United Nations ECE/TRANS/WP.5/GE.3/38

Economic and Social Council

Distr.: General
20 October 2020

Original: English

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

Nineteenth session
Geneva, 1 and 2 October 2020

Report of the Group of Experts on Assessment of Climate Change Impacts and Adaptation for Inland Transport at its nineteenth session

Contents

GE.20-13839(E)

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I. Attendance

1. The Group of Experts (hereafter called GE.3) on Assessment of Climate Change Impacts and Adaptation for Inland Transport held its nineteenth session (first session under its new mandate) on 1 and 2 October 2020. The session was chaired by Ms. S. Haensel (Germany) and Ms. E Smalley (Canada) and held as a hybrid meeting with virtual participation through webex and in-person participation. It was held in English only due to capacity constraints in providing interpretation service by the Conference Services of the United Nations Office in Geneva.

2. Representatives of the following United Nations Economic Commission for Europe (ECE) member States participated: Canada, Croatia, Finland, France, Germany, Ireland, Netherlands, Poland, Portugal, Russian Federation and Turkey.

3. Representation of the following international organizations participated: United Nations Conference on Trade and Development (UNCTAD), Joint Research Centre (JRC)

4. At the invitation of the secretariat, experts from the following organizations participated: Climate Sense, Climate Service Centre Germany, PKP Polish Railway Lines (PKP PLK), Banedanmark, Federal Autonomous Institute ROSDORNII and University of the Aegean.

II. Elections of Officers (agenda item 1)

5. GE.3 elected Ms. S. Haensel (Germany) as its Chair and Ms. E Smalley (Canada) and Mr. J. Kleniewski (Poland) as its Vice-Chairs. Ms. Haensel and Ms. Smalley thanked GE.3 for their confidence and informed that together with Mr. Kleniewski they would be jointly working in leading the Group in its activities, including through co-chairing of the sessions.

III. Adoption of the agenda (agenda item 2)

Documentation: ECE/TRANS/WP.5/GE.3/37

6. GE.3 adopted its agenda as contained in ECE/TRANS/WP.5/GE.3/37. GE.3 further decided that it would agree in the course of the current session on a plan for attaining the key objectives of its mandate including outputs, activities and timelines. The plan would be updated as necessary at future sessions. The plan is contained in the annex.

IV. Initiatives in climate change impact assessment and adaptation for inland transport (agenda item 3)

Documentation: ECE/TRANS/WP.5/GE.3/2020/1

7. GE.3 discussed initiatives in climate change impact assessment and adaptation for inland transport. The discussion was kicked off with a presentation on ECE/TRANS/WP.5/GE.3/2020/1 by the University of the Aegean.

8. In the discussion, experts pointed to interesting resource material which could be presented in more detail at the future sessions, among them, the World Association for Waterborne Transport Infrastructure (PIANC) adaptation guidelines for inland waterways[1], Railadapt[2] and ISO 14090 framework.

9. UNCTAD informed about its recent repot of January 2020 on Climate Change Impacts and Adaptation for Coastal Transport Infrastructure: A Compilation of Policies and Practices.[3] This report provides recent information/data and sources on climate change trends

[1] www.pianc.org/publications/envicom/wg178
[2] uic.org/IMG/pdf/railadapt_final_report.pdf
[3] unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=2631

and projections, as well as impacts (including costs/economic losses) and highlights some issues for future consideration (includes hyperlinks to all the materials covered).

10. UNCTAD invited experts to its virtual Expert Meeting on Climate change adaptation for seaports in support of the 2030 Agenda for Sustainable Development on 27 and 28 October 2020.[4] Experts interested in this meeting were requested to register online and/or contact the UNCTAD secretariat.

11. UNCTAD also reported on the High-level Panel discussion at COP-25 in Madrid of 10 December 2019 on Climate resilient transport infrastructure for sustainable trade, tourism and development in small island developing States (SIDS).[5] Last but not least, UNCTAD invited GE.3 to consider in its work the Marrakech Partnership Global Climate Action Pathways and Milestones.[6]

12. Moreover, UNCTAD suggested GE.3 considers how to better feature climate change adaptation work in the economic recovery measures taken by countries due to the COVID-19 situation.

13. GE.3 appreciated the exchange of information and references to interesting resources. It requested Climate Sense to liaise with PIANC, International Union of Railways (UIC) and the International Organization for Standardization (ISO) to invite presentations at the next sessions about PIANC's adaptation guidelines for inland waterways, Railadapt and the ISO 14090 framework. It also requested Germany to make a presentation about the stress test methodology, which was used in the project on the Influence of whether and climate extremes on supra-regional traffic flows – Stress test scenario Middle Rhine and was included as case study 6 Chapter 2, part II in ECE/TRANS/283.

14. University of the Aegean volunteered to make articles review from scientific journals on ongoing initiatives in climate change impact assessments and creation and availability of databases with climate projections, as well as with geology maps and provide review summaries at future sessions.

V. Climate change and transport assets data (agenda item 4)

Documentation: ECE/TRANS/WP.5/GE.3/2020/2, ECE/TRANS/WP.5/GE.3/2020/3

15. GE.3 considered ECE/TRANS/WP.5/GE.3/2020/2 introduced at the session by Climate Service Centre Germany on the possibilities Cordex-Core offers in applying consistent ECE region-wide climate projections data set.

16. GE.3 agreed that in analysing future climate impacts it should aim at undertaking a dual approach:

(a) Apply consistent projections based on Cordex-Core for the entire ECE region following the methods of the final report of the former Group of Experts and prepare maps visualising potential climate related-hazards for transport systems. GE.3 considered that this approach would be very valuable in raising the awareness of decision makers in countries across the entire ECE region on the importance and urgency of work on transport system adaptation to climate change, and

(b) Carry out a more detailed analysis of an important international transport corridor and of selected specific geographic regions to present a more detailed and accurate connection to the climate-related hazard.

17. For using Cordex-Core, GE.3 raised a question as to whether or not there were any plans to bias correct Cordex-Core. GE.3 would discuss the bias corrections at the future meetings.

[4] unctad.org/en/pages/MeetingDetails.aspx?meetingid=2358
[5] unctad.org/en/pages/MeetingDetails.aspx?meetingid=2354
[6] unfccc.int/climate-action/marrakech-partnership/reporting-and-tracking/climate_action_pathways

18. GE.3 considered then ECE/TRANS/WP.5/GE.3/2020/3 introduced at the session by Germany on indices for analysing potential climate change impacts on transport assets.

19. GE.3 agreed that in selection of the indices it should be guided by climate change impacts which the transport infrastructure managers across ECE countries would be most interested in. At the same time, in the selection of the indices GE.3 should also be mindful of resource implication needed for the analysis.

20. GE.3 decided to construct a simple survey for consulting transport infrastructure managers on climate change impacts of most interest to them as well as on relevant thresholds of climate indices. Such survey should be uncomplicated, collect information on the infrastructure design thresholds and be circulated by experts within their countries directly to infrastructure managers. The secretariat should also send the survey to infrastructure managers in countries not yet participating in the activities of the Group of Experts and to the various international private sector associations. When constructing the survey, other similar surveys and the lessons learned from their application should also be considered.

21. Climate Service Centre Germany volunteered to assist the secretariat in elaborating the simple survey. The secretariat invited other 2–3 experts to also assist this effort and to contact the secretariat after the session.

22. GE.3 agreed then that the responses to the survey should be analysed, if possible, at the next session in order to advance the discussion on the selection of indices for both approaches.

23. The secretariat informed about its efforts in collecting transport assets data into the ECE Geographic Information System (GIS). Such collection directly from countries through the focal points to the ECE working parties servicing the infrastructure agreements turned out to be challenging. At the same time, the secretariat hinted at a prospect that through a separate project the e-rail network as defined in the European Agreement on Main International Railway Lines (AGC) should be possibly made available in ECE GIS in the course of 2021. The secretariat also explained the challenge with using open source infrastructure data for importing them into the ECE GIS: high-level of details requires substantial time in processing the data. It suggested therefore that for any data import, that a level of detail be appropriately determined. Possibly only roads/rails of international/national importance are used in the analysis for the entire ECE region (approach one in climate projections analysis) while more infrastructure layers are considered for specific geographic analysis (approach two).

24. The secretariat informed then that for the purpose of assessing criticality of transport assets, the only data available was the road and rail traffic data collected by ECE transport statistics through periodic censuses.

25. JRC suggested to explore the open transport map, which was further developed to include transport volumes.

VI. National and sub-national projects on climate change impact assessment and transport asset adaptation needs (agenda item 5)

26. Germany presented results of its research project, phase one, undertaken between 2016 and 2019 on adapting the German transport system to climate change and extreme weather events as well as an outlook for the second phase of the project to be implemented between 2020 and 2025. The presentation in particular discussed three focus areas of the project: (a) description of climate changes, (b) climate impacts analysis, and (c) assessment of adaptation options. For the second phase, the project is to be refocused towards integrated climate change assessment and to emphasize user dialogue.

27. Finland and Ireland reported on initiation of projects respectively on understanding better the adaptation needs for asset management, and on identification of critical infrastructure. Ireland committed to make a presentation at the next session showing interim results from its project.

28. Canada informed about two areas of work: the first related to a program through which climate risk assessments have been undertaken for 45 transport assets to-date, and the other a project exploring the potential need for standardization in the way that vulnerability assessments are undertaken for airports located in permafrost regions.

29. GE.3 welcomed the exchange of information and experiences and stressed such exchange was crucial to advancing the work on climate change adaptation in transport. It also appreciated a systematic and integrated approach to climate change adaptation undertaken in Germany.

30. The exchanges further showed that adaptation work requires professional skill raising for various practitioners involved in transport development and infrastructure maintenance. To this end, GE.3 agreed it should consider during the current mandate how it can best support skill raising endeavors, and whether any specific handbooks should be developed to that end.

31. The Netherlands volunteered to make presentation on ongoing projects in the field of transport and climate change adaptation at the next session.

VII. Database on adaptation measures (agenda item 6)

Documentation: Informal document WP.5/GE.3 (2020) No. 1

32. GE.3 discussed ways for developing a design for a database on adaptation measures for transport assets. This discussion was kicked off with the presentation of Informal document WP.5/GE.3 (2020) No. 1 (referred in the agenda as Informal document WP.5/GE.3 (2020) No. 4) by the secretariat. The presentation focused on the type of information to present in the database such as (a) features and conditions that could make a specific transport asset a "hotspot" due to assessed risks of climate change/extreme events, (b) adaptation measures proposed to minimize the risks, and (c) indicators to measure the usefulness and cost effectiveness of measures.

33. In the discussion, GE.3 agreed to conduct literature and resource review on existing databases. The secretariat informed it would explore if such a review could be undertaken in-house with support of an intern.

34. GE.3 asked Canada to make a detailed presentation on their work linking risk assessment with adaptation needs for selected transport assets. The outcomes of this work, and in particular any established links between assessed risks and selection of adaptation approaches, can be helpful to the discussion on database development.

35. GE.3 also requested Germany to make a presentation on an approach adopted in Germany in their research project to structuring adaptation measures.

36. UNCTAD was invited to present the data requirement sheets on transport assets prepared in their small island developing states (SIDSport-ClimateAdapt) project. These sheets have been developed to collect specific asset parameters for examination in risk assessment.

37. The additional information should help GE.3 to agree on an approach to the development of a database at the next session so as to ensure that the new database is well thought out and scoped so that it adds value to what already exists out there. The development process should start possibly through a small group of volunteers. Ireland and UNCTAD expressed interested to join such a small group. Others interested in participating on this small group are invited to contact the secretariat following the meeting.

VIII. Guidelines for integrating climate change considerations in planning and operational processes (agenda item 7)

38. GE.3 agreed that the guidelines for integrating climate change considerations in planning and operational processes would be an important output. GE.3 further agreed that such guidelines should respond to the needs of different audiences. In this regard, GE.3

concluded that it should engage into a dialogue with the future users of the guidelines before the process of designing them is started.

39. GE.3 decided to organize workshops, also virtually, during which future users of the guidelines, in particular policy makers on the one hand, and planning and operational staff on the other hand, could be consulted on their needs.

40. The secretariat committed to explore with the Working Party on Intermodal Transport and Logistics if the latter would be interested to jointly hold one of such user-dialogue workshops in 2021.

41. Another workshop should be held as a virtual event possibly in the first half of 2021 before the next GE.3 session, so that the conclusions of this workshop could be already considered at the next session.

42. GE.3 agreed to prepare a concept note for the workshops and to agree it through electronic exchanges. Ireland, Netherlands and UNCTAD together with the Chairs and the secretariat agreed to elaborate the concept note.

IX. Other business (agenda item 8)

Documentation: Informal document WP.5/GE.3 (2020) No. 2

43. GE.3 considered Informal document WP.5/GE.3 (2020) No. 2 (referred in the agenda as Informal document WP.5/GE.3 (2020) No. 5) presented by the secretariat on the establishment of a funding project (GE.3 fund) in support of its activities. Such GE.3 fund, established for the duration of the work of the GE.3 (2020–2025), would be managed by the secretariat with funding to be used for (a) facilitation of expert participation in the work of the GE.3, (b) promotion of the GE.3 work at international conferences and events, (c) organization of awareness-raising events, (d) support of national or sub-national projects in countries with little experience in climate change adaptation work, and (e) consultant support in developing knowledge tools such as the database on adaptation measures or the guidelines.

44. The Netherland informed GE.3 that it decided to fund such a project with a grant in 2020 and 2021. The grant should be used in particular for raising awareness on the importance and urgency of work on transport systems adaptation to climate change and thus for supporting participation of experts from countries with economies in transition and developing countries in the activities of the Group.

45. Other experts informed that they would discuss the funding concept in their organizations, with this item to be revisited at the next session.

X. Date and place of next meeting (agenda item 9)

46. GE.3 took note of the fact that its twentieth session was scheduled to take place in Geneva on 22 and 23 April 2021. Due to ongoing COVID-19 crisis which imposes challenges to hosing meetings by United Nations Office in Geneva, the date remains to be confirmed with the re-establishment of the 2021 calendar of meetings.

XI. Summary of main decisions (agenda item 10)

47. The secretariat summarized the decisions taken by GE.3. The full report of the session would be shared electronically after the session for adoption.

Annex

Plan for attaining key objectives of the 2020–2025 mandate

The key objectives of (a) raising awareness, building capacity and integrating knowledge from countries and scientific community on climate change impact assessment and adaption for transport and (b) further advancing the state of knowledge, the analysis of climate change impacts on inland transport and identification of suitable and costs-effective adaptation measures are translated into the following final outputs and interim outputs and activities for GE.3:

Final output	*Interim outputs*	*Activities and timelines*
Maps overlaying climate change projections data with transport asset and operation data for the ECE region in ECE GIS	Climate indices selected for climate change impact projections for approach one (analysis of projections for the entire ECE region) and for approach two (selected geographical areas, transport corridors)	1. Elaboration, dissemination and analysis of a simple survey for understanding demands for climate impact analysis as a basis for selection of the indices (early 2021)
		2. Calculation of climate projections in approach one and preparations of maps (end of 2021, early 2022)
		3. Calculation of climate projections in approach two – establishment of synergies with national projects (between 2022 and 2024)
		4. Fundraising for national projects in interested countries with economies in transition/developing countries (by 2021)
	Transport data (GIS coordinates and traffic data) enhanced in the ECE GIS	1. Update of transport data on rail networks and road/rail traffic data (by early 2022)
		2. Inclusion of more detailed transport networks and traffic data for national projects in approach two (between 2022 and 2024)
Analysis of the climate change projections and possible impacts on transport assets in GE.3 final report	Maps overlaying climate change projections and transport data for approach one	1. Description/analysis of maps for approach one (in 2022)
		2. Hosting of awareness-raising sessions discussing the results of the analysis (from 2022 for the new results)
Detailed analysis of areas of vulnerability to climate change and extreme weather of transport assets and networks in GE3 final report	Maps overlaying climate change projections and transport data for approach two	1. Description/analysis of the maps for approach two (possibly as part of national projects) (between 2023 and early 2025)
Database with adaptation measures	Design of the database	1. Review and assessment of existing databases (by early 2021)
		2. Draft design (by early 2022)
	Population of the database with measures	1. Collection of measures from national projects (between 2022 and 2024)
		2. Release of a database as an online resource (by 2024/when a good number of measures is included)
		3. Inclusion of additional measures (2024–2025)
Guidelines for integrating climate change considerations	Guidelines design	1. Organization of user dialogue workshops to establish user needs (by 2021)

Final output	*Interim outputs*	*Activities and timelines*
in planning and operational processes		2. Elaboration of guidelines design responding to user needs (2021 – early 2022)
	Guidelines development	1. Elaboration of the guidelines (2022–2023)
		2. Testing of guidelines (2024)
		3. Update of guidelines following the tests (late 2024–2025) – establishment of synergies with national projects
GE.3 final report	Analysis of the climate change projections and possible impacts on transport assets and detailed analysis of areas of vulnerability to climate change and extreme weather of transport assets and networks in GE3 final report	1. Compilation of final report (2025)