

## Climate Change and Health: A Caribbean Region Imperative

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Climate change (CC) is recognized as one of the greatest global threats to human health, the environment and economies. The anthropogenic contribution to CC through emitting greenhouse gases (GHGs) is evident and recent years show a buildup of these GHGs in our atmosphere [Intergovernmental Panel on Climate Change (IPCC)] (1).

While emissions of GHGs from the Caribbean region are currently negligible, the projected impacts of global climate change (GCC) will be detrimental [Caribbean Community Climate Change Centre (CCCCC)] (2). Regional climate change and the rise of sea-levels threaten the existence of several Caribbean countries, especially small Island developing states (SIDS) and countries with low-lying coasts. Our region will therefore be disproportionately affected by CC and some changes in the climate are already apparent. For example, from 1960 to 2000, the temperature in the Caribbean region has increased by 1 °C, Stephenson *et al* (3).

The frequency of warm days and nights increased, while the frequency of cold days and night decreased. Climate sensitive vectors of disease such as *Aedes aegypti* mosquitos become more abundant, increasing the risk of more frequent and severe epidemics. Water and food security are undermined. Fragile health systems and public health infrastructures make Caribbean countries especially vulnerable to the consequences of GCC. The impacts of several extreme weather events, such as hurricanes, droughts and flooding, in the last two decades in the Caribbean region portray this vulnerability (2). Economies of Caribbean countries are threatened, *eg*, through adverse effects on tourism and agriculture. The CC ramifications for the region are recognized by the Caribbean Community and Common Market (CARICOM) leaders who significantly contributed in developing the International Paris Agreement at the 21<sup>st</sup> Conference of Parties (COP 21) of the United Nations Framework Convention on Climate Change. Among other objectives, the Paris Agreement aims at keeping global warming below 2 °C and ensuring financial flows consistent with a low greenhouse gas emission pathway and climate resilient development (4, 5).

The health of communities is inextricably linked to the health of the environment. The IPCC projects that the health of particularly lower income populations, predominantly within tropical/subtropical countries, will be

affected. Lower and middle income countries (LMIC) are not able to cope without assistance to prepare and respond to the impacts of climate change on health and their economy (6), besides direct adverse health effects such as, heat-stress, injuries and deaths, CC will affect social and environmental determinants of health leading to malnutrition: food, vector and water-borne diseases, respiratory and mental disorders (7, 8). From a health systems perspective, damage to already weak health systems and critical infrastructures disproportionately impact public health. According to the IPCC, “the actual health impacts will be strongly influenced by local environmental conditions and socio-economic circumstances, and by the range of social, institutional, technological and behavioural adaptations taken to reduce the full-range of threats to health” (9).

The Commonwealth of Dominica is the first Caribbean country to assess climate change and health vulnerability and adaptation (10). This assessment was conducted in response to the Pan American Health Organization/ World Health Organization (PAHO/WHO) strategy and plan of action on CC. Findings conveyed that the effects of CC are already showing (*eg* extreme weather events) and that the changing climatic conditions combined with socio-economic factors are increasing the population’s risk of exposure to contaminated food and water sources. Recommendations of the study emphasized developing a methodology for Caribbean countries, and prioritizing climate and health as a key development issue in the Caribbean. Actions to mitigate effects of CC can be co-beneficial. The building of the boardwalk along the South coast of Barbados is proof of this. The Barbadian boardwalk protects the vulnerable coast against further erosion and flooding and a large number of people utilize it for walking or other physical exercises which in turn can help prevent non-communicable diseases (NCDs).

There are several programmes in the Caribbean region involved with adaptation and mitigation to CC in various sectors, but a unified, coordinated regional response does not yet exist, though that is the intent of the “Regional Coordination Committee on Climate Change” coordinated by CCCCC. The Caribbean region lacks both a comprehensive assessment of the impact of CC on public health and the environment, as well as a strategy to build sustainability and resilience. A strategic programme on CC and health is

needed for the Caribbean region encouraging multi-disciplinary research (through academia) on CC and health and the cross-cutting factors with other sectors. Along with other partners, the Caribbean Public Health Agency (CARPHA) accepts its role to coordinate development and implementation of a roadmap within the CARICOM system, as an integral part of the new Caribbean Cooperation in Health initiative (CCH-IV).

To proactively address the consequences of CC in the Caribbean, CARPHA dedicates its 2017 Annual Health Research Conference to “*Climate Change, the Environment and Human Health*”. The goal of this year’s Conference, in addition to the usual feast of research papers, is to increase awareness regarding the many interconnections of CC with the health and economic well-being of all Caribbean nations and to commence the development of a regional strategic roadmap on climate and health. The Caribbean Public Health Agency 2017, features international and regional presentations and posters. Along with ongoing CC efforts in the region, this year’s Conference hosted by Guyana, will significantly inform the conduct of an asset assessment and gap analysis.

Illustrative examples of existing programmes are the Belize-based, CCCCC or 5Cs, authorized to execute projects under Global Climate Finance; the Barbados-based Caribbean Institute for Meteorology and Hydrology (CIMH) charged with implementing the Building Regional Climate Capacity in the Caribbean (BRCCC); the Trinidad-based Caribbean Agriculture Research and Development Institute (CARDI) active in implementing programmes to increase resilience to CC in agriculture through the offices in Jamaica, Trinidad and Tobago and other Islands; and the Barbados-based, Caribbean Disaster and Emergency Management Agency (CDEMA) programme focussed on building resilience to CC through disasters risk management and the “SMART” Hospitals programme of PAHO/WHO to build resilience to CC in health facilities (11–14).

Integral to the 2017 CARPHA Research Conference is an expert panel of regional and international experts on CC and health. A kick-off meeting of the panel will be held on April 26 2017, preceding the conference. The panel is charged with developing a Caribbean-wide, systems-driven strategic roadmap on CC and health. Areas of emphasis include: a gap analysis, stakeholders, research and training, impact on health and economic development. The roadmap will culminate in a set of tailored strategic imperatives to assure synergy of our programmes. At the pre-conference meeting, the foundation will be laid for the strategic

imperatives as pillars of the roadmap and strategies will be discussed to identify financial support, while assuring that all stakeholders are engaged.

The final roadmap will be presented at the 2018 CARPHA Conference. We commit to a continued multi-year engagement and will provide a status report at each subsequent CARPHA Conference. We congratulate all CARPHA member countries for this important milestone!

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