

ABSTRACT

WATER DILEMMAS, VULNERABILITY AND ADAPTATION TO PERCEIVED CLIMATE CHANGE IN CARIBBEAN SMALL ISLAND STATES

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Fragile ecosystems, nature-based livelihoods, poor data collection and extreme susceptibility to climate change impacts are typical of SIDS. As a result, assessing the vulnerability of SIDS to climate change is critical so that appropriate actions can be taken to protect them from environmental, social and economic loss. This thesis is based on diverse watersheds in two Caribbean SIDS. The first main paper modified an existing Livelihood Vulnerability Framework. From this, a Livelihood Vulnerability Index (LVI) was measured for three communities in the Nariva watershed, Trinidad and Tobago, a Ramsar site. The LVI was created using six key components: environmental, physical, social, human and economic capital, as well as natural disaster occurrence and climate variability. Results revealed that Nariva had a medium level of vulnerability. Most of this was due to low levels and diversity of crops and livestock assets, perceived declines in flora and fauna diversity, in addition to perceived lower levels of freshwater quality and quantity. Conversely, the region had good physical capital, including very good water storage capabilities, however, some communities relied largely on rainwater harvesting or community tanks as a source of water. The region now faces the dilemma of meeting increasing demand for water piped to homes, which may attract additional homeowners and hence greater environmental stress on this Ramsar site.

The second main paper modelled household awareness of climate change and key factors affecting the use of adaptation strategies using a Heckman probit selection model in Carriacou, Grenada. Results showed that just over half (51%) of the respondents were aware of climate change and most (61%) indicated that a lack of information hindered adaptation. Additionally, age, household size, knowledge of climate change, community location and involvement in crop or livestock livelihoods were significant factors of household use of adaptation strategies to combat perceived negative climate change impacts. Moreover, households who perceived climate change impacts on their community had larger families, greater physical assets, owned a vehicle and had greater knowledge of climate change. Community and government policies should therefore seek to provide greater education on climate change issues, with a focus on low-cost adaptation strategies, to help these communities better cope with natural resource declines.

Keywords: Caribbean; livelihood vulnerability index; households; climate change; water; adaptation; Heckman