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Autonomous household responses and urban governance capacity building for climate change adaptation: Georgetown, Guyana

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ABSTRACT

Governance dynamics and the interplay between inadequate infrastructural investment and institutional inertia undermine the potential of low-income cities in low-elevation coastal zones to become climate change resilient. This paper explores the influence of these factors as well as household socio-economic characteristics on autonomous household adaptation to climate change. Georgetown, Guyana is used as a case study. Empirical analysis revealed that state inability to solve socio-economic, infrastructural and environmental problems led urban households to independently adopt measures aimed at reducing climate change impacts. Spontaneous maladaptation by all households in response to state failure and weak urban governance, however, exacerbated vulnerability to flooding. The paper has global applicability in that it cautions policymakers and practitioners on the shortcomings of spontaneous maladaptation, and provides prescriptions for improved urban governance and spatial planning to facilitate the climate proofing of cities. Furthermore, it highlights the importance and complexities of financing climate change adaptation, and concludes these will continue to constrain the adaptive capacity of vulnerable city populations in the less developed countries of the South, unless developed global partners cooperate.

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1. Introduction

Cities of the developing world that exhibit high vulnerability to climate change are not only hampered by limited adaptive capacity resulting from scarce financial and technical resources, but also lack political will at various governance tiers. For several developing countries, given emerging global climate change trends, a major issue is the high concentration of persons living in low elevation coastal cities located less than 10 m above sea level, which makes them highly vulnerable to flooding and storm surges (Moser and Satterthwaite, 2008). The Inter-Governmental Panel for Climate Change (IPCC, 2013) using a new set of scenarios comprising Representative Concentration Pathways (RCP) predicts increasing global mean sea level rise for the period 2046–2065 and 2081–2100, relative to 1986–2005 (see Table 1). The new IPCC estimates for global mean sea level rise are between 0.26 and 0.82 m by 2100; this is higher than the 0.18–0.59 m projected in the Assessment Report 4 (IPCC, 2013). The IPCC (2013) noted that "as the ocean warms, and glaciers and ice sheets reduce, global mean sea level will continue to rise, but at a faster rate than we have experienced over the past 40 years". These projections will have even greater impact on cities of low-income countries that are located in the low elevation coastal zone (LECZ), and in particular those that are just above or below sea level. In these cities, household autonomous adaptation to climate change impacts is driven by protracted state response and an overall lack of confidence in the ability of the state to minimise losses resulting from climate related hazards. Although household response to state failure appears to be justifiable, more research focus is needed on the impact of spontaneous maladaptation, innovative urban planning approaches, improved urban governance and climate change adaptation financing aimed at building adaptive capacity and resilience in LECZ cities of low-income countries.

Research on climate change impacts in cities has a geographical bias towards economically developed countries. Also, from a regional perspective, studies on Latin America and the Caribbean (LAC) have been fewer than those in Asia and Africa (UN-Habitat, 2011), and are even sparser for the low-elevation cities of the less developed countries (LDCs) of LAC. Further, while a few cities appear to be in the vanguard of adaptation planning and implementation, these are typically those in high-income countries. Additionally, current understanding of urban responses to climate change is largely derived from case-study research on cities in more developed countries, with a focus on mitigation responses, rather than adaptation (Castán Broto and Bulkeley, 2013). Only in recent times studies on adaptation strategies to address growing climate change risks facing cities in the LECZ have gained the attention of some researchers such as Hallegatte and Corfee-Morlot (2011), Hunt and Watkiss (2011), Romero-Lankao and Dodman (2011) and Satterthwaite et al. (2009). Moreover, a much-understudied aspect of research is the important role of spatial planning in adaptation to climate change which has been highlighted by Hurlimann and March (2012).

Many cities around the world – including those in LAC – were originally settled on dangerous sites prone to flooding and storm surges, as coastal locations were attractive for purposes of trade and territorial control (Huq et al., 2007). These earlier settlement patterns, accompanied by the development of colonial port cities, occurred when climate change was not a global threat. Today, many low-income cities faced with increasing natural hazards are least equipped to deal with the threat of climate change. They suffer from prolonged unsustainable urban management practices such as poorly selected sites for urban settlement, weak enforcement of development standards and policies,

Table 1
Global mean sea level rise projections for years 2046–2065 and 2081–2100 (metres).

Scenario	2046–2065		2081–2100	
	Mean	Likely range	Mean	Likely range
RCP 2.6	0.24	0.17–0.32	0.40	0.26–0.55
RCP 4.5	0.26	0.19–0.33	0.47	0.32–0.63
RCP 6.0	0.25	0.18–0.32	0.48	0.33–0.63
RCP 8.5	0.30	0.22–0.38	0.63	0.45–0.82

Source: IPCC (2013).