PROTECTING OUR PLANET THROUGH REGIONAL COOPERATION AND SOLIDARITY IN ASIA AND THE PACIFIC

Environment and Development

ESCAP 75
MOVING FORWARD TOGETHER

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The Economic and Social Commission for Asia and the Pacific (ESCAP) is the most inclusive intergovernmental platform in the Asia-Pacific region. The Commission promotes cooperation among its 53 member States and 9 associate members in pursuit of solutions to sustainable development challenges. ESCAP is one of the five regional commissions of the United Nations. The ESCAP secretariat supports inclusive, resilient and sustainable development in the region by generating action-oriented knowledge, and by providing technical assistance and capacity-building services in support of national development objectives, regional agreements and the implementation of the 2030 Agenda for Sustainable Development.

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FOREWORD

Asia and the Pacific is a dynamic region and has made significant progress to improve the health and well-being of its population by lifting billions of people out of poverty. However, economic growth has been based on unsustainable models of development, leading to the region accounting for more than half of global greenhouse gas emissions and two-thirds of premature death, due to air pollution, and causing a quarter of endemic species in the region to face high risk of extinction. If business continues as usual, the ongoing deterioration of our environment will exacerbate risks and vulnerabilities, potentially causing irreversible environmental change.

Meanwhile, it is encouraging to have the majority of Asian and Pacific countries already announcing goals to achieve carbon neutrality by mid-century, and many countries have developed detailed plans and strategies. Central to a carbon-neutral society is to phase out the use of fossil fuels and to fully utilize the potential of nature-based solutions to mitigate carbon dioxide emissions. This will lead to significant co-benefits to climate action safeguarding ecosystems and biodiversity, tackling the root cause of air pollution and making cities more liveable and sustainable. The transition is a race against time, considering the trend of global temperature rise and the region's high vulnerability to climate change. To win in this race, Asia and the Pacific needs to strengthen regional cooperation and solidarity based on a shared vision. In line with national goals and aspiration for carbon neutrality, regional cooperation could support the implementation of long-term, low-emission development strategies through sharing knowledge and technologies, and facilitating partnership programmes.

Taking the lessons from the COVID-19 pandemic and other zoonotic diseases, the region needs to enhance joint efforts to protect and safeguard the health of ecosystems, including the marine ecosystem, with the "One-Health" approach, managing relations between the health of humans and animals and the functions of ecosystems. Regional cooperation needs to include the conservation and sustainable use of marine biodiversity beyond national jurisdictions, and consider the interlinkage of the marine ecosystem and climate change.

Most countries in the region have recently strengthened action to reduce air pollution. Major sources of air pollution across subregions present different characteristics, but cities across Asia and the Pacific are highly ranked on the global list of places with unhealthy air quality. Addressing this challenge requires strengthened regional cooperation on policy tools, air pollution abatement technologies and practices. In this connection, sustainable urban development is key to improving air quality. As the major source of air pollution and its effects on health, cities need to improve air quality as an integral part of sustainable urbanization, and expand the opportunities for public access to information and the participation of stakeholders to gain social impetus for relevant policies.

Working together around this framework is essential if the region is to play its part in meeting the objectives of the 2030 Agenda for Sustainable Development and other global mandates, including the Paris Agreement. At the Economic and Social Commission for Asia and the Pacific, we are committed to supporting our member States in protecting our planet through regional cooperation and solidarity, and by facilitating regional networks and platforms to exchange knowledge, experiences and good practices. We hope that policymakers will find this report a valuable source of information and inspiration to guide future work.

Armida Salsiah Alisjahbana

Under-Secretary-General of the United Nations and
Executive Secretary of United Nations Economic and
Social Commission for Asia and the Pacific

EXECUTIVE SUMMARY

The climate crisis in Asia and the Pacific highlights the urgent necessity to transition to low-carbon transformations and to scale up ambitions.

The Asia-Pacific region contributes to over 55 per cent of the global greenhouse gas (GHG) emissions, which have grown continuously between 2010-2022. Despite a series of announcements from Asia-Pacific countries to reach net-zero emissions by mid-century, current ambitions as set out in the nationally determined contributions (NDCs) fall short of what is needed to reach the targets of the Paris Agreement.

Cumulative greenhouse gas emissions in the Asia-Pacific region are on a steady trajectory of growth, reaching close to a 26 per cent increase from the 2010 greenhouse gas emission levels. The region is collectively responsible for over three quarters of global coal-fired power generation, and almost all (94 per cent) of the global total capacity of proposed coal fired power stations. In 2019, Asia-Pacific economies spent more than US$ 205 billion on fossil fuel subsidies, which represents a 35 per cent decrease from 2012 levels. However, they are expected to rise again as a result of the current turmoil in the energy market and inflation. On the other hand, the region's share of modern renewable energy (excluding the use of traditional biomass) remains low compared to other global regions, standing at 8.5 per cent in 2018. While this level has risen from 5.9 per cent in 2010, growth needs to accelerate to meet sustainable energy and climate targets.

The silver lining is that 40 Asia-Pacific member States have pledged carbon neutrality by 2050, 2060 or 2070, and have advanced in national planning, ranging with the issuance of bills as well as with the development of elaborated policy documents, strategies and roadmaps to support the implementation of those commitments.

The high rate of biodiversity loss and ecosystem degradation poses a serious threat to human well-being, economies, livelihoods and food security of people in the region.

Among all regions, Asia and the Pacific sees the most rapid and serious decline in biodiversity-related ecosystem services. The extent of the damage is evident from the region's Biodiversity Intactness Index score, which has fallen to 77 per cent of its pre-impact value, and is projected to continue to decline under the business-as-usual socioeconomic trends.

The region contains the world's largest number of threatened species, with 72,716 plants and 56,957 vertebrates categorized as threatened in 2021. Much of the region's biodiversity cannot be found anywhere else on the planet, yet, as high as 25 per cent of these endemic species are at high risk of extinction, and bird extinctions on some islands are as high as 88 per cent of historically recorded species. While all Asia-Pacific subregions showed a decline in their Red List index, which depicts overall extinction rates for species, tropical zones of Southern and South-East Asia and the Pacific are facing the highest risks among all subregions.

In Asia and the Pacific, land-use change and land-use degradation are a major issue due to large-scale agricultural development, shifting cultivation, urban expansion, as well as salinization. Overall, land degradation has affected about 850 million hectares, or about 28 per cent of land area in Asia and the Pacific.

The marine and coastal ecosystems in Asia and the Pacific are becoming increasingly pressured from activities including overexploitation, habitat destruction, aquaculture and invasive species. About 60 per cent of the coastal mangroves in the region have been cleared for development, resulting in terrestrial and marine biodiversity loss, and the loss of a wide range of ecosystem services related to carbon sequestration, coastal protection, natural products and tourism. Additionally, over 40 per cent of coral reefs have disappeared due to human activities, as well as from increased water temperatures and ocean acidification, and approximatively 80 per cent of remaining coral reefs are currently at risk of bleaching.

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Exponential increases in air pollution levels and waste across the region exacerbates public health challenges.

Air pollution levels have increased significantly in the Asia-Pacific region, especially in the region's urban areas. Nearly 90 per cent of the population of the region regularly breathes air considered, by the World Health Organization (WHO), to be unsafe. The annual population-weighted PM2.5 concentrations in the region increased by 19 per cent in the period 1990-2015, making the population in Asia and the Pacific one of the most exposed to ambient air pollution. This increase was estimated to be 10 per cent higher than the global average increase within the same period. PM2.5 concentrations have increased at a higher pace in South Asia, reaching an annual average of 78.2 µg/m3, in 2019, and representing a 17 per cent increase from 2000 levels.

In 2019, the average annual population-weighted PM2.5 concentration in Asia was 50.7 µg/m3, with most of the population living in areas exceeding the 2005 WHO Interim Target 1 of 35 µg/m3 – the current WHO Air Quality guideline for the annual concentration of PM2.5 is 5 µg/m3. Although air pollution affects high and low-income countries alike, low- and middle-income countries experience the highest burden, with the highest concentrations being seen in Central, South Asia and South-East Asia.

Solid waste and plastic pollution threaten marine ecosystems due to the bioaccumulation of plastics, including microplastics in the ocean. It is estimated that 43 per cent of the global plastic volume is produced, and 38 per cent of all plastic is consumed in Asia and the Pacific, much of which is released in the environment. The region's reliance on plastics, coupled with poor waste management practices, has made it a significant contributor to global plastic input emitted in the oceans. In 2019 alone, 81 per cent of ocean plastics came from Asian rivers and coastlines. Recent studies suggest that approximately 95 per cent of river-borne plastic in the oceans is transported by 10 major rivers, 8 of which are located in Asia. Urban rivers in South-East Asia are identified as one of the main hotspots for plastic emissions.

Pollution and waste from food systems represent another key environmental challenge in Asia and the Pacific. Chemical production in the region was projected to increase by 46 per cent over the period 2012-2020. Although the use of pesticides and fertilizers for agricultural purposes has not been perceived as key input, they contain toxic chemicals which can negatively affect the environment, including the soil, surface and groundwater, beneficial insects and human health. Asia has the largest land areas at risk of pollution, with China, Japan, Malaysia and the Philippines at highest risk.

Photo by Chuyu2014 on Envato Elements

Megatrends and drivers of change.

Rapid demographic and socioeconomic transitions, since the 1990s, have led to significant environmental and natural resource pressure. Asia and the Pacific dominates global use of resources as it is responsible for 63 per cent of the global material consumption, including fossil fuels, biomass, metals and non-metallic minerals. This growth in resource use, which represents a 25 per cent increase since 1970, results from new infrastructure projects in cities, a growing consumer base and global manufacturing centres in the region. Modelling results show that without improvement in resource efficiency and sustainable consumption and production patterns, domestic material consumption could increase by 75 per cent between 2020 and 2060 following historical trends, and that the region could face constraints in resources to support its longer-term economic development and well-being.

Economic growth in the region has been prioritized over social and environmental progress or sustainable development. In some instances, highly polluting sectors are heavily supported. For example, Asia-Pacific economies spent more than $205 billion on fossil fuel subsidies alone in 2019. In response to the coronavirus disease (COVID-19) crisis, bailouts have been given to businesses that have a heavy environmental footprint, such as airlines and coal companies, in the form of loans, grants and guarantees without proper environmental conditions or safeguards.

Food systems play an important role in the Asia-Pacific region's environmental and socioeconomic landscape and provide livelihoods for millions. Yet, they are also a major driver of environmental degradation. The International Resources Panel estimates that cultivation and processing of biomass is responsible for almost 90 per cent of global water stress and land use related to loss in biodiversity. Driven by population growth and changing consumption practices, the production, processing, distribution and consumption of agricultural products results in extraction of natural resources, declining ecosystem health, loss of biodiversity, erosion of soil, loss of stored carbon, and generation of greenhouse gas emissions.

The region's rapid and unplanned urban expansion has resulted in sprawl and environmental degradation, such as loss of biodiversity, generation of large volumes of solid waste, increase in urban air pollution, and in significant amounts of marine pollution from land-based activities. The region is already experiencing unprecedented urban challenges that compromise urban health, sustainability, and resilience of cities and their residents. Many local governments struggle to meet existing infrastructure, housing and urban services backlogs with limited resources and capacity. Greater demand for transportation, due to urbanization, has contributed to urban mobility challenges that could threaten environmental quality, safety, and economic performance. The increased demand for energy, materials, and water resources will continue to put pressure on the environment and challenge the capacities of cities to provide adequate urban services, and of countries to meet climate and sustainable development targets.

The recognition and protection of environmental rights is linked to better environmental outcomes and leads to faster improvements in environmental quality. This is demonstrated by the Environmental Performance Index (EPI), a commonly used measure of environmental quality, typically higher in countries with environmental rights frameworks. In 2018, countries in Asia and the Pacific with an environmental rights framework in their national legislation averaged an EPI score of 55, while countries without environmental rights frameworks had a lower EPI, averaging a score of 52. The region continues to show fundamental challenges that hinder environmental protection and sustainable development. This includes, poor protection of environmental defenders, and a lack of inclusive participation of marginalized groups, such as young people, women, indigenous populations, and people with disabilities, when it comes to implementing sustainable solutions and policies.

Photo by Tampatra on Envato Elements

The deterioration of the state of the environment in the Asia-Pacific region negatively impacts human well-being and health in the region.

The impacts of climate change, pollution and environmental degradation, as well as unsustainable consumption and production, are felt keenly across Asia and the Pacific. The region hosts some of the most vulnerable countries and communities, which have to deal with the compounding risks associated with the degradation of the common environment. Geopolitical dynamics are further amplifying environmental and health crises. As a result, societal inequalities are being exacerbated through a disproportionate impact on the health and well-being of the poor and groups of people in vulnerable situations, including women and children, indigenous populations, gender minorities, migrants, displaced persons, and persons with disabilities.

While the impacts of the climate crisis are being felt across all countries in the region, several low-lying territories are especially vulnerable to climate-induced disasters, including the Pacific small island developing States, low-lying deltas, and archipelagic states. Due to the proximity between human societies and coastal environments, these territories are particularly exposed to hazards associated with the ocean, including sea-level rise, tropical cyclones and marine heatwaves. The global trend of rising sea levels is expected to have the most severe consequences on low-lying territories, as it poses a direct threat to their habitability and existence as nations. These hazards have been exacerbated by the direct effects of climate change and are projected to intensify with rising global temperatures.

Ecosystem degradation and biodiversity loss in Asia and the Pacific force species to shift habitats, which further enhances the interface between wild species, livestock, and humans, in turn increasing the risk of zoonoses. Research shows that endangered biodiversity favours the spread of infectious diseases, which significantly impacts the health and well-being of people. Approximately 60 per cent of human infections derive from animals and, of all new and emerging human infectious diseases, 75 per cent jump from animals to people. Researchers estimate that between 650,000 – 840,000 potential zoonotic agents exist today globally, but have yet to cross the species barrier. It is estimated that almost one quarter of the global environmental burden of disease arises from 14 South-East and East Asian countries alone.

Air pollution is a significant compounding factor to the poor health of the region, accounting for almost two-thirds of the global premature deaths, accumulating to 7 million people per year. Air pollution has disproportionate health impacts on the poor and populations in vulnerable situations, including women. Gender specific impacts from air pollution are evident, affecting maternal health and increasing the risk of pregnancy losses. Exposure to unhealthy levels of fine particulate matter (PM2.5) is linked to an 80 per cent increased risk of mortality from breast cancer for women. Additionally, children are also disproportionately affected by air pollution. More than 600,000 children die each year globally from diseases related to air pollution, both ambient and household.

Strong regional action grounded in multilateralism and solidarity, within Asia and the Pacific, is needed to protect our planet.

Many of the environmental crises mentioned above are transboundary in nature and present significant challenges to all countries in the region: the sources of air pollution often originate outside the areas of impact and require coordinated action across local and national jurisdiction; ecosystems and ecosystem services are not constrained by borders; and climate change is a global issue. As such, coordinated and complementary actions to address the most pressing transboundary issues facing the region are essential.

Across Asia and the Pacific, examples of successful collaboration exist, but more needs to be done to successfully meet regional and global environmental challenges. Regional collaboration should be based on effective international environmental governance and inclusive multilateral processes. In particular, ESCAP recommends five key elements for reinvigorating multilateralism on environment and development in the region, which include: (1) a focus on solidarity; (2) a call for information and data-sharing, transparency, and evidence for action; (3) increasing accountability measures; (4) encouraging coordinated, networked and participatory action; and (5) transforming economic and financial systems.

With the support of this framework, ESCAP also recommends priority areas for advancing regional action on climate change, biodiversity and ecosystems, air pollution, sustainable urban development and environmental rights:

- **Recommendations for advancing climate action include:**
  - accelerating energy transition to realize the potential of energy and resource efficiency;
  - prioritizing ecosystem-based solutions for climate mitigation and adaption; and
  - enhancing national action and regional cooperation on raising climate ambitions in Asia and the Pacific.

- **Recommendations for advancing biodiversity and ecosystems action include:**
  - strengthening policy coherence, synergies and legal frameworks;
  - promoting sustainable land management and ensuring the transition to sustainable food systems; and
  - taking regional action to strengthen sustainable management of the oceans and marine ecosystems.

- **Recommendations for advancing air pollution include:**
  - improving air quality standards;
  - facilitating air quality monitoring and open data-sharing;
  - exchanging best practices and outreach;
  - facilitating capacity-building and technical support for national action;
  - mobilizing commitment to multilateral cooperation.
- **Recommendations for advancing sustainable urban development action include:**
  - integrating sustainability and well-being into inclusive urban planning across the region to future-proof public and private investments in cities;
  - strengthening regional cooperation for sustainable infrastructure and housing; and
  - promoting vertical integration of urban policies for liveable cities to accelerate multi-level action on the Sustainable Development Goals and the Paris Agreement.
- **Recommendations for advancing environmental rights action include:**
  - accelerating regional actions to enhance rights-based approaches;
  - establishing compliance and assistance mechanisms to guarantee the full exercise of environmental rights;
  - implementing the right to information measures to increase public participation; and
  - focusing on substantive and procedural environmental rights to help reshape governance competence.

Photo by Shane Rounce on Unsplash

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CHAPTER 1

Introduction

The impacts of climate change, pollution and environmental degradation as well as unsustainable consumption and production are felt keenly across Asia and the Pacific. The region hosts some of the most vulnerable countries and communities, which have to deal with the compounding risks associated with the degradation of the common environment, including those due to the effects of the coronavirus pandemic. Geopolitical dynamics are further amplifying environmental and health crises.

Unsustainable development pathways have contributed to climate change, the degradation of ecosystems, and worsened pollution across countries in the region. The region is the main contributor to global climate change, being responsible for over 55 per cent of global greenhouse gas emissions. It is experiencing the most severe decline in biodiversity, having lost approximately 25 million hectares of natural forest areas over the past three decades.[1] The increase in air pollution concentration in the Asia-Pacific region was 10 per cent higher than the global average increase.[2] These trends undermine progress towards achievement of the 2030 Agenda for Sustainable Development, and particularly towards the environment-related SDGs for which regression has been observed.

Environmental degradation is heavily impacting the lives of millions of people in Asia and the Pacific. Climate change undermines hard-won development gains for people in vulnerable situations. Biodiversity loss and ecosystem degradation deprive local communities of a future. Increase in pollution levels and waste have a disproportionate impact on the poor, perpetuating inequality. Addressing the root causes of the environmental crisis is therefore critical to lift people out of poverty, end hunger, and build just and inclusive societies to ensure the well-being and health of people in the region.

The converging crises being experienced by the Asia-Pacific region calls for greater attention to solidarity and commitment to action. The region needs to shift towards a green, resilient and more equal development path, in line with the 2030 Agenda, the SDGs and other global and regional mandates on environment and development. This requires concerted and integrated action supported by effective, inclusive and networked multilateralism in the region . Stronger and more decisive regional action is needed to raise climate ambitions, safeguard ecosystems health, mitigate the impacts of pollution and waste and also address the underlying drivers of unsustainable development.

1 Food and Agricultural Organization of the United Nations (FAO), "Global Forest Resources Assessment", 2020b. Available at https://fra-data.fao.org/AS/fra2020/home/

2 United Nations Environment Programme Climate & Clean Air Coalition, "Air Pollution in Asia and the Pacific: Science-based Solutions", 2018. Available at https://wedocs.unep.org/20.500.11822/26861.

Photo by Piyaset on iStock

This report was prepared to inform discussions during the 7th Committee on Environment and Development at the Ministerial level. In light of the challenges faced by the Asia-Pacific region, it explores critical environmental trends and drivers of environmental change and makes action-oriented recommendations for reinvigorating multilateralism to protect our planet through regional cooperation and solidarity. It identifies concrete opportunities for improved regional collaboration to raise climate ambitions, conserve biodiversity and ecosystems, address widespread pollution and promote sustainable cities and rights-based approaches to environmental protection, in line with the current ESCAP mandates on environment and development.

The report is organized as follows: Chapter 2 analyses environmental trends across the Asia-Pacific region relating to climate change, biodiversity and ecosystems and pollution, and highlights important drivers of change. Chapter 3 analyses the impact of the environmental crisis on human health and well-being. Chapter 4 presents a framework for reinvigorating multilateralism to enhance regional action and solidarity to better protect our planet and identifies concrete action areas for improved regional collaboration and solidarity.

CHAPTER 2

The state of our common environment in Asia and the Pacific

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CHAPTER 2

The state of our common environment in Asia and the Pacific

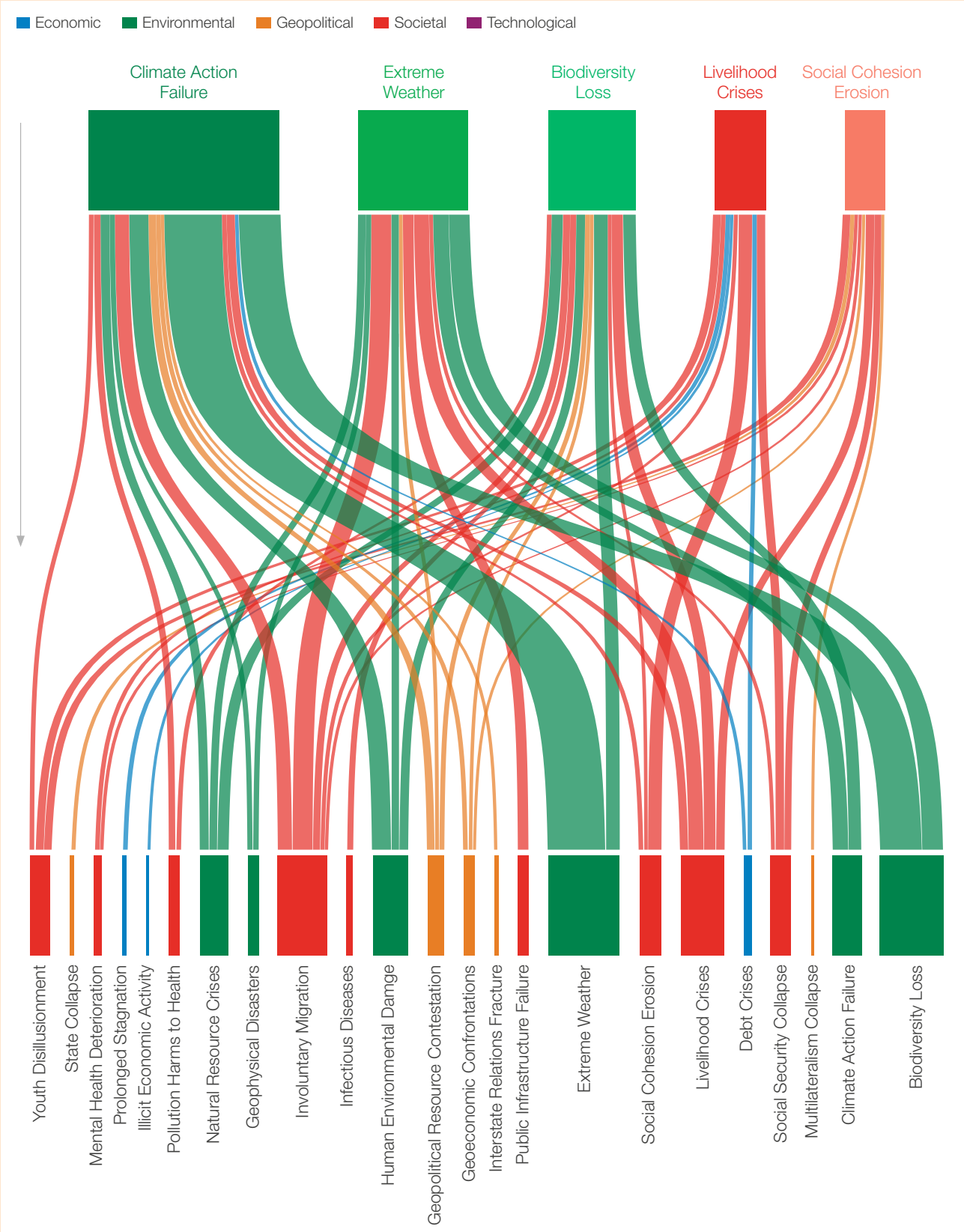
Introduction

The Asia-Pacific region has adopted resource-intensive development pathways for economic growth and progress,[3] compromising the right to access a clean, healthy and sustainable environment for all, and undermining sustainable development.[4] The region dominates the global use of resources as it is responsible for 63 per cent of the global material consumption, including fossil fuels, biomass, metals and non-metallic minerals.[5] The COVID-19 pandemic has been a wake-up call on the detrimental impacts of environmental degradation and ecosystem fragmentation, and has reinforced the significance of urgently shifting development trajectories, including by reinforcing and advancing the conservation, restoration and sustainable use of the environment for present and future generations. The wide-spread environment degradation is disproportionately affecting the already vulnerable, including women and girls, indigenous peoples, children, older persons, and persons with disabilities.

The 2022 Global Risks Perception Survey by the World Economic Forum identifies the greatest risks facing humanity.[6] Environmental degradation, including climate action failure, extreme weather, and biodiversity loss were identified by country-level leaders as the top three risks facing humanity in the next decade. Human environmental damage and natural resource crisis were ranked among the top 10 risks, making the environmental crisis predominant and the gravest global risk both in the short and long term. The results of the survey showed that the five most menacing long-term threats were all environmental. Survey respondents rated climate action failure as the risk with the potential to inflict the most damage to populations on a global scale. In addition to causing direct harm to humanity, these environmental risks reinforce each other and further exacerbate other risks, including involuntary migration, livelihood crises and other societal, geopolitical, economic, technological, and environmental crises (Figure 1).

3 *Asia and the Pacific: SDG Progress Report 2021* (United Nations publication, 2021a).
4 *Our Common Agenda – Report of the Secretary-General* (United Nations publication, 2021).
5 United Nations Environmental Programme (UNEP), "Supporting Resource Efficiency", n.d. Available at https://www.unep.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency
6 World Economic Forum, "The Global Risks Report, 17th Edition", 2022. Available at http://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2022.pdf
7 Line thickness is scaled according to tally of links. A tally corresponds to the number of times a risk was identified as being aggravated by another for each of the most, second-, third-, fourth- and fifth-most severe risks.

FIGURE 1: Top five global risks and risks they will aggravate.[7]



Source: World Economic Forum, "The Global Risks Report 2022", (Geneva, 11 January 2022). Available at https://www.weforum.org/reports/global-risks-report-2022/

Asia and the Pacific is a dynamic region and has lifted 1.1 billion people out of extreme poverty since 1990. Yet, poverty, hunger, and inequality prevail, and continue to be exacerbated, partly due to environmental degradation as well as recent shocks, such as the COVID-19 pandemic and the war in Ukraine.

The impacts of the COVID-19 pandemic exposed the region's pre-existing social, economic, and environmental vulnerabilities, and the consequences of the pandemic continue to pose a critical threat. The latest data shows that some 233 million people lived in extreme poverty (under the threshold of $1.90 a day) in Asia and the Pacific in 2018, and the COVID-19 pandemic pushed another 89 million people back to that extreme.[8] The pandemic has exposed the strain of pursuing unsustainable development paths that degrade the environment, including the violations of biophysical and ecological boundaries which causes the emergence of zoonotic diseases. It has also shown that environmental vulnerabilities can multiply health impacts and prevent the realization of socioeconomic rights. For instance, while underlying health conditions caused by air pollution made COVID-19 infections more complicated and increased fatality levels, socioeconomic disparities prevented groups of people in vulnerable situations to access health services.[9]

The war in Ukraine constitutes yet another shock to countries in the Asia and the Pacific, many of which are classified as countries in special situations with existing vulnerabilities. While nearly half a billion people in Asia and the Pacific were already facing hunger and malnutrition,[10] and with the region accounting for 58 per cent of the undernourished population globally,[11] the pandemic and the war in Ukraine have deepened the threats on food security through disruptions to food supply chains, increased food prices and loss of income.

As the crises unfold, the ability of governments to respond to these challenges has been further constrained by declining fiscal space due to economic contraction, mounting debt, and shortfalls in foreign reserves. However, in human history, crises have been seen to spur innovation and foist technological and behavioural change on governments, businesses, and people alike.[12] Regional cooperation will be critical in mitigating the common social, economic, and environmental threats, as well as in advancing sustainable development, and in building greater resilience in dealing with future shocks in Asia and the Pacific.[13]

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8 United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), the Asian Development Bank, and the United Nations Development Programme (UNDP), "Responding to the COVID-19 Pandemic: Leaving No Country Behind", Asia-Pacific SDG Partnership Report, 2021. Available at https://www.undp.org/sites/g/files/zskgke326/files/migration/germany/UNDP-RBAP-SDG-Responding-to-COVID-19-Pandemic-Leaving-No-Country-Behind-2021.pdf

9 Yongjian Zhu and others, "Association Between Short-term Exposure to Air Pollution and COVID-19 Infection: Evidence from China", *Science of the Total Environment*, vol. 727 (20 July 2020). Available at https://doi.org/10.1016/j.scitotenv.2020.138704

10 United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), the Asian Development Bank, and the United Nations Development Programme (UNDP), "Responding to the COVID-19 Pandemic: Leaving No Country Behind", 2021.

11 Food and Agriculture Organization of the United Nations (FAO), "Building Sustainable and Resilient Food Systems in Asia and the Pacific", FAO Regional Conference for Asia and the Pacific, Thirty-fifth Session, 1-4 September 2020, 2020a. APRC/20/5.

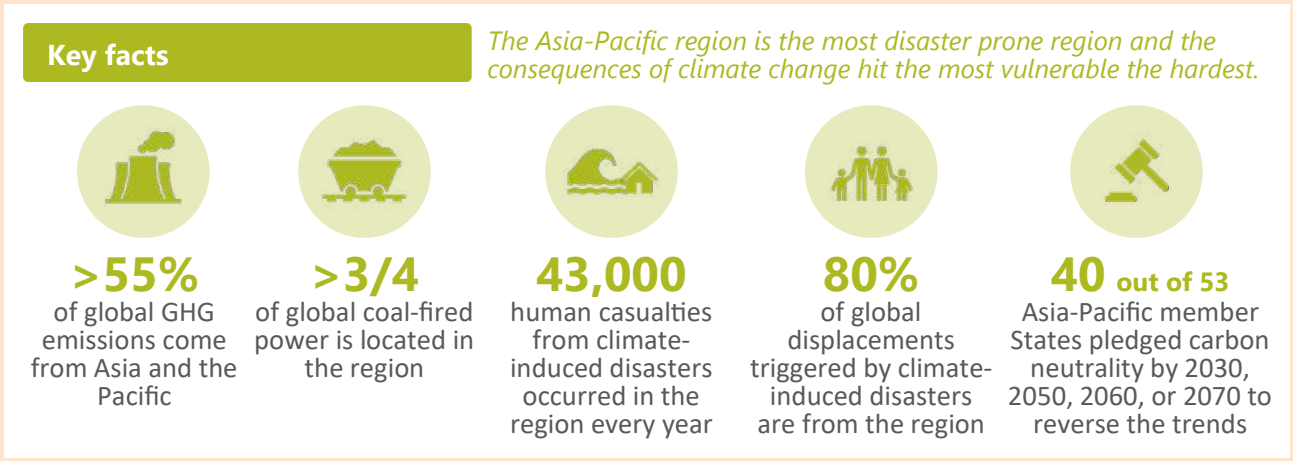
12 United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), the Asian Development Bank, and the United Nations Development Programme (UNDP), "Responding to the COVID-19 Pandemic: Leaving No Country Behind", Asia-Pacific SDG Partnership Report, 2021. Available at https://www.undp.org/sites/g/files/zskgke326/files/migration/germany/UNDP-RBAP-SDG-Responding-to-COVID-19-Pandemic-Leaving-No-Country-Behind-2021.pdf, 2021.

13 *Reclaiming our Future: A Common Agenda for Advancing Sustainable Development in Asia and the Pacific* (United Nations publication, 2022e). Available at https://www.unescap.org/sites/default/d8files/knowledge-products/ESCAP75_final_May22.pdf

Three key envirnmental challenges in Asia and the Pacific: Climate change; biodiversity loss and ecosystem degradation; and increase in pollution and waste production

Climate change

FIGURE 2: Key facts on climate change in Asia and the Pacific.



Source: ESCAP, 2022.

During the 26th United Nations Climate Change Conference (UNFCCC COP26), parties adopted the Glasgow Climate Pact, recognizing that limiting global warming to 1.5°C requires rapid, deep and sustained reductions in global greenhouse gas (GHG) emissions. This includes reducing global carbon dioxide emissions by 45 per cent by 2030, relative to the 2010 level, and to net zero around mid-century.[14] Since the Asia-Pacific region contributes to over 55 per cent of the global GHG emissions with a trend of continuous growth between 2010-2020 (Figure 3), regional commitments to further reduce GHG emissions are crucial to achieving a balanced planetary climate.[15] However, despite a series of announcements from Asia-Pacific countries to reach net-zero emissions by mid-century, current ambitions, as set out in nationally determined contributions (NDCs), fall short of what is needed to reach the Paris Agreement targets. Since the global cumulative greenhouse gas emissions to achieve 1.5°C, that can be emitted from now till net-zero emissions, is very limited urgent action to revise and raise NDC commitments is required.

14 See paragraph 20 of Decision -/CP.26: Glasgow Climate Pact. Available at https://unfccc.int/documents/310475

15 Data from Climate Watch, "Historical GHG emissions", 2022. Available at https://www.climatewatchdata.org/ghg-emissions. (accessed on 4 January 2022).

The Glasgow Climate pact recognized another urgency; the need to upscale support to developing countries through finance, capacity-building and technology transfer, to enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change in line with the best available science, taking into account their priorities and needs. At COP26, 11 countries from Asia and the Pacific committed to phasing down unabated coal power and phasing out inefficient fossil fuel subsidies. The signatories include advanced energy-intensive economies, such as Brunei Darussalam, Singapore, and the Republic of Korea, as well as countries whose commitments are subject to additional international support, such as Indonesia, the Philippines, and Sri Lanka. The low emission countries, Nepal and Maldives, are also signatories.[16]

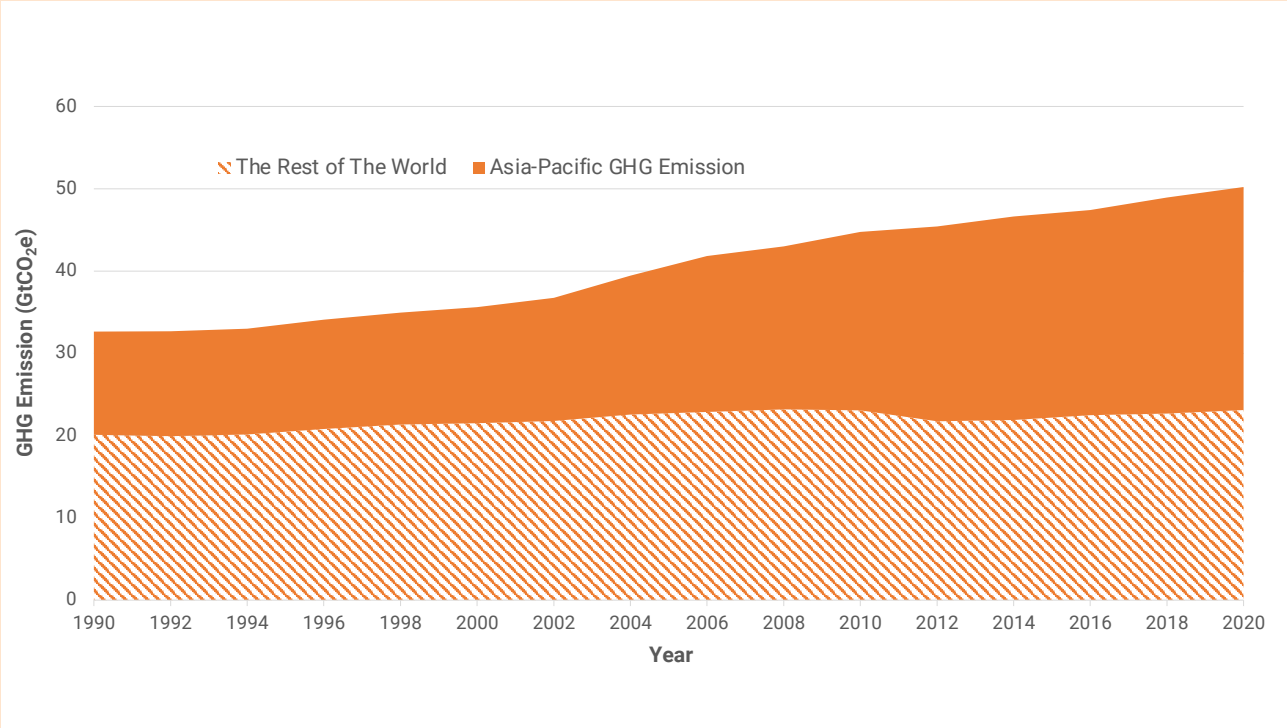
At the same time, the Asia-Pacific region hosts some of the most vulnerable countries and communities, including 70 per cent of the world's indigenous population, which must deal with compounding risks and impacts of climate change. Climate change and climate-induced disasters fundamentally threaten development in Asia and the Pacific, often undermining hard-won development gains and exacerbating societal inequalities by disproportionately burdening the poor and groups of people in vulnerable situations, including women and children, indigenous populations, gender minorities, migrants, displaced persons, the elderly, and persons with disabilities. Between 2000-2020, 8 out of the top 10 countries by disaster occurrence, and 7 out of 10 countries by disaster-affected population were in Asia and the Pacific.[17]

16 United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), the Asian Development Bank, and the United Nations Development Programme (UNDP), "Building forward together: Towards an inclusive and resilient Asia and the Pacific", 2022. Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Building%20Forward%20Together_web.pdf

17 *Asia-Pacific Riskscape @ 1.5°C: Subregional Pathways for Adaptation and Resilience*. Asia-Pacific Disaster Report 2022 for ESCAP Subregions, Summary for Policymakers (United Nations publication, 2022b). Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Asia%20Pacific%20Disaster%20Report%202022%20for%20ESCAP%20Subregions%20Summary%20for%20Policymakers_Rev.%206-4.pdf

Photo by NirutiStock on iStock

FIGURE 3: Growth of GHG emissions in the Asia-Pacific region compared to the rest of the world, 1990-2020, ($GtCO_2e$).



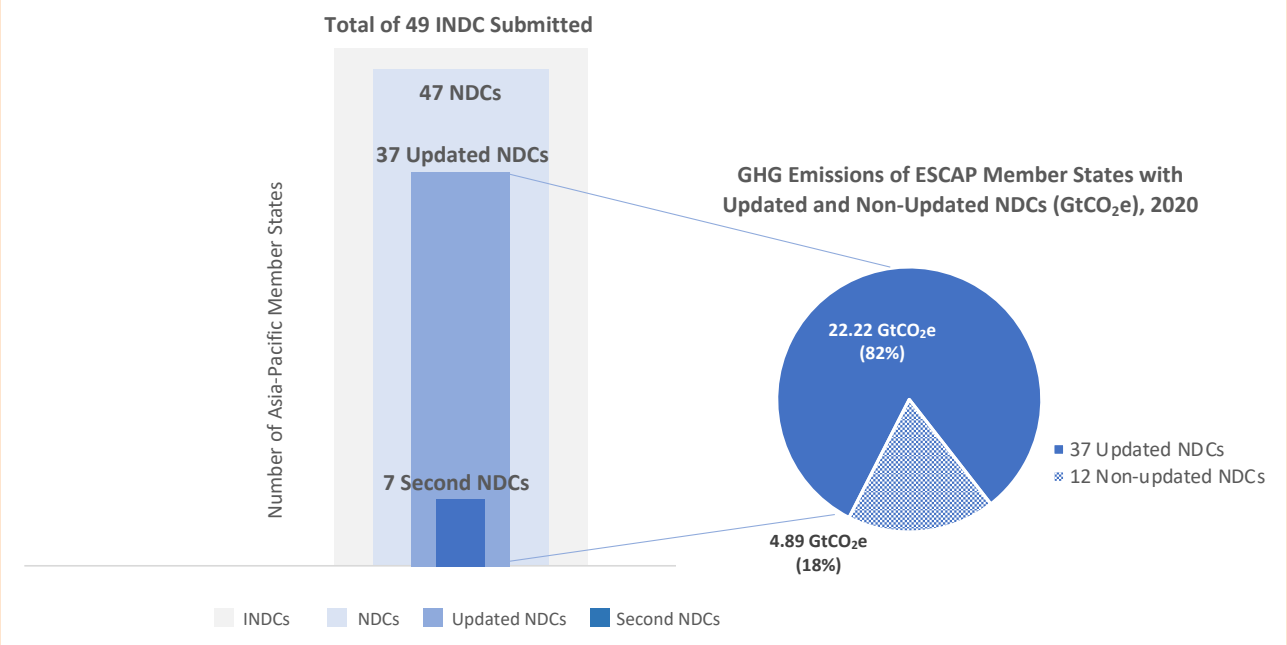
Source: ESCAP model based on scientific data taken from GitHub, Inc., "Data on CO_2 and Greenhouse Gas Emissions by Our World in Data", 2022. https://github.com/owid/co2-data

While the region combats the social and economic challenges posed by the COVID-19 pandemic, cumulative GHG emissions in the Asia-Pacific region are back on the rise following a brief stall in early 2020, and are on a steady trajectory of growth reaching close to a 26 per cent increase from the 2010 GHG emission levels. To keep the world within the 1.5°C temperature rise, the International Panel on Climate Change (IPCC) has recommended greenhouse gas emissions reduction of 45 per cent by 2030, as compared to 2010 levels. For the Asia-Pacific region, this equals to a reduction of around 22.9 $GtCO_2e$ from the estimated regional greenhouse gas emissions with the current climate policy scenario levels of 34.8 $GtCO_2$ by 2030.[18]

The silver lining is that 39 Asia-Pacific member States have pledged carbon neutrality by 2050, 2060 or 2070 and have advanced in national planning, ranging from the issuance of bills to the development of elaborate policy documents, strategies, and roadmaps to support the implementation of their commitments. Countries in Asia and the Pacific are engaging in the review and re-calibration of nationally determined contributions commitments to align them with long-term low-emissions development strategies and to support national climate neutrality pledges. Some of these updated NDCs also outline priorities for adaptation and resilience building.

18 Data from ESCAP 2022 update of the regional GHG emissions.

FIGURE 4: Status of ESCAP member States with NDC submissions and their GHG emissions share ($GtCO_2e$).



Source: Model based on ESCAP data, August 2022.

Collectively, 49 countries in Asia and the Pacific emitted 27.19 $GtCO_2$ in 2020. Figure 4 shows that the 38 countries that updated their NDCs to date,[19] accounted for 95 per cent of the regional GHG emissions in 2020, while the countries that were yet to submit their updated NDCs accounted for the remaining 5 per cent of the regional GHG emissions. It is also important to note that while some Asia-Pacific countries have significant contributions to global GHG emissions, the Pacific small island developing States contribute to only 0.023 per cent of the regional emissions.

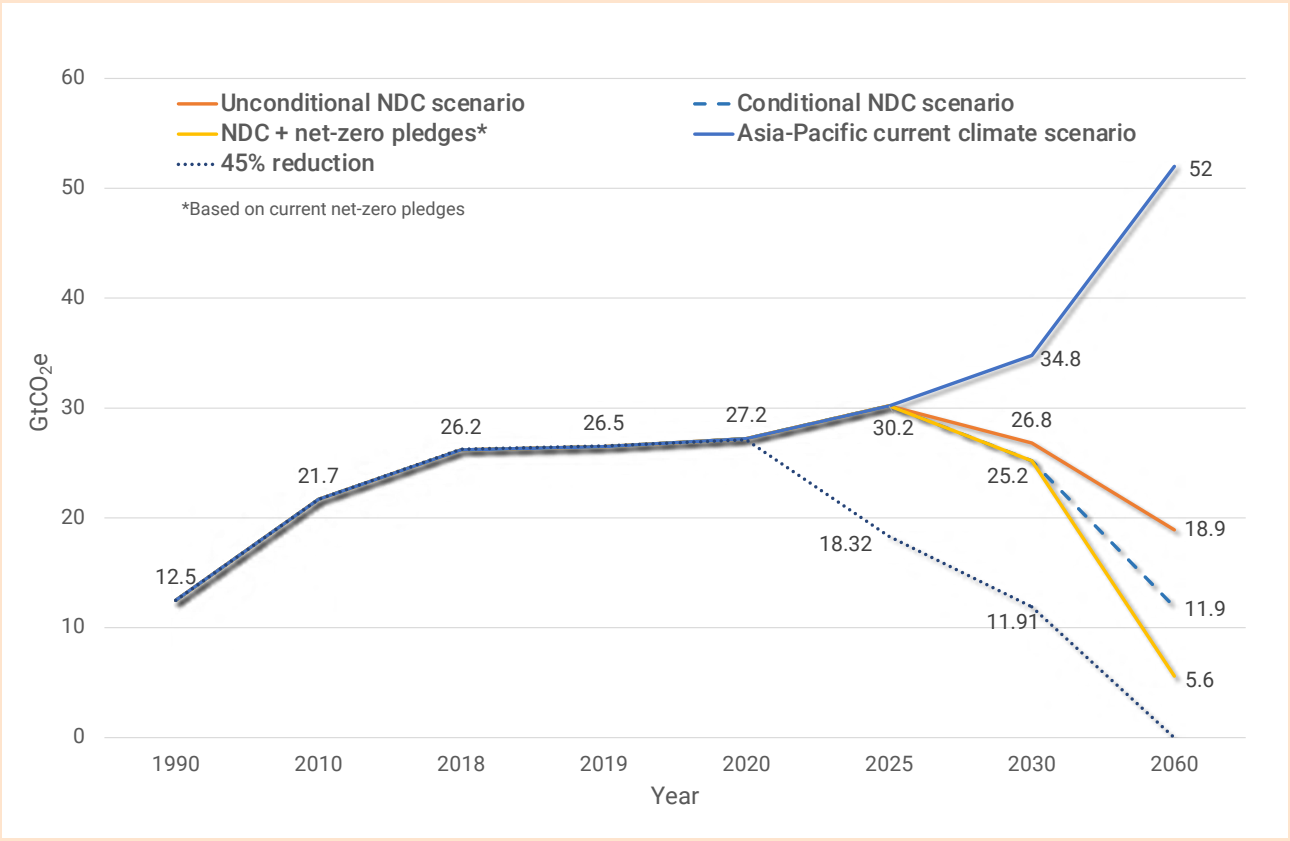
Thirty-nine Asia-Pacific member States have made carbon neutral pledges for the years 2050 or 2060. Bhutan is already carbon negative, while Maldives has pledged to become carbon neutral by 2030, and Nepal has committed to net-zero emissions by 2045. In December 2021, Cambodia became the third least developed country (LDC) to submit a long-term strategy to achieve carbon neutrality by 2050. New Zealand, the Republic of Korea and Fiji have all passed carbon neutrality legislations.

19 Armenia, Australia, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, Fiji, Georgia, India, Indonesia, Japan, Lao People's Democratic Republic, Malaysia, Maldives, Marshall Islands, Mongolia, Myanmar, Nepal, New Zealand, Papua New Guinea, the Philippines, the Republic of Korea, the Russian Federation, Samoa, Singapore, Solomon Islands, Sri Lanka, Thailand, Tonga, Vanuatu and Viet Nam.

Australia, China, Japan, Kazakhstan, Malaysia, the Marshall Islands and Uzbekistan have issued policy documents outlining their carbon neutrality pledges. The Pacific Island states, being the most vulnerable to climate change, have been amongst the first to make new commitments to climate action.[20]

Figure 5 illustrates how the current conditional and unconditional NDC commitments and regional GHG emissions trajectories are projected to result in an estimated GHG emissions of 25.2 $GtCO_2e$ in 2030, which is a twofold increase from the recommended threshold for that year (11.9 $GtCO_2e$), and over 16 per cent growth from the 2010 levels. The findings show that many countries in the region have not reached their potential in their commitments for GHG emissions reductions.

FIGURE 5: GHG emissions scenarios with compounded NDC and carbon neutral pledges for the Asia-Pacific region, ($GtCO_2e$), 1990-2060.



Source: Model based on ESCAP data.

20 United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), the Asian Development Bank, and the United Nations Development Programme (UNDP), "Building forward together: Towards an inclusive and resilient Asia and the Pacific", 2022. Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Building%20Forward%20Together_web.pdf

Photo by Chuyu2014 on Envato Elements

The region is collectively responsible for over three quarters of global coal-fired power generation and almost all (94 per cent) of the global total capacity of proposed coal fired power stations.[21] Fossil fuel subsidies are pervasive across the region, reaching $205 billion in 2019, and are expected to increase with the current energy market turmoil and inflation.[22] Even though the amount of renewable energy in Asia and the Pacific has increased in absolute terms, the relative share of renewable energy has decreased from 23 to 18.3 per cent as a result of the high demand for energy in the region. Growth needs to accelerate to meet sustainable energy and climate targets.[23] Furthermore, while energy efficiency has improved in the region, declining from 6.5 MJ/$ in 2010 to 5.2 MJ/$ by 2018, it is still higher than the global average (5.0 MJ/$) and some regional averages (e.g., 3.7 MJ/$ in Europe), indicating that relatively more energy is used to produce economic output in Asia and the Pacific.[24]

Additionally, while the ocean plays a fundamental role in climate regulation, it is threatened by human-induced climate change and other anthropogenic activities, which in turn dilute the ocean's contribution to climate action and many other services. Globally, 50 per cent of the carbon sequestered in sediments is found in coastal habitats, such as mangroves, seagrass and salt marshes. Yet, as much as 1.02 billion tons of carbon dioxide (CO_2) are released annually from degraded coastal ecosystems, which is equivalent to 19 per cent of emissions from tropical deforestation globally.[25]

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21 *Coal Phase Out and Energy Transitions Pathways for Asia and the Pacific* (United Nations publication, 2021d). Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Coal-Phase-Out-and-Energy-Transition-Pathways-25-Feb-2021.pdf

22 *2021 Regional Trends Report - Shaping a Sustainable Energy Future in Asia and the Pacific: A Greener, More Resilient and Inclusive Energy System* (United Nations publication, 2021h). Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Regional-Trends-Report-2021-Shaping-a-Sustainable-Energy-Future-23-February_%20%28rev%2009-09-2022%29.pdf.

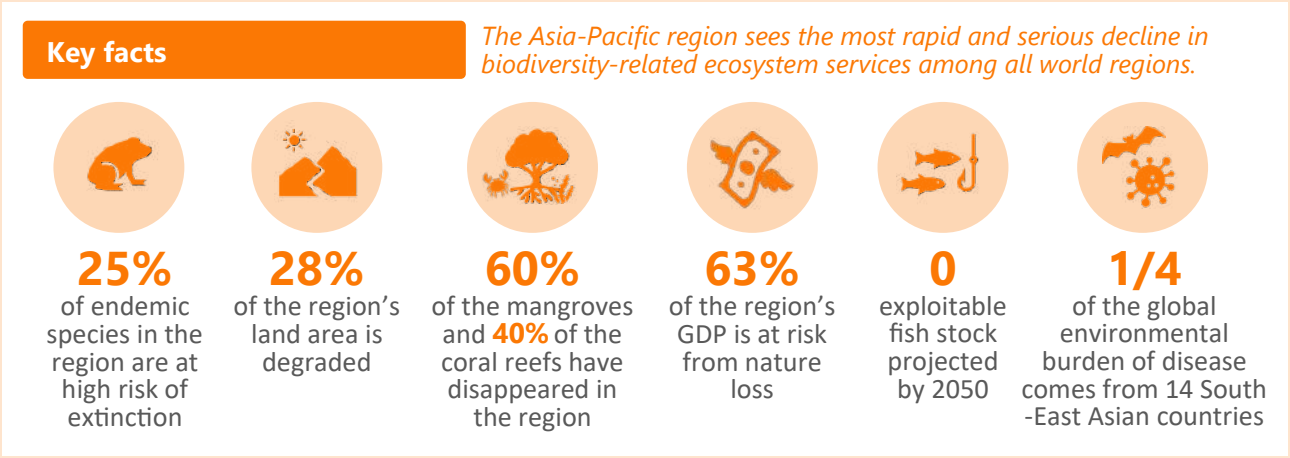
23 United Nations Asia-Pacific Regional Coordination Mechanism and others, "Goal Profile: SDG 7 affordable and clean energy: Ensure access to affordable, reliable, sustainable and modern energy for all", Policy brief, 28 March 2018a. Available at https://www.unescap.org/resources/sdg7-goal-profile

24 United Nations Economic and Social Commission of Asia and the Pacific (ESCAP), "Asia and the Pacific's Progress Towards Sustainable Development Goal 7", Policy brief, 21 June 2021b. Available at https://www.unescap.org/kp/2021/policy-brief-asia-and-pacifics-progress-towards-sustainable-development-goal-7

25 The Blue Carbon Initiative, "Mitigating Climate Change Through Coastal Ecosystem Management", 2019. Available at https://www.thebluecarboninitiative.org/

Biodiversity loss and ecosystem degradation

FIGURE 6: Key facts on biodiversity loss and ecosystem degradation in Asia and the Pacific.



Source: ESCAP, 2022.

Biodiversity crisis

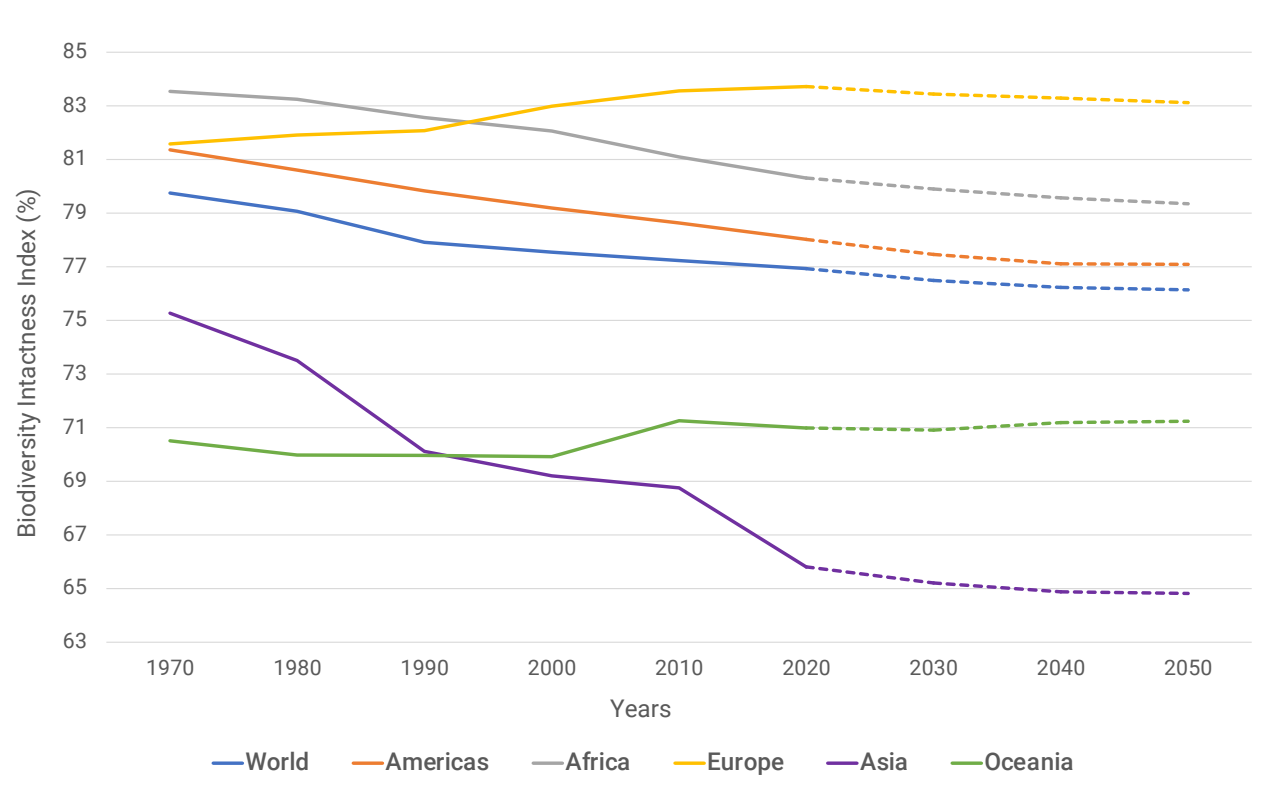
Asia and the Pacific is home to some of the world's most diverse ecosystems and biodiversity. The region holds 20 per cent of the world's biodiversity, comprising 17 of the 36 global biodiversity hotspots, and 7 of the 17 world's megadiverse countries. It also hosts the highest marine biodiversity in the world, containing the longest and most diverse coral reef systems, more than half of the world's remaining mangrove areas, and the highest seagrass diversity.[26] However, these natural assets are facing enormous human pressure, including changing land and sea use, overexploitation of resources, climate change, pollution, and invasive alien species, among others (Figure 6). This, in turn, poses great threats to economies, and to the well-being, livelihoods, and food security of people living in the region. It is estimated that as much as 63 per cent (US$ 19 trillion) of the GDP of Asia and the Pacific is at risk from nature loss.[27] This section sheds light on some of the major, interconnected, and transboundary challenges that the region is facing, from biodiversity loss to the degradation of various territorial and marine ecosystems.

26 United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP) and others, "Global Environmental Commons", 2020. Available at https://www.unescap.org/sites/default/d8files/event-documents/Global%20Environmental%20Commons_Layout%20050520.pdf

27 Akanksha Khatri and Steve Howard, "How to address Asia Pacific's biodiversity crisis and encourage nature-positive growth", World Economic Forum, 29 September 2019. Available at https://www.weforum.org/agenda/2021/09/how-to-address-asia-pacific-s-biodiversity-crisis-and-encourage-nature-positive-growth/

According to the latest Global Risks Report by the World Economic Forum, biodiversity loss is ranked as one of the gravest risks facing humanity, alongside the risks of climate action failure and extreme weather events.[28] Among all regions, Asia and the Pacific sees the most rapid and serious decline in biodiversity-related ecosystem services. The extent of the damage is evident from the region's Biodiversity Intactness Index score, which has fallen to 77 per cent of its pre-impact value and is projected to continue to decline under business-as-usual socioeconomic trends (Figure 7).[29]

FIGURE 7: Biodiversity Intactness Index, 1970-2050.



Source: ESCAP, based on data from Natural History Museum.[30]

28 World Economic Forum, "The Global Risks Report 2022" (Geneva, 11 January 2022). Available at www3.weforum.org/docs/WEF_The_Global_ Risks_ Report_2022.pdf.

29 World Wide Fund, "Living Planet Report: Bending the Curve of Biodiversity Loss" (Switzerland, 2020). Available at https://f.hubspotusercontent20.net/hubfs/4783129/LPR/PDFs/ENGLISH-FULL.pdf

30 Helen Phillips and others, "The Biodiversity Intactness Index - country, region and global-level summaries for the year 1970 to 2050 under various scenarios", Data set, Natural History Museum, 2021. Available at https://doi.org/10.5519/he1eqmg1

The region contains the world's largest number of threatened species, with 72,716 plants and 56,957 vertebrates categorized as threatened in 2021. Much of the region's biodiversity cannot be found anywhere else on the planet, yet, as high as 25 per cent of these endemic species are at high risk of extinction, and bird extinctions on some islands are as high as 88 per cent of historically recorded species.[31] While all Asia-Pacific subregions showed a decline in their Red List index which depicts overall extinction rates for species, tropical zones of Southern and South-East Asia and the Pacific are facing the highest risks among all subregions.

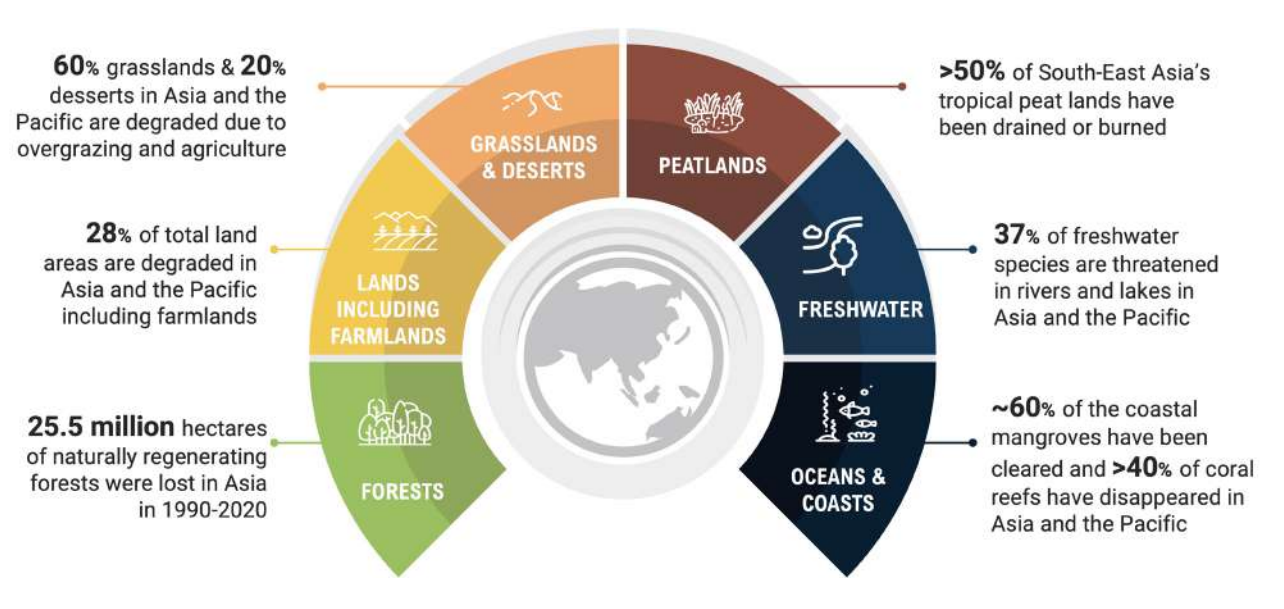
31 M. Karki and others, eds, "The IPBES regional assessment report on biodiversity and ecosystem services for Asia and the Pacific", Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 2018. Available at https://doi.org/10.5281/zenodo.3237373

Photo by WhitcombeRD on iStock

Land-use change / land degradation

Biodiversity degradation translates into a loss of ecological structure and functioning, while accelerating ecosystem degradation and habitat loss directly, and adversely impacting biodiversity and human well-being at large. Changing land and sea use is identified as the primary driver of biodiversity loss, followed by overexploitation of resources, climate change, pollution, and invasive alien species.[32] Across the Asia-Pacific subregions, specific drivers of land-use change vary. Larger countries are more impacted by large-scale agricultural development, while smaller countries, especially the Pacific small island developing States, suffer from land degradation from small-scale activities, such as shifting cultivation or urban expansion as well as salinization.[33]

FIGURE 8: Ecosystem degradation in the Asia-Pacific region.



Source: ESCAP, based on IPBES[34] and UNEP-WCMC[35] data

Food systems, and specifically, agriculture is the overall largest cause of land-use change and habitat destruction.[36] When land is converted for crop production for human consumption or farmed animal feed, or cleared for farmed animals to graze, habitat is damaged or lost for wild animals, plants and other organisms, such as fungi.

32 Ibid.

33 United Nations Environment Programme (UNEP) and others, "Goal Profile: SDG 15 Life on Land", Policy brief, 16 March 2022. Available at https://www.unescap.org/sites/default/d8files/knowledge-products/SDG%2015%20Profile.pdf

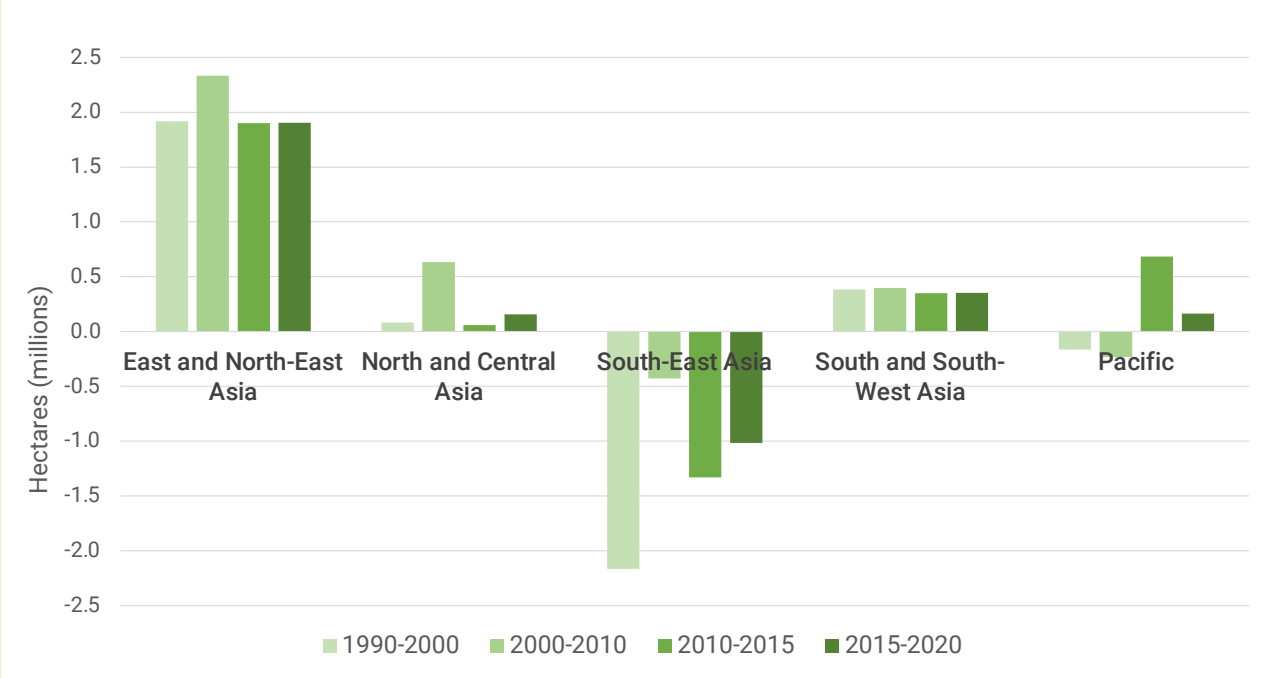
34 M. Karki and others, eds, "The IPBES regional assessment report on biodiversity and ecosystem services for Asia and the Pacific", Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 2018. Available at https://doi.org/10.5281/zenodo.3237373

35 United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), "Asia & Pacific", Protected Areas database, 2022. Available at https:// www.protectedplanet.net/region/AS

36 Tim Newbold, and others, "Global effects of land use on local terrestrial biodiversity", *Nature*, vol. 520 (April 2015), pp. 45–50. Available at doi: 10.1038/nature14324. (accessed on 2 November 2020).

Between 1990 and 2020, approximately 25.5 million hectares of natural forest areas were lost in the Asia-Pacific region mainly converted for agricultural purposes, accounting for 8.5 per cent of the world's total natural forest loss (Figure 8).[37] The largest overall loss was registered in South-East Asia, which lost approximately 48.7 million hectares of natural forest area within the same period. This is largely due to an increase in timber extraction, large-scale bio-fuel plantations, and the expansion of intensive agriculture and shrimp farms. These include an expansion of palm oil production, which has more than doubled in the past decade, especially in Indonesia and Malaysia, providing over 80 per cent of the world's supply.[38] On the other hand, East and North-East Asia has seen a notable increase in forest cover over the past three decades (Figure 9), through policies and instruments, such as payment for ecosystem services, reduced harvests of natural forests, and forest plantation including for both environmental objectives and industrial production, such as timber plantation.[39] However, it is to be noted that the increase in forest cover associated with industrial mono-plantations can cause fundamental changes in ecosystem functioning, through changes in shading, micro-climates, nutrient cycling and water cycles.[40]

FIGURE 9: Net forest area annual change in Asia and the Pacific (millions of hectares).



Source: ESCAP, based on the FAO Global Forest Resource Assessment database[41]

37 United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), "Asia & Pacific", Protected Areas database, 2022. Available at https:// www.protectedplanet.net/region/AS

38 Sean Sloan and Jeffrey A. Sayer, "Forest Resources Assessment of 2015 shows positive global trends, but forest loss and degradation persist in poor tropical countries", *Forest Ecology and Management*, vol. 352, No. 7 (September 2015), pp. 134–14.

39 Ibid.

40 Ásrún Elmarsdóttir and others, "Effects of afforestation on biodiversity", in *Affornord, Effects of afforestation on ecosystems, landscape and rural development*, G. Halldórsson and others, eds. (Copenhagen, The Nordic Council of Ministers, 2008).

41 Food and Agricultural Organization of the United Nations (FAO), Global Forest Resources Assessment database, 2022. Available at https://fra-data.fao.org/

Photo by Tampatra on Envato Elements

In Asia and the Pacific, 60 per cent of the grasslands and more than 20 per cent of the deserts are degraded owing primarily to overgrazing by livestock and conversion to agriculture, resulting in a rapid decline of native flora and fauna. The region's agroecosystems, which represent 30 per cent of the world's agricultural land and 87 per cent of the world's small farms are also degrading.[42] Overall, land degradation has affected about 850 million hectares, or about 28 per cent of land area in the Asia and Pacific (Figure 8).[43]

Also, reclamation for urban, industrial, and agricultural development, in multiple Asia-Pacific countries, has resulted in a loss of between 40-55 per cent of intertidal habitats which are important for migratory water birds, with the Yellow Sea region experiencing the greatest loss. Further, more than half of South-East Asia's tropical peatlands, amounting to over 270,000 km^2, have been drained or burned causing severe damages to swamp forests and unique aquatic habitats.[44] Overall, over 45 per cent of wetlands have been lost in Asia over the century and this loss continues to rise.[45] In rivers and lakes across Asia and the Pacific, overfishing as well as pollution, infrastructure development, and invasive alien species threaten the survival of 37 per cent of freshwater species (Figure 8).[46]

42 M. Karki and others, eds, "The IPBES regional assessment report on biodiversity and ecosystem services for Asia and the Pacific", Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 2018. Available at https://doi.org/10.5281/zenodo.3237373

43 Ibid.

44 United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), "The State of Biodiversity in Asia and the Pacific: A mid-term review of progress towards the Aichi Biodiversity Targets" (Cambridge, UK, 2016).

45 Nick C. Davidson, "Wetland Losses and the Status of Wetland-Dependent Species", in *The Wetland Book*, C. Finlayson, and others, eds (Dordrecht, Springer, 2016). Available at https://doi.org/10.1007/978-94-007-6173-5_197-1

46 M. Karki and others, eds, "The IPBES regional assessment report on biodiversity and ecosystem services for Asia and the Pacific", Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 2018. Available at https://doi.org/10.5281/zenodo.3237373

Marine and coastal ecosystem degradation

The marine and coastal ecosystems in Asia and the Pacific are also becoming increasingly pressured from activities including overexploitation, habitat destruction, aquaculture, and invasive species. The share of ocean-related economic activity in the GDP of some Pacific small island developing States can be as high as 87 per cent,[47] further degrading marine and coastal ecosystems in these areas. Between 1990 and 2020, 4,030 km^2 of mangrove coverage was lost in Asia alone, accounting for nearly half of global net loss, standing at 8,600 km^2. East Asia recorded the highest rate of mangrove decline (Figure 10).[48] This resulted in the loss of terrestrial and marine biodiversity, and of a wide range of ecosystem services related to carbon sequestration, coastal protection, natural products, and tourism. Additionally, the degradation of coral reefs has devastating consequences for biodiversity as they provide habitat for around 25 per cent of all oceanic species.[49] For many tropical and subtropical countries in the region, including the Pacific small island developing States, both reefs and mangroves are vital for economic activity and coastal protection.[50]

47 Mani Juneja and others, "Contextualising blue economy in Asia-Pacific region: Exploring pathways for a regional cooperation framework", Policy brief (India, The Energy and Resources Institute (TERI), 2021).
Available at https://www.teriin.org/sites/default/files/2021-03/blue-economy.pdf

48 Avit K. Bhowmik, and others, "Global mangrove deforestation and its interacting social-ecological drivers: A systemic review and synthesis", *Sustainability*, vol. 14, No. 8 (8 April 2022).
Available at https://www.mdpi.com/2071-1050/14/8/4433

49 United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP), "Key Environment Issues, Trends and Challenges in the Asia-Pacific Region", Note by the secretariat, Committee on Environment and Development, Fifth session, 21-23 November 2018, Bangkok. ESCAP/CED/2018/1.
Available at https://www.unescap.org/sites/default/files/CED5_1E_0.pdf

50 *The Future is Now: Science for Achieving Sustainable Development, Global Sustainable Development Report 2019* (United Nations publication, 2019).

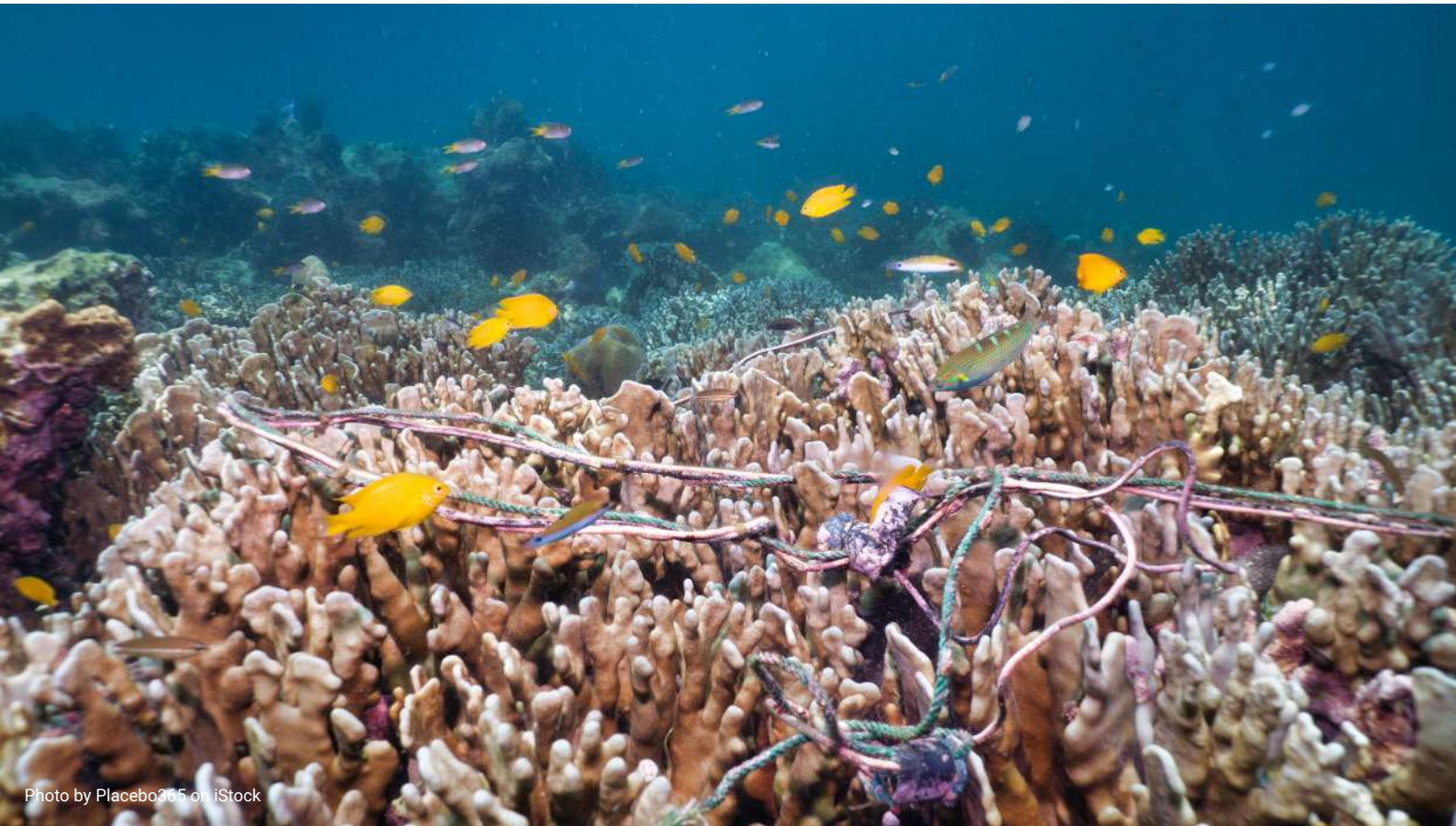
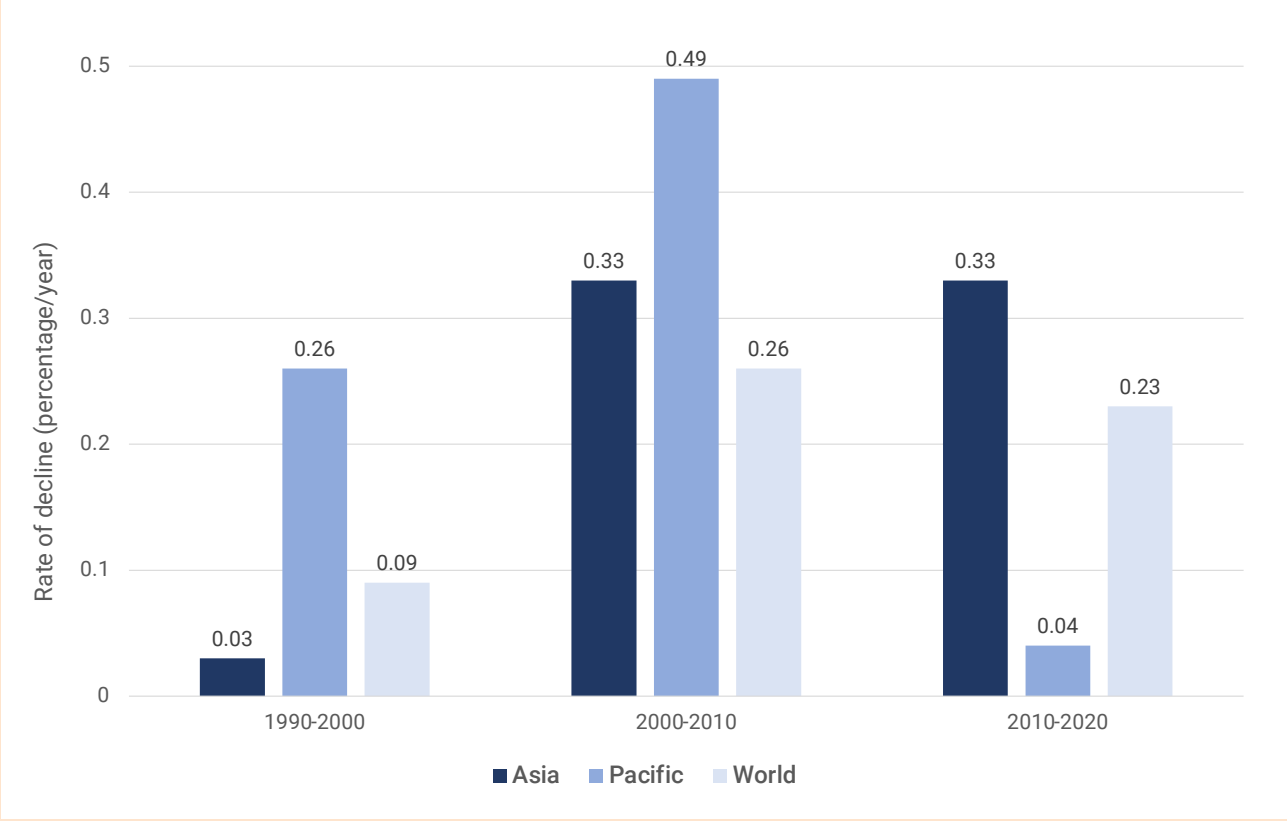


Photo by Placebo365 on iStock

Although fisheries support the livelihoods of millions of people in Asia and the Pacific and provide nutrients to communities across the region, fish stocks continue to decline. This is, to a large extent, due to human-induced stressors, including unsustainable aquaculture practices, overfishing, destructive harvesting practices, coastal development, among others. Without significant change, it is projected that there could be no exploitable fish stocks left in Asia and the Pacific by as early as mid-century.[51] In addition, the ocean's health is significantly affected by pollution, including plastic pollution, with over 11 million tonnes of plastic waste entering oceans every year, with Asia-Pacific countries contributing to over half of their land-based sources. Currently, microplastics and their toxic chemicals have been found in seafood, drinking water and human blood, damaging the health and well-being of people in the region.[52, 53]

FIGURE 10: Mangrove coverage decline, 1990-2020.



Source: ESCAP, based on data from Avit K. Bhowmik, and others, "Global mangrove deforestation and its interacting social-ecological drivers: A systemic review and synthesis", *Sustainability*, vol. 14, No. 8 (8 April 2022). Available at https://www.mdpi.com/2071-1050/14/8/4433

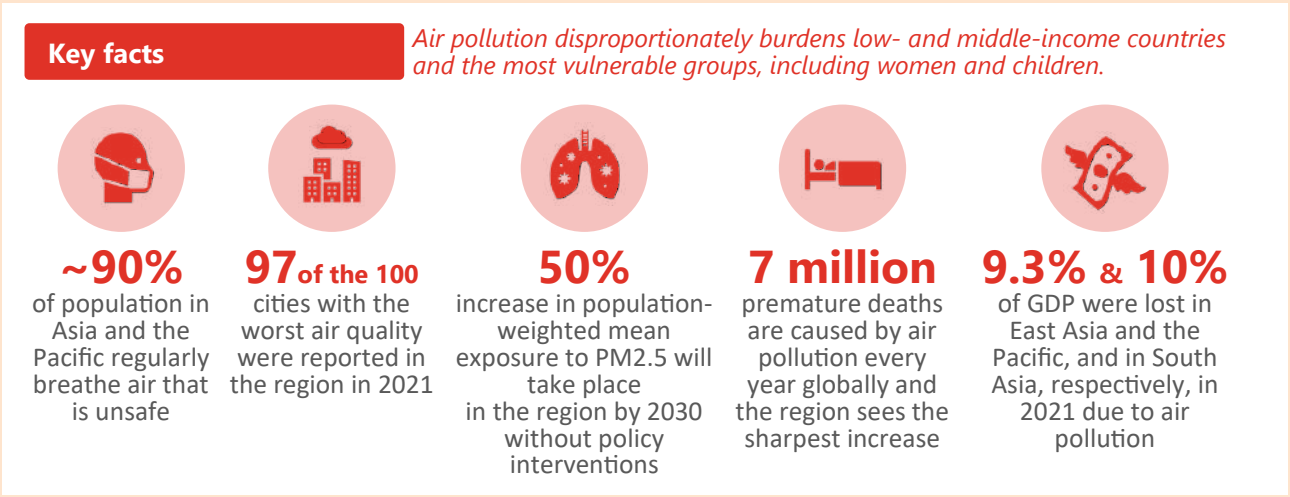
51 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (2018)." The IPBES regional assessment report on biodiversity and ecosystem services for Asia and the Pacific. Available at https://doi.org/10.5281/zenodo.3237373

52 Philippa Notten, "Addressing marine plastics: A systemic approach – Recommendations for Actions", United Nations Environment Programme, Nairobi, 2019.

53 Heather Leslie, and others, "Discovery and quantification of plastic particle pollution in human blood", *Environment International*, vol. 163 (May 2022).

Increase in pollution and waste production

FIGURE 11: Key facts on air pollution in Asia and the Pacific.



Source: ESCAP, 2022.

Pollution comes in different forms and is a severe environmental hazard in Asia and the Pacific. Among the major concerns are increasing levels of air pollution, municipal solid waste, plastic pollution and marine litter, untreated wastewater, as well as chemical pollution in soil and water. Rising pollution levels, across the region, resulting from increased resource consumption, combustion of fossil fuels, and unsustainable agricultural and industrial processes, among other sources, are directly affecting human health, biodiversity, marine ecosystems, and exacerbating climate change. The current industrial model is still wasteful and polluting, with most of the material value lost to landfills and sometimes causing irreversible environmental harm.

Of particular concern are the alarming levels of air pollution, which have increased significantly in the Asia-Pacific region. Economic growth and rapid urbanization have been accompanied by increases in air pollution, although the primary sources of pollutants vary across the subregions. Currently, nearly 90 per cent of the population of the region regularly breathes air considered by the World Health Organization to be unsafe,[54] which further threatens their right to access a clean and healthy environment. The annual population weighted PM2.5 concentrations, in the region, increased by 19 per cent in the period 1990-2015, making the population in Asia and the Pacific one of the most exposed to ambient air pollution. This increase was estimated to be 10 per cent higher than the global average increase within the same period.[55] PM2.5 concentrations have increased at a higher pace in South Asia, reaching an annual average of 78.2 µg/m3 in 2019, and representing a 17 per cent increase from 2000 levels.[56]

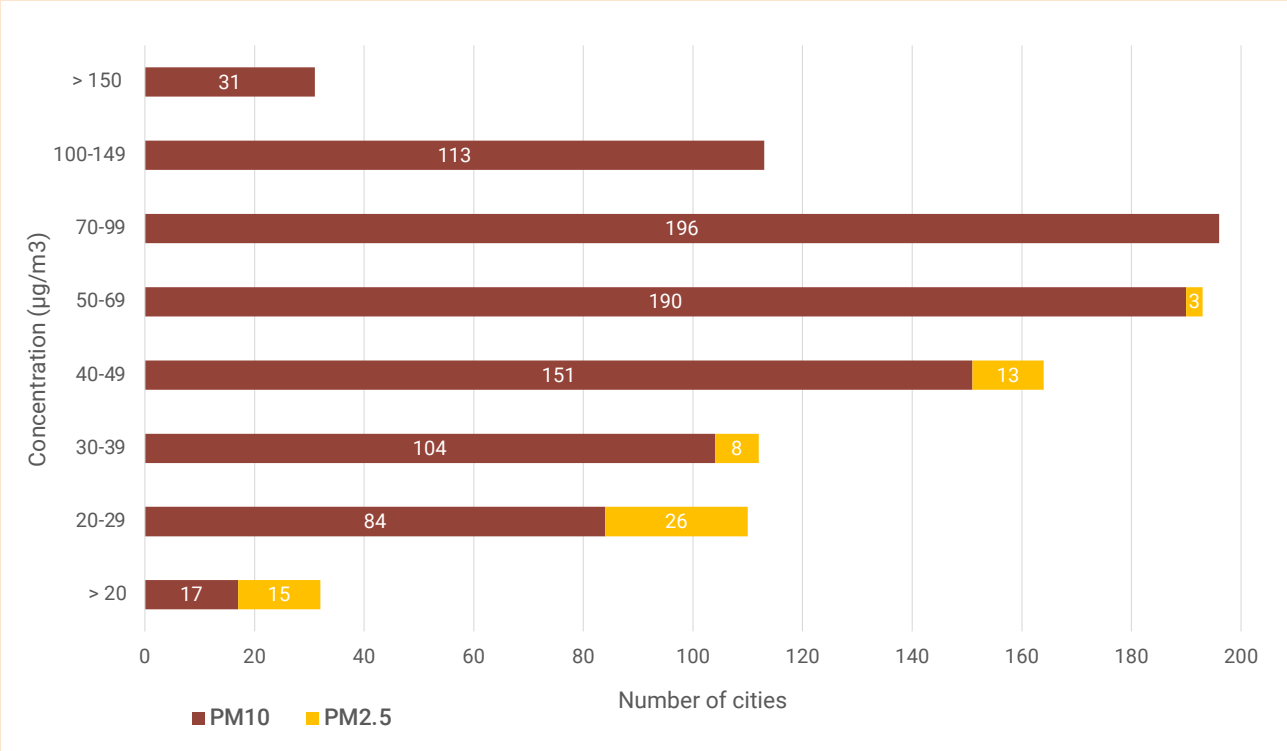
54 World Health Organization (WHO), "Ambient (outdoor) air pollution: Key facts", 22 September 2021. Available at https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health

55 United Nations Environment Programme Climate & Clean Air Coalition, "Air Pollution in Asia and the Pacific: Science-based Solutions", 2018. Available at https://wedocs.unep.org/20.500.11822/26861.

56 Calculations based on data from the State of Global Air, 2020. Available at https://www.stateofglobalair.org/data/#/air/plot

Some subregions and countries have made notable progress in reducing air pollution levels, which is the case for South-East Asia, East Asia and Oceania, led by China, Viet Nam and Thailand.[57] For instance, China recorded a 39.6 per cent average reduction in fine particles exposure between 2013 and 2020.[58] However, most countries and cities in the region continue to observe degrading air quality.

FIGURE 12: Annual average PM2.5 and PM10 concentration in major Asian cities.



Source: ESCAP, data from United Nations Environment Programme Climate & Clean Air Coalition, "Air Pollution in Asia and the Pacific: Science-based Solutions", 2018. Available at https://wedocs.unep.org/20.500.11822/26861.

The Asia-Pacific region has 97 of the 100 cities with the worst air quality, and all of them exceed by more than 10 times the recommended 2021 WHO Air Quality Guideline.[59] Figure 12 shows that in 2016, 126 cities in developed Asia had an annual PM10 concentration exposure greater than 100 µg/m3. These trends are making air pollution a growing environmental crisis in the region. On average, 7 in every 10 cities in Asia suffer from poor air quality. Fast urbanization rates in Asia and the Pacific are expected to further exacerbate air pollution in the region.

57 Health Effects Institute, "State of Global Air 2020: A Special Report on Global Exposure to Air Pollution and its Health Impacts" (Boston, MA, 2020).

58 Michael Greenstone, Chista Hasenkopf and Ken Lee, "Air Quality Life Index: Annual Update", June 2022. Available at https://aqli.epic.uchicago.edu/wp-content/uploads/2022/06/AQLI_2022_Report-Global.pdf

59 IQAir, "World's Most Polluted Cities (historical data 2017-2021)", 2022. Available at https://www.iqair.com/world-most-polluted-cities?sort=-rank&page=2&perPage=50&cities=

Photo by Photoholgic on Unsplash

In 2019, the average annual population weighted PM2.5 concentration in Asia was 50.7 µg/m3, with most of the population living in areas exceeding the 2005 WHO Interim Target 1 of 35 µg/m3 (the current WHO Air Quality guideline for the annual concentration of PM2.5 is 5 µg/m3).[60] Although air pollution affects high and low-income countries alike, low- and middle-income countries experience the highest burden, with the highest concentrations being seen in Central, South Asia and South-East Asia.

Fossil fuel combustion, and in particular coal, for electricity and heat generation, causes 80 per cent of the sulphur dioxide, and 50 per cent of the nitrogen oxide emissions. Around 55 per cent of the global anthropogenic emissions of sulphur dioxide occur in Asia, and 20 per cent in India alone.[61] Major Asia-Pacific economies still heavily rely on coal, such as China and India, with more than 50 per cent of their energy consumption attributed to coal.[62] It is estimated that the combustion of coal is responsible for about 40 per cent of the fine particulate matter in China's atmosphere.[63] As energy demand across the region is expected to increase, the decoupling of growth and emissions will be a challenge for many countries, requiring energy transitions and integrated climate and clean air policies.

60 State of Global Air, 2020. Available at https://www.stateofglobalair.org/data/#/air/plot

61 Sunil Dahiya, and others, "Global SO2 emission hotspot database", (Delhi, Center for research on Energy and Clean Air & Greenpeace India, 2020).

62 BP, "Statistical Review of World Energy: 70th Edition", 2021.
Available at https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2021-full-report.pdf

63 Health Effects Institute, "Burden of Disease Attributable to Coal-Burning and Other Major Sources of Air Pollution in China", GBD Maps Working Group, Boston, 2016.
Available at http://www.healtheffects.org/system/files/GBDMAPS-ExecSummEnglishFinal.pdf#:~:text=%E2%80%A2Coal-burning%20was%20the%20most%20important%20contributor%20to%20ambient,China%2C%20causing%20an%20estimated%20366%2C000%20deaths%20in%202013

Additionally, uncontrolled open burning of forest, peat and crop residues contributes to the degradation of air quality and is a source of other environmental challenges, most notably in South-East Asia. In rural areas, intensive agricultural activities lead to more than 85 per cent of the total ammonia emissions, which contributes to further degrading air quality as a key precursor of the secondary PM, often found in urban PM2.5.[64, 65] In order to safeguard human well-being, and protect the right to access a clean, healthy and sustainable development, member States must urgently improve inadequate national policies, weak air quality standards and lack of enforcement of air quality regulations. Without policy interventions to address air pollution, population-weighted mean exposure to PM2.5 would grow by almost 50 per cent by 2030.[66]

The economic cost caused by the exposure of PM2.5 air pollution globally has been estimated at $8.1 trillion in 2019, which represents a 40 per cent increase from 2013 levels. The current global health cost of mortality and morbidity is equivalent to 6.1 per cent of global GDP. Low-income regions, in Asia and the Pacific, are particularly impacted, with air pollution costs being as high as 9.3 and 10.3 per cent of GDP in East Asia and the Pacific and in South Asia, respectively.[67] This is linked to the direct costs related to health care, loss of workforce, and damage to crops and infrastructures resulting from air pollution. There are other indirect economic losses as well, and without action, these costs will continue to increase given that negative impacts on capital accumulation have a permanent effect on economic growth rates.[68]

The transboundary nature of air pollution presents significant challenges for countries. Often, the sources of air pollution, such as crop burning, originate well outside the areas of impact. Cross-border air pollution, influenced by climatic and weather conditions, requires effective multilateral cooperation. Although existing international cooperation has been successful in different subregions in Asia and the Pacific, an overarching approach for the entire region, in which binding agreements for the implementation of air quality policies and legislation, and emission reduction targets are arranged, could be the best solution to improve the situation. Experiences in other regions, including the Air Convention in Europe could be analysed and used to find the right multilateral approach for the region.

64 Yiyun Wu, and others, "PM2.5 Pollution is Substantially Affected by Ammonia Emissions in China", *Environmental Pollution*, vol. 218 (November 2016), pp. 86-94.

65 European Commission, "Emission Database for Global Atmospheric Research (EDGAR) 2020 v 5.0". Available at https://edgar.jrc.ec.europa.eu/report_2020

66 United Nations Environment Programme Climate & Clean Air Coalition, "Air Pollution in Asia and the Pacific: Science-based Solutions", 2018. Available at https://wedocs.unep.org/20.500.11822/26861.

67 World Bank Group, "The Global Health Costs of PM2.5 Air Pollution: A Case for Action Beyond 2021", Washington D.C., 2022. Available at https://openknowledge.worldbank.org/bitstream/handle/10986/36501/9781464818165.pdf?sequence=4&isAllowed=y

68 Organization for Economic Cooperation and Development (OECD), "The economic consequences of outdoor air pollution" (Paris, OECD Publishing, 2016).

In addition to air pollution, solid waste and plastic pollution threaten marine ecosystem due to the bioaccumulation of plastics, including microplastics in the ocean. It is estimated that 43 per cent of the global plastic volume is produced and 38 per cent of all plastic is consumed in Asia and the Pacific, much of which is released in the environment. The region's reliance on plastics, coupled with poor waste management practices, has made it a significant contributor to global plastic input emitted in the oceans. In 2019, 86 per cent of ocean plastics came from Asian rivers and coastlines.[69] Recent studies suggest that approximately 95 per cent of river-borne plastic in the oceans is transported by 10 major rivers, 8 of which are located in Asia.[70] Urban rivers in South-East Asia are identified as one of the main hotspots for plastic emissions. Plastic pollution is estimated to reduce marine ecosystem services by 1–5 per cent, comparable to annual losses of $500–$2,500 billion.[71]

These negative trends are explained by the fact that most growing Asian cities use open dump sites for solid waste. Only 10 per cent of solid waste produced in the region ends up in properly managed landfill sites.[72] Particularly, fast-growing cities with underdeveloped waste management systems in the region are to blame for as much as 60 per cent of this plastic waste leakage. Waste generated through ineffective processes is likely to remain a major area of concern in the coming years, with countries in South-East Asia expected to have over 20 per cent of mismanaged waste in 2019. This creates persistent health and economic threats as waste threatens to enter oceans via inland waterways or wastewater outflows.

Untreated wastewater represents another significant threat to human and environmental health. Approximatively 70 per cent of urban wastewater is discharged into ecosystems, and 80 to 90 per cent of all wastewaters produced in the region remains untreated.[73] Central and South Asia has the lowest share of wastewater flows safely treated, totalling 25 per cent in 2020 against 65 per cent in Eastern and South-Eastern Asia.[74] Rapid industrialization, rising consumer demand and population growth in the region demand improved chemicals and hazardous waste management and regulation of industrial and consumer chemicals and pesticides. Countries experiencing rapid economic growth, coupled with water-related challenges, are highly vulnerable to water scarcity, impeding efforts to advance food production and overall sustainable development agendas.

69 Laurent C. M. Lebreton, and others, "River plastic emissions to the world's oceans", *Nature Communications*, vol. 8, No. 15611 (June 2017).

70 C. Schmidt, T. Krauth and S. Wagner, "Export of Plastic Debris by Rivers into the Sea", *Environmental Science & Technology*, vol. 51, No. 21 (October 2017) pp. 12,246–12,253.

71 Nicola J. Beaumont, and others, "Global ecological, social and economic impacts of marine plastic", *Marine Pollution Bulletin*, vol. 142 (May 2019), pp. 189-195. Available at https://doi.org/10.1016/j. marpolbul.2019.03.022.

72 United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP), "Key Environment Issues, Trends and Challenges in the Asia-Pacific Region", Note by the secretariat, Committee on Environment and Development, Fifth session, 21-23 November 2018, Bangkok. ESCAP/CED/2018/1.
Available at https://www.unescap.org/sites/default/files/CED5_1E_0.pdf

73 Ibid.

74 UN-Water, "Progress on Wastewater Treatment (SDG target 6.3)". Available at https://www.sdg6data.org/indicator/6.3.1

Photo by Edwin Tan on iStock

Pollution and waste from food systems represent another key environmental challenge in Asia and the Pacific. The production of agrochemicals is the highest in the region, with an average annual increase of 4.1 per cent over the period 2022-2024 in emerging Asian markets, against 3.3 per cent for the world average.[75] Although the use of pesticides and fertilizers for agricultural purposes has not been perceived as key input, they contain toxic chemicals which can negatively affect the environment, including soil, surface and groundwater, beneficial insects, as well as human health.[76] A 2021 study revealed that 64 per cent of the world's arable land is at risk of pesticide pollution. It also indicates that Asia has the largest land areas at risk of pollution, with China, Japan, Malaysia, and the Philippines at highest risk.[77]

There are also high levels of food waste in Asia and the Pacific, with 40 per cent of food losses in industrialized countries in the region occurring at retail and consumer levels. It is estimated that as much as 50 per cent of fruits and vegetables and 30 per cent of grains are lost between the producer and the consumer.[78] In addition, rising plastic pollution from packaging of food products leads to more pollution levels.[79] Persistent organic pollutants and antimicrobial resistance, some caused by products used in agriculture (antibiotics and growth promotion used in in livestock, antifungals and antiparasitic products) affect animal health, public health, food safety, and the environment.[80]

75 BASF, "Management's Report: Economic Environment in 2022", BASF Report 2021, 2021. Available at https://report.basf.com/2021/en/_assets/downloads/frc-forecast-basf-ar21.pdf

76 United Nations Environment Programme, "Study on the effects of taxes and subsidies on pesticides and fertilizers", background document to the UNEA-5 Review Report on the Environmental and Health Effects of Pesticides and Fertilizers, April 2020a. Available at https://greenfiscalpolicy.org/wp-content/uploads/2020/09/Study-on-the-Effects-of-Pesticide-and-Fertilizer-Subsidies-and-Taxes-Final-17.7.2020.pdf

77 Fiona H.M. Tang, and others, "Risk of pesticide pollution at the global scale", *Nature Geoscience*, vol. 14 (March 2021). Available at https://www.nature.com/articles/s41561-021-00712-5

78 United Nations Asia-Pacific Regional Coordination Mechanism and others, "Goal Profile: SDG 12 - responsible consumption and production, 2018b. Available at https://www.unescap.org/sites/default/d8files/knowledge-products/SDG%2012%20Goal%20Profile.pdf

79 United Nations Environment Programme, "Report: Consumers and businesses concerned about plastic waste but expect governments to do more", Press release, 23 June 2020b. Available at https://www.unep.org/fr/node/27785

80 United Nations Environment Programme, "Frontiers: Emerging Issues of Environmental Concern", 2017. Available at https://www.unep.org/resources/frontiers-2017-emerging-issues-environmental-concern

Megatrends and drivers of change

Demographic shifts and resource-intensive growth

The Asia-Pacific region experienced rapid population growth in the past decades, and is now home to around 60 per cent of the world's population, reaching 4.7 billion in 2022, and projected to increase to 5.4 billion in 2050.[81] Over time, the population demography has been shifting from being young and rural to ageing and urban. Interrelatedly, the region achieved rapid economic development, at an average annual growth rate of 2.7 per cent between 1990-2020, substantially exceeding the global average (1.5 per cent).[82] Rapid economic growth has been accompanied by a shift toward a more affluent lifestyle, featuring unsustainable consumption and production patterns and increased waste production.

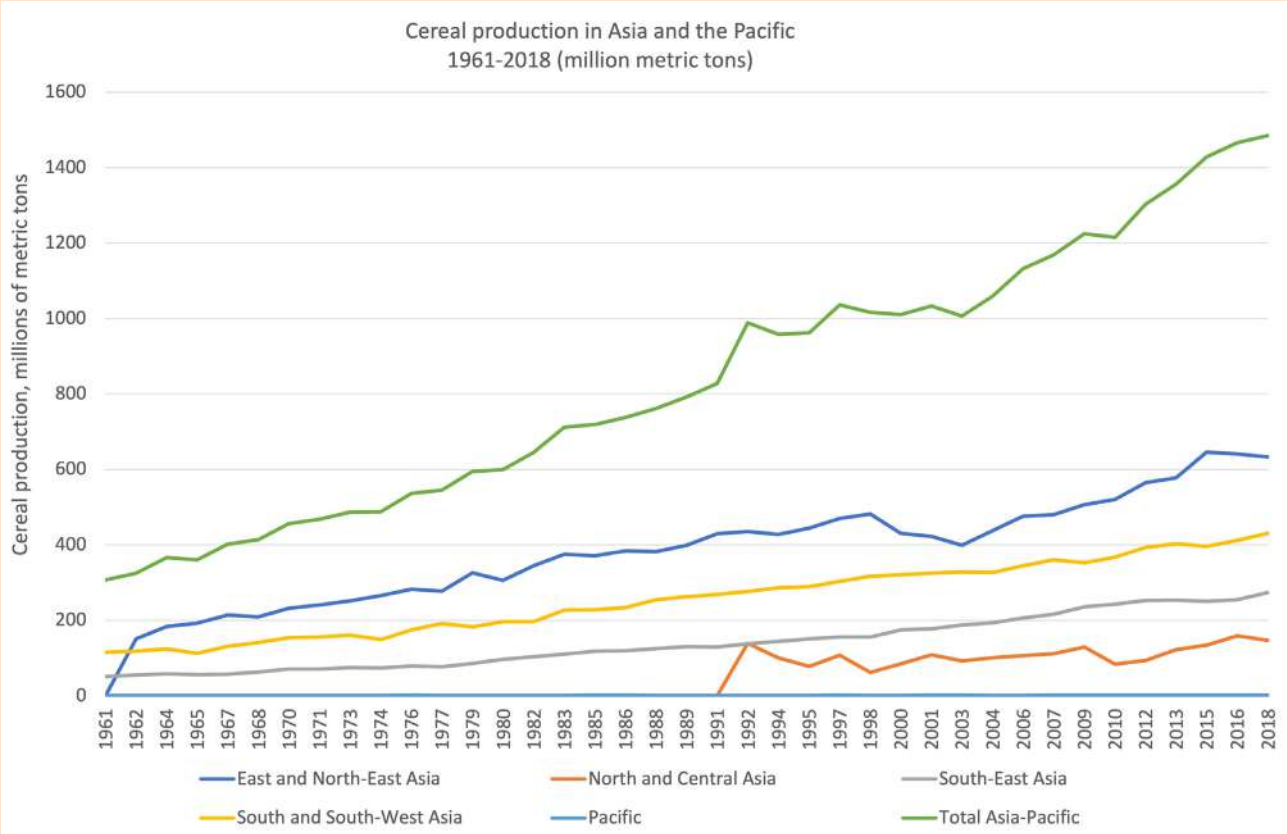
Within the region, urbanization and agricultural expansion rates also rose to become among the highest in the world, with slight variations among subregions (Figure 13).

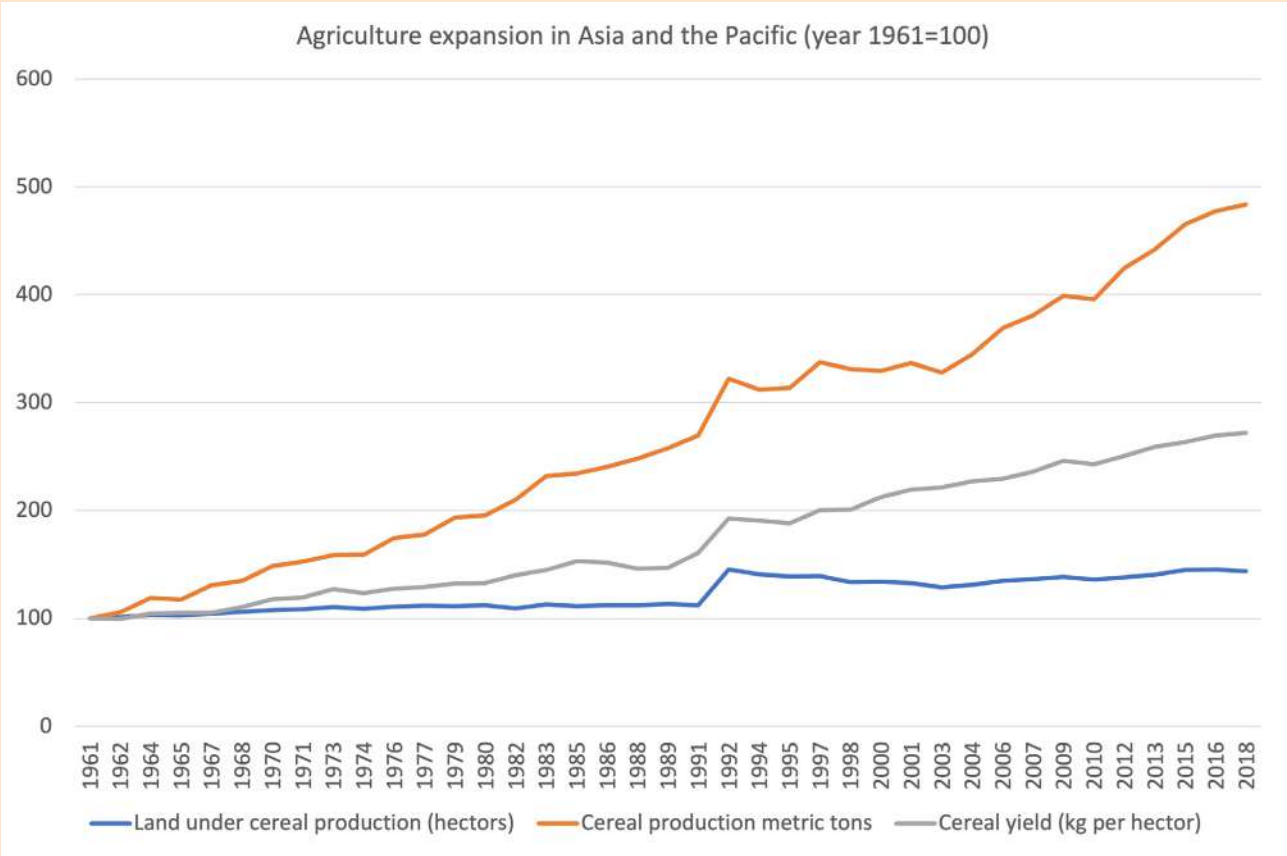
81 United Nations, Department of Economic and Social Affairs, Population Division, "World Population Prospects 2022 - Special Aggregates" database, 2022. Available at https://population.un.org/wpp/Download/SpecialAggregates/Geographical/

82 Calculated based on data extracted from the ESCAP SDG Data Gateway Asia Pacific, 2022f. Available at https://data.unescap.org/home

Photo by Ryoji Iwata on Unsplash

FIGURE 13: Agriculture expansion in Asia and the Pacific subregions.



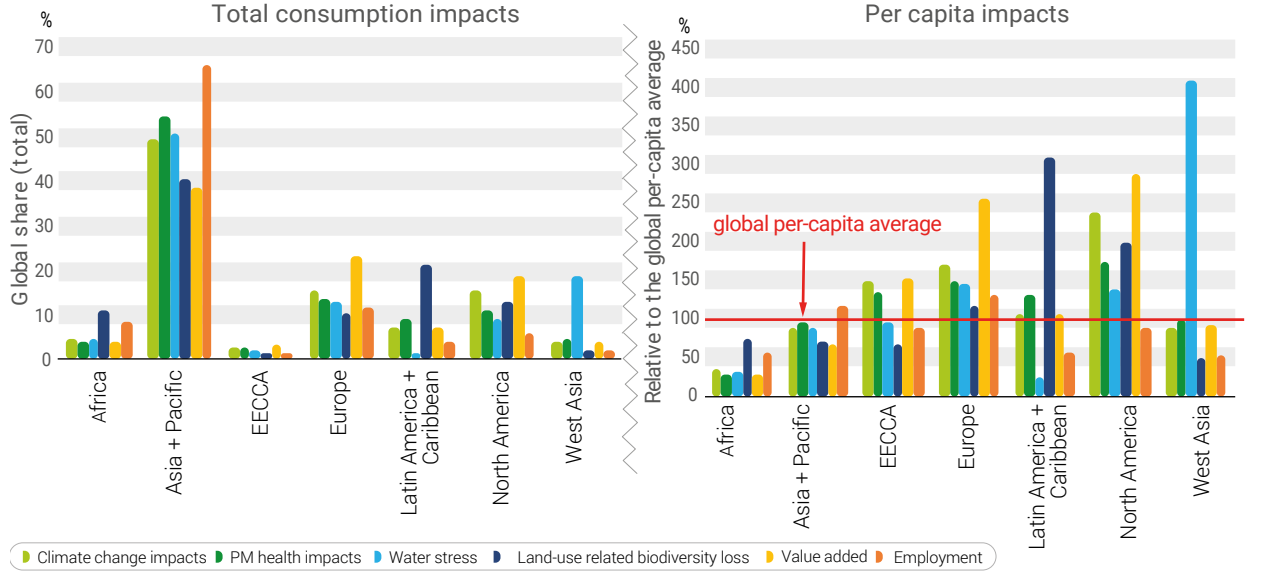


Source: ESCAP, based on data from Food and Agricultural Organization of the United Nations (FAO), "FAOSTAT", 2022. Available at https://www.fao.org/faostat/en/#home

Rapid demographic and socioeconomic transitions have led to enormous environmental and natural resource pressure. Asia and the Pacific is responsible, as a region, for almost 60 per cent of the global material consumption (including fossil fuels, biomass, metals, and non-metallic minerals), up from 25 per cent in 1970 . Modelling results show that, without improvement in resource efficiency and sustainable consumption and production patterns, domestic material consumption would increase by 75 per cent between 2020 and 2060, in Asia and the Pacific, following historical trends, and that the region could face constraints in resources to support its longer-term economic development and well-being.[83]

Furthermore, the extraction and processing of resources for food, fuel, and materials in Asia and the Pacific has contributed to around 55 per cent of the global air pollution and health impact, 50 per cent of climate change impacts, 50 per cent of water stress, and 40 per cent of land-use related biodiversity loss (Figure 14). Given the large population in the region, per capita environmental impacts are relatively small compared to other regions.

FIGURE 14: Impacts (climate change impacts, PM health impacts, water stress, land-use related biodiversity loss) and socioeconomic footprints (value added, employment) of material consumption, attributed to the region.



Left: Total footprints as a share of total global impacts (values for all regions together add up to 100 per cent).
Right: Per capita footprint, where the 100 per cent line marks the global per capita average. Reference year: 2011
Data source: Exiobase 3.4 (Exiobase, n.d.; Stadler et al., 2018).

Source: Bruno Oberle, and others, "Global Resources Outlook 2019: Natural resources for the future we want", Report of the International Resource Panel, United Nations Environment Programme, 2019.
Note: EECA = Eastern Europe, Caucasus, and Central Asia.

83 Y. Lu, J. West, and H. Schandl, "Asia-Pacific Resource Outlook: Technical Input for the ESCAP Environment Division Flagship Report" (Canberra, CSIRO, 2019). Available at https://doi.org/10.25919/5efe2eb900fee

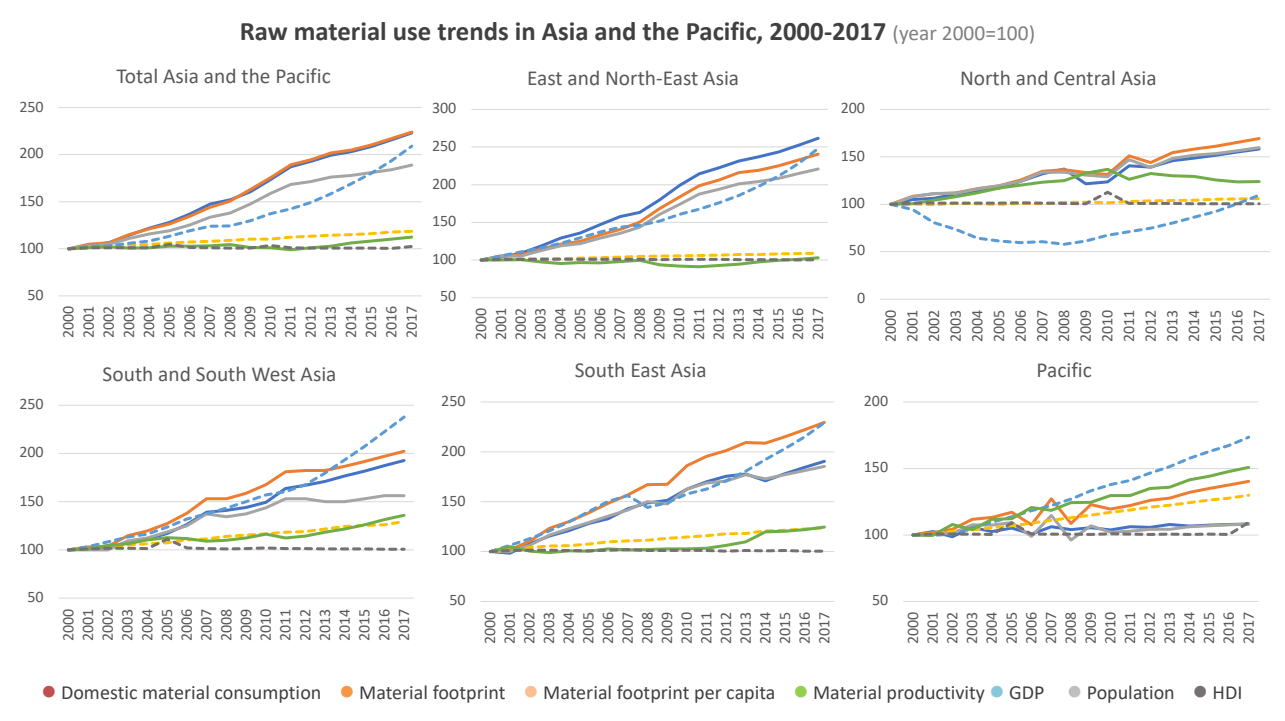
Across the region, there is considerable variation in the trends of resource use (Figure 15). East and North-East Asia exhibits the fastest increase in domestic material consumption, more than doubling the amount within just two decades (from 14 billion tons, in 2000, to 37 billion tons in 2017). The Pacific (dominated by Australia and New Zealand) has the largest material footprint per capita (31 tons per person), followed by East and North-East Asia (21 tons per person) in 2017. Both subregions were significantly above the global average of 12 tons per person.

While domestic material consumption has seen an overall, sharp increase in the region, material productivity – the efficiency of material use (GDP/DMC) – has improved very slowly, and substantially slower than energy productivity. With increased economic development and growing environmental pressures and consciousness, including the recognition that, in addition to labour, natural resources and environmental impacts have become the limiting factor of production, countries are expected to improve their material productivity. Modelling results show that while high-income countries in the Asia-Pacific region will continue to have higher resource productivities (topped by Japan), by 2060, under the business-as-usual scenario, middle- and low-income countries are the ones that will show the fastest gains, especially Indonesia and countries in the South Asia region.[84]

84 Ibid.

Photo by Cividins on iStock

FIGURE 15: Raw material use trends in Asia-Pacific subregions.



Source: ESCAP, based on data from the United Nations Environment Programme and the International Resource Panel, "Global Material Flows Database", n.d.

Furthermore, economic growth in the region has been achieved through systems that do not fully take into account environmental externalities, that use subsidies that promote waste and pollution, and where the poorest and people in vulnerable situations bear the heaviest burden of shocks and risks. Economic growth has been prioritized over social and environmental sectors or sustainable development. In some instances, highly polluting sectors are heavily supported. For instance, Asia-Pacific economies spent more than $205 billion on fossil fuel subsidies in 2019 alone.[85] In addition, in response to the COVID-19 crisis, bailouts have been given to businesses that have a heavy environmental footprint, such as airlines and coal companies in the form of loans, grants and guarantees without proper environmental conditions or safeguards. Economic activities dominated by vested and short-sighted interests are running at the cost of long-term sustainability, and are threatening the planet and people's right to access a healthy, clean, and sustainable environment.

85 *2021 Regional Trends Report - Shaping a Sustainable Energy Future in Asia and the Pacific: A Greener, More Resilient and Inclusive Energy System* (United Nations publication, 2021h).
Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Regional-Trends-Report-2021-Shaping-a-Sustainable-Energy-Future-23-February_%20%28rev%2009-09-2022%29.pdf.

BOX 1: Food systems in focus.

In Asia and the Pacific, sustainable agricultural practices that build climate resilience are essential for making progress on SDG 2 (Zero Hunger), and on other goals and targets related to health, poverty and inequality. The outcomes of the Food Systems Summit focus on five objectives: nourish all people; boost nature-based solutions; build resilience to vulnerabilities, shocks and stresses; advance equitable livelihoods, decent work and empowered communities; and accelerate the means of implementation. Each of these "action tracks" are critical for the Asia-Pacific region.

The Food and Agricultural Organization (FAO) estimated that, in 2019, 22 per cent of the region, more than one out of every five persons, faced moderate or severe food insecurity.[a] That is, they faced uncertainty in availability and access, or compromised on quality and/or quantity at times, or went without food for days. Moderate or severe food insecurity rose to over 30 per cent in several countries in the region. Rates of food insecurity are rising in all subregions, and in South Asia are more than double than that of other subregions.[b]

While the pressures to boost agricultural production are extreme and consistently increasing, food systems account for around one-third of global anthropogenic greenhouse gas emissions through agriculture and land use, storage, transport, packaging, processing, retail, and consumption, including food waste, almost 90 per cent of global water stress and land-use-change related to biodiversity loss.[c] In South-East Asia, North-East Asia and South-West Asia, unsustainable crop production is the biggest threat to biodiversity, including the loss of essential pollinators. Human health and well-being are also compromised by unsustainable food systems through air pollution, agrochemical poisoning, and unsafe food, and the burden of diet-related non-communicable diseases (Figure 16).

Food supply constraints and price increases, related to the Ukraine war, have underlined the vulnerability of food systems in this region. For example, Armenia, Cambodia, Georgia, Kazakhstan, Kiribati, Maldives, Pakistan, Samoa, Solomon Islands, Sri Lanka, Tajikistan and Vanuatu have all been identified as countries that might be harder hit due to their vulnerabilities and exposures to risks associated with rising food and energy prices. The case of Sri Lanka illustrates how quickly disruptions in food systems can escalate in countries burdened by climate vulnerability, income inequality and sovereign debt. Research by ESCAP shows that food supply chains across the region are becoming less climate resilient, as food suppliers consolidate, and markets lose diversity of supply.[d] Declining agrobiodiversity is a lesser recognized source of risk. Only 9 plant species accounted for two-thirds of total crop production in 2014,[e] although some 6,000 plant species have been cultivated for food throughout history.[f] Similarly, only a handful of animal species provide most of the global output of meat, milk, and eggs. The reliance of the global food production system on a small number of high yielding but genetically uniform varieties results in food systems becoming less resilient to shocks and risks. Such shocks include those related to climate change, and

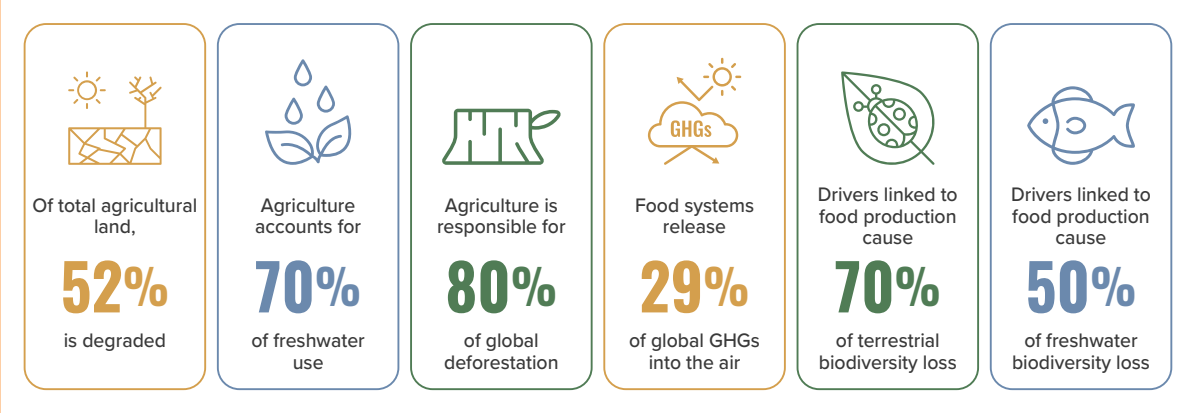
to a decline in ecosystem services on which a productive farm depends, including pollination and soil health. The erosion of crop diversity is an often-overlooked threat to food security, to the right to adequate food, and nutrition. One metareview shows that agricultural diversity can drive food security in two out of three cases reviewed, with the degree of influence depending on the "socio-economic and biophysical characteristics of the local farming system".[g]

Against this backdrop, one survey of some 400 business leaders showed that about 40 per cent have little or no confidence that current food systems will adequately meet future needs a decade from today.[h] The enabling conditions for a robust response are not improving for people in vulnerable situations, in particular. In Asia, two-thirds of the farmland belong to only 6 per cent of landowners with this trend set to worsen.[i] The increasing demand for land for farming, and also for environmental purposes is contributing to insecurity of tenure. Of the 502 transnational land deals that were recorded in the region, one quarter were for producing biofuel feedstock, renewables or projects that enable payments to secure forest carbon.[j]

Women farmers represent nearly 50 per cent of the agricultural workforce in East and South-East Asia and around 30 per cent in South Asia,[k] but face multiple constraints and inequalities, such as unequal access to land and productive inputs. Drivers of widening inequalities include declining agricultural yields linked to climate change; rising costs of energy and farming inputs; low levels of agricultural mechanization; feminization of farming; and other aspects of demographic change, including rapid urbanization.

It is unclear whether a broad shift to "circularity", agroecology, climate-smart agriculture and other sustainable agricultural practices is on the horizon. Sustainable mechanization and smart technology, that works towards increasing resource efficiency, and expanding the ability to adapt farming practices to changing climate and related threats, requires scaling up and effective financing strategies for ensuring that they can be accessed by small farmers. Trade and value-chain interventions can support improvements in sustainability and in access. For example, peri-urban agriculture around small towns and secondary cities can help meet food requirements in urban centres, in particular for the urban poor. Food and water are intimately connected. Effective, collaborative, and transparent governance of water and reversing ecosystem degradation are essential for ensuring that food security is not compromised by a loss of ecosystem services.

FIGURE 16: Current impact of food production on nature.



Source: United Nations Convention to Combat Desertification (UNCCD), "Global Land Outlook Second Edition: Land Restoration for Recovery and Resilience", Bonn, 2022. Available at https://www.unccd.int/sites/default/files/2022-04/UNCCD_GLO2_low-res_2.pdf

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a Food and Agriculture Organization of the United Nations (FAO), and others, "Asia and the Pacific Regional Overview of Food Security and Nutrition 2020: Maternal and child diets at the heart of improving nutrition", Bangkok, 2021. Available at https://doi.org/10.4060/cb2895en

b Ibid.

c M. Crippa, and others, "Food systems are responsible for a third of global anthropogenic GHG emissions", *Nature Food*, vol. 2 (March 2021), pp. 198–209. Available at https://doi.org/10.1038/s43016-021-00225-9

d Asia-Pacific SDG Partnership, "An application of resilience thinking to Asia-Pacific food systems", Policy brief No. 1, March 2018. Available at https://sdgasiapacific.net/knowledge-products/0000018

e Sugar cane, maize, rice, wheat, potatoes, soybeans, oil palm fruit, sugar beet and cassava.

f Food and Agriculture Organization of the United Nations (FAO), "State of the World's Biodiversity for Food and Agriculture", J. Belanger and D. Pilling eds., FAO Commission on Genetic Resources for Food and Agriculture Assessments (Rome, 2019).

g K. Waha and others, "The benefits and trade-offs of agricultural diversity for food security in low- and middle-income countries: A review of existing knowledge and evidence", *Global Food Security*, vol. 33 (June 2022). Available at https://www.sciencedirect.com/science/article/pii/S2211912422000359.

h The Economist Intelligence Unit, "Fixing Asia's food system", (Cargill, 2018). Available at https://impact.econ-asia.com/perspectives/sites/default/files/Fixing_Asia%27s_food_system_0.pdf

i GRAIN, "Asia's agrarian reform in reverse: laws taking land out of small farmers' hands", 20 April 2015. Available at https://grain.org/article/entries/5195-asia-s-agrarian-reform-in-reverselaws-taking-land-out-of-small-farmers-hands

j The Land Matrix Initiative database, 2021. Available at https://landmatrix.org/list/deals

k Food and Agriculture Organization of the United Nations (FAO), "Regional Gender Strategy and Action Plan 2017-2019 for Asia and the Pacific", 2017. Available at http://www.fao.org/3/a-i6755e.pdf

Urbanization in focus

FIGURE 17: Key facts on urbanization trends in Asia and the Pacific.

Key facts

The region's rapid and unplanned urban expansion has significant socioeconomic and environmental consequences, which in turn threaten the most vulnerable urban dwellers.

>50% of the region's population lives in urban areas and the number is expected to increase

~30% of population in Asia lives in slums and **70%** work in the informal sector

~70% of the region's emissions come from urban areas

7 **in every 10** cities in Asia suffer from poor air quality

99 **of the top 100** cities facing environmental risks are in the region

65% of SDG targets need to be met in local contexts and require actions at the city level

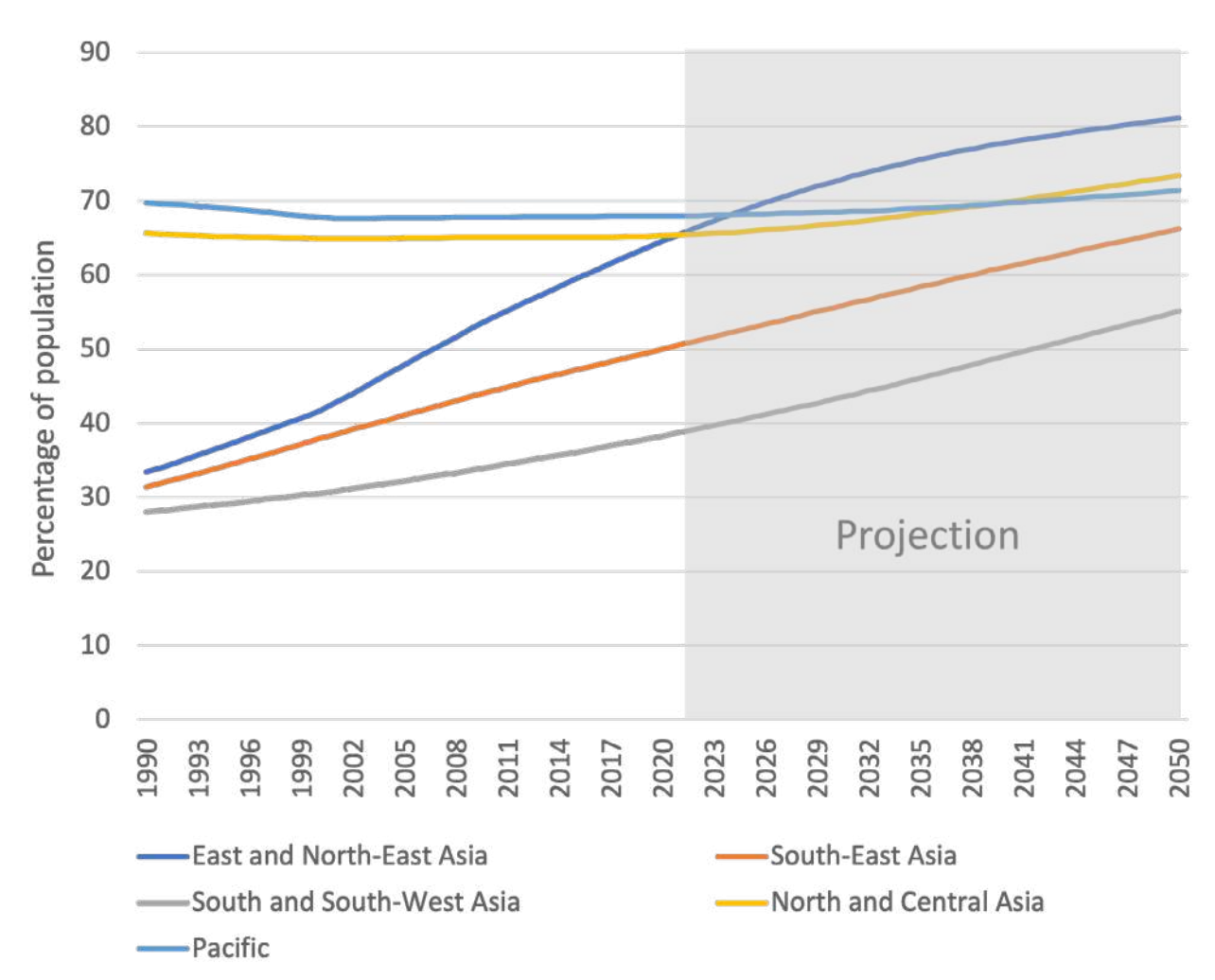
Source: ESCAP, 2022.

The Asia-Pacific region comprises both natural and built environments, including urban areas. The linkages between urban development and all the environmental challenges that the region faces, from climate change to food security, were showcased in the report of the UN Economist Network, *Shaping the Trends of Our Time*. The report highlighted that "the battle to slow global temperature rise and protect the planetary ecosystem will be won or lost in cities."[86] The region has rapidly urbanized over the last two decades and is projected to continue its urban growth over the next three decades.

86 United Nations Economist Network, "Report of the UN Economist Network for the UN 75th Anniversary: Shaping the Trends of Our Time", September 2020. Available at https://www.un.org/development/desa/publications/wp-content/uploads/sites/10/2020/10/20-124-UNEN-75Report-Full-EN-REVISED.pdf

Photo by Domepitipat on iStock

FIGURE 18: Urbanization trends in Asia and the Pacific.



Source: ESCAP, based on the United Nations Population Division World Urbanization Prospects.[87, 88]

In 2019, the region became predominantly urban with over 50 per cent of its population living in cities and urban areas, representing a change in population distribution, and significantly affecting the way people live, work, and interact, with clear impacts on the environment and use of natural resources.

87 *The Future of Asian and Pacific Cities: Transformative Pathways Towards Sustainable Urban Development* (United Nations publication, 2019).

88 Kankesu Jayanthakumaran, and others, eds., *Internal Migration, Urbanization, and Poverty in Asia: Dynamics and Interrelationships* (Singapore, Springer, Asian Development Bank, 2019).

Urbanization and development are inextricably linked, and the way urban development occurs has broad implications on the environment. Rapid, and unplanned urban expansions have resulted in sprawl and environmental degradation, such as loss of biodiversity, generation of large volumes of solid waste, increases in urban air pollution, and significant amounts of marine pollution from land-based activities. Poor urban migrants settle on marginal land in slums, often in climate vulnerable areas with degrading environmental conditions and inadequate or unreliable basic services. The region is already experiencing unprecedented urban challenges that compromise the urban health, sustainability, and resilience of cities and their residents. The increased demand for energy and water resources will continue to put pressure on the environment and challenge the capacities of cities to provide adequate urban services, and of countries to meet climate and sustainable development targets. Greater demand for transportation, due to urbanization, has contributed to urban mobility challenges that also threaten environmental quality, safety, and economic performance, and the achievement of these targets across the region.

Overall, the acceleration and expansion of the urban population in the Asia-Pacific region (Figure 18) is significantly impacting the global and region's economy, society, and environment and the achievement of sustainable development, which increasingly is dependent on the successful management of urban growth. Urbanization must also be managed in order to contribute to low-carbon transitions if countries are to meet net-zero emissions and other climate-related targets.

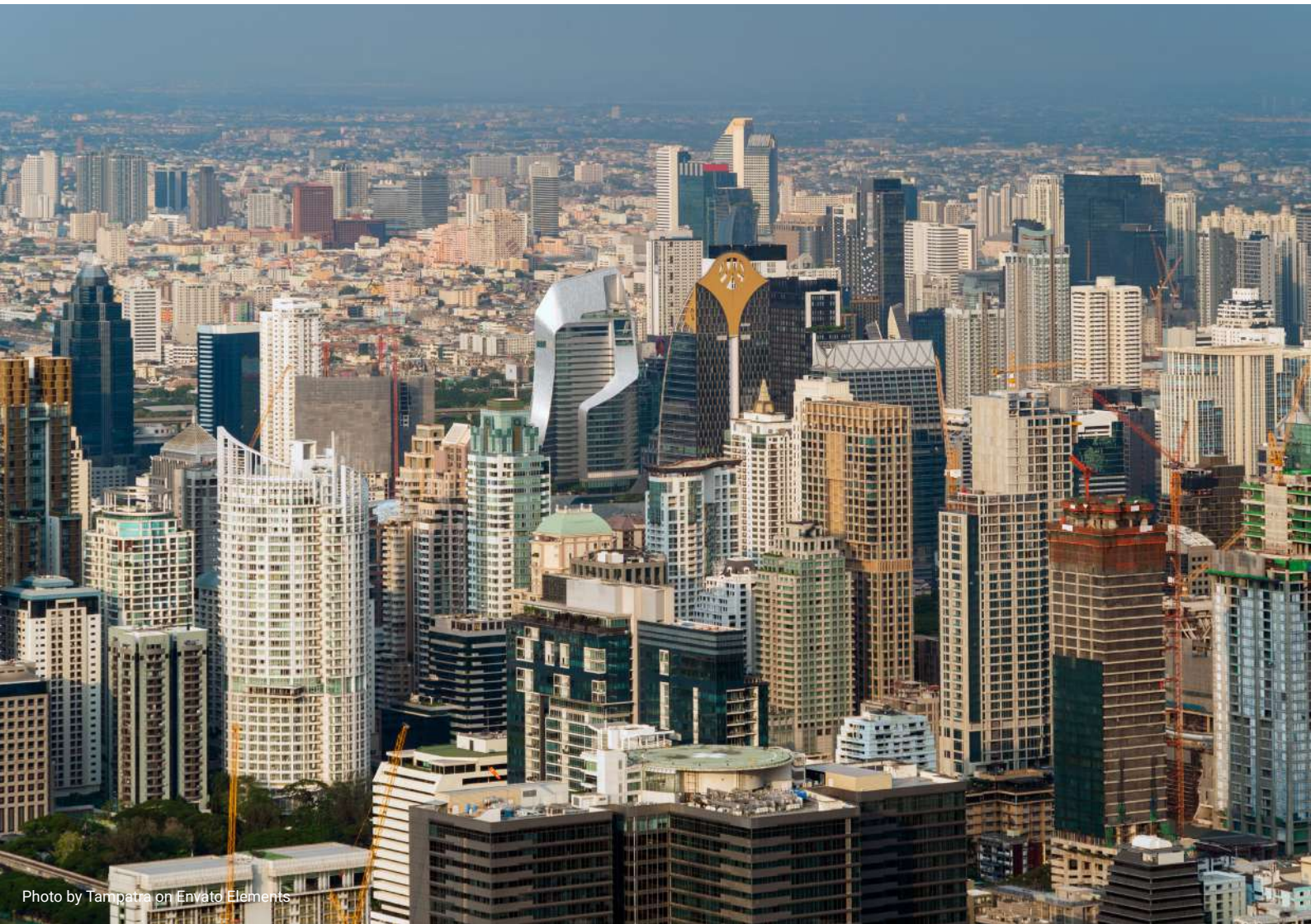
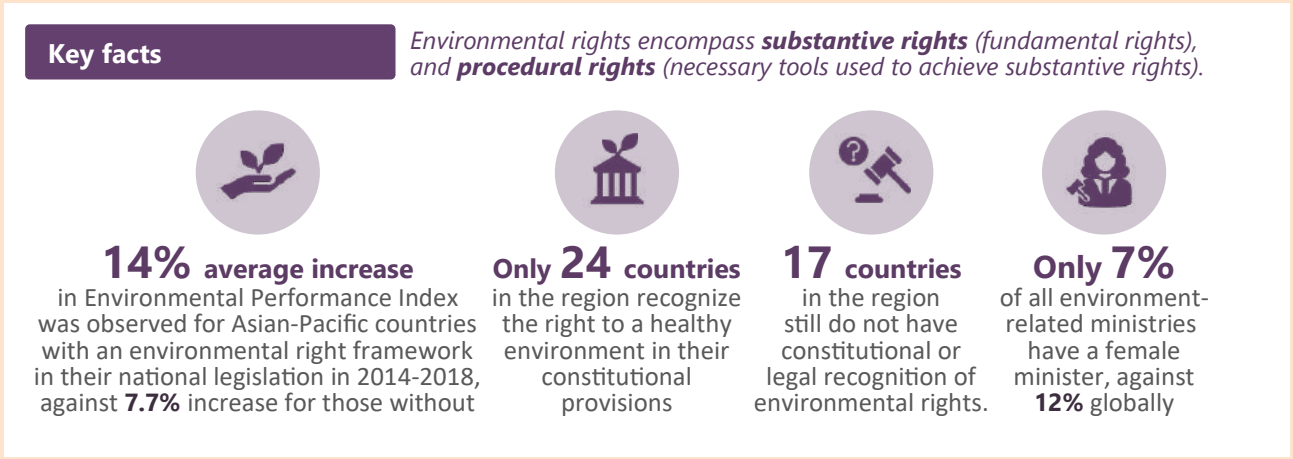


Photo by Tampatra on Envato Elements

Inconsistent recognition of access rights

FIGURE 19: Key facts on environmental rights in Asia and the Pacific.



Source: ESCAP, 2022.

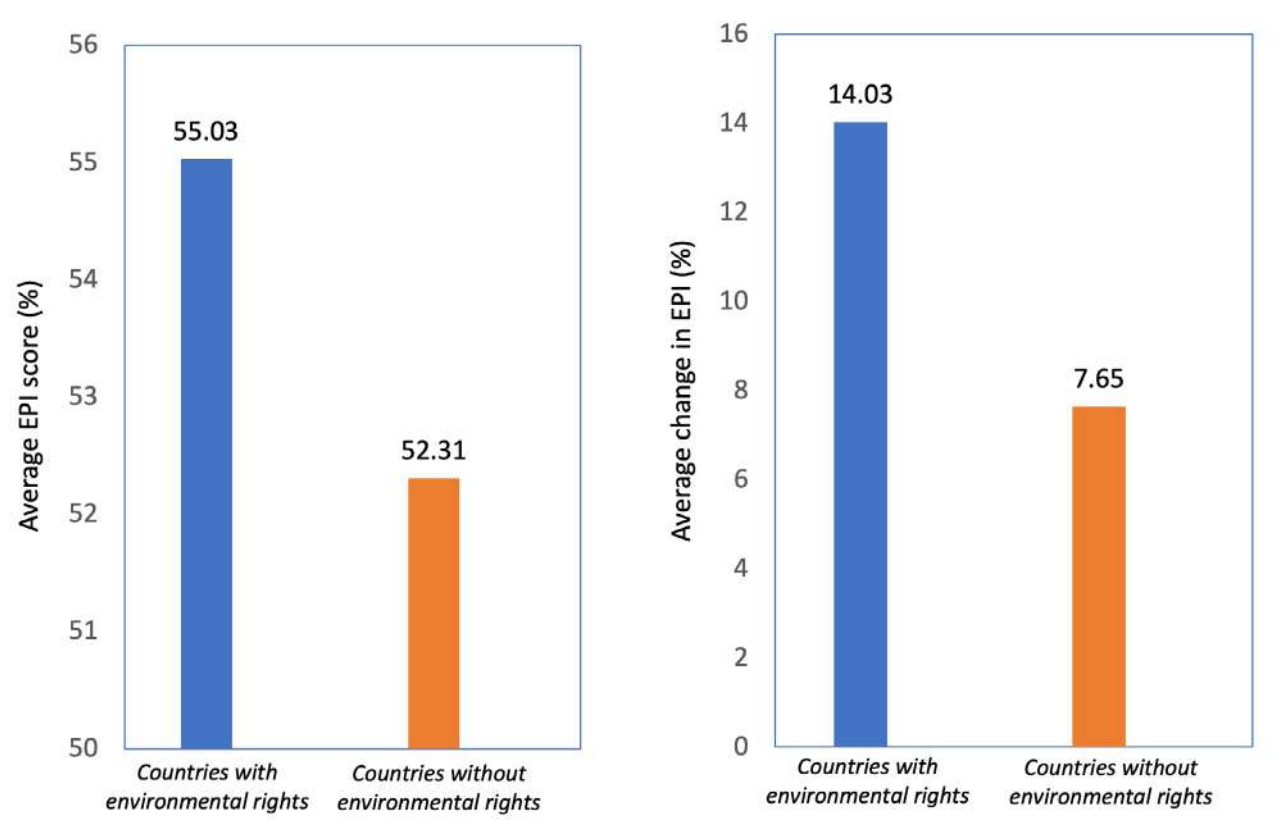
The Stockholm Declaration adopted in 1972,[89] recognized the impacts of humans on the environment and laid the foundations for modern environmental governance. Twenty years later, member States adopted the Rio Declaration in 1992, recognizing, among others, that environmental issues are best handled with the participation of all citizens, who should have appropriate access to environmental information, and the opportunity to participate in decision-making processes, securing their access to justice, including redress and remedy, on environmental matters.[90] This principle establishes the fundamental role of citizens in effective environmental governance. Most recently, the resolution adopted by the United Nations General Assembly (76/300) on "The human right to a clean, healthy and sustainable environment", further elaborates on these rights and offers opportunities to enhance rights-based approaches in Asia and the Pacific.[91] Environmental rights encompass *substantive rights, and procedural rights*, which are necessary to achieve the former.

Procedural rights include three fundamental access rights: access to information; public participation; and access to justice (including remedies) in environmental matters, which are enshrined in Principle 10 of the Rio Declaration. Other foundational international legal and policy frameworks, such as the Framework Principles on Human Rights and the Environment, the Aarhus Convention, the Escazu Agreement, the recent Human Rights Council Resolution,[92] and the General Assembly Resolution[93] recognize the right to a healthy environment alongside the criticality of access rights. These include providing an enabling environment to realize the right to a healthy environment, and leave no one behind, together with ensuring the protection of environmental human rights defenders.

89 *Report of the United Nations Conference on the Human Environment, Stockholm, 5-16 June 1972* (United Nations publication, Sales No E.73.II.A.14.
90 See Rio Declaration on Environment and Development, Principle 10 from *Report of the United Nations Conference on Environment and Development*", Rio de Janeiro, 3-14 June 1992 (A/CONF.151/26 (Vol. I)).
91 A/RES/76/300.
92 A/HRC/RES/48/13.
93 A/76/L.75.

The provision of environmental rights in national constitutions and legislation has a positive correlation with environmental performance. The recognition and protection of environmental rights is linked to better environmental outcomes and leads to faster improvements in environmental quality. This is demonstrated by the Environmental Performance Index (EPI), a commonly used measure of environmental quality, typically higher in countries with environmental rights frameworks. In 2018, countries in Asia and the Pacific, with an environmental rights framework in their national legislation, averaged an EPI score of 55, while countries without environmental rights frameworks had a lower EPI, averaging a score of 52.[94] The average improvement rate in EPI is also more important in countries with environmental rights frameworks (Figure 20).

FIGURE 20: Average Environmental Performance Index (EPI) score and average change in EPI in the Asia-Pacific region, 2014-2018.



Source: ESCAP, data from Chris Jeffords, and J. Gellers, "Rights-based Approaches to Development in the Asia-Pacific Region: The Role of Environmental Rights", Technical Background Paper, 2019. Available at https://sdgasiapacific.net/sites/default/files/public/publications/resources/sdg-ap-kp-0000016-0001-en.pdf

94 Chris Jeffords, and J. Gellers, "Rights-based Approaches to Development in the Asia-Pacific Region: The Role of Environmental Rights", Technical Background Paper, 2019. Available at https://sdgasiapacific.net/sites/default/files/public/publications/resources/sdg-ap-kp-0000016-0001-en.pdf

Photo by Imtmphoto on iStock

Several countries in Asia and the Pacific recognize various forms of environmental rights, including the right to a healthy environment, the right to information, participation, and access to justice in environmental matters, and fundamental rights relating to dignity, health, and life. However, only 24 countries in the region recognize the right to a healthy environment in their constitutional provisions, and 17 countries still do not have any constitutional or legal recognition of this right at all. Additionally, national constitutions direct certain environmental matters to the realm of statutory policy and law.[95]

The region continues to show fundamental challenges that hinder environmental protection and sustainable development. This includes, poor protection of environmental defenders, and a lack of inclusive participation of marginalized groups, such as young people, women, indigenous populations, and people with disabilities when it comes to implementing sustainable solutions and policies.[96] Under-representation of women and other groups in decision-making processes is often restricted, reducing the efficacy of policy and action. Only 7 per cent of all environment-related ministries have a female minister, against 12 per cent globally.[97] These trends represent a significant barrier to the provision of environmental rights in the Asia-Pacific region. Governments need to do more to improve the overall quality of environmental governance, including through the effective facilitation and enforcement of access rights.

95 Andy Raine, and Emeline Pluchon, "UN Environment – Advancing the Environmental Rule of Law in Asia and the Pacific", *Chinese Journal of Environmental Law* (August 2019).
Available at https://brill.com/view/journals/cjel/3/1/article-p117_5.xml#FN000006

96 Asian-Pacific Resource and Research Centre for Women (ARROW) and others, "Asia-Pacific Youth Call to Action: Regional Youth Forum ahead of the Asia-Pacific Forum on Sustainable Development", 14-16 March 2021.
Available at https://www.unescap.org/sites/default/d8files/event-documents/APFSD%20Youth%20Forum%20Call%20To%20Action%202021%20Final-190321_0.pdf

97 United Nations Women (UN Women), "Snapshot of Women's Leadership in Asia and the Pacific", n.d.
Available at http://asiapacific.unwomen.org/en/news-and-events/in-focus/csw/snapshot-of-womens-leadership-in-asia-and-the-pacific

CHAPTER 3

Impact of the environmental crisis on human well-being and health

- Climate-related impacts
- Ecosystem and biodiversity-related impacts
- Pollution-related impacts

CHAPTER 3

Impact of the environmental crisis on human well-being and health

The Asia-Pacific region has made significant progress over the last decade to improve the well-being and health of its population. However, several key issues persist, driven by the ongoing environmental crisis and the COVID-19 pandemic. These challenges threaten to seriously undermine the livelihoods, well-being, and health of the people of Asia and the Pacific.

The region hosts some of the most vulnerable countries and communities, with regard to the impacts of climate change, disasters, ecosystem and biodiversity degradation, and pollution and its associated risks.[98] The environmental crisis undermines hard won development gains and exacerbates societal inequalities by disproportionately burdening the poor and groups of people in vulnerable situations, including women and children, indigenous populations, gender minorities, migrants, displaced people, stateless people, older persons, and persons with disabilities.

Climate-related impacts

Asia and the Pacific is the most disaster-prone region in the world.[99] Climate-induced disasters, such as floods and storms are estimated to cause 43,000 human casualties on average in the region each year.[100] The population in South and South-West Asia, and South-East Asia is particularly vulnerable to intensifying floods, droughts and cyclones.[101] For instance, Pakistan has been particularly impacted by floods, which have washed away entire villages, and croplands, and caused thousands of casualties across the country. It is estimated that torrential rains and flooding have directly impacted 33 million people between June and August 2022 alone, representing 15 per cent of the population of Pakistan.[102] From 2011 to 2020, South and South-West Asia experienced the most fatalities. The Pacific experienced a fatality rate of 2.6 people per million, second to South-East Asia which was at 4.3 people per million (Figure 21).

98 *Resilience in a Riskier World: Managing Systemic Risks from Biological and Other Natural Hazards*. Asia-Pacific Disaster Report 2021 (United Nations publication, 2021g). Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Asia-Pacific%20Disaster%20Report%202021-Full%20report.pdf

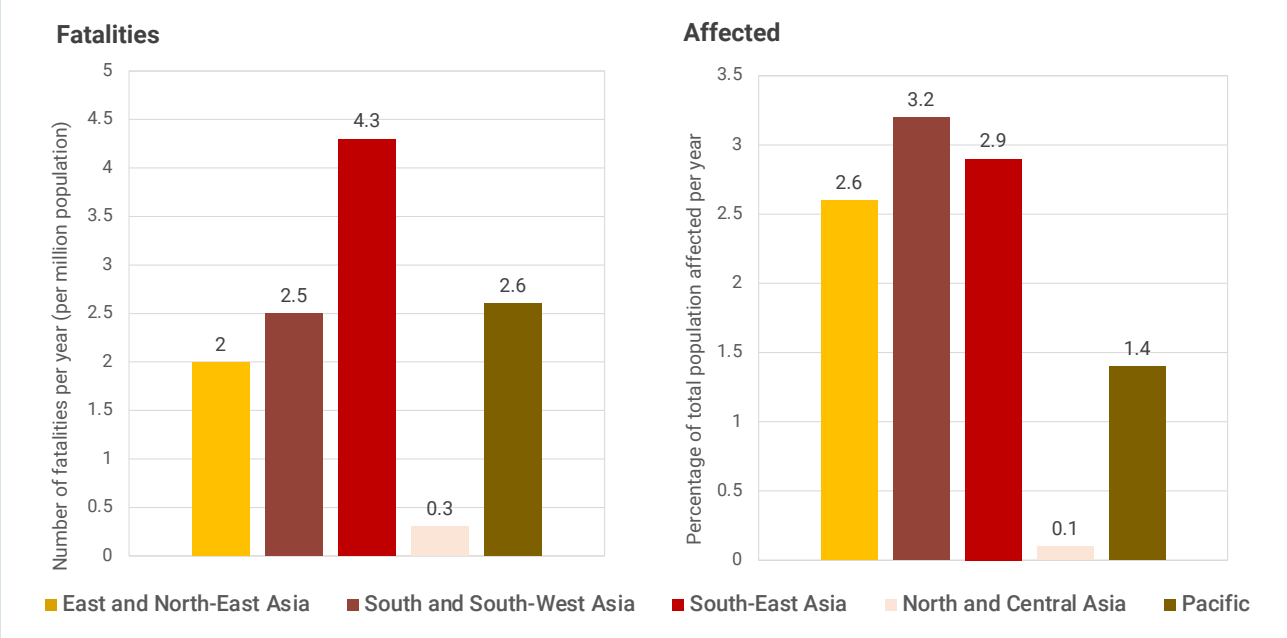
99 Ibid.

100 *Disaster Resilience for Sustainable Development*. Asia-Pacific Disaster Report 2017 (United Nations publication, 2017).

101 *Resilience in a Riskier World: Managing Systemic Risks from Biological and Other Natural Hazards*. Asia-Pacific Disaster Report 2021 (United Nations publication, 2021g). Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Asia-Pacific%20Disaster%20Report%202021-Full%20report.pdf

102 Jibran Ahmad, and Asif Shahzad, "Cataclysmic floods in Pakistan kill 1,100, including 380 children", *Reuters*, 31 August 2022. Available at https://www.reuters.com/world/asia-pacific/un-issues-flash-appeal-160-million-help-pakistan-with-floods-2022-08-30/

FIGURE 21: Number of fatalities and people affected by disasters in the Asia-Pacific subregion (annual averages), 2011-2020.



Source: Model by ESCAP based on data from EM-DAT – The International Disaster Database.

Additionally, an increasing number of people in the region are experiencing more frequent health issues, such as heart attacks and strokes as a result of the unusually hot temperatures.[103] China and India have been experiencing major heatwaves in recent years, with sustained temperatures of more than 40°C. In 2019, India, in particular, recorded 32 heatwave days on average, making it one of the countries most affected by high temperatures.[104] Scorching temperatures have led to extreme drought resulting in major crop losses and widespread water shortages in the region. Between 2000 and 2016, the number of people exposed to extreme temperatures and heatwaves in Asia and the Pacific region increased by 125 million.[105] Climate-induced disasters impose multiple pressures on health systems and disrupt health services, exposing people to greater risks in facilities with poor health conditions.

103 *Resilience in a Riskier World: Managing Systemic Risks from Biological and Other Natural Hazards*. Asia-Pacific Disaster Report 2021 (United Nations publication, 2021g). Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Asia-Pacific%20Disaster%20Report%202021-Full%20report.pdf

104 Ibid.

105 Ibid.

From 2011 to 2020, South and South-West Asia experienced the most fatalities compared to other Asia-Pacific subregions (44 per cent), followed by East and North-East Asia (29 per cent), and South-East Asia (25 per cent). Although numbers are lower in the Pacific subregion, as a result of small population sizes, the population in this subregion is particularly vulnerable to disasters as demonstrated by the number of deaths calculated as a proportion of the population. The Pacific experienced a fatality rate of 2.6 people per million, second to South-East Asia which was at 4.3 people per million.[106]

Disasters resulting from natural hazards also cause significant displacement of people. Most of the displacements triggered by climate-induced disasters, in 2021, were recorded in Asia and the Pacific, accounting for 80 per cent of global displacements. Population displacement due to climate-induced disasters is projected to increase to 2050, and some studies suggest that it is expected to cause instability, tension and conflict.[107] In 2021, nearly 13.7 million people were newly internally displaced in East Asia, and 5.25 million in South Asia due to disasters.[108] The region accounted for 225.3 million internal displacements during the period 2010-2021, which represents over three quarters of the global total for the same period.[109] While the impacts of slow-onset climate and environmental change on human mobility is more difficult to quantify or project comprehensively, it is increasingly understood that specific climate events and conditions cause migration to increase, decrease, or flow in new directions. One of the main pathways for climate-induced migration, especially as a result of slow onset processes, is through deteriorating economic conditions and livelihoods.[110] Some studies suggest that, even if the targets of the Paris Agreement were met, more than 34.4 million people in South Asia are likely to become climate migrants by 2050.[111] For some Pacific small island developing States (SIDS), in particular, the climate crisis threatens their very existence and may necessitate proactive forms of human mobility. Several Pacific SIDS have already begun putting measures in place to prepare for that eventuality, including through multilateral efforts to develop a regional framework on climate change-related displacement, migration and planned relocation.[112]

106 Ibid.

107 International Displacement Monitoring Center, "Global Report on International Displacement" (Switzerland, 2022). Available at https://www.internal-displacement.org/global-report/grid2022/

108 United Nations Intergovernmental Panel on Climate Change, "Climate Change 2022: Impacts, Adaptation and Vulnerability", Contribution of the Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (Cambridge University Press, 2022).

109 International Displacement Monitoring Center and Asian Development Bank, "Disaster Displacement in Asia and the Pacific: a Business Case for Investment in Prevention and Solutions" (2022). Available at https://www.internal-displacement.org/disaster-displacement-in-asia-and-the-pacific-2022

110 United Nations Intergovernmental Panel on Climate Change, "Climate Change 2022: Impacts, Adaptation and Vulnerability", Contribution of the Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (Cambridge University Press, 2022).

111 Harjeet Singh, and others, "Costs of Climate Inaction: Displacement and Distress Migration", ActionAid, December 2020. Available at http://actionaid.org/sites/default/files/publications/ActionAid%20CANSA%20-%20South%20Asia%20Climate%20Migration%20-%20Dec%202020%20-Final.pdf

112 See United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and United Nations Development Programme, "Joint Programme – Pacific Climate Change Migration and Human Security (PCCMHS) Programme", 2021. Available at https://migrationnetwork.un.org/projects/joint-programme-pacific-climate-change-migration-and-human-security-pccmhs-programme

Photo by Gdagys on iStock

Additionally, climate change greatly contributes to the complete removal, fragmentation, or reduction in quality of key habitats through the degradation of biodiversity. Important changes in temperature and increase in annual rainfall favours the spread of pathogenic animals and accelerates the rate of disease transmission (malaria, dengue, zika) by changing the movement pattern of disease vectors, leading to shifts in the scope of disease spread.[113] Such drivers can cause insect vectors to move into habitats at higher latitudes, leading to shifts in the scope of disease spread.[114] Since 2000, cases of dengue fever have been reported almost annually in China, with major outbreaks in several Chinese provinces in the 2010s.[115] Climate change and climate-induced disasters can also worsen food insecurity and decimate agricultural productivity. Shifting rainfall patterns, higher temperatures and the resultant recuring droughts can severely affect crop yields. It is estimated that that average annual losses from agricultural drought constitute 60 per cent of total disaster-related losses across the region.[116] Additionally, rising levels of CO_2 in the atmosphere can reduce the nutritional value of food, by reducing the concentrations of protein and essential minerals in plant species. The cumulative impacts of climate-induced disasters fall disproportionately on the poor and people in vulnerable situations, and those reliant on agricultural livelihoods. Low crop yields and high food prices make it more challenging for people to feed their families. In Asia and the Pacific, more than 60 per cent of people work in sectors highly susceptible to changing weather patterns. Millions of people who rely on natural resources for food and work bear the brunt of climate change.[117]

113 Qianlin Li, and others, "Towards One Health: Reflections and Practices on the Different Fields of One Health in China", *Biosafety and Health*, vol. 4 (December 2021), pp. 23-29. Available https://doi.org/10.1016/j.

114 Ibid.

115 Ting-Song, Hu, and others, "Epidemiological and molecular characteristics of emergent dengue virus in Yunnan Province near the China-Myanmar-Laos border, 2013–2015", *BMC Infectious Diseases*, vol. 17, No. 331 (May 2017). Available at https://doi.org/10.1186/s12879-017-2401-1

116 *Ready for the Dry Years: Building Resilience to Drought in South-East Asia, with a focus on Cambodia, Lao People's Democratic Republic, Myanmar and Viet Nam: 2020 update* (United Nations publication, 2020). Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Ready%20for%20the%20Dry%20Years.pdf

117 *Asia-Pacific Futures in 2040: Raising Ambitions for a Healthy Environment* (United Nations publication, 2021c). Available at https://www.unescap.org/sites/default/d8files/knowledge-products/APFutures_2040_RaisingAmbition_web_final.pdf

Ecosystem and biodiversity-related impacts

Ecosystem degradation and biodiversity loss, in Asia and the Pacific, further exacerbates public health challenges at the human-animal-environment interface. Species are forced to shift habitats with many moving into increasingly smaller areas, or new semi-natural habitats, which further aggravates the conflict between wild species, livestock, and humans. Research shows that endangered biodiversity favours the spread of infectious diseases, which significantly impacts the health and well-being of people. Figure 22 shows the sharp increase in the number of infectious disease outbreaks detected annually, during the period 1940-2020, at the global scale. Approximately 60 per cent of human infections derive from animals and, of all new and emerging human infectious diseases, 75 per cent jump from animals to people.[118] Researchers estimate that between 650,000 – 840,000 potential zoonotic agents exist today globally but have yet to cross the species barrier.[119] In particular, South and South-East Asia are hotspots for emerging infectious diseases.

118 United Nations Environment Programme (UNEP), and International Livestock Research Institute, "Preventing the next pandemic: Zoonotic diseases and how to break the chain of transmission" (Nairobi, Kenya, 2020). Available at https://www.unep.org/resources/report/preventing-future-zoonotic-disease-outbreaks-protecting-environment-animals-and

119 United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), "Accelerating One Health in Asia and the Pacific", Policy brief, 2022a. Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Policy%20Brief_One%20Health_final.pdf

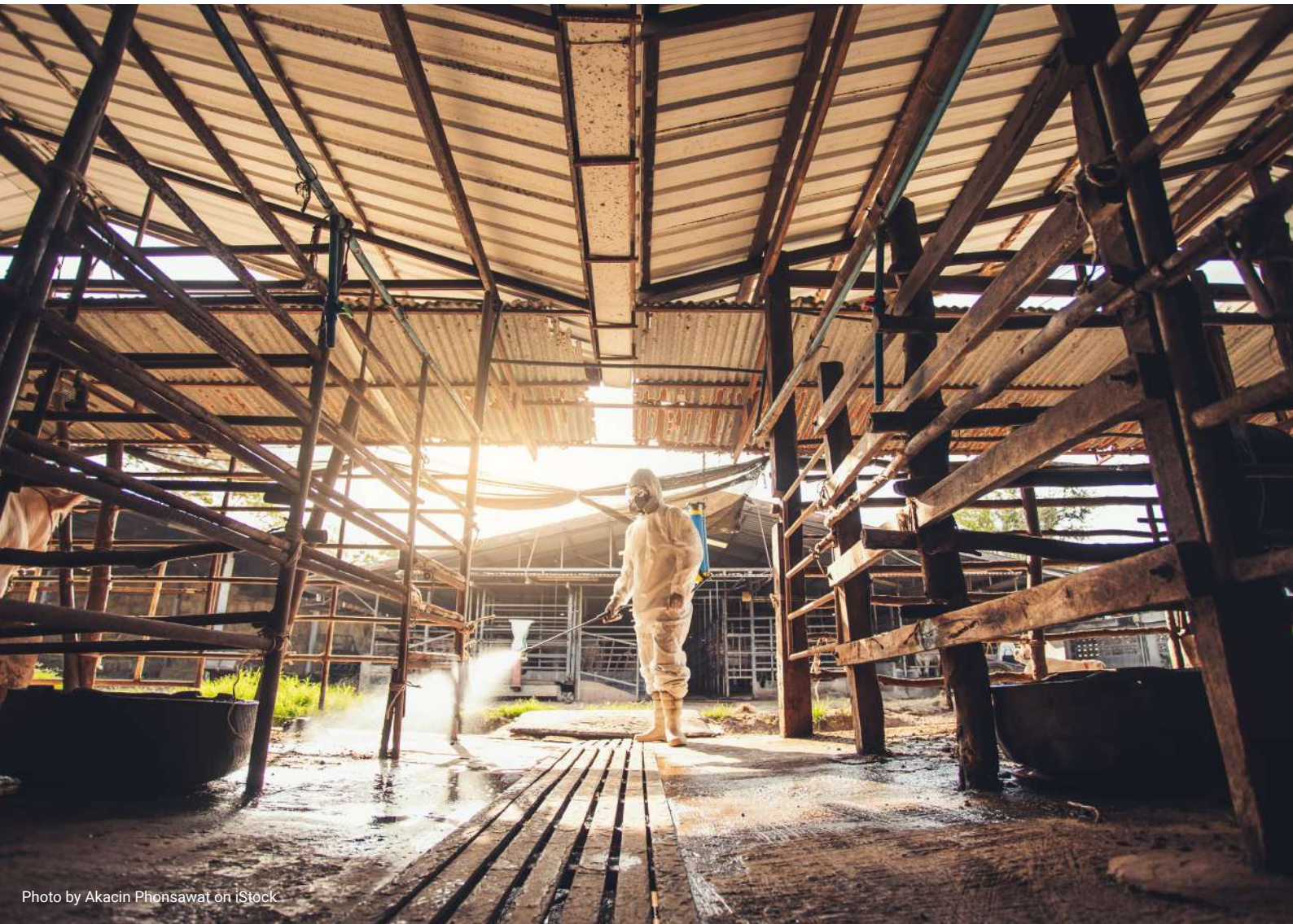
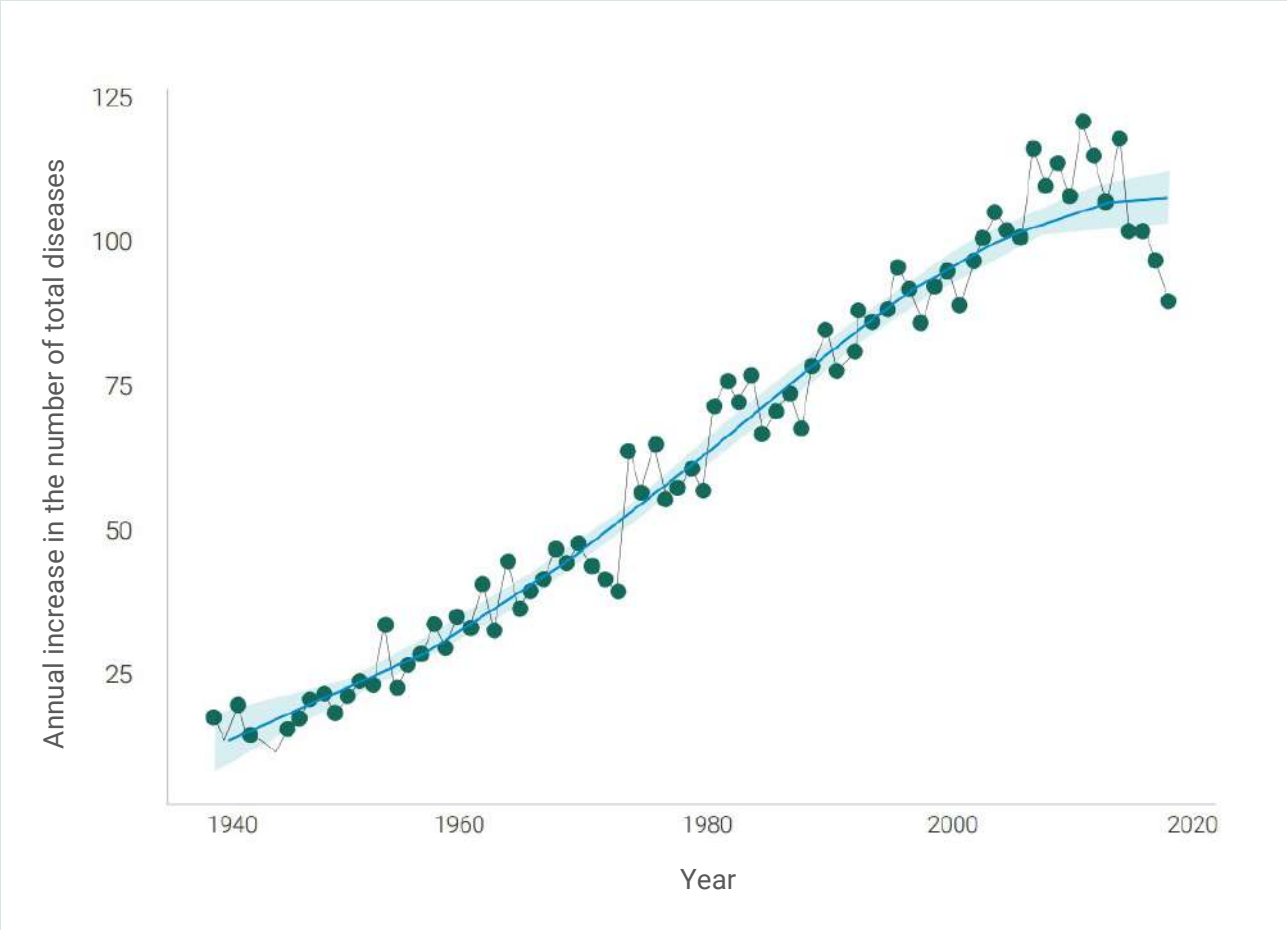


Photo by Akacin Phonsawat on iStock

FIGURE 22: Number of human infectious diseases globally, 1940–2020.



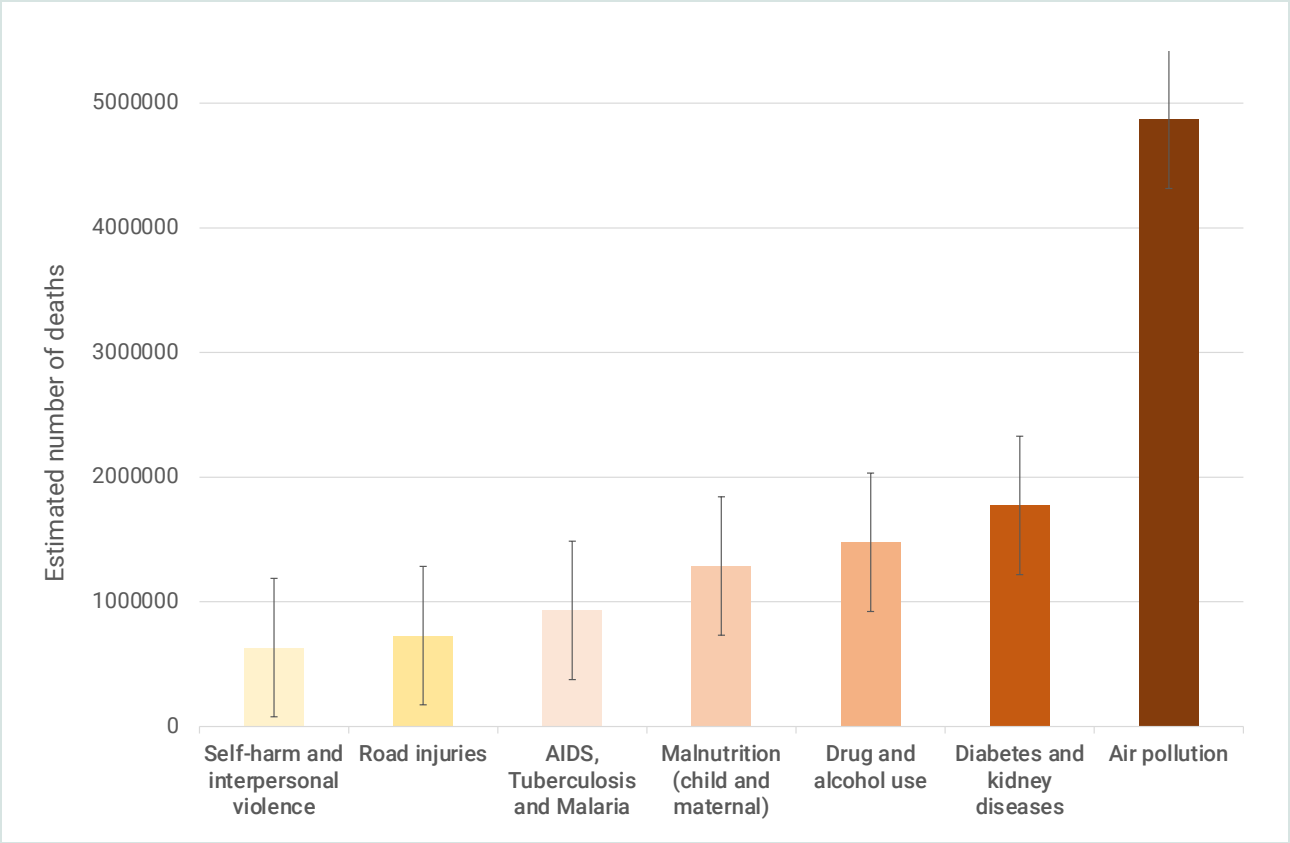
Source: ESCAP, adapted from Morand and Walther, 2020.
Available at https://www.biorxiv.org/content/biorxiv/early/2020/04/20/2020.04.20.049866.full.pdf

The loss of biodiversity and ecosystems, such as the decline of pollinator species, has major implications for food safety and nutrition, as it impacts the production of fruits and vegetables. The wild and cultivated harvests that underpin food supply and dietary diversity are the result of complex natural interactions. The reduction in ecosystem services can lead to the dysfunction in natural processes that bring genetic diversity and ensure the health of agricultural soils. It is therefore critical to understand the connections between humans, animals, and the environment to ensure a healthy relationship, as degradation in the health of animals or the environment ultimately impacts human health.

Pollution-related impacts

The rise in pollution levels has increased the number of deaths and created persistent health threats in Asia and the Pacific, particularly in low and middle-income counties. The increase in deaths from modern forms of pollution (e.g., air pollution and toxic chemical pollution) is evident in different subregions throughout the Asia-Pacific region (Figure 23).

FIGURE 23: Estimated deaths by risk factor in Asia and the Pacific, 95 per cent confidence interval.



Source: Model by ESCAP, based on data from the Institute for Health Metrics and Evaluation and Global Burden of Diseases, Injuries, and Risk Factors Study, 2019.

Of the 7 million premature deaths occurring globally as a result of air pollution, more than 4 million were in Asia and the Pacific.[120] Asia and the Pacific witnessed the sharpest increase in premature deaths as a result of ambient air pollution between 1990 and 2015.[121] Ambient air pollution is made up of fine particulate matter (PM10 and PM2.5) and includes pollutants, such as sulphates, nitrates and black carbon, which pose great risks to human health. More than 90 per cent of the global population is currently exposed to levels of air pollution that pose significant health risks. Air pollution is a significant compounding factor to the poor health of the region.[122] In addition to ambient air pollution, household air pollution poses another serious health threat to the population in Asia and the Pacific.[123]

Residential combustion in developing countries is the leading cause of indoor air pollution, leading to 3.8 million premature deaths worldwide annually.[124] As seen in Figure 24, the burden of disease from household air pollution is significantly higher than from ambient air pollution in a number of Pacific and South Asian countries. In South-East Asia, many rural areas still rely on biomass fuels and biomass-derived fuels for daily meal preparation, lighting, cooling, and heating. For example, about 94 per cent and 80 per cent of the population in rural Cambodia and the Lao People's Democratic Republic, respectively, use fuelwood and charcoal for meal preparation. It is estimated that nearly half of the population in Asia and the Pacific lacks access to clean fuels and technologies for cooking, particularly those living in rural areas. Since 2000, the proportion of the region's population with primary reliance on clean fuels and technology has remained steady at a 0.8 per cent annual growth rate. The regional rate of primary use of clean cooking fuels and technology is only of 51.2 per cent, with only a few countries demonstrating improvement.[125] Additionally, household air pollution does not just stay indoors. The release of indoor air pollutants, including in densely populated and impoverished urban areas, leak into the environment and can reach other distant areas.[126] Tackling household air pollution will require providing clean energy alternatives for cooking and other household needs and raising awareness of clean cooking solutions.[127]

120 United Nations Environment Programme Climate & Clean Air Coalition, "Air Pollution in Asia and the Pacific: Science-based Solutions", 2018. Available at https://wedocs.unep.org/20.500.11822/26861.

121 United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP), "Key Environment Issues, Trends and Challenges in the Asia-Pacific Region", Note by the secretariat, Committee on Environment and Development, Fifth session, 21-23 November 2018, Bangkok. ESCAP/CED/2018/1.
Available at https://www.unescap.org/sites/default/files/CED5_1E_0.pdf

122 United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP), "Mending the Broken Relationship with Nature: Tackling the Biodiversity, Ecosystems, Health and Climate Change Nexus Post-COVID-19", Policy brief, 2021f. Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Nexus%20Policy%20Brief_Final.pdf

123 World Health Organization, "One Third of Global Air Pollution Deaths in Asia-Pacific", news release, 2 May 2018. Available at https://www.who.int/westernpacific/news/item/02-05-2018-one-third-of-global-air-pollution-deaths-in-asia-pacific

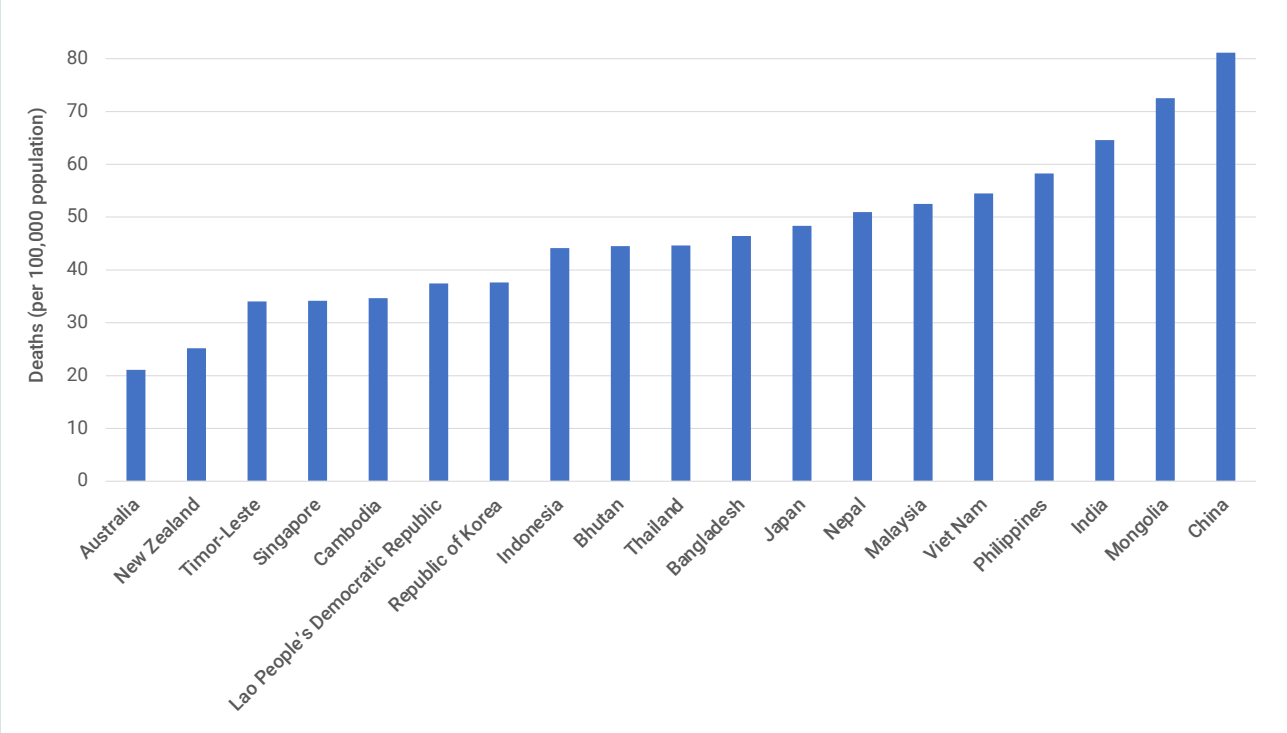
124 World Health Organization, "Household Air Pollution and Health", 22 September 2021.

125 United Nations Asia-Pacific Regional Coordination Mechanism and others, "Goal Profile: SDG 7 affordable and clean energy: Ensure access to affordable, reliable, sustainable and modern energy for all", Policy brief, 28 March 2018a. Available at https://www.unescap.org/resources/sdg7-goal-profile

126 Xiao Yun and others, "Residential solid fuel emissions contribute significantly to air pollution and associated health impacts in China", *Science Advances*, vol. 6, No. 44 (October 2020). Available at https://doi.org/10.1126/sciadv.aba7621.

127 UNEP. (2021). Actions on Air Quality: A Global Summary of Policies and Programmes to Reduce Air Pollution. Nairobi

FIGURE 24: Ambient air pollution deaths rate (per capita 100,000 population), 2019.



Source: ESCAP, based on World Health Organization "Global Health Observatory". Available at https://www.who.int/data/gho/data/indicators/indicator-details/GHO/ambient-and-household-air-pollution-attributable-death-rate-(per-100-000-population

Photo by Hale Irwin on iStock

Air pollution has disproportionate health impacts on the poor and populations in vulnerable situations, including women, and this is particularly true in Asian countries where traditional gender roles are still observed. Since 7 of the top 10 population groups using solid fuels for cooking come from Asia and the Pacific, the health impacts are especially high in the region.[128] Gender specific impacts from indoor air pollution are evident, affecting maternal health and increasing the risk of pregnancy losses.[129] For example, medium- and long-term exposure to unhealthy levels of PM2.5 is linked to an 80 per cent increased risk of mortality from breast cancer for women.[130] Additionally, children are also disproportionately affected by air pollution. Globally, more than 600,000 children die each year from diseases related to air pollution, both ambient and household.[131] Every 5 µg/m3 increase in exposure to PM2.5 during pregnancy is associated with a 4 per cent increased likelihood of low birth weight, impacting foetal growth and child development.[132] For adults, exposure to an increase in PM2.5 of 10 µg/m3 per year is associated with a 6-13 per cent increased likelihood of heart attacks and cardiovascular-related deaths; a 4 per cent increased chance of lung cancer and increase of the likelihood of Alzheimer's disease.[133]

Concerns have also begun to grow over the effects of microplastics pollution, particularly in Asia and the Pacific. About 60 per cent of all plastic in the ocean comes from fast-growing cities in South-East Asia, South Asia and China and mostly results from uncollected waste and poor waste management systems.[134] Microplastics can also enter the ocean through poor sanitation and water filtration systems. Ingestion of microplastic particles by marine organisms causes severe ecotoxicological physical effects, including reduced reproduction and increased mortality. Marine pollution through microplastics contributes to depletion of global fisheries, and loss of fishing livelihoods, and impacts human health. Evidence suggests that microplastics can be retained in the human body for a longer period than other ingested matter. Plastics smaller than 0.02 millimetres can penetrate certain organs, and those smaller than 0.01 millimetres can penetrate all organs.[135]

Significant efforts are required to reverse the current trends of environmental decline. Such efforts will contribute towards human well-being and allow for the full enjoyment of human rights by lifting people out of poverty and hunger, especially those most dependent on ecosystems and their services. More importantly, such efforts can help build stronger economies and just and inclusive societies where no one is left behind. The following chapter provides recommendations for efforts to mitigate the impacts of environmental decline, particularly through reinvigorating multilateralism and building solidarity.

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128 United Nations Environment Programme Climate & Clean Air Coalition, "Air Pollution in Asia and the Pacific: Science-based Solutions", 2018. Available at https://wedocs.unep.org/20.500.11822/26861.

129 United Nations Children's Fund (UNICEF), "Clear the Air for Children", New York, 2016. Available at https://www.unicef.org/media/49966/file/UNICEF_Clear_the_Air_for_Children_30_ Oct_2016.pdf

130 Sneha Gautam, and others, "A review on recent progress in observations, sources, classification and regulations of PM 2.5 in Asian environments", *Environmental Science and Pollution Research*, vol. 23 (August 2016), pp. 21165-21175.

131 Ibid.

132 Giulia Cesaroni, and others, "Long term exposure to ambient air pollution and incidence of acute coronary events: prospective cohort study and meta-analysis in 11 European cohorts from the ESCAPE Project", *BMJ*, vol. 348 (January 2014).

133 Ibid.

134 United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP), "Managing Marine Plastic Debris in Asia and the Pacific", Policy brief, 2022d. Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Policy%20Brief_Plastic-English_final.pdf

135 Ibid.

CHAPTER 4

Looking ahead: protecting our planet through regional cooperation and solidarity in Asia and the Pacific

Recommendations for advancing regional action

Climate action

Ecosystems and biodiversity

Air pollution

Sustainable urban development

Environmental rights

CHAPTER 4

Looking ahead: Protecting our planet through regional cooperation and solidarity in Asia and the Pacific

Many of the environmental crises mentioned above are transboundary in nature and present significant challenges to all countries in the region: the sources of air pollution often originate outside the areas of impact and require coordinated action across local and national jurisdiction; ecosystems and ecosystem services are not constrained by borders; and climate change is a global issue. As such, coordinated and complementary actions to address the most pressing transboundary issues facing the region are essential. This chapter makes recommendations for regional action to reinvigorate multilateralism in environment and development policy areas related to climate action, air pollution, marine environment, sustainable urban development, and environmental rights, which are in line with global and regional mandates given to ESCAP on environment and development (Annex 1).

The need to accelerate action, including through reinvigorating multilateralism is well recognized. Already, a broad range of state and non-state actors are moving ahead to bolster solidarity and cooperation on environment and development challenges. From Asia and the Pacific, 14 heads of state have signed the "Leaders' Pledge for Nature" which promotes COVID-19 recovery that is "green and just and contributes directly to recovering better and achieving sustainable societies", and puts "biodiversity, climate and the environment as a whole at the heart of both our COVID-19 recovery strategies and investments and of our pursuit of national and international development and cooperation".[136]

Many countries have also signed the Sustainable Recovery Pledge launched in June 2021, co-led by Fiji. Signatories vowed to "adopt climate- and environment-sensitive approaches to COVID-19 recovery efforts, including by inter alia aligning investments and domestic policies with the relevant objectives of the 2030 Agenda and with the Paris Agreement, reversing biodiversity loss, and accelerating renewable energy transitions."[137]

136 See "Leaders' Pledge for Nature: United to Reverse Biodiversity Loss by 2030 for Sustainable Development". Available at https://www.leaderspledgefornature.org/wp-content/uploads/2021/06/Leaders_Pledge_for_Nature_27.09.20-ENGLISH.pdf

137 See Ministry of Foreign Affairs of Denmark, Permanent Mission of Denmark to the UN in Geneva, "Sustainable Recovery Pledge", 2021. Available at https://fngeneve.um.dk/en/copy-of-human-rights/sustainable-recovery-pledge

Photo by Rawpixel on Envato Elements

These actions send a clear signal on the need for accelerated action in multilateralism when dealing with environment and development challenges. Examples of how leadership, from governments working with and within multilateral organizations, can shift momentum in dealing with key crises include actions such as those by the United Nations Environment Programme to bring environmental conventions and stakeholders in chemicals management together under the Strategic Approach to International Chemicals Management process. Further, non-environmental multilateral secretariats have been engaged in consultations around target setting for the Convention on Biological Diversity, and agreements to enact a global convention on plastics in response to stakeholder pressure have been made at record speed.

Efforts to reinvigorate multilateral action in the region to address environmental and development challenges must recognize the context. As highlighted in previous chapters, Asia and the Pacific is an economically dynamic, resource-intensive region that is highly vulnerable to climate and other environmental risks. In addition, post-pandemically, there is significant and growing incentive to accelerate the extraction of natural resources across the region.

In an expert consultation organized by ESCAP in June 2022, experts underlined that multilateral agreements and actions in the region need to evolve to ensure good "fit for purpose".[138] Current capacity is lagging behind the level of ambition and ability to respond to the challenges faced. There is a need for high-functioning and politically empowered multilateral organizations that build on the existing structures to better manage the emerging and predicted crises on multiple fronts.

138 United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP), "Expert Group Meeting: 'Regional Cooperation to Protect our common environment'", Bangkok, 22-23 June 2022, 2022c. Available at https://www.unescap.org/events/2022/expert-group-meeting-regional-cooperation-protect-our-common-environment

The crises described above call for reinvigorated multilateralism; collaboration between governments and institutions that, in line with the Secretary-General's, *Our Common Agenda*, is more networked, inclusive, and effective. More than half of the respondents to an ESCAP survey (Annex 2) assessed reinvigorated multilateralism as critical for advancing on the environment and development challenges facing the region. There are different paths to reinvigorating multilateralism. Expert consultations and the survey administered in preparation for the 7th Committee on Environment and Development pointed to the opportunities to reinvigorate multilateralism via actions that advance five key aspects of multilateralism: increasing accountability measures; promoting information sharing, transparency, and evidence for action; encouraging coordinated, inclusive and participatory action; transforming the economic system and financing interventions; and underpinning the other four aspects is the fifth aspect, namely solidarity (Figure 25).

FIGURE 25: Key elements for reinvigorating multilateralism.

Source: ESCAP, 2022.

Recommendations for advancing regional action

The following sections of the chapter recommend specific regional actions for each of five areas: climate action, air pollution, ecosystem and biodiversity, sustainable urban development, and environmental rights, with the support of the above framework. These actions are elaborated in the subsequent sections.

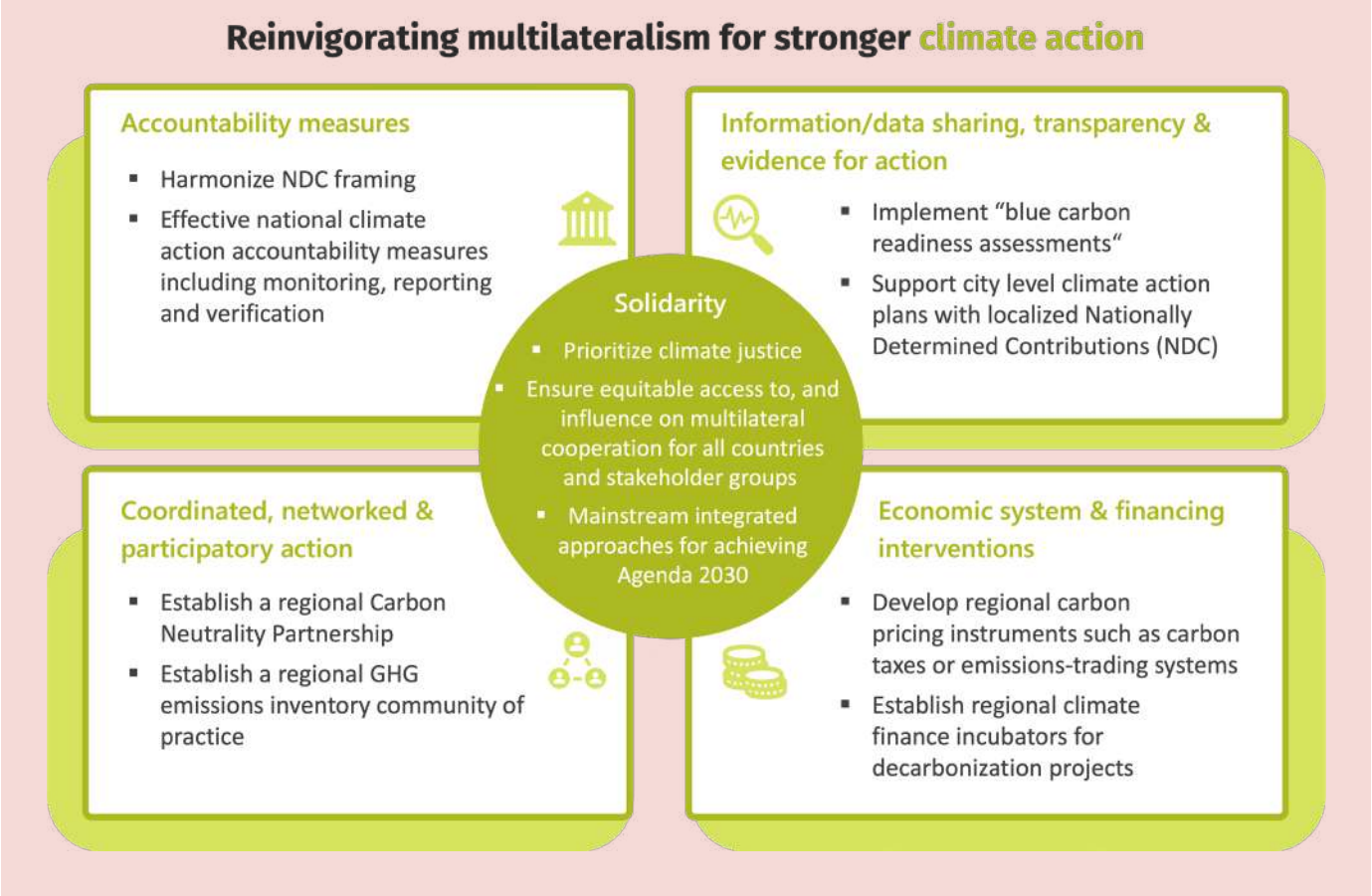
Climate action

Accelerate energy transition to realize the potential of energy and resource efficiency. There is an urgent need to rapidly shift away from fossil fuels towards low-emission energy systems. This can be done by removing the barriers to phase out coal, and facilitating the penetration of renewable energy, through for example, improving the grid infrastructure to induce higher penetration of renewable energy.

Prioritize nature-based solutions for climate mitigation and adaptation. Nature-based solutions, including the protection, conservation and restoration of ecosystems, can deliver a wide range of benefits for people and the planet. In particular, nature-based solutions provide climate benefits by acting as sinks and reservoirs of greenhouse gases, and increasing climate resilience. A majority of NDCs have incorporated nature-based solutions, but need to expands their scope to coastal and marine ecosystems. The effective utilization of nature-based solutions related to the ocean requires multilateral cooperation on information-sharing and scientific collaboration, such as “blue carbon readiness assessment”, which can provide a starting point for governments to develop programmes and commitments under their NDCs.

Strengthen national action and regional cooperation on raising climate ambitions in Asia and the Pacific. The next round of NDC review, in 2025, will allow countries to take into consideration the outputs of the collective assessment of the global stocktake of the Paris Agreement (November 2021-November 2023) and will provide an important opportunity to significantly increase mitigation ambition. Most countries in the region, and at all levels of income, have an abundance of enabling conditions to help drive up their climate ambition. Scientific collaboration and information-sharing, including through a regional carbon neutrality partnership, can support efforts to make pledges achievable, reflecting commitments in the NDC with clear mid-term goals supported by Long-Term Low Emission Development strategies. Coordinated, participatory and networked action can mobilize stakeholder action and accelerate efforts to address climate change. Member States can scale up action by building on several other existing initiatives, such as the Asia-Pacific Green Deal, the South Asia Regional Initiative for Energy Integration, and the Partners in Blue Pacific.

FIGURE 26: Reinvigorating multilateralism for stronger climate action.



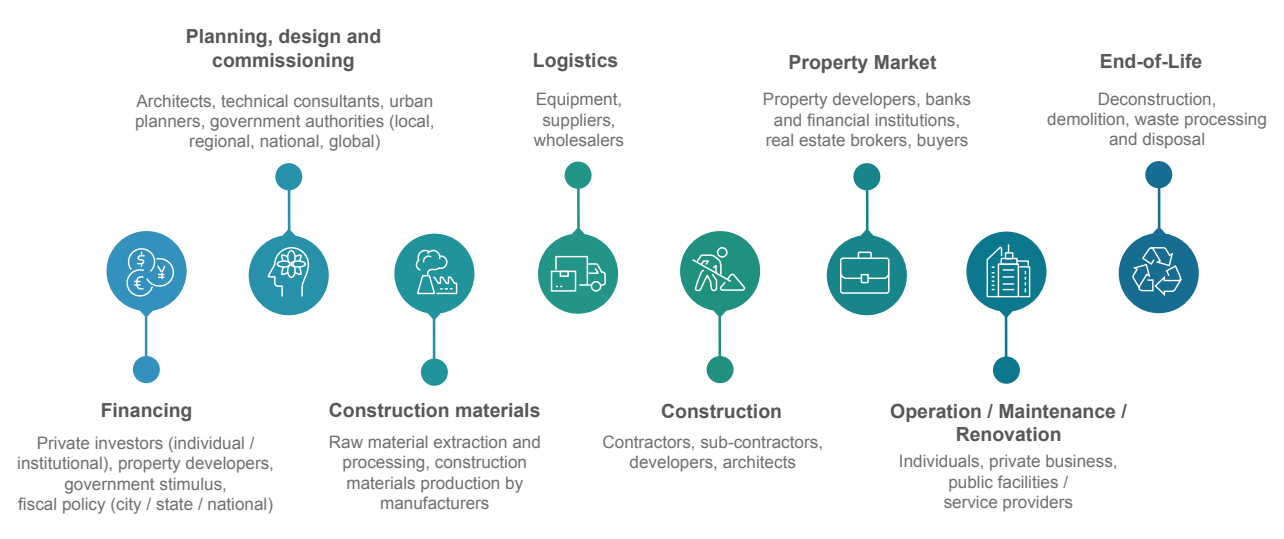
Ecosystems and biodiversity

Strengthen policy coherence, synergies and legal frameworks. It is critical to highlight the central role that institutions, governance and decision-making play in protecting and sustainably managing ecosystems and biodiversity. Strengthened policy coherence, synergies, and legal frameworks could translate the objectives of global mandates into tangible results. Asia and the Pacific can align actions with obligations under multilateral environmental agreements and recommendations formulated around them. These include the Post-2020 Biodiversity Framework under the Convention on Biological Diversity, and the United Nations Convention to Combat Desertification, among others.

Promote sustainable land management and ensure the transition to sustainable food systems. To tackle the biggest driver of biodiversity loss and ecosystem restoration, the Asia-Pacific region requires a major transformation in land use and food systems. This includes a shift toward agroecological practices and implementation of sustainable land management practices, including through agroforestry. The principle of land degradation neutrality should be applied to ensure key requirements of productivity, such as soil fertility, pollination, water supply and resilience against climate change. Cities in the Asia and the Pacific region can enhance their biodiversity through designing and implementing community gardens and parks.

Furthermore, regional, and global scientific collaboration and integrated analysis will be critical for the uptake of a value-chain approach that contributes to the identification of entry points and development of a common action plan to address drivers of biodiversity loss, including the unsustainable consumption and production of biomass.[139] The value-chain approach, based on material flow and impact-footprint data, provides transparency on biodiversity use and impacts across countries, sectors, and lifecycles. Such transparency across transnational value chains could strengthen the accountability and joint responsibility of countries in the region who share the common natural resource base. Furthermore, effective monitoring and evaluation of value chains would strengthen pre-emptive policymaking in addressing emerging threats and adaptation to uncertainties, including for example the COVID-19 outbreak.

FIGURE 27: Simplified overview of the stages of a food value chain.

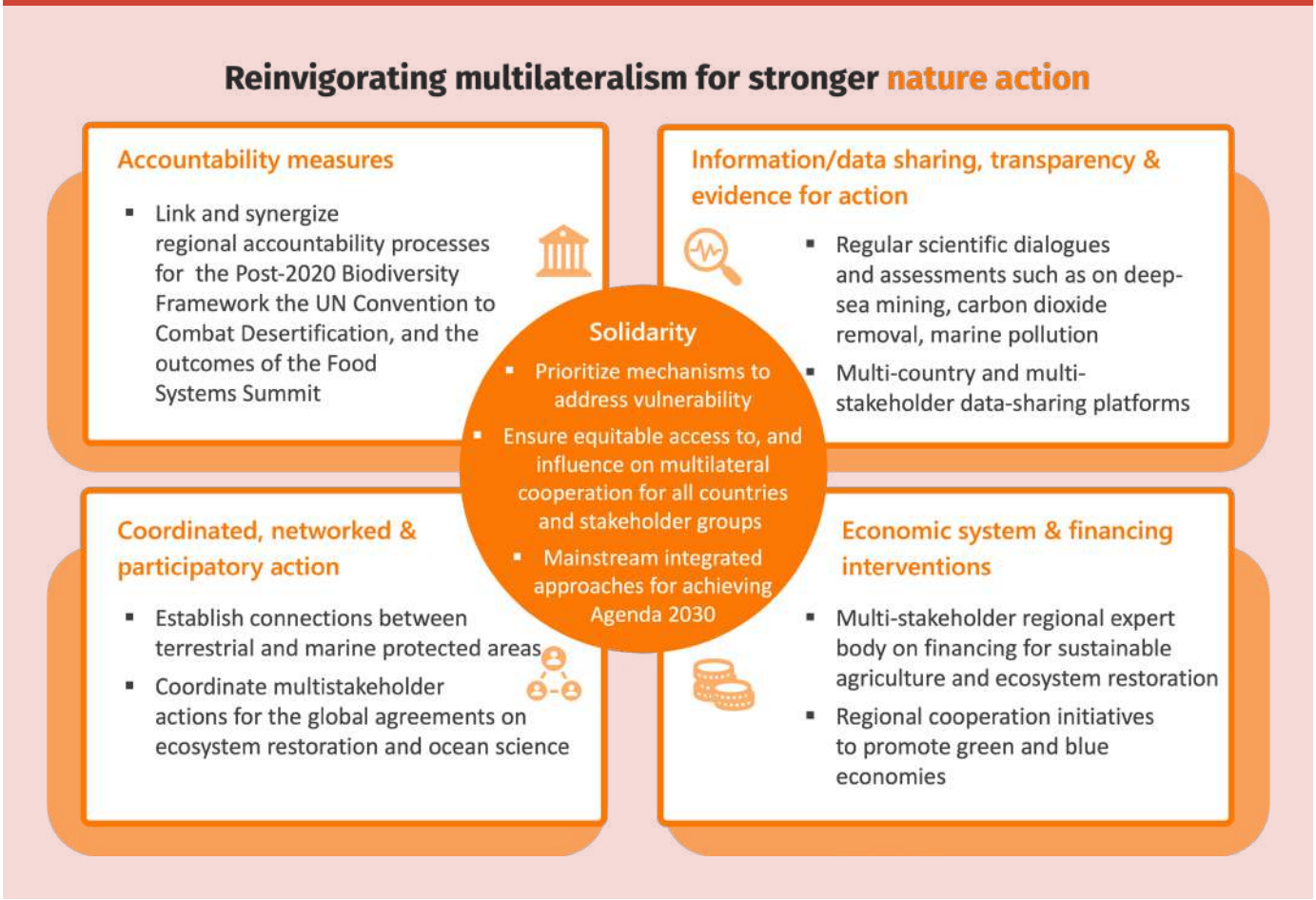


Source: United Nations Environment Programme, "Catalysing Science-based Policy Action on Sustainable Consumption and Production: The value-chain Approach & its Application to Food, Construction and Textiles", Nairobi, February 2021. Available at https://www.unep.org/resources/publication/catalysing-science-based-policy-action-sustainable-consumption-and-production

139 United Nations Environment Programme, "Catalysing Science-based Policy Action on Sustainable Consumption and Production: The value-chain Approach & its Application to Food, Construction and Textiles", Nairobi, February 2021. Available at https://www.unep.org/resources/publication/catalysing-science-based-policy-action-sustainable-consumption-and-production

Strengthen sustainable management of the oceans and marine ecosystems through regional action. Solidarity and cooperation are needed in strengthening global marine governance based on the principles of extensive consultation, joint contribution and shared benefits. Particular attention is needed on the conservation and sustainable use of marine biodiversity beyond national jurisdiction. Specifically for the protection of marine ecosystems across the region, ESCAP, in collaboration with partner UN agencies and programmes, has developed a Regional Decade Programme, promoting coordination and networking to address the challenges and objectives laid out in the implementation plan of the UN Decade of Ocean Science for Sustainable Development 2021-2030, observing the most pressing challenges for Asia and the Pacific. The Regional Decade Programme works to protect and safeguard the health of ecosystems, including marine ecosystems and their interconnectedness with land ecosystems from a One-Health approach. Specifically related to the ocean, regional efforts could focus on developing an international, legally-binding instrument under the United Nations Convention on the Law of Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, as mandated by the UN General Assembly. Furthermore, regional cooperation should support the development of an internationally legally binding instrument to end plastic pollution, as outlined in the recent UN Environment Assembly resolution.

FIGURE 28: Reinvigorating multilateralism for stronger ecosystem and biodiversity action.



Air pollution

Improve air quality standards. Asian countries have recently strengthened action to reduce air pollution. Success in combatting air pollution in the region will largely depend on strengthening air quality standards and management, enhancing existing institutions, enforcing air quality monitoring and regulations with innovative technologies, improving air pollution inventory with the identification and source apportionment of air pollution, and creating partnerships for technical cooperation. It will be important to set timebound and clear national targets for air pollution reduction that align with WHO guidelines, consider respective country contexts, and develop action plans that support the achievement of these objectives.

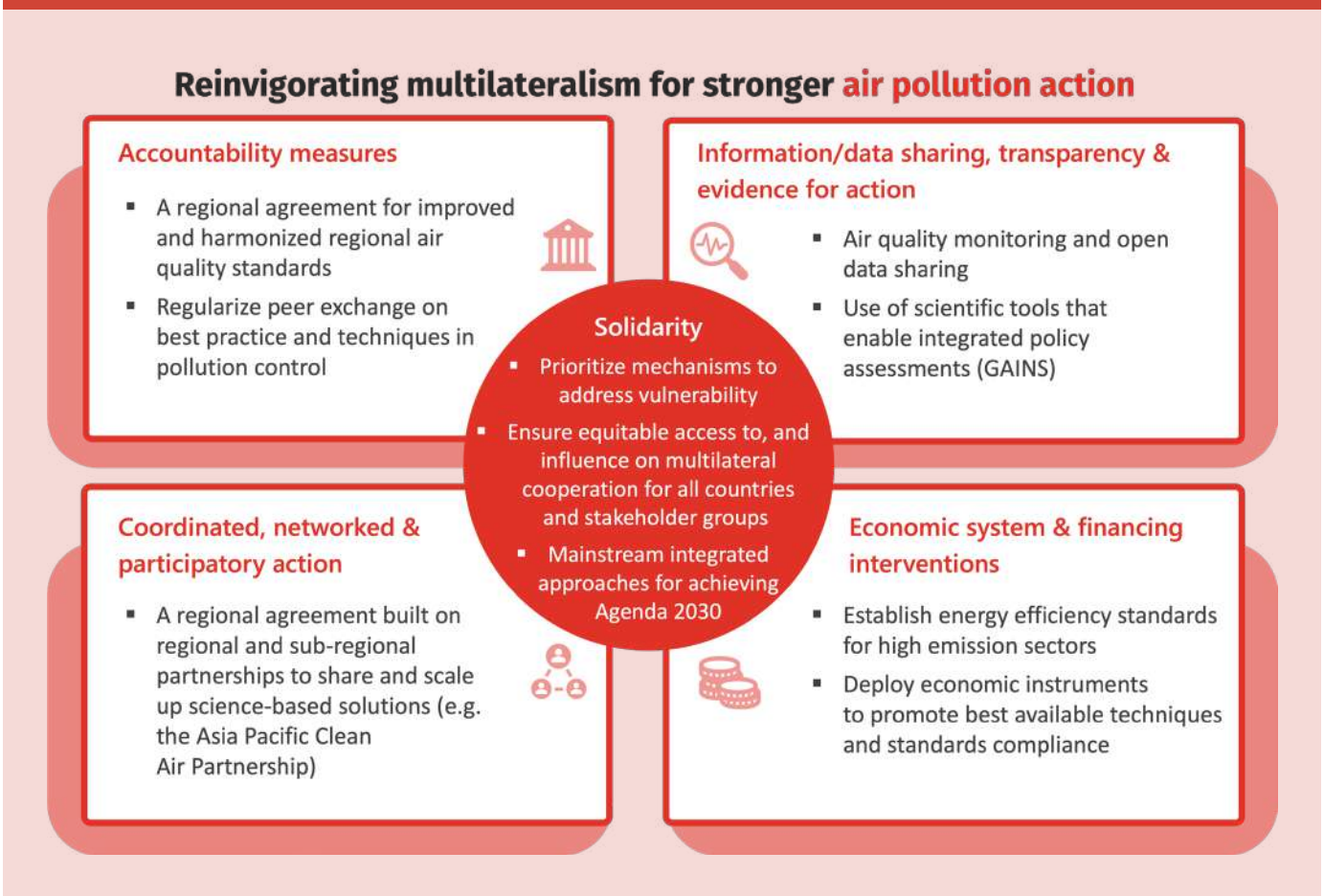
Facilitate air quality monitoring and open data-sharing. The ability to create comprehensive and comparable emissions inventories is a key component of national action and international cooperation. Sharing air quality data must be based on data and information that have an accepted scientific quality. Strengthened regional cooperation could include technical support to develop effective air quality management systems and facilitate open access to and utilization of air quality information, including satellite-generated data and open-source data.

Exchange best practices and outreach. Sharing best practices and catalysing peer learning can support identifying technically feasible and cost-effective approaches to tackle causes of pollution, thereby making limited resources generate greater impact. In this regard, technological best practices, for example, best available techniques for industrial emissions, for various sectors can be more widely shared.

Facilitate capacity-building and technical support for national action. Implementation of clean air policies and the elaboration of solutions require capacity-building efforts at multiple levels. This will range from national governments to enact national legislation and enforcement regimes, local authorities to develop local actions related, inter alia, to traffic management and municipal solid waste, industry to deploy technologies to eliminate industrial emissions, and the agriculture sector, including both industrial companies and small-scale farmers to transition to more sustainable management of crop residue. Low- and middle- income countries need support and training to use innovative applications, such as machine learning, data science techniques and smart city technologies. Given that air pollution is exacerbating the environmental crisis and threatening people's livelihoods by contributing to climate change, and causing losses in the ecosystem, in biodiversity and to crops, multiple benefits can be gained from integrating air pollution control strategies.

Mobilize commitment to multilateral cooperation. Existing multilateral cooperation mechanisms in subregions have contributed to data exchanges, national and regional policy developments, scientific cooperation and knowledge-sharing in the field of transboundary air pollution. The overall region, however, has not seen remarkable reductions in pollution levels. It will be essential to strengthen regional-level cooperation, building on the existing subregional initiatives in North-East Asia, South Asia and South-East Asia, as well as other subregional or region-wide partnerships, in order to share and scale up the adoption of science-based solutions within and across subregions.

FIGURE 29: Reinvigorating multilateralism for stronger air pollution action.



Sustainable urban development

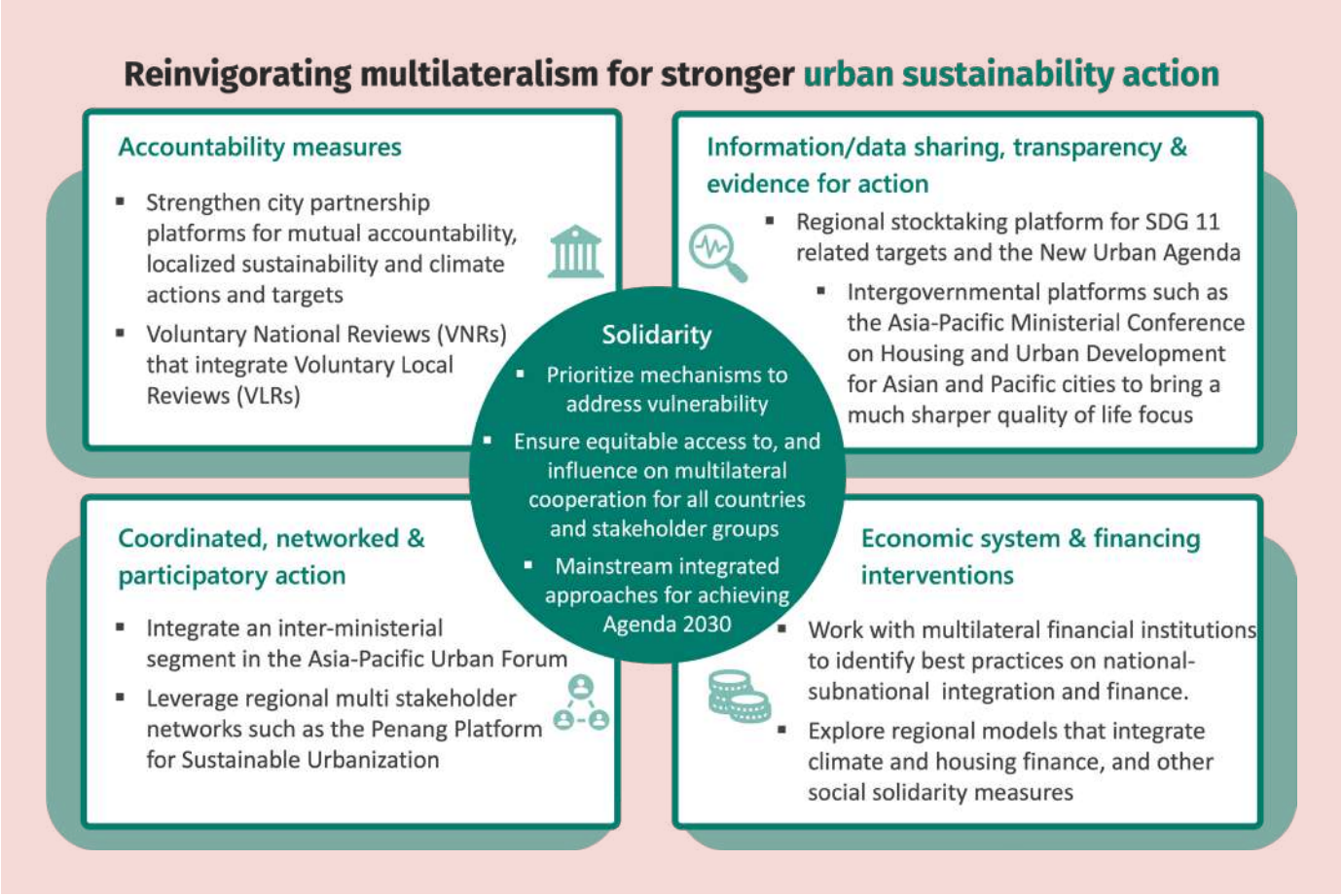
Integrate sustainability and well-being into inclusive urban planning across the region to future-proof public and private investments in cities. Governments in the Asia-Pacific region can make more concerted efforts to mainstream evidence-based planning and monitoring, adopt people-centred approaches, and integrate environment, health, well-being, and quality of life targets into national and subnational urban and territorial processes. Regional cooperation could leverage multistakeholder networks, such as the Penang Platform for Sustainable Urbanization, convened by ESCAP and partners, as well as the Asia-Pacific Ministerial Conference on Housing and Urban Development for Asian and Pacific cities. Such partnerships can facilitate exchanges in urban planning, build capacity, and increase research and practice, leading to greater knowledge of urban solutions, as well as improved services and healthier environments.

Strengthen regional cooperation for sustainable infrastructure and housing. Rapid and unplanned urbanization has exacerbated environmental degradation, and contributed to the region's infrastructure gaps and housing challenges, including the increase of informal settlements in vulnerable and/or disaster-prone areas, lack of access to safe water, sanitation and hygiene. Considering the multiple crises, including climate change, that the region is facing, progress cannot be achieved without greater focus on sustainable urban infrastructure, nature-based solutions, sustainable building practices and neighbourhood-level improvements that can generate multiple social and environmental co-benefits. The complexities around the provision of housing and infrastructure require multistakeholder cooperation, comprehensive programme designs, and promoting sustainability, efficiency, equity, and effectiveness under SDG 11, and the New Urban Agenda.

Photo by Paula Prekopova on Unsplash

Promote vertical integration of urban policies to accelerate multi-level action on the Sustainable Development Goals and the Paris Agreement. Many opportunities exist to influence dialogue, enhance knowledge-sharing, and provide regional level technical assistance to national governments and cities in a range of areas. These include accessing municipal climate finance, strengthening the evidence base with approaches and tools, such as city-level greenhouse gas emissions inventories, and deploying urban nature-based solutions. Supporting multi-level action requires raising awareness and sharing best practices, as well as building the capacity of municipal staff in climate change mitigation and adaptation through e-learning tools and peer-to-peer learning opportunities. A Voluntary Local Review can be one of the tools to measure the progress and effectiveness of urban policies. Strengthening integration between Voluntary Local Reviews and Voluntary National Reviews can enhance both vertical and horizontal coordination with support from the national governments for SDG implementation.

FIGURE 30: Reinvigorating multilateralism for stronger urban sustainability action.



Environmental rights

Accelerate regional action on enhancing rights-based approaches. The most efficient way to ensure environmental rights in the region is by developing harmonized policies on procedural rights, such as access to information, public participation in decision-making, and remedies, in order to operationalize the exercise of substantive rights. A regional approach could provide the impetus for developing a stronger enabling environment that would necessitate reforms in policy, regulation and judicial procedure to ensure environmental rights are protected at the national level.

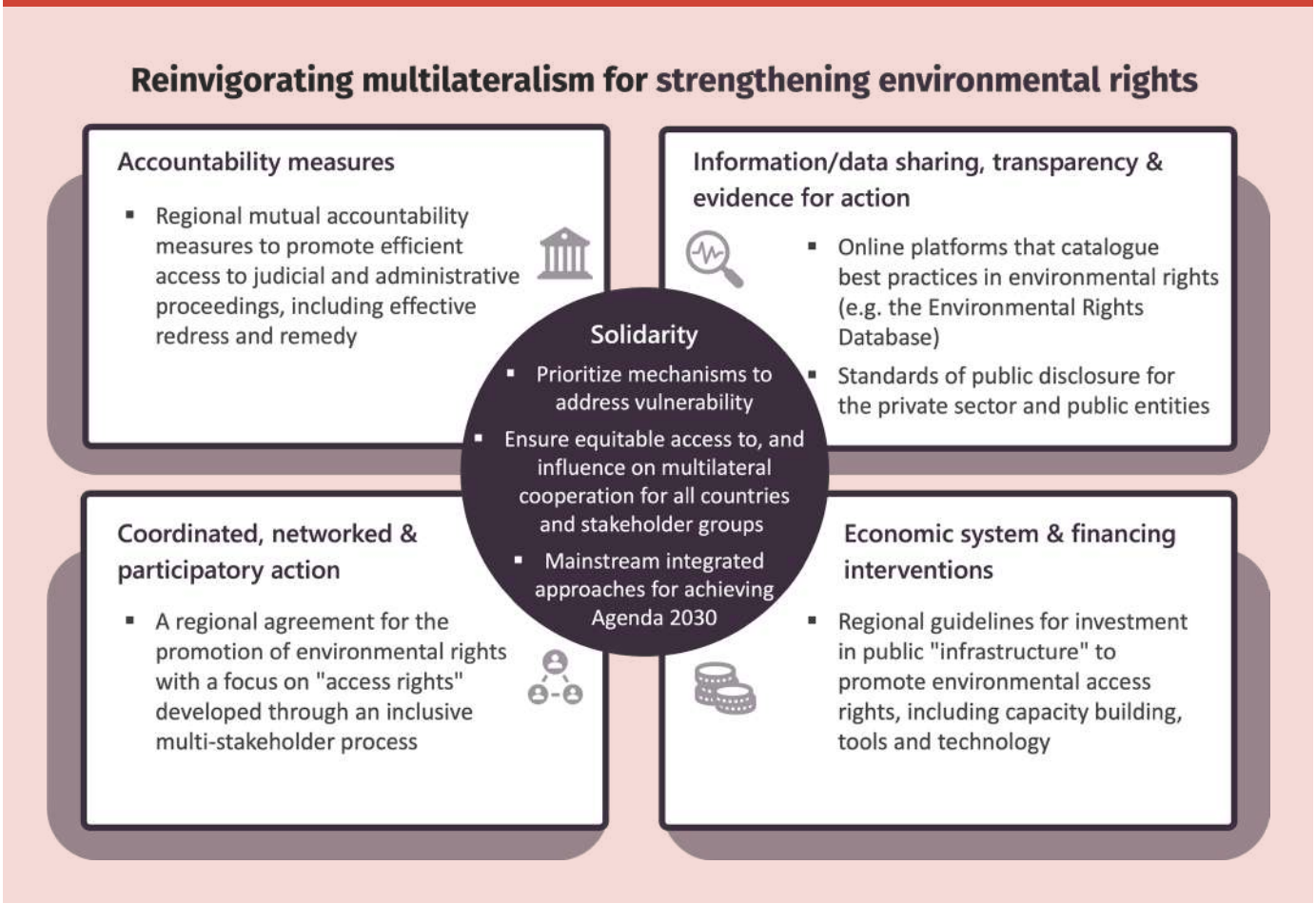
Set up compliance and assistance mechanisms. Strengthening the legal regime for the promotion of access rights and the protection of environmental rights, through a regional approach, can promote national law reform by facilitating compliance through appropriate implementing mechanisms. Such an arrangement is envisaged to bring about the introduction of national legislation specifically institutionalizing access rights and procedures for environmental redress, protecting environmental defenders and providing for the full exercise of environmental rights. As a necessary consequence of the regional approach, the focus needs to be drawn on strengthening national systems to implement the resulting binding obligation.

Implement the right to information measures to increase public participation. Access rights to environmental information and public participation should be a foundational aspect of a regional approach, which could provide an impetus to develop national-level action in the fields of climate change, land management, air pollution, waste management, etc. As a guiding post, the rights of access to information enshrined in the Aarhus Convention and the Escazu Agreement could be a reference for developing a regional approach in Asia and the Pacific.

Photo by DragonImages on iStock

Focus on substantive and procedural environmental rights to reshape government competence. Building on the experience and expertise of sibling regional commissions, UNECE and UNECLAC, which have paved the road and shared many lessons on the effective safeguarding of environmental rights, the Asia-Pacific region can address this challenge through the adoption of a regional instrument on access rights. Countries in the region may also draw some lessons from existing international legal and policy frameworks, as well as multilateral environmental agreements to adopt regional instruments that foster the implementation of the access rights discussed previously. Such an agreement should encompass provisions to safeguard environmental justice.

FIGURE 31: Reinvigorating multilateralism for strengthening environmental rights.



CHAPTER 5

Conclusion

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Conclusion

The above sections discussed ways to strengthen multilateral cooperation to address the converging environmental crisis in the region, by focusing on climate action, air pollution, marine environment, sustainable urban development, and environmental rights, and provided an overview of actions embedded in a framework for reinvigorated multilateralism. Such actions, taken at the regional level, will have to be supported by accelerated action at the national level with special attention paid to strengthening the social contract for delivery on environmental rights for all and for stimulating environmentally sustainable and inclusive economic recovery. Changes in the flow of resources (whether financial, information and knowledge, human capital), as well as in relationships between stakeholders will be especially important to support the systemic shifts needed for deep transformations.

The recovery process from the COVID-19 pandemic offers an opportunity to initiate such shifts. The size of fiscal stimulus in developing Asia-Pacific countries amounted to $1.8 trillion, or about 6.6 per cent of their GDP in 2019.[140] In connection with stimulus packages, ESCAP advocated for "Building Forward Better", a green development policy package that is estimated to produce sizeable environmental benefits in addition to delivering better economic and social outcomes. ESCAP estimated that if such a package was implemented, the region would have 180 million fewer poor people by 2040, against 55 million fewer if business-as-usual was maintained. Additionally, implementing this package, together with abolishing fuel subsidies and introducing a carbon tax, would help to reduce carbon emissions in the region by approximately 30 per cent in the long run.[141] While countries are recovering from the pandemic, it is imperative to build forward better considering the increasing impacts of fuel and food crises and climate change.

140 *Economic and Social Survey for Asia and the Pacific 2021: Towards post-COVID-19 resilient economies* (United Nations publication, 2021e). Available at https://www.unescap.org/sites/default/d8files/knowledge-products/Survey%202021%20Towards%20post-COVID-19%20resilient%20economies.pdf

141 Ibid.

Photo by Liufuyu on Envato Elements

Ambitious climate action requires a significant financing commitment from both the public and private sectors. To fill the financing gap, national financing strategies must align with climate outcomes, and traditional and innovative financing instruments must be leveraged alongside concessional and official development assistance financing. Asia-Pacific countries would need to spend an additional 3.2 per cent of GDP per year on average to deliver the green development policy package that comprises investments to enhance energy access and efficiency, ensure climate-resilient infrastructure and conserve biodiversity. Alongside the need for financing, there is a need to carefully consider several aspects of an enabling environment and of institutional development. These include mainstreaming provisions for climate action into laws, trade policy and trade agreements, building development plans, green growth/blue economy road maps, and low-emission development strategies; encouraging horizontal and vertical coordination mechanisms, including inter-ministerial collaboration mechanisms, and engagement with local government, and mechanisms for engagement of stakeholders (including across borders); as well as increasing transparency through monitoring, reporting and verification systems and enhancing transparency instruments at the regional, national, local and enterprise levels. Among all the above-mentioned aspects, regional collaboration and sharing of best practices would be critical to strengthening the enabling framework and the financing for low-carbon transition.

As the discussion in the preceding chapters has shown, the region needs to incorporate holistic policies to effectively manage the environment–health nexus. The “One Health” approach helps to better understand and manage the relations between human health, including through food systems, animal health, and ecosystems and their functions that support a healthy and resilient environment. Such an approach mobilizes multiple sectors, disciplines, and communities at varying levels of society to work together to foster well-being and tackle health threats while advancing other national priorities, such as poverty alleviation, economic growth, and food security, towards achievement of the SDGs. A number of countries in the Asia-Pacific region have already adopted “One Health” initiatives, and it would be important for the region to build on this momentum to accelerate the rate of progress, including by engaging different stakeholders in building government capacity.

The report emphasizes the need for strengthened regional collaboration and solidarity to take robust action to solve environmental issues in Asia and the Pacific and meet the objectives of the 2030 Agenda. Enhanced collaboration should be based on effective international environmental governance and multilateral processes, as well as coordinated and complementary actions for addressing climate change, unsustainable urbanization, loss of biodiversity and ecosystem degradation, as well as pollution and waste. Solidarity is a critical dimension of enhanced collaboration, given that the environmental crisis is most severely felt by vulnerable and marginalized groups in society.

ESCAP is committed to supporting member States in the implementation of the above-mentioned recommendations. It can support members States by facilitating regional networks and platforms for the exchange of knowledge, experiences and good practices, and can provide technical support and capacity-building.

Annex 1: Summary table of global and regional mandates on environment and development

General Assembly Resolutions
71/222: International Decade for Action, "Water for Sustainable Development", 2018–2028
71/256: New Urban Agenda
74/212: International Day of Clean Air for blue skies
75/212: United Nations Conference on the Midterm Comprehensive Review of the Implementation of the Objectives of the International Decade for Action, "Water for Sustainable Development", 2018–2028
75/220: Harmony with Nature
75/222: Combating sand and dust storms
76/300: The human right to a clean, healthy, and sustainable environment
Economic and Social Council Resolutions
2013/19: Conclusion of the work of the Commission on Sustainable Development
2017/24: Human settlements
Economic and Social Commission for Asia and the Pacific Resolutions
70/12: Strengthening efforts on human settlements and sustainable urban development for the Asia-Pacific region
71/9: Strengthening cooperation on sustainable management of water resources in Asia and the Pacific
72/2: Statute of the Centre for Sustainable Agricultural Mechanization
72/8: Fostering regional cooperation and partnerships to respond to the climate change challenge in the Asia-Pacific region
72/9: Regional cooperation to promote the conservation and sustainable use of the oceans, seas and marine resources for sustainable development in Asia and the Pacific
73/5: Strengthening Asia-Pacific's support for the United Nations Conference to Support the Implementation of Sustainable Development Goal 14
74/4: Implementation of the Ministerial Declaration on Environment and Development for Asia and the Pacific, 2017
75/4: Strengthening regional cooperation to tackle air pollution challenges in Asia and the Pacific
76/1: Strengthening cooperation to promote the conservation and sustainable use of the oceans, seas and marine resources for sustainable development in Asia and the Pacific
77/1: Building back better from crises through regional cooperation in Asia and the Pacific
78/1: Bangkok Declaration Commemorating the Seventy-fifth Anniversary of the Economic and Social Commission for Asia and the Pacific: a Common Agenda to Advance Sustainable Development in Asia and the Pacific

Annex 2: Insights from a survey on regional progress and reinvigorated multilateralism

Background

In preparation for the 7th Committee on Environment and Development at the Ministerial level, scheduled to take place from 29 November to 1 December 2022, The ESCAP Environment and Development Division issued a survey to stakeholders, in the Asia-Pacific region, to assess their interest regarding priorities and actions to address environment and development challenges, including through reinvigorating multilateralism. The objectives of the survey were to understand regional perceptions of:

- **Main areas of concern** in the area of environment and development.
- **Progress** in addressing environment and development challenges in Asia and the Pacific since 2017, the most recent being the Ministerial Conference on Environment and Development at the time of publication of the results of the survey.
- **Needs and potentials for reinvigorating multilateral cooperation** on environment and development in the Asia-Pacific region.

The survey supports efforts to accelerate progress, including through reinvigorating multilateralism, in line with General Assembly Resolution 76/6, drawing on the report of the Secretary General *Our Common Agenda* and ESCAP's participatory foresight work with stakeholders.[142] The insights provided can help stimulate fresh thinking on cooperation on environment and development issues in Asia and the Pacific.

The survey addresses a relatively narrow area of concern for public officials and stakeholders, and the sample size is small. This summary of results therefore provides a snapshot of respondent views rather than providing definitive conclusions on stakeholder perspectives for the region. Preliminary results were shared in a background note for the Expert Group Meeting: "Regional Cooperation to Protect Our Common Environment" held on 22-23 June 2022,[143] and helped structure the framework described and applied in Chapter 4 of the present report.

142 See *Asia-Pacific Futures in 2040: Raising Ambitions for a Healthy Environment* (United Nations publication, 2021c). Available at https://www.unescap.org/sites/default/d8files/knowledge-products/APFutures_2040_RaisingAmbition_web_final.pdf ; T*he Future of Asian and Pacific Cities: Transformative Pathways Towards Sustainable Urban Development* (United Nations publication, 2019).

143 See United Nations Economic and Social Commission of Asia and the Pacific, "Regional Cooperation to Protect Our Common Environment", Expert Group Meeting, Bangkok, 22-23 June 2022. Available at https://www.unescap.org/events/2022/expert-group-meeting-regional-cooperation-protect-our-common-environment

A. Survey respondents

The survey was administered between 5 May and 30 June 2022 and targeted a wide range of respondents working in the environment and development area, including government officials responding in both/either official and expert capacities, experts from stakeholder organizations and development partners. The emphasis was on expert, rather than public views.

- **102 responses were submitted from 31 countries** (ESCAP members and associate members), with a heavy weighting of responses from the Philippines, Thailand and Indonesia (Figure A.1).
- **Just over a quarter of respondents were government officials**, including eight official responses from seven national Governments: Azerbaijan, Nepal, Malaysia, Pakistan, the Philippines, Sri Lanka and Türkiye (Figure A.2).

FIGURE A.1

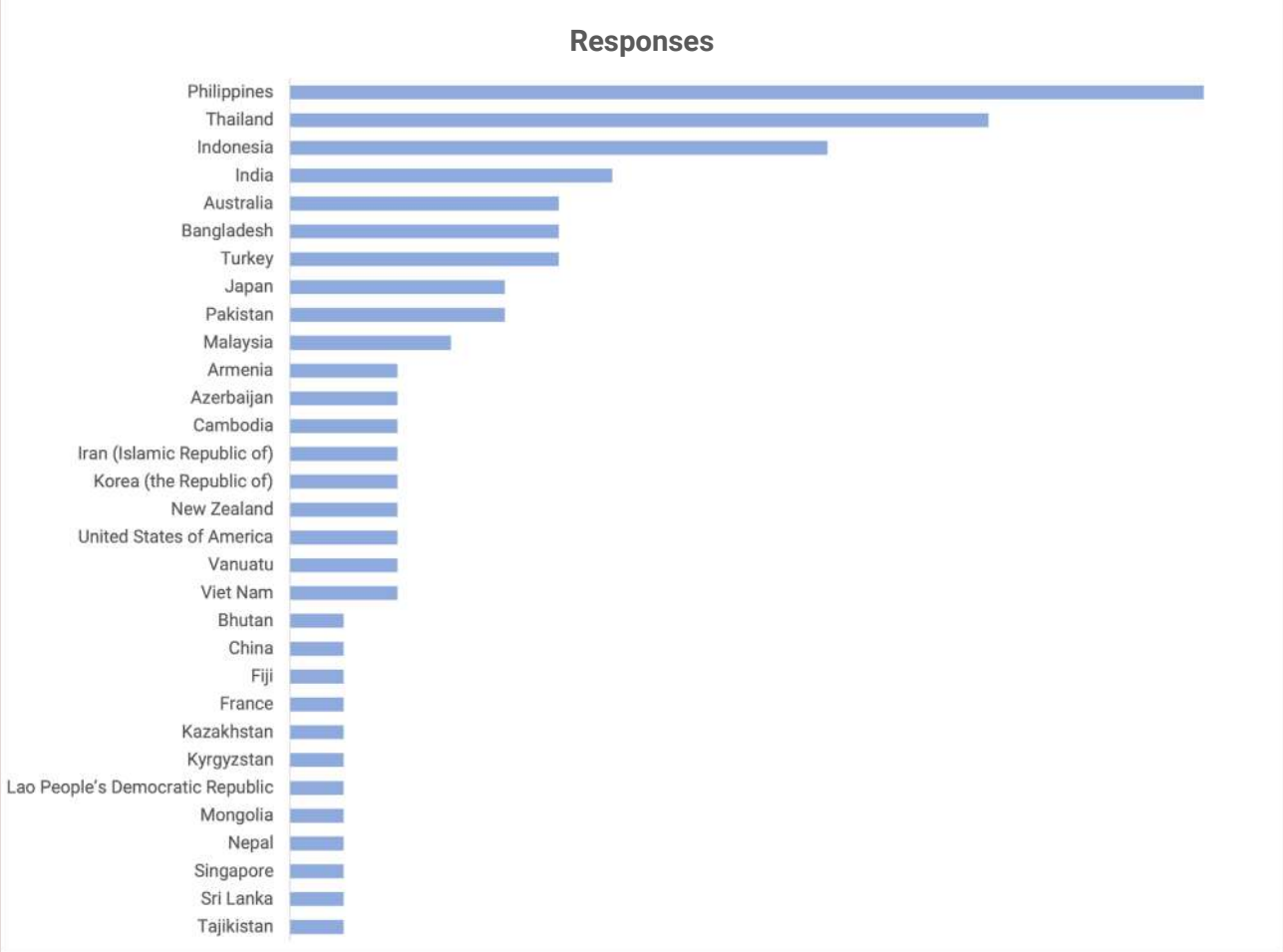
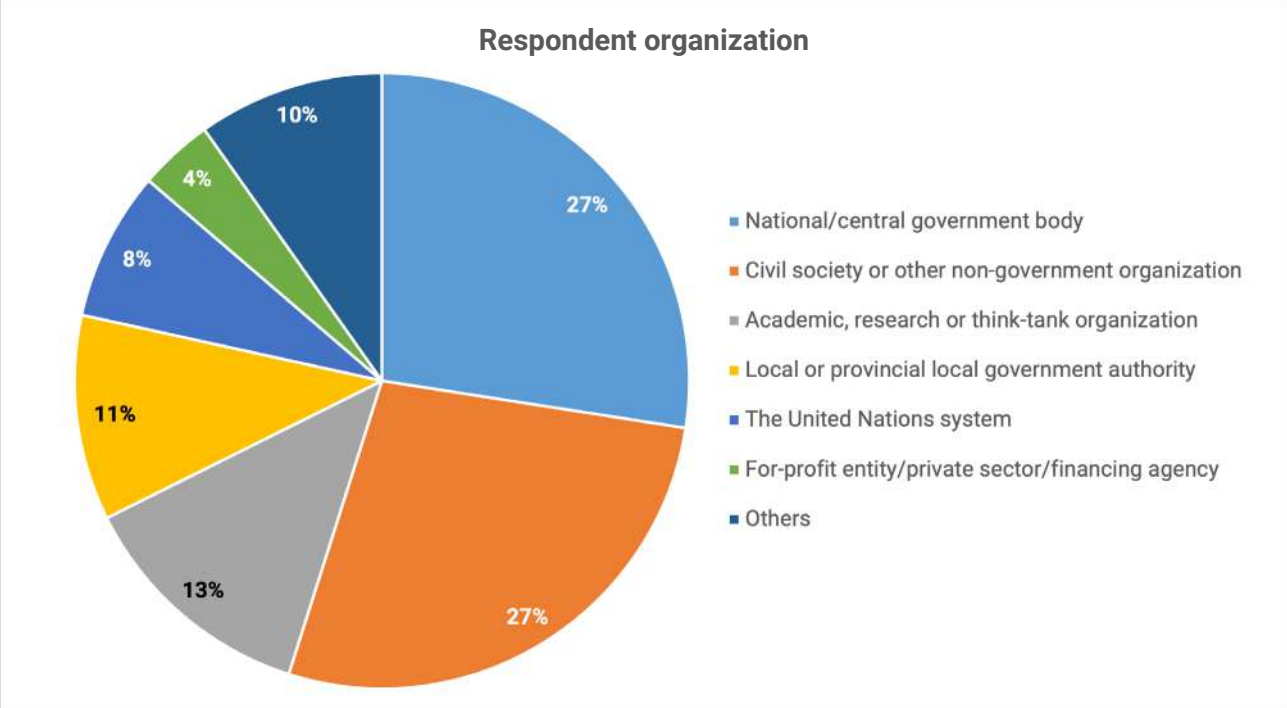


FIGURE A.2



B. Areas of concern and progress since 2017

The survey sought feedback on the levels of concern and the progress made in key environment and development challenges facing the Asia-Pacific region, with a focus on areas identified in the 2017 Ministerial Declaration on Environment and Development in Asia and the Pacific. The survey invited stakeholders to share views on trends, progress across the policy cycle and key points of governance capacity.

- **All policy arenas were assessed by more than half of respondents as critical**, needing accelerated action. Levels of concern in five environment and development policy arenas were assessed: climate action; environmentally sustainable economic growth; environmental quality and securing ecosystem services; people, human security and environment; and sustainable urban development (Figure A.3).
- **More than one-third of respondents chose to assess progress on climate action**, with a spread of interest in assessing progress in the other four areas (Figure A.4)
- **Most positively assessed was progress in public awareness and civic engagement; communication with, and engagement of stakeholders; policy formulation; and agenda setting** (Figure A.4).
- **Most negatively assessed was progress in accountability measures; evaluation and monitoring; implementation; budgeting and financing; and the role of financing entities** (Figure A.4).

FIGURE A.3

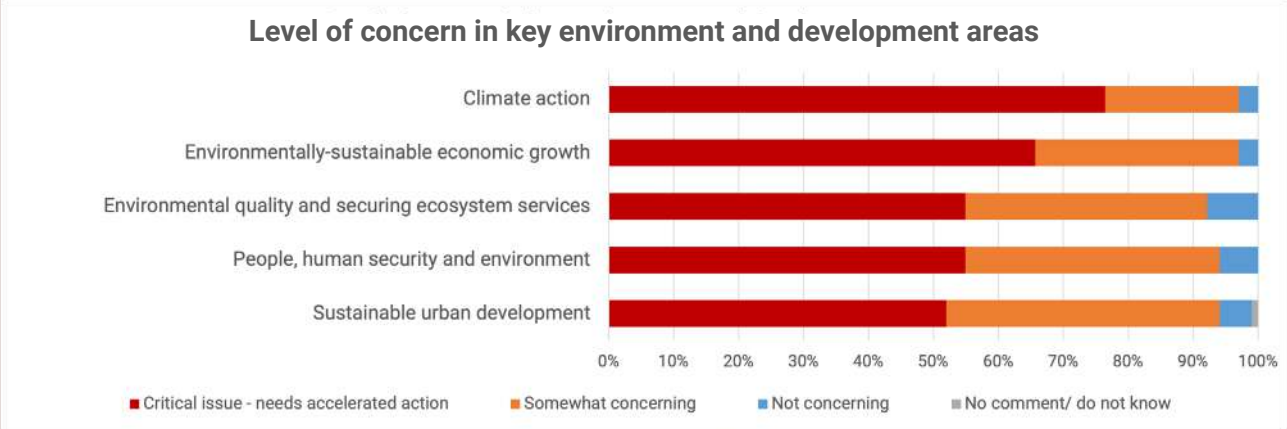


FIGURE A.4

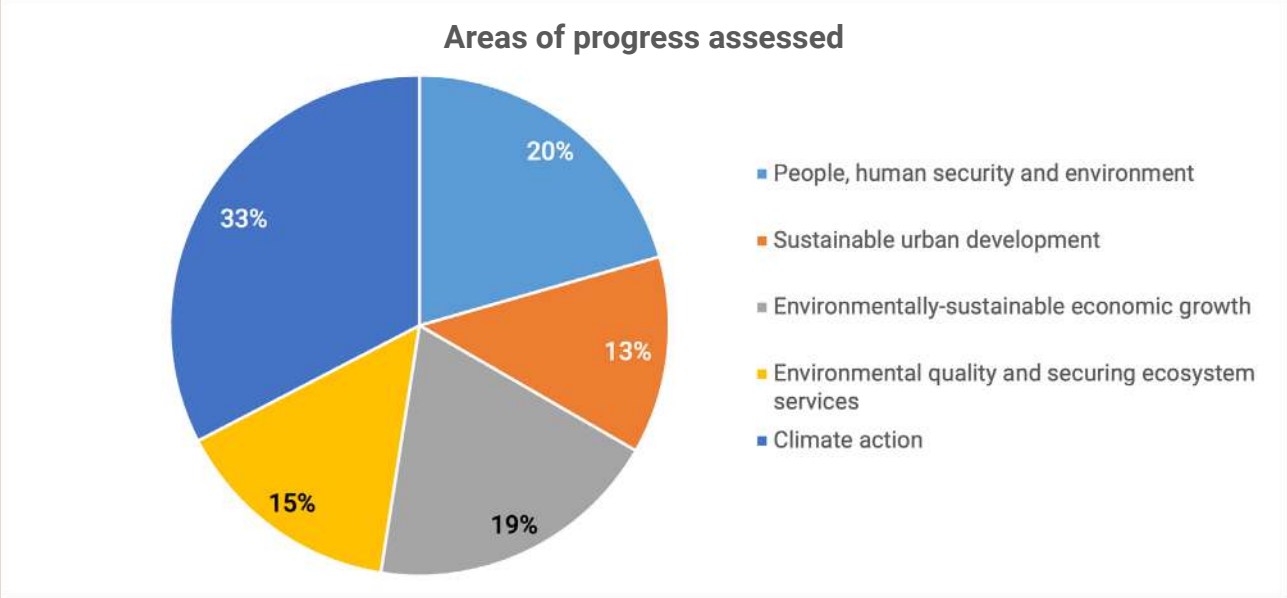
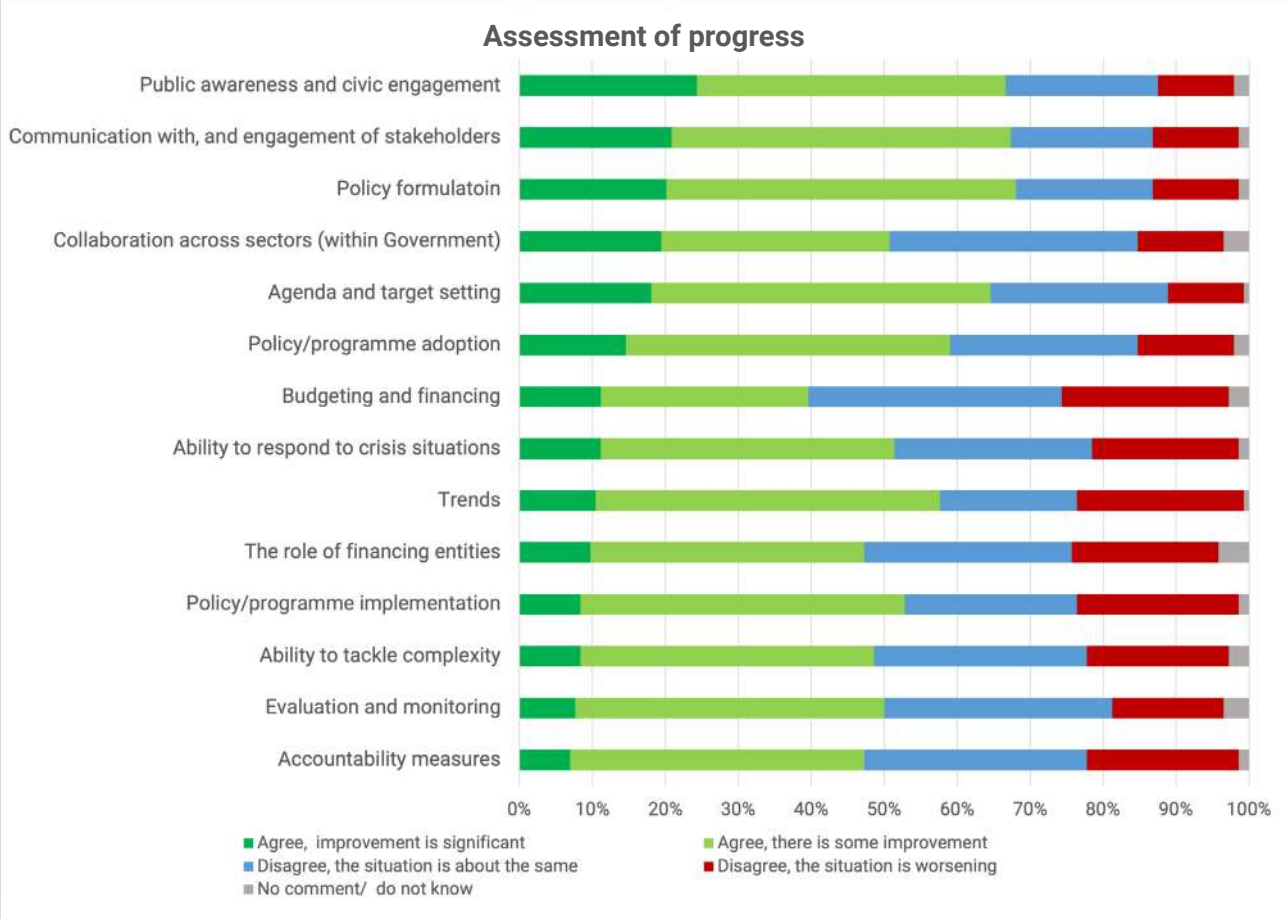


FIGURE A.5

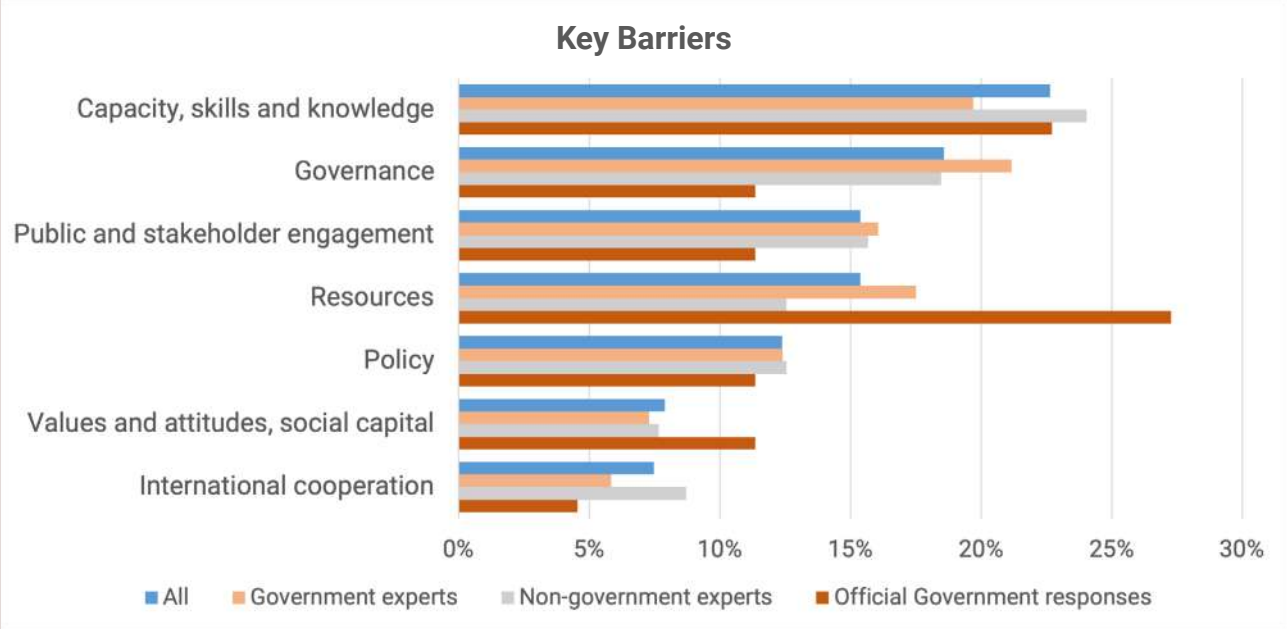

Assessment of progress
Public awareness and civic engagement
Communication with, and engagement of stakeholders
Policy formulatoin
Collaboration across sectors (within Government)
Agenda and target setting
Policy/programme adoption
Budgeting and financing
Ability to respond to crisis situations
Trends
The role of financing entities
Policy/programme implementation
Ability to tackle complexity
Evaluation and monitoring
Accountability measures
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Agree, improvement is significant
Agree, there is some improvement
Disagree, the situation is about the same
Disagree, the situation is worsening
No comment/ do not know

C. Barriers to progress

The survey sought expert views on the barriers to progress in the areas assessed.

- **The most important barriers were perceived as relating to shortcomings in capacity, skills and knowledge, governance, public and stakeholder engagement, and resources** (Figure A.6).
- **There were some differences in perceptions across respondent groups, especially in relation to resources, governance and values and attitudes** (Figure A.6).

FIGURE A.6

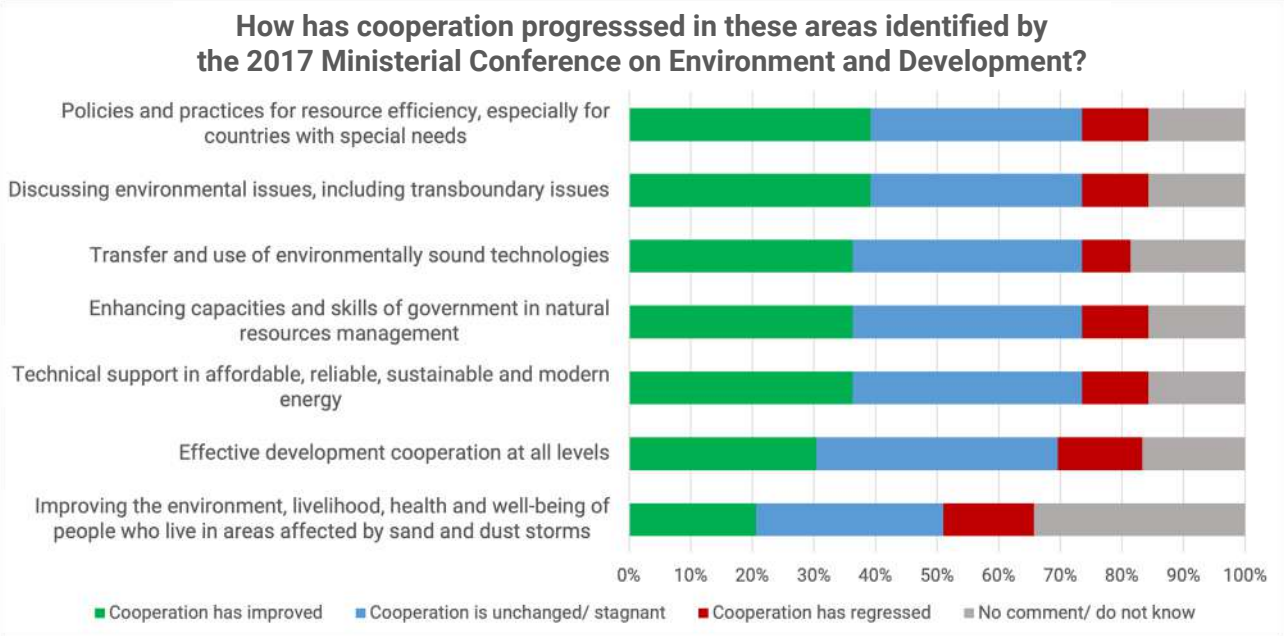


D. Making progress through reinvigorating multilateralism

This survey sought expert views on **progress on cooperation**, noting the areas of joint action targeted by the 2017 Ministerial Declaration on Environment and Development in Asia and the Pacific.[144]

- **Perceptions of progress on cooperation are fairly evenly spread** across those who think cooperation is improving, and those who think that cooperation across all environment and development areas identified in 2017 as priority for cooperation, is stagnant, or regressing (Figure A.7). Progress on **development cooperation, and on improving the livelihoods of those living in areas affected by dust and sandstorms, however, is assessed least positively**, overall (Figure A.7).

FIGURE A.7



144 See E/ESCAP/MCED(7)/5. Available at https://www.unescap.org/sites/default/d8files/event-documents/MCED7_5E.pdf

The report of the United Nations Secretary-General, *Our Common Agenda* calls for reinvigorated multilateralism (broadly, cooperation between governments and international entities, and others) that is networked, inclusive and effective. The survey therefore invited experts' views on the importance of reinvigorating multilateralism in the region, and on specific options for action.

- **More than half of respondents view reinvigorated multilateralism as critical** for advancing on environment and development challenges (Figure A.8).
- **Priorities for reinvigorating multilateralism included accountability measures, and information sharing, transparency and evidence for action, and economic system and financing interventions.** There were differences in perceptions across groups of respondents (Figure A.9).

FIGURE A.8

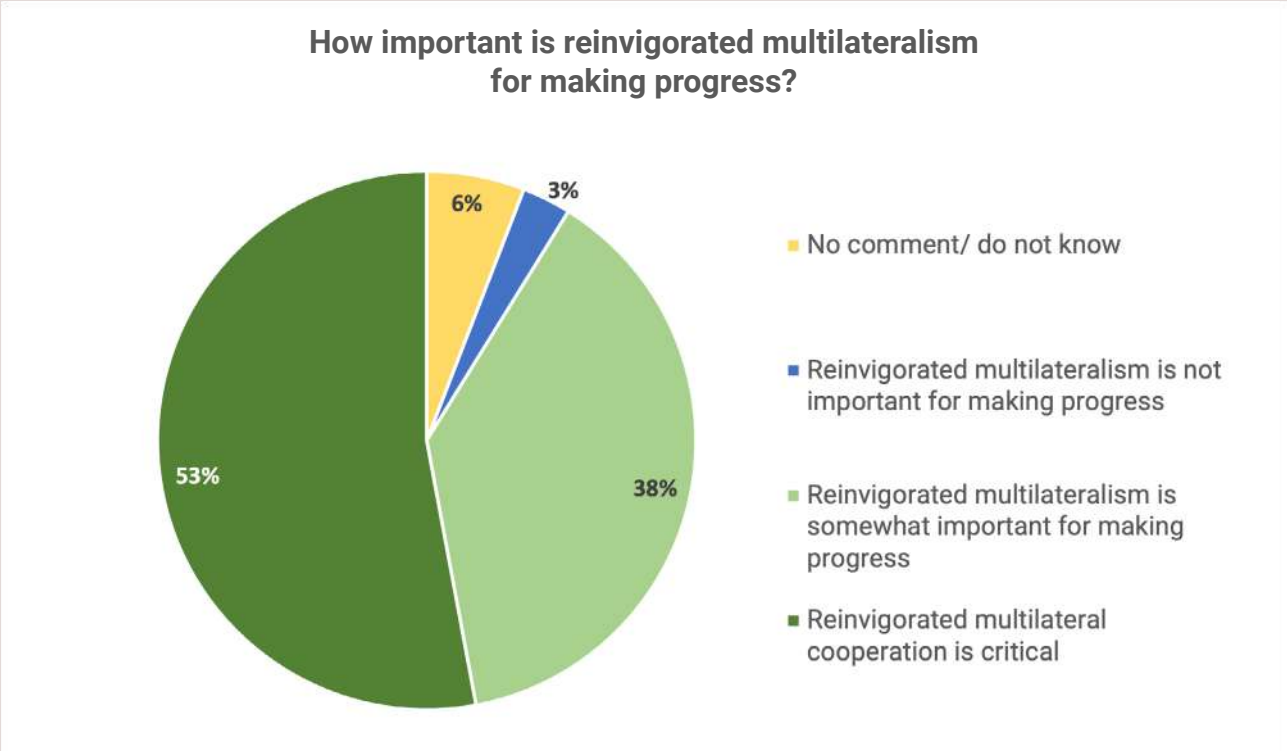
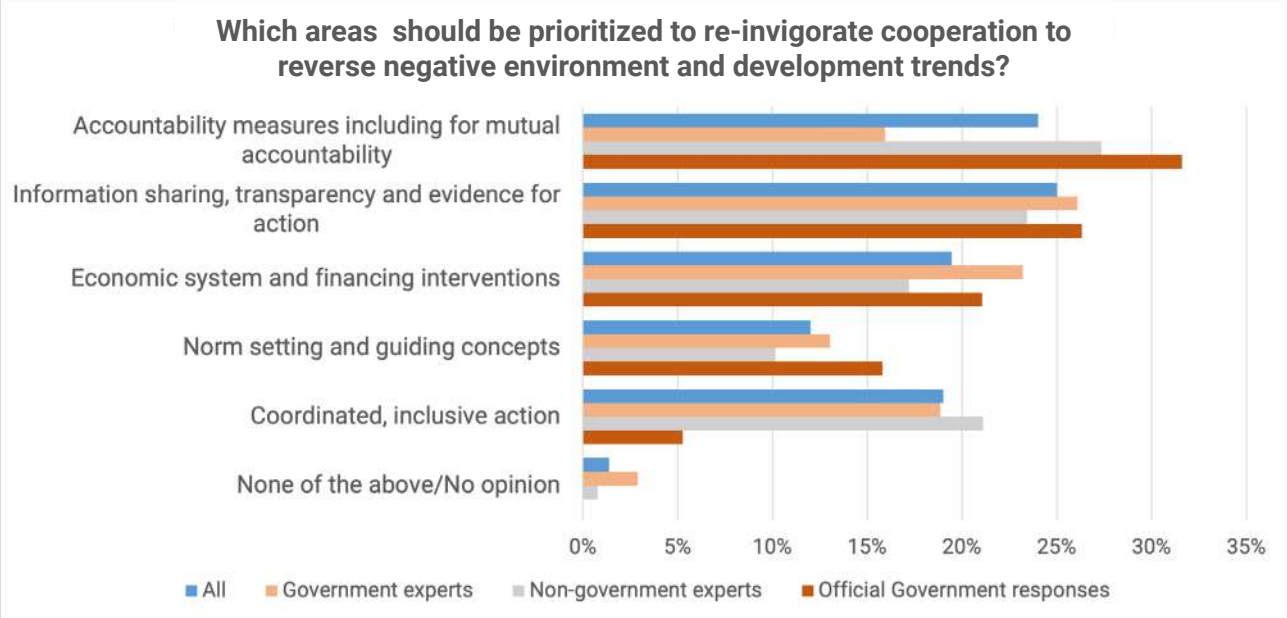


FIGURE A.9



Respondent comments

- **Several respondent's comments were oriented towards notions of solidarity.** Respondents noted that the Asia-Pacific region is home to some of the most dynamic economies globally, and some of the most vulnerable. Solidarity is essential for addressing common challenges, including mutual points of vulnerability. Attention to solidarity with affected populations within countries, and between countries is needed. Respondents pointed out the challenges of environmental migration and just climate transition.
- **Respondents also highlighted the need for renewed commitment to international cooperation and the need to effectively coordinate and synergize between regional environmental forums and those more broadly focused on development.** Respondents suggested increasing peer learning and joint campaigns, and also pointed to the existence of several fora, that could be better linked.[145]

145 For example: the Forum of Ministers and Environment authorities of Asia Pacific, the Regional Ministerial Forum on Environment and Health, the East Asia Acid Deposition Network, the Asia Pacific Clean Air Partnership, the Asia Pacific Adaptation Network, the Coordinating Body for the Seas of East Asia and the Northwest Pacific Action Plan.

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