

HL Panel discussion at COP 25, Madrid

“Climate resilient transport infrastructure for sustainable trade, tourism and development in SIDS”

co-organized by UNCTAD and UNEP

(with support of Germany, in collaboration with the OECS Commission, Commonwealth Secretariat, UNFCCC and ISO)

Tuesday 10 December 18:30-20:00 Room 5

Seaports and coastal airports are critical infrastructure assets that serve as catalysts of trade, economic growth and development. For SIDS, ports and coastal airports are lifelines for external trade, food and energy security, and tourism, often one of the main drivers of economic development and prosperity, as well as in the context of DRR. Compelling scientific studies (IPCC, 2014; IPCC, 2018) project that climate change will increase the hydro-meteorological hazards for the coastal transport infrastructure of SIDS, with potentially significant socio-economic consequences. Climate-related extreme events affecting coastal transport infrastructure, trade and tourism are also likely to exacerbate existing challenges, making resilience-building and effective adaptation action an urgent imperative. Trade is dependent on well-functioning and climate-resilient transport infrastructure assets. At the same time, trade can help create climate, economic and social resilience by promoting Environmentally Sound Technologies, interconnectivity, diversified production, enhanced productivity and adding value to exports. Building resilience for and through trade needs to be part of the solutions to the climate crisis. Coastal hazards for SIDS critical transport infrastructure are projected to increase significantly in the 2030s (IPCC 2018), when the 1.5 degrees warming level is likely to be reached. UNEP’s Emissions Gap Report has made clear that we are in a climate emergency and cannot afford to waste a single day. The world is looking to the Climate COP 25 in Madrid for leadership and decisions that answers the scale of the crisis made clear by the science. Against this background, the panel discussion provides a unique opportunity to highlight the important nexus between climate, transport, trade, and tourism and to propose concrete actionable measures to address the challenges SIDS face.

Speakers:

- Gonzalo Muñoz, High-Level Champion of Chile for COP 25 (opening remarks)
- Inger Andersen, Executive Director, UNEP (opening remarks)
- Hon Simon Stiehl, Minister for Climate Resilience, the Environment, Forestry, Fisheries, Disaster Management & Information, Grenada
- Rt Hon Patricia Scotland QC, Secretary-General, Commonwealth Secretariat
- Ambassador Peter Thomson, UN Secretary-General's Special Envoy for the Ocean
- Isabelle Durant, Deputy Secretary-General, UNCTAD
- Youssef Nassef, Director, UNFCCC Adaptation Programme

Moderator: Dr Koko Warner, Manager, Impacts, Vulnerability and Risk, UNFCCC

Expected outcomes:

- Raise awareness of the important nexus between climate resilient transport infrastructure, sustainable trade, tourism and development in SIDS
- Identify the specific needs for SIDS as related to improve transport infrastructure for trade and tourism in the face of climate change and how trade can better promote climate resilience
- Propose policy recommendations and a plan to catalyze actions and new partnerships

Background and key issues:

Due to their small size and geographic remoteness, Small Island Developing States (SIDS) suffer from “double exposure” to external economic and environmental shocks. They are also characterized by limited connectivity to major international transport networks, disproportionately high transport costs and a relatively narrow resource and export base. Many SIDS are highly reliant on trade, with tourism often being a key export sector and important source of income and employment. Access to international markets is exclusively facilitated by seaports, and by airports which, due to terrain constraints, are mostly located at the coast.

Many SIDS face particular threats from climate change, such as increasing mean and extreme sea levels, changing wave patterns and rising temperatures, which increase the exposure of their critical transport infrastructure to damage, delays and disruption. At the same time, climate change can induce/exacerbate coastal erosion and coral bleaching with direct and indirect impacts on tourism and trade. SIDS are vulnerable to extreme weather events, such as tropical cyclones as shown by e.g. the devastating impacts of the recent Caribbean hurricane season 2017 and of Hurricane Dorian in September 2019¹.

Climate change is expected to increase the frequency and severity of such natural hazards, thus increasing the exposure of SIDS’ key transport infrastructure to hydro-meteorological hazards, particularly those associated with sea level rise, storm surges and tropical cyclones (IPCC, 2014; IPCC, 2018). A recent assessment by UNCTAD of the climate change induced impacts on 8 seaports and coastal airports of two Caribbean SIDS (Jamaica, St. Lucia), which focused on the risk of coastal flooding and of potential operational disruptions under different climate scenarios (Monioudi et. al, 2018², see also IPCC, 2018; IPCC, 2019), highlights the importance of climate change adaptation for critical international transportation assets. The study projected severe impacts on coastal transport infrastructure and operations that could cause major disruptions to the connectivity of SIDS to international markets as well as to related economic sectors, such as tourism. Thus, most of the examined assets are projected to experience severe flooding in response to the 1 in 100 years extreme sea level event as early as in the 2030s, when average global temperatures are expected to reach 1.5 °C above pre-industrial levels, unless effective adaptation measures are taken.

The nexus between climate change, transport, tourism and trade

For SIDS, there is a particularly strong nexus between climate change, transport, tourism and trade. The impacts of climate change can affect trade in terms of direct damages to transport infrastructure as well as direct and indirect losses to exports, for example tourism and commodities. This can have significant impacts

¹ In 2017, total damages of the Caribbean hurricane season were estimated as US\$ 320 billion (WMO 2018, https://library.wmo.int/doc_num.php?explnum_id=4453). Dominica’s damages/losses from hurricane Maria alone have been estimated to be in excess of 200 % of its Gross Domestic Product (GDP) (Gov. Dominica, 2017). The costs of the effects of the tropical cyclone Gita to Tonga in 2018, the strongest to hit the Pacific island, has been estimated as approximately US\$ 161.1 million (Government of Tonga, 2018). The total cost of impacts/effects of the 2019 hurricane Dorian on the Bahamas has been estimated at US\$ 3.4 billion, with hundreds dead or missing and impacts on the economy that will last for years (IDB, 2019, <https://www.iadb.org/en/damages-and-other-impacts-bahamas-hurricane-dorian-estimated-34-billion-report>).

² Monioudi, I.N., Asariotis, R., Becker, A. et al. Reg Environ Change (2018) 18:2211–2225. Climate change impacts on critical international transportation assets of Caribbean Small Island Developing States (SIDS): The case of Jamaica and Saint Lucia. doi 10.1007/s10113-018-1360-4, <https://rdcu.be/Q1OY>. See also [SIDSport-ClimateAdapt.unctad.org](https://sidsport-climateadapt.unctad.org).

on livelihoods, economic, social, and environmental assets, and adversely affect the overall sustainable development prospects of these vulnerable nations.

Because of SIDS' heavy reliance on maritime and air transport infrastructure, climate change-driven impacts on transport assets (and/or transportation demand) may have broad ramifications. Climate induced disruptions affecting the facilitating transportation assets may lead to devastating economic impacts ([World Travel and Tourism Council, 2018](#)), exacerbating existing challenges and causing substantial damage, delay and disruption to supply chains, international trade flows and tourism. They may also affect fisheries value chains (perishable goods), which are highly dependent on timely and efficient port, airport and transport services. By the same token, adverse impacts of climate change on sectors of the economy that can affect transportation demand, may also have potentially important implications.

Many SIDS are popular tourist destinations, with tourism accounting for over one quarter of the GDP in at least seven SIDS and representing 9% of overall exports (US\$ 61 billion) ([UNWTO, 2014³](#)). The Caribbean Development Bank has estimated that a 1% reduction in tourist arrivals could cost the Caribbean region US\$ 137 million in lost revenue ([Barrow, 2017⁴](#)). Tourism development in SIDS is dependent on air connectivity ([UNWTO, 2014](#)), with cruise-ship tourism becoming increasingly important, and on the aesthetics and health of the environment, especially coastal ecosystems like sandy shores (beaches), coral reefs, seagrasses and mangroves.

Pristine beaches are a primary natural island resource supporting the dominant 3S ('Sea-Sand-Sun') tourism model of SIDS. However, beaches (and relevant backshore infrastructure/assets) will be increasingly exposed to coastal erosion and flooding under the projected mean sea level rise and extreme storm events. A recent assessment of beach erosion under climate change for the island of Saint Lucia ([UNCTAD, 2017a⁵](#)) estimated that about 40 % of the island's beaches will lose at least 50 % of their current carrying capacity, and 20 % will be completely overwhelmed by 2050. Mitigation of beach erosion/retreat from the projected mean sea level rise alone, would require up to 3.1 million cubic meters m³ of suitable beach replenishment material. In terms of backshore asset exposure, at least 16 % of those beaches presently fronting infrastructure/assets will be completely eroded during the 1 in 100 years extreme storm event, suggesting substantial backshore infrastructure and asset damage, even in the case of a post-storm beach recovery.

Ecosystems provide vital services, including defense against natural disasters and coastal erosion, as well as contribution to soil and sand formation⁶, nutrient cycling, and the regulation of climate and diseases. However, these ecosystems have been subjected to increasing degradation and exposure to climate change. For example, coral reef surveys over a period of 30 years revealed that coral reef cover in the Caribbean has

³ World Tourism Organization (UNWTO), 2014. Tourism in Small Island Developing States, Building a more sustainable future for the people of Islands, <https://www.e-unwto.org/doi/book/10.18111/9789284416257>

⁴ Barrow J., 2018. Addressing the challenge of climate change adaptation and resilience building for key international transportation assets: Perspectives. UNCTAD Regional Workshop 5 –7/12/2017, Bridgetown, Barbados, "Climate Change Impacts and Adaptation for Coastal Transport Infrastructure in the Caribbean", https://sidsport-climateadapt.unctad.org/wp-content/uploads/2018/03/JBarrow_CTO_BBWorkshop_p017_en.pdf

⁵ UNCTAD, 2017a. Climate Change Impacts on Coastal Transportation Infrastructure in the Caribbean: Enhancing the Adaptive Capacity of Small Island Developing States (SIDS), SAINT LUCIA: A Case study. UNDA Project 14150. https://unctad.org/en/PublicationsLibrary/dtltlb2018d3_en.pdf

⁶ Peduzzi P., et al., 2013. Integrating the role of ecosystems in disaster risk and vulnerability assessments: Lessons from the Risk and Vulnerability Assessment Methodology Development Project (RiVAMP) in Negril, Jamaica. In FG Renaud et al., (eds), The role of Ecosystems in Disaster Risk Reduction, United Nations University Press (ISBN 978-9280812213), 109-139.

declined by up to 80%, a result attributed largely to continued and unabated pollution, sedimentation, over-fishing and increasing seawater temperatures⁷. Coral reefs will face extreme challenges and decline under climate change, particularly if temperatures increase more than 2 degrees above pre-industrial levels (IPCC, 2018). Local ecosystems and their services are not only important for the tourism sector; they also support other key export sectors such as agriculture. For example, 52% of Grenada’s exports are nutmeg, tuna, albacore and cocoa beans.

While trade is highly dependent on well-functioning transport infrastructure, which in the case of SIDS is particularly vulnerable to the impacts of climate change, it is also an important tool for building climate resilience. It can do so by promoting diversified production, including into green sectors, enhancing productivity and adding value to exports. Trade can also play a key role in scaling up Environmentally Sound Technologies that support mitigation and adaptation of climate change, and creating more resilient transport systems – those that are able to resist and/or adapt to climate change and other environmental and economic shocks. In terms of natural hazards, trade can support resilience-building efforts by enhancing:

- Preparedness - in terms of trade in goods, services and technology required for the deployment of early warning systems;
- Response – in terms of access to indispensable goods and services, including critical medicines, food and health services; and
- Recovery – in terms of expediting the movement of goods across borders and enabling countries to ‘build back better’ and reduce vulnerability through the construction of climate-resilient infrastructure.

Climate-resilience building and adaptation for transport, trade and tourism, protecting ecosystems-services and harnessing ecosystems approaches to adaptation, can thus be considered as “a double dividend”. It will also bring business opportunities and social benefits such as job creation and economic empowerment of women. Recent UNEP report found that developing countries’ exports of EST goods has doubled since 2006. Many developing countries have transformed from net importers to net exporters of Environmentally Sound Technologies. Yet, SIDS have not yet fully harnessed such opportunities. There’s great potential for them to connect to regional and global value chains of Environmentally Sound Technologies, including technologies that are used for climate change adaptation, resilience-building and sustainable infrastructure.

Way forward/ Call to action

Enhanced climate resilience and adaptation for (critical) transport infrastructure is a matter of strategic socio-economic importance and will be key in achieving progress on many of the Sustainable Development Goals. The 2019 Climate Action Summit convened by the Secretary-General of the United Nations aimed to galvanize action in six portfolios, which include ‘Resilience and Adaptation’, ‘Nature-based Solutions’ and ‘Infrastructure, Cities and Local Government’. The importance of climate-resilient transport infrastructure has also been highlighted in a resolution adopted by the UN Environment Assembly 2019 on sustainable

⁷ UNFCCC, 2007. Vulnerability and adaptation to climate change in small island developing states, https://unfccc.int/files/adaptation/adverse_effects_and_response_measures_art_48/application/pdf/200702_sids_adaptation_bg.pdf

Background paper for the expert meeting on adaptation for small island developing States, available at: https://unfccc.int/files/adaptation/adverse_effects_and_response_measures_art_48/application/pdf/200702_sids_adaptation_bg.pdf

infrastructure. Recently the European Parliament has voted to declare a Climate Emergency⁸. As UNEP's Emissions Gap Report has shown, countries need to triple their ambitions in order to meet the Paris Agreement targets. 2020 is a moment in time to triple ambition, including actions on adaptation and resilience-building.

Multifaceted approaches to adaptation and resilience building for coastal infrastructure assets and important ecosystems and natural resources will be required to ensure the sustainable transport, trade, tourism and development prospects of SIDS under a changing climate. In this context, some key considerations include, *inter alia*, the following:

- *Good understanding of the relevant risks and vulnerabilities* based on accurate information is a prerequisite for informed decision making. However, there are still important knowledge gaps about vulnerabilities, as well as the specific nature and extent of exposure that individual coastal transport facilities may be facing (UNCTAD, 2017b)⁹. Improving data availability as well as strengthening cooperation among decision-makers, public and private sector stakeholders and the science community are needed.
- *Detailed assessments of the vulnerability of international transport infrastructure* in SIDS under climate change will be required to inform policies and plans for efficient and timely adaptation responses.
- *Mainstreaming climate change considerations* into coastal transport infrastructure planning and operations along with pursuing *policy coherence* among transport, trade, tourism and overall sustainable development planning and decision-making processes could provide a solid basis for working towards enhanced resilience.
- *Innovative and mixed adaptation responses* (regulation, management and technical measures) will be needed, including 'soft' and 'hard' adaptation measures.
- *Developing trade policies that mutually support economic and environmental goals* and fully consider how trade levers can be harnessed to drive climate action and help build resilience.
- *Ecosystem approaches* to adaptation and action to promote ecosystem services are important elements in any future strategy to address the climate change challenge that SIDS face. Investing in protecting and restoring ecosystems, and other nature-based solutions to climate resilience, can be lower cost and more effective in delivering services than traditional "grey" infrastructure.¹⁰
- *Beach nourishment schemes and inventory of beach replenishment* deposits and their sustainability should be ensured as a matter of priority.
- *Legal / regulatory approaches* have an important role to play in achieving public policy objectives and in creating an enabling environment. Examples include: i) Directive 2014/52/EU of the European Union which requires consideration of climate change impacts as part of environmental impact

⁸ The concept of a climate emergency has been recently defined as a function of: the probability of a damaging event, the severity of the impacts and the urgency to respond, i.e. the ratio between the time needed to respond effectively over the time available. See Lenton et al., 2019. Climate tipping points — too risky to bet against, Nature, 2019.

https://www.nature.com/articles/d41586-019-03595-Q?fbclid=IwAR0axCO7TmkJ34bprB2948XqNQUXPr8tMX4VZjz4AC6dm_f7uvH37hUSMQo

⁹ UNCTAD, 2017b. [Port industry-survey on climate change impacts and adaptation](#)

¹⁰ IUCN, 2016. Nature-based Solutions to address global societal challenges

- assessments for projects such as transport infrastructure; ii) climate risk disclosure requirements for port authorities (e.g. United Kingdom Climate Change Act, 2008); iii) requirements for state agencies to take into account current and future impacts of climate change in relation to infrastructure (Public Resources Code, State of California, 2016).
- *Standards, guidance, and methodological tools for organizations and facilities* are of key importance. An important recent example is the development of *ISO 14090 'Adaptation to climate change – principles, requirements, guidelines'* (June 2019), the first international standard on climate adaptation that covers *any organization*, encourages and *facilitates a structured and flexible approach to decision-making* and *mainstreaming* of climate change considerations into planning and decision-making. Other examples include guidelines for ports which are being developed by industry organization PIANC and methodological frameworks, such as developed by UNCTAD (['Climate Risk and Vulnerability Assessment Framework for Caribbean Coastal Transport Infrastructure'](#)).
 - *Integrating coastal transport resilience-related aspects into relevant Party communications under the UNFCCC* to be considered, in particular with a view to ongoing efforts on National Adaptation Plans (NAPs) and the next round of NDC submission (2020). For example, the INDC of the Maldives covers specific actions to strengthen the resilience of coastal transport infrastructure by referring to the international airport and seaports as "crucial infrastructure" and listing climate change adaptation measures.
 - *A number of different multilateral agreements* are in place (including the Sendai Framework, Paris Agreement, WTO Agreements), but these need to better work hand-in-hand to ensure trade connectivity when it is most needed. They need to support countries in aligning objectives and defining the right policy mix; regulation and climate-resilience infrastructure that helps boost sustainable supply side capacity and sustainably restore trade, recovery and mobility after a disaster.
 - There is a *need for more systemic approaches and system reform* to better respond and reduce the likelihood and impact of climate change. To this end, coordinated action that cuts across policy domains is required, as are partnerships and strengthening of countries' capacities to use trade as a vehicle for harnessing the "double dividend" of economic and environmental resilience.
 - *Technical capacity is required* for i) assessment of risks and selection of adaptation options (using e.g. multicriteria-analysis, cost-benefit analysis, decision-tree) to avoid maladaptation and over/under-engineering; ii) implementation of standards, as well as development of new standards to ensure these are effective and 'fit for purpose'.
 - *Accelerating efforts to foster technology uptake and eliminating obstacles in accessing adequate climate finance* instruments are indispensable, also to avoid further widening of the adaptation finance gap (former estimates ranged between US\$ 70 billion and US\$ 100 billion per year globally by 2050 with recent projections estimating higher costs, [UNEP, 2014; 2018](#)).
 - *Explore how development assistance, such as Aid for Trade (which constitutes 30% of total ODA) can be better harnessed to support climate resilience and adaptation efforts in SIDS*. For example, Aft investments targeted at sustainable infrastructure can enable countries to more effectively adapt to climate change and respond to natural hazards.