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Economic Commission for Europe

Inland Transport Committee

Working Party on Transport Trends and Economics

Group of Experts on Assessment of Climate Change Impacts and Adaptation for Inland Transport

Twentieth session

Geneva, 22 and 23 April 2021

Item 6 of the provisional agenda

Guidelines for integrating climate change considerations in planning and operational processes

Consideration of physical climate change risks in transport planning and operational processes*

Note by the secretariat

Background

1. At its ninetieth session, the Group of Experts on Assessment of Climate Change Impacts and Adaptation for Inland Transport agreed to hold workshops during which transport professionals could be consulted on whether and what kind of guidance they require for integrating climate change adaptation considerations in planning and operational processes. As a result, a small group of experts from Ireland, Germany, Netherlands and UNCTAD¹ with the support of the secretariat organized on 26 March 2020 the first workshop on consideration of physical climate change risks in transport planning and operational processes.
2. The workshop focused on discussing:
 - (a) Policies, regulations and standards in support of integrating consideration of physical climate change risks into transport planning and operations,
 - (b) Obstacles for integration of climate change considerations in transport, and
 - (c) Areas in which guidance or assistance is required to help effective consideration of physical climate change risk into transport planning and operations.
3. This document presents the summary of key outcomes from the workshop.

* Geneva and online, 26 March 2021 13:00-17:00 (CET). Under the auspices of the UNECE Group of Experts on assessment of climate change impacts and adaptation for inland transport.

¹ United Nations Conference on Trade and Development

Key outcomes

4. Key outcomes on policies, regulations and standards:
 - Regional, national and/or sub-national climate adaptation strategies and plans are the basis for effective work on adaptation of transport systems to climate change and for making them climate resilient. An important recent development at the EU level includes the proposed EU Strategy on Adaptation to Climate Change.
 - Strategies need to be underpinned by an appropriate legal/regulatory framework. At the same time, it is important that legal and regulatory approaches do not inadvertently foster ‘maladaptation’ that may limit or lock-in future adaptation options. Relevant international legal instruments that may facilitate climate change adaptation for transport include, among others:
 - 1992 United Nations Framework Convention on Climate Change (UNFCCC);
 - 2015 Paris Agreement;
 - 1998 Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters;
 - 1991 Convention on Environmental Impact Assessment (EIA) in a Transboundary Context and 2003 Protocol on Strategic EIA; and
 - 2008 Protocol to the Barcelona Convention on Integrated Coastal Zone Management.
 - Relevant legal and regulatory instruments at the European Union level, including among others, the Flood Risk Directive (2007/60/EC) and EIA Directive (2014/52/EU), underpin the legal framework of its Member States. These instruments may also serve as a reference source for other countries. Proposals for a Regulation on an European Union Climate Law and a Directive on Resilience of Critical Entities specifically address climate change impacts and adaptation for transport are currently under consideration.
 - Various standards and guidelines for adaptation and resilience building are available and should be used, as appropriate:
 - ISO 14090 on adaptation to climate change (www.iso.org/standard/68507.html);
 - RailAdapt (uic.org/IMG/pdf/railadapt_final_report.pdf);
 - Climate Change Adaptation Planning for Ports and Inland Waterways (www.pianc.org/publications/envicom/wg178); and
 - PIARC technical reports (www.piarc.org/en/activities/PIARC-Directory-Technical-Reports/PIARC-Technical-Reports-Cycle-2016-2019).
 - Research and development and more innovation for climate resilient transport is needed – policies and approaches should support research and development, as well as effective climate risk-assessment and innovative technical adaptation responses. For example, in the rail sector, consideration has been given towards building digital infrastructure to build a more adaptive and resilient rail network. Performance-based regulations could be useful.
 - Transport planning and design should incorporate climate change impact and risk-assessment. As appropriate, national legislation should be put in place to make this a requirement. Building and engineering standards also play an important role in implementing adaptation measures and building resilience and need to be updated and further developed in line with conditions under a changing climate.
5. Key outcomes regarding obstacles for integration of climate change considerations in transport:

- Awareness and knowledge in adaptation of transport to climate change are lacking at many levels, which is a considerable obstacle. Relevant concerns relate to:
 - Understanding of future detailed projections and associated uncertainties, including which RCP scenario(s) to choose;
 - How to incorporate climate change considerations into engineering design;
 - Assessment of transport asset in terms of its criticality; and
 - Assessment of vulnerability and conditions under which critical assets would be vulnerable to climate change.

Knowledge needs to be established and shared, awareness needs to be raised. In particular, political support to the work on identifying and creating inventories of critical networks and eliminating vulnerabilities along these networks is important. Business cases should be elaborated to show that transport adaptation pays off.

- Lack of cooperation and effective communication within the transport sector (e.g. including consideration of broader system risks and interdependencies versus climate risks to individual assets) and with other sectors undermines building transportation system resilience. Development of coherent approaches to using climate projections and systemic cooperation should be explored. Collaboration models should be established and promoted – e.g. lead role model, where a lead entity (e.g. port owner) takes a coordinating role with different asset owners and operators in assessing climate risks and identifying potential solutions (e.g. with rail network providers or other port hinterland infrastructure providers); National inventories should be established on critical and vulnerable assets and adaptation policies. Robust risk assessments should be adopted and promoted for adequate use.
 - There are challenges in developing business cases for adaptation (e.g. discount rates, prioritization of greenhouse gas reduction efforts, different asset owners/operators). It is important to demonstrate the costs of inaction and that climate risks are business risks. Cost/benefit analysis should incorporate avoided economic losses associated with impacts. There are many social and environmental costs and benefits to also be considered (e.g. access to hospitals, environmental degradation)
 - Models/matrixes could be elaborated to quantify unavailability of infrastructure service at vulnerable sections under different climate scenarios. Approaches for infrastructure service delivery rather than simple infrastructure delivery should be established – in this way infrastructure managers responsible for service delivery would be more interested in delivering uninterrupted service, and so better address climate change risks.
 - Adaptation is rarely disaggregated from maintenance costs in operators' budgets. This lack of a specific budget creates issues for operators. Additionally, operators sometimes struggle to prepare business cases for adaptation and would appreciate some guidance in this regard. The introduction of the EU Taxonomy for Adaptation will help EU Member States.
 - Adaptation can be difficult to quantify for policy makers and operators, making it more difficult for them to justify or push for adaptation policies.
 - Language and interoperability barriers have been identified as issues between states. There's also a lack of systematic cooperation between states.
 - Adaptation policies may be hampered by sectoral carbon budgets. If so, infrastructure adaptation construction projects should not be stopped by carbon emission reduction policies. Instead carbon offset projects should be developed and managed.
6. Key outcomes regarding areas in which guidance or assistance is required to help with the effective consideration of physical climate change risk into transport planning and operations:
- Six steps for the process of adaptation are acknowledged:
 - Preparing the ground for adaptation

- Assessing climate change risks and vulnerabilities
- Identifying adaptation options
- Assessing adaptation options
- Implementing adaptation
- Monitoring and evaluating adaptation
- Guidance is needed in all of these steps, in particular guidance should help to:
 - Create adaptation business cases and provide tools for doing so including the triple bottom line accounting framework (monetarizing benefits to society and environment as appropriate);
 - Access risk assessment tools and understand their suitability;
 - Clarify timeframes;
 - Clarify how to move from risk assessment to the identification of adaptation options;
 - Explain how to make use of asset management cycles for implementation of adaptation measures; and
 - Inform how to monetize prevention of losses (disruption costs) from the implementation of adaptation options.
- Guidance is more useful if supported by examples of implementation and good practice. A handbook with guidance and good practice examples would be useful.
