benefits are achieved with early adaptation action (2).

Extreme weather events have revealed the vulnerability of health-care facilities and the extent of devastation to the community when they fail. Improving the resilience of the health sector and communities to climate change, protection of health-care workers and the wider community and enhancing preparedness, surveillance and response to health emergencies will prevent and reduce the impacts of climate change on health. As countries are already taking important action (Case study 2), ambition needs to continue and be raised. Measures for health protection may include but are not limited to (2):

- /// enhancing disease surveillance, especially for climate-sensitive vector-borne diseases;
- /// monitoring and modelling changes in environmental exposures that may be exacerbated by climate change;
- /// ensuring essential medical supplies and health service provision during disasters;
- /// improving preparedness, planning and response for heat-waves and other extreme events;
- /// facilitating coordination between health and other sectors to deal with changes in the incidence and geographical range of diseases; and
- /// adapting water and sanitation services to become climate resilient.

Urban planning and sustainable transport policies can promote health, reduce pollution and support action to address climate change and make cities more inclusive, safe, resilient and sustainable. Among the interventions that work, the following are considered so-called best buys and relevant for all national and subnational actors (39,40):

- /// promoting demand-management interventions, such as car and bicycle sharing, incentives for public transport use, restrictions on private vehicle use and parking policies, as well as behavioural changes such as eco-driving (resulting in lower fuel consumption);
- /// integrating transport and urban development and facilitating a modal shift towards more cycling, walking and public transport;
- /// scaling-up electric mobility, including e-bikes, to support decarbonizing transport and increasing the uptake of cycling by more population groups;
- /// developing national policies for active mobility that place cycling and walking more prominently on the national political agenda;

- /// promoting mixed-use neighbourhoods to avoid long travel distances for daily needs; and
- /// developing local health targets and city-wide objectives to facilitate intersectoral action towards a common objective and make all municipal sectors accountable for achieving healthy settings with a high quality of life.

Case study 2. Sharing the best practices of involving the health sector in adaptation to climate change among Member States

Sharing of experiences is an important element of mutual learning and capacity-building. Exchange of examples and lessons learned is, therefore, an important pillar of the overall analysis of developments in national health adaptation to climate change in European countries. Within the framework of a joint WHO Regional Office for Europe/European Commission project, a compendium of 15 best practice case studies from eight countries (Austria, Belgium, Croatia, Germany, Italy, Lithuania, Slovenia and Sweden) provided national examples of involving the health sector in adaptation to climate change (38).

The selected best practices covered a wider range of topics, from overarching policy and coordination issues and the links between climate change, demography and health to the implementation of specific preparedness and response plans and capacity-building. The case study summaries were grouped by five topics covering the global perspective and overarching climate change aspects to specific examples for health adaptation plans, capacity-building and information:

- /// heat (health action plans and their implementation, heat and ozone);
- /// ultraviolet radiation (sun protection);
- /// infectious diseases (surveillance of disease vectors);
- /// capacity-building; and
- /// communication (a vision of an online climate change portal, planetary health, with recommendations and climate and health country profile development).

For example, Austria, Belgium, Croatia, Germany, Lithuania, Slovenia and Sweden designed and implemented heat-wave early warning and response systems that would guide the issuance of warnings, taking into consideration the needs of the most vulnerable groups, and outlined response plans to facilitate timely coordination of resources and strategies when heat-waves (or ozone and heat-waves in the case of Belgium) occur. Belgium and Germany included outcomes to augment surveillance and monitoring programmes to increase the capacity to assess risk, promote diagnosis and treatment and implement prevention programmes. To prioritize adaptation measures or inform specific activities undertaken in the countries, projections of how climate-sensitive health outcomes could increase were used; projected risks of future burdens are available at the country level.

Multisector collaboration was key to success through promoting consideration of health issues in other sectors and coordinating synergies in environmental health prevention actions. Capacity was built by fostering dialogue, regular interactions and support across sectors and government departments, and by having a plan for engagement. The good practice examples dealing with heat and infectious diseases also emphasized the importance of strengthening integrated surveillance systems and improving early warning mechanisms. Fostering good working relationships across meteorological, environmental and health institutions leads to improved access to data, information and expertise in order to develop and implement early warning and response systems successfully.



Strengthening health systems for universal health coverage



Member States in the WHO European Region have committed to progress towards universal health coverage. The aim is to ensure that all people obtain the high-quality health promotion, disease prevention, curative, rehabilitative and palliative services they need without experiencing financial hardship. Universal health coverage offers the best possible policy platform for improving health services for all and reducing inequalities. It is also about improving health systems' resilience to climate change and addressing the causes of ill health and disease resulting from air pollution and climate change. Action taken to enhance the sustainability of health services will ensure that they can cope with the added pressures of climate change. The Paris Agreement (7), under the UNFCCC (28), also provides a critical opportunity to advance public health as a central element not only in response to climate change but also to the overall 2030 Agenda (29). Consequently, the health impacts of climate change should become an integral planning dimension of existing and future health programmes, taking into account factors such as the accuracy of projections of where, when and how the health burden could alter with climate change (38).

Countries are at different stages of preparing, developing and implementing climate change adaptation strategies that focus on health. Policies for heat-health action plans, for example, are urgently needed in European countries facing an increasing risk of hot temperatures and heat-waves, to prevent the expected increase of climate change-related heat deaths.

To scale up the health contribution to the shared goal of addressing climate change requires the health community to play an active role in raising awareness and in advocacy, strengthening the evidence base and integrated programming for climate change and health. The last includes defining a systematic approach for placing climate change resilience into mainstream core health programming, and for developing and using technical tools to strengthen evidence and to assess the health implications of mitigation policies (41,42). This also includes a health workforce that has the capacity, balance of skills and adequate training to meet the changing health needs of its community, taking into account the changing nature of climate change-related risks and determinants of health.

Another priority is to put into place mitigation measures that benefit health, for example through encouraging the health sector to become less carbon intensive and more environmentally friendly. The health sector needs to lead adaptation planning for health, working with other sectors to achieve health benefits (1). Health systems can lead by example in several areas. The health-care sector should aim to (2):

- /// mitigate emissions, as health services in some developed countries are responsible for 5–15% of carbon emissions;
- /// increase energy efficiency through shifting to renewables and greener procurement and delivery chains, which can improve services and business continuity, cut carbon emissions and improve the resilience of health systems to climate change;
- /// promote adaptation, since health professionals are respected and trusted members of communities who can educate patients and peers on the health effects of climate change and promote behavioural adaptation at all levels (including heat-wave preparedness, enhanced surveillance and disaster-response capacity); and
- /// advocate for health through health professionals' organizations and associations, which can use health arguments to advocate climate change adaptation and mitigation that should be central to climate change policy, debates and planning.

Commitments to act



There are a number of formal commitments that support achievement of SDG 13.

The United Nations Framework Convention on Climate Change

This legally binding multilateral environmental instrument was adopted in 1992 (28). The parties to the Convention agreed to protect the climate system for the benefit of present and future generations, on the basis of equity and in accordance with their common but differentiated responsibilities and capabilities. The UNFCCC mentions health in two important articles. Article 1 notes that climate change has adverse effects on human health and Article 4.8 asks parties to consider public health in "their relevant social, economic and environmental policies and actions" for mitigation and adaptation and "employ appropriate methods, for example impact assessments, formulated and determined nationally".

The Kyoto Protocol

The Protocol was adopted in Japan in 1997 (and entered into force in 2005). It is an international agreement linked to the UNFCCC, which commits its parties by setting internationally binding emission reduction targets (43). During the second commitment period, parties committed to reduce greenhouse gas emissions by at least 18% below 1990 levels in the eight-year period from 2013 to 2020. This protocol is seen as an important first step towards a truly global emission reduction regime that will stabilize greenhouse gas emissions and provide the architecture for future international agreement on climate change.

The Ministerial Conferences on Environment and Health

- /// **The Third Ministerial Conference**, 1999 in London, addressed climate change in paragraphs 39–43 (44).
- /// **The Fourth Ministerial Conference**, 2004 in Budapest, addressed climate change and energy in paragraphs 7a and 7b (45). It was endorsed by WHO Regional Committee for Europe resolution EUR/RC54/R3 on environment and health (46).
- /// **The Fifth Ministerial Conference** in 2010 resulted in adoption of the Parma Declaration on Environment and Health (47) by the 53 Member States, which pledged to reduce the adverse health impact of environmental threats in the next decade. The Ministerial Conference also approved the Contribution of the Climate Change and Health Task Force (European Regional Framework for Action (48)). Both the Parma Declaration and the European Regional Framework were endorsed by WHO Regional Committee for Europe resolution EUR/RC60/R7 on the future of the European environment and health process (49).
- /// **The Sixth Ministerial Conference** in 2017 resulted in adoption of the **Ostrava Declaration on Environment and Health** (32). It committed Member States to drawing up a tailored national portfolio for action in seven priority areas (air pollution; chemical safety; cities; climate change; environmentally sustainable health systems; water, sanitation and hygiene; and waste and contaminated sites) and endorsed the new institutional arrangements for the European Environment and Health Process. It was endorsed by WHO Regional Committee for Europe resolution EUR/RC67/R4 (50).

The Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention)

The Protocol was adopted in 2005 (51) and is the first legally binding multilateral agreement to ensure safe drinking water and sanitation in the WHO European Region. Its goal is to protect human health and well-being through improved water resource management and by prevention, control and reduction of water-related diseases, as well as detection, contingency planning and response to outbreaks. A key priority of the Protocol's programme of work is building climate-resilient water and sanitation services. Guidance on water supply and sanitation under extreme weather events (52) and guidance on climate change adaptation were established under the Protocol and the Water Convention (53).

World Health Assembly resolution WHA61.19 on climate change and health

This resolution, adopted in 2008 (54), was approved by all Member States and urged countries to:

- /// include health measures in adaptation plans;
- /// build technical, strategic and leadership capacity in the health sector;
- /// strengthen capacity for preparedness for and response to natural disasters;
- /// promote active cross-sectoral engagement of the health sector; and
- /// express commitment to meeting the challenges of climate change and guide planning and investments.

The Sendai Framework for Disaster Risk Reduction 2015–2030

Representatives from 187 Member States adopted this United Nations' Framework in March 2015 (55). Disaster risk reduction aims to prevent new disaster risk, reduce existing disaster risk and manage residual risk; consequently, it contributes to strengthening resilience and achievement of sustainable development. Four of the seven Sendai Framework global targets have direct links to health, focusing on reducing mortality, increasing population well-being, improving early warning systems and promoting the safety of health facilities and hospitals.

The Paris Agreement

The Agreement reached in December 2015 (7) reflected a changing landscape in international climate policy by focusing on implementation to "strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by (a) holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change". Its preamble acknowledges "that Parties should, when taking action to address climate change, respect, promote and consider, ... the right to health".

Resources

Achieving health benefits from carbon reductions: manual for CaRBonH calculation tool (2018)

http://www.euro.who.int/__data/assets/pdf_file/0004/386923/health-carbon-reductions-eng.pdf?ua=1

COP24 Special Report: Health and Climate Change (2018)

<https://www.who.int/globalchange/publications/COP24-report-health-climate-change/en/>

Health and climate change toolkit for project managers

<https://www.who.int/globalchange/resources/toolkit/en/>

IPCC special report on global warming of 1.5 °C. Summary for Policymakers (2018)

<https://www.ipcc.ch/sr15/chapter/summary-for-policy-makers/>

Protecting health in Europe from climate change (2017)

<http://www.euro.who.int/en/publications/abstracts/protecting-health-in-europe-from-climate-change-2017-update>

Public health and climate change adaptation policies in the European Union (2018)

<http://www.euro.who.int/en/health-topics/environment-and-health/Climate-change/publications/2018/public-health-and-climate-change-adaptation-policies-in-the-european-union-2018>

Towards environmentally sustainable health systems in Europe. A review of the evidence (2016)

http://www.euro.who.int/__data/assets/pdf_file/0012/321015/Towards-environmentally-sustainable-HS-Europe.pdf?ua=1

Key definitions

Air pollution

Degradation of air quality with negative effects on human health, the natural or built environment caused by the introduction by natural processes or human activity in the atmosphere of substances (gases, aerosols) that have a direct (primary pollutants) or indirect (secondary pollutants) harmful effect.

The positive health effects that a policy or measure aimed at one objective might have on other objectives, thereby increasing the total benefits for society or the environment.

Health cobenefits

Climate

Regularly defined as the average weather or as the statistical description in terms of the mean and variability of relevant quantities over a certain period of time (typically 30 years), as defined by the World Meteorological Organization. The relevant quantities are most often surface variables such as temperature, precipitation and wind (56).

The UNFCCC in Article 1 defined climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods" (28). The World Meteorological Organization describes climate change as "a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer)" (57).

Climate change

Climate change adaptation

In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities (56).

A human intervention to reduce emissions or enhance the sinks of greenhouse gases. In climate policy, mitigation measures are technologies, processes or practices that contribute to mitigation, for example renewable energy technologies, waste minimization processes, public transport commuting practices (56).

Climate change mitigation

Greenhouse gas emissions

Those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of terrestrial radiation emitted by the earth's surface, the atmosphere itself and by clouds. This property causes the greenhouse effect (56).

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