



# Economic and Social Council

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## Economic Commission for Europe

### Inland Transport Committee

#### Working Party on Transport Trends and Economics

##### Group of Experts on Climate Change impacts and adaptation for transport networks and nodes

###### Eight session

Geneva, 14–15 January 2016

Item 4 of the provisional agenda

###### Preliminary discussion on the structure of the final report of the Group of Experts

## Questionnaire

### Note by the secretariat\*

#### I. Mandate

1. In accordance with its Terms of Reference (ECE/TRANS/2015/6), approved by ITC on 24–26 February 2015 (ECE/TRANS/248, paras. 32–35) the Group of Experts is expected to complete its work within two years (2015–2017) and to submit a full report of its accomplishments. The Group of Experts should base its considerations on the previous work of United Nations Economic Commission for Europe (UNECE) in this field, in particular, the output of the Group of Experts on Climate Change Impacts and Adaptation for International Transport Networks and its final report (ECE/TRANS/241) and recommendations published in 2013 and adopted by the Inland Transport Committee at its seventy-sixth session (ECE/TRANS/240, para. 20).

#### II. Questionnaire

2. *Question 1.* To which extent do you consider climate change and/or extreme weather events to be a problem for transport in your country/region (on a scale of 1–10)

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\* The present document was not edited before being sent to the United Nations translation services.

3. *Question 2.* Critical transport infrastructure: Please list below the transport arteries (road, rail, inland water transport) and nodes (ports, airports, freight villages/ logistics centers/ intermodal centers) considered as critical in your country/region and specify their criticality.

**Road Network**

<i>i.d</i>	<i>Line name (European level i.e. E-Roads)</i>	<i>From</i>	<i>To</i>	<i>Passing through</i>	<i>Criticality (Impact of loss of asset: H: high; M: medium; L : low )</i>  <i>1. Estimated number of users affected,</i>  <i>2. Estimated economic loss,</i>
1	E 62 (example)	Nantes	Genova	-Poitiers - Mâcon - Genève - Lausanne - Martigny - Sion - 1 Simplon - Gravelona Toce - Milano - Tortona 2	H M L
...	.....	.....	.....	.....	.....

**Rail Network**

<i>i.d</i>	<i>Line name (European level i.e. E-Rail)_</i>	<i>From</i>	<i>To</i>	<i>Passing through</i>	<i>Criticality (Impact of Loss of Asset: H:high; M: medium; L : low )</i>  <i>1. Estimated number of users affected,</i>  <i>2. Estimated economic loss,</i>
1	E 03	Glasgow	Dover	-Stranraer-Larne-Belfast- Dublin-Holyhead-Crewe- London-Folkestone- 1 2	H M L
x	x	x	x	x	x
...	.....	.....	.....	.....	.....

**Inland Water Transport Network**

<i>i.d</i>	<i>Line name (European level i.e. E--IWT)</i>	<i>River</i>	<i>From</i>	<i>To</i>	<i>Criticality (impact of loss of asset: H: high; M: medium; L : low )</i>  <i>1.Estimated number of users affected,</i>  <i>2.Estimated economic loss,</i>
1	E 40 - E 40-02	River Pivdenny	Buh	Mykolaiv	H M L 1 2
x	x	x	x	x	x
...	.....	.....	.....	.....	.....

**Transport nodes: Ports, airports, freight villages/ logistics centres, intermodal hubs**

<i>i.d</i>	<i>Name</i>	<i>Ports:</i>	<i>Airports :</i>	<i>Freight villages/ logistics centres/ intermodal centres :</i>	<i>Criticality (Impact of loss of asset: H:high; M: medium; L : low )</i>
		<i>Number of ship calls:</i> <i>Container throughput (TEUs, annually),</i> <i>Passenger throughput: Hinterland connections Length (km):</i>	<i>Number of plane calls:</i> <i>Passenger throughput (annually):</i> <i>Cargo throughput: Hinterland connections:</i>	<i>Container throughput (TEUs, annually),</i> <i>Hinterland connections: Services (e.g. customs):</i>	<i>1. Estimated number of users affected,</i> <i>2. Estimated economic loss,</i>
1					H M L 1 2 x .....
x	x	x	x	x	x
...	.....	.....	.....	.....	.....

4. For each transport network/node please provide (if possible) its geographical coordinates. Please follow the instructions below:

5. For nodes: submit geographical coordinates in Decimal Degrees (see <http://www.pgc.umn.edu/tools/conversion> to convert coordinates if necessary). You can use solutions such as <http://umap.openstreetmap.fr/en/> or Google Maps to create and export geographical objects.

6. For lines: submit a table of geographical coordinates of each waypoint creating the line: The table should include the begin and end points and an order number for each waypoint in between. Coordinates in decimal Degrees (see, for example, <http://www.pgc.umn.edu/tools/conversion> to convert coordinates if necessary). You can use solutions such as <http://umap.openstreetmap.fr/en/> to create and export geographical objects.

7. *Question 3.* Do your Government / organization plan any investments in the next 5 years in the above mentioned critical infrastructure? If yes, please specify the investment and indicate its total value (in million US\$)

8. *Question 4.* Do planned investments in the above indicated critical infrastructure consider impacts of extreme weather and/or other climate related factors? If yes, please specify for each investment.

9. *Question 5.* Has any of the critical infrastructure mentioned above ever been impacted by weather and/or climate related factors, including extreme events? If yes, indicate the type and extent of impact (check all that apply):

**Critical infrastructure network or node (multiple entries, i.e. R1, road network 1st entry)**

<i>Damage and or disruption</i>	<i>Small impact</i>	<i>Significant impact</i>	<i>High impact</i>	<i>Do not know / not applicable</i>
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Physical damage

Operational problems

<i>Damage and or disruption</i>	<i>Small impact</i>	<i>Significant impact</i>	<i>High impact</i>	<i>Do not know / not applicable</i>
Delays				
Interruptions				
Other				

10. *Question 6.* Which of the following weather or climate related factors have impacted your critical infrastructure mentioned above (check all that apply)

**Critical infrastructure network (multiple entries, i.e. R1, road network 1st entry)**

<i>Factor</i>	<i>Infrastructure</i>	<i>Toll operations</i>	<i>Crossroads/con nections</i>	<i>Bridges/ tunnels</i>	<i>Other (specify)</i>
Precipitation/floods					
Winds					
Fog					
High temperatures					
Low temperatures					
Low/high river flow					
Mean sea level					
Storm waves and surges					

**Critical infrastructure node (multiple entries)**

<i>Factor</i>	<i>Infrastructure</i>	<i>Operations</i>	<i>Hinterland connections</i>	<i>Equipment (cranes etc)</i>	<i>Other (specify)</i>
Precipitation/floods					
Winds					
Fog					
High temperatures					
Low temperatures					
Low/high river flow					
Mean sea level					
Storm waves/surges					

11. *Question 7.* Over time, has the magnitude of damage and/or disruption caused by weather or climate related events:

<i>increased</i>	<i>remained more or less the same</i>	<i>decreased</i>	<i>decreased due to response measures taken</i>	<i>do not know / not applicable</i>
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Indicate critical infrastructure (multiple entries, networks and nodes)

12. If decreased due to specific response measures taken, please describe (for each critical infrastructure)

13. *Question 8.* Have users of the critical infrastructure requested implementation of effective response measures?

14. *Question 9.* Please provide any other comments/information you would like to submit regarding the above questions

15. *Question 10.* Is there information available on the following climate change impacts that have affected or will potentially affect critical infrastructure in your country/region/organization?

**Indicate critical infrastructure (multiple entries, Networks or Nodes)**

<i>Factor</i>	<i>Yes</i>	<i>No</i>
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Precipitation (average/extreme precipitation) and floods

Temperature (averages and extremes)

Winds (e.g. average and extremes, number of days of high winds)

River water levels

Coastal sea levels and storm waves/surges

16. *Question 11.* If yes, have the observed trends already necessitated or will require adaptation responses?

17. *Question 12.* Please indicate the basis for weather/climate information used in the estimation of impacts and the design of response measures regarding your critical infrastructure (check all that apply)

Observations

Modelling

Modelling validated by long term observations

18. *Question 13.* Are downscaled forecasts or assessments available for your critical infrastructure regarding the following climate forcings and factors? If so, at which time scale? (Check all that apply)

<i>Factor/forcing</i>	<i>10 years</i>	<i>30 years</i>	<i>50 years</i>	<i>&gt; 50 years</i>	<i>Not available</i>
Precipitation (average/extreme precipitation) and floods					
Temperature (averages and extremes)					
Winds (e.g. average and extremes, number of days of high winds)					
River water levels					
Coastal sea levels and storm waves/surges					

19. *Question 14.* At which thresholds do you expect that the integrity and functionality of the critical infrastructure of your country/region/organization will be significantly impaired?

**Indicate critical infrastructure of networks or nodes (multiple entries)**

- Extreme precipitation [mm/day]
- Extreme temperatures (high, in C0]
- Extreme temperatures (low, in C0]
- Extreme wind speed [in km/hr]
- Extreme river water level (high in metres)
- Extreme river water level (low in metres)
- Extreme coastal water levels/storm surges (in metres)

20. *Question 15.* Has your Government / Organization assessed or is planning to assess impacts/vulnerabilities to weather or climate related events for the above mentioned critical infrastructure? If yes, which of the following have been or are going to be considered in these assessments?

**Indicate critical infrastructure network (multiple entries, i.e. R1 road network, 1st entry)**

<i>Factor</i>	<i>Infrastructure</i>	<i>Tolls operations</i>	<i>Crossroads / connections</i>	<i>Bridges / tunnels</i>	<i>Other (specify)</i>
Precipitation/floods					
Winds					
Fog					

<i>Factor</i>	<i>Infrastructure</i>	<i>Tolls operations</i>	<i>Crossroads / connections</i>	<i>Bridges / tunnels</i>	<i>Other (specify)</i>
High temperatures					
Low temperatures					
Low/high river flow					
Mean sea level					
Storm waves and surges					

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**Indicate critical infrastructure node (multiple entries)**

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<i>Factor</i>	<i>Infrastructure</i>	<i>Centre operations</i>	<i>Hinterland / connections</i>	<i>Equipment (cranes etc)</i>	<i>Other (specify)</i>
Precipitation/floods					
Winds					
Fog					
High temperatures					
Low temperatures					
Low/high river flow					
Mean sea level					
Storm waves and surges					

21. *Question 16.* Do you expect that the critical infrastructure in your country/region /organization will be (indirectly) affected by weather and/or climate induced changes to the following? (Check all that apply)

**Indicate critical infrastructure (if applicable, multiple entries-networks and nodes)**

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Migration trends and population settlement patterns affecting capacity

Changes in energy demands

Agricultural production changes

Industrial production changes

Transport modal shifts

Competition issues or trade diversion to other networks/nodes

Supply chain disruptions

Labour shortages

Other (please specify)

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22. *Question 17.* Has your Government / organization mainstreamed weather and/or climate related considerations in planning, design and construction of transport infrastructure? If yes please specify.
23. *Question 18.* Which (hard or soft) adaptation measures involving the critical infrastructure of your country/region/organization do you consider effective, good value for money and an example of best practices?
24. *Question 19.* Please provide any other information you consider relevant.
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