Operationalizing the Environment-Health Nexus in Asia and the Pacific:

A Policy Guide on Opportunities for Enhancing Health, Biodiversity, Food System and Climate Action

ESCAP 75 MOVING FORWARD TOGETHER

IISD International Institute for Sustainable Development

Acknowledgements

This policy guide is prepared by the core team comprising Elizabeth Willetts (IISD), Yi-Ann Chen (ESCAP), Hitomi Rankine (ESCAP) and Paola Bettelli (IISD), under the overall guidance of Katinka Weinberger, Chief of Environment and Development Policy Section of ESCAP. Sangmin Nam, Director of Environment and Development Division of ESCAP provided overall direction.

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In support of an integrated environment-health nexus in Asia and the Pacific

Alexander O'Connor
Assistant Minister for Health and Medical Services, Government of Fiji

"What is the value of a human life when we are destroying the very planet that gives life meaning?"

Anas Ma'ruf
Director of Environmental Health, Ministry of Health, Indonesia

"We must use the Asia-Pacific Regional Forum on Environment and Health as a forum to exchange information and knowledge including best practices policies and interventions in all areas. Because many countries in our region face the same situation".

Annika Reynolds
CEO of GreenLaw; Youth Chair of Environment and Human Rights, Australian Lawyers for Human Rights

"The health of our environment is our health. The vitality of our ecosystems are the systems that sustain our children and the next generation. We must take urgent action. We need a bold vision for protecting our health through our environment, a vision that emphasises a rights-based approach to environmental interventions".

Catherine Machalaba
Principal Scientist, Health and Policy, EcoHealth Alliance

"We have to make sure that when we are talking about pandemic prevention, we are really investing also in the environment sector to contribute to that [...] It takes a lot of context-specific approaches but it's all feasible. There's nothing technologically challenging for a lot of these solutions, but they need to be put into place".

Dechen Tsering
Regional Director of UN Environment Programme (UNEP) in Asia and the Pacific

"Human health and environmental health are two sides of the same coin and ensuring the wellbeing of people and nature is critical to tackling the triple planetary crisis. It has been encouraging to see the environment-health nexus increasing in priority on the political agenda in Asia and the Pacific. Coordination across sectors, as well as properly designed financing and monitoring mechanisms, will be key going forward".

Dindo Campilan
Regional Director for Asia, International Union for Conservation of Nature (IUCN)

"It's not just the health of individuals on the one hand and the health of the environment on the other hand. Instead, we need to understand that there are synergies [...] We must make sure that when we talk about nature-based solutions, we are referring to a set of practices and standards that indeed are based on ecological processes and that are built on what nature can bring to human health".

Gerda Verburg
UN Assistant Secretary-General and Coordinator of the Scaling Up Nutrition (SUN) Movement

"Come out of your siloed approaches and have an integrated approach. Let us work together to create win-win solutions that support the people out there, to really build resilience and a future for themselves, and be and feel responsible for One Health in their community, in their area".

Minal Pathak
Senior Scientist, IPCC Technical Support Unit

"Climate change adaptation and mitigation actions have strong interlinkages with biodiversity, human health and well-being. We need to focus on equity and just transitions, and make sure that climate change mitigation, adaptation and human health are part of an integrated agenda, and we are not forgetting the people who are right now suffering the most".

Nitish C Debnath
National Coordinator, One Health Bangladesh

"The anthropogenic drivers of zoonotic diseases and other new health threats have a strong environmental dimension [...] yet, the environmental considerations have been insufficiently mainstreamed in the One Health development and the implementation. This operational oversight has significantly limited the success of the One Health approach to date. However, the Covid-19 pandemic appears to be a game changer. Many international, regional and national organizations now unequivocally support the concept of One Health with the involvement of the environment".

Pema Gyamtsho
Director General, International Centre for Integrated Mountain Development (ICIMOD)

"We need to develop institutional mechanisms and strengthen the collaboration, particularly between the health and environment agencies at the international level and the national level [...] We need to establish an integrated surveillance and monitoring mechanism at the regional level...We have to strengthen a multi-disciplinary scientific advisory body to bring knowledge on health and environment together and provide timely predictions and early warning systems".

Richard Florizone
President and CEO, International Institute for Sustainable Development (IISD)

"The costs and the impacts of environment and health threats are increasing. Adaptation costs to natural and biological hazards in the Asia-Pacific are estimated to be US$ 270 billion annually. 25 per cent of global mortality is now attributed to environmental determinants, many of which cross borders. Nevertheless, the environment remains an under-developed dimension of global health and of One Health approaches. There is a lot to be done here".

Scott Newman
One Health Program Priority Lead, FAO Regional Office for Asia and the Pacific

"To date, One Health has yet to adequately engage the Ministries of Environment, Forestry and Wildlife, and One Health programming has yet to move beyond zoonotic diseases, AMR and food safety. Moving forward, we need to strengthen the One Health capacity of the environment sector so they can participate as equal partners at the One Health table, and at the same time, increase the medical and veterinary professional's appreciation of the links between the environment and health".

Serge Morand
Director of Research, French National Centre for Scientific Research (CNRS)

"The higher the level of biodiversity under threat, the higher the number of outbreaks […] We need to go into action, especially to tackle the problems at the root, that is the problem at the ecosystem level. We can use biodiversity as a solution for a lot of health problems or even for health risks".

Sitaramachandra Machiraju
Senior Agriculture Economist, East Asia & Pacific Region, World Bank

"If you take a look at zoonoses or emerging infectious diseases, you will find food systems in the middle of the pathway – looking at them more systematically would really help countries to manage the health and the environmental outcomes of the food systems."

Quotes from speakers of the Interactive Policy Dialogue on the Environment-Health Nexus in Asia and the Pacific, jointly organized by ESCAP, IISD, FAO, UNEP and WHO on 14 September 2022.

EXECUTIVE SUMMARY

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Climate change and ecosystem degradation are amongst the biggest health threats facing Asia and the Pacific. Human health is threatened by increasing risks of extreme weather events, poor air quality, unsafe and insecure food and water as well as various diseases linked to environmental change. It is estimated that almost one quarter of the global environmental burden of disease arises from 14 South-East and East Asian countries alone. The costs of natural and biological hazards resulting from the impacts of climate change, biodiversity loss, and current food system design in the Asia-Pacific region are estimated to reach over US$ 7 trillion per year in the next decades.

There is an urgent need for actors from the environment and health sectors to develop joint agendas and mobilize a whole-of-society approach to address the interconnected environment-health risks to increase resilience, save lives, and reduce costs. Given its importance, the environment-health nexus, as a theme, is rising in the political agenda of the Asia-Pacific region, and insights on operationalizing an environmentally comprehensive One Health approach have been called for.

This policy guide aims to support policymakers and stakeholders in the Asia-Pacific region to address environment-health risks and safeguard human health and well-being while protecting ecosystems. Specifically, it provides an overview of concrete opportunities to mainstream the environment-health nexus in public policies in Asia and the Pacific, including those pertinent to health, biodiversity loss, food systems, and climate change. It also lays out pathways to strengthen the enabling factors for operationalizing an environmentally comprehensive One Health approach. This guidance supports a regional approach to the global One Health Joint Plan of Action launched in 2022, and highlights the achievements of countries in their pursuit of the 2030 Agenda for Sustainable Development. Multiple case studies, resources, and guiding principles can be found throughout the policy guide to support decision-making in the environment-health nexus at national and regional levels.

This policy guide offers some key recommendations for operationalizing the environment-health nexus.

Align planning and assessment to bring environmental sector input into national health plans and vice versa. Key actions include:

- **Health:** Updating health plans to reflect the ecological drivers of disease and elaborate on the character and sources of exposures, contaminants of concern, vulnerability assessments for sub-populations, health outcomes, and the specific environmental management responses needed in a national context. In a review of 15 national health plans in Asia and the Pacific, 11 plans reflect 'climate change' and only 2 plans mention 'biodiversity'. While many plans reference 'social determinants of health', only 7 consider 'environmental determinants of health', or the ecological drivers of disease.

- **Biodiversity:** Updating the National Biodiversity Strategies and Action Plans (NBSAPs) to include: (a) a comprehensive assessment of health risks associated with the state of the environment; (b) target(s) inclusive of health and well-being; (c) valuation of biodiversity and ecosystem services related to health at country-level; and (d) One Health policies, plans or projects, and other holistic approaches; and to ensure alignment with the Convention on Biological Diversity (CBD) post-2020 global biodiversity framework. In a review of 15 NBSAPs in Asia and the Pacific, 9 countries have at least 1 national biodiversity target related to health and well-being, but only 6 of those identified working with a ministry of health; only 3 countries referenced health or balanced diets; only 2 countries mentioned integrated environment-health impact assessments as a planning tool; only 2 countries discussed zoonoses; only 1 country referenced the link of biodiversity to mental health; only 1 country referenced 'WASH', and another 3 mentioned sanitation; and all countries discussed water quality, climate change, and pollution.

- **Food systems:** Promoting sustainable ecosystems as a pillar of food security in health plans, and considering the linked food-environment-health risks comprehensively and coherently in NAPs, NDCs, and NBSAPs. In a review of 15 NBSAPs in Asia and the Pacific, all assessed biodiversity-food links, but only 3 plans referenced healthy or balanced diet, and only 1 referenced nutrition. In a review of 15 NAPs in Asia and the Pacific, 12 plans highlight nutrition and food security as priority areas for health sector resilience to climate disasters. Yet, globally, less than 8 NAPs specify actions to adapt to these risks.

- **Climate change:** Using reporting frameworks under the UNFCCC, such as national adaptation plans (NAPs), nationally determined contributions (NDCs), and adaptation communications, as well as Health National Adaptation Plans (HNAPs) led by the Ministry of Health, to coordinate inter-ministerial action on the environmental determinants of health. A review of the climate strategies and plans of 53 ESCAP member States shows that the health sector has been included in the climate strategies of 43 countries, NDCs of 24 countries, and NAPs/NAPA of 16 countries. Across the Asia and the Pacific, 19 countries have independent national strategies on climate change and health (and 13 are in the Pacific sub-region) and 9 countries have completed a climate change and health country profile.

Enhance multisectoral governance and policy coherence by:

- Harmonizing communication and terminologies across disciplines, ministries, local authorities and stakeholders in the environment-health nexus.
- Establishing formal, inter-ministerial agreements between the ministries of health, environment, climate change, agriculture, finance, forestry and wildlife, social services, among others, and identifying a lead agent.
- Expanding existing inter-ministerial committees to integrate health into environmental deliberations and vice versa.
- Establishing environmentally comprehensive national One Health coordination bodies and associated strategies, and with a role in national decision-making bodies.
- Drawing on insights from the Health in All Policies (HiAP) approach.

Enhance integrated environment and health data management and assessment by:

- Investing in integrated data collection, analysis, and interpretation to support preventative management strategies for environment-health threats, including identifying priority interventions that can deliver co-benefits, as well as identifying the most vulnerable population.
- Strengthening the use of spatial data and artificial intelligence for environment-health risk mapping.
- Advancing valuation to account for the role of ecosystem services in supporting positive health outcomes.
- Mainstreaming integrated environment-health impact assessments by integrating health and health-stakeholder participation in environmental impact assessment (EIA) processes, and incorporating a category on environment-health risks to the national ecosystem assessment (NEA) scoping process.

Promote nature-based solutions to enhance health-related ecosystem services by:

- Strategically investing in ecosystem functions essential for managing risk, and in promoting ecosystem health in areas identified as health risk.
- Capturing the human and animal health-supporting benefits of ecosystem health across national environment and health plans, including by ensuring the use of safeguards and standards.

Strengthen a human rights-based approach to health and environment by:

- Assessing gaps in national constitutions and regulatory frameworks with regards to the right to a healthy environment and to their coherence and integration with health objectives, particularly in light of the Framework Principles on Human Rights and the Environment.
- Strengthening legal and institutional frameworks to protect against environmental harms, particularly for women, children, indigenous communities and other vulnerable populations and ensuring access to environmental-health information and remedies.

Promote stakeholder engagement and capacity-building by:

- Encouraging interactive and participatory processes in environmental decision-making, including by ensuring the participation of communities at risk, women, youth, disabled people, and indigenous communities.
- Collecting, updating and disseminating environmental information, and communicating imminent environment-health threats regularly and in real-time.
- Strengthening concepts of environmental stewardship in national environment and health plans.
- Promoting integrated education frameworks to support sustainable and healthy consumption and production.

Enable integrated environment-health funding streams by:

- Aligning budget contributions from different government sectors around joint inter-ministerial objectives or coordinating government around shared funding pools that focus on the health and environment synergies and co-benefits of projects and plans.
- Considering a regional analysis of models for integrative financing.

Strengthen regional cooperation by:

- Identifying and mitigating transboundary health-environment risks, and ensuring support to countries (and vulnerable groups) with lower capacity to respond.
- Building on existing regional initiatives, including the Asia-Pacific One Health Quadripartite, the Asia-Pacific Regional Forum on Health and Environment, the reports of ASEAN, and the various intergovernmental bodies of ESCAP and United Nations organizations, among others, which can strengthen the application of the principles of an environmentally comprehensive One Health approach.

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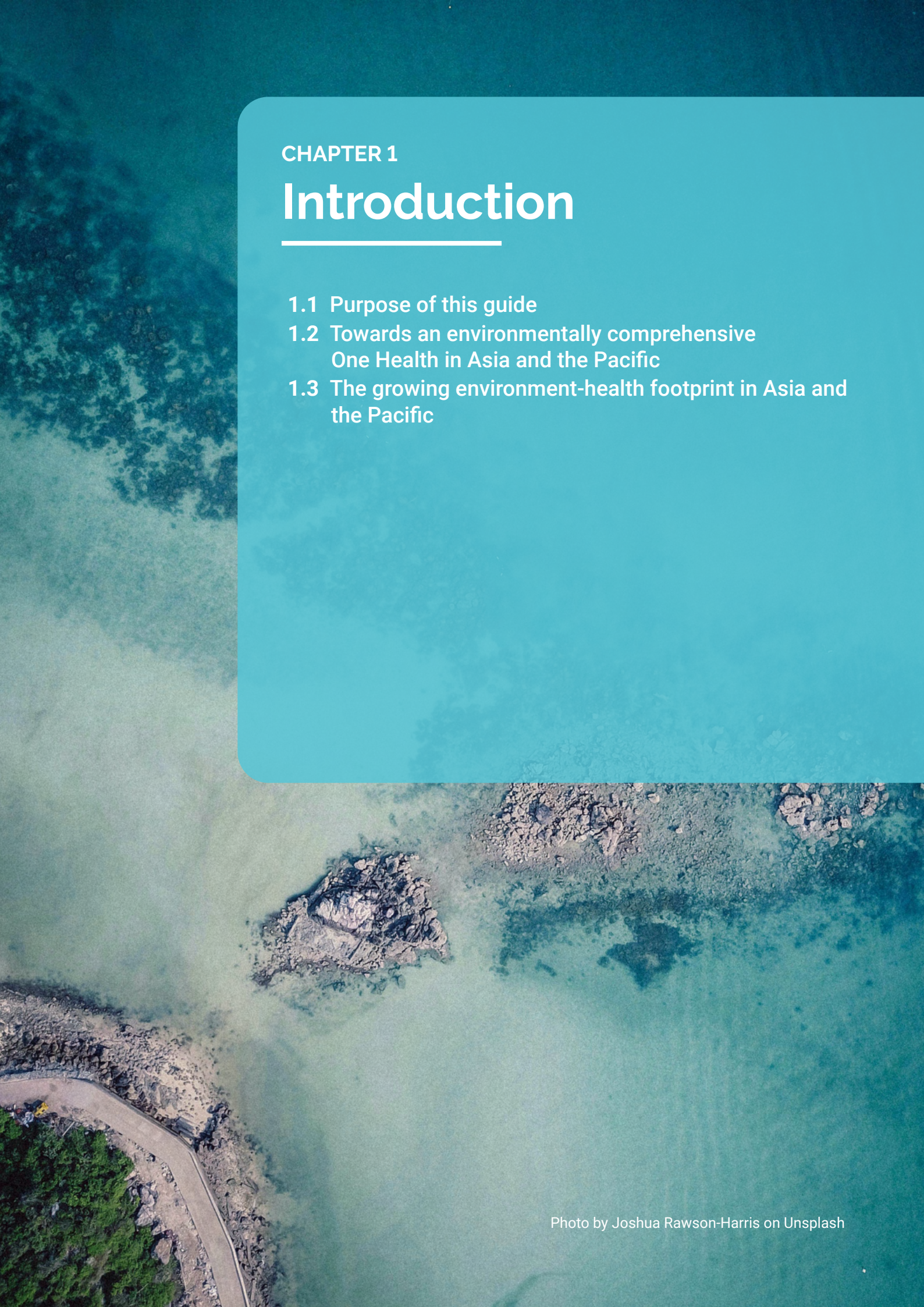

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Chapter 1

INTRODUCTION

1.1 Purpose of this guide

The deterioration of the state of the environment in the Asia-Pacific region negatively impacts human health (ESCAP/EDD/PREP/CED7/1)**.** There is an urgent need for actors from the health and environment sectors to develop joint agendas and work together to address the interconnected environment-health risks at the local, national and regional level to increase resilience, improve health and well-being, and reduce costs.

This guide intends to support governments and other stakeholders in the Asia-Pacific region to minimize environment-health risks and strengthen resilience of human and environmental ecosystems. Specifically, it aims to:

1. support understanding of the environment-health nexus landscape, agendas and case studies in Asia and the Pacific;
2. outline opportunities to mainstream the environment-health nexus in public policies, including those pertinent to health, biodiversity loss, food systems, and climate change; and
3. provide recommendations on strengthening the enabling environments for operationalizing an environmentally comprehensive One Health approach.

This guide elaborates on the importance of the environment-health nexus referenced in the 2017 Ministerial Declaration on Environment and Development for Asia and the Pacific. It also builds on regional discussions to date in the context of the Asia-Pacific Regional Forum on Health and Environment (APRFHE), established in 2004, which intended to "create greater synergy among relevant government departments to address environmental and health issues," comprising regular ministerial and high-level official meetings, thematic working groups, a Scientific Panel and a knowledge network (WHO, n.d.). The 2016 Manila Declaration on Health and Environment, endorsed by 36 countries represents the most recent regional position (Box 1) (WHO, 2016).

The urgency of strengthening institutional capacity for addressing interlinked environment and health risks is growing. Health and environment crises are increasingly frequent, severe, and costly. For instance, adaptation costs for natural and biological hazards in the Asia-Pacific region are estimated to be US$ 270 billion annually (ESCAP, 2022b). Massive socioeconomic shocks, including those related to extreme climate events or pandemics, such as COVID-19, are symptoms of the same

governance weakness, namely siloed management approaches and poor integration among sectoral policies. While environment-health threats and related costs are increasing, coherent and expedient policies that address risks and deliver co-benefits of nature-based, climate-resilient development are notably insufficient. Delays in aligning agendas are economically and socially unwise.

The need for an integrated framework has been recognized in various forums, agreements, and institutions, and at various scales across the United Nations over many decades. However, this work has been inhibited by significant gaps in and barriers to individual and organizational capacity to tackle integrated domains or align agendas and resources. Figure 12 depicts the common challenges faced in operationalizing an environmentally comprehensive One Health approach.

In resolution 78/1, ESCAP member States recognized the value of the One Health approach, the human right to a clean, healthy, and sustainable environment, and that the well-being of humanity depends on the health of nature and the ability to sustainably use, restore and protect ecosystem services (ESCAP/RES/78/1). In this decision, member States emphasized the need to scale up integrated investments for resilience and called on ESCAP to take a multisectoral approach. There are opportunities to strengthen support for member States to expand collaboration across development partners, and to harmonize national and regional agendas.

Box 1: Policy priorities identified in the 2016 Manila Declaration on Health and Environment

1. Transboundary air pollution, including short-lived climate pollutants.
2. Illegal transboundary shipment and dumping of waste.
3. Destruction of coral reefs and marine pollution.
4. Antimicrobial resistance, including from including from health-care waste, wastewater, agriculture, ineffective sanitation and hygiene.
5. Promoting environment and health impact assessments.
6. Enhancing access of the World Health Organization to the Global Environment Fund and Green Climate Fund, among others.

1.2 Towards an environmentally comprehensive One Health in Asia and the Pacific

Given its importance, the environment-health nexus, as a theme, is rising in the political agenda of the Asia-Pacific region. This includes initiatives from the Asia-Pacific One Health Quadripartite, a partnership between the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO), and the World Organisation for Animal Health (WOAH), and then joined by UN Environment Programme (UNEP), which highlights the increasing recognition of the environmental dimension of One Health. The Quadripartite is developing a regional action framework, which would draw on the global One Health Joint Plan of Action, with an aim to strengthen the region's capacity to address complex multidimensional health risks.

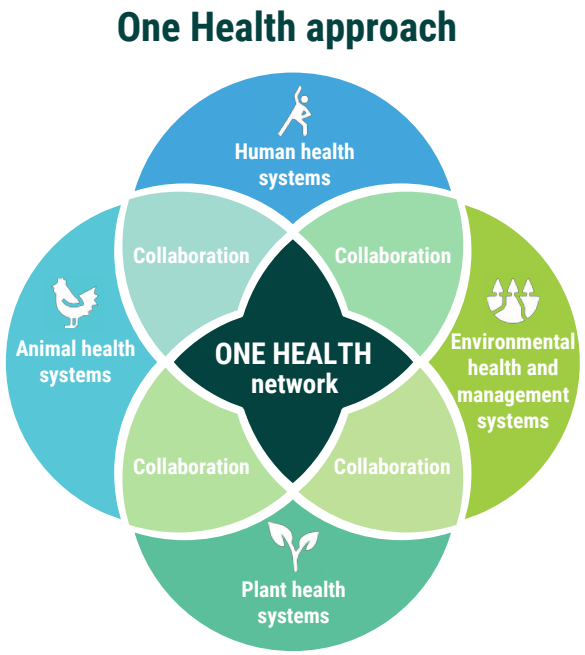
This guide seeks to support the regional approach to the global One Health Joint Plan of Action with attention to the increasing and diverse environmental risks facing this region, in order to shape an operational framework that is fit for purpose (FAO and others, 2022a). To effectively and efficiently address existing and emerging environment-health risks in the region and worldwide, countries will need to expand systems-thinking in both the environment and health domains. Since 2021, the One Health definition has moved away from a focus on infectious diseases alone (food safety, zoonoses, microbiome diversity, and antibiotic resistance) and three sectors (human medicine, veterinary medicine, and livestock agriculture) to include the wider environment.[1] The One Health Joint Plan of Action reflects the shifting definition of One Health (Figure 1).

A comprehensive One Health approach addresses the indivisibility of the 2030 Agenda. It has the potential to mobilize multiple sectors, disciplines, and communities at varying levels of society to improve well-being and tackle environmental threats. At the same time, such an approach can address the collective need for clean water and air, safe and nutritious food, action on climate change, and more sustainable development pathways to broadly protect environmental determinants of health.[2]

1 For reference, several examples of the historical concept of One Health can be found at One Health Commission, "One Health Strategic Action Plans", 2022. Available at https://www.onehealthcommission.org/en/resources__services/one_health_strategic_action_plans/

2 "The social determinants of health (SDH) are the non-medical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems." See WHO, "Social determinants of health", 2022a. Available at https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1

Figure 1: The new definition of One Health (as of 2021)



The new definition of One Health

One Health High-Level Expert Panel, 2021

One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of humans, animals, plants and ecosystems. It recognizes the **health of humans, domestic and wild animals, plants, and the wider environment** (including ecosystems) are closely linked and interdependent.

The approach mobilizes multiple sectors, disciplines and communities at varying levels of society to work together to foster well-being and tackle threats to health and ecosystems, while addressing the collective need for **clean water, energy and air**, **safe and nutritious food**, taking action on **climate change**, and contributing to sustainable development.

1.3 The growing environment-health footprint in Asia and the Pacific

The evidence of the strain of the environment-health footprint in the Asia-Pacific region is extensively documented (ESCAP/EDD/RPEP/CED7/1). It is estimated that almost one quarter of the global environmental burden of disease arises from 14 South-East and East Asian countries alone (WHO, 2018).[3] Direct and indirect health risks arise from environmental degradation and climate change through the impacts of extreme weather events, unhealthy air quality, changes in the risks and spread of infectious diseases, and unsafe and insecure food and water, among many others (Figure 2 and Figure 3).

These negative trends are expected to increase due to a complex combination of ecological tipping points across ecosystems, the rapid growth in regional population and urbanization, unsustainable consumption and production patterns, and aging societies. Furthermore, regional footprints for water and energy use, fine particulate matter, and greenhouse gas emissions are not only growing, but increasingly shifting from higher-income economies to lower-income economies (Lan Yang and others, 2020). An outsourced health-environment footprint impacts long-term regional competitiveness and sustainability, puts countries in precarious positions, and their populations in poor health.

3 The 14 countries are Brunei Darussalam, Cambodia, China, Indonesia, Japan, the Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, the Philippines, the Republic of Korea, Singapore, Thailand and Viet Nam. The percentage is expected to increase if the whole Asia-Pacific region is taken into consideration.

The costs to national and regional health systems are both heavy and avoidable. For example, in some South Asian and North-East Asian countries, just the health cost of air pollution is more than 7 per cent of gross domestic product (CCAC and UNEP, 2019). Annual costs and lost savings resulting from some impacts of climate change, biodiversity loss, and current food system design in the Asia-Pacific region are estimated to reach over $7 trillion per year in the next decades.[4] The most-impacted groups are often marginalized, vulnerable populations, including children, women, the elderly and those with pre-existing conditions, for whom environment-related health impacts can be debilitating and impoverishing.

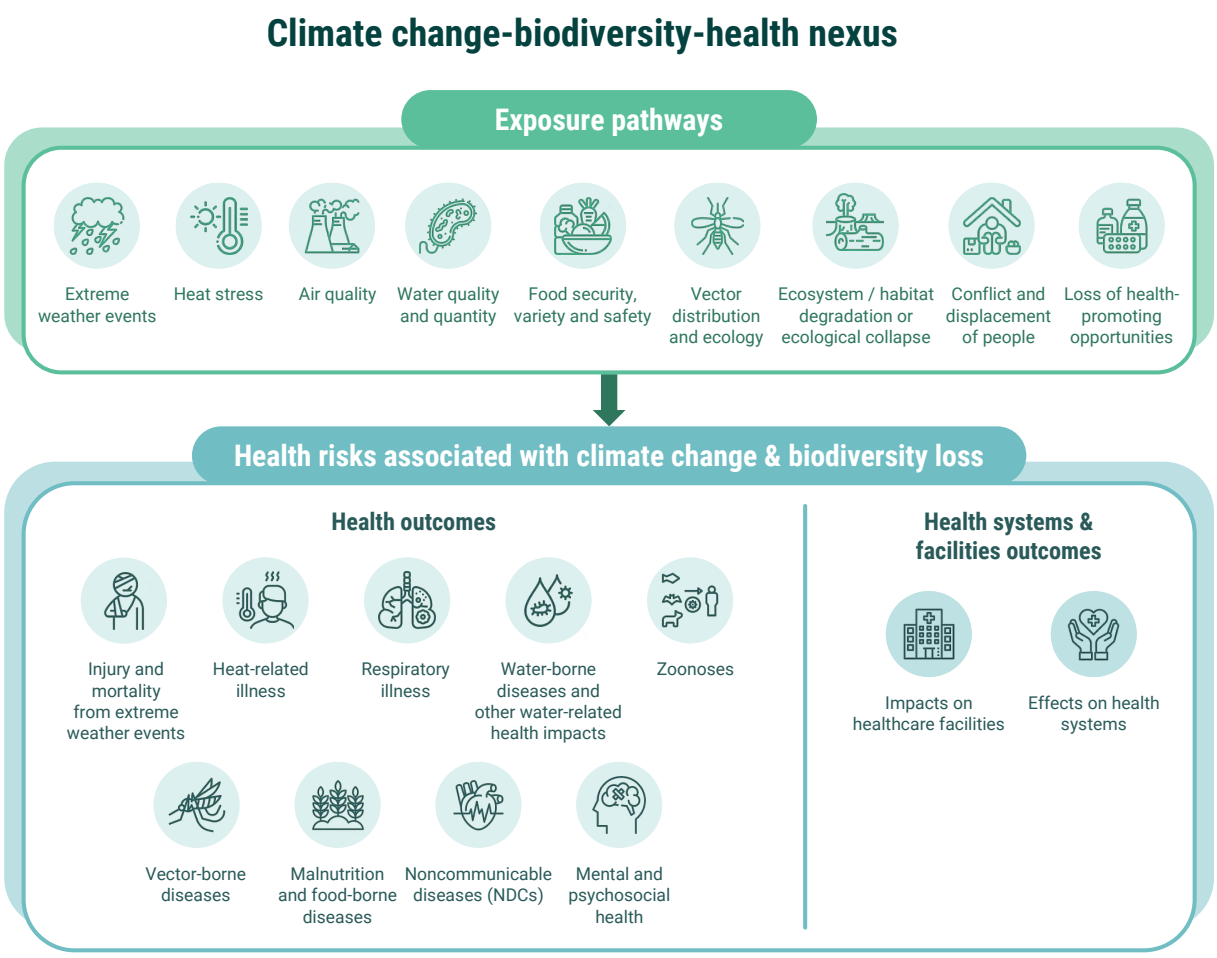
Figure 2: Environment-health footprints in Asia and the Pacific: key facts

Key facts

- Of all new and emerging human infectious diseases, **75%** jump from animals to people.
- **80%** of global displacements triggered by climate-induced disasters are from Asia and the Pacific.
- **~90%** of population in Asia and the Pacific regularly breathe air that is unsafe.
- Asia and the Pacific accounts for **58%** of the global undernourished population.
- **1/4** of the global environmental burden of disease arises from 14 South-East and East Asian countries alone.
- **43,000** human casualties from climate-induced disasters occurred in the region every year.
- **12** Asian-Pacific countries score among the 50 most at-risk countries on UNICEF's Children's Climate Risk Index.
- **225,000** people die every year in the Asia-Pacific region due to foodborne illnesses.

4 The annual cost of natural and biological hazards in the Asia-Pacific is US$ 780 billion (See ESCAP (n.d.)). Malnutrition in all its forms, which is linked to the design and security of the food system, if addressed, would lead to gains of US$ 6 trillion per year by 2050, based on percent global population of the region (calculated based on 2021 Global Nutrition Report, 2021). As South Asia relies on pollinated crops, biodiversity loss and decline in ecosystem integrity could jeopardize US$ 320 billion per year in just the agricultural sector of this sub-region based on 2030 estimations of partial ecosystem collapse (See Justin A. Johnson and others, 2021).

Figure 3: An overview of health risks associated with climate change and biodiversity loss and their exposure pathways



Source:
ESCAP, adapted from World Health Organization (WHO), "Climate change and health: Key facts", 30 October 2021a. Available at https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health.

CHAPTER 2

Mainstreaming the environment-health nexus in public policies

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Chapter 2

MAINSTREAMING THE ENVIRONMENT-HEALTH NEXUS IN PUBLIC POLICIES

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Policy coherence across national plans and strategies related to the environment-health nexus is critical to aligning values and perspectives, investments, and technical capacities that can reduce environment-health risk for countries and the Asia-Pacific region as a whole.

National plans on health, biodiversity, food systems, and climate change present opportunities to integrate and mainstream the environment-health nexus. These plans are vehicles for operationalizing One Health at the country-level, implementing multilateral environmental agreements, fulfilling the human right to a clean, healthy, sustainable environment, which is recognized by a landmark UN General Assembly resolution in 2022, and for achieving the 2030 Agenda for Sustainable Development.

Greater harmony among such national plans strengthens the environmental dimension of One Health and overall health, socioeconomic, and ecosystem resilience. There are opportunities to harmonize and synergize common terminology, strategic priorities, metrics or collaboration across ministries. Importantly, environmental policymaking should align with health objectives at local, national, regional and global levels (Elizabeth Willetts and others, 2022). However, policy inconsistencies and episodic approaches inhibit efficient, cost-effective, and expedient anticipatory action on environment-health risks. Sharing responsibility for the environmental determinants of health will reduce environment-health threats.

2.1 Health strategies and plans

The characterization of environmental determinants of health in national health plans is not representative of the environmental-health threats that the Asia-Pacific region is facing. The following paragraphs provide recommendations on how national health plans can be updated to mainstream the environment-health nexus and guide pertinent action

Reflect the growing public health needs in health plans by expanding on the ecological drivers of diseases and proposed solutions in a national context. Environmental management and links to environment-related ministries are not common in national health plans. In a review of 15 national health plans in the Asia-Pacific region, attention to the 'environment' is mentioned in 10 plans, but only 1 country mentions the term 'ecosystem', and 2 mention 'biodiversity'. On the other hand, the environment is reflected across 11 plans in the context of 'climate change'. Many plans reference 'social determinants of health', while only 7 consider 'environmental determinants of health', or the ecological drivers of disease (Figure 4).

Elaborate links to context-specific environmental degradation in health strategies and plans, such as on food and water, which are two key determinants central to public health planning, and are two key health determinants. An understanding of the context-specific health risks associated with chemical, water and other inputs to the production, processing, distribution and consumption of food, and related environmental change should be identified. The character of exposures, sources and contaminants of concern, vulnerability assessments for sub-populations, and specific environmental management responses should be elaborated more cohesively and to greater depth.

Strengthen the relationship between health and environmental equity in public health strategies and plans. The health-threatening aspects of environmental degradation are disproportionately affecting low-income, vulnerable, and marginalized communities while the health benefits of ecosystem services are generally more available and accessible to populations living in higher income areas. This lack of health and environment equity is largely absent in health plans, but is critical for health and wellness of communities, including the achievement of the health-related Sustainable Development Goals (SDGs).

Maximize the potential national health strategies and plans to strengthen stakeholder engagement in the environment-health nexus. Promoting communication and mobilization of knowledge of environmental threats to human health in these plans, such as in the case of doctors advising on heat health risks is not currently maximized (WHO, Regional Office for Europe, 2021a).

Reference relevant environmental plans, such as national adaptation plans (NAPs) and national biodiversity strategies and action plans (NBSAPs), in national health strategies to build greater coherence in the environment-health nexus. This has not been done systematically across the region.

Figure 4: Reference to the 'environment' in national health strategies in selected Asia-Pacific countries

How is 'environment' taken up in national health strategies in Asia and the Pacific?

Based on a review of 15 countries including Australia, Cambodia, China, Fiji, India, Indonesia, Japan, Malaysia, Papua New Guinea, Philippines, Republic of Korea, Singapore, Solomon Islands, Thailand, and Viet Nam.

10 countries reference the **natural environment**

Only 7 countries discussed **environmental determinants of health** or **ecological drivers** of health risks (while most plans referenced the social determinants of health)

11 countries mention **climate change**

Only 2 countries mention **biodiversity** (Australia and Thailand)

Only 1 country mentions **ecosystems** (Fiji)

Photo by Antonpetrus on Envato Elements

Case studies

- **Australia's National Preventive Health Strategy 2021-2030 (2021)** specifies **11 environmental determinants of health** derived from the natural and built environment.

- **Thailand's 20-Year National Strategic Plan for Public Health 2017-2036** references both social and, at least, **12 environmental determinants** and notes the range of determinants is increasing, which is a meaningful acknowledgement of the health threats posed by environmental degradation.

- **Fiji complements its national health strategy with a wellness plan** that defines wellness in seven dimensions, including "spiritual" and "environmental" wellness. Environmental wellness is "an understanding that the environment contributes to wellness" (Government of Fiji, 2015).

- Some countries identify and highlight the importance of biodiversity and ecosystems in health strategies without using those terms. **Viet Nam's National Strategy to Protect, Care, and Improve Public Health During 2011-2020 and the Orientation Towards 2030,** includes a goal to enhance production of eastern and herbal medicines, develop traditional medicine and pharmacy practice in hospitals. **Thailand** aims to develop its traditional herbal medicine industry for the purpose of health security, health economy, and cultural identity. Its plan incorporates Thai traditional medicine into all aspects and scales of health care with a goal to make herbal medicine a first-line drug at every level. This objective is tied to an economic growth target to increase the herbal medicine market economy value from $82 million to $82 billion. Strengthening the herbal medicine industry increases the value of biodiversity and ecosystem conservation, stewardship, and associated knowledge.

- **Viet Nam** recognizes a role and responsibility for the Ministry of Environment to develop solutions to both tackle environmental pollution and its negative health outcomes, and to also protect the environment from health sector activities. Further, the Ministry of Agriculture is responsible for addressing food safety in the country.

2.2 Biodiversity strategies and plans

Address the decline of biodiversity and degradation of ecosystems as these are associated with a broad range of health risk factors and disease states (WHO and CBD, 2015 and WHO, 2020). The Convention on Biological Diversity (CBD) began promoting the inclusion of health in national biodiversity strategies and action plans in 2000 when it *invited* parties to address interrelated socioeconomic, cultural, and human health aspects in impact assessments (Decision V/18). In 2010, the Convention specifically *called on* parties to integrate health into national biodiversity strategies and action plans (Decision X/32). In 2018, the Convention invited integration of One Health policies, plans or projects, and other holistic approaches into national biodiversity strategies and action plans (Decision 14/4). To date, this has been done to varying degrees in the Asia-Pacific region and could be much more comprehensive.

Include references to environment-health risks and resilience in national strategies and action plans (NBSAPs). In an analysis of 15 NBSAPs in the Asia-Pacific region, only few countries reference environment-health risks and resilience**.** These references are typically described as single-issue concerns, such as health risks from living modified organisms, or from invasive alien species, or vector-borne diseases. Several countries note the importance of ecosystem resilience in the context of climate change, while the **Solomon Islands** specifies "social and ecological resilience" in the context of food security, WASH, human settlements, human health, and education. A comprehensive assessment of health risks associated to the state of the environment would add great value to these plans (Figure 5).

Improve the comprehensiveness of the health dimension of biodiversity strategies in the Asia-Pacific region. Many NBSAPs reference 'disease' without a qualifier. Human and animal infectious disease is most often specified, and is sometimes detailed by *exposure* to water-borne, vector-borne, or zoonotic disease. However, health *outcomes* are not generally referenced in NBSAPs. Noncommunicable or chronic diseases are generally also not represented in NBSAPs. Despite a number of links to spiritual, cultural, and overall well-being, mental health states are not well-developed or described within NBSAPs. **Australia** mentions the importance of 'mental health' in its goal to connect citizens to nature, the **Philippines** describes biodiversity as important to 'relaxation', and **Singapore** provides a case study where an ecosystem was important to 'psychological needs'.

Incorporate health into framing of the value of biodiversity and ecosystem services at country-level. In accordance with targets

under the CBD providing general guidance on national implementation frameworks, countries have the discretion to strengthen the NBSAP with context-specific national targets, such as to design a target inclusive of health and well-being, and several countries in the Asia-Pacific region have done this. This information should be integrated into cross-sectoral planning and implementation through engaging various ministries including the ministry of health.[5]

Update national biodiversity strategies with a vision for environment-health risk reduction. This is an opportunity to align them with, and strengthen the environmental dimension of a One Health approach. Most of the plans reviewed were created prior to 2016, with the most recent published in 2020. The post-2020 global biodiversity framework which outlines new global biodiversity targets for 2050 could serve as a stimulus for new plans.

Figure 5: Reference to health in national biodiversity strategies and action plans (NBSAPs) in selected Asia-Pacific countries

5 For more information, see Article 6, Convention on Biological Diversity, 1992. Available at https://www.cbd.int/doc/legal/cbd-en.pdf

Case studies

- **Australia's Strategy for Nature 2019-2030** identifies two progress measures for increasing the understanding of the value of nature among citizens, including a qualitative understanding of the interconnection between nature and human health, and quantification of **natural capital and its benefits**, such as through environmental-economic accounts.

- **Japan's National Biodiversity Strategy 2012-2020** does not have a general health target, but its framing of health and well-being centres on a balanced relationship between nature and humans, and importance of nature for the **healthy growth of children**.

- **Viet Nam's National Biodiversity Strategy to 2020, Vision to 2030** highlights an updated publication by its Ministry of Health, "**Red List of Medicinal Plants of Viet Nam",** which uses the **International Union of Conservation of Nature** criteria to classify 139 plants and their ecological vulnerability. The Strategy draws attention to 10 medicinal plant centres and 50 medicinal herb gardens that were established to protect the botanical heritage of nearly 4000 plant and fungi species used to treat disease and ailments.

- **Singapore's National Biodiversity Strategy and Action Plan, 2011-2030** provides a good example of alignment with a global health guideline. It **sets air pollution targets** for fine particulate matter and sulphur dioxide by concentration, and 24-hour and annual exposure durations that reflect the WHO 2005 Air Quality Guidelines. This could be harmonized across health and climate strategies.

Photo by Imtmphoto on iStock

2.3 Food strategies and plans

Prioritize food security, food safety and healthy nutrition for health system adaptation to environmental and socioeconomic hazards in the Asia-Pacific region (ESCAP, 2021a). The FAO sees nutrition and diet equity as a starting point for health equity in this region (FAO, 2022b). Many people eat unhealthy, unsafe, low diversity, carbon-intensive, insecure diets. Dietary options are also increasingly de-coupled from local cultural traditions, which, in addition to impacting nutrition, also negatively impacts well-being through lost cultural identity. In 2019, 1.9 billion people in Asia and the Pacific were unable to afford a healthy diet, and this number has likely further increased as an outcome of the COVID-19 pandemic and ongoing conflicts (FAO and others, 2021).

Adopt a comprehensive approach to environment-health challenges and risks associated to food systems to realize One Health strategies. Food systems contribute significantly to environmental degradation, risks for zoonotic and emerging infectious diseases, and noncommunicable diseases (ESCAP, 2021a, and FAO, 2022b). An environmentally comprehensive One Health approach could contribute to each of the five action areas identified at the UN Food Systems Summit 2021: ensure access to safe and nutritious food for all; shift to sustainable consumption; boost nature-positive solutions; advance equitable livelihoods; and build resilience to vulnerabilities, shocks and stresses (United Nations Food Systems Summit 2021, 2021).

Increase cross-sectoral collaboration and alignment, which is essential to address the determinants of safe, healthy and sustainable diets and the negative impacts of the current food system on the environment and socioeconomic resilience (FAO, 2022a). This is particularly important as food systems, in Asia and the Pacific, are facing increasing and multi-dimensional shocks and stressors from climate change (temperature, drought and floods), pest and diseases, price volatility and longer and more complex value chains that threaten the environment-health nexus. Resilience, including food and nutrition security, ecosystem health, and shared prosperity, would require an integrated approach that encompasses several national planning tools related to food (Figure 6). A well-integrated and coordinated water-food-energy nexus, and sustainable land- and sea-use planning must be core components for building resilience in countries and in the Asia-Pacific region.

Figure 6: **Governance at the environment-health nexus of food systems must harmonize a spectrum of converging needs.**

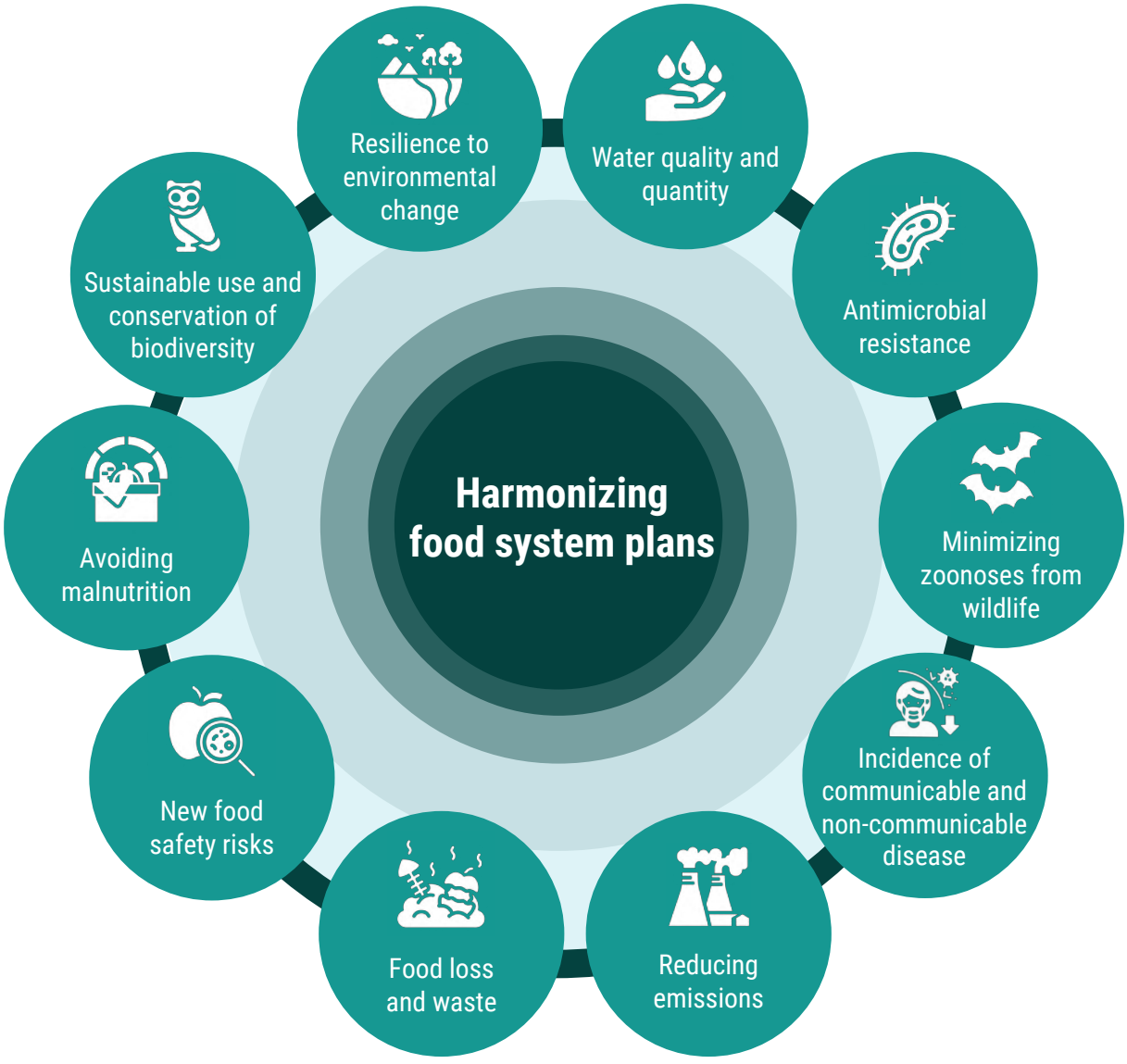
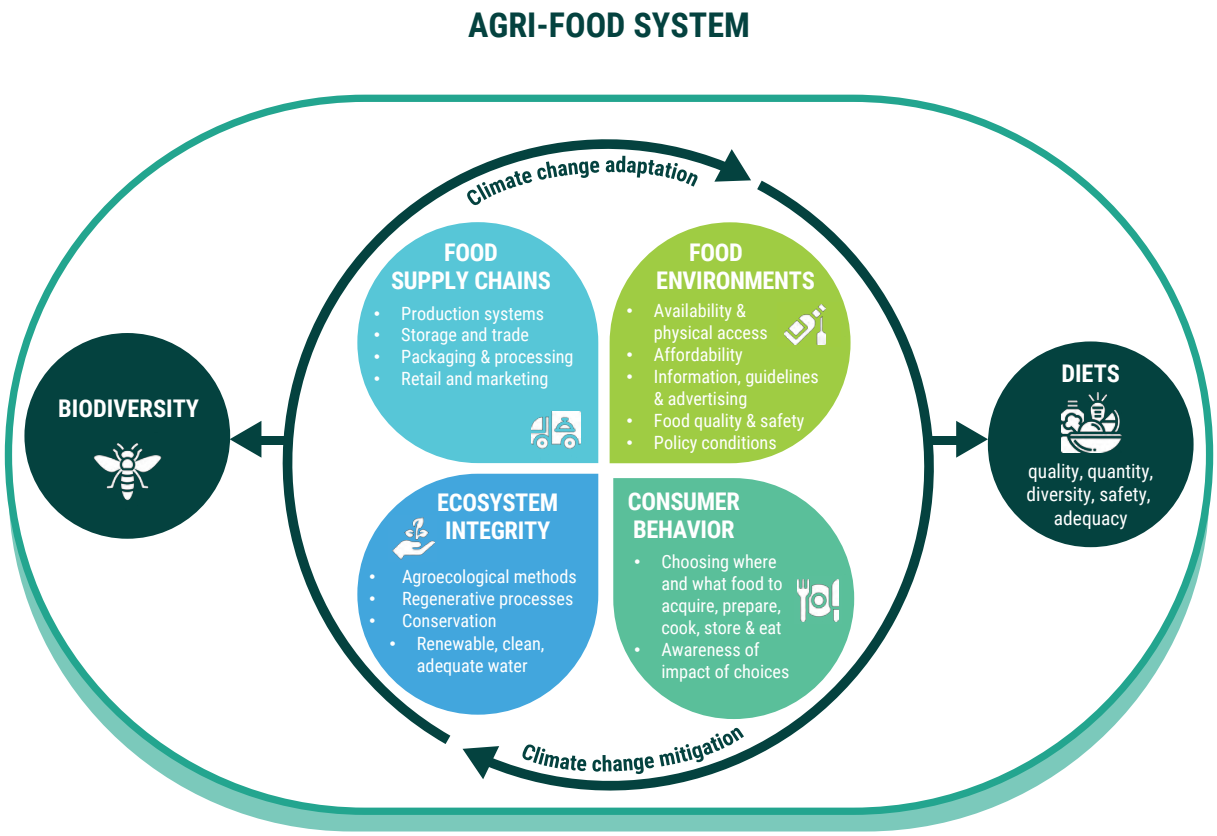



Photo by Jason Cooper on Unsplash

Avoid viewing food systems as a zero-sum game. For instance, deforestation for new agricultural land use will lead to new costs and risks for local watershed management. Defining what food system transformation means is a challenge deserving attention at both the national and regional level. Sustainability objectives and production goals cannot merge in the same way for all scales of producers without increasing other risks. Smallholder farmers, many of whom are the most vulnerable and impoverished, play a significant role in food provision yet gains in their personal livelihood and economic security can depend on unsustainable practices, such as chemical inputs to crops. Trade-offs between ecosystem services, economic and health benefits, and risks need to be assessed, and should aim for a long-term vision.

Focus on key areas that need joint action, including agroecological management, food supply and value chains, food environments, and consumer behaviour (Figure 7). The **Food Systems Dashboard,** led by FAO, the World Wildlife Fund for Nature, and several academic institutions, with support from several governments, is a useful resource hosting country-profile data on the social, economic, environmental, and health and equity aspects of food environments, food supply chains, outcomes, and drivers (Food Systems Dashboard, 2022). Countries can use this dashboard to balance competing demands of different sectors, while looking at co-benefits across the food system. New approaches to collect and assess data that combine environmental and agricultural factors, health outcomes, vulnerability, and socio-cultural values associated to diet, among others, are being developed under the High Level Panel of Experts on Food Security and Nutrition of the UN **Committee on World Food Security** (CFS). The CFS produced a synthesis report identifying gaps in timely and reliable data on people's ability to locally produce and access food, their consumption of actual food and nutrients, and on their nutritional status (HLPE-FSN, 2022).

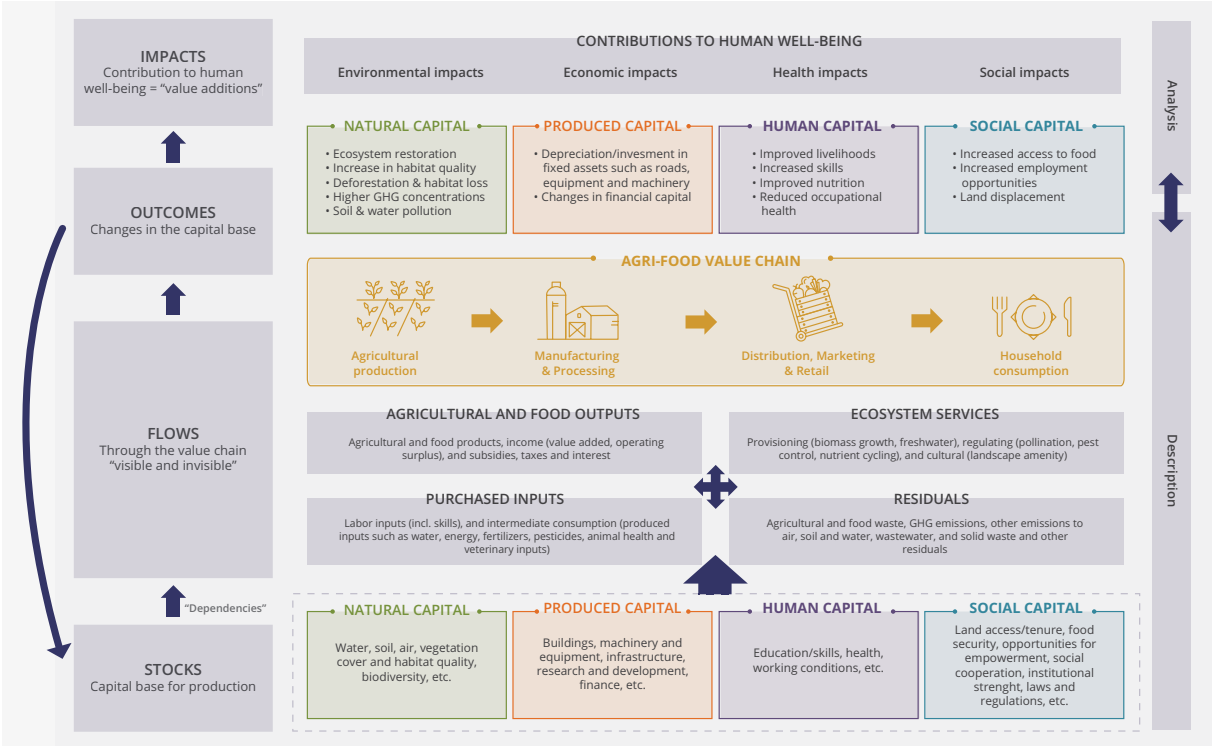
Figure 7: Climate change, biodiversity and nutrition nexus



Source:
Adapted from Food and Agricultural Organization of the United Nations (FAO), "Climate change, biodiversity and nutrition nexus: In brief", 2021. Available at https://www.fao.org/3/cb6087en/cb6087en.pdf

More effort is needed to enhance knowledge, integrated indicators, and stakeholder engagement on interlinkages between biodiversity and food security, nutrition and health, and cultural and social use (FAO, 2022a). One tool that can be used to highlight impacts, interrelationships, and interdependencies of agri-food value chains on natural and human capital, including human health, is **The Economics of Ecosystems and Biodiversity (TEEB) AgriFood Initiative** (Figure 8). The TEEB AgriFood evaluation framework is a systems thinking approach that aims to capture the hidden costs of the agrifood system to inform decision makers and the private sector. Several Asia-Pacific countries have piloted this approach, including **China**, **India**, **Indonesia**, **Malaysia**, and **Thailand** (The Economics of Ecosystems and Biodiversity (TEEB), 2022).

Figure 8: Using the TEEB AgriFood Evaluation Framework as a tool for environmentally comprehensive One Health



Source:
The Economics of Ecosystems and Biodiversity (TEEB), "TEEB for Agriculture & Food: Scientific and Economic Foundations", Geneva: UN Environment, 2018. p. 215. Available https://teebweb.org/wp-content/uploads/2018/11/Foundations_Report_Final_October.pdf

Utilize a risk management approach to link environmental drivers of malnutrition to disease prevention strategies. In the Asia-Pacific region, comprehensive policies can connect environmental management of marine and aquatic ecosystems, which are severely threatened by anticipated climate change impacts, to public health practice. For instance, management and protection of coral reefs can entail an integrated assessment of fish stocks, a collaborative approach to identify risks to population nutrition, and strategies to prevent and reduce risks of hunger and protein and micronutrient deficiency (FAO, 2022a). A comprehensive strategy makes a stronger case for investment because it includes the full range of potential costs and benefits to the environment and society.

Shift consumer demand towards sustainable, locally produced, and healthy diets. Food environments need to make nature-positive and climate-smart food crops more accessible (FAO and WHO, 2019). This is also fundamental for disease prevention, such as to avoid noncommunicable disease, or conditions related to unsafe food, such as consumption of harmful pathogens or toxins. The **Twelfth Malaysia Plan 2021-**

2025 development strategy addresses sustainability with a transdisciplinary "behavioural insights approach" aiming to change the social mindset towards more sustainable lifestyles. This approach combines product labelling and reward, appropriate facilities, and initiatives in faith-based institutions.

Outline specific food safety risks, such as from pathogens and bio-accumulated or bio-magnified contamination, clearly in environmental strategies. Environmental changes, pollution, and natural hazards should be linked to health outcomes, such as crop-related shifts in nutritional security. This is especially important in climate change strategies. For example, undernutrition is expected to increase in China and India as a result of changes in fungal pathogen spread, locust populations, and water-related impacts of climate change on different crops (ESCAP, 2021a). To enhance environment-health resilience, specific nutrient deficiencies could be outlined in these climate projections and be linked to near- and long-term public health preparedness guidance. Similarly, environment assessments and resilience strategies can also include outlines of nutrition and other health impacts due to the contamination by heavy metals and pesticides in crops, soil, and water.

Use risk management guidelines for the infectious disease component of food systems (food safety, zoonotic disease, antimicrobial resistance) as a framework for broader food system action. These guidelines centre on coordinated surveillance and response. Existing strategies promote joint risk assessment, measurement, communication, advisories, as well as joint-ministerial trainings. Sub-national investment in risk management of the animal-human-health nexus (zoonoses point of source) is cost-effective and can be better developed (World Bank Group, 2018). Committees and platforms for addressing antimicrobial resistance and zoonotic disease management already exist in many countries.

Expand consideration of terrestrial, aquatic, and marine food systems in national plans, and draw on these advancements to support policy convergence on food and nutrition across multilateral environmental agreements, such as the UNFCCC and the CBD. Food system transformation is a local and global multisectoral governance challenge, without an intergovernmental decision-making body to support it. Nonetheless, considerable opportunities exist to deepen comprehensive considerations of food-environment-health interlinkages in national strategies, in support of the agrifood system transformation to be more efficient, inclusive, resilient, and sustainable.

Update National Biodiversity Strategies and Action Plans (NBSAPs) to strengthen biodiversity-food-health interlinkages. A CBD decision, in 2006, urged integration of biodiversity, food, and nutrition considerations into NBSAPs. However, despite long-standing efforts, significant policy gaps remain (Figure 9). In a review of 15 NBSAPs, in the Asia-Pacific region, only 4 referenced the term 'diet' or 'nutrition'. At the same time, of 15 national health plans reviewed for the Asia-Pacific region, only 3 mention 'biodiversity' or 'ecosystems'. Health plans should promote sustainable ecosystems as a pillar of food security.

Use national reporting and communications under UNFCCC, such as adaptation plans and mitigation ambitions, as vehicles for elaborating on the links between food and environmental risks and identifying response actions. For example, climate-smart agricultural practices, such as for conservation of water or soil management techniques, could reference health resilience and promote disease prevention and positive health outcomes. A recent global analysis indicates significant room to improve organization of nutritional health in adaptation plans (WHO and IISD, 2021), which could be supplemented by Health National Adaptation Plans (HNAPs) led by the ministry of health. For instance, **Bangladesh's HNAP** discusses malnutrition by age, disease, and co-factors, such as extreme weather events, changes in biodiversity, diet and lifestyle, livelihood change and urbanization, state of WASH, and also references SDG 2 (zero hunger) (WHO, 2016). The food dimension of nationally determined contributions can also be significantly expanded to support both mitigation, adaptation as well as co-benefits to the health sector and public health. At the same time, food system transformation can play a significant role in helping countries achieve their nationally determined contributions.

Figure 9: Reference to food-related health issues in national environmental strategies in Asia and the Pacific

How are 'food-related health issues' included in national environmental strategies in Asia and the Pacific?

National Biodiversity Strategies and Action Plans (NBSAPs)

All 15 NBSAPs reviewed assessed "food" in their national context but **only three** plans referenced healthy or balanced diets, and **only one** referenced "nutrition."

National Adaptation Plans (NAPs)

12 countries in the Asia-Pacific region emphasize nutrition and food security as priority areas for health sector resilience to biological and other natural hazards. Yet, globally, **less than eight** NAPs specify actions to adapt to these risks.

Nationally Determined Contributions (NDCs)

As of 2019, 129 countries around the world included health concerns in their NDCs, under which vector-borne disease and food and nutrition insecurity were areas of greatest concern; **27 countries** highlighted food and nutrition insecurity.

Source:
Asia-Pacific Disaster Report 2021: Resilience in a riskier world: Managing systemic risks from biological and other natural hazards (United Nations publication, 2021). Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Asia-Pacific%20Disaster%20Report%202021-Full%20report.pdf

Case studies

- **Japan's National Biodiversity Strategy 2012-2020** links diet to a healthy hydrologic cycle and biodiversity and food systems, and highlights seafood as a "precious foodstuff" supporting the diet of Japanese people. It states: "The ocean, seaweed beds and tidal flats in the coastal areas, rivers and lakes bring us blessings of nature, including numerous kinds of fish, shellfish, squid, octopi and seaweed".

- **India's National Health Policy (2017)** recognizes that dietary diversity is the most desired means and long-term solution for addressing malnutrition and micronutrient deficiencies. However, it also notes the reliance of the health sector on short- and medium-term fortification and nutrient supplementation for public health programming.

- **Bangladesh's Health National Adaptation Plan** connects dots between degradation (ocean acidification, temperature increases, freshwater decreases, rainfall changes) and food provision (declines in fish stocks and agricultural production), to food insecurity, food safety, or to forms of malnutrition.

- **Australia's National Preventive Health Strategy 2021-2030** lists "food environments" as an environmental determinant of health, and notes that these can be enhanced in the built environment by increasing proximity to supermarkets, enhancing access to urban agriculture and community gardens, and strengthening access to affordable, nutritious fresh food.

- **The Republic of Korea's National Biodiversity Strategy 2019-2023** merits attention for its unique emphasis on diet and food security. This Strategy connects knowledge to actions that will strengthen the biodiversity-health relationship, particularly among youth. Among others, the plan advises for agroecological and biodiversity content in diet education programs at the university level, and aims to raise awareness through education programs connecting community agriculture and diet.

2.4 Climate strategies and plans

Asia and the Pacific is the most disaster-prone region in the world; more than 45 per cent of the world's natural disasters occurred in the region in 2018, and 87 per cent of people affected by natural disasters globally dwelled in the region between 1970 and 2018 (ESCAP, 2019a). At the same time, the region contributes to over 55 per cent of the global greenhouse gas emissions with a trend of continuous growth (Climate Watch, 2022). Urgency and vulnerability underlie risk reduction strategies, and health features prominently as a priority in many climate change policies, plans and regulatory frameworks of countries in the region.

Create regional opportunities to exchange best practices on national planning for climate change and health. An analysis of the enabling environments of 14 Asia-Pacific countries shows a strong bottom-up approach to addressing climate change and health at the national level.[6] In addition, in the Asia-Pacific region, 19 countries have developed national strategies to address health and climate change (ESCAP, 2021a). Regulatory frameworks, stakeholder engagement strategies, attention to equity and inclusiveness, data, monitoring and review mechanisms, and new cross-sectoral financial strategies, can be advanced to strengthen adaptation and mitigation in the region.

Strengthen the incorporation of health components in reporting frameworks under the UNFCCC, such as nationally determined contributions (NDCs), National Adaptation Plans (NAPs), and Adaptation Communications. The NDCs, NAPs, and Adaptation Communications have provided an opportunity for inter-ministerial and inter-agency coordination and policy coherence on climate change and health (Figure 10). Climate change priorities, including health, are often reflected in overarching national development plans and legal frameworks, however the inclusiveness of the process through which this has developed, and the overall comprehensiveness can be further enhanced across the region.

Make climate action plans more comprehensive by including strong co-benefits for human health. These plans may reflect, but are not limited to, low-emission energy sector transitions including clean energy access, sustainable transport, shift to sustainable and plant-based diets and nature-based solutions in cities, such as urban forests, green roofs, trees, green spaces, rivers, ponds and lakes (IPCC, 2022b). Climate action plans should identify the context-specific health co-benefits of these actions and seek to monitor their progress.

6 Climate, health, and development plans, as well as their NAPs and NDCs were reviewed for the following selected countries: Australia, Cambodia, China, Fiji, India, Indonesia, Japan, Malaysia, Singapore, Solomon Islands, the Republic of Korea, Thailand, Tuvalu, Uzbekistan.

Align mitigation and adaptation strategies with multisectoral health governance, such as Health in All Policies approaches (IPCC, 2022a). This means emphasizing health strategies and protection of water, sanitation, and hygiene in integrated programming across the energy-food-water nexus. Recognition of the right to a clean, healthy and sustainable environment should also be taken up in public health programmes. This is essential to enable government accountability and enhance people's access to justice for the adverse effects of climate change.

Strengthen the health sector considerations in nationally determined contributions (NDCs). According to an assessment by the World Resources Institute, in the Asia and the Pacific, 41 per cent of East Asia and the Pacific, and 50 per cent of South Asia countries include priority actions for the health sector in their NDCs. Respectively, 59 per cent and 63 per cent of these countries include actions on food and nutrition security, and 50 per cent and 63 per cent include priority actions on water in their NDCs (Table 1). More countries can include health, food and nutrition security, and water actions in their NDCs. NDCs can also include more actions that lead to systems change (World Resources Institute, 2022).

Table 1: **Health, food and nutrition security, and water in nationally determined contributions of the Asia-Pacific region (percentage of countries in each region with NDCs containing priority actions for selected critical systems)**

Sub-region	Human health	Food and nutrition security	Nature-based solutions	Water	Cities and urban areas	Infra-structure	Disaster risk management	Financing adaptation	Locally led adaptation
East Asia and the Pacific	41%	59%	56%	50%	41%	38%	44%	38%	34%
South Asia	50%	63%	50%	63%	13%	38%	63%	50%	63%

Source:
Adapted from World Resources Institute, "The State of Nationally Determined Contributions: 2022", 2022. Available at https://doi.org/10.46830/wrirpt.22.00043

Case studies on nationally determined contributions

- **China's NDC** "takes into account the demand of traditional climate services and various industries including health" for responding to climate change. It also identifies the role of the National Health Commission to: 1) compile technical guidelines on climate change on air pollution, emergencies from natural disasters, and infectious diseases in flood hotspots; and 2) outline research and guidelines on health risk assessment and adaptation (China's Achievements, New Goals and New Measures for Nationally Determined Contributions, n.d.).

- **Cambodia's updated NDC** describes a detailed range of health impacts, including specific vector-borne disease (malaria), water-borne diseases, heat-related diseases and undernutrition. It also specifies actions targeting women, youth, the elderly and indigenous people (The General Secretariat of the National Council for Sustainable Development, 2020).

- **India's NDC** lists a range of pollution abatement measures that encompass a number of environmental determinants of health on air, food and water quality. For example, it lists common effluent treatment plants, fly ash utilization policy, zero liquid discharge, national air quality index, and municipal solid waste management.

- **Viet Nam's** updated **NDC** involves 'transformative adaptation', including changing the production structure and varieties of plants and animals, implementing aquatic resources protection and development, diversifying cultured species, and applying practice and techniques of sustainable and organic aquaculture (World Resources Institute, 2022).

Build comprehensive Health National Adaptation Plans (HNAPs) led by health ministry, to create a foundation for risk management. HNAPs are important tools for mainstreaming health, enhancing multisectoral governance for mitigation and adaptation planning, and reducing vulnerability. In the Asia-Pacific region, seven countries have or are completing HNAPs (Figure 10). These plans can outline inter-ministerial monitoring and evaluation of climate-sensitive risks, coordinate management of environmental determinants of health, and outline targeted environmental management actions and health sector capacity and response. Health sector institutions should be informed and health professionals trained on the effects of climate change on health.

Box 2: Stand-alone Health National Adaptation Plans should reference:[a]

1) leadership, governance and enabling environments
2) cross-sectoral coordination and policy coherence through mainstreaming of health into mitigation and adaptation planning
3) comprehensive coverage of climate-sensitive health risks
4) comprehensive adaptation options to face climate-sensitive health risks
5) resourcing
6) monitoring, review and evaluation.

a World Health Organization, "WHO publishes quality criteria for Health National Adaptation Plans", 10 February 2021c. Available at https://www.who.int/news/item/10-02-2021-who-publishes-quality-criteria-for-health-national-adaptation-plans

Photo by Tampatra on Envato Elements

Include vulnerability and adaptation assessments (V&As) in HNAPs as they are important components to addressing context-specific health equity and avoiding maladaptation. Plans should consider a wide variety of climate-sensitive health risks that lead to acute, slow-onset, and chronic physical and mental health conditions, as well as the resilience of health sector services and infrastructure. It is important that V&As consider the health risks to children, adolescents, and youth from the impacts of climate change, in urgent and long-term scenarios. The health and well-being of children and youth is more sensitive to climate change, and the burden of disease due to climate change and its drivers on a child can be lifelong and reduce their future potential (UNICEF, 2021b).

Case studies on adaptation

- A good example of the integration of the health sector into adaptation planning is **Fiji's Climate Change and Health Strategic Action Plan 2016-2020**. Its objectives include scaling-up multi-sectoral public health prevention programmes and policies in other sectors, such as environment, municipalities, occupational health, transport, water supply and housing. The Plan also aims to ensure joint monitoring of environmental exposures using regulatory standards and management of health risks and to facilitate intersectoral information-sharing for management of environmental health determinants. **Fiji's National Adaptation Plan (2018)** additionally focuses on shifting existing and future development planning towards a holistic approach to climate resilience through 160 adaptation measures, an ecosystem-based adaptation approach, and efforts to achieve SDG 3 (health and well-being).

- In its **HNAP**, **Bangladesh** highlights implementation priority areas and actions for addressing them. For instance, it summarizes inconsistencies in how climate change is incorporated across national strategies, plans, and policies on health, and highlights the need for better institutional coordination so that climate-sensitive advisories, such as early warning communications for vector-borne diseases, may be shared.

- In its **HNAP (2016-2020), Nepal** focused on 14 targets that included producing national reports on climate change and health, developing a national database on climate change and health, teaching climate change and health modules in schools, mapping distribution of medicinal plants at high elevation, and formation and mobilization of rapid response teams across districts on disaster management and epidemic control (Government of Nepal, 2015).

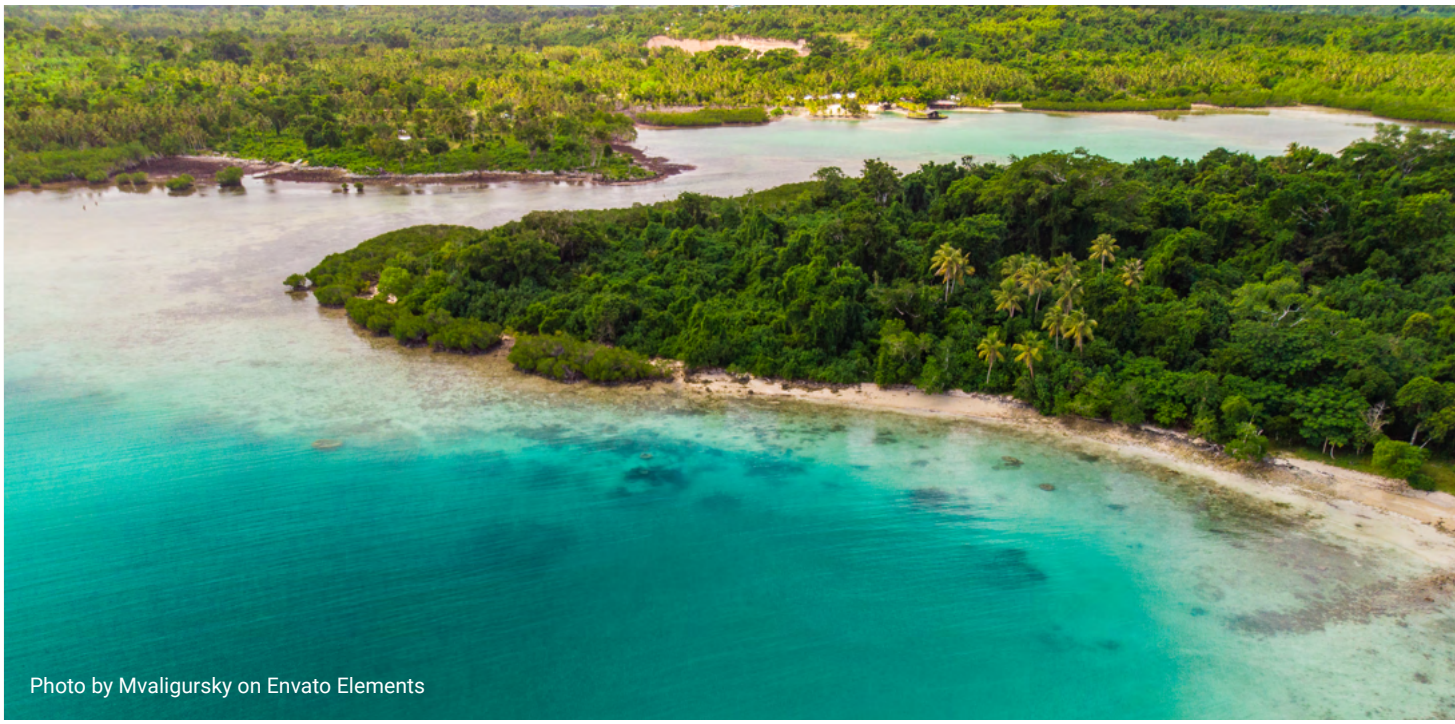


Photo by Mvaligursky on Envato Elements

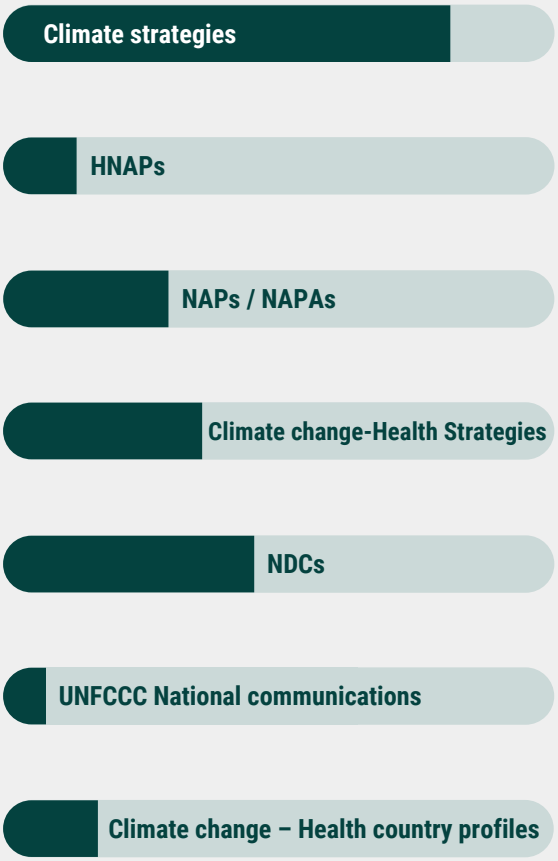
Produce climate change and health country profiles which can help create baseline assessments and tracking of multisectoral governance on climate change and health. For instance, the profiles (2020) of the **Solomon Islands**, **Tuvalu**, and **Vanuatu** provide a status report on a suite of elements: hazard projections, and vulnerability and adaptation assessment; national planning and intersectoral collaboration; integrated risk monitoring, early warning and emergency preparedness; and international climate finance and funding challenges. Nine countries in the Asia-Pacific region have produced a climate change and health country profile.

Forge formal, inter-ministerial agreements with the ministry of health to enhance and mobilize climate action. This includes agreements between ministries of health and agriculture, as well as between energy, electricity, transport, water, sanitation, and hygiene, and social services. For example, **Vanuatu** has a formal agreement with its Ministries of Agriculture, WASH, and Electricity. In some cases, ministries of environment are taking the lead on multisectoral climate-health governance. For example, the Environment Ministry of **Japan** is addressing heat stroke by raising awareness of prevention and handling methods, and providing cross-sector information on heat illness risks to departments of education, health, construction, agriculture, forestry, and fisheries and sports by operating a "Heat Stroke Alert" system nation-wide (The Government of Japan, 2021). In **India**, the National Meteorological Department and the National Disaster Management Authority have expanded Heat Action Plans to more than 130 cities (NRDC, 2022).

Integrate climate change and disaster risk reduction strategies as a cost-effective means of addressing cascading and multiple hazards. Several countries in the Asia-Pacific region have already done so. For example, the majority of policies in **Indonesia** that correlate to climate-related disasters and their impact on the health sector are jointly issued by the Disaster Management Agency, Ministry of Environment and Forestry, and Ministry of Health.

Figure 10: 'Health' in national climate change planning in Asia and the Pacific

How is 'health' taken up in national climate change planning in Asia and the Pacific? (53 member States)



43 countries have **climate strategies** that include the health sector

7 countries have or are finalizing a **Health National Adaptation Plan** (Bangladesh, Nepal, Sri Lanka, Bhutan, India, Indonesia, and Thailand)

16 countries submitted **National Adaptation Plans / National Adaptation Programmes of Action** that include a health strategy

19 countries have independent **national strategies on climate change and health**, of which **13** are in the Pacific subregion

24 countries include health sector adaptation in **nationally determined contributions** (or intended contributions)

4 countries submitted **national communications** to the United Nations Framework Convention on Climate Change that include health adaptation measures

9 countries have completed a **climate change and health country profile**

Source:
Asia-Pacific Disaster Report 2021: Resilience in a riskier world: Managing systemic risks from biological and other natural hazards (United Nations publication, 2021). Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Asia-Pacific%20Disaster%20Report%202021-Full%20report.pdf

CHAPTER 3

A guide to strengthen the environmental dimension of One Health

3.1 Managing integrated environment-health risks

3.2 Enabling factors for operationalizing a comprehensive One Health approach

- Enhance multisectoral governance for strengthening policy coherence
- Integrate environment and health data and assessments
- Promote nature-based solutions to enhance health-related ecosystem services
- Promote a human rights-based approach to health and environment
- Promote stakeholder engagement and capacity building
- Enable integrated environment-health funding streams
- Strengthen regional collaboration

Photo by Mika Luoma on Unsplash

Chapter 3

A GUIDE TO STRENGTHEN THE ENVIRONMENTAL DIMENSION OF ONE HEALTH

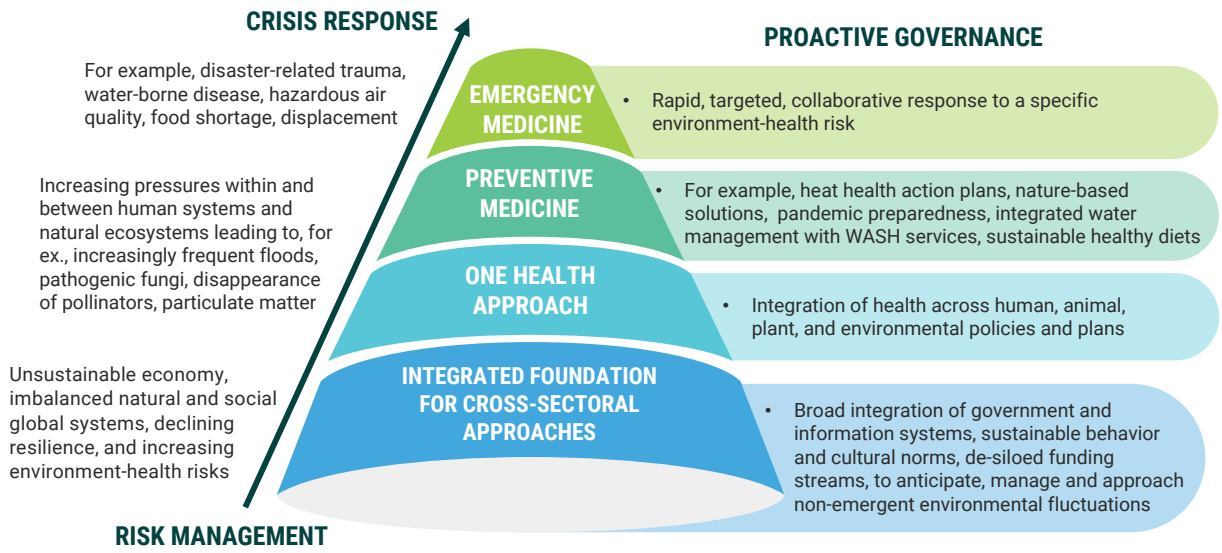
The overall measure of success of an integrative governance approach to the environment-health policy nexus is increased human and environment resilience and well-being. Striking the right balance between economic development, social inclusiveness and equity, ecosystem health and respect for planetary boundaries determines resilience and well-being. An environmentally comprehensive One Health approach is well placed to address this challenge.

3.1 Managing integrated environment-health risks

Strengthen the environmental dimension of One Health to manage the converging environment and health risks. The goals of risk reduction should address risks at individual, family, community, sub-national, national, and regional scales. Investments in protecting and restoring ecosystem services, and reducing the financial burden for the health economy, including household health expenditure, are needed for the most vulnerable groups. The **Bangkok Principles for the implementation of the health aspects of the Sendai Framework for Disaster Risk Reduction** (ESCAP, 2021a), and academic literature (Hans Keune and others, 2022b), generally concur that managing systemic risks cost-effectively requires an integrative, inclusive, adaptive, transdisciplinary and anticipatory approach to governance structures and normative frameworks.

Address environment-health risks comprehensively, for short-term and long-term scenarios, to build a more proactive, preventative One Health model. Health planning does not typically take into account long-term environmental disease burden. An environmentally comprehensive One Health model needs to create a baseline mode for cross-sectoral collaboration that can address enduring and slow-onset risks, and be agile enough to address targeted episodic risks, such as natural hazards or a pandemic, and those upstream, such as drivers of disease (Hans Keune and others, 2022b). In this model, the episodic environmental threats would trigger a specific prepared health response from public health and preventative and emergency medicine professionals (Figure 11). A diverse set of context-specific environmental expertise and strategies, in the health sector, is also needed.

Figure 11: Comprehensive management of environment-health risks

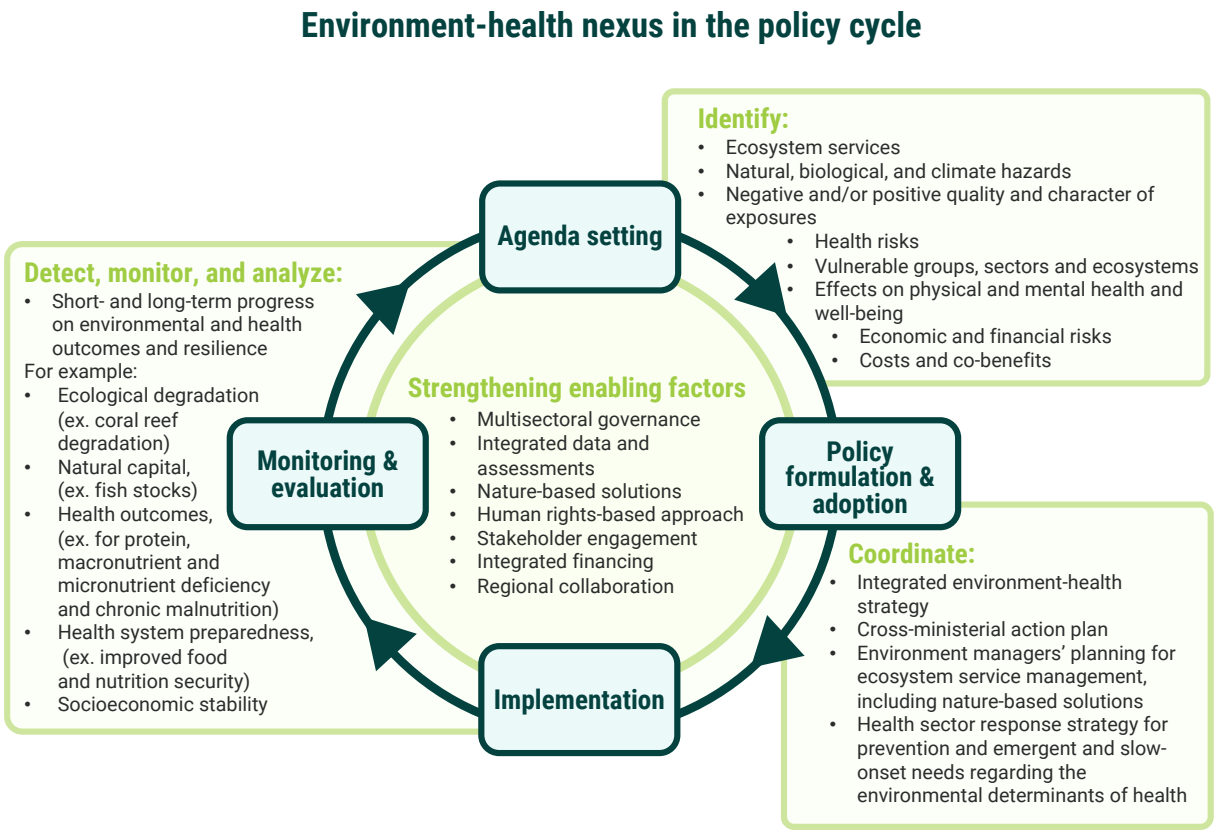


Source:
Adapted from Hans Keune, and others, "One Health and Biodiversity", in *Transforming Biodiversity Governance*, I. Visseren-Hamakers and M. Kok, eds. (Cambridge: Cambridge University Press, 2022b).

National institutions should promote and track the interlinkages of human and ecosystem wellness. If appropriately scoped and scaled, environment-health risk management can improve knowledge and capacity of diverse actors and lead to improved budgeting and financing, such as through non-traditional partners and/or interventions (e.g. the private sector, other sectors driving risks, etc.).

The policy-setting cycle of the 2030 Agenda could be refined to identify and incorporate the environment-health nexus (Figure 12). A comprehensive One Health approach entails a great deal of complexity given that it depends on the effective integration of the different dimensions of and actors across the human-animal-plant-ecosystem health spectrum. Measuring progress on One Health implementation at the regional level could be based on the SDGs, as they are integrated and indivisible in nature, and many countries have a process of policy setting, implementation, information gathering, monitoring and evaluation.

Figure 12: A policy cycle for the environment-health nexus



Source: Adapted from:

1) T. Ricketts, "Integrating Public and Ecosystem Health Systems to Foster Resilience: A workshop to identify research to bridge the knowledge-to-action gap", keynote speech, National Academies of Sciences, Medicine, Engineering, 2022. Available at https://www.nationalacademies.org/our-work/integrating-public-and-ecosystem-health-systems-to-foster-resilience-a-workshop-to-identify-research-to-bridge-the-knowledge-to-action-gap
2) J. Hassell, Integrating Public and Ecosystem Health Systems to Foster Resilience Identifying Research to Bridge the Knowledge-To-Action Gap, workshop, National Academies of Science, Medicine, Engineering, 19 September 2022; and
3) G. Bratman, and others, "Nature and Mental Health: An ecosystem service perspective", *Science Advances*, vol. 5, No. 7 (2019). Available at https://www.science.org/doi/10.1126/sciadv.aax0903

3.2 Enabling factors for operationalizing a comprehensive One Health approach

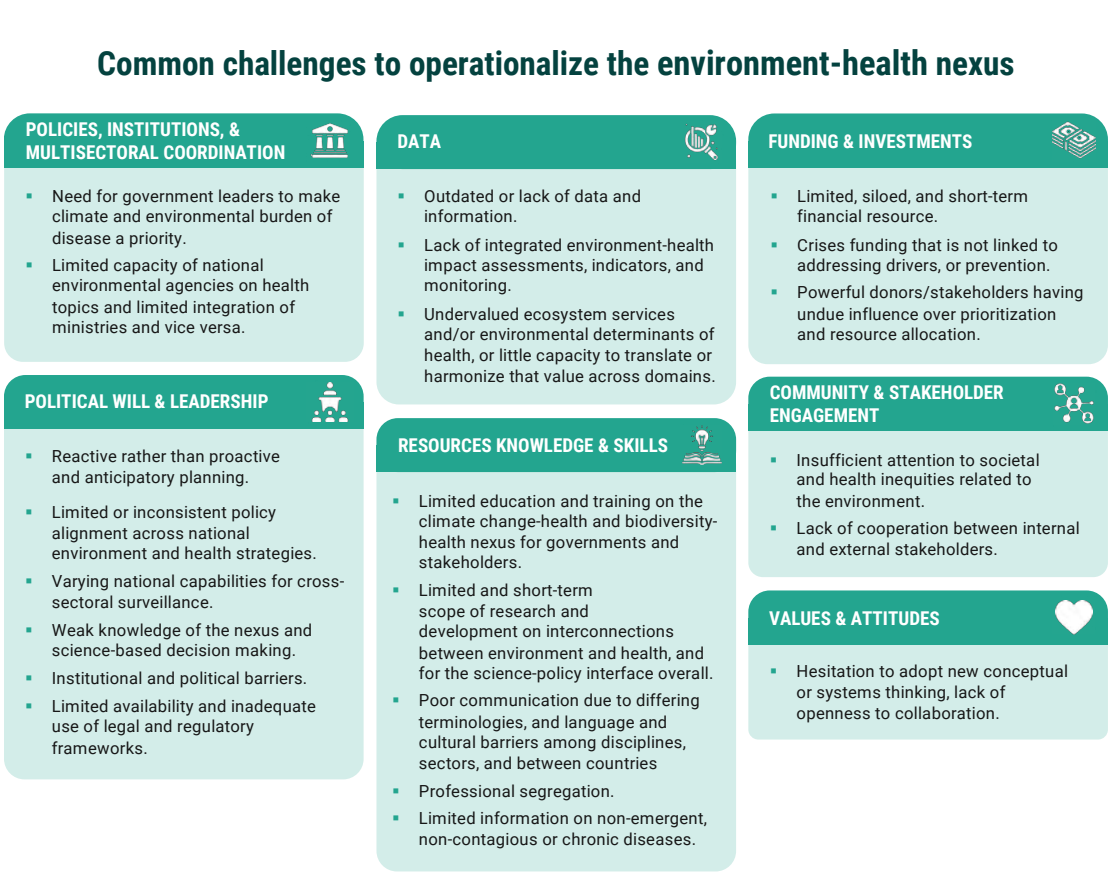
Systemic and structural transformation is needed to fully integrate the environmental dimension into One Health approaches, supported by the following interrelated enabling factors:

- multisectoral governance;
- integrated environment and health data and assessment;
- nature-based solutions;
- human rights-based approaches;
- stakeholder engagement and capacity-building;
- integrated environment-health funding streams; and
- regional cooperation.

Box 3: Addressing the challenges for operationalizing an environmentally comprehensive One Health approach

Challenges can provide indications for action needed to reach certain objectives. Common challenges for operationalizing an environmentally comprehensive One Health approach have been identified around political will and leadership; policies, institutions, and multisectoral coordination; funding and investments; community engagement; data; knowledge and skills; and values and attitudes (Figure 13).

Figure 13: Common challenges to operationalize the environment dimension of One Health



3.2.1 Enhance multisectoral governance for strengthening policy coherence

Non-health sectors play a key role in determining many public and global health outcomes. At the same time, health conditions, the health sector, and the health economy are affected by environmental degradation and the policies aiming to address them. The work of health professionals and health infrastructure needs to be risk-informed, and health systems should be sufficiently resilient to increasing and unpredictable threats related to the environment. For instance, it is estimated that 10 per cent of hospitals in many countries, and more than 20 per cent in **India**, **Viet Nam**, **Myanmar**, and **Nepal**, could be serving patients from biological and other health hazards related to climate change (ESCAP, 2021a).

Multisectoral health governance is a foundational strategy for sharing responsibility for healthy people and planet, and to ensuring health equity. It is considered the framework for addressing the role of health as a precondition, an outcome, and indicator of sustainable development, particularly in achieving the SDGs (WHO, 2018). Multisectoral health governance will prevent unintended negative consequences on health and well-being from policies and practices in non-health sectors. **Multisectoral health governance can be strengthened by applying the environment-health nexus at every stage of the policy cycle**, including agenda setting, policy formulation and adoption, implementation, and monitoring and evaluation (Figure 12).

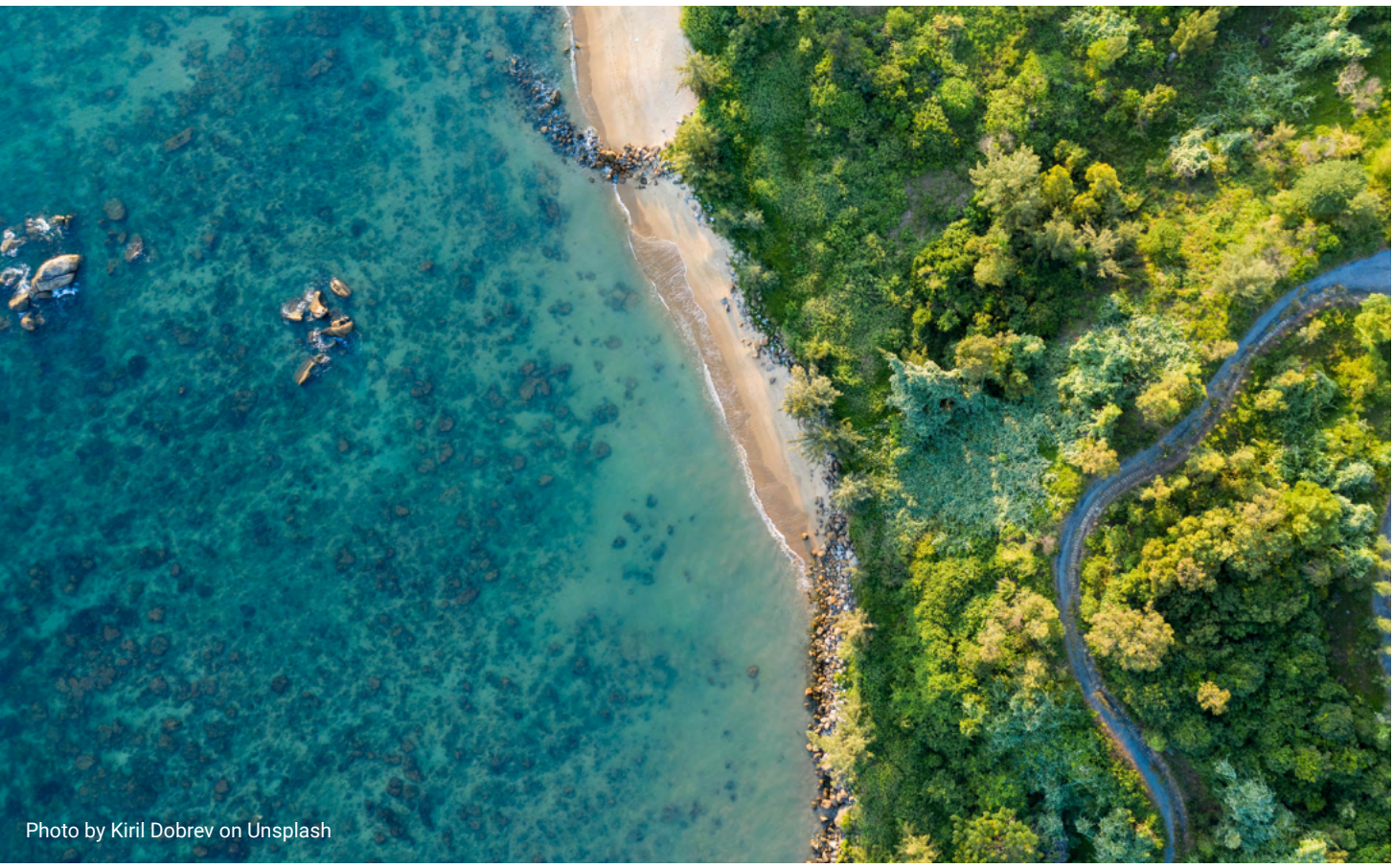


Photo by Kiril Dobrev on Unsplash

A review of national health plans, national biodiversity strategies, and climate change adaptation plans, in over 15 Asia and Pacific countries, indicates that multisectoral approaches are well acknowledged. However, *operationalizing* the type of multisectoral governance needed for an environmentally comprehensive One Health is still in its infancy for most countries.

A more comprehensive approach is needed to address the environmental determinants of health across all sectors. For instance, a broader view of the overlapping, complex and cascading environmental changes taking place, due to and alongside climate change, can improve adaptation and mitigation strategies. Similarly, a more comprehensive public health perspective on the relationship between ecosystem services and environmental determinants of health is needed to strengthen socioeconomic resilience, such as by looking at concurrent drivers and impacts from a landscape of environmental damages on prevalence and incidence of both communicable and noncommunicable diseases.

Investment in strategies to adopt common terminologies at the environment-health nexus is critical to aligning perspectives, agendas, assessments, investments, and objectives, as well as to adopting a shared vision of resilience. Moreover, a multisectoral approach would be enhanced by harmonized communication across disciplines, ministries, and stakeholders. Common integrated environment-health language and agreed framing of development, such as on a definition for nature-positive production, also would ensure standard measurability.

A foundation of work on multisectoral health governance has been done in the health sector through the Health in All Policies (HiAP) approach (WHO, 2018), which is largely focused on human health. According to the WHO, HiAP and One Health, this is considered to be "the most formalized approach to addressing health determinants", with One Health being the advanced version (WHO, 2018).

Box 4: Health in All Policies definition:

*"Health in All Policies is an approach to public policies across sectors that systematically takes into account the health implications of decisions, seeks synergies, and **avoids harmful health impacts** in order to improve **population health and health equity**. It **improves accountability** of policymakers for health impacts at all levels of policy making. It includes an emphasis on the consequences of public policies on health systems, determinants of health, and well-being".*[a]

a Ministry of Social Affairs and Health, Finland, and others, "Health in All Policies: Seizing Opportunities, Implementing Policies", 2013. Available at https://www.euro.who.int/__data/assets/pdf_file/0007/188809/Health-in-All-Policies-final.pdf


Photo by Spkphotostock on Envato Elements

The HiAP Framework for Country Action (2014) describes enabling factors that include a lead agent (ministry, head of government office, or public sector agency), vertical and/or horizontal integration, a supportive committee focused on intersectoral health, links to existing agendas and normative governance, legal, financial, rights-based, or international frameworks, and accountability mechanisms (WHO, 2014). Other essential elements to action HiAP are integrated assessments, shared indicators, and implementation science (WHO, 2018).

A starting point for advancing integration is to first evaluate the state of policy coherence of national environment and health plans. Existing institutional arrangements often reflect siloes and priorities within their respective environment or health domains, rather than comprehensive environment-health risk strategy or joint objectives. Assessing how environmental determinants of health have been shaped, mobilized or restrained in the national context would help build best practices for joint-ministerial and stakeholder work. New valuation, shared communication, risk mapping, and a focus on prevention are needed. In some cases, these existing platforms may serve as a foundation to build an environmentally comprehensive One Health policy 'hub'.

Policy coherence at the national level is likely to also promote greater alignment among multilateral environmental agreements (MEAs). Once countries reflect 'environmental determinants of health' in their MEA reports and communications, commonalities and distinctive features of the environment-health nexus can be identified and acted upon at the global level. Formation of national committees to jointly address and ensure policy coherence across multilateral environmental agreements, including their implementation and resource mobilization, could be a way to link national and global approaches more effectively. These hubs can also be used to inform regional and global processes, such as the UNFCCC and CBD.

Case studies

- **Viet Nam's One Health Framework, phase 2021-2025**, includes endorsement by the Ministries of Agriculture and Rural Development; Health; and Natural Resources and Environment (OHP, 2014).

- **Bangladesh**'s Inter-Ministerial Steering Committee on One Health, alongside a One Health coordination committee, unifies the work of four sectors (health, livestock and fisheries, environment and forests, and agriculture) into a **One Health secretariat** (Nitesh Debnath, 2020). The secretariat convenes diverse stakeholders and partners with international partners and development agencies.

- A good model of multisectoral health governance at the national level is the **1993 Affordable Health Care plan of Singapore**. A cornerstone to the health system is long-standing, cross-ministerial functioning of the government, which is a design aimed at minimizing costs by preventing disease and addressing the determinants of health. The model orients around building health into all aspects of urban planning, ongoing monthly ministerial meetings, and a norm of cooperation on joint issues (William Hasletine, 2013). Clean water, proper sanitation services, clean environment, good nutrition, and health education are all areas addressed through joint action.

- **The Republic of Korea's Health Plan 2030** also strongly highlights **Health in All Policies** and multisectoral governance. However, challenges are noted in implementation across ministries, leading to the Republic of Korea's recommendation for clear funding lines and secure links between programme elements and the National Health Promotion Fund (Dongjin Kim, 2021).

- Interesting advancements on multisectoral health governance are also evident in national environmental policies. For example, the **Philippine Biodiversity Strategy and Action Plan, 2015-2028** uses a framework oriented toward a "human well-being target" that includes improved health, avoidance of natural disasters, and biodiversity-related job creation. Implementation of the Plan also relies on broad interagency collaboration including with the Department of Health.

- **Thailand's 20-Year National Strategic Plan for Public Health, 2017-2036** weaves the environment throughout its vision, principles, objectives, and implementation. It is addressing **Health in All Policies** by establishing a district health board charged with promoting multi-sectoral collaboration and engagement from all sectors having an impact on health and development, and with enforcing relevant local legislations and regulations.

- As needed, WHO Country Cooperation Strategies can fill gaps in multisectoral health governance. For instance, **India's WHO Country Cooperation Strategy, 2019-2023** prioritizes environmental gap areas, including the environmental determinants of health, inter-ministerial collaboration, and evidence-building (WHO, 2022b).

- Through its new **"Thought on Ecological Civilization"**(Li Hongwei, 2019) development philosophy, **China** has merged and integrated an environmental vision and terminology into its national economic and social development plans, as reflected in the **China Climate Change Program** (China.org.cn, n.d.), **China Adaptation Strategy 2035**, and as aligned in its national health strategy which focuses on prevention. The plan emphasizes defining new relationships between people and nature that would permit living well, and within the eco-environmental bounds of planet (A. Hanson, 2019).

- The **Twelfth Malaysia Plan, 2021-2025**, integrates environment and health domains in a number of ways and for the "imperative to prioritise environmental health to reduce potential risks to all living things". It discusses climate-sensitive diseases under health-care delivery, and under a green economy describes a low-carbon, clean plan that emphasizes planetary health, sustainability, and resilience for sustained socioeconomic growth (Director General Economic Planning Unit, 2021).

- A good example of the integration of the health sector into adaptation planning is **Fiji's Climate Change and Health Strategic Action Plan 2016-2020**, whose main features are also integrated into the Fiji NAP. The purpose of this strategic plan is to build resilience to climate change impacts on health by empowering and assisting the people through an adaptive and sustainable health system in Fiji.

- **Cambodia's** sectoral climate change strategic plans have been put in place with the **Ministry of Health** charged with improving health-care infrastructure and capacity of health personnel to cope with vector-borne and water-borne diseases in the context of climate change. **Japan**, **Fiji** and **Tuvalu** have climate change strategies and binding legislation that reference adaptation strategies for multiple health impacts.

Successful multisectoral governance of the environment-health footprint in the Asia-Pacific region is connected to robust urban planning. Adopting sustainable urban design that promotes healthy lifestyles and sound environmental management was one of five priority actions in the 2016 Manila Declaration. This is even more important now that the region's urban population is expected to grow by 1.5 billion urban dwellers by 2050. Poor urban planning will inevitably maximize the social and environmental drivers of disease, while minimizing opportunity to avoid maladaptive coping strategies. Patient volume is only one of the planning challenges to be faced by the health sector and health economy. Many urban dwellers in the Asia-Pacific region live in informal, underserviced neighbourhoods, meaning environment-health challenges will be absorbed by limited clinical and other health services.

More attention should be paid by the health sector to environment-health threats of intermediate cities (100,000-500,000 people). These areas will comprise the majority and the fastest growth in the region, but their strategic planning tends to be neglected by national and regional authorities (UN-Habitat, 2022). Urban planning experts cite the need for adequate frameworks and legislation at the national or sub-national level, and better alignment between local needs and national urban planning frameworks (UN-Habitat, 2022). To that end, the majority of the smart city projects among the Association of Southeast Asian Nations (ASEAN) **Smart Cities Network** are in the health and well-being domain.

Lessons for multisectoral governance can be drawn from COVID-19 responses at the national level, in which most countries in the Asia-Pacific region set up multisectoral health committees. In addition to health, these committees included other sectors such as employment and agriculture. Such committees may benefit from multidisciplinary bodies that bring knowledge on environment and health together, and for timely recommendations, warning, and risk reduction action from across the environment-health nexus. To varying extents, networks of collaborations that are addressing separate issues, such as climate change and health, antimicrobial resistance and zoonoses (pre-2021 One Health scope), and disaster risk reduction, can be platforms for expanding the environmental dimension of One Health at the national level.

In the Asia-Pacific region, **Bangladesh**, **Bhutan**, **Myanmar**, **Thailand**, and **Viet Nam had or have national One Health strategic action plans** developed just prior to or during the COVID-19 pandemic, and based on the pre-2021 definition of One Health. These plans reflect multisectoral health governance, but in some cases, have inter-ministerial endorsement and can be used as building blocks for a comprehensive One Health approach. A strong commitment to the environment and climate change dimension, and broader health remit in the governance and funding arrangements of these existing plans will be crucial to address environment-health risks facing the region. On the other hand, determining if such hubs convene based on joint objectives or due to pooled resources is a key challenge.

3.2.2 Integrate environment and health data and assessments

Environment-health risk and vulnerability mapping is needed to build a shock-responsive and shock-prepared society. Major investment in integrated data collection, analysis, and interpretation is required to promote preventative management strategies and ensure effective programming, and to identify priority interventions that can deliver co-benefits, and ensure environmental and health justice.

As noted by the Intergovernmental Panel on Climate Change (IPCC), **health policies have not been designed or implemented to take into consideration environmental risks, making them insufficient to manage changing and growing health burdens related to these determinants** (IPCC, 2022a). The IPCC also notes that "while the knowledge base regarding global health has increased, a comprehensive *framework* is not in place that fully integrates health, well-being and environmental impacts from climate change allowing for the cumulative assessment of their impact" (IPCC, 2022a). The Intergovernmental Science-Policy Body on Biodiversity and Ecosystem Services (IPBES) further emphasizes a need to invest in assessing diverse values of nature, including for health, to enhance effective environmental decision-making (Figure 14) (IPBES, 2022a). Both the CBD (Article 14.1.a and b) and the UNFCCC (4.1.f) request parties to consider impact assessments as a way to recognize the adverse effects on the environment, and integrate biodiversity and climate change into national plans.

Photo by Lê Tân on Unsplash

Figure 14: Gaps in valuation and knowledge mobilization

Categories of knowledge and operationalization gaps that hinder the effective embedding of nature's diverse values in decision-making

Most pressing issues	Potential solutions
Conceptualization of nature's diverse values	Document the diverse values of nature for different sociodemographic groups, social-ecological contexts, spatial and temporal scales, and knowledge systems
Choice of valuation methods to support decision-making	Design valuation processes to fit decisions that lead to specific outcomes
Understanding notions of "value" and "valuation" for indigenous peoples and local communities	Make visible the values of indigenous peoples and local communities on their own terms
Ensuring the uptake of valuation results in decision-making	Document the uptake of valuation into decisions, the barriers and enablers of uptake, and the outcomes derived from uptake
Designing and operationalizing policy tools that consider nature's diverse values	Document best-practice policy tools and their transformative change potential
Considering values and valuation as leverage points for transformative change	Assess how institution can better embrace nature's diverse values and how sustainability-aligned values can be further mobilized
Understanding the role of values in future scenario planning and development	Document how nature's values play a role in future scenarios, and the role of sustainability-aligned values in shaping sustainability pathways
Considering justice perspectives in valuation	Analyse the role of power in value expression and how justice dimensions are influenced by valuation

Source:
ESCAP, adapted from Table SPM.5 from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), "Summary for policymakers of the methodological assessment of the diverse values and valuation of nature of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services", Bonn, Germany, 2022 p. 33. Available at https://doi.org/10.5281/zenodo.6522392

Integrated environment-health impact assessments are needed for evidence-based strategies. Despite long-standing calls for integrating environment-health impact assessments over the last decades, significant gaps remain (Ministry of Social Affairs and Health, Finland, and others, 2013). These assessments are needed to inform and improve *evidence-based* national strategies, and to harmonize state reporting and communications required across different multilateral environmental agreements. This data is also essential for rapid response to environment-health threats, such as emerging zoonotic pathogens, water quality risks, and air pollutant levels. Equally important is data that expresses the cumulative environment-health burden on the health system and health economy in terms of exposure, disease outcome, and cost. Increased understanding of the environmental burden of disease will strengthen policy decisions and action.

A review of NBSAPs in the Asia-Pacific region indicate that integrated environment-health impact assessments are not common. In **Cambodia**, the Ministry of Health participates in many phases of the **environmental impact assessments (EIAs)** process, which includes monitoring and reporting on the ecological, social, health-related, and economical aspects of biodiversity. **The Twelfth Malaysia Plan 2021-2025** states its intent to "safeguard natural capital" and highlights that health and social impact assessments are conducted alongside EIAs to support evidence-based and risk-informed decision-making (Director General Economic Planning Unit, 2021). **The Republic of Korea** does not reference integrated assessments directly, but a multisectoral approach is prominent in its NBSAP which has a "No Net Loss" Natural Resources Policy that carries through to its **EIAs** (The Republic of Korea, 2018).

Existing guidance and methods for environmental impact assessments (EIAs) should better respond to the needs at the environment-health nexus. An enhanced environment-health risk approach would entail ensuring that these assessments encompass future impacts on health and well-being. This could be enhanced throughout the EIA process, such as requiring health factors be included in the screening process, normalizing health stakeholder participation in various stages, and requiring that the EIA include social and health components. In terms of the components of the assessment, the scope should include: 1) temporal impacts, such as immediate, slow-onset, and chronic health impacts; 2) cumulative health impacts; and 3) scaled impacts, such as whether anticipated environmental degradation affects health at the local, sub-national, or national level, as well as if it contributes to global environmental or transboundary change, such as climate change (Figure 15). Rights-based approaches are another way to strengthen requirements and compliance with EIAs.

Box 5: Overview on environmental impact assessments

According to UNEP, **Environmental Impact Assessments (EIAs)** are the "most commonly known, used, and globally widespread, environmental planning and management tools", with **Strategic Environmental Assessments (SEAs**) gaining popularity. Their objective is to make sure that all critical information to predict future impact on the environment is provided and considered in the decision-making process, and that any activity or strategy with significant negative impacts is avoided while positive impacts are enhanced. EIAs assess planned physical developments while SEAs assess government plans, programmes or policies.

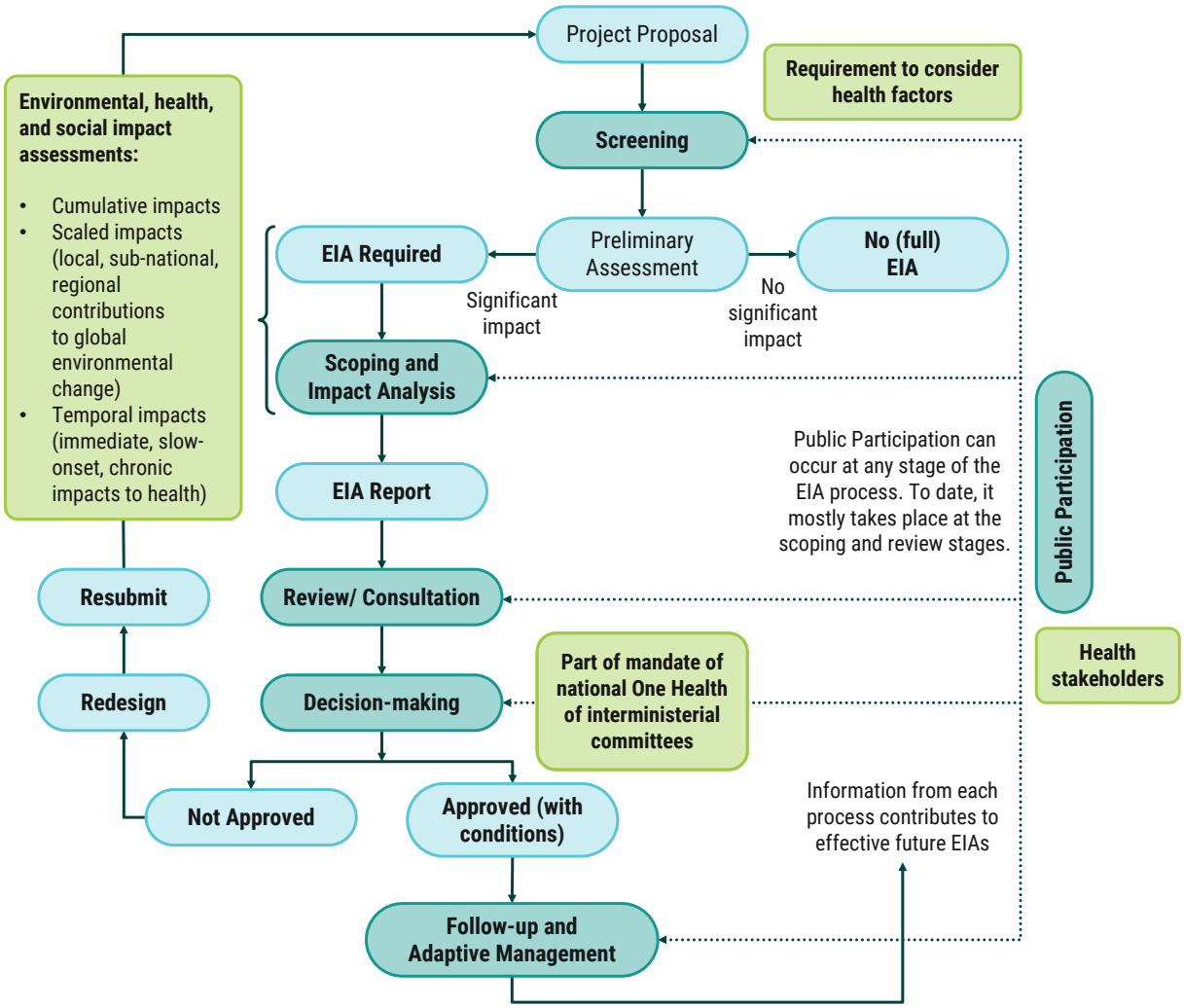
Current policy priorities on EIAs:
Investment in strategies to enhance implementation of EIAs is a priority. Global trends have had significant impacts on EIA advancement at national and regional levels. Historically, national progress on adoption and integration of EIAs into frameworks and implementation has been greatly influenced and mobilized by multilateral development banks, strong stakeholder engagement, and advancements in global environmental frameworks.

Priority aspects of institutional arrangements for strengthening the health dimension of EIAs:

1. **EIAs could be strengthened by *requiring* comprehensive environment-health screening factors.** For instance, the typical common factors *suggested* for inclusion in EIAs are: biodiversity and ecosystem services; climate change (mitigation and adaptation); risks of accidents and disasters; social impacts, including to indigenous and local communities; community and traditional knowledge; population and human health; transboundary effects; and the marine environment.
2. **Stronger focus on integrated environment-health assessment alongside, or as part of EIAs, as well as policy and decision-making, and post-implementation assessment.** An administrative requirement for integrated assessment of any greenfield investment or new policy initiative, and for the examination of the results of the assessment by inter-ministerial committee on One Health can help strengthen mainstreaming.
3. **Robust linkages between the environment-health impact assessment and the government permitting processes**, ensuring that the permitting process includes a robust review of environment-health risks, and that the assessment is considered an integral part of the decision-making process.
4. **Enhancing awareness raising and capacity-building to deliver the benefits of integrated environment-health impact assessments.** The capacity of public institutions to effectively utilize integrated environment-health assessments in policy and decision-making, and of public officials to ensure high-quality assessment and compliance with such provisions, requires attention.

Source:
United Nations Environment Programme (UNEP), "Assessing Environmental Impacts: A Global Review of Legislation", 6 February 2018. Available at https://www.unep.org/resources/assessment/assessing-environmental-impacts-global-review-legislation

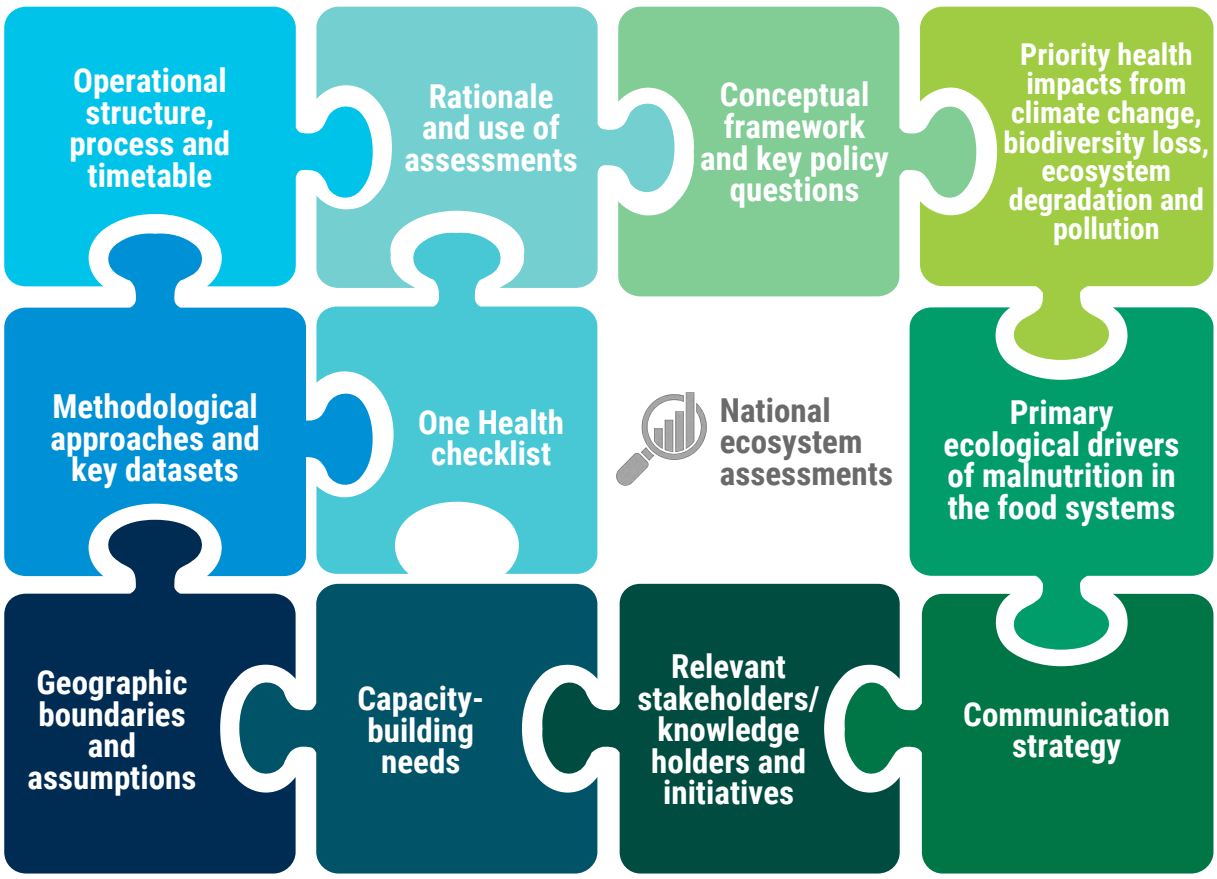
Figure 15: Enhancing the EIA process to be health-sensitive



Source:
Adapted from Figure 1 EIA process and flowchart, UNEP Assessing Environmental Impacts: A Global Review of Legislation.

National ecosystem assessments (NEAs) are another tool that, if health elements are strengthened, can enhance decision-making for environmentally comprehensive One Health. IPBES has mobilized efforts to develop broader NEAs that evaluate and expose the importance of context-specific nature values to stakeholders, governments and decision makers (National Ecosystem Assessment Initiative, 2022). A **category on environment-health risks could be added to the national ecosystem assessments scoping process,** to encourage stakeholders and governments to consider these risks in framing, accounting, capacity-building, communication, and policymaking (National Ecosystem Assessment Initiative, n.d.). For instance, a category on the priority health impacts from environmental degradation and/or on the primary environmental drivers of malnutrition in the food system could add valuable depth to an NEA. Health stakeholders should be included in the scoping review process for key elements in developing NEAs to support an environmentally comprehensive One Health approach (Figure 16).

Figure 16: Developing national ecosystem assessments to operationalize an environmentally comprehensive One Health approach



Source:
Adapted from National Ecosystem Assessment Initiative, "Capacity-building material for national ecosystem assessments: Scoping stage", n.d. Available at https://www.ecosystemassessments.net/content/uploads/2022/04/Scoping-Stage_EN.pdf

The human shaping of biodiversity and the evolution of cultural practices related to biodiversity, known as biocultural diversity, can be better emphasized in assessments (Hans Keune and others, 2022a). The **Akwé: Kon Guidelines** are one tool for deepening the evaluation of health in biodiversity impact assessments, particularly in terms of scope, baseline study, and safety aspects.[7] Only 1 NBSAP (Cambodia), in a review of 15 plans of the Asia-Pacific region, referenced these Guidelines. In a review of 15 health plans, only 3 countries drew attention to a form of traditional knowledge. **Japan** referenced culture in terms of diet. **Australia** considers culture from the perspective of diet, knowledge, healing, and language. In **Thailand,** the Department of Thai Traditional & Alternative Medicine, lies within the Ministry of Health, and includes a target and indicator on traditional knowledge in its national health plan.

Spatial data and artificial intelligence are unexplored and underdeveloped tools to enhance data and risk mapping across environment and health domains, and for assessing vulnerable communities and populations. Environmental justice will be increasingly important to managing risk. The **Global Atlas of Environmental Justice** which produces various maps, including by country, to describe cases of social conflict on environmental issues, is one tool enabling targeted assessments (Loughnan, Nicholls and Tapper, 2012). **The Risk and Resilience Portal** is another useful tool that supports multiple sectoral ministries to develop risk informed planning and budgeting around the disaster-climate-health nexus, using calculations and mapping based on global spatial datasets on natural and biological hazards, health-related indicator, socioeconomic vulnerability, and critical infrastructure such as health facilities (ESCAP, n.d.). A successful example to map environmental risk alongside health outcomes is a study in **Australia** which developed a spatial vulnerability index to assess urban heat (Loughnan, Nicholls and Tapper, 2012).

7 Akwé: Kon Guidelines are voluntary guidelines for the conduct of cultural, environmental and social impact assessments regarding developments proposed to take place on, or which are likely to impact on, sacred sites and on lands and waters traditionally occupied or used by indigenous and local communities. See Convention on Biological Diversity, “Akwé: Kon Guidelines". Available at https://www.cbd.int/doc/publications/akwe-brochure-en.pdf

Box 6: Improving integrated categorization of environmental determinants of health in national plans

Within and across plans, and in many governance reports, environmental determinants of health may fall outside a 'health' category. This organization is confusing and inhibits shared responsibility. For example, WASH – a fundamental component to health and disease prevention – is often separate from 'health'. This is also the case for food, which is commonly apart from 'health'. See, for example, the format of the IPCC's Climate Change Impacts and Risks for Asia factsheet which segregates 'health', 'water', and 'food'.[a]

In some cases, this can lead to very significant separation of objectives and outcomes, such as de-coupling food production from nutritional outcomes. Moreover, categorization influences how health is interpreted, valued, measured, and planned. Fragmented categorization is a barrier to integrated data and impact assessments, and cohesive funding. Improved categorization is a useful starting point for discussion on inter-ministerial work and operationalizing environmentally comprehensive One Health.

a Intergovernmental Panel on Climate Change (IPCC), Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change: Fact Sheets (Cambridge and New York: Cambridge University Press, 2022a). Available at https://www.ipcc.ch/report/ar6/wg2/about/factsheets/

Photo by aboodi vesakaran on Unsplash

Within EIAs and NEAs, the capacity for managing and interpreting information on the environmental determinants of health needs to be strengthened. Environment-health issues invite diverse interpretations, valuation methods, and qualitative and quantitative measures, including across diverse knowledge systems, making it difficult to harmonize and compare information across borders and aggregate analyses at the regional or global level. Even when economic and non-economic values are significant, generalization is difficult (IPBES, 2022b).

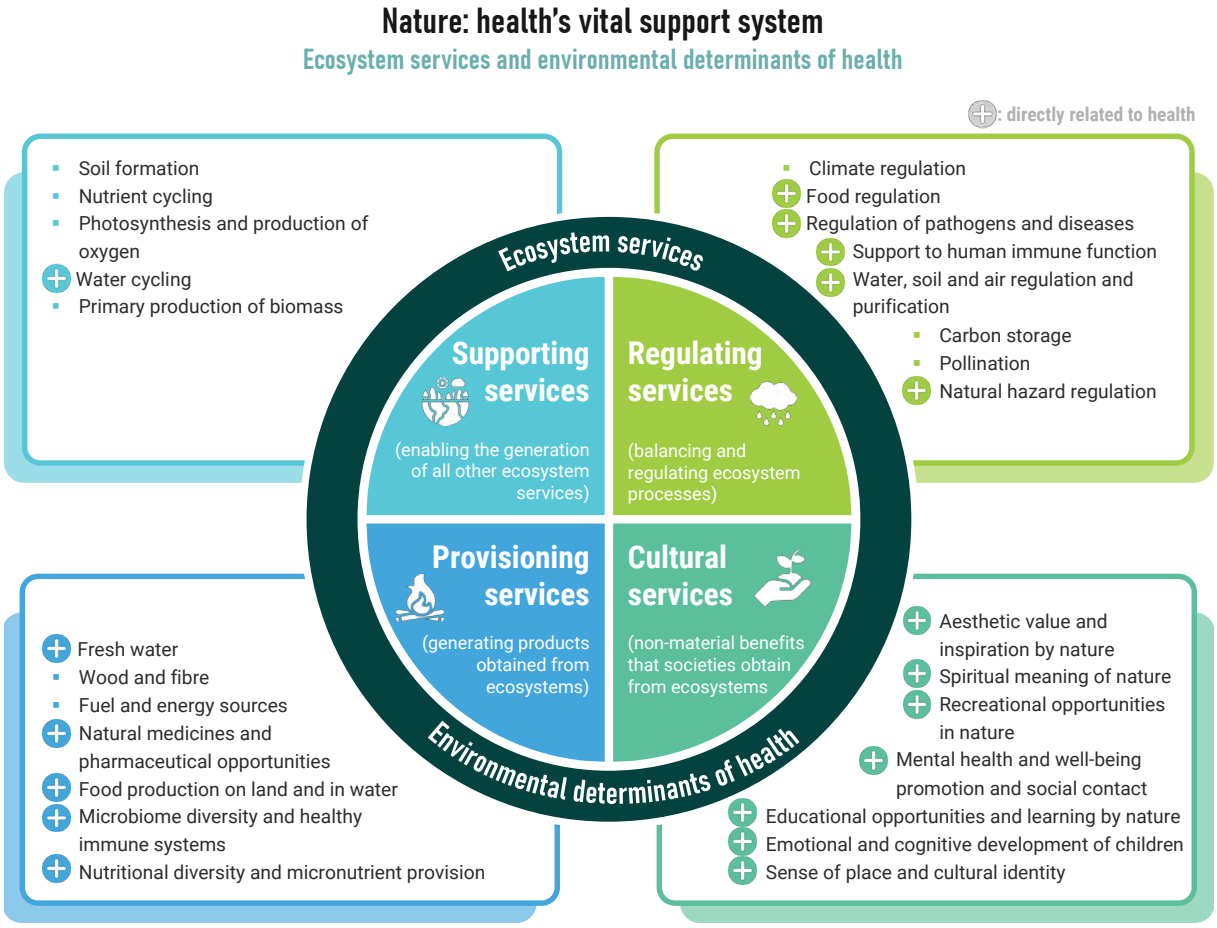
Advancements in valuation, to account for the role of ecosystem services in supporting positive health outcomes, will also be important to integrated EIAs and NEAs, and agenda-setting on One Health. This information is valuable to various ministries and should be integrated into cross-sectoral planning and implementation, and, for instance, can be taken up to inform the cumulative environment-health impacts of EIAs. Ultimately, ecosystem services are environmental determinants of health and health equity, and these ideas should be integrated and taken up across sectors (Figure 17). While there are some ecosystem services that directly support health, all ecosystem services underpin health and well-being. Some countries, such as **Thailand,**[8] have begun the scoping phase for a national ecosystem assessment that includes nature's contributions to people.[9]

Health benefit assessments are most actionable for risk management if they are defined as health outcomes, such as the number of new cases of disease per year, rather than health outputs, such as net hospital revenues. China has had success on some sustainability factors following investment in protecting and preserving natural capital as a response to its **2010 National Ecosystem Assessment** (Zhiyun Ouyang, 2016). A review of this project highlighted the challenge of linking investment to positive improvements in habitats, while at the same time more comprehensive risks in line with One Health are not included. One proposal in this regard is looking at economic, biophysical, and health metrics according to each ecosystem category (National Academies of Sciences, Medicine, Engineering (2022). With this approach, monitoring and review mechanisms can use annual environmental burden of disease metrics to track progress. Handbooks on environmental accounting for material footprint co-developed by **UNEP, the International Resource Panel, Eurostat and OECD** (United Nations Environment Programme and others, 2021), and on urban ecosystem accounting developed by the **UNEP** and the **World Conservation Monitoring Centre** are useful to the Asia-Pacific region (UNEP-WCMC, 2022).

8 See "National Ecosystem Assessment Thailand", n.d. Available at http://www.neathailand.in.th/en/

9 Nature's contribution to people (NCP) is a concept developed under IPBES and is defined as: all the contributions, both positive and negative, of living nature (i.e. diversity of organisms, ecosystems, and their associated ecological and evolutionary processes) to the quality of life for people. Beneficial contributions from nature include such things as food provision, water purification, flood control, and artistic inspiration, whereas detrimental contributions include disease transmission and predation that damages people or their assets. Many NCP may be perceived as benefits or detriments depending on the cultural, temporal or spatial context.

Figure 17: Nature's benefits for health and well-being: Ecosystem services and environmental determinants of health



Source:
Adapted from World Health Organization (WHO), Regional Office for Europe, "Nature, biodiversity and health: an overview of interconnections", Copenhagen, 2021b. Available at https://www.who.int/europe/publications/i/item/9789289055581, and Millennium Ecosystem Assessment, "Ecosystems and Human Well-being: Synthesis", Island Press, Washington D.C., 2005. Available at https://www.millenniumassessment.org/documents/document.356.aspx.pdf

Regional institutions can facilitate country inputs into the Quadripartite Global One Health Intelligence System (GOHIS) (FAO, 2022b), which aims to improve intelligence to address environment-health threats by linking and expanding existing information and alert networks and systems into one framework. An optimal intelligence framework is also based on robust national information that is sector-specific, reliable, transparent, obtained in close-to-real time, and delivered in a timely way. It should assist in the identification of emerging threats, assessing the probability and character of a threat, supporting identification of measures to mitigate risk, and facilitate comprehensive data-sharing. Stakeholders in the Asia-Pacific region should ensure that the environment-health dimension of this system is comprehensive.

Box 7: Spotlight on integrated data management

India is tackling data management at the environment-health nexus in multiple dimensions. Its **National Biodiversity Action Plan (2014)** lists a target for enumerating and identifying safeguards for ecosystem services, especially those relating to water, human health, livelihoods and well-being. The Plan has impressive details, such as on pollution. Most countries reference pollution in their plans, but India stands out by identifying eight sub-types across soil, air, and water ecosystems and urban environments. In addition, **India's WHO Country Cooperation Strategy** supports surveillance mechanisms on the environmental determinants of health, such as air pollution, data collection on climate-sensitive disease, and a digital health information platform that integrates noncommunicable disease and environmental risk factors.

The Republic of Korea's National Biodiversity Strategy 2019-2023 provides significant detail on water pollution for freshwater, tributary, coastal, and marine environments. It frames assessment around pollutant load, organic carbon and heavy metal content, and includes hazardous materials and non-point sources. It complements this plan with solutions, such as using GIS technology to monitor farm run-off, green storm infrastructure, bioremediation enzymes, and biomimicry technology for a blue economy to replace imported biological species with indigenous ones. Part of its integrated management for pollution is to encourage use of eco-friendly materials.

Cambodia has developed a solid framework for integrated measurement, reporting and verification of its NDC. The system will detail how monitoring will occur, how data will be managed, aggregated and translated into reports, with a particular focus on gender and vulnerable groups. The importance of gender-disaggregated data is vital to understand how climate change impacts women's health and well-being differently.

3.2.3 Promote nature-based solutions to enhance health-related ecosystem services

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Co-benefits are a clear priority for and an advantage of the One Health approach. Strategies that protect biodiversity, ecosystem integrity, and ecosystem services will have co-benefits for health, both now and into the future, while avoiding potentially irreversible changes to ecosystems and loss of health-benefiting ecosystem services.

Nature-based solutions (NbS) can protect and enhance health-related ecosystem services and should be taken up as tools of multisectoral governance, strategically investing in the health of targeted ecosystems and ecosystem functions to reduce health risks and improve health outcomes. Nature-based solutions could offer one way to meet simultaneous objectives across ministries for protection of ecosystem services and environmental determinants of health, including those related to climate change, biodiversity loss, food and urban systems (Figure 18). With careful planning, cross-sector coordination, and standardization, nature-based solutions could address inter-related risks in a cost-effective way.[10]

10 Well-designed, NbS can align with the Geneva Charter for Wellbeing by embodying "investments that integrate planetary, societal, community and individual health and well-being, as well as changes in social structures to support people to take control of their lives and health".

Box 8: What are nature-based solutions?

***Definition of NbS according to the International Union for Conservation of Nature**:*

"NbS are actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously benefiting people and nature.

Nature-based Solutions address societal challenges through the protection, sustainable management and restoration of both natural and modified ecosystems, benefiting both biodiversity and human well-being. Nature-based Solutions are underpinned by benefits that flow from healthy ecosystems.

They target major challenges like climate change, disaster risk reduction, food and water security, biodiversity loss and human health, and are critical to sustainable economic development."[a]

NbS focus on restoring and enhancing underutilized elements and functions of part or whole ecosystems. These actions aim to manage risks of and from natural hazards, extreme weather, and improve water availability and quality and enhance food security. Examples include: 1) strategic application of diverse species for specific needs, such as trees in urban areas or salinity-tolerant seeds in flood zones; 2) support for ecosystem integrity in vulnerable areas, such as coasts; or 3) promoting specific ecosystem services, such as clean water. There are other indirect connections between nature-based solutions and well-being, such as promoting healthy habitats for pollinators upon whom we largely depend for crops containing essential dietary vitamins.[b] Nature-based solutions also can minimize production costs, such as using agrobiodiversity to reduce the need to apply chemical inputs to soils, and they also support traditional knowledge and localized community involvement.

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a International Union for Conservation of Nature (ICUN), "Nature-based Solutions", n.d. Available at https://www.iucn.org/our-work/nature-based-solutions

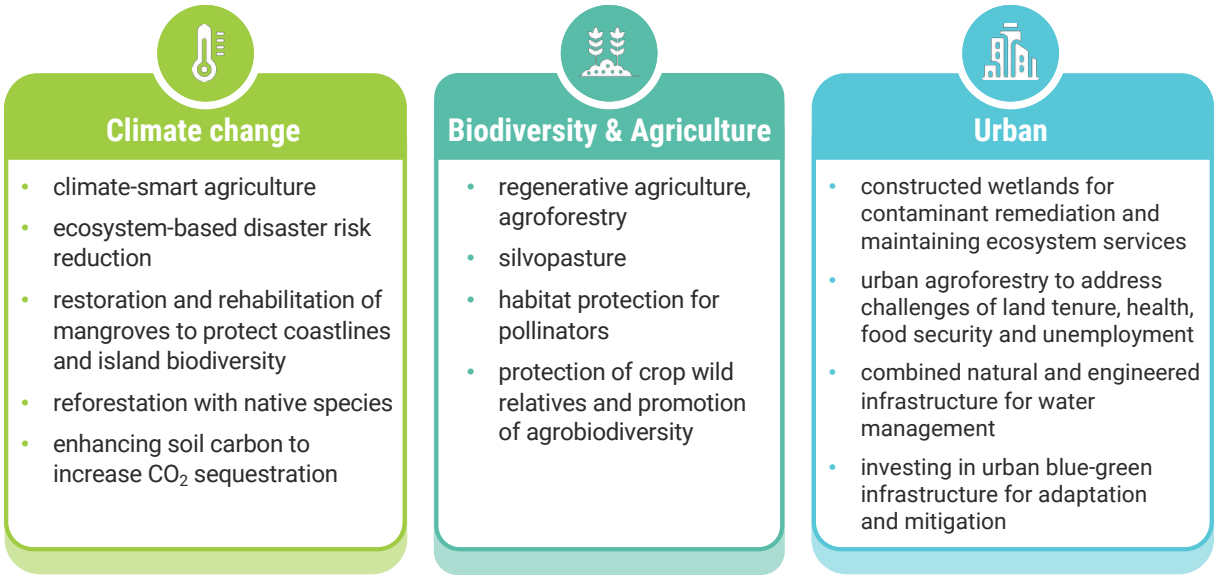
b United Nations Development Programme (UNDP), "Human Development Report 2020: The next frontier – Human development and the Anthropocene", 2020. New York. Available at https://hdr.undp.org/system/files/documents//hdr2020pdf.pdf

NbS are particularly relevant in the food sector, which is why **New Zealand** has embarked on a project to plant one billion trees "on the right site for the right purpose", informed by indigenous knowledge, to diversify landscapes as part of agroecological farming systems. It is considered "a vital tool for integrated landscape approach which address the twin crises of climate change and biodiversity loss" (UNEP, 2019). NbS can also be used to address the food-water-climate nexus and reduce risks of floods, and improve water quality and security. Integrated watershed solutions encompassing the full water cycle, including in urban planning, and in alignment with national health objectives on WASH, are essential to environment, health, and socioeconomic risk reduction.

NbS are also useful to public health programming. Singapore has innovated a nature-based activity for addressing chronic pain, enhancing cognitive function, lessening stress, and improving mobility of the elderly through its therapeutic gardens concept (Singapore National Parks Board, 2017). This network of therapeutic nature spaces is housed in the national park system.

NbS should be mainstreamed and harmonized across national environment and health plans in the Asia-Pacific region. Cross-sector coordination, as well as the use of safeguards and standards for NbS, will be important to ensure that trade-offs are considered and minimized and co-benefits, especially for social equity, are enhanced.

Figure 18: Nature-based solutions by type: climate change, biodiversity and agriculture, and urban



Source:

- For the Climate Change box, see Intergovernmental Panel on Climate Change (IPCC), "Climate Change 2022: Impacts, Adaptation, and Vulnerability. Summary for Policymakers", Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge and New York: Cambridge University Press, 2022a. Available at https://report.ipcc.ch/ar6wg2/pdf/IPCC_AR6_WGII_SummaryForPolicymakers.pdf
- For the Biodiversity and Agriculture box, see United Nations Development Programme (UNDP), "Human Development Report 2020: The next frontier – Human development and the Anthropocene", 2020. New York. Available at https://hdr.undp.org/system/files/documents//hdr2020pdf.pdf
- For the Urban box, see *The future of Asian and Pacific cities: Transformative pathways towards sustainable urban development* (United Nations publication, 2019).

3.2.4 Promote a human rights-based approach to health and environment

Protecting human rights to life, health, food, water and sanitation is one of the tools for joint problem-solving and action. A clean, healthy and sustainable environment is a matter of justice. The fulfilment of people's rights are at risk when the environment is at risk, and "human rights ultimately depend on a healthy biosphere" (OHCHR, 2022). Inclusive governance that prioritizes equity and justice in planning and implementation leads to more effective and sustainable outcomes.

The identification and integration of gender and human rights issues and approaches is vital because the exposure to multiple hazards, as well as the capacity to adapt, varies across social and economic groups. Environmental degradation has complex and intimate impacts to the health and well-being, and social standing, of women and girls (United Nations and United Nations Entity for Gender Equality and the Empowerment of Women, 2020). Gender equality and empowerment have been identified as key drivers of transformational change in international agreements, including the 2030 Agenda, the UNFCCC, and the CBD.[11] Ensuring women's full, equal and meaningful participation and access to opportunities and resources are necessary to maximize their potential as active agents of change, given their contributions to society, where they play an important role as caregivers, health-care providers, and environmental stewards.

The identification, communication, and protection of the rights of vulnerable and marginalized groups, including women, children, indigenous communities, among others, are particularly vital due to their exposure to multiple environment-health hazards and impacts that can result from systemic socio-cultural bias. A human rights-based approach requires specific attention to identifying inequality and vulnerability, empowering people to know and claim their rights, and creating avenues for accountability so people can seek remedies when their rights are violated.

11 See Adoption of the Paris Agreement, Decision 1/CP.21, p. 7; Conference of the Parties to the Convention on Biological Diversity, CBD/COP/14/4, Decision 14/18; and the 2015-2020 Gender Plan of Action.

Box 9: **Recognition of human rights associated with environmental protection by international bodies**

In 2009, the **Human Rights Council** noted that "climate change-related impacts have a range of implications, both direct and indirect, for the effective enjoyment of human rights including, *inter alia*, the right to life, the right to adequate food, the right to the highest attainable standard of health [...]".[a]

The **Committee on Economic, Social and Cultural Rights** has also stated that the right to health "extends to the underlying determinants of health, such as food and nutrition, housing, access to safe and potable water and adequate sanitation".[b]

The **IPCC** recognizes that inclusive, equitable and just adaptation pathways are critical for climate resilient development and require consideration of SDGs, gender, indigenous and local knowledge and practices, and planetary health.[c]

Similarly, the **IPBES** indicates that transformative change is facilitated by inclusive, informed and adaptive governance.[d]

In its vision, the **Committee on World Food Security** highlights the implementation of the progressive realization of the right to adequate food in the context of national food security, which was an approach endorsed by its member states, in 2004, following the endorsement of the FAO Council's Voluntary Guidelines on the Right to Adequate Food in 2004.

At its ninth session, the **Asia-Pacific Forum for Sustainable Development** recognized the need for sustainable and inclusive approaches to deliver on the 2030 Agenda and called for policy actions to be grounded in human rights, to focus on vulnerable populations, and empower women and girls.[e]

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a Human Rights Council, "Resolution 10/4, Human Rights and Climate Change", Tenth session, 2009. Available at https://ap.ohchr.org/documents/E/HRC/resolutions/A_HRC_RES_10_4.pdf

b See United Nations Human Rights Council, "Report of the Special Rapporteur on the issue of human rights, obligations related to the enjoyment of a safe, clean, healthy and sustainable environment", 1 February 2016. A/HRC/31/52

c H.-O. Pörtner and others, "Technical Summary", in *Climate Change 2022: Impacts, Adaptation, and Vulnerability*, Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (Cambridge and New York: Cambridge University Press, 2022). Available at https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_TechnicalSummary.pdf

d Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), "Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services", Bonn, Germany, 2019. Available at https://ipbes.net/global-assessment

e United Nations Economic and Social Council, "Report of the Ninth Asia Forum on Sustainable Development", 7 April 2022. ESCAP/RFSD/2022/5. Available at https://www.unescap.org/sites/default/d8files/event-documents/APFSD22%20draft%20report_30%20March%202022%20-%20share.pdf

The relevance of the **United Nations General Assembly's recognition of the human right to a clean, healthy and sustainable environment,** in 2022, is that it consolidates the international legal foundation for the environment-health nexus (A/RES/76/300). This, along with the right to water and to food, is anticipated to accelerate environment-health integration across society and sectors. The resolution also affirms that the promotion of the right to a healthy environment requires full implementation of all multilateral environmental agreements.

A regional assessment of the state of implementation of the right to a healthy environment is advised. Several Asia-Pacific countries, including **China** (State Council Information Office, 2017), **Fiji** (Government of Fiji, 2021), **Indonesia** (Republic of Indonesia, n.d., Article 28 H (1), **and Thailand** (Constitute, 2022, Section 43 (2), acknowledge the right to a healthy environment as a human right, however, the degree of implementation of this concept is unclear.

Photo by MI PHAM on Unsplash

Case studies

- **Fiji's Climate Change Act, 2021** recognizes the rights: to a clean and healthy environment; to adequate food and water; to health; of children and persons with disabilities; to housing and sanitation; and to reasonable access to transportation (Government of Fiji, 2021, section 65 (a) to (f)). The rights to health and to a healthy environment are also reflected in **Fiji's National Adaptation Plan** (Government of Fiji, 2018).

- The **Solomon Islands National Biodiversity Strategic Plan, 2016-2020** recognizes the principle of intergenerational equity and a precautionary approach.

A growing environment-health footprint means increasing human rights implications for future generations. In the Asia-Pacific region, 12 countries score among the 50 most-at-risk countries on UNICEF's Children's Climate Risk Index (UNICEF, 2021b). The Index identified that children in **Myanmar**, **Philippines**, **Papua New Guinea**, and the **Republic of Korea** are among the most at risk of climate change in East Asia and the Pacific, and that **Viet Nam**, **China**, the **Laos People's Democratic Republic**, **Cambodia**, **Indonesia** and **Thailand** are also among the 50 countries in the world that are most at risk. The human right to a healthy, clean, sustainable environment is a priority for UNICEF, who promotes multisectoral advocacy and action for children's health and well-being. UNICEF supports uptake of children's rights across multilateral environmental agreements, and for example, "child-focused climate change adaptation" and "child-sensitive" nationally determined contributions (UNICEF, 2021a).

National constitutions, policy, planning and regulatory frameworks in the Asia-Pacific region should be assessed for gaps or inconsistencies with regards to the right to a healthy environment, and to their coherence and integration with health objectives, particularly in light of the Framework Principles on Human Rights and the Environment (Box 10) (A/HRC/37/59). Legal and institutional frameworks should be strengthened to protect against environmental harms that interfere with the enjoyment of human rights to health, food, water, sanitation and a clean, healthy and sustainable environment.

Box 10: Framework Principles on Human Rights and the Environment[a] require States to:

Ensure:
- the right to a clean, healthy and sustainable environment is respected and protected;
- the effective enforcement of their environmental standards;
- protection of indigenous peoples and members of traditional communities.

Provide:
- a safe and enabling environment for individuals and groups that work on human rights;
- for education and public awareness;
- access to environmental information and facilitate participation in decision-making;
- access to effective remedies for violations of human rights and domestic laws relating to the environment.

Prohibit discrimination and ensure equal and effective protection.

Avoid undertaking or authorizing actions with environmental impacts that interfere with the full enjoyment of human rights.

Establish and maintain:
- substantive environmental standards that are non-discriminatory, non-retrogressive and otherwise respect, protect and fulfil human rights;
- and enforce effective international legal frameworks.

- **Take additional measures** to protect the rights of those who are more vulnerable or at particular risk.

- **Respect**, protect and fulfil human rights in the actions they take to address environmental challenges and pursue sustainable development.

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a United Nations Human Rights Council, "Framework Principles on Human Rights and the Environment", 24 January 2018. A/HRC/37/59.

3.2.5 Promote stakeholder engagement and capacity-building

Sustained collaborative stakeholder involvement over the long-term, and across diverse values, cultures, and interests is essential to ensuring a comprehensive environment-health nexus and risk prevention approach (United Nations Human Rights Special Procedures and others, 2018, Principle 9). The urgency to create "well-being societies" was taken up in a global meeting convened by the **WHO,** in 2021, where participants agreed on a **Geneva Charter for Well-being** (WHO, 2021b)**.** The Charter emphasizes a whole-of society approach and calls upon diverse stakeholders to engage in a "fundamental redirection of societal values and action consistent with the 2030 Agenda". This includes valuation, respect and nurturing of the natural environment, and economic development within planetary and local ecological boundaries.

Stakeholder engagement should involve interactive and participatory processes. States should also provide for and facilitate public participation in decision-making related to the environment and take the views of the public into account in the decision-making process (United Nations Human Rights Special Procedures and others, 2018, Principle 9). The **Climate and Health Alliance (CAHA)**, a national coalition of health stakeholders in Australia, is an example of the meaningful impact stakeholder groups can have on public perception and decision-making. This coalition led a two-tracked campaign to build public and political support in the lead up to the 2022 federal election, resulting in climate change becoming a leading issue and contributing to the election of a pro-climate government and many pro-climate officials (Fiona Armstrong, Remy Shergill, Arthur Wyns, 2022).

Stakeholder engagement should be supported by regularly collecting, updating and disseminating environmental information, including information about: the quality of air and water; discharge of pollution, waste, chemicals and other potentially harmful substances introduced into the environment; environmental impacts on human health and well-being; and relevant laws and policies (United Nations Human Rights Special Procedures and others, 2018, Principle 9). Public access to environmental information enables individuals to make decisions to protect themselves and their ecosystems. Such information allows communities to understand how environmental harm may undermine their rights, including the rights to life and health, and supports their exercise of other rights, including the rights to expression, association, participation, and remedy (United Nations Human Rights Special Procedures and others, 2018, Principle 7). Imminent environment-health threats should be communicated in real-time to enable timely public response and minimization of risks. Heat waves, tsunami threats, and COVID-19 spikes alert systems are good examples, but this list can be expanded to include other environment-health risks and to identify most vulnerable populations. One assessment of South-East Asian nations shows that only three have "freedom of information legislation, and only four require public institutions to make their data open (OECD and ADB, 2019).

Box 11: Recognition of the importance of stakeholder participation by international bodies:

The **High Commissioner for Human Rights** included promotion of environmental stewardship and engagement of children in environmental litigation as an element to child rights-based approach to climate change policy (A/HRC/35/13).

The IPCC-IPBES jointly recognized the imperative for rapid action on both climate change and biodiversity loss to include engagement of a broad range of actors and respect for multiple values, drawing on different knowledge systems.[a] The **IPCC** further recognizes that **climate resilient development** is "facilitated by international cooperation, governments at all levels working with communities, civil society, educational bodies, scientific and other institutions, media, investors and businesses; and by developing partnerships with traditional groups, including women, youth, Indigenous Peoples, local communities and ethnic minorities".[b]

The 2021 **UN Food Systems Summit** "embraced multistakeholder inclusivity", "including indigenous knowledge, cultural insights, and science-based evidence to enable stakeholders to understand and assess potential trade-offs and to design policy options that deliver against multiple public goods across these various systems".[c]

a IPCC, "IPBES-IPCC co-sponsored workshop report on biodiversity and climate change", Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and Intergovernmental Panel on Climate Change (IPCC), 2021. Available at https://doi.org/10.5281/zenodo.4659158

b Intergovernmental Panel on Climate Change (IPCC), Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the IPCC (Cambridge and New York: Cambridge University Press, 2022a). Available at www.ipcc.ch/report/ar6/wg2/

c United Nations, "Food Systems Summit 2021", 2021a. Available at https://www.un.org/en/food-systems-summit/vision-principles

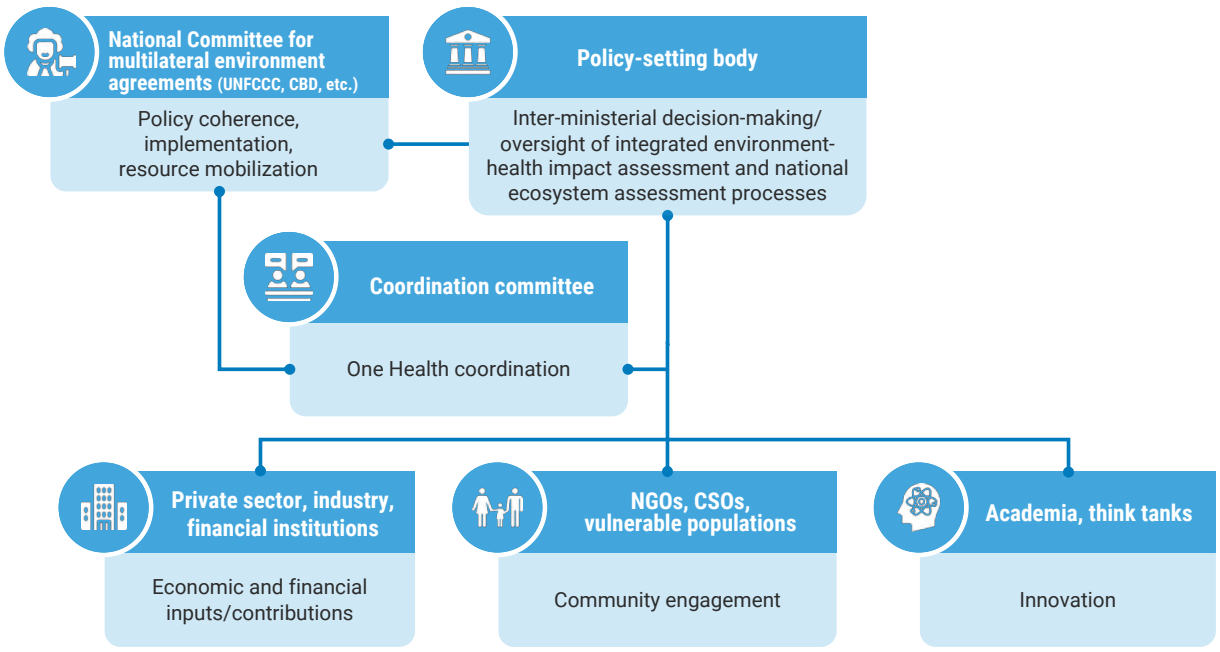
Environmental stewardship should be embedded in national health and environment plans. Individual and societal perspectives and choices must shift to become more oriented around sustainability. Several Asia-Pacific countries emphasize rebuilding or reinforcing the human connection to nature in their national biodiversity strategies. In addition, most countries include a strategy on stakeholder involvement in their climate change policies and plans, reference the cross-sector involvement of ministries of health, and highlight gender mainstreaming as vital to climate change efforts.

Case studies

- **Malaysia's National Policy on Biological Diversity 2016-2025** has a goal to harness broad stakeholder commitment to conserve biodiversity, in which it views recognition of linkages between "healthy biodiversity and healthy living" as an important cross-sector mobilizer. One of the goals in **Australia's Strategy for Nature 2019-2030** is building connection with nature as "essential to long-term mental and physical health, economic prosperity and national identity," with emphasis that this is a central tenet to local indigenous culture. The vision of the **Philippines Biodiversity and Strategy Action Plan 2015-2028** emphasizes "maintaining ecosystem services to sustain healthy, resilient Filipino communities and delivering benefits to all".
- **Cambodia's Climate Change Strategic Plan (2014-2023)** demonstrates comprehensive stakeholder involvement through provision of a national framework to engage the private sector, civil society organizations, and development partners in a participatory process for responding to climate change and supporting sustainable development.
- **Fiji's NDC planning was guided by the principle of gender-responsiveness** as articulated in the National Climate Change Policy, which seeks to ensure that all approaches and methods for mitigation and adaptation are guided by consideration of gender issues.

Photo by Prem Kurumpanai on Unsplash

Figure 19: Stakeholder participation in environmentally comprehensive One Health decision-making



Stakeholder engagement has been rapidly rising among youth and this should be supported. Youth hold constituencies across the UN system and multilateral environmental agreements through the UN Major Group for Children and Youth, and a UN Youth Office in the UN Secretary-General Secretariat (A/RES/76/306). The size of these constituencies is impressive. For instance, the **Global Youth Biodiversity Network**, a sub-group of the Major Group for Children and Youth, whose voting membership is between 18-30 years of age, has over 1 million members (Global Youth Biodiversity Network (GYBN) and others, n.d.).

Interdisciplinary training for professionals is key to developing capacity to advance an environmentally comprehensive One Health. Integrated education frameworks, such as the **Planetary Health Education Framework** (Planetary Health Alliance, n.d.), can be used to enhance stakeholder engagement, and can be taken up into national plans, policy frameworks, and institutions. A good example of a programme adopting this is the **Sunway University** in **Malaysia**, which is mainstreaming planetary health across its curriculums and requires all students to complete a community service course for planetary health. These frameworks tend to focus on climate change and health and could be updated to encompass a stronger and broader environmental stewardship component. The **Southeast Asia One Health University Network** (SEAOHUN) is also bringing together academic centres across departments and governments to support university and in-service training. It is worth highlighting that the **Solomon Islands NBSAP** emphasizes both formal *and* informal education for fostering unity between people and the environment, which is a key message reflecting the importance of diverse and intergenerational knowledge systems (for the examples in this paragraph see FAO and others, 2022a).

3.2.6 Enable integrated environment-health funding streams

"Our economies, livelihoods and well-being all depend on our most precious asset: Nature [...] Biodiversity enables Nature to be productive, resilient and adaptable. Just as diversity within a portfolio of financial assets reduces risk and uncertainty, so diversity within a portfolio of natural assets increases Nature's resilience to shocks, reducing the risks to Nature's services. Reduce biodiversity, and Nature and humanity suffer [...]Our economies are embedded within Nature, not external to it" (P. Dasgupta, 2021).

Whole-of-economy and whole-of-government approaches to manage environment-health risks are gaining popularity, particularly following the COVID-19 pandemic which forced convergence on decision-making across sectors. This shift is part of an essential transition for streamlined and efficient approaches to common risks, but also reflects the need for new financial strategies to mobilize a healthier, greener, more inclusive, and resilient future.

New financial arrangements are required to address the environment-health nexus, to maximize resilience and minimize risk, and achieve the 2030 Agenda. Rising costs of sudden and slow-onset environment-health risks will also require a better focus on co-benefits of reducing these risks. To steer an environmentally comprehensive and integrated One Health approach, development cooperation officers should strengthen dialogues between and across environment, health, and finance ministries (Tilman Hertz, 2022). Dialogues should focus on building common ground on perspectives and interpretations of transformation across sectors, stakeholders, and contexts.

Financial mechanisms and institutions, including the **World Bank (2021)** and the **Global Environment Facility (2021)** are supporting projects with multiple co-benefits, including for health and well-being, which could leverage funding for One Health at the national level.

Integrated policies must demonstrate high returns on investment and promote co-benefits across sectors. There is a significant need to incorporate hidden costs of environment-health risks, in the short term and over the long term, into development economics. Major investment in co-benefit case studies is needed across environmental issues and a range of environment-health interlinkages. Methods for assessing the returns on environmental-health risk management will provide a means of understanding the returns on investment, and provide impetus for a pro-active approach.

Case studies

- **Fiji's National Climate Finance Strategy** addresses 12 sectors that require climate finance and serves as a whole-of-economy blueprint for joint strategy on climate neutrality, and sustainable and resilient development. The Strategy's health component, led by the Ministry of Health includes: environmental planning and development control; national food and nutrition security; control and protection of pollution and waste management; improved patient outcomes and more efficient and resilient health-care systems; and climate-resilient and environmentally-friendly health infrastructure.

- **Indonesia's 2020 SUN Country Investment snapshot** offers an example of a platform for tracking inter-ministerial investment allocations on nutrition across non-health sectors (Scaling up Nutrition, n.d.).

Integrated environment-health funding streams that are organized, coherent, and long-lasting are essential to operationalizing an environmentally comprehensive One Health approach. Budget contributions from different government sectors may be brought together and aligned around joint inter-ministerial objectives or around shared funding pools. This requires coordination and elevation of environment-health nexus issues to the top of government leadership. A regional analysis of models for integrative financing, such as through shared funds, or through agenda convergence, is advisable. Sharing inter-ministerial funding strategies, such as through national reports and communications to multilateral environmental agreements, could be helpful.

Ensure disaster risk funding maximizes resilience by addressing underlying drivers of risk across sectors, including taking into consideration the environment-health nexus. For example, significant opportunity existed to integrate COVID-19 funding across sectors and domains in the Asia-Pacific region using an environment-health nexus approach, however this was not generally implemented in country recovery planning (ESCAP, 2021a). Some countries proved to be an exception, such as **Pakistan** whose COVID-19 stimulus Ecosystem Restoration Fund supported 5000 new green jobs, large-scale tree planting, a 50 per cent increase in protected areas coverage, and new bond investments aimed at mobilizing clean energy (Malik A. A. Khan, 2021).

One Health implementation should be facilitated through comprehensive funding structures that prioritize long-term goals, strengthen institutions, include bottom-up, inclusive community approaches, and incentivize knowledge mobilization (L. Dumet Puma, 2022). The **Scaling Up Nutrition (SUN) Movement** provides a good example of building a multistakeholder platform. Each national initiative is steered by a SUN government focal point, to work across sectors to tackle drivers of malnutrition and nutrition-specific interventions. This approach aligns actors and investments in strategies that take into consideration intra-governmental budget allocations and opportunities for global financing. The SUN Movement works in 13 countries in South and South-East Asia and the Pacific.

3.2.7 Strengthen regional collaboration

Global environmental changes, such as climate change and biodiversity loss, are systemic and transboundary, as are the impacts to health and well-being. The report of the United Nations Secretary General, *Our Common Agenda*, points out that **both global health and a healthy planet are essential global public goods, the delivery of which must be strengthened by reinvigorated multilateralism** that is "inclusive, networked and effective" (United Nations, 2021b).

ESCAP's work on reinvigorating multilateralism on environment and development challenges shows that there are five main areas of intervention for increasing the impact of multilateral action: information and data sharing; accountability measures; networked and coordinated action; and economic and financing interventions. Solidarity, the fifth element, lies at the core of this framework for action (ESCAP, forthcoming).

Regional cooperation and engagement across stakeholder entities can strengthen multilateral approaches by developing common, regionally adapted, reporting standards on emissions of harmful substances into the biosphere. Multi-country agreements on monitoring and communication of these and other emerging risks related to environmental change can capitalize on geospatial data to model risk, and so ground the actions of regional response mechanisms.

International pollutant release and transfer registers can provide important input, to government assessments, of environmental risks. Such transparency measures strengthen the vertical accountability of local and national governments for managing health-environment risks, horizontal accountability across countries and social accountability by promoting public awareness and demand for health-supporting investments in ecosystem health. Regionally-networked non-government organizations may be engaged in implementing and expanding the impact of national cross-country environment-health transparency measures. Better access to information on health hazards can also support integrated environment-health assessment, public awareness, and prioritization of financing support.

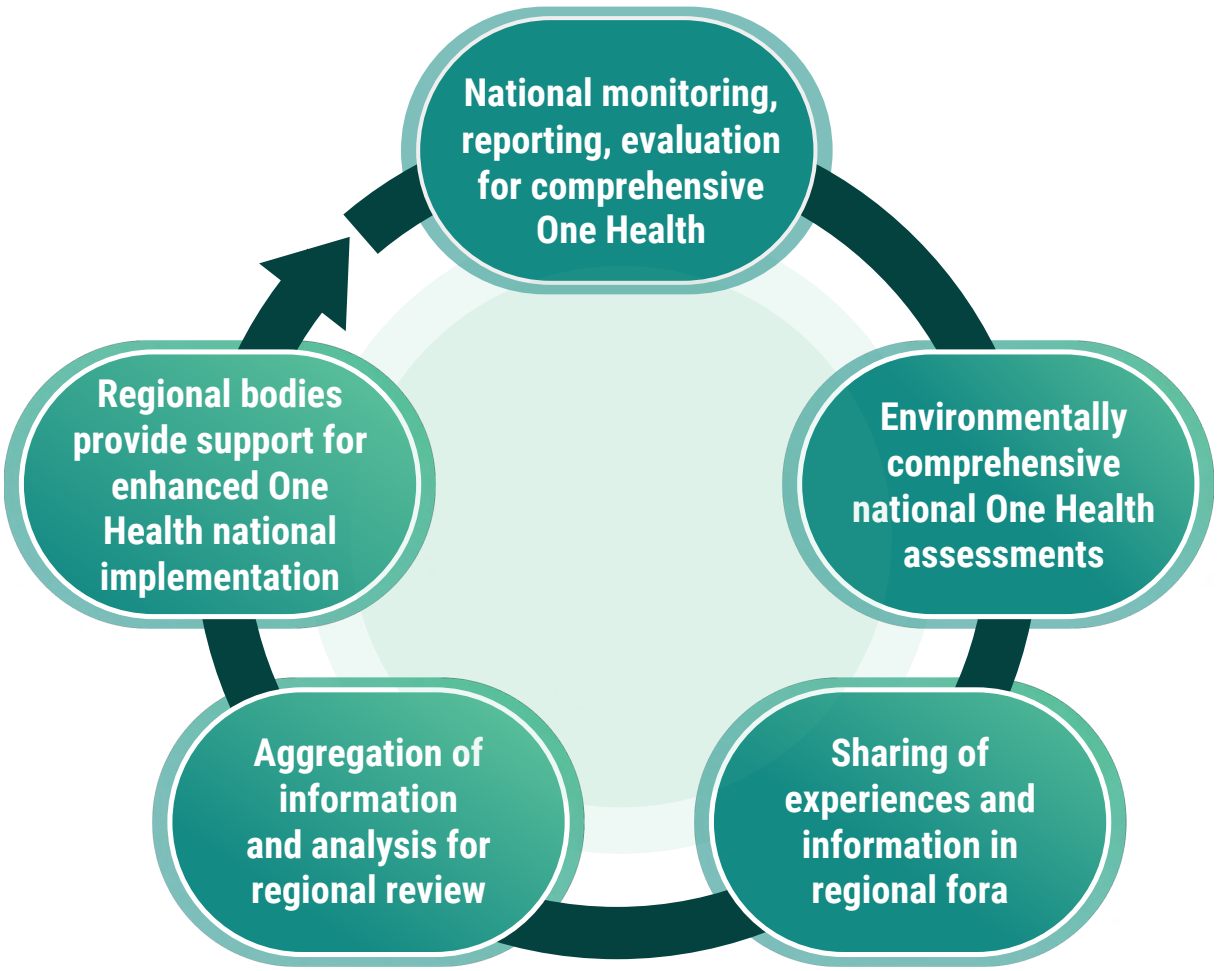
Cooperation measures can aim to support countries with lower capacity to respond, and support vulnerable groups which face heightened risks from climate change, environmental degradation and other aspects of environmental change. Joint action to identify and mitigate transboundary health-environment risks may be stepped up. Regional cooperation could assist in addressing gaps and deficiencies at the national level including through technical support, normative and regulatory framework analysis, data and statistical capabilities and improved and harmonized, environmentally comprehensive One Health tools and action

plans (Figure 20). For example, at present there is no standard environmental health capacity assessment process, leaving a gap in comparison to human and animal health systems in which minimum capacity benchmarking processes are used to guide international obligations and investments, notably the Joint External Evaluation under WHO and the Performance of Veterinary Services under WOAH, respectively (World Bank Group, 2018, and World Bank and FAO, 2022b).

A coordinated regional approach and stronger regional collaboration in the Asia-Pacific region will be needed to shape the environment-health nexus, building on existing regional initiatives some of which are highlighted in Box 11. Regionalism has often provided a basis for collective action on a range of issues, even in the absence of a global framework or policy. This form of regionalism sometimes acts as a catalyst for global policy frameworks (United Nations Regional Commissions, 2011). The Asia-Pacific region has a rich history and tradition in regional cooperation through well-developed regional intergovernmental bodies, processes and initiatives, as well as financial mechanisms. The existing institutional regional architecture and experience puts the region in a privileged situation to finding innovative solutions for resilient, equitable and sustainable development that can lead the way for environmentally comprehensive One Health.

Photo by Edwin Tan on iStock

Figure 20: **Regional collaboration supports national implementation of environmentally comprehensive One Health**



Coherence between the global and national levels on the environment-health nexus can be enhanced, including through regional cooperation on an environmentally comprehensive One Health approach. Regional institutions and mechanisms could support harmonization of terminologies at the environment-health nexus and facilitate the sharing of environment-health nexus experiences and ideas from across diverse ecosystems and in the context of diverse climate change risks, in order to align shared visions and actions. These regional entities can: project a cohesive voice from the region to the global level; aggregate country strategies and reflect them in regional portfolios; lead region-wide monitoring, evaluation and learning efforts; and serve as regional facilitators for periodic assessment and learning among peers and partners. Regional development banks can be engaged to ensure that financing across sectors reflects a consistent and coherent approach to the environment-health nexus.

Box 12: Selected regional initiatives on the environment-health nexus

Asia-Pacific One Health Quadripartite, an alliance between FAO, UNEP, the WHO, and the WOAH, which is developing a regional action framework that draws on the global One Health Joint Plan of Action and seeks to strength capacity to address complex multidimensional health risks in Asia and the Pacific.

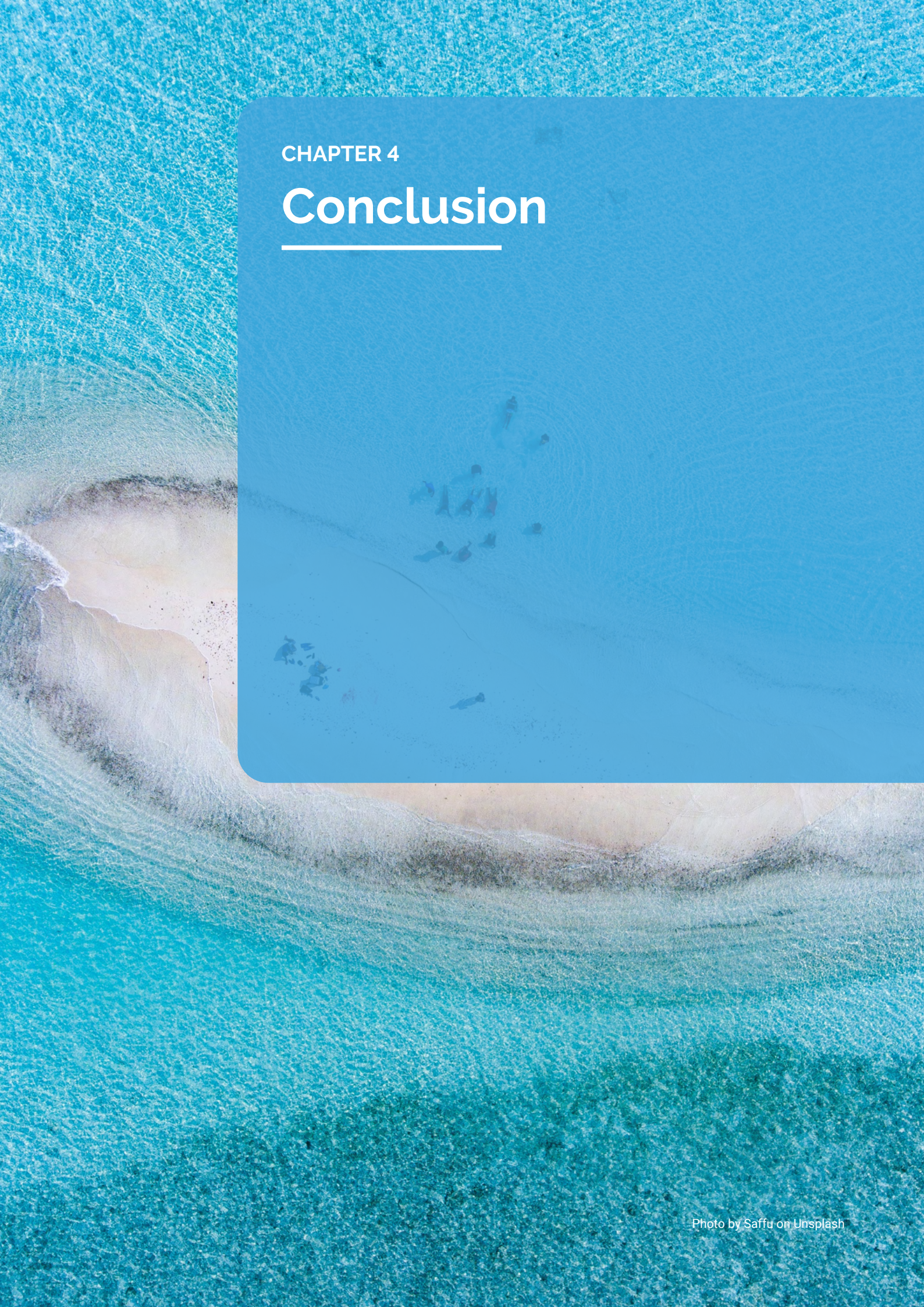
The **Asia-Pacific Regional Forum on Health and Environment**, which will convene in December 2022, for the first time since 2016, is an opportunity to strengthen intra-regional cooperation on this nexus. Jointly convened by the WHO and the UNEP, this forum plays an important role in agenda setting in the region. It creates the opportunity to exchange national approaches to assessment, finance, and nature-based solutions on reducing environment-health risks in the Asia-Pacific region. The forum is an opportunity to highlight multisectoral governance, including Health in All Policies, and familiarize common language on the environmental determinants of health. This is also an opportunity to discuss elements for a joint monitoring mechanism, and harmonized data collection, such as environment and health country profiles.

The reports of the **Association of Southeast Asian Nations (ASEAN)** on the state of climate change, and on strengthening the science-policy interface, could incorporate regional health considerations. The Asia-Pacific Climate Change Information Platform (**AP-PLAT**) for climate-risk informed decision-making and action could also be used to support countries in integrating health into their climate change adaptation and mitigation efforts.

ESCAP, through its various intergovernmental bodies, including the Asia-Pacific Forum for Sustainable Development, and its policy work, assists member States in integrative implementation of the SDGs. This includes integrating SDGs into national development planning and fiscal frameworks, promoting policy coherence, consistency and coordination, enhancing use of data and statistical capacities for monitoring and review, identifying and promoting alternative and innovative sources of financing for development, leveraging science, technology and innovation in support of the 2030 Agenda, tapping South-South and regional partnerships and translating regional models into global public goods. ESCAP can help mobilize the UN system and diverse stakeholders to help shape and promote an environmentally comprehensive One Health framework in the region. ESCAP may support its member States to strengthen the environmental dimension of One Health, including addressing climate change, pollution and ecosystem-related threats that exacerbate or cause acute, slow-onset, and chronic physical and mental health conditions.

CHAPTER 4

Conclusion



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Chapter 3

CONCLUSION

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Human and environmental resilience and well-being, in the Asia-Pacific region, depends on a coherent, operational environment-health policy nexus. An operational framework for this nexus will strengthen the One Health governance approach and enhance achievement of the 2030 Agenda for Sustainable Development at local, national, regional, and global levels (ESCAP, 2022a).

Transforming environment-health governance in the Asia-Pacific region is a complex undertaking. Systems thinking is needed to enhance and streamline existing multisectoral governance frameworks on climate change and biodiversity loss, and their links to health. Innovative government structures and arrangements, intended to be long-standing and agile, designed to convene ministries, coordinate One Health approaches, communicate with regional institutions, and inform multilateral environmental agreement processes, are a top priority. Transformations towards sustainable food systems may play a central role in managing environment–health risks, because food systems are both impacted by and contribute to environment-health risks. Capacity-building, supported by rights-based approaches and stakeholder engagement, should be fast-tracked and underpinned by robust, integrated environment-health data and assessments. Furthermore, regional cooperation should be enhanced to strengthen an environmentally comprehensive One Health approach.

A comprehensive environment-health approach leads to better management of increasing and converging risks that cut across borders, sectors, and society. There are many existing collaborative models, networks, and tools that policymakers and stakeholders in Asia and the Pacific can build on to strengthen the environment-health nexus and deliver co-benefits for people and the planet.

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Operationalizing the Environment Health Nexus in Asia and the Pacific: A Policy Guide on Opportunities for Enhancing Health, Biodiversity, Food System and Climate Action aims to support policymakers and stakeholders in the Asia-Pacific region to address environment-health risks and safeguard human health and well-being while protecting ecosystems. Specifically, it provides an overview of concrete opportunities to mainstream the environment-health nexus in public policies in Asia and the Pacific, including those pertinent to health, biodiversity loss, food systems, and climate change. It also lays out pathways to strengthen the enabling factors for operationalizing an environmentally comprehensive One Health approach. These enabling factors include multisectoral governance; integrated environment and health data and assessment; nature-based solutions; human rights-based approaches; stakeholder engagement and capacity-building; integrated environment-health funding streams; and regional cooperation.

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