

EDITORIAL

Health and environment

There is little doubt that the issues highlighted in the editorial of the June issue of the Journal are due to changes in our global ecosystems brought about by population growth and economic development. Evidence shows that the changes to the natural ecosystems over the past 50 years have been more rapid and more extensive than ever before and have resulted in increasing health risks. These risks are due to much broader pressures on the ecosystem than the traditional localized exposures such as pollution of water and food, and poses new challenges to the global health sector.

The causal pathways between environmental hazards and disease outcome are complex, indirect and may be displaced in space and time and therefore difficult to study. For example, while the relationship between access to water, water quality and diarrhoeal disease is direct, water borne diseases are also important indirect contributors to malnutrition. On the other hand, it is much more difficult to measure and attribute to the proportion of diseases that can be related to physical inactivity due to environmental factors such as poor urban design.

Changes in the environment can result in direct health impacts such as those due to floods, heat waves, droughts and exposure to pollutants. They can also result in many indirect effects such as altered infectious disease risk due to changes in vector distribution and vectorial capacity. Fragmentation of habitats further result in new exposures to microbes, vectors and reservoirs of disease resulting in the introduction of new infectious diseases into human populations. Increase in malnutrition may also due to reduced food production, loss of livelihoods and poor living conditions. Changes and stresses of modern society may also lead to deterioration of personal and community mental health and well being.

The proportion of disease attributable to the environment varies widely across different disease conditions as well as across regions. This may be due to the variability in exposure as well as behavioural factors and access to health care. It is estimated that environmental hazards are responsible for 24% of the

total burden of disease world wide and 23% of all deaths. Among children 0–14 years of age, the proportion of deaths attributed to the environment is high as 36% (WHO, 2006). Of the 102 major diseases, disease groupings and injuries covered by the World Health Report in 2004, environmental risk factors contributed to disease burden in 85 categories (WHO, 2006).

There are also the less tangible but important health benefits of the environment that are not captured in mortality and morbidity indicators. The environment provides opportunities for recreational activities, aesthetic appreciation, inspiration and education. These are highly valued by people and play an important role in improving mental health and enhancing the subjective well being of individuals and societies. Studies have shown that exposure to “green spaces” has independent beneficial effects on health and health related behaviours. Populations that are exposed to the greenest environments have the lowest levels of health inequity related to income deprivation (Mitchell & Popham, 2008).

The WHO estimates that environmental factors account for 25% of the total burden of disease seen in Sri Lanka and that 61 disability adjusted life years (DALYs) per 1000 capita per year is lost due to ill health attributable to environmental factors. The estimates also suggest that 44800 deaths per year are preventable through a healthier environment. The risk factors indoor and outdoor air pollution accounts for 4300 and 1000 deaths per year, respectively while a further 800 deaths are attributed to poor sanitation, water and hygiene. The main disease conditions contributing to the burden are road traffic accidents and other unintentional injuries (33.9 DALYs/1000 capita/year), asthma and chronic obstructive pulmonary disease (4.6 DALYs/1000 capita/year), cardiovascular disease, neuropsychiatric disorders and vector borne diseases other than malaria (WHO, 2006).

The data from Sri Lanka point to the need of addressing issues of indoor and outdoor air pollution. Studies have identified the transport sector as the major

pollutant of ambient air while the commonest and most extensive cause of indoor air pollution is the smoke from firewood used for cooking. The indoor air pollution is aggravated by poor housing, inadequate ventilation and overcrowding in households, the underlying risk factors being high population density and unplanned urban growth. The introduction of low cost, more energy efficient low emission cook stoves using solid fuels resulted in substantial benefits for acute lower respiratory tract infections, chronic pulmonary heart disease and ischaemic heart disease (Wilkinson *et al.*, 2009). Studies have quantified the increase in life expectancy from sustained improvements in fine particulate air pollution. It was shown that reductions in air pollution accounted for as much as 15% of the overall increase in life expectancy and that a decrease in 10 µg per cubic meter of fine particulate matter was associated with a mean increase in life expectancy of 0.61 years (standard error 0.2 years) (Pope *et al.*, 2009). A study on urban land transport showed that a combination of active travel and low carbon emission in motor vehicles had substantial public health benefits, from a reduction in number of years of life lost due to cardiovascular diseases and road traffic accidents (Woodcock *et al.*, 2009); two key contributors to mortality and morbidity in Sri Lanka. An added advantage of these environmental approaches is that they also help reduce health inequity.

One of the reasons for slow action towards environmental and climate change issues has been the perception that such measures are “socially uncomfortable and economically painful” (Horton, 2009). However, recent evidence suggests that efforts to mitigate climate change will not only restrict the direct health harm due to the environmental factors per se, but have additional and independent co-beneficial effects on health. These

co-benefits will offset some of the expenditure involved in tackling the environmental issues, an economic impetus for action on the environmental front. The scientific community in Sri Lanka has an important role in conducting research as well as in advocacy, towards minimising threats to the environment so as to maximise the co-benefits on health while achieving economic prosperity.

References

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Lalini Rajapaksa