Environmental determinants of health—including unsafe water, poor sanitation, air pollution, hazardous chemicals and poisons, occupational hazards and extreme weather—cause more than a quarter of the burden of disease in the Western Pacific Region. The health of people is inextricably linked to the health of the environment, and the environment is changing. Human health and survival on a changing planet are now increasingly threatened by an unpredictable climate and rapidly rising sea levels.

Bold leadership is required to address the environmental determinants of health in the Region. The draft *Western Pacific Regional Framework for Action on Health and Environment on a Changing Planet* offers practical strategies for countries to enhance their health and environment programmes in terms of governance and capacity, networking, communication and financing, based on Sustainable Development Goal (SDG) targets and indicators.

The framework was developed through a year-long process of consultation with global experts and Member States in the Region to ensure that this technically robust approach is grounded in national realities.

The Regional Committee for the Western Pacific is requested to consider for endorsement the draft *Western Pacific Regional Framework for Action on Health and Environment on a Changing Planet*. 
1. CURRENT SITUATION

Despite enormous social and economic gains since the mid-20th century, modern development has been characterized by excessive consumption patterns and rapid and unplanned urbanization, causing ecosystem loss, climate change and social inequities. The speed and intensity of environmental degradation has brought many unforeseen consequences for life and health, now and in the future. People living and working in polluted environments are the most affected. They face multiple risk factors, including a lack of safe water and sanitation, exposure to hazardous chemicals, uncontrolled waste generation and disposal, air pollution and displacement from extreme climatic conditions.

Environmental determinants of health are responsible for more than a quarter of the burden of disease in the Western Pacific Region. More than 80% of people in cities are regularly exposed to air pollution. Rising sea levels threaten the viability of Pacific island countries and areas. The first three months of 2016 were the hottest in human history. Ongoing haze from forest fires intentionally set to clear land for crops now affects air quality across Southeast Asia during much of the year. Cyclone Winston tore an unprecedented path of destruction through Fiji in February 2016. Approximately 86 million people in the Western Pacific Region still lack access to improved drinking-water sources. More than 300 million people in the Region do not use improved sanitation facilities. Less than half of health-care facilities in rural or remote areas have access to full water and sanitation services.

With the global endorsement of the Sustainable Development Goals (SDGs) and the agreement at the twenty-first session of the Conference of Parties to the United Nations Framework Convention on Climate Change in Paris (the "Paris Agreement") in 2015, awareness is higher than ever. There is an urgent need for policy and action to protect and prevent further deterioration of the ecosystems on which our health and well-being rely. In particular, major cities in the Region must play their part in implementing the global temperature increase cap of 1.5°C from the Paris Agreement.

The draft Western Pacific Regional Framework for Action on Health and Environment on a Changing Planet was developed through a year-long process of consultation with global environmental health experts and Member States to ensure that it is technically robust and grounded in the reality of institutional arrangements in countries. The framework spells out options for stronger health sector focus on the pressing environment-related issues that confound the typical jurisdictions of sectors, cities, towns, provinces and nations. The framework provides guidance for prioritizing Member State efforts to improve health outcomes through action on environmental determinants and WHO work in support of those efforts.
2. ISSUES

2.1 The health effects of environmental degradation are powerful arguments in advocating environment-related SDGs

Environmental determinants play a prominent role in increasing levels of disease and premature death globally. As a result, ecological concerns have become a fundamental component of effective public health measures. The duty of articulating the impact of environmental factors on health falls naturally to ministries of health. The direct link between the increase in illness and premature death from NCDs and poor air quality is a prime example: air pollution in the Region causes 2.88 million deaths per year, or 41% of the global total burden of disease from air pollution.\(^1\) While providing services for respiratory, cardiovascular and other chronic conditions that arise from exposure to dirty air, ministries of health must also articulate the need for policies to regulate greenhouse gas emissions, address transport and industrial pollution and shift to clean energy in homes. In other words, the health sector should use health issues to advocate policies to achieve the environment-related SDGs.

2.2 Accountability and mandates of institutions for health and environment may need to be reviewed and updated in relation to the SDGs

Member States in the Region have varied and diverse institutional arrangements, in terms of policies and programmes on health and the environment. Responsibility for laws and regulations may fall under a range of agencies. For example, in some Member States the responsibility for water quality comes under the ministry of the environment; whereas, drinking-water monitoring is overseen by the ministry of health. The water supply in cities is managed by yet another agency. In other Member States, the supply of water is the domain of a sole authority, with the ministry of health in charge of monitoring quality. To accelerate efforts to improve health and environment, there must first be an understanding of the big picture: the context of agencies, organizations and stakeholders responsible for policies and programmes, and the implementation and enforcement of laws and regulations.

2.3 Effective public health warning systems are needed to protect people from harmful environmental exposures

Ministries of health have a mandate for engaging in environment-related health matters, but other sectors are equally important in the enforcement and interpretation of laws. Indeed, ministries of health must play a more active role in providing timely and effective public warning systems to

protect people from harmful environmental exposures (for example, poor air quality, fish kills and algal bloom, extreme temperatures, storm surges). This requires working with other sectors on monitoring contaminants in water, food, air and soil. The ability to measure, track and publicly report potential risks or threats to health caused by environmental factors must be strengthened to ensure enforcement of laws and regulations. To that end, ministries of health may explore new global financial resources available for climate change to support capacity-building in this area.

2.4 Transboundary solutions, while politically sensitive, must be explored

Environmental issues are borderless. Environmental issues involving transboundary pollution have created tension and, in some instances, disputes in which accountability is unclear. Long-standing unresolved issues can even impact diplomatic relations. In this regard, ministries of health may help refocus the discussion, convincing parties to set aside other issues in favour of health or humanitarian concerns. Platforms for international dialogue and networking include multilateral agencies and intergovernmental bodies, such as the Association of Southeast Asian Nations (ASEAN) and meetings of the States Parties to treaties such as the United Nations Convention on the Law of the Sea and the United Nations Framework Convention on Climate Change. The Regional Forum on Environment and Health in Southeast and East Asian Countries also provides an opportunity for information-sharing and dialogue on transboundary issues, support for training on transboundary planning on health and climate change, as well as regular dissemination of information on financial resources available to address transboundary environmental health concerns.

3. ACTIONS PROPOSED

The Regional Committee for the Western Pacific is requested to consider for endorsement the draft Western Pacific Regional Framework for Action on Health and Environment on a Changing Planet.
DRAFT

Western Pacific Regional Framework for Action on Health and Environment on a Changing Planet

World Health Organization
Western Pacific Region
Annex
Table of Contents

EXECUTIVE SUMMARY ................................................................. 9
1. Context of the framework for action ............................................. 11
   1.1 Our changing planet .......................................................... 11
   1.2 Environmental risks and hazards in the Region: where we are ........ 12
   1.3 Health and environment: key WHO milestones ..................... 14
   1.4 What we need to do: strengthen health and environment sectors to achieve the Sustainable Development Goals ........................................ 15
2. Western Pacific Regional Framework for Action on Health and Environment on a Changing Planet .................................................. 17
   2.1 Vision ............................................................................. 17
   2.2 Objective ....................................................................... 17
   2.3 Strategic intent .............................................................. 17
   2.4 Guiding principles ........................................................... 17
   2.5 Approaches .................................................................... 18
   2.6 Implementation of the Regional Framework for Action on Health and Environment on a Changing Planet ........................................ 20
   2.7 Strategic actions .............................................................. 21
   2.8 Practical aspects of implementation of the regional framework relative to environmental health governance arrangements .......... 29
Appendix 1. Examples of role of environmental health programme by SDG .... 33
Endnotes ....................................................................................... 41
References ................................................................................... 43
Annex
EXECUTIVE SUMMARY

The acceleration in human activity since 1950 has resulted in a “changing planet” characterized by unpredictable and extreme weather, rising sea levels, diminished harvests, droughts and floods, species depletion and unpredictable disease vector behaviour. Destabilization of the ecology has occurred at a speed and intensity that has many unforeseen consequences for life and health.

Environmental determinants of health are responsible for more than a quarter of the burden of disease in the Western Pacific Region. Communicable and noncommunicable disease, disability and death result from a lack of safe water and sanitation, indoor and outdoor air pollution, hazardous chemicals, occupational hazards and climate-related disasters.

The Western Pacific Regional Framework for Health and Environment on a Changing Planet intends to relaunch the World Health Organization (WHO)'s Health and the Environment programme and fulfil its mandate in the area of environmental health. It proposes to leverage the health sector focus on the Sustainable Development Goals process, providing guidance for prioritizing the work of WHO in support of Member States improving health outcomes through action on environmental determinants. It articulates entry points for health and environment priority actions in WHO country cooperation strategies, the United Nations Framework Convention on Climate Change and other mechanisms for international collaboration, and notably with the United Nations Environment Programme and ministries of environment.

The framework also sets a course for the health sector to advocate adaptive measures, policies and action to protect health and well-being as a co-benefit of interventions in energy, agriculture, transport, housing and other spheres.

Four groupings of actions, or “strategic actions”, are proposed for environmental health programmes in Member States and for WHO. Strategic action 1 is “Enhancing governance and leadership for stronger environmental health capacity”. Acknowledging the wide variance in institutional arrangements from country to country, a case is made for emboldening national and local programmes to reach out beyond the traditional silos of environmental health – with particular focus on the role of cities and municipal jurisdictions – across sectors, to develop capacity and improve information systems and surveillance in order to address current challenges and arrest emerging ones, and ultimately fulfil the SDGs. The leadership of the sector is foreseen in terms of greening health-care facilities and ensuring they have 100% access to safe water and sanitation.

Strategic action 2, “Building networks, coalitions and alliances”, concerns the need for the health sector to develop new skills to work with a wide range of stakeholders that can influence policy and enable action. Proposed measures are intensified engagement in the Regional Forum on Environment and Health in Southeast and East Asian Countries, identifying allies and strategies for information-sharing and establishing networks to scale up green health-care facilities.
Annex

Strategic action 3, “Evidence and communication: make scientific evidence easily accessible and available to the public through communications, advocacy and social mobilization”, covers the need to build support and create platforms for communication between scientists, the community and governments to generate understanding and demand for environmental health initiatives.

Under Strategic action 4, “Strategic financing and resource mobilization: ensuring adequate resources for environmental health”, recommended measures include regular dissemination of information on potential financial resources and grants, creation of financing mechanisms to enable community initiatives and research and knowledge translation. The possibility of establishing a new dedicated hub for health and the environment under the auspices of a Member State is presented.

Finally, the overall patterns of governance arrangements found in environmental health across the Region are summarized, with examples of how measures may take shape under each arrangement.
1. Context of the framework for action

1.1 Our changing planet

At no other point in human existence has there been a rate of environmental change that so profoundly threatens the health of people and the planet. Destruction of our habitat and destabilization of our climate compromise our access to the most fundamental requisites for human existence: safe water, clean air, safe food and shelter.

Over the past few decades, environmental change has resulted in unprecedented risks for disease, disability and premature death. A number of global and regional agreements seek to address these issues. What can no longer be ignored is the rate and pace of change in the condition of Earth itself. Scientists refer to the “Great Acceleration” as the period starting around 1950 with population growth, resource depletion, and technological advancement dramatically altering social, economic and ecological systems.\(^1\)

During this period, excessive consumption patterns, social inequities, and unsustainable development models and policies, including rapid and unplanned urbanization, have underpinned continued neglect of the health of the planet, and consequently, our health and survival. The poor and other vulnerable groups suffer disproportionately in both developing and developed countries. Those living and working in polluted environments, especially women and children, are the worst affected, facing multiple risk factors, including lack of safe water and sanitation, exposure to hazardous chemicals, uncontrolled waste generation and disposal, air pollution, and forced displacement due to extreme weather events (Prüss-Üstün A et al., 2016).\(^2\)

In 2016, the World Health Organization (WHO) reported that environmental determinants of health are responsible for more than one quarter of the burden of disease in the Western Pacific Region, causing an estimated 3.5 million deaths annually. They are also the cause of one in four years of healthy life lost.\(^3\)

Climate change is reshaping public health and is the defining issue for the 21st century.\(^4\) In the past 50 years, our planet has warmed by 1 °C and is on course to reach up to 6 °C of warming by 2100 unless we take urgent action. Compared to the last 7000 years, the current rate of temperature change is 170 times greater – and in the opposite direction. Pacific island countries and areas are at greatest risk from climate change and rising sea levels. The change is not just rapid and intense, it is also increasingly unpredictable. There are already noticeable adverse effects on agriculture and marine life, the pace of species extinction, the geographical range of disease vectors and likely the behaviour of many pathogens.

Ecosystem degradation does not respect geopolitical borders. Scientists are mapping habitats of diminishing fitness for human health and well-being, and in the longer term, for human survival. Whether these areas are expanding deserts, disappearing coastlines, or cities that regularly grind to a halt because of noxious haze, floods or storms – it is clear that we need
new ways of thinking about how better health can be achieved on a planet that is changing at a speed for which we are ill-prepared.

The role and capacities of the health sector in relation to health and the environment must evolve if the new realities are to be addressed in a timely and adequate manner. New ways of thinking, new teams with flexible ways of working with other sectors and better competencies in adapting public health systems to the conditions of local ecosystems are key. Health must move from conventional linear analysis and problem-solving to more holistic approaches consistent with the proposals of “planetary health” (Whitmee S et al., 2016). Health organizations must review, reform, transform and improve preparedness and responsiveness to health needs related to complex environmental concerns.

The Western Pacific Regional Framework for Action on Health and Environment on a Changing Planet recognizes this new reality. The adage “think globally, act locally”, which was the theme of World Health Day 1990, finds renewed significance in an era of accelerating global warming and decarbonization. Appropriate government policies on energy, transportation, agriculture, trade and human settlements are crucial, but actions at the level of the individual, the household and the community are also important. Cities as key emitters are potential game-changers in implementing the United Nations Framework Convention on Climate Change (UNFCCC) agreement from the twenty-first session of the Conference of the Parties in Paris in 2015 (the “Paris Agreement”) to limit the global temperature increase to 1.5 °C. Transboundary problems require transboundary solutions. A bold new vision for protecting the health of people on a changing planet is urgently required. This document seeks to articulate a way forward for Member States of the Western Pacific Region.

1.2 Environmental risks and hazards in the Region: where we are

The WHO Western Pacific Region is geographically diverse and home to more than 1.8 billion people. It includes some of the world's least developed countries, rapidly emerging economies and highly developed countries, and it is not uncommon to see the poor living in dire social, economic and environmental conditions.

Climate change exacerbates and worsens environmental conditions. All countries of the Western Pacific Region are threatened by the destabilization of the climate and the increased frequency of extreme weather events. For low-lying Pacific island countries, rising sea levels threaten survival. The cycle of recurrent floods, droughts, cyclones and extreme summer heat in cities is ever more intense. In a Region highly prone to natural disasters, even areas with reasonable infrastructure are subject to disruption of water, sanitation and hygiene (WaSH) services during emergencies. Displaced communities that are relocated to temporary shelters are also prone to a wide range of infectious diseases, and are at risk for noncommunicable disease and domestic violence.

Air pollution, both ambient and household, is established as the single greatest environment-related health hazard. Cities are the major contributors to poor air quality. It is estimated that more than 80% of people in cities are regularly exposed to air pollution. The Region reports
2.88 million deaths each year or 41% of global air pollution-related deaths, despite having just 25% of the world’s population (WHO, 2014a). The leading pathway is ischemic heart disease (or coronary heart disease), followed by stroke, chronic lung disease, lung cancer and acute lower-respiratory disease. Developing countries and poorer communities are at higher risk for pollution-related disease. Older people, women and young children are particularly exposed to indoor air pollution from cooking with biomass or coal. The overall death toll in the Region from household air pollution is around 1.6 million per year.\textsuperscript{10} Pollutants such as methane and black carbon (soot) are themselves major contributors to the greenhouse effect.

Along with rising temperatures and poor air quality, variable rainfall patterns are expected to further reduce crop yields, compromising food security and worsening undernutrition that accounts for 3 million deaths each year. The use and hazardous exposure of people to chemical pesticides and fertilizers is likely to increase with climate change, as the agriculture sector tries to catch up with diminishing crop yields. A destabilized climate will also increase the prevalence of anaerobic spore-forming bacteria that create conditions for algal blooms and fish and shellfish poisoning. It is conservatively estimated that between 2030 and 2050, climate change will cause an additional 250 000 deaths annually worldwide – the largest share (95 000) from worsening child undernutrition (WHO, 2014b).

The political commitment to reach the Millennium Development Goal targets for safe water and appropriate sanitation by 2015 fell short of expectations in the Western Pacific Region. It is estimated that some 86 million people still do not have access to improved drinking-water sources. More than 300 million people lack access to improved sanitation facilities. Twenty million people still practice open defecation, particularly in rural areas. The situation is severe in the Pacific where access to improved sanitation has scarcely risen from 29% in 1990 to 31% in 2015, far short of the 2015 target of 65%.\textsuperscript{11} Poor WaSH services contribute significantly to the disease burden from malaria, dengue and diarrhoea. In some societies, women – and girls in particular – are doubly penalized. Girls are more likely than boys not to attend school if no sanitation facilities are available. Women and girls are more likely to be in charge of collecting water for households. Moreover, when a child gets diarrhoea, women and girls are more likely to have to stay at home to look after the sick child. The lack of access to sanitary facilities increases the exposure of women and girls to sexual violence.

A 2014 WHO report found that globally, 38% of health-care facilities do not have an improved water source, 19% do not have improved sanitation, and 35% have no water and soap for handwashing. In the Region, initial results indicate that under 50% of facilities in rural or remote areas have access to basic WaSH services (WHO/UNICEF, 2014). This compromises basic routine services such as maternal health, child delivery, and the prevention and control of infection.

Improper management of chemicals, poor regulation and lack of information can create life-threatening and hazardous situations. Globally, lead is responsible for around 143 000 deaths and 8.98 million disability-adjusted life years (DALYs) (Prüss-Üstün A et al., 2011). Inorganic arsenic levels in groundwater are well above WHO guidelines in many parts of China, Cambodia, the Lao People’s Democratic Republic, the Philippines and Viet Nam. All types of asbestos are used in several countries despite a known association with lung cancer,
mesothelioma, cancer of the larynx and ovary, and asbestosis (fibrosis of the lungs). There is emerging evidence that a new class of risk factors – persistent organic pollutants (POPs) – may be responsible for insulin resistance and diabetes through their chemical interference with normal metabolism. Chlorinated persistent organic pollutants are associated with obesity and type 2 diabetes (Lee et al., 2014). POPs find their way into fat tissue through the food chain. Studies also show an association between POPs and the occurrence of cardiovascular diseases and various cancers (Ljunggren et al., 2014).

Routine use of antibiotics in livestock and poultry can significantly increase the risk of antimicrobial resistance build-up.\(^{12}\) Soil microbiology is also adversely affected by chemicals.

Haphazard health-care waste management can cause infections from contaminated syringes, radiation burns, sharps injuries, and poisoning by toxins and pharmaceutical products in wastewater.\(^{13}\) It is another major risk factor for antimicrobial resistance, particularly where expired or damaged drugs and medicines are involved. Antibiotics have been found in hospital wastewater effluent, rivers, sediment and groundwater. \(E.\) coli resistant to antibiotics has been found in sewage treatment plants.

In 2013, some 250 000 deaths and 17 million DALYs lost were caused by work-related hazards. The rate of deaths attributable to occupational risks in the Region (13.62 per 100 000) is the highest among all WHO regions, and men are particularly affected with a death rate of 21.37 per 100 000 (Prüss-Üstün A et al., 2011). At the same time, women suffer from lower bargaining power in paid work and tend to predominate in low-skill, low-protection jobs, as well as in settings like sweatshops and various types of repetitive assembly-line tasks such as electronics. Predominant occupational diseases include various forms of cancer, asthma and chronic pulmonary disease.

Across the life cycle, and between men and women, the exposures to environmental hazards and risks may vary. The impact of environmental risk exposure is greatest in the early years of life when the human body is developing – it is the critical window of exposure.\(^{14}\) Nearly one third of the 6.6 million under-5 child deaths every year are associated with environment-related causes and conditions. A large majority of the 1.5 million under-5 deaths from diarrhoea annually are attributable to unsafe water, inadequate sanitation and poor hygiene. Meanwhile, one half of the 1 million annual child deaths from acute respiratory infections are attributable to indoor air pollution.\(^{15}\) There is also an established link between childhood and prenatal exposure to environmental hazards and the occurrence of certain chronic diseases in adulthood (WHO, 2011).

1.3 Health and environment: key WHO milestones

As the directing and coordinating authority on international health within the United Nations System, WHO provides leadership and engages in partnerships where joint action is needed. The mandate of WHO in the area of health and environment is clearly set out in WHO Constitution Article 2 (b) “to promote, in cooperation with other specialized agencies where necessary, the improvement of nutrition, housing, sanitation, recreation, economic or working
conditions and other aspects of environmental hygiene”. In its first four decades (1947 to around 1987), the key environmental health programme of the Organization was water supply and sanitation.\textsuperscript{16}

The renewed global focus on the environment in the 1980s, spurred by the horrifying effects of the Bhopal chemical and Chernobyl nuclear disasters, made environmental health a leading priority. Following the establishment of the Intergovernmental Panel on Climate Change, the first WHO expert panel on the potential health effects of climate change was created in 1989 (WHO, 1990). This was also the year of the launch of the European Ministerial Conference on Environment and Health,\textsuperscript{17} a key governance forum to this day.

WHO as a technical agency and as the Secretariat of the World Health Assembly supports Member States in developing policies and programmes and implementing actions in line with its constitutional mandate. Two resolutions in particular, WHA45.31 (1992) and WHA46.20 (1993) stipulated the urgent need for policy and action on environment and health, as well as implementation of a global strategy. A \textit{Regional Strategy on Health and Environment} for the Western Pacific was launched in 1994.

Passed in 2008, Western Pacific Regional Committee resolution WPR/RC59.R7\textsuperscript{18} on Protecting Health from the Effects of Climate Change has served as the basis for the Regional Office support to Member States in the area of climate change.

The Regional Forum on Environment and Health in Southeast and East Asian Countries was established in 2007, based on WPR/RC56.R7 (2005) supporting the establishment of the regional forum. It is an initiative of 14 countries that aims to strengthen the cooperation of environment and health authorities within and among the countries. The regional forum is a platform for sharing knowledge and experiences, improving policy and regulatory frameworks at the national and regional level, and promoting the implementation of integrated health and environment strategies. The United Nations Environment Programme (UNEP), together with the WHO Regional Office for the Western Pacific and the WHO Regional Office for South-East Asia serve as Secretariat. The regional forum pursues a range of activities, including intercountry working group meetings and scientific conferences encouraging vigorous exchange of information among member countries. Ministerial meetings representing the highest level of the regional forum, are held every three years to decide on policy aspects.

\subsection*{1.4 What we need to do: strengthen health and environment sectors to achieve the Sustainable Development Goals}

The Sustainable Development Goals (SDGs) and their associated targets to be met by all countries by 2030, as well as other relevant environmental agreements such as the Paris Agreement on climate change, provide important opportunities for strengthening work on health and the environment.
Annex

To support Member States in achieving the SDG targets, this framework proposes actions to enhance the health sector focus on environment-related health issues. For WHO, it offers an opportunity to strengthen internal cross-programme fertilization and collaboration to achieve its objective.

To support the achievement of the SDGs and targets, and to contribute to “the future we want”\(^1\), ministries of health, in close collaboration with ministries of environment, play a vital role in advocating, facilitating, mediating and influencing other sectors such as transport, education, energy, trade and coastal management to place the health of people at the heart of the 2030 Agenda for Sustainable Development.

To achieve this, the health sector in each country needs to determine the SDGs most relevant to addressing critical environmental health problems (see Annex 1). Ministries of health need to map their health and environment institutional arrangements and understand the mandates, leverage points and political imperatives of various agencies involved in the SDG process with reference to health and the environment, as well as all other stakeholders.

The health sector needs to work with cities to implement the Paris Agreement to limit global temperature increase to 1.5 °C through the use of cleaner energy, transport policy, waste management and industry regulation. The health sector also needs to reduce its own carbon footprint and achieve sustainable and resilient health-care systems (WHO, 2015).

Through the *Western Pacific Regional Framework for Action on Health and Environment on a Changing Planet*, interventions may be selected based on a country’s contexts and needs, referencing its governance arrangements.
2. Western Pacific Regional Framework for Action on Health and Environment on a Changing Planet

We recognize that health is a precondition for and an outcome and indicator of all three dimensions of sustainable development. We understand the goals of sustainable development can only be achieved in the absence of a high prevalence of debilitating communicable and non-communicable diseases, and where populations can reach a state of physical, mental and social well-being. The Future We Want. Rio +20 Conference on Sustainable Development, 20–22 June 2012.

The health of people is inextricably linked to the health of the planet. Scientists state that destabilization of the ecology of the Earth has occurred at a speed and intensity that has many unforeseen consequences for life and health – now and in the future. A point has been reached where greenhouse gas emissions from human activities already in the atmosphere commit the planet to a warmer future.

The Western Pacific Regional Framework for Action on Health and Environment on a Changing Planet seeks to articulate a way forward for the health sector to position itself in relation to health and environment – in the broader sustainable development agenda – as a catalyst, advocate and stakeholder for adaptive measures, policies and action to protect health and well-being as a co-benefit of interventions in energy, agriculture, transport, housing and other spheres.

2.1 Vision

Healthier people and healthier environments on a changing planet.

2.2 Objective

To accelerate action on health and the environment to achieve the Sustainable Development Goals.

2.3 Strategic intent

To provide guidance on the role of the health sector in accelerating intersectoral and multi-stakeholder action at national, subnational and local levels, to protect the health of people on a changing planet in accordance with the Sustainable Development Goals.

2.4 Guiding principles

Ecological perspective

The complex interaction of globalization, urbanization and economic growth and their impact on physical and social environments underline the need for governments to adopt an
Annex

ecological approach to analysing and addressing the determinants of health. An ecological perspective provides a holistic view of the physical, biological, social, economic and political factors that impact health and draws attention to the interdependence and linkages between human health and the environment. By prioritizing health and resilience, cities have a vital role in achieving the 1.5 °C cap on global warming in support of the Paris Agreement.

**Equity and human rights**

Securing health and social equity as fundamental human rights is necessary to ensure stable ecological, social and political conditions conducive to continued prosperity, human development and better health outcomes. In addition, the specific rights and vulnerabilities of indigenous peoples must be recognized.

**Evidence-based decision-making and the precautionary principle**

It is vital that decision-making is based on evidence and scientific information. However, where there is uncertainty, the precautionary principle should be applied to protect people and the environment, acknowledging the complexity of environmental determinants, the difficulty of establishing causal relationships and the long latency period of chronic diseases.

**Respecting local context**

Countries in the Western Pacific Region differ greatly in terms of size, geography, population, economy, culture and environmental health problems. This framework recognizes these contrasts and promotes context-specific actions in terms of health and environment governance arrangements (see Section 2.8).

**Universal health coverage**

“Leave no one behind” is the catchword of universal health coverage (UHC) – ensuring that all people have access to needed health-promoting, preventive, curative and rehabilitative health services of sufficient quality to be effective, without incurring financial hardship. Access to safe water, adequate sanitation, the proper management of chemicals, protection from pollution, shelter, and safe and adequate food might be prioritized further to avert unnecessary costs from preventable disease. Safe water, adequate sanitation and appropriate health-care waste management are essential to the quality of health-care service delivery. Working towards UHC requires improvements in social and environmental determinants in coordination with almost all sectors of government.

**2.5 Approaches**

The framework envisages preventing and reducing environmental health risks, exposures and hazards through interventions with the specific approaches as follows:
**Intersectoral action**

Effective interventions that address health and environment risks and their complex pathways require a whole-of-government and whole-of-society approach. As the environmental determinants of health lie beyond the jurisdiction of the health sector, health-influencing sectors must be engaged in legislation, policy and action. The health sector must play a central role in enabling this engagement using existing strategies such as “health in all policies” or addressing social determinants of health.

**Health impact assessment**

Like environmental impact assessment, the application of health impact assessment (HIA) to policies and developments needs to be institutionalized as common practice, including investment packages for infrastructure and urban redevelopment. HIA is an established planning tool for sustainable development, relying on credible scientific evidence and transparent processes for decision-making. The principles underpinning HIA increase the quality of initial decisions. HIAs are conducted with stakeholders to take into account the health and health-care systems implications of decisions, to seek positive synergies and avoid harmful health impacts with the aim of protecting and improving population health. To be effective, the process must apply to a wide variety of projects, and the cumulative impact of developments must also be accounted for. Scoping should be broad enough to account for a wide range of health issues. Community engagement ensures the process is not biased to the developer or pro-development government agency, and stricter enforcement of any conditions stipulated by the HIA.

**Participatory governance**

Health- and people-centred governance is essential to sustainable development. Participatory planning is one tool that enables policy-makers and programme managers to understand national, local and community priority issues and needs, build consensus on interventions, implement relevant measures and evaluate outcomes over a period of time.

**Life-course approaches to health and the environment**

National, subnational and local stakeholders need to consider environmental risks, hazards and interventions for all ages of the population, mindful of the vulnerability of pregnant women and the unborn child, infants and young children to harmful exposures. Improving the capacity of public health programmes to identify and address environmental health exposures through services for maternal, child and adolescent health, acute and chronic adult care, and healthy ageing can contribute to a reduction of premature deaths and unnecessary disease and disability.
Evidence-informed policies and practices

Guidance for environmental health interventions should be based on the best available health evidence and on evidence of their effectiveness. This requires better surveillance systems, and research and data management at multiple levels of government.

Transboundary action

In the area of environmental health, certain issues can only be addressed effectively through international dialogue and networks. In the Western Pacific Region, this clearly applies to air quality (pollution and haze), forest fires, transnational dumping of hazardous wastes, the routine use of antibiotics in livestock and aquatic farming, export of industrial products that contain hazardous chemicals such as lead, radioactive emissions and marine pollution, among other risks. Addressing the damaging climate fluctuations of El Niño, La Niña and global warming requires robust transnational cooperation strategies.

2.6 Implementation of the Regional Framework for Action on Health and Environment on a Changing Planet

To implement the regional framework, four overarching strategic actions for Member States are proposed, each with a suggested set of measures. These strategic actions are based on the following themes:

(1) governance and leadership
(2) networking
(3) communication
(4) financing and resource mobilization.

These strategic actions are envisioned to contribute to four priority regional outcomes by 2030:

(1) SDGs related to environmental health, particularly for health and climate change, are prioritized in national development plans and implemented;

(2) increased investment and budgets for environmental health policies, programmes and services in national health plans; and

(3) greening of health-care facilities reflected in national, local and facility-based policies, including 100% access to safe water and sanitation.

(4) cities supported in their measures to limit the global temperature increase to 1.5 °C in accordance with the Paris Agreement.
Linked to each strategic action are nine regional indicators for monitoring progress to be reported regularly by WHO.

2.7 Strategic actions

Strategic action 1. Enhancing governance and leadership for stronger environmental health capacity

Governance and leadership of a country's environmental health programme are critical to addressing health issues on a changing planet. The capacity, mandate, scope of work and influence of environmental health programmes need to be reflected in relevant policies affecting a range of priority issues articulated in the SDGs. Programmes, investment plans and financial mechanisms are needed to address current challenges and arrest emerging ones.

IA. Actions for countries and areas

1A.1 Establish or review and update the mandate of the environmental health programme in the country to include or strengthen governance and coordination with a wide range of relevant sectors and agencies to achieve priority SDG targets and indicators, including but not limited to, health sector coordination with:
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<tr>
<th>SDG</th>
<th>Relevant sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDG 2 – Zero hunger</td>
<td>Agriculture, nutrition</td>
</tr>
<tr>
<td>SDG 3 – Good health and well-being</td>
<td>Health-care system, law enforcement, finance</td>
</tr>
<tr>
<td>SDG 6 – Clean water and sanitation</td>
<td>Infrastructure agencies, urban planners</td>
</tr>
<tr>
<td>SDG 8 – Decent work and economic growth</td>
<td>Labour, business</td>
</tr>
<tr>
<td>SDG 11 – Sustainable cities and communities</td>
<td>Urban planners, local governments</td>
</tr>
<tr>
<td>SDG 13 – Climate action</td>
<td>National climate change agencies, energy, transport</td>
</tr>
</tbody>
</table>

(For examples of the role for the environmental health programme on all 17 SDGs, refer to Annex 1.)

1A.2 Establish or update national environmental health action plans through leadership training to include the practice of health impact assessments (including health risk assessments and management) in the development and implementation of policies and programmes in relevant sectors.

1A.3 Develop and strengthen environmental health information and surveillance systems, and apply the findings to health-care services forecasting, taking account of capacity in country.

1A.4 Establish a human resources development strategy to build adequate expertise for dealing with environmental health to:

- develop or facilitate a capacity-building programme for health professionals to improve their knowledge and skills on environmental health, including environmental health risks and hazards, particularly in vulnerable communities;
- integrate health impact assessment training into public health courses;
- develop new courses in relevant professional education programmes (e.g. medicine, law, engineering, urban planning, architecture);
- provide professional development for environmental health practitioners;
- incorporate environmental health in the training of all health professionals; and
- mobilize resources for public and private sector to support scholarships for environmental health practitioners.

1A.5 Develop disaster risk reduction and humanitarian response plans for environmental emergencies, based on risk mapping and vulnerability assessments in line with the Western
Annex


1A.6 Develop or harness existing mechanisms to work with the private sector and other interested parties on innovative ways of improving consumer access to clean and renewable energy, including for home use.

1A.7 Develop or improve national environmental health profiles and information systems, including an indicator-based information system to monitor the progress made on environmental health issues.

1A.8 Establish guidance for green health-care facilities, including developing and strengthening baseline data on access of health-care facilities to safe water and sanitation.

1A.9 Develop policies and programmes to support cities in their measures toward a 1.5 °C cap on the increase in global temperatures.

1B. Actions for WHO and international partners

1B.1 Disseminate existing tools or develop new ones to support the review and updating of environmental health governance, mandates, functions and capacity in the ministry of health or other agencies depending on country institutional arrangements. In particular, develop updated guidance on the role of the health sector in strongly advocating for cross-sectoral legislation, regulation and enforcement measures related to:

- safe drinking water, sanitation and hygiene;
- prevention of diseases (i.e. vector-borne, waterborne and foodborne outbreaks) during disasters and emergencies;
- management of hazardous materials (including heavy metals, radioactive materials, biological weapons, health-care waste, asbestos, POPs, agrochemicals, nanomaterials and any emerging threats);
- occupational risks and hazards;
- air pollution (indoor and outdoor);
- protecting health from climate change (i.e. adaptation, mitigation and resilience actions); and
- clean and renewable energy.

1B.2 Support training on:

- health impact assessment policies, plans and tools for implementation;
- environmental health information, surveillance and data management systems;
- investment planning for green health-care facilities;
- health and climate change (e.g. vulnerability and adaptation strategies) for regional, national, subnational, local and transboundary planning;
Annex

- methods and tools that facilitate proactive planning aligned with the key principles and approaches of the framework;
- advocacy and communication for planetary health; and
- strengthening of disaster risk reduction and humanitarian response plans for environmental emergencies, based on risk-mapping and vulnerability assessments.

1B.3 Facilitate dialogue and exhibitions on how to improve consumer access to clean and renewable energy, including for home use.

1B.4 Support the collection of baseline data and target-setting to ensure that all health-care facilities have access to safe water and sanitation.

1B.5 Advocate for and support healthy and resilient cities in their measures toward a 1.5 °C cap on global temperature increase.

1C. \textit{WHO regional indicators for monitoring progress}

1C.1 Number of countries and areas with environmental health policies and programmes established, reviewed and improved in relation to the SDGs through leadership development, governance and capacity-building.

1C.2 Number of countries and areas where health impact assessments (including health risk assessments and management) are legally mandated and implemented.

1C.3 Number of countries and areas that have developed or improved functional national environmental health profiles and information systems.

1C.4 Number of countries and areas that have adopted principles for greening of health-care facilities, including 100% access to safe water and sanitation.

1C.5 Number of cities implementing measures toward a 1.5 °C cap on global temperature increase.

\textbf{Strategic action 2. Building networks, coalitions and alliances: establish or strengthen existing regional, national and local networks and communities of practice on health and the environment}

The ministry of health must develop capacity to work with a wide range of stakeholders who can support policy and enable action at multiple levels.

2A. \textit{Actions for countries and areas}

2A.1 Through the Regional Forum on Environment and Health in Southeast and East Asian Countries, engage in sharing of information, advocating for stronger support for policies and actions on environment and health issues and addressing transboundary concerns.
2A.2 Identify networks, coalitions and alliances that can work with the environmental health programme to implement an expanded mandate that is in accordance with the SDGs, including but not limited to:

- government agencies;
- local governments;
- nongovernmental organizations, civil society and community groups, including environmental advocacy groups;
- faith-based organizations;
- professional organizations;
- academia;
- business and unions;
- international organizations;
- funders and donors including philanthropic organizations; and
- media.

2A.3 Develop a strategy for strengthening engagement with relevant sectors on environmental health with specific reference to the SDG targets, including a mechanism to improve information sharing among ministries and between local and national governments.

2A.4 Establish mechanisms to scale up networks of green health-care facilities.

2B. Actions for WHO and international partners

2B.1 Provide secretariat support for the Regional Forum on Environment and Health in Southeast and East Asian Countries.

2B.2 Disseminate existing tools (decision-making aids, guidelines, etc.) or develop new ones to support stakeholder mapping at regional, national and subnational levels.

2B.3 Support countries and areas in development of a strategy for strengthening engagement of all relevant sectors on environmental health with specific reference to the SDG targets, including a mechanism to improve information sharing among ministries and between local and national governments.

2B.4 Disseminate existing tools or develop new ones to facilitate development of networks of green health-care facilities.

2C. WHO regional indicators for monitoring progress

2C.1 Number of countries and areas actively participating in the Regional Forum on Environment and Health in Southeast and East Asian Countries.
2C.2 Number of countries and areas that have published a formal strategy for strengthening engagement with relevant sectors on SDG targets within the environmental health programme.

Strategic action 3. Communicating evidence on risk and vulnerability: make scientific evidence easily accessible and available to the public through communications, advocacy and social mobilization

New and more effective ways of disseminating scientific evidence are needed to ensure attainment of the SDGs. Linking scientists directly with the community through innovative communication platforms fosters public education and awareness and more support for reforms, vital policies and action. On the other hand, communities and civil society groups should have better access to scientists and should initiate dialogue on environmental health issues.

3A. Action for countries and areas

3A.1 Use new technology to help the public visualize environmental health problems, including maps of geographic, seasonal, social, cultural and demographic factors that impact the living and working conditions of communities and populations based on distinct ecozones with reference to relevant environmental health risks such as:

- climate unpredictability (temperature and precipitation)
- sea-level rise
- poor air quality
- compromised drinking-water catchments
- polluted waterways
- wastewater (municipal, industrial, health-care)
- solid waste/landfill sites
- natural disasters (drought, earthquakes, typhoons, flooding)
- contamination (heavy metals, radiological, biological, chemical, POPs)
- noise and light pollution
- use of new technology (e.g. nanomaterials)
- disease outbreaks and vectors.

3A.2 Disseminate vulnerability maps and other relevant trend information to the general public through newspapers, social media and other interactive platforms, especially during disasters.

3A.3 Support or organize forums/events to clearly explain the health impacts of global warming and planetary health to the public and how they can be addressed.
3B. **Actions for WHO and international partners**

3B.1 Disseminate existing tools or develop new ones to support access to new scientific evidence on environmental health including mapping tools.

3B.2 Work with Member States to produce and disseminate vulnerability maps and forecasting tools to the general public through newspapers, social media and other interactive platforms, especially during disasters.

3B.3 Support improvement of knowledge translation to enable governments to access scientific evidence for policy and action.

3B.4 Support enhanced interaction between the scientific community and the public through newspapers, social media and other platforms.

3B.5 Support dissemination of scientific evidence on trends of environmental health risks, climate change and policies and actions to achieve resilience.

3C. **WHO regional indicators for monitoring progress**

3C.1 Number of countries and areas that have initiated ecozone and environmental health risk mapping.

3C.2 Number of countries and areas with mechanisms for public environmental health complaints.

**Strategic action 4. Strategic financing and resource mobilization: ensuring adequate resources for environmental health**

The renewed commitment to environmental health needs to be supported with financial and material resources to ensure implementation of the *Western Pacific Regional Framework for Action on Health and Environment on a Changing Planet* over the medium and long term. The health sector should be able to access global climate change funding for climate change and health commitments under national development plans.

4A. **Actions for countries and areas**

4A.1 Identify and regularly publish or disseminate information on financial resources, grants and loans that are available for actions to reduce environmental risks to health, in particular those related to climate change and other transboundary environmental health issues.

4A.2 Include sustainable financing in environmental health programmes:

- prepare multi-year budgets that ensure adequate funding for environmental health programmes; and
Annex

- consider fiscal measures to support a rapid transition to sustainability (e.g. grants for green health-care facilities, subsidies for clean and renewable energy, a tax on polluters, removal of fuel subsidies).

4A.3 Strengthen capacity to write proposals for grants and funding and prepare investment plans for green health-care facilities with policy guidelines on:

- reduction and safe disposal of waste;
- clean and renewable energy sources;
- building energy management systems and other energy-efficient technologies and measures as appropriate to each Member State’s context;
- procurement of medical technologies;
- efficient water use;
- healthy food choices;
- green building design;
- clean and energy-efficient transportation in and around facilities; and
- careful use of antimicrobials.

4A.4 Create or update national financing mechanisms to enable individuals, communities, civil society, the private sector, health promotion bodies, local and regional government and others to pursue environmental health initiatives in their localities, alongside other public health priorities (e.g. mobilizing resources for bike lanes through motor vehicle road-use taxes).

4A.5 Support environmental health and climate change research.

4B. Actions for WHO and international partners

4B.1 Regularly publish and disseminate global and regional information on new sources of funding for environmental health programmes and activities.

4B.2 Provide guidance, in consultation with WHO collaborating centres and international partners, on international agreements relevant to environmental health programmes including obligations, actions, targets and reports.

4B.3 Ensure that WHO has adequate in-house environmental health capacity to support countries and areas in developing and implementing programmes that give effect to the framework.

4B.4 Coordinate with relevant international partners, e.g. UNEP, Pacific Community (formerly Secretariat of the Pacific Community) and the International Labour Organization (ILO), in parallel with the collaboration of the ministries of health and other government agencies at the national level.

4B.5 Explore and identify options for Member States to establish and finance WHO regional environmental health centres to support implementation of the framework and
undertake analysis, coordinate research, disseminate evidence, provide technical and best practice advice, monitor progress, and support environmental health programmes as requested by countries and areas.

4B.6 Develop strategies to ensure sustainable financing of the Regional Forum on Environment and Health in Southeast Asia and East Asian Countries to support the implementation of this framework.

4B.7 Provide guidance to countries and areas, in consultation with WHO collaborating centres and international partners, on opportunities to access funding and resources to support environmental health programmes.

4C. **WHO regional indicators for monitoring progress**

4C.1 Number of countries and areas with a medium- to long-term financial plan for the environmental health programme.

**2.8 Practical aspects of implementation of the regional framework relative to environmental health governance arrangements**

Cognizant of the range and diversity of institutions and institutional arrangements for environmental health, a review was undertaken to shed light on the need for country-specific action. The review reveals four environmental health governance patterns:

- **Embedded arrangements** – where the ministry of health (or equivalent) has a well-developed and financially viable environmental health technical unit with strong capacity to set standards and norms, support legislation and policy, implement regulations, undertake surveillance monitor progress, and participate in advocacy, compliance and enforcement.
Annex

- **Linked arrangements** – where the ministry of health may have an environmental health technical programme with some capacity to set standards and norms, support legislation and policy, and undertake limited surveillance and monitoring of progress and enforcement but is not directly responsible for environmental health interventions or outcomes. In this system, the country's key environmental health programme may be found in the ministry of environment (or equivalent).

- **Networked arrangements** – where the ministry of health does not have a technical programme on environmental health (i.e. the responsibility belongs to another government agency or set of agencies) and functions may be limited to development of standards and norms that are implemented through networked governance processes. In this system, governance response depends on the nature of the environmental health issue at hand. For example, the lead agency on management of antibiotics in farming might be the ministry of agriculture, networking with the health sector.
• **Dispersed arrangements** – where multiple agencies have a range of environmental health functions under multiple legal mandates and jurisdictions. National and local jurisdictions may vary. For example, water and sanitation standards are monitored nationally by the ministry of health, while local infrastructure is the responsibility of local governments and may be provided by private entities but protection of water sources might be a matter for the ministry of the environment.

*Benchmarking against the SDGs related to health and the environment under each type of governance arrangement*

With these general typologies in mind – no model may perfectly fit any one jurisdiction – the following are some ways that benchmarking may be undertaken using SDGs related to health and the environment under each arrangement.

*Embedded arrangements*

1. The ministry of health, through the environmental health unit, articulates policy on the SDGs related to health and environment in national health plans and programmes.

2. The ministry of health, through the environmental health unit, increases investment and budgets for environmental health policies, programmes and services (relative to the baseline for 2017).

3. The ministry of health applies the healthy settings approach to greening of health-care facilities as a platform for achieving relevant SDGs.
Annex

Linked arrangements

1. The environmental health unit in the ministry of environment articulates policy on the SDGs related to health and environment in national environmental health plans and programmes.

2. The ministry of environment, through the environmental health unit, increases investment and budgets for environmental health policies, programmes and services (relative to the baseline for 2017).

3. The ministry of health applies the healthy settings approach to greening of health-care facilities as a platform for achieving relevant SDGs.

Networked arrangements

1. The lead ministry or agency articulates policy on the SDGs related to health and environment in national plans and programmes on a given relevant issue.

2. That ministry/agency increases investment and budgets for environmental health policies, programmes and services under its purview (relative to the baseline for 2017).

3. The ministry of health applies the healthy settings approach to greening of health-care facilities as a platform for achieving relevant SDGs.

Dispersed arrangements

1. The ministry of health, through the environmental health unit, articulates policy on the SDGs related to health and environment in national health plans and programmes.

2. The responsible ministry/agency or local governments increase investment and budgets for environmental health policies, programmes and services under their purview (relative to the baseline for 2017).

3. The ministry of health or subnational health-care authorities apply the healthy settings approach to greening of health-care facilities as a platform for achieving relevant SDGs.
Appendix 1. Examples of role of environmental health programme by SDG

<table>
<thead>
<tr>
<th>SDG</th>
<th>Examples of health and environment-related targets</th>
<th>Role of environmental health programme</th>
</tr>
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<tbody>
<tr>
<td>SDG 1: End poverty in all its forms everywhere</td>
<td>1.3 Implement nationally appropriate social protection systems and measures for all…and by 2030 achieve substantial coverage of the poor and the vulnerable</td>
<td>• In addition to universal health coverage, advocate and support policies to counter poverty and support livelihoods – key for child health.</td>
</tr>
</tbody>
</table>
| SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture | 2.4 By 2030, ensure sustainable food production systems and implement resilient and safe agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality | • Stipulate selection of environmentally responsible food suppliers for health-care facilities, taking into account sustainability, nutrition and food miles.  
• Advocate for health promoting and sustainable food systems.  
• Advocate for safe use of fertilizers and pesticides and for the prevention of antibiotic misuse in the agricultural sector.  
• Implement a risk-based food safety control framework appropriate to the region/country. Coordinate appropriate public health response to foodborne illness and ensure the trade of safe and healthy food.  
• Promote intake of fresh food. Consider regulation of processed food products that are high in sodium, sugar and fat.  
• Review national programmes for nutrition in environmental emergencies and update to prevent nutritional deficits. |
<table>
<thead>
<tr>
<th>SDG 3: Ensure healthy lives and promote well-being for all ages</th>
<th>3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</th>
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<tbody>
<tr>
<td></td>
<td>• Minimize harmful exposure to hazardous chemicals in air, soil and water through regulation.</td>
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<tr>
<td></td>
<td>• Strengthen the health sector role in developing national policy, legislation and plans to improve the management of health-care waste in all hospitals and the appropriate management of pharmaceutical waste to strengthen national action plans to combat antimicrobial resistance.</td>
</tr>
<tr>
<td></td>
<td>• Strengthen environmental health epidemiology to map and identify areas of high risk for air, water and soil pollution and contamination.</td>
</tr>
<tr>
<td></td>
<td>• Develop health service delivery capacity to respond to acute and chronic exposures to chemicals, pollutants and environmental poisons in the context of universal health care.</td>
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<tr>
<td></td>
<td>• Develop health benchmarks, targets and reporting mechanisms for monitoring the effectiveness of air pollution control measures or policies.</td>
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<tr>
<td></td>
<td>• Develop and collect data on sensitive environmental health indicators stratified by gender, major age groups, and rural/urban dimensions where feasible.</td>
</tr>
<tr>
<td>SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</td>
<td>4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human</td>
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<tr>
<td></td>
<td>• Work with ministry of education on integrating the concepts of health equity and environmental justice into sustainable development curriculum.</td>
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<td></td>
<td>• Introduce environmental and occupational health</td>
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</table>
### SDG 5: Achieve gender equality and empower all women and girls

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<tr>
<th>5.5 Ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life</th>
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<tbody>
<tr>
<td>5.6 Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences</td>
</tr>
</tbody>
</table>

- Ensure full representation of women in environmental health programmes.
- Advocate for universal access to reproductive health and rights.
- Include gender equality in health impact assessments and all action plans.

### SDG 6: Ensure availability and sustainable management of water and sanitation for all

<table>
<thead>
<tr>
<th>6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all</th>
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<tbody>
<tr>
<td>6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations</td>
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<tr>
<td>6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally</td>
</tr>
<tr>
<td>6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure</td>
</tr>
</tbody>
</table>

- Promote/provide short-term access to safe drinking water and sanitation as the highest priority intervention in emergencies, along with food and shelter, for continuity of health services, as well as developing national strategies for universal access to safe drinking water and basic sanitation in all health facilities.
- Develop national strategies and plans for universal and equitable access to safe and affordable drinking water and basic sanitation in all health facilities to provide quality care as one of the essential building blocks to attain universal health coverage.
- Advocate strategies and
sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity

actions to attain universal and equitable access to safe and affordable drinking water and sanitation for all, paying special attention to the needs of women and girls and those in vulnerable situations.

- Improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and waste.
- Work with cities to significantly reduce untreated municipal wastewater through regulation and recycling.

| SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all | 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services  
7.2 By 2030, increase substantially the share of renewable energy in the global energy mix  
7.3 By 2030, double the global rate of improvement in energy efficiency |
| --- | --- |
|  | • Set bold targets and invest in the use of clean cooking energy, particularly in poor rural and urban households.  
• Advocate for low-cost electricity supply to all households from the perspective of indoor air quality.  
• Promote and invest in sustainable, safe and clean energy for the health sector. |
<table>
<thead>
<tr>
<th>SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</th>
<th>8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms</th>
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<tbody>
<tr>
<td>8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment</td>
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<tr>
<td>• Develop or support the development of national plans of action on workers’ health and scaling up the coverage of workers with essential interventions for prevention and control of occupational diseases and injuries in line with the WHO Global Plan of Action on Workers’ Health.</td>
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<tr>
<td>• Advocate for decent work and equal opportunities, particularly for women and workers in the informal sector, and the elimination of child labour.</td>
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<table>
<thead>
<tr>
<th>SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</th>
<th>9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</th>
</tr>
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<tbody>
<tr>
<td>• Ensure that health impact assessments (HIAs) and environmental health impact assessments (EHIAs) are part of major infrastructure and industry projects and relevant policies in sectors such as industry, development, transportation and planning.</td>
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<tr>
<th>SDG 10: Reduce inequality within and among countries</th>
<th>10.3 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard</th>
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<tbody>
<tr>
<td>• Advocate for increased resourcing of communities traditionally reliant on polluting industries, where health harms and economic pressure are evident.</td>
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<thead>
<tr>
<th>SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable</th>
<th>11.5 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities</th>
</tr>
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<tbody>
<tr>
<td>• Mobilize all cities to commit to measures to achieve the 1.5 °C cap on global temperature in line with the Paris Agreement.</td>
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<tr>
<td>• Implement green hospitals and advocate greening across all sectors from a public health stewardship standpoint.</td>
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</tbody>
</table>
| SDG 12: Ensure sustainable consumption and production patterns | 12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses  
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment  
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse | • Advocate plans across all sectors that contribute to climate-resilient cities.  
• Collaborate with other sectors to ensure health implications of decisions are considered.  
• Communicate the potential health benefits related to reductions in environmental release of chemicals to air, water and soil.  
• Campaign to prevent food waste in households.  
• Enable composting of organic waste in homes and other community settings.  
• Support policies to reduce antimicrobial resistance in food production.  
• Implement a green health-care facilities plan, including health-care waste management objectives.  
• Work with local leaders to strengthen the resilience of communities and health systems to climate risks and improving their capacity to adapt to long-term climate changes, and identify, assess and promote actions that reduce the burden of diseases associated with air pollution and other health consequences of policies that also cause climate change.  
• Support development of emissions-cutting policies at national level with a focus on cities to generate significant, local, near-term |
health benefits and co-benefits, including the elimination of fossil fuel subsidies and the promotion of renewables, promotion of clean indoor energy alternatives, especially electricity from renewable sources and greener and more sustainable choices in other sectors such as transport, building and food.

| SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development | 14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution | - Advocate sustainable management and protection of marine and coastal ecosystems to avoid significant adverse impacts and action for their restoration in order to achieve healthy and productive oceans.
- Consider food safety in HIAs of aquaculture projects, as well as impacts on the food chain.
- Highlight the direct and indirect health impacts of marine pollution. |
| SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss | 15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts | - Advocate for planning processes that integrate HIAs and EHIAs.
- Advocate for preservation of ecosystems and biodiversity as health-enabling environmental resources. |
| SDG 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels | 16.1 Significantly reduce all forms of violence and related death rates everywhere | - Advocate environmental and health justice, especially where there is clear and present danger to individual whistle-blowers, activists and journalists working in health and environment area. |
| SDG 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development | 17.16 Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries | • Reach out to other sectors to achieve health and environment improvements, including academia for best evidence and civil society for community action.  
• Advocate mobilization of financial and other resources on the basis of a sustainable development approach that incorporates a consideration of the health of people and the planet.  
• Support knowledge transfer in science, technology and innovation for sustainable development. |
Endnotes


2. 26% of total deaths in children under 5 years are attributable to the environment, and 25% of disability-adjusted life years (DALYs). The main environment-related diseases in this age group are lower respiratory infections and diarrhoeal diseases.

3. On 15 March 2016, WHO launched the second edition of Preventing disease through healthy environments: a global assessment of the burden of disease from environmental risks (Prüss-Ustün A et al., 2016) presenting detailed findings to show how much death, disease and ill-health are caused by environmental risk factors and how improving the environment can promote health and well-being. The report reveals that 25% of the DALYs in low and middle income countries (LMIC) and 13% of DALYs in high-income countries (HIC) of the Western Pacific Region are attributable to the environment, compared to 24% in South-East Asia (all LMIC) and 13% (HIC) and 17% (LMIC) in Europe. While the burden of infectious and parasitic diseases has generally decreased outside of Africa, DALYs related to noncommunicable diseases attributable to the environment have shown significant increases in all regions since the last data from 2002.

4. Remarks by WHO Director-General Dr Margaret Chan at a high-level side event of the 2015 United Nations Climate Change Conference (COP21), Why the climate change agreement is critical to public health. Paris, 8 December 2015

5. “Planetary health” incorporates the interdependencies of human and natural systems, while also recognizing that preserving the integrity of natural systems is an essential precondition for human health, survival and prosperity.

6. Decarbonization: reducing the amount of gaseous carbon compounds released in or as a result of an environment or process, for example in a national economy [Oxford Advanced Learner’s Dictionary], as a strategy to mitigate climate change.


10. Ibid


Annex


19. The Rio+20 Conference on Sustainable Development, which took place in Rio de Janeiro, Brazil, on 20–22 June 2012 was the biggest United Nations conference in history and a major step forward in achieving a sustainable future – “the future we want”. (United Nations General Assembly Resolutions A/RES/66/288 Agenda Item 19, 27 July 2012).

20. The planetary boundaries concept presents a set of nine planetary boundaries within which humanity can continue to develop and thrive for generations to come. Crossing these boundaries could generate abrupt or irreversible environmental changes. Respecting the boundaries reduces the risks to human society of crossing these thresholds (http://www.stockholmresilience.org/research/planetary-boundaries.html, accessed 24 May 2016).

21. Ecozones, or bioclimatic zones, were traditionally called biomes, referring to the unique and broad setup of the world into 10 or so zones with relatively unique climate, soil, plant and sometimes also land characteristics. The concept has been updated as “global anthropogenic biomes” to account for human land uses (Ellis and Ramankutty, 2008).
References


