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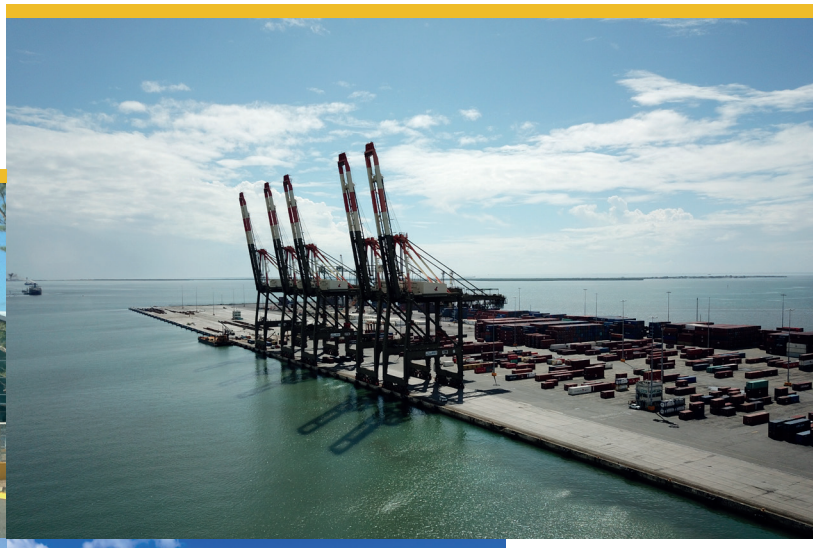
Climate Change Impacts on Coastal Transport Infrastructure in the Caribbean:
Enhancing the Adaptive Capacity of Small Island Developing States (SIDS)

Jamaica:
A case study



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NOTE

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For further information about the project and relevant documentation, see SIDSport-ClimateAdapt.unctad.org.

For further information about UNCTAD's related work, please contact the UNCTAD Secretariat's Policy and Legislation Section at policy.legislation@unctad.org or consult the website at unctad.org/ttl/legal.

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Executive Summary

Jamaica, and other Small Island Developing States (SIDS) in the Caribbean, are especially vulnerable to climate change. This is due to:

- The location of the Caribbean – within the "hurricane alley" of the Atlantic;
- The geographic nature of the islands – typically characterised by small land masses with mountainous inland areas and narrow coastal plains, combined with large population concentrations and infrastructure located in these narrow coastal areas;
- A limited economic base and dependency on natural resources – this results in a very limited financial, technical and institutional capacity for adaptation.

Because of this heightened vulnerability [as further detailed in Chapters 1 and 2 of this report], development of climate change adaptation strategies and policies are of paramount importance to Jamaica at this time in its planning framework. No longer can Jamaica, or any of the other Caribbean SIDS, afford to ignore the looming impacts of climate change on their respective nations.

An examination of the cost of the impacts of climate change on Jamaica was examined in Chapter 2 of the report. The analysis revealed that the current cumulative loss of GDP due to damage associated with natural disasters was estimated to be in the order of $120 billion (roughly 7% of GDP). This is a significant number, which is even more grave given the already slow growth and fragility of Jamaica's economy. When this is coupled with potential climate change induced impacts, such as an increase in the number of extreme hurricanes, the figure is even more worrisome as it is likely to rise. Estimates indicate that it could reach as high as 56 per cent of GDP by 2025 if climate predictions are accurate.

Transportation Sector – Overview and Project Scope

The transportation sector is crucial to Jamaica's economic development; any major disruptions can seriously affect the economic flow and operations of the country. This is because the transport sector acts as a conduit, linking production and service areas to the end users. This link is especially vital in small islands such as Jamaica, where the country's population, by virtue of existing on an island, is cut off geographically from neighbours and trading partners in the Caribbean and North and South America. To address this need, Jamaica has developed a multi-modal transportation system comprising of air, land (road and rail), and maritime transportation. Of all these modes, the United Nations Conference on Trade and Development (UNCTAD) has focused on the ports and airports sectors as being critically important for development. UNCTAD, in recognizing this dependency of SIDS on their port and airport infrastructure, has noted:

> *"access to well-functioning and reliable transportation systems, in particular maritime and air transport systems, is vital [for SIDS]. Seaports and airports are the lifelines sustaining the survival of these States, especially since they are highly dependent on transport-intensive imports for much of their consumption needs, for example food and energy. While maritime transport accounts for nearly 80 per cent of world merchandise trade by volume, this share is higher for SIDS. Although maritime transport is the predominant mode used to carry cargo and freight, air transport is relied upon primarily for passenger and tourist transport and domestic inter-island shipping and mobility."* – UNCTAD Trade & Development Commission. Multi-Year Meeting on Transport, Trade Logistics and Trade Facilitation. Third session. Geneva. November 24–26 2014. Item 3 :- Small island developing States: Challenges in transport and trade logistics. (TD/B/C.I/MEM.7/8)

Ports and airports are therefore critical to Jamaica's economy. They are required to provide necessary food imports into the country, as Jamaica cannot produce enough to feed its people and meet other vital consumer needs, such as oil and gas to power its electricity producing plants and cars, among other things. Additionally, ports and airports are gateways to bring persons to the island for tourism, which is a major foreign exchange earner. It is noted (World Travel & Tourism Council – Jamaica Economic Impact 2015) that the direct contribution of the travel and tourism sector to the island's GDP in 2015 was 8.5%, and this was projected to increase to 11.6% by 2025. When the wider effects from investment, the supply chain and induced income impacts are factored in, these numbers rise to 28% and 37.5% respectively, further underscoring the importance of the transportation sector to the Jamaican economy.

Project Objective and Outline

The criticality and importance of the transportation sector in Jamaica is undeniable, as is the particular vulnerability of those same transportation facilities along the coastline. It is therefore crucial that climate change impacts for these facilities be properly understood, and that adaptation strategies and a comprehensive procedure for their strategic implementation be developed in tandem. In recognizing this need, the United Nations launched a capacity building project on "Climate change impacts on coastal transport infrastructure in the Caribbean: Enhancing the adaptive capacity of Small Island Developing States (SIDS)", which is being implemented by the United Nations Conference on Trade and Development (UNCTAD).

The underlying purpose of this initiative, which draws on UNCTAD's earlier relevant work in the field, is to strengthen the capacity of policy makers, transport planners and transport infrastructure managers in SIDS to (a) understand the full range of climate change impacts on coastal transport infrastructure, in particular seaports and airports; and (b) take appropriate adaptation response measures. This report represents the case study for Jamaica. In support of the objectives of the project, the following steps will be undertaken within the body of this report.

1. In Chapter 2, Jamaica as a nation is described for the general reader in terms of its geography, its population, its economy and its social issues. It is felt that this is a necessary component of framing the overall project within a context specific to Jamaica.
2. A thorough review of the State of Jamaica's climate is then undertaken in Chapter 3 to develop an understanding of the current climate conditions in the island, the climate trends as they have existed up to this point, and the future climate projections based on current climatic modelling.