

Climate change and its potential impact on health: a call for integrated action

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A growing body of scientific evidence strongly suggests that climate change has enormous and diverse effects on human health. Rises in temperature and sea level and extreme weather events such as floods cause water logging and contamination, which in turn exacerbate diarrhoeal diseases. The spatial and temporal distribution of vector-borne diseases like malaria and dengue has been projected to increase due to favourable temperatures, with resulting alterations of communicable disease dynamics.¹ Climate change is a global issue and its adverse impact can affect the entire world. However, the poor and the most vulnerable populations are likely to be disproportionately affected, with poorer nations bearing the brunt of the impact due to deficient health systems and resources. The World Health Organization (WHO) estimates that every year about 150 000 deaths occur worldwide in low-income countries owing primarily to the adverse effects of climate change, primarily crop failure and malnutrition, floods, diarrhoeal diseases and malaria.¹

The WHO South-East Asia Region (<http://www.who.int/about/regions/searo>) is home to 26% of the world's population and 30% of the world's poor.^{2,3} Because of its large population, the consequences of climate change could be disastrous for the region, which already has a disproportionately high burden of communicable diseases that is expected to increase in the foreseeable future as a result of climate change.

Of the 14 million deaths that occur in the region annually, 40% are attributable to communicable diseases. Increased average temperatures could prolong peak periods for vector-borne diseases,⁴ and extreme weather events, including cyclones and floods, can create ideal conditions for the spread of vector-borne and diarrhoeal diseases such as

cholera.⁵ In much of the region, dengue is spreading not only geographically, but in explosive outbreaks. It has been reported in the mountainous countries of Bhutan and Nepal since 2002.¹

According to the Intergovernmental Panel on Climate Change, parts of Asia are expected to experience serious adverse effects owing to climate change because most countries' economies rely on agriculture and natural resources.⁶ Geographically vulnerable populations living in small island states, arid and high mountain zones, and densely populated coastal areas, such as the large urban centres along the region's river deltas, are disproportionately affected by climate change, as shown by devastating floods in Bihar, India, in 2009. The Asian Development Bank predicts that sea levels could rise as much as 40 centimetres by the end of this century and endanger populations living along the coastlines in the region.⁷ In countries such as Indonesia and Thailand, the lack of concrete efforts to counter the effects of climate change could result in economic losses of 6.7% of their combined gross domestic product by 2100, compared to a loss of 2.6% of the world's gross domestic product during the same period.⁷

Most countries in the region lack adequate plans for disease and vector surveillance and control and emergency preparedness.⁸ Furthermore, they have limited scientific expertise, inadequate public health legislation, lack of human and financial resources and infrastructure and fragmented health systems, all of which constitute barriers to effective preparation against the detrimental health effects of climate change. Developing the regional capacity to protect human health in the face of climate change is essential.

The magnitude of the problem makes it imperative to raise greater awareness of the threats of climate change, especially among policy-

makers, but to do so, sustainable strategic planning and funding are urgently needed. An effective, sustainable response requires an assessment of health risks, integrated action, financial investment and multisectoral collaboration. The evidence base needs to be strengthened to facilitate policy changes and multisectoral actions in the health, energy, environment, education and business sectors. The health sector needs to play a critical role in mitigating climate change and in adapting to its detrimental effects. Personnel training must be promoted, and measures for reducing greenhouse gases must be implemented, as they can benefit health. A concerted effort has to be made to involve national and local partnerships and networks with all relevant stakeholders, as increased financial allocation for health programmes will be needed to develop comprehensive plans for addressing the effects of climate change on human health.

If all countries of the region make a combined effort to tackle the effects of climate change on health, the resulting evidence base, emerging best practices and lessons learnt will make a valuable contribution to global health. Research on assessing the impact of climate change on vector- and water-borne diseases is under way in India and Nepal and will be expanded to other countries in the region. Such information can guide the development of integrated national and regional plans of action focused on concrete public health interventions. WHO is committed to working with its Member States in the South-East Asia Region to generate and synthesize a regional evidence base and to use it to promote integrated action at the country and regional levels. ■

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