

AGENDA FOR THE AMERICAS ON HEALTH, ENVIRONMENT, AND CLIMATE CHANGE

2021–2030



PAHO



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AGENDA FOR THE AMERICAS ON HEALTH, ENVIRONMENT, AND CLIMATE CHANGE

2021–2030

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FOREWORD

In recent decades, enhancements in health services, environmental protection, economic development, and other factors have led to improvements in the health of people across the Region of the Americas. Nevertheless, an estimated one million premature deaths per year are attributed to known avoidable environmental risks. Air pollution, contaminated water, inadequate sanitation including solid waste management, risks related to certain hazardous chemicals, and negative impacts related to climate change are the most pressing environmental public health threats in the Region. These threats to public health are compounded by weak governance practices and potential inequities in health as well as by limited leadership, expertise, and resources in the health sector.

To address these challenges, in 2018, the Pan American Health Organization (PAHO) created the Climate Change and Environmental Determinants of Health Unit and formed a Technical Advisory Group to guide technical cooperation toward helping countries achieve Sustainable Development Goal 3 (SDG 3), to ensure healthy lives and promote well-being for all at all ages.

In 2019, the World Health Assembly, the decision-making body of the World Health Organization (WHO), approved the WHO Global Strategy on Health, Environment, and Climate Change. The strategy envisions an integrated and evidence-informed approach that fosters the leadership role of the health sector, with a focus on reducing inequities in health and promoting environmental sustainability.

The Agenda for the Americas on Health, Environment, and Climate Change 2021–2030 (the Agenda) was developed under the umbrella of the WHO Global Strategy and builds on the commitments set forth in the Sustainable Health Agenda for the Americas 2018–2030 and the Strategic Plan of the Pan American Health Organization 2020–2025. The Agenda was developed in consultation with the Technical Advisory Group and through a consensus-driven decision-making process

with PAHO Member States in 2019 and 2020. Toward the achievement of SDG 3, the Agenda focuses on: improving the performance of environmental public health programs and institutions; fostering environmentally resilient and sustainable health systems; and promoting environmentally healthy and resilient cities and communities. Its implementation will be context-specific, based on the needs and realities of countries. It will benefit countries and territories by: promoting good governance practices; strengthening the leadership and coordination roles of the health sector; fostering cross-sectoral action; focusing on primary prevention; enhancing the generation and use of evidence; and improving communication to promote awareness and action. It will facilitate access to the human, technical, and financial resources necessary to address environmental determinants of health and ensure that the Region is fully engaged in global health, environment, and climate change processes and agreements.

This Agenda is a call to action for leadership by the health community to address environmental determinants of health in the Americas and to work across sectors in an all-of-government approach to implementing laws, regulations, and policies. This call for collaboration, anchored in PAHO's commitment to work with all Member States to achieve SDG 3 on good health and well-being, frames comprehensive action to reduce threats and improve conditions for public health across the Region.



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Director

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ABBREVIATIONS AND ACRONYMS

2030 Agenda	2030 Agenda for Sustainable Development
Agenda	Agenda for the Americas on Health, Environment, and Climate Change 2021–2030
AIDIS	Inter-American Association of Sanitary and Environmental Engineering
CCAD	Central American Commission for Environment and Development
CEPIS	Pan American Center for Sanitary Engineering and Environmental Sciences
COPD	chronic obstructive pulmonary disease
COVID-19	coronavirus disease
DHS	demographic and health survey
ECLAC	United Nations Economic Commission for Latin America and the Caribbean (CEPAL)
ECOSAL	Conference of Ecology and Health
EDHs	environmental determinants of health
GCF	Green Climate Fund
GLAAS	UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water
HEMA	Health and Environment Ministers of the Americas
IER	integrated exposure-response
IHD	ischemic heart diseases
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
JMP	WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene
LAC	Latin America and the Caribbean
LSMS	living standards measurement survey
MDG	Millennium Development Goal
MICS	multiple indicator cluster survey
NAP	national adaptation plan
PAF	population attributable fraction
PAHO	Pan American Health Organization
Region	Region of the Americas
SAICM	Strategic Approach to International Chemicals Management
SASAP	sectoral adaptation strategies and action plans
SDG	Sustainable Development Goal
SHAA2030	Sustainable Health Agenda for the Americas 2018–2030
SIDS	Small Island Developing States
TAG	Technical Advisory Group
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children’s Fund
WASH	water, sanitation, and hygiene
WHA	World Health Assembly
WHO	World Health Organization
WHS	World Health Survey
WSSD	World Summit on Sustainable Development



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1. INTRODUCTION

Healthy natural and built environments are vital to “ensure healthy lives and promote well-being for all at all ages,” the aim of Sustainable Development Goal 3 (SDG 3) of the 2030 Agenda for Sustainable Development (2030 Agenda). From the health viewpoint, environmental public health is the branch of public health that addresses global, regional, national, and subnational environmental factors that influence human health, including physical, chemical, and biological factors external to a person, and their related behaviors. Collectively, these conditions are referred to as environmental determinants of health (EDHs).

Current global environmental challenges such as climate change-related impacts¹ in conjunction with other pressing environmental concerns, such as air pollution, contaminated water, inadequate sanitation, and risks related to certain hazardous

chemicals, demand urgent and collective action to reduce their harmful effects on people’s health and well-being across the life course. Health emergencies, such as the coronavirus disease (COVID-19) pandemic, can exacerbate the situation by overwhelming health systems and causing severe negative effects on human health and economies.

Following the vision of the 2030 Agenda, the **Agenda for the Americas on Health, Environment, and Climate Change 2021–2030** (the Agenda) provides a framework for the Pan American Health Organization (PAHO) and the countries of the Region of the Americas (the Region), specifically their health communities, to strengthen the response to EDHs in the period 2021–2030. This Agenda seeks to reduce the burden of disease and inequity in health attributable to environment-related effects in the Region.

Environmental public health is the branch of public health that addresses global, regional, national, and subnational environmental factors that influence human health.

¹ Climate change-related impacts can include, but are not limited to, extreme weather events (heat waves, floods, wildfire), landscape or environmental degradation (coastal erosion, permafrost thaw, loss of biodiversity), increasing spread and range of climate-driven infectious diseases, eco-anxiety, eco-grief, etc.



2. BACKGROUND

The Agenda is rooted in a rich history of international conferences on health, environment, climate change, and sustainable development (see Annex 1). It builds upon the commitments of Member States as set forth in: the Sustainable Health Agenda for the Americas 2018–2030 (SHAA2030) (Resolution CSP29.R2) (1), which requires the Organization’s full support as Member States aim to achieve the SDGs and other regional health objectives; the Strategic Plan of the Pan American Health Organization 2020–2025 (Resolution CD57.R2) (2); the World Health Organization (WHO) Global Strategy on Health, Environment, and Climate Change (3); the recommendations of the Report of the Commission of the Pan American Health Organization on Equity and Health Inequalities in the Americas (4); and Universal Health in the 21st Century: 40 Years of Alma-Ata, Report of the High-Level Commission (5).

The Agenda is also rooted in a rich history of health, environment, and climate change resolutions adopted by the PAHO Governing Bodies since the resolutions adopted at the First General International Sanitary Convention of the American Republics to organize the International Sanitary Bureau in 1902 (6), which reflected the importance of environmental factors that influence human health and specified the responsibilities of the Organization and its Member States (see Annex 2).

The Agenda is aligned with resolutions adopted by the PAHO Governing Bodies, mainly: Health and Human Rights (Resolution CD50.R8) (7); Strategy for Universal Access to Health and Universal Health Coverage (Resolution CD53.R14) (8); Resilient Health Systems (Resolution CD55.R8) (9); Strategy and Plan of Action to Improve Quality of Care in Health Service Delivery 2020–2025 (Resolution CD57.R13) (10); PAHO Disease Elimination Initiative: A Policy for an

Integrated Sustainable Approach to Communicable Diseases in the Americas (Resolution CD57.R7) (11); Plan of Action on Entomology and Vector Control 2018–2023 (Resolution CD56.R2) (12); Plan of Action for the Elimination of Neglected Infectious Diseases and Post-elimination Actions 2016–2022 (Resolution CD55.R9) (13); Plan of Action for the Prevention and Control of Noncommunicable Diseases (Resolution CD52.R9) (14); Plan of Action on Health in All Policies (Resolution CD53.R2) (15); Strategy and Plan of Action on Health Promotion within the Context of the Sustainable Development Goals 2019–2030 (Resolution CD57.R10) (16); and Health, Human Security, and Well-Being (Resolution CD50.R16) (17), as well as related resolutions adopted by the World Health Assembly.

The Agenda is also aligned with global and regional multilateral environmental, climate change, and development agreements that recognize health as a major concern (18–35). It is important for health actors to be engaged in the implementation mechanisms of these agreements. Stronger and intentional engagement of the health sector would promote synergies, minimize unintended negative health consequences, and optimize achievement of health, environmental, and economic objectives. Similarly, ensuring that environmental risks to health are fully covered and supported in international health instruments, such as the International Health Regulations (2005) (36), would particularly enhance core capacity requirements for surveillance and response to address environmental factors in health emergencies, utilizing existing national structures and resources. Such cross-integration would advance the holistic approach articulated in the 2030 Agenda.



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3. SITUATION ANALYSIS

The degree to which people are affected by global environmental challenges such as the impact of climate change and other pressing environmental concerns, such as air pollution, contaminated water, inadequate sanitation, and the risk related to certain hazardous chemicals, is largely determined by social determinants of health, such as social status, income, and other individual and population factors, including age, sex, and gender. These conditions may affect a wide range of health outcomes influenced by environmental factors. Inadequate and/or non-compliance with public policies, individual and community behaviors, and poor planning can exacerbate existing inequalities. For example, in many contexts, women and girls are in a situation of higher vulnerability due to unequal power distribution and access to resources, gendered divisions of labor, gender gaps in employment and education, and more limited mobility.

According to WHO, about 13% of premature deaths in high-income countries² and 19% in low- and middle-income countries³ of the Region are attributable to known avoidable environmental risks, amounting to about 1,016,000 deaths each year (37, 38). There are significant differences among countries, ranging from 8% to 23% of premature deaths. Air pollution is one of the most important environmental risks to health. Household and ambient air pollution is linked to

almost 320,000 preventable deaths per year in the Region due to stroke, heart disease, and lung disease and cancer. Almost 80 million people still depend on polluting fuels to support their basic necessities, such as solid fuels or kerosene for lighting, cooking, and heating (39, 40). Household air pollution might have gender-differentiated impacts associated with prevalent exposures. It is the single leading environmental health risk and a main cause of noncommunicable diseases for women in low- and middle-income countries (41). Approximately 106 million people in the Region still do not have adequate sanitation, of which 19 million people still practice open defecation, and 34 million do not have access to sources of safely managed supplies of drinking water, resulting in about 30,000 preventable deaths each year (42). Risks related to substances such as certain pesticides, lead (especially lead in paint), and mercury, may disproportionately affect children, particularly in utero and infancy. Exposure to these substances can lead to chronic and often irreversible health conditions such as neurodevelopmental problems, congenital defects, and diseases associated with endocrine disruption (43).

Global environmental changes such as climate change-related impacts may have a significant impact on people's health and well-being in the Region by disrupting physical, biological,

² High-income countries: Antigua and Barbuda, Bahamas, Barbados, Canada, Chile, Saint Kitts and Nevis, Trinidad and Tobago, United States of America, Uruguay.

³ Low- and middle-income countries: Argentina, Belize, Bolivia (Plurinational State of), Brazil, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Venezuela (Bolivarian Republic of).

and ecological systems. These disruptions can exacerbate existing health inequalities and/or create new ones. According to data published by the Economic Commission for Latin America and the Caribbean, the annual average temperature variation in Latin America and the Caribbean increased from less than 0.2 °C in 1961 to more than 1.0 °C in 2017 (44). Extreme weather events, changing climate patterns, and other slow-onset phenomena have exacerbated food insecurity, air pollution, limited access to clean water, population migration, and transmission patterns of zoonotic (including vector-borne) and waterborne disease pathogens. The health effects of these disruptions may include death, increased prevalence of illnesses associated with respiratory and cardiovascular conditions, infectious diseases (including vector-borne diseases), injuries, heat stress, and impacts on mental health and well-being. Populations in vulnerable conditions, such as those living in poverty in precarious housing conditions on small islands and coastal areas, may be at even greater risk due to more frequent and severe weather events and rising sea levels coupled with a reduced ability to adapt (45). Those living in polar and mountain regions may also be particularly vulnerable due to food insecurity, ice melting, permafrost thawing, and disruptions of plants and wildlife (46).

Important advances have been made to protect people's health from known environmental risks. Nonetheless, marginalized and underserved populations have been left behind across the Region, including local indigenous populations, with limited access to essential services, such as safe drinking water, adequate sanitation, environmentally sound solid waste management, and clean household energy.

The effects of human actions on the environment, which can affect enjoyment of the

highest attainable standard of health, require urgent attention. Stagnation in the trend of poverty reduction, increasing income inequality, emerging dynamics associated with technology revolution, demographic changes, and the increasing number of extreme weather events raise levels of uncertainty and threaten sustainable development processes in the Region (47).

The character and quality of the built environment are crucial to guaranteeing individual and community health, including the presence and size of green areas and parks, air and water quality, land-use mix, transit-mode mix, and traffic density. Thus, planning strategies to manage and control these environmental characteristics that directly or indirectly affect health and well-being are a core environmental public health activity (48).

Approaches that focus on control and management of both communicable and noncommunicable specific diseases do not usually include the environmental dimension of the disease. Addressing the environmental determinants of a disease prevents health problems and reduces the costs of health care associated with that disease. Moreover, improper use and management of pesticides in food production and inappropriate use of antibiotics to treat human and animal infections may contaminate the environment, food, and water supplies leading to challenges such as pesticide and antimicrobial resistance (49–51), which may have implications for public health.

Health emergencies and disasters, including those attributable to anthropogenic and biogenic environmental factors, conflicts, outbreaks, or any other hazard, may lead to injuries and diseases, and affect populations in all contexts. Depending upon the nature of the event, vulnerability of the people affected, and capacity of local and national systems to respond and recover, deterioration of

environmental infrastructure and services during health emergencies and disasters may have significant negative health effects.

Knowledge gaps, insufficient research to fill these gaps, limited communication and capabilities, and difficulty in driving wide-scale behavioral change continue to prevent efficient and effective implementation of environmental public health protection and promotion strategies. Evidence of certain environmental risks to health and of the impact of global environmental processes on health is incomplete, and in some cases not explicit due to long-term onset of subclinical yet probably irreversible health outcomes.

In many countries of the Region, mechanisms to develop and implement inclusive and equitable public policies to address and adapt to EDHs are informal and ambiguous, roles and responsibilities of government agencies are unclear, and influence of stakeholders is uneven. Some policies in sectors with relevance to health, such as energy, transportation, housing, industry, food systems and agriculture, water and sanitation, and urban planning, have been set without recognition of the impacts they can have on health, and thus represent their impact inaccurately. As a result, environmental public health programs in several countries tend to be more reactive and remedial than proactive and preventive.

New environment-related hazards to health are increasingly being recognized (e.g., potential exposure to and toxicity of substances in electronic waste, micro- and nano-plastics, and endocrine-disrupting chemicals), and the complex management

challenges posed by transboundary pollution and the international movement of goods (e.g., air pollution, shared contaminated watersheds, and potentially hazardous consumer and/or industrial products), increased antimicrobial resistance, and single-use plastic waste require timely identification, science-based risk assessment, risk management and mitigation, and risk communication.

The 2030 Agenda provides a blueprint to achieve a better and more sustainable future for all. The 2030 Agenda's 17 global SDGs are interconnected, and in order to leave no one behind, it is important that all 17 be achieved. In the context of EDHs, to achieve SDG 3 (health and well-being), it is necessary to implement actions within the health sector as well as actions in other sectors that can provide health co-benefits. For example, actions to help achieve SDG 6 (clean water and sanitation), SDG 7 (affordable and clean energy), SDG 11 (sustainable cities and communities), SDG 12 (responsible consumption and production), and SDG 13 (climate action), among others, can provide health co-benefits that help achieve SDG 3. Underscoring these co-benefits can assist in creating a wider space for intersectoral⁴ and multisectoral⁵ collaboration, and facilitate concrete financial commitments and increased global spending targeted to address environmental risks to human health.

⁴ Intersectoral refers to deliberate collaboration among various stakeholder groups and sectors to jointly achieve an outcome. It implies emphasis on technical and political coordination.

⁵ Multisectoral refers to affecting health outcomes undertaken by sectors outside the health sector, possibly, but not necessarily, in collaboration with the health sector.



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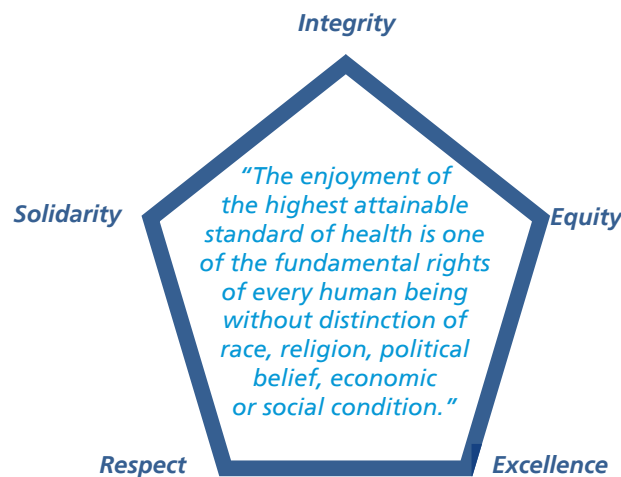
4. GOAL AND OBJECTIVE

The goal of this Agenda is to reduce the burden of disease and inequity in health attributable to environment-related impacts in the Region, with emphasis on air quality, chemical safety, climate change-related impacts, water, sanitation, and hygiene (WASH), and their related behaviors. This will be accomplished through inter-programmatic, intersectoral, multisectoral, subnational, national, subregional, and regional approaches. The Agenda will contribute to meeting Targets 11.2 and 11.3 (Impact Indicators 26 and 27) of SHAA2030⁶ directly and several other goals of the Agenda indirectly.

The objective of this Agenda is to strengthen the capacity of health actors in health and non-health sectors to address and adapt to EDHs,

prioritizing populations living in conditions of vulnerability, in order to meet Outcome 18 (Indicators 18c, 18d, 18e, 18f, 18g, and 18h) of the PAHO Strategic Plan 2020–2025⁷ directly and several other outcomes of the Plan indirectly.

To address and adapt to the challenges of EDHs in the Region, an integrated and evidence-informed approach within the health sector and across sectors will be needed, enabled and supported by good governance practices, adequate management mechanisms, high-level political will, and adequate human, technical, technological, and financial resources. The health sector needs to play a leadership role in this process, using a sustainable and equitable approach that places a priority on reducing health inequity.



⁶ Target 11.2: Reduce substantially the number of deaths and diseases caused by hazardous chemicals and by air, water, and soil pollution, especially where environmental risk may be disproportionately impacting disadvantaged populations or communities (adapted from SDG Target 3.9); Target 11.3: Reduce significantly inequities related to water quality and sanitation by moving forward with the responsible sectors on access to water and sanitation services and the safe management thereof (SDG Targets 6.1 and 6.2).

⁷ Outcome 18. Social and environmental determinants: Increased capacity of health actors to address social and environmental determinants of health with an intersectoral focus, prioritizing groups in conditions of vulnerability.



5. STRATEGIC LINES OF ACTION

To achieve its goal and objective, considering national and local contexts and priorities, this Agenda is based on three mutually reinforcing strategic lines of action:

1. **Improve the performance of environmental public health programs and institutions;**
2. **Foster an environmentally sustainable and resilient health system;**
3. **Promote environmentally healthy and resilient cities and communities.**

STRATEGIC LINE OF ACTION 1: Improve the performance of environmental public health programs and institutions

Environmental public health programs and institutions in the Region should improve their performance in developing, implementing, monitoring, and assessing inclusive and equitable services, programs, and policies to protect the health of all people from environmental risks. This strategic line of action will address health, environment, and climate change governance using the essential public health functions framework that embodies a complete policy cycle: assessment, policy development, allocation of resources, and access. This strategic line of action will foster leadership within and outside the health sector, strengthen collaboration between the health sector and other government sectors, define the roles and responsibilities in environmental public health, and enhance the technical capacity of the workforce. Specific attention will be placed on air quality, chemical safety, climate change-related impacts, WASH, and their related behaviors, with a health equity focus.

Water, sanitation and hygiene are fundamental to respecting the dignity and human rights of every person who seeks health care and of health workers themselves. I call on people everywhere to support action for WASH in all health care facilities. This is essential to achieve the Sustainable Development Goals.

António Guterres

United Nations Secretary-General

OBJECTIVE 1.1: Strengthen environmental public health programs and institutions, placing specific emphasis on air quality, chemical safety, climate change-related impacts, WASH, and their related behaviors, using a health equity lens.

INDICATOR 1.1.1 Number of countries and territories implementing the recommendations of the performance assessments of national environmental public health programs for specific thematic areas, using the essential public health functions framework

INDICATOR 1.1.2 Number of countries and territories implementing and monitoring national policies to achieve Sustainable Development Goal (SDG) targets that address environmental determinants of health, prioritizing those living in conditions of vulnerability

INDICATOR 1.1.3 Number of countries and territories that include SDG indicators that address environmental determinants of health disaggregated by subpopulation groups in condition of vulnerability in national public health and/or environmental surveillance systems.

OBJECTIVE 1.2: Enhance health sector collaboration with environment, water and sanitation, and other sectors using the Health in All Policies framework to address environmental determinants of health, placing specific emphasis on air quality, chemical safety, climate change-related impacts, WASH, and their related behaviors, and to advance health equity

INDICATOR 1.2.1 Number of countries and territories with established formal mechanisms between the health national authority and environment, water and sanitation, and other national government entities to address environmental determinants of health, prioritizing those living in conditions of vulnerability

OBJECTIVE 1.3: Strengthen the technical capacity of the environmental public health workforce within and outside the health sector, placing specific emphasis on air quality, chemical safety, climate change-related impacts, WASH, and their related behaviors

INDICATOR 1.3.1 Number of countries and territories implementing a national strategy for standardizing environmental public health professional qualifications, educational requirements, and credentialing

INDICATOR 1.3.2 Number of countries and territories with adequate full-time staff in the health sector trained in and assigned to environmental public health for specific thematic areas

STRATEGIC LINE OF ACTION 2: Foster an environmentally sustainable and resilient health system

The reduction of the environmental footprint⁸ of a health system should be considered to support environmental protection and promote human health. Increasing the resilience of a health system should also be considered to ensure its capacity to respond to shocks, maintain the sustainability of its operations, and learn from experience in order to promote population health and community well-being. The presence of adequate and resilient environmental infrastructure and health services that allow for ample surge capacity becomes even more crucial during health emergencies. This strategic line of action will systematically analyze the environmental impact of a health system and environmental conditions of health care facilities, support a path to increase the resilience of the health system's infrastructure and operations, and encourage interventions to establish adequate environmental infrastructure and services in health care facilities and health systems more broadly. These interventions include managing WASH services safely,⁹ using water- and

⁸ Environmental footprint is the effect that anthropogenic sources have on the environment. For example, the amount of natural resources that they use and the amount of harmful waste that they produce.

⁹ Improving WASH in health care facilities should relate to infection prevention and control (IPC) efforts. Nowhere is reducing infection more important than in health care facilities. Joint, immediate action to address IPC and WASH is essential.

power-saving clean technologies, implementing sustainable waste management practices, improving the climate-resilient infrastructure and critical services, and informing, educating, and empowering both people and health-relevant sectors about health, environment, and climate change issues to advance community resilience.

OBJECTIVE 2.1: Reduce the environmental footprint of a health system to further the creation of an environmentally sustainable and healthy environment, placing specific emphasis on air quality, chemical safety, climate change-related impacts, WASH, and their related behaviors

INDICATOR 2.1.1 Number of countries and territories that have estimated the environmental footprint of health care facilities

INDICATOR 2.1.2 Number of countries and territories implementing a national strategy to reduce the environmental footprint of health care facilities

INDICATOR 2.1.3 Number of countries and territories that include sustainable procurement practices in their health systems

OBJECTIVE 2.2: Provide adequate environmental infrastructure and services in health care facilities* that aim to increase the resilience of a health system, placing specific emphasis on air quality, chemical safety, climate change-related impacts, WASH, and their related behaviors and using a health equity lens

INDICATOR 2.2.1 Number of countries and territories implementing a national strategy to provide adequate environmental infrastructure and services in health care facilities, prioritizing facilities accessed primarily by those living in conditions of vulnerability

INDICATOR 2.2.2 Number of countries and territories with early warning systems developed for climate sensitive health hazards to provide increased health sector resilience

*Interventions to establish adequate environmental infrastructure and services in health care facilities include managing WASH services safely, using water and power saving clean technologies, implementing sustainable waste management practices, making climate-resilient infrastructure, and informing, educating, and empowering people about health, environment, and climate change issues to advance community resilience.

STRATEGIC LINE OF ACTION 3: Promote environmentally healthy and resilient cities and communities

EDHs in cities and communities of the Region should be addressed to avoid future losses, bring economic benefits, and provide social and environmental benefits (52). This becomes even more urgent during health emergencies. Emphasis should be placed on air quality, chemical safety, climate change-related impacts, WASH, and their related behaviors, using a health equity lens, through inter-programmatic and intersectoral approaches. This strategic line of action will use a traditional and cumulative risk approach¹⁰ (assessment, management, and communication), a health impact assessment approach,¹¹ a vulnerability and adaptation

¹⁰ Risk assessment is a process intended to calculate or estimate the risk to a given target organism, system, or (sub)population following exposure to single or multiple agents or factors, taking into account the inherent characteristics of the agent(s) of concern as well as the characteristics of the specific target system. Risk management is the process of weighing policy alternatives to accept, minimize, or reduce assessed risks, and to select and implement appropriate options best suited to protect human health. Risk communication is a process intended to convey potential risks to stakeholders.

¹¹ Health impact assessment is a means by which the potential health effects of a policy, program, or project may be identified and assessed, through qualitative and quantitative methods and tools, with the aim of maximizing positive health outcomes and minimizing harms.

assessment approach,¹² and a human security approach¹³ to make it relevant to decision-making and to the concerns of affected communities. This strategic line of action will: identify opportunities to mainstream interventions to address and adapt to EDHs in processes and programs within and outside the health sector that are not focused solely on health; engage partners and stakeholders to develop a shared vision; encourage intersectoral and multisectoral collaborations and actions in other sectors that provide health co-benefits; help build and negotiate consensus, identify priorities, and build support; and support actions to address and adapt to EDHs toward common goals integrated throughout each partner's work.

OBJECTIVE 3.1: Integrate environmental public health in health protection and improvement programs¹ within the health sector, using a health equity lens

INDICATOR 3.1.1 Number of countries and territories that have included the environmental public health dimension within specific national health protection and improvement strategies within the health sector implemented in cities and communities, prioritizing those living in conditions of vulnerability

OBJECTIVE 3.2: Integrate environmental public health in development programs² using the Health in All Policies framework, with a health equity lens

INDICATOR 3.2.1 Number of countries and territories that have included the environmental public health dimension within specific national development strategies implemented in cities and communities, using the Health in All Policies framework and prioritizing those living in conditions of vulnerability

OBJECTIVE 3.3: Strengthen environmental public health capacity for emergency and disaster response and early recovery

INDICATOR 3.3.1 Number of countries and territories that have tested environmental public health plans and procedures for emergency and disaster response and early recovery, in coordination with the national incident or emergency response teams.

¹ Health protection and improvement programs or strategies refer to processes beyond the specific environmental public health process within the health sector. They include disease prevention and control, and health promotion programs or strategies, among others.

² Development programs or strategies refer to processes outside the health sector. They include clean water and sanitation, affordable and clean energy, sustainable cities and communities, responsible consumption and production, and climate action programs or strategies, among others.

This Agenda is a call to action to the health community to lead the charge to address EDHs in the Region. PAHO will work with Member States to achieve the goal and objective of this Agenda through the three strategic lines of action to ensure healthy lives and promote well-being for all at all ages. This will involve the engagement of not only the health sector but also other players working to address and adapt to EDHs.

¹² A vulnerability and adaptation assessment approach entails addressing climate change-related health impacts through data analysis and stakeholder engagement in order to inform the development of adaptation measures to protect health.

¹³ The United Nations General Assembly adopted Resolution 66/290 in 2012, which defines human security: acknowledging that everyone has the right to live free from fear, free from want, and in dignity; encompassing the principles of the centrality of individuals and communities, comprehensive and context-specific analysis of threats and implementation of responses, prevention, and synergy between protection and empowerment; recognizing the intricate ways in which peace, development and human rights are interrelated; and respecting national ownership and the responsibility of the domestic governments concerned.

While PAHO's core functions¹⁴ continue to provide the foundations of its work, for the implementation of this Agenda, PAHO will use the power of partnerships and knowledge through convening, coordinating, and guiding processes that have direct impact in the countries of the Region. WHO Collaborating Centers and other PAHO national reference institutions and experts will provide technical support to Member States to drive the Agenda and will carry out activities in support of its implementation. Moreover, technical

Just as we bring climate change to the heart of the health sector, we must work to bring health to the heart of climate change discussions.

Dr. Carissa Etienne, PAHO Director

collaboration among countries will be promoted.

Strengthening long-standing alliances between PAHO and key United Nations partners, and new alliances with other global and regional multilateral and bilateral institutions will provide additional support and momentum for implementing the Agenda.

¹⁴ PAHO's core functions include: providing leadership on matters critical to health and engaging in partnerships where joint action is needed; shaping the research agenda and stimulating the generation, translation, and dissemination of valuable knowledge; setting norms and standards, and promoting and monitoring their implementation; articulating ethical and evidence-based policy options; providing technical support, catalyzing change, and building sustainable institutional capacity; and monitoring the health situation and assessing health trends.



6. MONITORING AND EVALUATION

The accomplishments and progress toward achieving the goal and objective of this Agenda will be measured through the above indicators, and Impact Indicators 26 and 27, Outcome Indicators 18c, 18d, 18e, 18f, 18g, and 18h of Outcome 18 of the PAHO Strategic Plan 2020–2025. These indicators are linked to Targets 11.2 and 11.3 of the SHAA2030. Most of these indicators will contribute to fulfilling the commitments of the Region to report on the health-related indicators in the SDGs.

Annex 3 explains how each indicator is to be measured. Data will be collected from national information systems, global and regional reports, standardized global and regional estimates, and policy and program surveys, among other sources.

Monitoring and evaluation of this Agenda will be aligned with the Organization's results-based management framework and its performance monitoring assessment processes.

The Paris Agreement could become the strongest international health agreement of the century.

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ANNEX 1.

KEY INTERNATIONAL CONFERENCES ON HEALTH, THE ENVIRONMENT, CLIMATE CHANGE, AND SUSTAINABLE DEVELOPMENT

1972	United Nations Conference on the Human Environment Stockholm, Sweden
1978	International Conference on Primary Health Care Alma-Ata, Union of Soviet Socialist Republics The Declaration of Alma-Ata of 1978
1986	First International Conference on Health Promotion Ottawa, Canada The Ottawa Charter for Health Promotion
1987	World Commission on Environment and Development
1988	Second International Conference on Health Promotion Adelaide, Australia
1991	Third International Conference on Health Promotion Sundsvall, Sweden
1992	United Nations Conference on Environment and Development Rio de Janeiro, Brazil Agenda 21
1993	World Conference on Human Rights Vienna, Austria
1994	International Conference on Population and Development Cairo, Egypt
	World Summit for Social Development Copenhagen, Denmark
1995	Fourth World Conference on Women Beijing, China
	First Conference of the Parties to the United Nations Framework Convention on Climate Change Berlin, Germany
1996	Second United Nations Conference on Human Settlements Istanbul, Turkey
	World Food Summit Rome, Italy

	Kyoto Summit on Climate Change Kyoto, Japan
1997	Fourth International Conference on Health Promotion Jakarta, Indonesia
	The Millennium Summit New York City, United States of America Millennium Declaration, Millennium Development Goals
2000	Fifth Global Conference on Health Promotion Mexico City, Mexico
	World Summit on Sustainable Development Johannesburg, South Africa
2002	World Food Summit: five years later Rome, Italy
	57th World Health Assembly Geneva, Switzerland
2004	Mar del Plata Declaration of Ministers of Health and Environment of the Americas Mar del Plata, Argentina
2005	6th Global Conference on Health Promotion Bangkok, Thailand
	First Session of the International Conference on Chemicals Management Dubai, United Arab Emirates
2006	United Nations Conference on Climate Change Bali, Indonesia
	Second Session of the International Conference on Chemicals Management Geneva, Switzerland
2009	United Nations Climate Change Conference Copenhagen, Denmark
	7th Global Conference on Health Promotion Nairobi, Kenya
2011	World Conference on the Social Determinants of Health Rio de Janeiro, Brazil The Commission on the Social Determinants of Health

	<p>United Nations Conference on Sustainable Development Rio de Janeiro, Brazil The Future We Want for All</p>
2012	<p>Third Session of the International Conference on Chemicals Management Nairobi, Kenya</p> <p>Doha Climate Change Conference Doha, Qatar</p>
2013	<p>The 8th Global Conference on Health Promotion Helsinki, Finland</p>
	<p>Conference of Parties of the United Nations Framework Convention on Climate Change, known as the Paris Agreement Paris, France</p>
2015	<p>Fourth Session of the International Conference on Chemicals Management Geneva, Switzerland</p> <p>United Nations Sustainable Development Summit 2015 New York, United States of America</p>
	<p>United Nations Third High Level Meeting on Noncommunicable Diseases New York, United States of America Political declaration of the third high-level meeting of the General Assembly on the prevention and control of noncommunicable diseases</p>
2018	<p>Global Conference on Primary Health Care Astana, Kazakhstan The Declaration of Astana</p>

ANNEX 2.

EVOLUTION OF THE PAHO AND WHO COOPERATION IN ENVIRONMENTAL DETERMINANTS OF HEALTH

During the First International General Sanitary Convention in 1902, convened in Washington, D.C., the United States of America (1), the countries of the Americas created what is today known as the Pan American Health Organization (PAHO). This newly formed entity carried out the first pan-American initiatives to improve the prevailing insanitary conditions to combat epidemics such as yellow fever, plague, and cholera that too often devastated numerous populations in the Region (2).

During the first four decades of the twentieth century, issues related to the expansion of sanitation were central to the deliberations of PAHO's governing bodies. At that time, among the first and few PAHO officials in the field were four sanitary engineers who traveled throughout the Americas, advising governments on how to improve their water supply and sanitation services and fight against mosquitoes. With their assistance, the foundations for the first national teams of sanitary engineers within the incipient national health authorities were established (3).

In 1949, PAHO signed an agreement with the newly created World Health Organization (WHO), establishing PAHO as WHO's regional office for the Americas while continuing its functions as the specialized agency for health of the Inter-American System (2). With this agreement, PAHO's function to promote environmental hygiene was formalized by its inclusion in the Constitution of the World Health Organization (4).

In the 1950s, drinking water coverage reached 60% of the urban population and 8% of the rural population, while sanitation services reached only 28% in urban areas and were almost nonexistent in rural areas in Latin America and the Caribbean (LAC). With financial support from the Rockefeller Foundation, PAHO provided technical cooperation to expand basic drinking water and sanitation services, including training programs for hundreds of sanitary engineers (3). In August 1961, the countries of the Americas signed the Charter of Punta del Este, establishing the Alliance for Progress, which, among other agreements, prioritized improving the supply of drinking water and sanitation services in LAC to at least 70% of the urban population and 50% of the rural population by 1971 (5). To achieve this goal, PAHO supported establishment of a Special Fund for Public Water Supply and cooperated with governments in the creation of national water and sanitation entities, which in later stages were recipients of international financing from the Inter-American Development Bank and the World Bank (6). In this context, the Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS)¹ was founded in 1968 with headquarters in Lima, Peru. Its mission was to provide technical support to LAC countries in the expansion of their water and sanitation programs (7).

By 1971, advances in drinking water coverage were considerable, reaching 78% of the population in urban areas, whereas sanitation services reached

¹ In 2010, CEPIS ceased operations as a Pan American center. It became the Regional Technical Team for Water and Sanitation (ETRAS), as part of the Department of Communicable Diseases and Environmental Determinants of Health, based in Lima, Peru.

only 38%. In rural areas, however, advances were less significant. Responding to the disparity, this work remained a high priority for PAHO, which concentrated its efforts on the expansion of access and coverage, and improvement of quality of water for human consumption. This effort was accompanied by the urgent need to address the overexploitation of aquifers and to maintain existing water and sanitation systems, as a means of protecting health and investments and giving greater attention to administrative, technical, and operational aspects of water and sanitation suppliers (3).

At the global level, the 1970s were especially relevant for the environmental public health agenda, beginning with the United Nations Conference on the Human Environment held in Stockholm, Sweden, in 1972 (8) and followed by the International Conference on Primary Health Care in Alma-Ata, the Union of Soviet Socialist Republics, in 1978 (9). These two conferences were significant milestones that pointed toward new directions for environment and health for the participating countries and the international cooperation system, including WHO and PAHO.

The United Nations Environment Programme was created following the Stockholm Conference, and numerous environmental movements have since emerged and strengthened at national and international levels, stimulating ambitious academic research and technological development programs that have come to revolutionize information and knowledge on people's interactions with natural and built environments. To accommodate emerging challenges related to environmental contamination and its impacts on health, several countries of the

Americas created national environmental protection authorities and expanded the responsibilities of their national health authorities beyond water and sanitation services. In addition, the Conference in Alma-Ata was key in pointing out that water supply and sanitation were central elements of the primary health care approach to health for all (10).

As part of this new global context, the governing bodies of PAHO created in 1974 the Pan American Center for Human Ecology and Health (ECO)² based in Mexico. The Center began its functions in 1980 (11, 12).

In 1980, the United Nations General Assembly launched the International Drinking Water Supply and Sanitation Decade (1981–1990) as an ambitious global initiative to improve access to water and sanitation services (13). In the case of LAC countries, the results achieved by this initiative were modest and controversial given the economic, social, and political context of the region at the time. Coverage of water services in urban and rural areas reached 88% and 55%, respectively, while coverage of sanitation services reached 80% and 32%, respectively (14). In addition, the 1991 outbreak of cholera in Peru affected several LAC countries and demonstrated the urgent need to focus not only on coverage of services but also on the quality of water for human consumption (13).

During the 1980s, two international events took place on issues related to health and sustainable development that influenced national policy agendas as well as those of international technical cooperation agencies including WHO and PAHO: the First International Conference on Health Promotion held in Ottawa, Canada, in 1986 (15) and the launch

² On 31 December 1997, following a resolution of the PAHO governing bodies, ECO ceased operations as a Pan-American Center. Its international component was consolidated in CEPIS, while the national component became part of the National Institute of Public Health as a WHO Collaborating Center in the field of Research and Training in Environmental Epidemiology.

of the 1987 report “Our Common Future” prepared by the World Commission on Environment and Development, known as The Brundtland Report (16).

In addition, in 1989, organizers began to prepare for the United Nations Conference on Environment and Development that would be held in Rio de Janeiro, Brazil, in June 1992, known as the Earth Summit (17). Also in 1992, the United Nations Framework Convention on Climate Change (18), the United Nations Convention to Combat Desertification (19), and the Convention on Biological Diversity (20) were adopted.

While the agenda of the 1972 Stockholm Conference was predominantly dominated by technical issues related to air, water, and soil pollution, among others, the Earth Summit acquired more strategic dimensions and addressed larger global context issues and moved toward sustainable development. This was embodied in the Rio Declaration, which states in the first of its 27 principles: “Human beings are at the centre of concerns related to sustainable development. They are entitled to a healthy and productive life in harmony with nature.” Other products derived from the Summit were the launch of Agenda 21 as a non-binding document that included 40 chapters and 115 programs stating goals to be achieved (21).

Derived from the expectations created by the 1992 Earth Summit in Rio, a series of meetings of national authorities of health and environment (ECOSAL) were convened in the Region of the Americas with the support of the incipient Central American Integration System (SICA) through its Central American Commission for Environment and Development (CCAD) and under the auspices of PAHO (22). The first meeting was held in El Salvador in September 1992, as part of the annual meetings of national health authorities of Central America and Panama (RESSCA). Extension of coverage of water and sanitation services, chemical

safety, workers’ health, and the interdependence between sustainable development and health were prioritized. Its main conclusions were reflected in the Declaration on Environment and Health of Central America. The 1993 ECOSAL II meeting in Tegucigalpa, Honduras (23) and 1994 ECOSAL III in Managua, Nicaragua (24), laid the foundations for the Central American Action Plan in Environment and Health (PACES) in 2000.

The ECOSAL meetings of national authorities created a conducive environment for adoption of the Pan American Charter on Health and Environment in Sustainable Human Development in 1995 at a meeting of Ministers of Health and Environment of the Region of the Americas under the auspices of PAHO in Washington, D.C., the United States of America (25). In 2002, under the auspices of the Canadian Government, the First Meeting of Health and Environment Ministers of the Americas (HEMA) was held in Ottawa, Canada (26). The meeting identified the following priorities for the Region: diarrheal diseases and water, sanitation and hygiene, respiratory ailments and indoor and outdoor air pollution, chronic and acute effects of exposure to chemical substances, and climate change impacts. HEMA focused on: building bridges between the sectors; strengthening the capacity of the countries of the hemisphere; establishing follow-up mechanisms to respond to environmental public health problems in the Americas; and contributing as appropriate to the 2002 Earth Summit in Johannesburg, South Africa (27).

In 2005, the Second Meeting of Ministers of Health and Environment of the Americas was held in Mar del Plata, Argentina (28). On this occasion, national authorities decided that regional cooperation should focus on: management of water resources and solid waste; safe handling of chemical substances, in particular regarding the obligations that countries have contracted in the Stockholm, Rotterdam,

and Basel Conventions (29–31); and children’s environmental health. Since that date, another meeting of ministers of health and environment has not been reconvened. However, PAHO has convened national authorities of health and environment (not ministers), for several ad hoc meetings on specific technical issues such as an event in Manaus, Brazil, on health and biodiversity in 2012 (32), and in Mexico on climate change and health in 2013 (33).

A key initiative toward sustainable development was the United Nations Millennium Declaration in 2000 (34), and the adoption of the Millennium Development Goals (MDGs), with measurable targets to be achieved by 2015. The most significant aspect of the MDGs was that they were all health-related, capturing both diseases and determinants of health. In its final review of the MDGs in the Americas, PAHO concluded that while most of the targets were met, there remained gaps and challenges (35), manifestations of the continued inequalities in the Region.

As the MDGs came to the end of their term, in 2015 all United Nations Member States adopted the Sustainable Development Goals (SDGs), as part of the 2030 Agenda for Sustainable Development (36). The 17 global goals had been discussed during the 2012 United Nations Conference on Sustainable Development or Rio+20. The conference outcome report, known as “The Future We Want,” placed health at the center of the three dimensions of sustainable development: environmental, economic, and social (37). Unlike the MDGs, only one of the 17 SDGs specifically addresses health (SDG 3) and several others address determinants of health. The global call for Universal Health Coverage is essential for the implementation of SDG 3. In the Americas, at the request of its Member States, PAHO developed a strategic approach to achieve the SDGs, to seek collaboration among programs and partners, avoiding duplication and focusing on country needs,

and placing health at the center as an indispensable contributor to a sustainable and equitable world (38).

Main contributions of PAHO and WHO cooperation in environmental determinants of health

Since their creation, PAHO and WHO have catalyzed technical cooperation that has contributed to major regional environmental public health improvements primarily toward: the availability and management of water and sanitation services; reduction in the number of deaths and illnesses associated with hazardous chemicals, air, water, and soil contamination; and action to combat the impact of climate change.

Increasing the availability and sustainable management of water and sanitation services

Availability of water and sanitation services continues to be one of the major contributors in the control of infectious diseases, and an area in which PAHO and WHO have a rich history of technical cooperation on improving access. By the end of 2015, drinking water coverage and sanitation services in LAC countries had reached 97% and 88% of the urban population and 84% and 64% of the rural population, respectively. In 1990, 380 million people had access to water and 300 million to sanitation. As of 2015, 600 million people had access to water and 520 million to sanitation. Over the same period, the risk of death attributable to water, sanitation, and hygiene deficiencies in children under 5 was reduced from 219 to 23 deaths per 100,000 population, which represents 1.8 million deaths avoided (39, 40).

PAHO and WHO have made significant contributions toward the increased availability and sustain-

able management of water and sanitation services in the Americas through the following actions:

- Development and updates of guidelines, technical criteria documents, and assessment tools for sustainable management of water and sanitation services (41, 42);
- Implementation of comprehensive national water and sanitation sector assessments in the 1990s and 2000s for the formulation of investment plans to improve services through Project PIAS (43–45) and the UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) (46), and to improve the management of urban solid waste in LAC countries (47);
- Information and analysis of progress on drinking water, sanitation, and hygiene through the Health Conditions in the Americas in the 1960s (48) and the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) since 1990 (49);
- Supporting countries in improving their water and sanitation services such as support to: create national water and sanitation entities in the 1960s (6); develop technical resources of water and sanitation entities (project DTIAPA) in the 1970s and 1980s (50); create multisectoral alliances, promote community participation, strengthen operations and maintenance systems, develop low-cost technologies, and implement preventive and treatment methods in the 1980s (51–53); respond to the 1991 cholera epidemic in the 1990s (54); achieve the MDGs from 2000 through 2015 (35) and the Sustainable Development Goals since 2016 (38); ensure safe drinking water and sanitation services in communities and health care facilities during emergencies and disasters;
- Creation and support of the Inter-American Association of Sanitary and Environmental Engineering (AIDIS) since 1948 (55);

- Creation and support of regional networks from the early 1980s through the late 2000s such as the Pan American Network for Information and Documentation of Sanitary Engineering and Environmental Sciences (REPIDISCA) (56) and the Pan American Network of Environmental Waste Management (REPAMAR) (57);
- Strengthening of human capacity including scholarships to Latin American professionals to study sanitary engineering in United States universities and supporting the creation of sanitary engineering specializations in their countries from the 1930s through the 1960s (3); holding regional biennial technical symposiums at the AIDIS Inter-American conferences since 1960 (55); and offering multiple trainings through face-to-face workshops and Internet-based courses to thousands of professionals and students from throughout the region (41).

Reducing the number of deaths and illnesses associated to hazardous chemicals, air, water, and soil contamination

Rapid economic development in the Americas after the Second World War increased the concerns of health risks associated with environmental factors such as hazardous chemicals, air, water, and soil contamination. Since the United Nations Conference on the Human Environment held in Stockholm, Sweden, in 1972, PAHO and WHO have developed a strong track record of technical cooperation on reducing the health risks attributed to environmental factors in LAC countries.

The most significant contributions of PAHO and WHO toward the reduction of the number of deaths and illnesses associated with hazardous chemicals, air, water, and soil contamination in the Americas include:

- Development and updates of guidelines, technical criteria documents, and assessment tools on environmental public health risk management for national and local policies (58, 59);
- Permanent strengthening of environmental public health capacity to collect, integrate, analyze, and interpret data about environmental hazards within the WHO Global Health Observatory (60);
- Creation and implementation of a Sustainable Development and Environmental Health Virtual Library (BVS-SDE) with access to more than 60,000 full-text documents on different areas of environmental public health (61);³
- Strengthening the analytical competence of environmental laboratories in LAC countries through the International Organization for Standardization (ISO) accredited CEPIS environmental laboratory, until 2010 (62);
- Supporting countries in reducing health risks attributed to environmental factors such as support to: formulate and implement national plans and promote the exchange of information and experiences to eliminate the use of lead in gasoline in the 1990s (63), reduce exposure to pesticides in the Central American Isthmus (PLAGSALUD) between 1994 and 2003 (62, 63), and demonstrate sustainable alternatives to DDT for malaria vector control in Mexico and Central America (Project DDT/UNEP/GEF/PAHO) between 2003 and 2008 (64);
- Creation and support of regional networks since the 1970s such as the Network of Laboratories for Environment and Health in Latin America and the Caribbean (PRELAB/RELAC) (65); the Pan American Air Pollution Sampling Network (REDPANAIRE) (66); the Toxicology

Network of Latin America and the Caribbean (RETOXLAC) (67); the Chemical Emergency Network for Latin America and the Caribbean (REQUILAC) (68); and the International Ecoclubs Network of environmental youth leaders (69);

- Strengthening of human capacity through supporting the creation of graduate-level programs in environmental public health; participating, coordinating, and/or organizing workshops and Internet-based courses on air quality, water quality, environmental toxicology, environmental epidemiology, and environmental health risk assessment to thousands of professionals and students from throughout the Region (59).

Promoting urgent action to combat the impacts of climate change on health

PAHO and WHO have worked on health protection from the impacts of climate change since the signing of the UNFCCC in 1992. The most significant contributions of PAHO and WHO toward the promotion of urgent action to combat the impacts of climate change to health in the Americas include:

- Supporting countries to strengthen national capacities and improve resilience and adaptive capacity of health systems; health and climate change vulnerability and adaptation assessments, country profiles, and subregional action plans such as the 2019 Caribbean Action Plan on Health and Climate Change (70);
- Strengthening human capacity through workshops and Internet-based courses on climate change and health to thousands of

³ Contents of the library, which closed with CEPIS in 2010, are being transferred to PAHO.

professionals and students from throughout the Region;

- Promotion, articulation, and establishment of cross-disciplinary, interagency, and intersectoral partnerships to ensure that health is properly represented in the climate change agenda and that health interventions are funded, including special events on health and climate change at the margins of the Conference of Parties of the United Nations Climate Change Conferences, the WHO/World Meteorological Organization partnership on health, environment and climate change, and the WHO/UNFCCC special initiative on climate change and health in Small Island Developing States (SIDS) that led to the WHO

global action plan on climate change and health in SIDS (71, 72);

- Strengthening of national and regional surveillance through the development and implementation of tools to guide health professionals in identifying and preparing for upcoming favorable or inclement climate conditions such as the Caribbean Public Health Agency, PAHO, and Caribbean Institute for Meteorology and Hydrology's *Caribbean Health-Climatic Bulletin* (73);

- Collaboration with the United Nations Convention to Combat Desertification to better understand the links between biodiversity loss and change, and human health (33).

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ANNEX 3.

COMPENDIUM OF INDICATORS

This compendium includes the technical specifications for the indicators of the PAHO Agenda for the Americas on Health, Environment, and Climate Change 2021–2030. The compendium provides definitions and measurement criteria for all indicators, to facilitate a systematic approach to monitoring, assessment, and reporting on implementation of the Agenda. These indicators are linked to Targets 11.2 and 11.3 of the Sustainable Health Agenda for the Americas 2018–2030 and Impact Indicators 26 and 27, and Outcome Indicators 18c, 18d, 18e, 18f, 18g, and 18h of Outcome 18 of the PAHO Strategic Plan 2020–2025.

Impact Indicators 26 and 27 of the PAHO Strategic Plan 2020–2025

CODE AND TITLE OF THE INDICATOR	IMPACT INDICATOR 26: Mortality rate attributed to household and ambient air pollution
Definition of the indicator	This indicator will measure the mortality rate attributed to household and ambient air pollution per 100,000 population. Baseline 2019: 13.05 deaths per 100,000 population Target 2025: 12.40 deaths per 100,000 population.* *The target is for a 5% reduction by 2025.
Purpose of the indicator	This indicator measures progress toward the reduction of avoidable deaths attributed to air pollution in the Americas. It is a composite indicator, as it measures deaths caused by the use of polluting fuels in the household for cooking, heating, and lighting, as well as deaths caused by ambient air pollution. Polluting fuels include wood, coal, animal dung, charcoal, crop wastes, and kerosene. Ambient air pollution is the result of emissions from industrial activity, households, and motor vehicles; these emissions contain complex mixtures of air pollutants, many of which are harmful to health. Of all these pollutants, fine particulate matter has the greatest effect on human health.

<p>Technical note</p>	<p>Mortality attributable to the joint effects of household and ambient air pollution can be expressed as either the number of deaths or the death rate. Death rates are calculated by dividing the number of deaths by the total population (or a specific population group if relevant, e.g., children under 5 years).</p> <p>Evidence from epidemiological studies has shown that exposure to air pollution is linked to the following important diseases, among others:</p> <ul style="list-style-type: none"> • Acute respiratory infections in young children (estimated under 5 years of age) • Cerebrovascular diseases (stroke) in adults (estimated above 25 years) • Ischemic heart diseases (IHD) in adults (estimated above 25 years) • Chronic obstructive pulmonary disease (COPD) in adults (estimated above 25 years) • Lung cancer in adults (estimated above 25 years) <p>The indicator follows the methodology used by WHO to estimate the burden of disease attributable to air pollution. This methodology is well established and is used to monitor SDG Indicator 3.9.1 (a Tier 1 indicator).</p> <p>The first step in calculating attributable mortality is to combine a) information on the increased (or relative) risk of a disease resulting from exposure with b) information on how widespread the exposure is in the population (e.g., the annual mean concentration of particulate matter to which the population is exposed and proportion of population relying primarily on polluting fuels for cooking).</p> <p>The next step is to calculate the “population attributable fraction” (PAF), which is the fraction of disease seen in a given population that can be attributed to the exposure (in this case, both the annual mean concentration of particulate matter and exposure to polluting fuels for cooking).</p> <p>Applying this fraction to the total burden of disease (e.g., cardiopulmonary disease expressed as deaths) gives the total number of deaths that result from exposure to that particular risk factor (in this case, to ambient and household air pollution).</p> <p>To estimate the combined effects of risk factors, a joint population attributable fraction is calculated, as described in Ezzati et al. (2003).</p> <p>The mortality associated with household and ambient air pollution was estimated based on calculation of the joint population attributable fractions, assuming independently distributed exposures and independent hazards, as described by Ezzati et al. (2003).</p> <p>The joint population attributable fraction was calculated using the following formula:</p> $PAF=1-PRODUCT (1-PAFi)$ <p>where PAF_i is the PAF of individual risk factors</p> <p>The PAF for ambient air pollution and the PAF for household air pollution were assessed separately, based on comparative risk assessment (Ezzati et al. 2002) and expert groups for the Global Burden of Disease Study 2010 (Lim et al. 2012; Smith et al. 2014).</p> <ul style="list-style-type: none"> • For exposure to ambient air pollution, annual mean estimates of particulate matter less than 2.5 µm in diameter (PM_{2.5}) were modeled as described by WHO (2016), or in the methodology for SDG Indicator 11.6.2. • For exposure to household air pollution, the proportion of population with primary reliance on polluting fuels for cooking was modeled (see SDG Indicator 7.1.2). Details on the model are published by Bonjour et al. (2013).
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	<p>The integrated exposure-response functions (IER) developed for the GBD 2010 (Burnett et al. 2014) and further updated for the GBD 2013 study (Forouzanfar et al. 2015) were used. The percentage of the population exposed to a specific risk factor (here, ambient air pollution, i.e., PM2.5) was provided by country and by increment of 1 µg/m³; relative risks were calculated for each PM2.5 increment, based on the IER. The counterfactual concentration was selected to be between 5.6 and 8.8 µg/m³, as described elsewhere (Ezzati et al. 2002; Lim et al. 2012). The country population attributable fractions for acute lower respiratory infections, COPD, IHD, stroke, and lung cancer were calculated using the following formula:</p> $PAF = \frac{\sum P_i(RR_i - 1)}{\sum P_i(RR_i - 1) + 1}$ <p>where <i>i</i> is the level of PM2.5 in µg/m³, and <i>P_i</i> is the percentage of the population exposed to that level of air pollution, and <i>RR</i> is the relative risk.</p> <p>The calculations for household air pollution are similar and are explained in detail elsewhere (see WHO 2014, "Methods Description").</p> <p>Disaggregation: The data are available by country, sex, disease, and age.</p> <p>Treatment of missing values:</p> <ul style="list-style-type: none"> • At country level: Countries with no data are reported as blank. • At regional and global levels: Countries with no data are not reported in the regional and global averages.
Type of indicator	Relative
Measurement units	Deaths per 100,000 population
Frequency of measurement	Measurement is annually or every 5 years (following WHO definition of frequency).
PASB unit(s) responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	<p>Exposure: SDG Indicator 7.1.2 was used as exposure indicator for household air pollution. Annual mean concentration of particulate matter of less than 2.5 µm was used as exposure indicator for ambient air pollution. The data are modeled according to methods described for SDG Indicator 11.6.2.</p> <p>Exposure-risk function: The integrated exposure-response functions (IER) developed for GBD 2010 (Burnett et al. 2014) and further updated for the GBD 2013 study (Forouzanfar et al. 2015) were used.</p> <p>Health data on the total number of deaths by disease, country, sex, and age group have been developed by the World Health Organization (WHO 2014, "Global Health Estimates").</p>

<p>Limitations</p>	<p>An approximation of the combined effects of risk factors is possible if independence and little correlation between risk factors with impacts on the same diseases can be assumed (Ezzati et al. 2003). In the case of air pollution, however, there are some constraints on estimating the joint effects. These include limited knowledge on the distribution of population exposed to both household and ambient air pollution, on correlation of exposures at individual level (as household air pollution is a contributor to ambient air pollution), and on nonlinear interactions (Lim et al. 2012; Smith et al. 2014). In several regions, however, household air pollution remains mainly a rural issue, while ambient air pollution is predominantly an urban problem. Also, in some regions of the world, many countries are relatively unaffected by household air pollution, while ambient air pollution is a major concern. If independence and little correlation are assumed, it becomes possible to calculate a rough estimate of the total impact that is less than the sum of the separate impacts of the two risk factors.</p> <p>There are other limitations as well:</p> <ul style="list-style-type: none"> • The indicator does not include all diseases that have been linked to air pollution. This may have an impact on burden of disease estimations. Not all mortality attributed to air pollution has been taken into consideration. • Mortality data may be unreliable because of incomplete or unusable death registration data. • Availability of measurements on exposure may be limited (e.g., because of low coverage of air quality monitoring stations). • Exposure and mortality data may be outdated if the country does not report periodically. • Exposure modeled using remote sensing data from satellites may be less reliable in small areas or for small populations. • Measurement errors may affect exposure estimates. • The indicator only includes the causes of death that have enough clinical and epidemiological evidence of a causal relationship with air pollution (given in statistical measures of association). • There are knowledge gaps in the Region of the Americas (e.g., differences of exposure and effect in high altitudes; unmeasured exposure sites at ground level, etc.).
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Linkage	<ul style="list-style-type: none"> • SDG Indicator 3.9.1 • SHAA2030 Target 11.2 • GPW13 Impact Framework

CODE AND TITLE OF THE INDICATOR	IMPACT INDICATOR 27: Mortality rate attributed to unsafe water, unsafe sanitation, and lack of hygiene
Definition of the indicator	<p>This indicator measures the number of deaths attributed to unsafe water, unsafe sanitation, and lack of hygiene in a year per 100,000 population. Diseases attributable to unsafe water, sanitation, and hygiene (WASH) include the attributable fractions of diarrhea, intestinal nematode infections, and protein-energy malnutrition.</p> <p>Baseline 2016: 1.65 deaths per 100,000 population* Target 2025: 1.32 deaths per 100,000 population</p> <p>* The baseline is calculated using data from 29 countries in the Region.</p>
Purpose of the indicator	<p>The indicator expresses the number of deaths from inadequate water, sanitation, and hygiene (with a focus on WASH services) that could be prevented by improving those services and practices. It is based both on WASH service provision in the country and on the related health outcomes. It therefore provides important information on the actual disease caused by the risk measured in SDG Targets 6.1, 6.2, and 6.3. Measuring the number of deaths that can be attributed to unsafe WASH supports preventive actions through improving WASH services and practices.</p>

Technical note	<p>Attributable diarrhea deaths are calculated by first combining a) information on the increased (or relative) risk of a disease resulting from exposure and b) information on how widespread the exposure is in the population (in this case, the percentage of the population with exposure to unsafe and inadequate water, sanitation, and hygiene). This allows calculation of the population attributable fraction (PAF), which is the fraction of disease observed in a given population that can be attributed to the exposure, in this case lack of access to improved water, sanitation, and hygiene. Applying this fraction to the total deaths from diarrhea results in the number of diarrhea deaths that result from inadequate WASH. Deaths from protein-energy malnutrition attributable to inadequate WASH are estimated by evaluating the impacts of repeated infectious diarrhea episodes on nutritional status (in particular stunting). All deaths from intestinal nematode infections are attributed to inadequate water, sanitation, and hygiene due to their transmission pathway.</p> <p>Numerator: Number of deaths from inadequate WASH in a year. Denominator: Population.</p> <p>The calculation is expressed as the rate per 100,000 population. Methods with agreed international standards have been developed, reviewed, and published in various documents, including:</p> <ul style="list-style-type: none"> • World Health Organization. Preventing diarrhoea through better water, sanitation and hygiene: Exposures and impacts in low- and middle-income countries [Internet]. Geneva: WHO; 2014. Available from: https://apps.who.int/iris/handle/10665/150112 • Prüss-Ustün A, Bartram J, Clasen T, Colford J, Cumming O, Curtis V, et al. Burden of disease from inadequate water, sanitation and hygiene in low- and middle-income settings: a retrospective analysis of data from 145 countries. <i>Trop Med Int Health</i> [Internet] 2014. 19(8):894–905. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4255749/
Type of indicator	Relative
Measurement units	Number of deaths in a year per 100,000 population
Frequency of measurement	Not available.
PASB unit(s) responsible for monitoring the indicator	<ul style="list-style-type: none"> • Evidence and Intelligence for Action in Health/Health Analysis, Metrics and Evidence (EIH/HA) • Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	<p>Data are compiled mainly from country and other databases. To maximize the data for robust estimates, as well as to reduce duplication of data collection and avoid imposing a further data reporting burden on countries, complementary data from various databases are also used.</p> <p>The main data providers are national statistics offices, various ministries, and databases that offer civil registration with complete coverage and medical cause-of-death certification. WHO conducts a formal country consultation process before releasing its estimates on causes of death.</p>
Limitations	Data are available for practically all countries. For some countries, however, national data are incomplete, and statistics are provided by international agencies. In these cases, the data have been interpolated/extrapolated, adjusted, and completed using additional data and cause-of-death models.

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Linkage	<ul style="list-style-type: none"> • SDG Indicator 3.9.2 • SHAA2030 Target 11.3 • GPW13 Impact Framework

Outcome Indicators 18c, 18d, 18e, 18f, 18g, and 18h of Outcome 18 of the PAHO Strategic Plan 2020–2025

CODE AND TITLE OF THE OUTCOME	OUTCOME 18: Increased capacity of health actors to address social and environmental determinants of health with an intersectoral focus, prioritizing groups in conditions of vulnerability
CODE AND TITLE OF THE INDICATOR	OUTCOME INDICATOR 18.C: Proportion of population using safely managed drinking water services
Definition of the indicator	<p>This indicator measures the proportion of population using an improved drinking water source (piped water into dwellings, yards, or plots; public taps or standpipes; boreholes or tube wells; protected dug wells; or protected springs and rainwater) that is located on premises and available when needed, and that is free of fecal and priority chemical contamination.</p> <p>Baseline 2019: 57.5% in eight countries and territories Target 2025: 75%</p>
Purpose of the indicator	<p>This indicator builds on the Millennium Development Goals indicator “proportion of population using an improved drinking water source.” “Improved source” was used as a proxy for safe water, due to lack of data on drinking water quality. The Strategic Plan indicator also incorporates aspects of quality (“safe,” “free of contamination”), accessibility (“located on premises”), and availability (“available when needed”) to further address the normative criteria of the human right to water.</p> <p>With the analysis of all these aspects, policymakers and decisionmakers can decide what to prioritize in their interventions: for example, treatment to improve quality, expansion of distribution networks to improve accessibility, or rehabilitation of the existing distribution network to improve availability and preserve quality. Disaggregating the data by geographical criteria and socioeconomic strata makes it possible to identify which segments of the population are lagging in their access to improved sources.</p>
Technical note	<p>According to the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP), in order to meet the threshold for a “safely managed” service, the improved source must meet three conditions:</p> <p>Accessibility: the source should be located on premises (within a dwelling, yard, or plot);</p> <p>Availability: water should be available when needed;</p> <p>Quality: water supplied should be free from fecal and priority chemical contamination. These criteria are defined as follows in the JMP methodology document.</p> <p><i>Accessibility:</i> Drinking water is located on premises, or collection time from another source does not exceed 30 minutes.</p> <p><i>Availability:</i> Water is “available continuously and in a sufficient quantity to meet the requirements of drinking and personal hygiene, as well as of further personal and domestic uses, such as cooking and food preparation, dish and laundry washing and cleaning. Supply needs to be continuous enough to allow for the collection of sufficient amounts to satisfy all needs, without compromising the quality of water.”</p>

	<p>“Availability of water when needed” is complex and depends on the quantity of water needed, the quantity of water available, the continuity and reliability of supplies, and the capacity for in-home storage. Where available, the JMP uses data from population-based sources and a variety of questions that have been included in national household surveys to date. In cases where household respondents report either having access to sufficient water when needed or having water available at least 50% of the time (i.e., at least 12 hours per day or four days per week), the JMP classifies them as having drinking water services that are available when needed. In the absence of data from population-based sources, data from administrative sources have also been used. Piped water systems that provide water for at least 12 hours per day or four days per week are categorized by the JMP as “available when needed,” although it is recognized that this may fall short of full realization of the human right.</p> <p><i>Quality:</i> For drinking water to be considered safe, it must be free from pathogens and elevated levels of harmful substances at all times. For the purpose of global monitoring, the microbiological standard applied is that no <i>E. coli</i> should be detected in a 100 mL sample. Thermotolerant coliform counts are another commonly used fecal indicator and are considered as an acceptable alternative to <i>E. coli</i>. Data on compliance with residual chlorine standards, while valuable for operational monitoring and surveillance, are not considered by the JMP as demonstrating compliance with microbiological standards. At the global level, the priority chemical contaminants are arsenic and fluoride. The JMP collects data on compliance with relevant national standards, and where possible uses compliance with the WHO guideline values (10 µg/L and 1.5 mg/L, respectively).</p> <p>Numerator: Population using an improved drinking water source (piped water into dwellings, yards, or plots; public taps or standpipes; boreholes or tube wells; protected dug wells; or protected springs and rainwater) that is located on premises and available when needed, and that is free of fecal and priority chemical contamination.</p> <p>Denominator: Total population of the country according to official yearly estimate.</p>
Type of indicator	Relative
Measurement units	Percentage
Frequency of measurement	Annual
PASB unit	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	Data will be obtained from annual JMP reports available from: https://washdata.org/
Limitations	Data on availability and accessibility of drinking water are increasingly available through a combination of household surveys and administrative sources including regulators, but definitions have yet to be standardized. Data on quality (fecal and chemical contamination), drawn from household surveys and regulatory databases, will not cover all countries immediately and need to be built.
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Linkage	<ul style="list-style-type: none"> • SDG Indicator 6.1.1 • SHAA2030 Target 11.3 • SP14-19 Outcome Indicator 3.5.1, adapted • GPW13 Impact Framework
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CODE AND TITLE OF THE OUTCOME	OUTCOME 18: Increased capacity of health actors to address social and environmental determinants of health with an intersectoral focus, prioritizing groups in conditions of vulnerability
CODE AND TITLE OF THE INDICATOR	OUTCOME INDICATOR 18.D: Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water
Definition of the indicator	<p>This indicator measures the proportion of population using an improved sanitation facility at the household level, one that is not shared with other households and where excreta are safely disposed of in situ or transported and treated off-site, and that includes a hand-washing facility with soap and water in the household.</p> <p>Improved sanitation facilities include flush or pour-flush toilets that discharge to sewerage systems, septic tanks, or pit latrines; improved pit latrines (pit latrines with a slab or ventilated pit latrines); and composting toilets. A hand-washing facility is a device to contain, transport, or regulate the flow of water to facilitate hand-washing.</p> <p>Baseline 2019: 38% in 11 countries and territories Target 2025: 50%</p>
Purpose of the indicator	<p>This indicator builds on the Millennium Development Goal indicator “proportion of population using an improved sanitation facility,” and incorporates aspects of accessibility (at the household level), acceptability, and safety (not shared with other households) to further address the normative criteria of the human right to water. To ensure public health beyond the household level, this indicator incorporates the safe management of fecal waste along the entire sanitation chain, from containment to final treatment and disposal, and thus serves as a multipurpose indicator contributing to SDG Indicator 6.3.1 on wastewater treatment.</p> <p>Hand-washing with soap is widely agreed to be the top hygiene priority for improving health outcomes, and the presence of hand-washing facilities with soap and water available is used as a proxy for hand-washing behavior. This indicator is included as a standard element in many household surveys and is recorded by field team observation rather than self-reporting by survey respondents.</p> <p>By incorporating the analysis of all these aspects, SDG Indicator 6.2.1 focuses the attention of policymakers and decisionmakers on areas that require more investment to obtain results in terms of health, gender equality, and the environment. Disaggregating the data by geographical criteria and socioeconomic strata makes it possible to identify which segments of the population are lagging in access to safe sanitation services.</p>

Technical note	<p>The definition of the indicator “safely managed sanitation services” is informed by the excreta flow diagram concept, in which fecal wastes from different types of sanitation facilities are tracked through stages of containment, emptying, transport, treatment, and reuse or final disposal. The WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) methodology document describes these stages as follows:</p> <p><i>Containment:</i> This refers to the extent to which the sanitation facilities that people use ensure that excreta are safely separated from human contact at the household and community levels. In cases where data exist on the proportion of people using improved sanitation systems that do not effectively contain fecal waste (e.g., sewer lines, latrines, or septic tanks that leak feces into the environment), the JMP adjusts estimates of safely managed sanitation accordingly.</p> <p><i>Emptying of on-site storage facilities:</i> The JMP seeks data on the proportion of people using on-site sanitation storage facilities (septic tanks or latrines) that have ever been emptied. These data may come either from population-based data sources such as household surveys or from administrative records. Information on the time since most recent emptying, the way excreta were emptied, or the use of protective equipment to prevent occupational exposure during emptying may be collected from such datasets, but it has not been used in calculating estimates.</p> <p><i>Treatment and disposal of excreta from on-site storage facilities:</i> This refers to the proportion of excreta emptied from on-site storage facilities (septic tanks or latrine pits) that is either buried on premises; transported, usually by cart, truck, or tanker, to treatment plants (regardless of the type of treatment plant); or discharged into sewer networks. Some household surveys and administrative sources collect information on the frequency and method of emptying on-site sanitation systems and whether excreta are delivered to treatment or unsafely discharged. Excreta from on-site sanitation facilities may be transported to wastewater treatment plants or to specially designed fecal sludge treatment plants. Excreta delivered to wastewater treatment plants providing at least secondary treatment are classified as safely managed. Excreta delivered to fecal sludge treatment plants are classified as safely managed if both the liquid and solid fractions are treated.</p> <p><i>Wastewater transported to treatment:</i> This refers to the proportion of excreta flushed into sewer systems that is transported along with wastewater and delivered to treatment plants (regardless of the type of treatment plant). Wastewater may not be transported to treatment due to exfiltration, pump failure, or breaks or blockages in the sewer network system, or it may discharge directly to open drains, water bodies, or open ground. Data on the proportion of wastewater lost in transportation are rare.</p> <p><i>Wastewater treated:</i> This refers to the proportion of wastewater reaching wastewater treatment plants that receives at least secondary (biological) treatment. Wastewater that receives primary treatment is not considered safely managed unless the effluent is discharged in a way that precludes further human contact (e.g., through a long ocean outfall). If data are available for conventional classes (primary, secondary, tertiary, advanced) as well as for ambiguous categories (e.g., “other”), the ambiguous categories are generally not considered as safely managed. Where the only available information on treatment is ambiguous (e.g., “treated”), the JMP assumes at least secondary treatment but seeks clarification during country consultations.</p> <p><i>Numerator:</i> Population using safely managed sanitation services, including a hand-washing facility with soap and water.</p> <p><i>Denominator:</i> Total population of the country according to official yearly estimate</p>
Type of indicator	Relative
Measurement units	Percentage
Frequency of measurement	Annual

PASB unit	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	Data will be obtained from annual JMP reports available from: https://washdata.org/
Limitations	Data on safe disposal and treatment are not available for all countries. Data for rural sanitation systems are also limited.
References	<ol style="list-style-type: none"> 1. United Nations Water. Indicators [Internet]. New York, USA: UN; [no date]. Available from: https://www.sdg6monitoring.org/indicators/ 2. WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene. JMP methodology 2017 update and SDG baselines, March 2018 [Internet]. Geneva: WHO; 2018. Available from: https://washdata.org/sites/default/files/documents/reports/2018-04/JMP-2017-update-methodology.pdf 3. World Health Organization. Guidelines on sanitation and health [Internet]. Geneva: WHO; 2018. Available from: https://apps.who.int/iris/bitstream/handle/10665/274939/9789241514705-eng.pdf License: CC BY-NC-SA 3.0 IGO.
Linkage	<ul style="list-style-type: none"> • SDG Indicator 6.2.1 • SHAA2030 Target 11.3 • SP14-19 Outcome Indicator 3.5.2, adapted • GPW13 Impact Framework
CODE AND TITLE OF THE OUTCOME	OUTCOME 18: Increased capacity of health actors to address social and environmental determinants of health with an intersectoral focus, prioritizing groups in conditions of vulnerability
CODE AND TITLE OF THE INDICATOR	OUTCOME INDICATOR 18.E: Proportion of population with primary reliance on clean fuels and technology
Definition of the indicator	<p>This indicator measures the proportion of population with primary reliance on clean fuels and technology. It is calculated as the number of people using clean fuels and technologies for cooking, heating, and lighting divided by total population reporting any cooking, heating, or lighting, expressed as a percentage. “Clean” is defined by the emission rate targets and specific fuel recommendations (i.e., against unprocessed coal and kerosene) included in the WHO Guidelines for Indoor Air Quality: Household Fuel Combustion.</p> <p>Baseline 2019: 87%* Target 2025: 89%</p> <p>* This considers the following 23 countries: Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay, and Venezuela (Bolivarian Republic of).</p>

<p>Purpose of the indicator</p>	<p>Household air pollution is one of the main causes of disease and premature death in the developing world (see the WHO Household Energy Database), and is an avoidable health risk. In the Americas, WHO estimates that around 82,000 deaths occurred in 2016 in low- and middle-income countries as a result of cooking, heating, and lighting with polluting fuels and technologies (WHO 2018). Health problems linked to household air pollution from solid fuel uses include acute lower respiratory infections in children under 5 years and ischemic heart disease, stroke, chronic obstructive pulmonary disease, and lung cancer in adults (Lim et al. 2012). The WHO Guidelines for Indoor Air Quality: Household Fuel Combustion (2014) warns of the risks of using solid fuels and kerosene and sets goals to reduce emissions of harmful pollutants from open fires, stoves, and lighting for domestic use.</p> <p>Poor access to clean energy is concentrated in marginalized populations. This indicates the need to design policy interventions that can reduce exposure to household pollutants, taking into consideration their effects on health and their contribution to health inequalities. Accelerating the transition to clean energy for all is an urgent and necessary public health intervention in the Region of the Americas, and the health sector must be involved in the search for solutions that produce the best result.</p> <p>Strengthening the capacity of WHO Member States to address household air pollution goes hand in hand with the WHO and PAHO road map approved by the 69th World Health Assembly. WHO is the custodian agency that oversees the global monitoring of SDG Indicator 7.1.2: “Proportion of population with primary reliance on clean fuels and technology.” SDG 3 also includes Indicator 3.9.1, “Mortality rate attributed to household and ambient air pollution.” PAHO is committed to contributing to global efforts to achieve these objectives.</p> <p>Additionally, reducing the use of polluting fuel and technologies for household cooking, heating, and lighting contributes to reducing emissions of black carbon, a pollutant that contributes to climate change. Hence, there are benefits for both health and the environment, and these benefits include contributing to the achievement of SDG 13 and to implementation of the Paris Agreement on climate change.</p>
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<p>Technical note</p>	<p>The indicator is calculated with household survey data compiled by WHO. The information on cooking fuel use and cooking practices comes from about 800 nationally representative surveys and censuses. Sources include demographic and health surveys (DHS), living standards measurement surveys (LSMS), multiple indicator cluster surveys (MICS), the World Health Survey (WHS), and other surveys developed and implemented at the national level.</p> <p>Estimates of primary cooking energy for the total, urban, and rural population for a given year are obtained separately, using a multilevel model. The model only accounts for regions, countries, and time as a spline function, and estimates are restricted to values ranging from zero to one. More details on the model are published elsewhere (Bonjour et al. 2013).</p> <p>Estimates for countries with no available surveys are obtained as follows:</p> <ul style="list-style-type: none"> • When survey data are not available for a country, the regional population-weighted mean is used to derive aggregate estimates at a regional or global level, but no country point estimate is given for that country. • Countries classified as high-income, with a gross national income of more than US\$ 12,746 per capita, are assumed to have made a complete transition to using clean fuels and technologies as the primary domestic energy source for cooking. For these countries, the primary reliance on polluting (unclean) fuels and technologies is reported as less than 5% and is taken as zero for the purpose of regional and global estimates. • To estimate the fraction of the population relying on clean fuels and technologies for heating and lighting, the same methodology will apply, using survey data to derive country estimates for a particular year, with the same above-mentioned assumptions. • Disaggregation of data on access to clean fuel and technologies for cooking by rural or urban place of residence is possible for all countries. • Gender-disaggregated data on the main user of cooking energy (i.e., the cook) will be available with expected improvements in household surveys. • Gender-disaggregated data on the head of household is available for cooking, lighting, and heating. <p>At country level:</p> <ul style="list-style-type: none"> • There is no reporting for low- and middle-income countries with no data. • High-income countries with no data are assumed to have transitioned to clean fuels and technologies and are therefore assumed to have >95% of their population using clean fuels and technologies. <p>At regional and global levels:</p> <ul style="list-style-type: none"> • For low- and middle-income countries with no data, population-weighted regional averages are used to derive the regional and global estimates. • High-income countries with no data are assumed to have transitioned to clean fuels and technologies and are therefore assumed to have >95% of their population using clean fuels and technologies.
<p>Type of indicator</p>	<p>Relative</p>
<p>Measurement units</p>	<p>Percentage</p>

Frequency of measurement	Annual
PASB unit	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	<p>Data on primary household fuels and technologies, particularly for cooking, are routinely collected at the national level in most countries, using censuses and surveys. Household surveys used include demographic and health surveys (DHS), supported by the United States Agency for International Development; multiple indicator cluster surveys (MICS), supported by UNICEF; World Health Surveys, supported by WHO; and other reliable and nationally representative country surveys.</p> <p>The World Health Organization has compiled a database of statistics on access to clean and polluting fuels and technologies, harvested from the full global body of household surveys on cooking, heating, and lighting. The WHO Household Energy Database is updated regularly and publicly available. For cooking energy, the database covers 157 countries and one territory for the period 1970-2015; for lighting, 76 countries for the period 1963-2014; and for heating, 16 countries for the period 1986-2012.</p> <p>WHO is currently working with national survey agencies, country statistical offices, researchers, and other stakeholders to enhance multipurpose household survey instruments so that they gather data on fuels and technologies used for heating and lighting. The proportion of population with primary reliance on clean fuels and technology is estimated by WHO every two years.</p>
Limitations	<p>First, national energy authorities are usually responsible for improving access to energy services, including clean fuels and technologies for lighting, cooking, and heating. National health authorities may not be involved in the decision-making process for the solutions that are implemented. This indicator may only reflect the capacity of the country to improve access to clean energy; it does not necessarily gauge the role of the country's health sector in promoting clean energy solutions, such as for cooking, as a major public health intervention. It may reflect the efforts of WHO to include this indicator as an SDG indicator linked to health (WHO is the custodian agency for SDG Indicator 7.1.2, which is needed to estimate SDG Indicator 3.9.1).</p> <p>Second, there may be discrepancies between internationally reported and nationally reported figures, for several reasons:</p> <ul style="list-style-type: none"> • Modeled estimates may be used in some cases, and survey data points in others. • Different calculations may use different definitions of "polluting" (or previously, "solid") fuels (wood only, or wood and any other biomass, e.g., dung residues; kerosene included or not as a polluting fuel). • Calculations may use different estimates of total population. • Estimates may be expressed as percentage of population using polluting (or solid) fuels as per the SDG 7 indicator, or as percentage of households using polluting (or solid) fuels as assessed by surveys such as DHS or MICS. • Values above 95% polluting fuel use are reported as >95%, and values below 5% are reported as <5%.

References	<ol style="list-style-type: none"> 1. Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. <i>Lancet</i> [Internet] 2012. 380(9859):2224–60. doi: 10.1016/S0140-6736(12)61766-8. Available from: https://www.thelancet.com/journals/a/article/PIIS0140-6736(12)61766-8/fulltext 2. United Nations. SDG Indicators. Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development [Internet]. New York, USA: UN; 2017. Available from: https://unstats.un.org/sdgs/indicators/indicators-list/ 3. World Health Organization. Health and the environment: draft road map for an enhanced global response to the adverse health effects of air pollution: report by the Secretariat [Internet]. 69th World Health Assembly. Geneva: WHO; 2016. Available from: http://apps.who.int/iris/handle/10665/252673 4. World Health Organization. WHO Household Energy Database [Internet]. Geneva: WHO; [no date]. Available from: https://www.who.int/data/gho/data/themes/air-pollution/who-household-energy-db 5. World Health Organization. WHO Guidelines for Indoor Air Quality [Internet]. Household Fuel Combustion. Geneva: WHO; 2014. Available from: https://www.who.int/publications/i/item/9789241548885 6. Bonjour S, Adair-Rohani H, Wolf J, Bruce NG, Mehta S, Prüss-Ustün A, et al. Solid fuel use for household cooking: country and regional estimates for 1980-2010. <i>Environ Health Perspect</i> [Internet] 2013. 121(7). doi:10.1289/ehp.1205987. Available from: https://ehp.niehs.nih.gov/doi/10.1289/ehp.1205987
Linkage	<ul style="list-style-type: none"> • SDG Indicators 3.9.1 and 7.1.2 • SHAA2030 Target 11.2 • GPW13 Impact Framework

CODE AND TITLE OF THE OUTCOME	OUTCOME 18: Increased capacity of health actors to address social and environmental determinants of health with an intersectoral focus, prioritizing groups in conditions of vulnerability
CODE AND TITLE OF THE INDICATOR	OUTCOME INDICATOR 18.F: Number of cities with population ≥500,000 inhabitants (or at least the major city of the country) in each country and territory that are within or making progress toward meeting the WHO Air Quality Guidelines for the annual mean of fine particulate matter (PM2.5)
Definition of the indicator	<p>This indicator counts the number of major cities in the Region that are meeting or making progress toward meeting WHO air quality guidelines for fine particulate matter. The mean annual concentration of fine suspended particles of less than 2.5 microns in diameter (PM2.5) is a common measure of air pollution and a good indicator of air quality. PM2.5 can also be estimated based on measurements done for PM10. The annual mean is an area-weighted average for urban air quality based on daily measurements in one or more monitoring sites or modeling estimates, and is expressed in micrograms per cubic meter (µg/m³).</p> <p>Baseline 2019: To be determined based on a calculation for 45 cities*</p> <p>Target 2025: A 20% reduction in the mean annual concentration of PM2.5, as compared to 2019, in at least 35 of the 45 cities</p> <p>* The baseline for the mean annual concentration of fine suspended particles of less than 2.5 microns in diameter (PM2.5) will be calculated for the following cities of the Region that measure PM2.5 or PM10 in 2019: Argentina (Buenos Aires, Córdoba, Rosario), Bolivia (Plurinational State of) (Cochabamba, La Paz, Santa Cruz), Brazil (Belém, Belo Horizonte, Brasília, Curitiba, Fortaleza, Goiânia, Guarulhos, Manaus, Porto Alegre, Recife, Rio de Janeiro, São Paulo, Salvador de Bahía), Chile (Santiago), Colombia (Barranquilla, Bogotá, Cali, Manizales, Medellín), Costa Rica (San José), Cuba (La Habana), Dominican Republic (Santo Domingo), Ecuador (Guayaquil, Quito), El Salvador (San Salvador), Guatemala (Guatemala), Honduras (San Pedro Sula, Tegucigalpa), Mexico (Ciudad de México, Guadalajara, Juárez, León, Monterrey, Tijuana), Panama (Ciudad de Panamá), Peru (Lima-Callao), Uruguay (Montevideo), and Venezuela (Bolivarian Republic of) (Caracas).</p>
Purpose of the indicator	<p>This indicator reflects the Region's efforts to meet SDG Target 11.6: "By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management."</p> <p>It is also necessary to estimate the country mean annual level, weighted by area and population distribution, that will be used to measure SDG Indicator 3.9.1, "Mortality rate attributed to household and ambient air pollution."</p> <p>Through the United Nations' adoption of the 2030 Agenda for Sustainable Development in 2015 and the World Health Assembly's endorsement of the air pollution road map in 2016, the Region of the Americas has shown its commitment to reducing the adverse health impact of air pollution. To meet these commitments, a key challenge will be to reinforce regional, national, and local responses through the inclusion of health in air quality management.</p>
	<p>Specific actions include expanding and ensuring accessibility of regional information and evidence on the health impacts of air pollution, as well as on the effectiveness of policies and interventions to address these impacts; enhancing regional efforts to monitor and report on trends associated with human exposure to air pollution, in particular PM2.5 and PM10; engaging health actors in coordinated action with relevant stakeholders to enable an appropriate response to reduce the adverse health effects of air pollution in the Americas while ensuring synergies; and strengthening the capacity of responsible sectors. The Region of the Americas is highly urbanized. Stressing the need to control the air quality in major cities as a public health objective will link the indicator directly to the actions needed to reduce exposure to air pollution and will help follow up on the progress made in this direction. Expressing the indicator in terms of the WHO air quality guidelines and not as a specific parameter allows for possible changes to the WHO guidelines in the period during which the indicator will be used.</p>

Technical note	<p>Calculation at regional level: This indicator counts the number of cities with population $\geq 500,000$ inhabitants that are within or making progress toward meeting the WHO air quality guidelines for the annual mean of fine particulate matter (PM_{2.5}). If a country or territory does not have a city with $\geq 500,000$ inhabitants, the indicator will assess the situation of the major city or capital city.</p> <p>Calculation at country level:</p> <ul style="list-style-type: none"> • Computation method: The annual urban mean concentration of PM_{2.5} is estimated based on ground-level air quality monitoring stations, using improved modeling that integrates data from satellite remote sensing, population estimates, topography, and ground measurements (WHO 2016; Shaddick et al. 2016). • Disaggregation: When not estimated at ground level, the indicator is available by 0.1° x 0.1° grid size for the world on the WHO Global Platform on Air Quality and Health. • Treatment of missing values at country level: missing values are left blank. • Sources of discrepancies: The sources of differences between global and national figures are the modeled estimates versus annual mean concentrations obtained from ground measurements. • Methods and guidance available to countries for compilation of the data at the national level: Countries that have air quality monitoring networks in place in urban areas can use the annual mean concentrations from the ground measurements and the corresponding number of inhabitants to derive the population-weighted exposure to particulate matter in cities. • Quality assurance: Data inputs to the model are official or published data on air quality or other relevant topics. Modeled estimates are carefully cross-checked and compared with official ground measurements. • Consultation/validation process for adjustments and estimates with countries: Data inputs, methods, and final estimates are shared with countries prior to publication through WHO official communication channels with WHO Member States.
Type of indicator	Absolute
Measurement units	Number of cities
Frequency of measurement	Annual or biannual (depending on the frequency with which the information is reported and made available in the WHO Global Ambient Air Quality Database).
PASB unit	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	In Latin America and the Caribbean, only 37 out of 100 cities with 500,000 inhabitants or more have had any measurement of air pollution done in recent years (Riojas et al. 2016). Therefore, sources of data will include ground measurements from monitoring networks, but also satellite remote sensing, population estimates, topography, information on local monitoring networks, and measures of specific contributors to air pollution. The data collection process for ground measurements includes official reporting from countries and web searches. Measurements of PM ₁₀ and PM _{2.5} are from official national/subnational reports and websites or are reported by regional networks or data from United Nations agencies, development agencies, articles from peer-reviewed journals, and ground measurements compiled in the framework of the Global Burden of Disease Study.
Limitations	This indicator is not routinely monitored by all countries. Data come from country monitoring systems and WHO modeling, which may restrict the frequency with which the indicator can be measured.

References	<ol style="list-style-type: none"> 1. Shaddick G, Thomas M, Jobling A, Brauer M, von Donkelaar A, Burnett R, et al. Data integration model for air quality: a hierarchical approach to the global estimation of exposures to ambient air pollution. Royal Statistical Society [Internet] 2016. arXiv:1609.0014. Available from: https://arxiv.org/abs/1609.00141 2. United Nations. SDG Indicators. Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development [Internet]. New York, USA: UN; 2017. Available from: https://unstats.un.org/sdgs/indicators/indicators-list/ 3. World Health Organization. Health and the environment: draft road map for an enhanced global response to the adverse health effects of air pollution: report by the Secretariat [Internet]. 69th World Health Assembly. Geneva: WHO; 2016. Available from: http://apps.who.int/iris/handle/10665/252673 4. World Health Organization. Ambient air pollution: a global assessment of exposure and burden of disease. 2016. Available from: https://www.who.int/publications/item/9789241511353 5. World Health Organization. WHO Global Ambient Air Quality Database [Internet]. Geneva: WHO; [no date]. Available from: https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/ambient-air-pollution 6. Riojas-Rodríguez H, Soares da Silva A, Texcalac-Sangrador JL, Moreno-Banda GL. Air pollution management and control in Latin America and the Caribbean: Implications for climate change. Rev Panam Salud Pública [Internet] 2016. 40(3):150–9. Available from: https://pubmed.ncbi.nlm.nih.gov/27991972/
Linkage	<ul style="list-style-type: none"> • SDG Indicators 3.9.1 and 11.6.2 • SHAA2030 Target 11.2 • GPW13 Impact Framework

CODE AND TITLE OF THE OUTCOME	OUTCOME 18: Increased capacity of health actors to address social and environmental determinants of health with an intersectoral focus, prioritizing groups in conditions of vulnerability
CODE AND TITLE OF THE INDICATOR	OUTCOME INDICATOR 18.G: Number of countries and territories with capacity to address health in chemical safety (including human health exposure to metals and/or pesticides)
Definition of the indicator	<p>This indicator counts the number of countries and territories that are developing policies and implementing programs to address health in chemical safety, including health sector staff training, health services and surveillance, and health promotion targeting exposed people, especially those in vulnerable conditions.</p> <p>Baseline 2019: 6 Target 2025: 22</p>
Purpose of the indicator	Chemical safety requires a multisectoral approach in which the health sector is a key participant, given the need for sound management to prevent health effects that contribute to the burden of disease and to demands for health services. Development of policies and implementation of programs, compatible with different chemicals-related agreements and frameworks, is necessary to strengthen the health sector's participation in chemical safety.

Technical note	The WHO Chemicals Road Map has been implemented to follow up on WHA Resolution 69.4 (2016), Role of the Health Sector in the Strategic Approach to International Chemicals Management towards the 2020 Goal and Beyond. The Road Map also contributes to achievement of the 2030 Agenda for Sustainable Development, Targets 3.9, 6.3, and 12.4. Action areas in the Road Map include risk reduction, knowledge and evidence, institutional capacity, and leadership and coordination, under the responsibility of WHO Member States and the WHO Secretariat. For implementation, additional documents include a workbook to help countries prioritize and plan their work on actions outlined in the Road Map. The workbook can be used to prepare a high-level plan for implementation, with the identification of areas of focus and opportunities for collaboration, as well as highlighting where support is needed. Poison control centers, clinical services and surveillance, and public education are some of the areas that fall directly within the health sector's remit. This indicator is calculated by counting the number of countries and territories that have implemented activities related to chemicals exposures included in the four action areas of the WHO Road Map: risk reduction, knowledge and evidence, institutional capacity, and leadership and coordination (within the health sector and with other sectors). To achieve the indicator, a country must have taken at least one activity related to chemical exposures in each of the four action areas.
Type of indicator	Absolute
Measurement units	Number of countries and territories
Frequency of measurement	Annual, combined with ongoing reports specific to health sector activities
PASB unit	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	Data will be obtained from country reports regarding participation in chemical safety activities, including health sector training and international, regional, and national meetings on chemical safety, such as activities and meetings related to the Minamata Convention on Mercury and the Strategic Approach to International Chemicals Management (SAICM).
Limitations	It is possible that countries may be engaged in chemical safety activities, often in collaboration with other sectors and institutions, but are not reporting these activities, which are addressed in the several tools available under the Chemicals Road Map.
References	World Health Organization. WHO Chemicals Road Map [Internet]. Geneva: WHO; 2017. Available from: https://www.who.int/publications/i/item/WHO-FWC-PHE-EPE-17.03
Linkage	<ul style="list-style-type: none"> • SDG Targets 3.9, 6.3, and 12.4 • SHAA2030 Target 11.2

CODE AND TITLE OF THE OUTCOME	OUTCOME 18: Increased capacity of health actors to address social and environmental determinants of health with an intersectoral focus, prioritizing groups in conditions of vulnerability
CODE AND TITLE OF THE INDICATOR	OUTCOME INDICATOR 18.H: Number of countries and territories with capacity to address the health-related effects of climate change
Definition of the indicator	<p>This indicator counts the number of countries and territories that demonstrate capacity within the national health authority to address the health-related effects of climate change. At country level, this capacity is defined by political inclusion of the health sector in the national climate change debate and by existence of a designated focal point for climate change who has received PAHO-approved training.</p> <p>Baseline 2017: 12 Target 2025: 23</p>

Purpose of the indicator	This indicator reflects the capacity of the Region's health sector to develop and implement intersectoral strategies and programs to address health impacts of climate change.
Technical note	<p>To achieve the indicator, a country must have both a) a representative of the national health authority participating in a national inter-ministerial climate change committee, and b) a focal point who is responsible for coordinating the health sector response to the health-related effects of climate change and who has the required competencies.</p> <p>The creation of a national inter-ministerial committee is a strong indicator that a country has identified public policy priorities for climate change mitigation and adaptation. The representation of the health sector in inter-ministerial committees on climate change enhances the coordination of policies with other sectors, facilitates the implementation of actions that benefit health, and contributes to preparedness of the health sector for the impacts of climate change.</p> <p>In addition, an inter-ministerial committee can ensure that health considerations are included in national climate change reports to the United Nations Framework Convention on Climate Change, such as the national communication, national inventory report, nationally determined contributions, nationally appropriate mitigation actions, and national adaptation plans.</p> <p>Countries are encouraged to designate a named official to represent the national health authority on the inter-ministerial committee, thus providing continuity, stewardship, and representation of the national health authority within national climate change activities.</p> <p>A designated focal point also enhances the coordination of inter-programmatic work across departments and units within the national health authority, and serves as a point person to receive, collect, and disseminate relevant information, including among other sectors and stakeholders.</p> <p>To strengthen their participation, this designated focal point should also receive PAHO-recognized training on climate change, its connection to health, and opportunities for mitigation and adaptation strategies. The trainings that are considered applicable for achievement of this indicator are:</p> <ul style="list-style-type: none"> • PAHO virtual course on climate change and health • PAHO-led trainings on developing National Adaptation Plans for the health sector (H-NAPs) • UNFCCC/UNEP/UNDP trainings on National Adaptation Plans where there is a component on sectoral plans • Green Climate Fund (GCF) trainings on accessing GCF funds through the National Designated Authorities • WHO/UNITAR course on Human Health and Climate Change
Type of indicator	Absolute
Measurement units	Number of countries and territories
Frequency of measurement	Annual
PASB unit	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	Data will be obtained from PAHO country surveys on health and climate change, certification lists of courses, and participation lists from trainings.
Limitations	While not actively monitored by all countries, reliable data should be available for accurate tracking by PAHO. As a result, no limitations are identified in being able to track progress toward this indicator.

References	<ol style="list-style-type: none"> 1. Pan American Health Organization. Caribbean action plan on health and climate change [Internet]. Washington, D.C.: PAHO; 2019. Available from: http://iris.paho.org/xmlui/handle/123456789/38566 2. World Health Organization. Operational framework for building climate resilient health systems [Internet]. Geneva: WHO; 2015. Available from: https://apps.who.int/iris/bitstream/handle/10665/189951/9789241565073_eng.pdf?sequence=1
Linkage	<ul style="list-style-type: none"> • SDG Indicators 13.2.1 and 13.3.2 • SHAA2030 Target 11.2 • Caribbean Action Plan on Health and Climate Change, Indicator I.1.1

Indicators of the Agenda for the Americas on Health, Environment, and Climate Change 2021–2030

CODE AND TITLE OF THE STRATEGIC LINE OF ACTION	STRATEGIC LINE OF ACTION 1: Improve the performance of environmental public health programs and institutions
CODE AND TITLE OF THE OBJECTIVE	OBJECTIVE 1.1: Strengthen environmental public health programs and institutions, placing specific emphasis on air quality, chemical safety, climate change-related impacts, WASH, and their related behaviors, using a health equity lens
CODE AND TITLE OF THE INDICATOR	INDICATOR 1.1.1: Number of countries and territories implementing the recommendations of the performance assessments of national environmental public health programs for specific thematic areas, using the essential public health functions framework
Definition of the indicator	This indicator refers to the number of countries and territories that implement the recommendations of the performance assessments of national environmental public health programs and institutions for specific thematic areas, using PAHO's essential public health functions framework.
Purpose of the indicator	Environmental public health programs and institutions in the Region should improve their performance in developing, implementing, monitoring, and assessing inclusive and equitable services, programs, and policies to protect the health of all people from environmental risks. This indicator is used to quantify the performance of national environmental public health programs and institutions using PAHO's essential public health functions framework. Specific attention is placed on air quality, chemical safety, climate change-related impacts, and water, sanitation, and hygiene (WASH).
Technical note	This indicator is calculated by counting the number of countries and territories that have implemented the recommendations of the performance assessments of national environmental public health programs and institutions for air quality, chemical safety, climate change-related impacts, and WASH, using PAHO's essential public health functions framework. To achieve the indicator, a country or territory must have implemented at least two recommendations of its performance assessment.
Type of indicator	Absolute
Measurement units	Number of countries and territories
Frequency of measurement	Biennial

PASB unit responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	Data will be obtained from country reports regarding the implementation of recommendations of the performance assessments of national environmental public health programs and institutions, using PAHO's essential public health functions framework.
Limitations	Countries and territories may be engaged in improving the performance of national environmental public health programs and institutions using different essential public health functions frameworks and may not report these activities.
References	Pan American Health Organization. The essential public health functions in the Americas. A renewal for the 21 st century. Conceptual framework and description [Internet]. Washington, D.C.: PAHO; 2020. Available from: https://iris.paho.org/bitstream/handle/10665.2/53124/9789275122655_eng.pdf?sequence=1&isAllowed=y

CODE AND TITLE OF THE STRATEGIC LINE OF ACTION	STRATEGIC LINE OF ACTION 1: Improve the performance of environmental public health programs and institutions
CODE AND TITLE OF THE OBJECTIVE	OBJECTIVE 1.1: Revitalize environmental public health programs and institutions, placing specific emphasis on air quality, chemical safety, climate change-related impacts, and WASH, using a health equity lens
CODE AND TITLE OF THE INDICATOR	INDICATOR 1.1.2: Number of countries and territories implementing and monitoring national policies to achieve SDG targets that address environmental determinants of health, prioritizing those living in conditions of vulnerability
Definition of the indicator	This indicator refers to the number of countries and territories implementing and monitoring national environmental public health policies to achieve SDG targets that address environmental determinants of health, prioritizing population groups living in conditions of vulnerability.
Purpose of the indicator	Environmental public health programs and institutions in the Region should improve their performance in developing, implementing, monitoring, and assessing inclusive and equitable services, programs, and policies to protect the health of all people from environmental risks. This indicator is used to quantify the capacity of national environmental public health programs and institutions to implement and monitor environmental public health policies to achieve SDG targets that address environmental determinants of health. Specific emphasis is placed on policies that contribute to achieve SDG 3 (Health and Well-Being), SDG 6 (Clean Water and Sanitation), SDG 7 (Affordable and Clean Energy), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action).
Technical note	This indicator is calculated by counting the number of countries and territories that have implemented and monitored national policies to achieve SDG targets that address: <u>Air quality (SDGs 3, 7, and 11):</u> National air quality objectives/standards for particulate matter based on WHO ambient and household air quality guidelines. <u>Chemical safety (SDGs 3 and 12):</u> National road map to enhance health sector engagement in the strategic approach to international chemicals management. <u>Climate change-related impacts (SDGs 3 and 13):</u> Health chapter in national adaptation plans (NAPs) or equivalent documents, such as sectoral adaptation strategies and action plans (SASAPs), or health national adaptation plans (H-NAPs). <u>WASH (SDGs 3 and 6):</u> National water and sanitation safety plans. To achieve the indicator, the country or territory must have implemented at least one activity within each of the policies indicated above.
Type of indicator	Absolute
Measurement units	Number of countries and territories

Frequency of measurement	Biennial
PASB unit responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	Data will be obtained from PAHO country offices reports regarding the implementation and monitoring of the national policies indicated above (see Technical note).
Limitations	Countries and territories may be engaged in implementing and monitoring policies to achieve SDG targets that address environmental determinants of health other than the ones indicated above (see Technical note) and may not report these activities.
References	<ol style="list-style-type: none"> 1. World Health Organization Regional Office for Europe. Air quality guidelines. Global update 2005. Particulate matter, ozone, nitrogen dioxide and sulfur dioxide [Internet]. Copenhagen: WHO; 2006. Available from: https://www.euro.who.int/en/health-topics/environment-and-health/Housing-and-health/publications/pre-2009/air-quality-guidelines.-global-update-2005.-particulate-matter,-ozone,-nitrogen-dioxide-and-sulfur-dioxide 2. World Health Organization. WHO guidelines for indoor air quality: household fuel combustion [Internet]. Geneva: WHO; 2014. Available from: https://apps.who.int/iris/bitstream/handle/10665/141496/9789241548885_eng.pdf?sequence=1 3. World Health Organization. Chemicals Road Map [Internet]. Geneva: WHO; 2017. Available from: https://apps.who.int/iris/bitstream/handle/10665/273137/WHO-FWC-PHE-EPE-17.03-eng.pdf?ua=1 4. World Health Organization. Chemical road map workbook [Internet]. Geneva: WHO; 2018. Available from: https://apps.who.int/iris/bitstream/handle/10665/273136/9789241513630-eng.pdf?ua=1 5. World Health Organization. WHO guidance to protect health from climate change through health adaptation planning [Internet]. Geneva: WHO; 2014. Available from: https://apps.who.int/iris/bitstream/handle/10665/137383/9789241508001_eng.pdf?sequence=1 6. World Health Organization. Water safety planning: A roadmap to supporting resources [Internet]. Geneva: WHO; 2017. Available from: https://www.who.int/water_sanitation_health/publications/wsp-roadmap-v2.pdf?ua=1 7. World Health Organization. Sanitation safety planning. Manual for safe use and disposal of wastewater, greywater and excreta [Internet]. Geneva: WHO; 2016. Available from: https://apps.who.int/iris/bitstream/handle/10665/171753/9789241549240_eng.pdf?sequence=1

CODE AND TITLE OF THE STRATEGIC LINE OF ACTION	STRATEGIC LINE OF ACTION 1: Improve the performance of environmental public health programs and institutions
CODE AND TITLE OF THE OBJECTIVE	OBJECTIVE 1.1: Strengthen environmental public health programs and institutions, placing specific emphasis on air quality, chemical safety, climate change-related impacts, WASH, and their related behaviors, using a health equity lens
CODE AND TITLE OF THE INDICATOR	INDICATOR 1.1.3: Number of countries and territories that include SDG indicators that address environmental determinants of health disaggregated by subpopulation groups in conditions of vulnerability in national public health and/or environmental surveillance systems
Definition of the indicator	This indicator refers to the number of countries and territories that include Impact Indicator 26 (SDG Indicator 3.9.1), Impact Indicator 27 (SDG Indicator 3.9.2), Outcome Indicator 18.c (SDG Indicator 6.1.1), Outcome Indicator 18.d (SDG Indicator 6.2.1), Outcome Indicator 18.e (SDG Indicator 7.1.2), and Outcome Indicator 18.f (SDG Indicator 11.6.2) of the PAHO Strategic Plan 2020–2025 and SDG Indicator 3.9.3 disaggregated by subpopulation groups relevant to measure conditions of vulnerability in national public health and/or environmental surveillance systems.
Purpose of the indicator	Environmental public health surveillance should be structured and strengthened to protect the people's health from environmental risks. The environmental public health surveillance structure should be embedded into existing public health and/or environmental surveillance systems, be sustainable, and follow standard protocols. It should have the capacity to collect, analyze, interpret, and communicate information to different stakeholders in formats needed for the systematic planning, implementation, and evaluation of interventions using a health equity lens.
Technical note	This indicator is calculated by counting the number of countries and territories that have included Impact Indicators 26 and 27, Outcome Indicators 18.c, 18.d, 18.e, and 18.f of the PAHO Strategic Plan 2020–2025, and SDG Indicator 3.9.3 in the national/territorial list of indicators that should be reported by public health and/or environmental surveillance systems. For each indicator there should be an indication of disaggregation by subpopulation groups (e.g., urban/rural; levels of income; ethnicity; geographical distribution, etc.). To achieve the objective, it is expected that each country/territory includes at least four indicators, disaggregated into at least one relevant subpopulation group category, in the national list of indicators that should be reported by public health or environmental surveillance systems.
Type of indicator	Absolute
Measurement units	Number of countries and territories
Frequency of measurement	Biennial
PASB unit responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	Data will be provided by countries and territories, obtained from international official mechanisms (e.g., WHO–UNICEF WASH; UNSTATS; WHO global Health Observatory; WHO global air pollution database, etc.), and/or official documents, reports, or internet sites and then validated by national/territorial authorities.

Limitations	<p>Only a few countries and territories have public health and/or environmental surveillance systems that include environmental public health or even official environmental public health surveillance structures in place.</p> <p>Data may be collected and/or analyzed by different stakeholders within and outside the health sector and may not be consolidated into one integrated system.</p> <p>Some countries and territories may report only a few indicators; and in some cases, disaggregation may not be possible (e.g., limitations of the instrument that generates the information, such as health household surveys).</p> <p>Data may be obtained by different sources and consolidated at national/territorial level but may be incomplete or may not have been validated.</p>
References	<ol style="list-style-type: none"> 1. Pan American Health Organization. Strategic Plan of the Pan American Health Organization 2020–2025: Equity at the Heart of Health [Internet]. Washington, D.C.: PAHO; 2020. Available from: https://iris.paho.org/handle/10665.2/52473 2. Pan American Health Organization. PAHO Strategic Plan 2020–2025 “Equity at the Heart of Health”: Compendium of Impact Indicators [Internet]. Washington, D.C.: PAHO; 2020. Available from: www.paho.org/en/documents/paho-strategic-plan-2020-2025-equity-heart-health-compedium-impact-indicators 3. Pan American Health Organization. PAHO Strategic Plan 2020-2025 “Equity at the Heart of Health”-Compendium of Outcome Indicators [Internet]. Washington, D.C.: PAHO; 2020. Available from: www.paho.org/en/documents/paho-strategic-plan-2020-2025-equity-heart-health-compedium-outcome-indicators 4. United Nations. Sustainable Development Goals. SDG Indicators. Metadata repository [Internet]. New York, USA; UN; [no date]. Available from: https://unstats.un.org/sdgs/metadata/ 5. World Health Organization. WHO Global Health Observatory [Internet]. Geneva: WHO; [no date]. Available from: www.who.int/data/gho

CODE AND TITLE OF THE STRATEGIC LINE OF ACTION	STRATEGIC LINE OF ACTION 1: Improve the performance of environmental public health programs and institutions
CODE AND TITLE OF THE OBJECTIVE	OBJECTIVE 1.2: Enhance health sector collaboration with other sectors using the Health in All Policies framework to address environmental determinants of health, placing specific emphasis on air quality, chemical safety, climate change-related impacts, and WASH and to advance health equity
CODE AND TITLE OF THE INDICATOR	INDICATOR 1.2.1: Number of countries and territories with established formal mechanisms between the health sector and other government sectors to address environmental determinants of health
Definition of the indicator	This indicator refers to the number of countries and territories with established formal mechanisms between the health sector and other government sectors to address environmental determinants of health, prioritizing population groups living in conditions of vulnerability.
Purpose of the indicator	Environmental public health programs and institutions in the Region should improve their performance in developing, implementing, monitoring, and assessing inclusive and equitable services, programs, and policies to protect the health of all people from environmental risks. To improve their performance, it is necessary to implement actions not only within the health sector but also actions in other sectors that can provide health co-benefits. This indicator is used to quantify the capacity of countries and territories to establish deliberate collaborations between the health sector and other government sectors to address environmental determinants of health.
Technical note	This indicator is calculated by counting the number of countries and territories that have established formal mechanisms between the national health entity and other national government entities such as a Head of State appointing an interagency coordinator, agencies co-locating within one facility, and interagency workgroups or task forces to address air quality, chemical safety, climate change-related impacts, and WASH. To achieve the indicator, the country or territory must have at least one formal mechanism of collaboration for each thematic area.
Type of indicator	Absolute
Measurement units	Number of countries and territories
Frequency of measurement	Biennial
PASB unit responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	Data will be obtained from country official documents establishing the formal government interagency collaborative mechanisms.
Limitations	Countries and territories may have formal mechanisms to implement interagency collaborative efforts between the national health authority and other government entities without formal documents to confirm them and may not report these activities.
References	Pan American Health Organization. The essential public health functions in the Americas. A renewal for the 21 st century. Conceptual framework and description [Internet]. Washington, D.C.: PAHO; 2020. Available from: https://iris.paho.org/bitstream/handle/10665.2/53124/9789275122655_eng.pdf?sequence=1&isAllowed=y

CODE AND TITLE OF THE STRATEGIC LINE OF ACTION	STRATEGIC LINE OF ACTION 1: Improve the performance of environmental public health programs and institutions
CODE AND TITLE OF THE OBJECTIVE	OBJECTIVE 1.3: Strengthen the technical capacity of the environmental public health workforce within and outside the health sector, placing specific emphasis on air quality, chemical safety, climate change-related impacts, and WASH
CODE AND TITLE OF THE INDICATOR	INDICATOR 1.3.1: Number of countries and territories implementing a national strategy for standardizing environmental public health professional qualifications, educational requirements, and credentialing
Definition of the indicator	This indicator refers to the number of countries and territories with a national strategy for standardizing environmental public health professional qualifications, educational requirements, and credentialing.
Purpose of the indicator	Environmental public health programs and institutions in the Region should improve their performance in developing, implementing, monitoring, and assessing inclusive and equitable services, programs, and policies to protect the health of all people from environmental risks. To improve their performance, it is necessary to strengthen the capacity of the environmental public health workforce to deliver the essential environmental public health functions. This indicator is used to quantify the capacity of countries and territories to strengthen the environmental public health workforce to deliver these functions.
Technical note	This indicator is calculated by counting the number of countries and territories that have developed national strategies for standardizing environmental public health professional qualifications, educational requirements, and credentialing to deliver essential environmental public health functions addressing four specific thematic areas: air quality, chemical safety, climate change-related impacts, and WASH. To achieve the indicator, the country or territory must have a documented national strategy for standardizing environmental public health professional qualifications and educational requirements, and credentialing to deliver essential environmental public health functions in the four thematic areas.
Type of indicator	Absolute
Measurement units	Number of countries and territories
Frequency of measurement	Biennial
PASB unit responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	Data will be obtained from country strategy documents for standardizing environmental public health professional qualifications, educational requirements, and credentialing to deliver essential environmental public health functions.
Limitations	Countries and territories may have subnational strategies for standardizing environmental public health professional qualifications, educational requirements, and credentialing to deliver essential environmental public health functions without participation of national health authorities and may not report these activities.
References	Pan American Health Organization. The essential public health functions in the Americas. A renewal for the 21 st century. Conceptual framework and description [Internet]. Washington, D.C.: PAHO; 2020. Available from: https://iris.paho.org/bitstream/handle/10665.2/53124/9789275122655_eng.pdf?sequence=1&isAllowed=y

CODE AND TITLE OF THE STRATEGIC LINE OF ACTION	STRATEGIC LINE OF ACTION 1: Improve the performance of environmental public health programs and institutions
CODE AND TITLE OF THE OBJECTIVE	OBJECTIVE 1.3: Strengthen the technical capacity of the environmental public health workforce within and outside the health sector, placing specific emphasis on air quality, chemical safety, climate change-related impacts, and WASH
CODE AND TITLE OF THE INDICATOR	INDICATOR 1.3.2: Number of countries and territories with full-time staff in the health sector trained in and assigned to environmental public health
Definition of the indicator	This indicator refers to the number of countries and territories with full-time staff in the health sector trained in and assigned to environmental public health, placing specific emphasis on air quality, chemical safety, climate change-related impacts, and WASH.
Purpose of the indicator	Environmental public health programs and institutions in the Region should improve their performance in developing, implementing, monitoring, and assessing inclusive and equitable services, programs, and policies to protect the health of all people from environmental risks. To improve their performance, it is necessary to have adequate and well-trained staff in the health sector to deliver essential environmental public health functions. This indicator is used to quantify trained staffing of national environmental public health programs and institutions within the health sector, placing specific emphasis on air quality, chemical safety, climate change-related impacts, and WASH.
Technical note	This indicator is calculated by counting the number of countries and territories that have full-time staff in the health sector trained in and assigned to environmental public health. To achieve the indicator, the country or territory must have full-time staff in the national health agency trained and assigned to deliver essential environmental public health functions in air quality, chemical safety, climate change-related impacts, and WASH. A full-time staff may be responsible for more than one thematic area.
Type of indicator	Absolute
Measurement units	Number of countries and territories
Frequency of measurement	Biennial
PASB unit responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	Data will be obtained from PAHO country offices reports regarding trained staffing of national environmental public health programs and institutions to deliver essential environmental public health functions in the four thematic areas.
Limitations	The fragmentation of environmental health services across the Americas and differences between countries and between local/provincial jurisdictions will complicate the collection of data.
References	Pan American Health Organization. The essential public health functions in the Americas. A renewal for the 21 st century. Conceptual framework and description [Internet]. Washington, D.C.: PAHO; 2020. Available from: https://iris.paho.org/bitstream/handle/10665.2/53124/9789275122655_eng.pdf?sequence=1&isAllowed=y

CODE AND TITLE OF THE STRATEGIC LINE OF ACTION	STRATEGIC LINE OF ACTION 2: Foster an environmentally sustainable and resilient health system
CODE AND TITLE OF THE OBJECTIVE	OBJECTIVE 2.1: Reduce the environmental footprint of the health sector to further the creation of an environmentally sustainable and healthy environment, placing specific emphasis on air quality, chemical safety, climate change-related impacts, WASH, and their related behaviors
CODE AND TITLE OF THE INDICATOR	INDICATOR 2.1.1: Number of countries and territories that estimated the environmental footprint of health care facilities
Definition of the indicator	This indicator refers to the number of countries and territories that have implemented standardized methodologies to estimate the environmental footprint of health care facilities.
Purpose of the indicator	To foster environmental sustainability within a given sector, it is necessary to have an estimate of its environmental footprint to understand the relative weights of different components in adding to the overall environmental contribution. This indicator is used to quantify the countries and territories that estimated the environmental footprint of a health system starting with health care facilities and to guide actions to reduce it.
Technical note	This indicator is calculated by counting the number of countries and territories that have implemented the WHO methodology to estimate the environmental footprint, which addresses all four thematic areas: air quality, chemical safety, climate change-related impacts, and WASH and which is under final development. There are thematic components to allow countries to implement one component at a time based on perceived need and priorities. To achieve this indicator a country or territory must have implemented at least one component of the methodology in at least five (5) health care facilities.
Type of indicator	Absolute
Measurement units	Number of countries and territories
Frequency of measurement	Annual
PASB unit responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	The implementation of the methodology will be done with technical support from WHO/PAHO. Data will be obtained from the country reports of the environmental footprint estimates.
Limitations	Currently the carbon footprint calculation methodology is available through HCWH. WHO is in the final stages of the environmental footprint calculation methodology. Countries and territories have other methodologies to choose from which may achieve similar results. In addition, a variety of facilities are required to infer the results to other facilities in the same country.
References	<ol style="list-style-type: none"> 1. The Global Green and Healthy Hospitals initiative. Available from: https://www.greenhospitals.net/ 2. World Health Organization. WHO guidance for climate resilient and environmentally sustainable health care facilities [Internet]. Geneva: World Health Organization; 2020. License: CC BY-NC-SA 3.0 IGO. Available from: https://www.who.int/publications/i/item/9789240012226

CODE AND TITLE OF THE STRATEGIC LINE OF ACTION	STRATEGIC LINE OF ACTION 2: Foster an environmentally sustainable and resilient health system
CODE AND TITLE OF THE OBJECTIVE	OBJECTIVE 2.1: Reduce the environmental footprint of the health sector to further the creation of an environmentally sustainable and healthy environment, placing specific emphasis on air quality, chemical safety, climate change-related impacts, WASH, and their related behaviors
CODE AND TITLE OF THE INDICATOR	INDICATOR 2.1.2: Number of countries and territories implementing a national strategy to reduce the environmental footprint of health care facilities
Definition of the indicator	This indicator refers to the number of countries and territories implementing their national strategy for reducing the environmental footprint of health care facilities, using as a guide the estimates calculated under Indicator 2.1.1.
Purpose of the indicator	This indicator is used to quantify the countries and territories that are implementing a national strategy to reduce the environmental footprint of health care facilities. To have the capacity to implement a national strategy, a country or territory should first analyze the environmental footprint of the health sector as described in Indicator 2.1.1. With the estimate, a strategy can be developed targeting the areas of potential greatest contribution to reduce the environmental footprint of health care facilities.
Technical note	This indicator will be calculated by counting the number of countries and territories that have a strategic plan for reducing the environmental footprint, and that have begun to implement it. To achieve this indicator a country or territory must have an approved national strategy in all or any one of the components and have begun its implementation in at least five (5) health care facilities.
Type of indicator	Absolute
Measurement units	Number of countries and territories
Frequency of measurement	Annual
PASB unit responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	The implementation of the methodology will be done with technical support from WHO/PAHO. Data will be obtained from the National strategy documents, and country reports of the implementation.
Limitations	As implementation of the strategic plan will be at the health care facility level, the information may not reach the national level.
References	World Health Organization. WHO guidance for climate-resilient and environmentally sustainable health care facilities [Internet]. Geneva: World Health Organization; 2020. License: CC BY-NC-SA 3.0 IGO. Available from: https://www.who.int/publications/item/9789240012226

CODE AND TITLE OF THE STRATEGIC LINE OF ACTION	STRATEGIC LINE OF ACTION 2: Foster an environmentally sustainable and resilient health system
CODE AND TITLE OF THE OBJECTIVE	OBJECTIVE 2.1: Reduce the environmental footprint of the health sector to further the creation of an environmentally sustainable and healthy environment, placing specific emphasis on air quality, chemical safety, climate change-related impacts, WASH, and their related behaviors
CODE AND TITLE OF THE INDICATOR	INDICATOR 2.1.3: Number of countries and territories that include sustainable procurement practices in a health system
Definition of the indicator	This indicator refers to the number of countries and territories with procurement practices for a health system that considers sustainability.
Purpose of the indicator	The procurement of goods and services for public services, such as health care, has been identified as a key entry point for promoting more sustainable production and consumption patterns. The role of procurement in influencing the environmental impact of health sector operations is well acknowledged and sustainable procurement practices have the capacity to reduce a significant proportion of the health sector's environmental footprint. This indicator will be used to quantify the countries and territories implementing sustainable procurement practices.
Technical note	This indicator is calculated by counting the number of countries and territories implementing sustainable procurement practices within their procurement policies and processes in the health sector using the Sustainable Procurement Index focused on the health sector. To achieve this indicator a country or territory must have documented processes and procedures implementing sustainable procurement practices in the health sector entirely or for a specific subsector, such as pharmaceuticals.
Type of indicator	Absolute
Measurement units	Number of countries and territories
Frequency of measurement	Annual
PASB unit responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	Data will be obtained from the National Climate Change focal point at the national health authority as well as PAHO/WHO country office data.
Limitations	National procurement practices are not always influenced at the technical level, and technical focal points do not always have the information to respond to this question. There are other methodologies available, not only the Sustainable Procurement Index or other established methodologies. Some sustainable procurement practices can also be non-formalized.
References	<ol style="list-style-type: none"> 1. World Health Organization. UN Initiative on greening procurement in the health sector from products to services [Internet]. Geneva: WHO; 2015. Available from: https://www.who.int/publications/i/item/9789241508667 2. United Nations Development Programme. (2020) Guidelines for sustainable procurement of healthcare commodities and services [Internet]. Available from: https://www.undp.org/content/undp/en/home/librarypage/hiv-aids/guidelines-for-sustainable-procurement-of-healthcare-commodities.html 3. Health Care Without Harm (2020). Sustainable Procurement Guide. Available from: http://www.greenhospitals.net/sustainableprocurementguide/

CODE AND TITLE OF THE STRATEGIC LINE OF ACTION	STRATEGIC LINE OF ACTION 2: Foster an environmentally sustainable and resilient health system
CODE AND TITLE OF THE OBJECTIVE	OBJECTIVE 2.2: Provide adequate environmental infrastructure and services in health care facilities that aim to increase the resilience of the health sector, placing specific emphasis on air quality, chemical safety, climate change-related impacts, WASH, and their related behaviors and using a health equity lens
CODE AND TITLE OF THE INDICATOR	INDICATOR 2.2.1: Number of countries and territories implementing a national strategy to provide adequate environmental infrastructure and services in health care facilities, prioritizing facilities accessed primarily by those living in conditions of vulnerability
Definition of the indicator	This indicator refers to the number of countries and territories implementing national-level action plans to provide adequate environmental conditions in health care facilities (e.g., WASH, waste management, air quality, use of mercury, resilience to climate-related hazards), prioritizing facilities accessed primarily by those living in conditions of vulnerability.
Purpose of the indicator	The safe provision and management of environmental infrastructure and services in health care facilities is essential to reduce the risk of infection in patients, caregivers, health workers, and communities. Given the many health care facilities existing and operating in an environmentally suboptimal manner, this indicator will be used to quantify the countries and territories implementing a national strategy that aims to improve and provide adequate environmental infrastructure and services in health care facilities, prioritizing facilities accessed primarily by those living in conditions of vulnerability.
Technical note	<p>This indicator is calculated by counting the number of countries and territories implementing a national strategy for improving environmental infrastructure in health care facilities that address:</p> <ul style="list-style-type: none"> • Air quality: National-level planning tools to reduce air pollution exposure in health care facilities from both indoor and outdoor sources. • Chemical safety: WHO document on cleaning and disinfection of health care facilities. • Climate change-related impacts: See indicator descriptors of PAHO Climate Change Caribbean Action Plan (1.3.5, 1.3.6, 1.3.7). • WASH: Development and implementation of national strategies for the safe provision and management of water, sanitation, hygiene, and health care waste services following the WHO eight steps to achieve safe and quality care. <p>To achieve the indicator, the country or territory must have implemented at least one of the four areas indicated above.</p>
Type of indicator	Absolute
Measurement units	Number of countries and territories
Frequency of measurement	Annual
PASB unit responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)

Data source	Data will be obtained from PAHO country offices reports regarding the implementation and monitoring of the national strategies for the technical areas indicated above (see Technical note).
Limitations	This information is not routinely collected and therefore the country will need to be contacted annually to ascertain their advancement. There is a degree of overlap between this indicator and Indicator 2.1.2.
References	<ol style="list-style-type: none"> 1. World Health Organization. WASH in health care facilities: Practical steps to achieve universal access to quality care [Internet]. Geneva: WHO; 2019. Available from: https://www.who.int/publications/item/9789241515511 2. World Health Organization. Water sanitation hygiene. Overview of technologies for the treatment of infectious and sharp waste from health care facilities [Internet]. Geneva: WHO; 2019. Available from: https://www.who.int/publications/item/9789241516228 3. Shimek JM, Emmanuel J, Orris P, Chartier Y, World Health Organization. Replacement of mercury thermometers and sphygmomanometers in health care: technical guidance [Internet]. Edited by Jo Anna M. Shimek. Geneva: WHO; 2011. Available from: https://apps.who.int/iris/handle/10665/44592 4. World Health Organization. Strategic planning for implementation of the health-related articles of the Minamata Convention on Mercury [Internet]. Geneva: WHO; 2019. Available from: https://apps.who.int/iris/bitstream/handle/10665/329449/9789241516846-eng.pdf?ua=1 License: CC BY-NC-SA 3.0 IGO. 5. World Health Organization. WHO guidance for climate-resilient and environmentally sustainable health care facilities [Internet]. Geneva: WHO; 2019. Available from: https://www.who.int/publications/item/9789240012226 License: CC BY-NC-SA 3.0 IGO.

CODE AND TITLE OF THE STRATEGIC LINE OF ACTION	STRATEGIC LINE OF ACTION 2: Foster an environmentally sustainable and resilient health system
CODE AND TITLE OF THE OBJECTIVE	OBJECTIVE 2.2: Provide adequate environmental infrastructure and services in health care facilities that aim to increase the resilience of the health sector, placing specific emphasis on air quality, chemical safety, climate change-related impacts, WASH, and their related behaviors and using a health equity lens
CODE AND TITLE OF THE INDICATOR	INDICATOR 2.2.2: Number of countries and territories with early warning systems developed for climate sensitive health hazards to provide increased health sector resilience
Definition of the indicator	This indicator refers to the number of countries and territories implementing national-level early warning systems in a health system for climate sensitive health hazards, prioritizing conditions affecting those living in conditions of vulnerability.
Purpose of the indicator	Early surveillance and response system (EWS) strengthening for climate sensitive health hazards is fundamental under conditions of rapid global environmental change, population movements, disease vectors, and infections for a health system to be able to respond. The purpose of this indicator is to increase the resilience of the health sector to climate change by incorporating early warning systems for climate sensitive health hazards into its national health sector disaster preparedness and response mechanisms.
Technical note	This indicator is calculated by counting the number of countries and territories implementing at least one early warning system for climate sensitive health hazards that is incorporated in the national health sector multi-hazard preparedness and response plans. To achieve the indicator, the country or territory must have implemented at least one early warning system and incorporated it into its national preparedness and response mechanisms.
Type of indicator	Absolute
Measurement units	Number of countries and territories
Frequency of measurement	Annual
PASB unit responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	The implementation of the methodology will be done with technical support from WHO/PAHO. Data will be obtained from the National strategy documents, and country reports of the implementation.
Limitations	This information is not routinely collected and therefore the country will need to be contacted annually to ascertain their advancement. This indicator requires interdisciplinary collaboration between health, meteorology, environment, and disaster preparedness, which may not be achieved.

References	<ol style="list-style-type: none"> 1. World Health Organization. Heatwaves and health: guidance on warning-system development [Internet]. Geneva: WHO; 2015. Available from: https://www.who.int/publications/i/item/heatwaves-and-health-guidance-on-warning-system-development 2. World Health Organization. Using climate to predict infectious disease epidemics [Internet]. Geneva: WHO; 2005. Available from: https://www.who.int/publications/i/item/using-climate-to-predict-infectious-disease-epidemics 3. Heatwaves: A guide for health-based actions. PAHO, 2021 (forthcoming). 4. Pan American Health Organization. Health sector multi-hazard response framework [Internet]. Washington, D.C.: PAHO; 2019. Available from: https://iris.paho.org/handle/10665.2/51497
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CODE AND TITLE OF THE STRATEGIC LINE OF ACTION	STRATEGIC LINE OF ACTION 3: Promote environmentally healthy and resilient cities and communities
CODE AND TITLE OF THE OBJECTIVE	OBJECTIVE 3.1: Integrate environmental public health in health protection and improvement programs within the health sector, using a health equity lens
CODE AND TITLE OF THE INDICATOR	INDICATOR 3.1.1: Number of countries and territories that included the environmental public health dimension within specific national health protection and improvement strategies within the health sector implemented in cities and communities, prioritizing those living in conditions of vulnerability
Definition of the indicator	This indicator refers to the number of countries and territories that include the environmental public health dimension within specific national strategies for the protection and improvement of health within the health sector implemented in cities and communities, prioritizing those living in conditions of vulnerability.
Purpose of the indicator	Environmental determinants of health (EDHs) in cities and communities of the Region should be addressed to avoid future losses, bring economic benefits, and provide social and environmental benefits. This indicator is used to quantify the inclusion of the environmental public health dimension within national health protection and improvement strategies implemented in cities and communities that would benefit from such an integrated approach and that would contribute to achieving SDG 3 (Health and Well-being) targets. Specific attention will be placed on including the air quality, chemical safety, climate change-related impacts, and WASH dimensions in national health protection and improvement strategies.
Technical note	This indicator is calculated by counting the number of countries and territories that have included the environmental public health dimension within specific national health protection and improvement strategies within the health sector implemented in cities and communities. To achieve this indicator, the country or territory must have implemented at least one national health protection and improvement strategy in cities and communities that include the environmental public health dimension, prioritizing populations in condition of vulnerability.
Type of indicator	Absolute
Measurement units	Number of countries and territories

Frequency of measurement	Biennial
PASB unit responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	Data will be obtained from documents of national health protection and improvement strategies to be implemented in cities and communities that show the inclusion of the environmental public health dimension.
Limitations	Countries and territories may have mechanisms to integrate environmental public health in health protection and improvement strategies within the health sector without formal documentation to confirm the integration.
References	<ol style="list-style-type: none"> 1. World Health Organization Regional Office for Europe. Air quality guidelines. Global update 2005. Particulate matter, ozone, nitrogen dioxide and sulfur dioxide [Internet]. Copenhagen: WHO; 2006. Available from: https://www.euro.who.int/en/health-topics/environment-and-health/Housing-and-health/publications/pre-2009/air-quality-guidelines.-global-update-2005.-particulate-matter,-ozone,-nitrogen-dioxide-and-sulfur-dioxide 2. World Health Organization. WHO guidelines for indoor air quality: household fuel combustion [Internet]. Geneva: WHO; 2014. Available from: https://apps.who.int/iris/bitstream/handle/10665/141496/9789241548885_eng.pdf?sequence=1 3. World Health Organization. Chemicals Road Map [Internet]. Geneva: WHO; 2017. Available from: https://apps.who.int/iris/bitstream/handle/10665/273137/WHO-FWC-PHE-EPE-17.03-eng.pdf?ua=1 4. World Health Organization. Chemical road map workbook [Internet]. Geneva: WHO; 2018. Available from: https://apps.who.int/iris/bitstream/handle/10665/273136/9789241513630-eng.pdf?ua=1 5. World Health Organization. WHO guidance to protect health from climate change through health adaptation planning [Internet]. Geneva: WHO; 2014. Available from: https://apps.who.int/iris/bitstream/handle/10665/137383/9789241508001_eng.pdf?sequence=1 6. World Health Organization. Water safety planning: A roadmap to supporting resources [Internet]. Geneva: WHO; 2017. Available from: https://www.who.int/water_sanitation_health/publications/wsp-roadmap-v2.pdf?ua=1 7. World Health Organization. Sanitation safety planning. Manual for safe use and disposal of wastewater, greywater and excreta [Internet]. Geneva: WHO; 2016. Available from: https://apps.who.int/iris/bitstream/handle/10665/171753/9789241549240_eng.pdf?sequence=1

CODE AND TITLE OF THE STRATEGIC LINE OF ACTION	STRATEGIC LINE OF ACTION 3: Promote environmentally healthy and resilient cities and communities
CODE AND TITLE OF THE OBJECTIVE	OBJECTIVE 3.2: Integrate environmental public health in development programs ^a using the Health in All Policies framework, with a health equity lens
CODE AND TITLE OF THE INDICATOR	INDICATOR 3.2.1: Number of countries and territories that included the environmental public health dimension within specific national development strategies implemented in cities and communities, using the Health in All Policies framework and prioritizing those living in conditions of vulnerability
Definition of the indicator	This indicator refers to the number of countries and territories that include the environmental public health dimension within the specific national development strategies implemented in cities and communities, using the Health in All Policies framework, prioritizing those living in conditions of vulnerability.
Purpose of the indicator	Environmental determinants of health (EDHs) in cities and communities of the Region should be addressed to avoid future losses, bring economic benefits, and provide social and environmental benefits. This indicator is used to quantify the inclusion of the environmental public health dimension within specific national development strategies implemented in cities and communities that would benefit from such an integrated approach, intersectoral and multisectoral collaborations and actions in other sectors that provide health co-benefits and that would contribute to achieving the SDG targets that address environmental determinants of health. Specific emphasis is placed on development strategies that contribute to achieve SDG 3 (Health and Well-Being), SDG 6 (Clean Water and Sanitation), SDG 7 (Affordable and Clean Energy), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action).
Technical note	This indicator is calculated by counting the number of countries and territories that have included the environmental public health dimension within specific national development strategies implemented in cities and communities, prioritizing those living in conditions of vulnerability, using the Health in All Policies framework. To achieve this indicator, the country or territory must have implemented at least one national development strategy in cities and communities that include the environmental public health dimension.
Type of indicator	Absolute
Measurement units	Number of countries and territories
Frequency of measurement	Biennial
PASB unit responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	Data will be obtained from documents of national development strategies to be implemented in cities and communities that show the inclusion of the environmental public health dimension, using the Health in All Policies framework and prioritizing those living in conditions of vulnerability.
Limitations	Countries and territories may have mechanisms to integrate environmental public health in development strategies outside the health sector without formal documentation to confirm the integration.

References	<ol style="list-style-type: none"> 1. World Health Organization Regional Office for Europe. Air quality guidelines. Global update 2005. Particulate matter, ozone, nitrogen dioxide and sulfur dioxide [Internet]. Copenhagen: WHO; 2006. Available from: https://www.euro.who.int/en/health-topics/environment-and-health/Housing-and-health/publications/pre-2009/air-quality-guidelines.-global-update-2005.-particulate-matter,-ozone,-nitrogen-dioxide-and-sulfur-dioxide 2. World Health Organization. WHO guidelines for indoor air quality: household fuel combustion [Internet]. Geneva: WHO; 2014. Available from: https://apps.who.int/iris/bitstream/handle/10665/141496/9789241548885_eng.pdf?sequence=1 3. World Health Organization. Chemicals Road Map [Internet]. Geneva: WHO; 2017. Available from: https://apps.who.int/iris/bitstream/handle/10665/273137/WHO-FWC-PHE-EPE-17.03-eng.pdf?ua=1 4. World Health Organization. Chemical road map workbook [Internet]. Geneva: WHO; 2018. Available from: https://apps.who.int/iris/bitstream/handle/10665/273136/9789241513630-eng.pdf?ua=1 5. World Health Organization. WHO guidance to protect health from climate change through health adaptation planning [Internet]. Geneva: WHO; 2014. Available from: https://apps.who.int/iris/bitstream/handle/10665/137383/9789241508001_eng.pdf?sequence=1 6. World Health Organization. Water safety planning: A roadmap to supporting resources [Internet]. Geneva: WHO; 2017. Available from: https://www.who.int/water_sanitation_health/publications/wsp-roadmap-v2.pdf?ua=1 7. World Health Organization. Sanitation safety planning. Manual for safe use and disposal of wastewater, greywater and excreta [Internet]. Geneva: WHO; 2016. Available from: https://apps.who.int/iris/bitstream/handle/10665/171753/9789241549240_eng.pdf;sequence=1
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^aDevelopment programs or strategies refer to processes outside the health sector. They include clean water and sanitation, affordable and clean energy, sustainable cities and communities, responsible consumption and production, and climate action programs or strategies, among others.

CODE AND TITLE OF THE STRATEGIC LINE OF ACTION	STRATEGIC LINE OF ACTION 3: Promote environmentally healthy and resilient cities and communities
CODE AND TITLE OF THE OBJECTIVE	OBJECTIVE 3.3: Strengthen environmental public health capacity for emergency and disaster response and early recovery
CODE AND TITLE OF THE INDICATOR	INDICATOR 3.3.1: Number of countries and territories that have tested environmental public health plans and procedures for emergency and disaster response and early recovery, in coordination with national incidence or emergency response teams
Definition of the indicator	This indicator refers to the number of countries and territories that have tested environmental public health plans and procedures for emergency and disaster response and early recovery.
Purpose of the indicator	Environmental determinants of health (EDHs) in cities and communities of the Region should be addressed to avoid future losses, bring economic benefits, and provide social and environmental benefits. This becomes even more urgent during emergencies and disasters. This indicator is used to quantify the capacity of national environmental public health programs and institutions to test environmental public health plans and procedures for emergency and disaster response and early recovery and that would contribute to achieving the SDG targets that addressed environmental determinants of health. Specific emphasis is placed on development strategies that contribute to achieve SDG 3 (Health and Well-Being), SDG 6 (Clean Water and Sanitation), SDG 7 (Affordable and Clean Energy), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action).
Technical note	This indicator is calculated by counting the number of countries and territories that have tested environmental public health plans and procedures for emergency and disaster response and early recovery, using the risk management approach and in coordination with the national incident or emergency response team. To achieve the indicator, the country or territory must have tested at least one environmental public health plan or procedure for emergency and disaster response and early recovery.
Type of indicator	Absolute
Measurement units	Number of countries and territories
Frequency of measurement	Biennial
PASB unit responsible for monitoring the indicator	Communicable Diseases and Environmental Determinants of Health/Climate Change and Environmental Determinants of Health (CDE/CE)
Data source	Data will be obtained from national incidence or emergency response team reports.
Limitations	Countries and territories may have formal mechanisms to implement interagency collaborative efforts between the national health authority and other government entities without formal documents to confirm them and may not report these activities.

<p>References</p>	<ol style="list-style-type: none"> 1. World Health Organization. International Health Regulations, Third Edition [Internet]. Geneva: WHO; 2016. Available from: https://www.who.int/publications/item/9789241580496 2. United Nations Office for Disaster Risk Reduction. Sendai framework for disaster risk reduction 2015-2030 [Internet]. Geneva: UNISDR; 2015. Available from: https://www.unisdr.org/files/43291_sendaiframeworkfordrren.pdf 3. Sphere Association. The Sphere handbook: Humanitarian charter and minimum standards in humanitarian response [Internet]. Geneva: Sphere Association; 2018. Available from: https://spherestandards.org/wp-content/uploads/Sphere-Handbook-2018-EN.pdf 4. World Health Organization. Emergency Response Framework [Internet]. Geneva: WHO; 2013. Available from: https://www.who.int/hac/about/erf_.pdf 5. World Health Organization. Health cluster guide, 2nd edition. Geneva: WHO; 2020. Available from: https://www.who.int/health-cluster/resources/publications/hc-guide/en/ 6. Pan American Health Organization. Health sector multi-hazard response framework [Internet]. Washington, D.C.: PAHO; 2019. Available from: https://iris.paho.org/handle/10665.2/51497 7. Pan American Health Organization. Notas técnicas sobre agua, saneamiento e higiene en emergencias [Internet]. Washington, D.C.: PAHO; 2019. Available from: https://www.paho.org/disasters/index.php?option=com_content&view=article&id=1087:who-technical-notes-on-drinking-water-sanitation-and-hygiene-in-emergencies&Itemid=0&lang=es 8. Global WASH Cluster. Available from: http://washcluster.net/ 9. WASH LAC: Regional water, sanitation and hygiene group for the Latin American and Caribbean region. Available from: https://www.washlac.com/eng 10. United Nations Office for the Coordination of Humanitarian Affairs. Guía para los gobiernos: Acción humanitaria internacional [Internet]. New York, USA: OCHA; 2019. Available from: https://reliefweb.int/sites/reliefweb.int/files/resources/20190530_guia_de_gobierno_esp.pdf
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This publication presents the Agenda for the Americas on Health, Environment, and Climate Change 2021–2030 (the Agenda). The Agenda is a call to action to the health sector to lead the charge to address environmental determinants of health in the Americas. The Pan American Health Organization (PAHO) will work with Member States to achieve its goal and objective to ensure healthy lives and promote well-being for all at all ages using a sustainable and equitable approach that places a priority on reducing health inequity.

The Agenda has been developed under the umbrella of the WHO Global Strategy on Health, Environment, and Climate Change, and builds upon the commitments set forth in the Sustainable Health Agenda for the Americas 2018–2030 and the PAHO Strategic Plan 2020–2025. The Agenda was developed in consultation with the Technical Advisory Group and through a consensus-driven decision-making process with Member States during the 2019–2020 period. Looking toward the achievement of Sustainable Development Goal 3, the Agenda focuses on: improving the performance of environmental public health programs and institutions; fostering environmentally resilient and sustainable health systems; and promoting environmentally healthy and resilient cities and communities. Its implementation will be context-specific, based on the needs and realities of the countries. It will benefit countries and territories by promoting good governance practices, strengthening the leadership and coordination roles of the health sector, fostering cross-sectoral action, focusing on primary prevention, and enhancing evidence and communication. It will facilitate access to human, technical, and financial resources necessary to address environmental determinants of health and ensure that the Region is fully engaged in global health, environment, and climate change processes and agreements.

The objective of the Agenda is to strengthen the capacity of health actors in the health and non-health sectors to address and adapt to environmental determinants of health (EDHs), prioritizing populations living in conditions of vulnerability, in order to meet Outcome 18 of the PAHO Strategic Plan 2020–2025 directly and several other outcomes of the Plan indirectly.

To address and adapt to the challenges of EDHs in the Region, an integrated and evidence-informed approach within the health sector and across sectors will be needed, one enabled, and supported by good governance practices, adequate management mechanisms, high-level political will, and adequate human, technical, technological, and financial resources.

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