

Collection of key message/recommendations received from the panelists

- to start off the discussion on ways forward



- Adapting seaports to climate change is urgent and presents significant challenges (technical, capacity and finance, governance, management, policy and legislation). To address these effectively requires concerted collaborative action, involving all stakeholders governments, industry, civil society, science, academia.
- There is an urgent need for strong legal/regulatory and policy frameworks to underpin effective adaptation and adequate financing, including for risk assessment capacity building
- The UNFCCC process provides important entry points for addressing climate change impacts on ports, including the process of formulating and implementing National Adaptation Plans. These enjoy mandated funding from the Green Climate Fund and offer good opportunities for concrete medium- and long-term support.
- There is a need for raising awareness and building capacity for assessing climate impacts, vulnerability and adaptation for ports as a consolidated though cross-cutting "single" area within the UNFCCC assessment processes. At the moment this assessment is dispersed across the different sectors and areas which depend on ports, and which may not capture the full picture in its entirety.



- Rising seas will result in more frequent catastrophic events, e.g. a once in a 100 years extreme
  event can occur every year towards the end of the century. The result is that without additional
  protective measures annual losses from coastal flooding can increase by 100 to 1000 times.
- GHG emissions mitigation can reduce 40% of the above losses, while adaptation could prevent 95% of them. Adaptation is highly beneficial for areas with urbanization and action may be needed at only 19-23% of the European coastline, depending on the GHG emissions scenario.
- Ports are at the climate change 'front line' especially insofar as extreme weather events are
  concerned yet levels of preparedness are often low. Urgent action is needed, informed by an
  understanding of the consequences of inaction, to strengthen resilience and adapt
- We need to change how we think about the design of port (and other types of) infrastructure.
  The many uncertainties inherent in climate change make it impractical to design for every
  eventuality and locking into one scenario risks maladaptation. A better option is to seek out
  flexible designs that can be modified as conditions change and/or to incorporate engineered
  redundancy where appropriate.



- Policy makers should support the development of flexible sea level rise regulatory guidance documents for infrastructure engineers
- Need to develop a clear vision for the Arctic Area with regards to shipping and port infrastructure that should involve a bottom-up approach and small-scale start-up
- Ports (in the Arctic) should be treated as system components, a re-evaluation of the planning
  process of ports and its governance is needed through a 'balanced approach to development',
  as well as capacity building for further communication, education, and training.
- There are no significant technological barriers to adapting to sea-level rise, and adaptation will be sequential. Adaptation is possible even for sea-level rise greater than 5 m.
- The **cost of adaptation represents a substantial "environmental tax"** that will burden the societies that have to pay for it.



- Policy makers should direct funding to support collaboration for long-term resilience planning and develop credentialed training programs for climate change assessment for infrastructure practitioners (e.g., port staff)
- Strengthening resilience and adapting to climate change does not have to be massively
  expensive. Whereas physical measures can be costly, there is much to be gained from nonstructural measures: preparing risk assessments and contingency plans; implementing
  monitoring and early warning systems; prioritising inspection and maintenance; introducing
  flexible ways of working to maximise adaptive capacity...
- Financial, and environmental and social risks that result from climate change impacts are increasingly a focus of investors, rating agencies, regulators and legislators, thereby further pointing to the need for prioritization of climate risk management (adaptation).
- In addition to mitigating material risks and responding to this focus, climate risk management and related business planning may help attract necessary flows for resilience.



- Climate change is not a problem of rich or poor countries, but a global problem that must be tackled globally. Therefore, each entity or individual, within their possibilities and competencies, should not skimp on investing resources to minimize it.
- Emission reduction targets must be ambitious, but at the same time, they must be real and possible, so industry and academia must play a key role in advising regulators to set these targets.
- Ports can actively assist the decarbonization of shipping by: offering incentives to best performing vessels, providing Onshore Power Supply, ensuring safe and efficient bunkering of clean marine fuels, and enabling Port Call Optimization.
- Decarbonization will transform the industry, and require new fuels and energy carriers, new technologies both onboard and in ports and new operational practices; decarbonisation will require joint effort by all parties. We need to make the journey together, shipbuilders, shipowners, ports and shippers.



- Environmental monitoring of Caribbean ports is strongly recommended to be integrated into
  port operational planning. Monitoring should include at least 3 streams: operational;
  environmental/ecological; societal. Monitoring may be done on real-time platforms and analysis
  carried out annually.
- Climate change threatens the existence of SIDS and diminishes their existing human capabilities. Islands lose their habitat and their naturally developed protection, which decreases their economic activity, while rising temperatures affect the health of employees and their productivity. Communities and ports may even be forced to relocate, especially when resilience has not been built.
- Developing a sector-specific climate resilience plan and regional integration can ease the burden on SIDS, and new climate resilient ports shall be designed to assure the future.
- SIDS seaports manage considerable numbers of passengers relative to commercial cargos. The
  reality of Covid 19 has important implications for adaptation, as public health considerations for
  passengers at seaports become even more important
- Given natural vulnerabilities, and in spite of small hinterlands, SIDS also need to build both domestic and regional redundancies. This is a challenge for small shipping markets spread across large maritime geographic regions.

