

## Editorial

### Acting on climate change is good for health

World Environment Day is being celebrated on June 5. This year, we are being asked to act on climate change. The consequences of decades of fossil fuel combustion and deforestation may now be familiar to many. That global climate change is a key issue for public health is a relatively new concern - but one that is rapidly emerging on the policy and science agendas. This is for two reasons. First, the acceptance that climate change is already occurring and that we have to manage these health risks over the next few decades. Second, there are several options for reducing carbon emissions (in the realm of transport, industry, agriculture, and energy production) and we should argue for those options that most improve health.

The current climate is known to affect health - whether one considers the effects of the Asian monsoon or cold winters in Europe. Extremes of weather (floods, droughts and heat waves) are a feature of most climates and have quite a complex range of effects on communicable and non communicable diseases. We are also aware of a range of measures that can be put in place to reduce the impact of such events - although levels of implementation do vary within and between countries. Knowledge of the impacts of weather and climate, and the effectiveness of health protection measures can and should be improved. This is the starting point for considering the health impacts of climate change - but more is required.

The Intergovernmental Panel on Climate Change (IPCC) (the body that assesses the scientific evidence) has concluded that climate change has already begun to affect many physical and biological systems<sup>1,2</sup>. In India, this would include long-term drying, an increased rate of glacial retreat and earlier spring melt, and an increase in the frequency of very hot days

and a decline in the frequency of very cold days. The observed changes in global climate are occurring faster than was predicted by climate science in the 1990s.

What are the implications of climate change for human health? Scientific reviews, such as that from the IPCC<sup>3</sup>, demonstrated that the risks to health are many and varied. Some climate and weather factors act directly and relatively predictably - such as health effects of heat waves, or the physical and psychological consequences of floods. Various temperature-sensitive biological processes are involved in infectious disease transmission, such as the growth of bacterial pathogens or the maturation of parasites inside disease vectors. But whether the longer-term (decadal) changes in climate actually entail a change in health status will depend on the capacity of the future health system, specifically the future public health system, to control the infectious disease.

Climate is a key determinant of water availability. Surface water availability depends on the timing and volume of precipitation. The current burden of disease as a result of inadequate access to improved water and sanitation has long been recognized, particularly the very high rates of infant mortality in deprived urban and rural areas. There are clear social and economic reasons for the lack of access to improved water at the household level. However, urban populations in both high- and low-income countries have experienced failures in supply due to extreme drought events. It is also known that access to water within cities is not equally distributed, and any reductions in supply are likely to have a greater impact on impoverished populations. The effects of climate change go beyond the gradual geographical spread of disease. Extreme events such as floods, droughts and heat waves will challenge our ability to manage health risks and test

the resilience of societal infrastructure in many fields, including health service delivery.

Impairment of food yields by changes in the prevailing climate, by an increase in extreme weather events, and by heightened risks of infectious diseases pose a threat to population health. This is especially so in food-insecure regions where high levels of malnutrition and child stunting already exist. There are many difficulties in translating the estimates of food availability per capita (what is modelled) to local levels of undernutrition and the related burden of disease. Will improvements in malnutrition be gained quickly enough to avoid the pessimistic projections of climate change?

There are concerns that climate change will affect health more seriously, by increasing poverty. As climate warming progresses, the more indirect effects on health are likely to constitute a greater population health burden than the direct effects. In this, the risks of malnutrition and altered patterns of infectious diseases would be paramount. The most vulnerable populations to the health effects of climate change in the South East Asia Region are the poor, the landless, the homeless, the very young, the elderly, the medically frail and people with disabilities, in particular those living on islands, in mountainous regions, in water-stressed areas, in urban slum areas, and in coastal areas<sup>4</sup>.

Countries need to start preparing for climate change. At the recent Commonwealth Health Ministers Meeting in Geneva<sup>5</sup>, ministers recognised the benefits for both health and climate change of actions to (i) ensure multi-sectoral action across government and civil society and to engage communities in positive responses (ii) develop and implement pragmatic, co-ordinated and evidence-based policies, strategies and adaptation plans, (iii) ensure leadership by the health sector in reducing its own carbon footprint, and (iv) make progress in a fully integrated way across three linked agendas of health equity, poverty reduction and climate stabilisation.

The World Health Organization has been advocating action on climate change for many years and has recently developed a work plan for supporting countries in addressing climate change. A Framework for Action for the South East Asian Region has also been developed that recommends a range of actions including improved research and information sharing<sup>6</sup>. All countries need to incorporate climate change

issues into their mainstream decision making. With respect to health, this will include an assessment of how climate change will affect current public health and disease control strategies. The health implications of adaptation strategies outside the health sector also need to be considered. Addressing climate change will require an improved understanding of climate and environmental risks to health and so requires an improvement in research capacity in public health.

There will always be uncertainties about the magnitude of adverse impacts of climate change. The burden of effects will fall predominantly on those populations who have contributed little to greenhouse gas emissions, but these considerations should not prevent those nations that have benefited most from access to low-cost fossil fuels from leading the way towards reduced dependence on them. There is now some urgency for nations to agree a new deal at the climate negotiations in Copenhagen, Denmark, in December 2009. The Kyoto Protocol, which came into force in 2005, is the international legally-binding agreement to reduce greenhouse gas emissions up to 2012. Although the commitments are small, the Kyoto protocol represents an important political step in translating the rhetoric about the need for sustainable development into action. Now negotiations are in earnest for reducing emissions in the post-2012 (post Kyoto) period.

Countries will need to employ a range of options for reducing their greenhouse gas emissions, from the promotion of energy efficiency to the use of renewable energy technologies. Such approaches also have the potential to benefit health in the near term<sup>7</sup>. The IPCC report<sup>1</sup> estimated that, at the global scale, the benefits of health can be equivalent to the costs of abatement strategies. The burning of biomass fuel is responsible for a considerable burden of disease, particularly respiratory diseases. Improving access to clean energy therefore has potential to make substantial improvements in the burden of disease in Asian populations.

The climate change concerns need to be seen in the wider context of environmental concerns and sustainable development. There is much the health sector can do. A new report from the World Health Organization highlights several areas where hospitals and clinics can reduce their costs as well as improve the environment<sup>8</sup>. We all need to consider the action we need to take on climate change. "Your Planet Needs You".

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