

## Research on climate change, health inequities, and migration in the Caribbean



On Sept 18, 2017, a few days after Hurricane Irma caused extensive damage to the Caribbean, Hurricane Maria—another category five hurricane—badly hit many islands in the region. Among them was Dominica, a small island developing state (SIDS) of the Caribbean community, located in the Windward Islands between Guadeloupe in the north and Martinique in the south. Dominica was devastated after the passage of Hurricane Maria with at least 30 deaths out of a population of 72 000, and 60% of houses were either gone (blown into the sea or totally scattered in pieces across the island) or severely damaged.<sup>1</sup> Other Caribbean SIDSs, such as Barbuda, were severely affected where the entire population was evacuated to Antigua following the devastation of the island by Hurricane Irma. In light of these effects, we present in this Comment arguments on the necessity for the public health research community to focus more on Caribbean SIDSs in the context of climate change and health inequities.

1 week after the passage of Hurricane Maria in Dominica, Médecins Sans Frontières (MSF) assessed and published a report<sup>2</sup> about the medical and sanitary situation. The MSF report highlights numerous health, social, and environmental issues: structural damages including health centres that were no longer operational, shortages in drinking water resulting from broken pipes, isolation of some areas due to landslides, electrical and telephone line cuts, sewage pipe damages and consequently sewage spilling into rivers, and large piles of debris scattered all over the island.<sup>2</sup>

Carissa Etienne, the Pan American Health Organization Director, declared on Sept 25, 2017, that “we must all cooperate to reduce those factors that are contributing to climate change and to mitigate its health effects”.<sup>3</sup> Climate change has been identified by WHO “as one of the defining challenges of the 21st century, and protecting health from its impacts is an emerging priority for the public health community”.<sup>4</sup> There are very strong indications that human activities contribute to extreme weather events.<sup>5</sup> High concentrations of greenhouse gases in the atmosphere increase temperature on Earth as well as rising and warming seas that in turn contribute to global increases in the

number of very intense cyclones and storm surge risks, and rainfall rates.<sup>6</sup> Furthermore, according to the UN Framework Convention on Climate Change, despite the very low contribution of Caribbean SIDSs to climate change, they are and will continue to be the principal population that bears the burden of these catastrophes. Therefore, SIDSs have climate characteristics and specific socioeconomic situations that place them among the most vulnerable countries to climate change.<sup>7</sup> Moreover, the most deleterious effects of climate change (eg, vector-borne infectious diseases, injuries, malnutrition, and mortality) will have stronger impact on low-income countries.<sup>8</sup>

Climate change is among important factors that contribute to population migrations either across an international border or within a state.<sup>9</sup> The risk of displacements, sometimes repeated, is directly linked to increased vulnerability of populations who live in countries particularly affected by environmental disasters. In Dominica after Hurricane Maria, about 3000 people were displaced in collective shelters.<sup>1</sup> The UN Sustainable Development Goals focus on inter-related issues such as climate action, health, and the reduction of inequalities.<sup>10</sup> However, there is little interest for the study of social inequities in health in the Caribbean community among public health researchers.<sup>11</sup> This trend seems to be confirmed on the basis of a recent search on PubMed. The number of articles indexed and referring to the terms “climate change” and “health” for the past 10 years increased to 6442. However, results decreased to one item for those referring to “climate change”, “health inequities”, and “Caribbean” for the same period, and no document was found if the query included the term “migration”. Therefore, on the basis of this initial search and to the best of our knowledge, we can assume that if research on the links between climate changes and health are undertaken, studies do not focus on the Caribbean about health inequities.<sup>12,13</sup> However, “health outcomes emerge from complex interactions between natural and social systems”.<sup>14</sup>

Climate change is a social justice issue—ie, it will aggravate health inequities that are rooted in both

environmental and socioeconomic factors and are therefore avoidable.<sup>15</sup> Assessment of differential exposures, vulnerabilities, and health risks at individual, local, and national levels would allow the identification of resilience strategies in partnerships with all social stakeholders and institutional sectors while addressing health inequities. Research in public health should be given high priority to Caribbean SIDSs that are, with other low-income and middle-income countries, most vulnerable to the health effects of climate change.<sup>4</sup>

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