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Working Party on Transport Trends and Economics

**Group of Experts on Climate Change Impacts and
Adaptation for Transport Networks and Nodes**

Sixteenth session

Geneva, 29 and 30 January 2019

Item 4 of the provisional agenda

Discussions on the final report of the Group of Experts

The French National Climate Change Adaption Plan

Submitted by the Government of France

This document summarizes adaptation actions for infrastructure and transport systems identified in French national Climate Change Adaptation Plans. The Group of Experts should consider this document and discuss its inclusion in chapter 3 of the final report.

The French National Climate Change Adaptation Plan Measures on infrastructures and transport systems

In accordance with the article 42 of the August 3rd, 2009 programming act regarding the Grenelle Environment implementation, France published in 2011 its first National climate adaptation plan (NCCAP) for a 5-year period. This cross-sector plan deals with 20 different sectors, including transport infrastructures and services. Various measures have been identified. They provide climate change impact analytical means, prevent vulnerabilities of transportation systems and prepare the improvement of resistance and resilience of infrastructure, existing and future, to ensure continuity and security of the services transporting people and goods.

Actions implemented under the 1st NCCAP (2011-2015)

Action 1: Review and adapt the technical standards for construction, maintenance and exploitation of transport systems (infrastructure and equipment)

More than 1000 technical standards have been reviewed regarding specific climate variables (freeze, thaw, temperature, wind, etc.). 241 have been selected and classified into three categories: documents that need to be adapted, documents that do not need to be adapted and documents that need a more detailed analysis.

Action 2: Investigate the impact of climate change on transport demand and its consequences on transport supply

Prospective research on possible developments in passenger and freight mobility and their impacts on transport supply have been conducted. The action concerns the evolution of the modal, geographic and temporal transport split:

- For cities, study the link between planning policy and transport in the city;
- For the air transport, further analysis about air traffic trends in the framework of ICAO.

Cerema published in 2018 a study entitled “*Adapter la mobilité d’un territoire au changement climatique*”, with a focus on how the local authorities, jointly with the infrastructure managers, deal with the issue of adapting the transport systems to climate change.

Action 3: Develop a harmonised methodology to achieve the diagnosis of vulnerability of infrastructure and transport systems for land, sea and air transport

Cerema, a French resource centre for scientific and technical expertise, in support of the definition, implementation and evaluation of public policies carried by national and local authorities, designed a methodology to assess the vulnerabilities of transport infrastructures and their functionalities in a context of climate change. The interim report “*Analysis of the risks incurred by extreme climate events on infrastructures, systems and transport services – collection of concepts*” was published in 2015. Another methodology named “VULCLIM” and based on case studies was previously developed by the French civil aviation administration to assess airport long-term exposure to climate change.

Action 4: Establish a state vulnerability of land, sea and air transport networks

Several vulnerability analyses have been conducted by Cerema and many transport authorities and companies on different transport systems in order to test the applicability of the methodology designed by Cerema.

In December 2018, France published its second NCAAP for another 5-year period with the aim of protecting the population against extreme climate events but also building resilient economic sectors (agriculture, industry, tourism, transport, etc.). It differs from the previous one as it uses a theme-based approach and the transport sector is addressed jointly with other economic sectors.

Actions to be pursued under the 2nd NCCAP (2018-2022)

Action 1: Continue to adapt the technical standards for construction, maintenance and exploitation of transport systems (infrastructure and equipment)

Update the technical standards that have been identified, proceed to a more detailed analysis when necessary and draw an overview of the adaptation action on them.

Action 2: Pursue the vulnerability analyses of transport systems and develop adaptation strategies

The methodology designed by Cerema is to be updated. New vulnerability and risk analyses will be produced by focusing on key areas and few relevant examples. Results will be gathered and assessed. In its context, risk analyses will be pursued by directing the thoughts towards method automation and the development of prioritised adaptation strategies and actions.

The French civil aviation administration is developing an online questionnaire for airport operators to assess independently their infrastructure vulnerabilities.

Action 3: Coordinate a network of experts

Cerema is responsible for coordinating a network of experts on transport systems adaptation to climate change. Experts concerned are parts of the technical and scientific network and transport infrastructure managers. A web platform has been created to share work results and various seminars are organised. Besides, Cerema is building a resource centre on climate change adaptation, not only dedicated to transports, which will foster the exchange of knowledge between the network members. Furthermore, Cerema is involved in several international groups of experts (PIANC, PIARC...) where it promotes its work and share knowledge.

Action 4: Carry out a prospective study on the impacts of changes in the international trade routes

Cerema conducts a prospective study assessing the potential impacts of climate change on ports and gateways, as well as on the flows and nature of goods in France and across Europe. It consists in measuring the effects on transport systems and networks, with a focus on the Northern sea route.