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## Economic Commission for Europe

### Conference of the Parties to the Convention on the Transboundary Effects of Industrial Accidents

#### Twelfth meeting

Geneva, 29 November–1 December 2022

Item 5 (a) of the provisional agenda

#### Natech risk management:

**United Nations Economic Commission for Europe/Organisation for  
Economic Co-operation and Development Seminar on effective management  
of technological risks of accidents triggered by natural hazards**

### **Effective management of technological risks of accidents triggered by natural hazards in the United Nations Economic Commission for Europe and Organisation for Economic Co- operation and Development regions**

**Prepared by the secretariat, jointly with the Organisation for Economic  
Co-operation and Development and its Natech project steering group**

#### *Summary*

The present document includes background information (context, relevance, objectives and desired outcomes) and the programme of the seminar on Natech (natural hazard-triggered technological accidents) risk management in the United Nations Economic Commission for Europe region and beyond, which will be held on 29 November 2022, within the framework of the twelfth meeting of the Conference of the Parties to the Convention on the Transboundary Effects of Industrial Accidents (Industrial Accidents Convention). The seminar has been prepared by the United Nations Economic Commission for Europe and Organisation for Economic Co-operation and Development secretariats, working in collaboration with the Organisation for Economic Co-operation and Development project steering group on Natech risk management (also comprising representatives of the Joint Environment Unit of the United Nations Environment Programme and the Office for the Coordination of Humanitarian Affairs and the Joint Research Centre of the European Commission) and in consultation with the Convention's Bureau, notably its small group on Natech and disaster risk reduction. The main objective of the seminar is to provide support to United Nations Economic Commission for Europe member States, Organisation for Economic Co-operation and Development countries and others to implement the Convention and to take action to strengthen Natech risk management. On the basis of the seminar, the Conference of the Parties will be invited to consider and adopt a draft decision on Natech risk management in the United Nations Economic Commission for Europe region and beyond (ECE/CP.TEIA/2022/4).

## I. Introduction

1. At its eleventh meeting (Geneva (hybrid), 7–9 December 2020), the Conference of the Parties to the United Nations Economic Commission for Europe (ECE) Convention on the Transboundary Effects of Industrial Accidents (Industrial Accidents Convention) adopted its workplan for 2021–2022 (see ECE/CP.TEIA/42/Add.1, decision 2020/3), which included work to exchange experiences and good practices on natural hazard-triggered technological accidents (Natech) risk management in the framework of a seminar, organized in cooperation with partner organizations. The Industrial Accidents Convention Bureau at its forty-sixth meeting (Geneva (online), 23 February 2021) decided to organize a seminar on Natech,<sup>1</sup> in close cooperation with the organizations members of the Organisation for Economic Co-operation and Development (OECD) Natech project steering group, notably OECD, the Joint Environment Unit of the United Nations Environment Programme and the Office for the Coordination of Humanitarian Affairs and the Joint Research Centre of the European Commission, at the twelfth meeting of the Conference of the Parties, subject to availability of existing resources. The Bureau considered that the topic should be addressed in view of recent accidents and failures at tailings management facilities, and the need to address industrial safety hotspots, as highlighted by the Convention’s long-term strategy until 2030 (ECE/CP.TEIA/38/Add.1, decision 2018/3).

2. The OECD Working Party on Chemical Accidents reviewed and agreed on a draft seminar concept note at its thirty-first meeting (Paris, 19–21 October 2021).

3. Subsequently, the OECD project steering group on Natech, the Convention’s Bureau and its small group on Natech and disaster risk reduction (small group) provided guidance on the seminar’s organization and conduct. The objectives of the seminar were established through dedicated consultations, resulting in the further development of the seminar programme (see annex to present document) and advice on possible speakers and presenters.

## II. Natural hazards, technological risks and industrial accidents: background, relevance and needs in the United Nations Economic Commission for Europe and Organisation for Economic Co-operation and Development regions

4. Natech events play an important role in technological and multi-hazard risk management, including prevention, preparedness and response. Natech risks exist where hazardous industry and infrastructure are located in natural-hazard prone areas. Technological accidents can be triggered by:

(a) Extreme or rare natural hazards, such as earthquakes, tornados, extreme weather events such as floods, extreme precipitation, landslides and mudslides;

(b) “common” natural hazards, such as lightning, high or low temperatures, storms and wind;

(c) Slow onset events, such as sea level rise and permafrost thaw.<sup>2</sup>

5. Data and projections show that the frequency and intensity of natural hazards linked to climate change will increase in the decades to come; and some such hazards may occur at locations where they have never previously been observed. Coupled with growing human expansion in the shape of industrialization and urbanization, which increases vulnerability, integration of climate change risks into Natech risk management is essential to Natech accident prevention, preparedness and response. Trends in vulnerability to climate change have been confirmed by the Intergovernmental Panel on Climate Change (IPCC) report

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<sup>1</sup> CP.TEIA/2021/B.1/Minutes, paras. 25 (d) and 36, available at <https://unece.org/environmental-policy/events/forty-sixth-meeting-bureau>.

<sup>2</sup> United Nations Office for Disaster Risk Reduction, Regional Assessment Report for Europe and Central Asia 2022 (forthcoming).

*Climate Change 2022: Impacts, Adaptation, and Vulnerability*<sup>3</sup> and the United Nations Office for Disaster Risk Reduction (UNDRR) *Global Assessment Report on Disaster Risk Reduction 2019*.<sup>4</sup> Furthermore, the UNDRR *Regional Assessment Report for Europe and Central Asia 2022* (forthcoming) and the European Commission *Overview of natural and man-made disaster risks the European Union may face: 2020 edition*<sup>5</sup> provide additional insights into Natech risk management challenges.

6. Global developments in the number and impacts of Natech accidents are relevant to the ECE and OECD regions and beyond. With respect to the ECE region, according to the IPCC report *Climate Change 2022*, impacts of changing hydrological regimes and increase in extreme precipitation make Europe and mountainous areas of countries of Eastern Europe, the Caucasus and Central Asia particularly vulnerable to extreme weather events caused by the changing climate. With the global impact of climate change, current and future Natech risks pose increasing threats to ECE and OECD member States and other countries globally.

7. In order to secure adequate governance and management of industrial accident risks, the above-mentioned developments call for increased understanding of the natural hazards that may cascade into technological risks. In the conclusions of the “Seminar on good practices and lessons learned in implementing the UNECE Convention on the Transboundary Effects of Industrial Accidents” (Geneva (hybrid), 3–4 February 2022), it was observed that there was a lack of good practices regarding adaptation of industrial accident risk management to climate change and to reduce Natech risks. Thus, to improve understanding of Natech risks and industrial accidents, an increased sharing of practices and reporting of such accidents should be supported, among other things through the present background note and the programme for the seminar on Natech risk management.<sup>6</sup>

### III. Past work on Natech by the Organisation for Economic Co-operation and Development, the United Nations Economic Commission for Europe and partners

8. Natech risks fall under the scope of the Industrial Accidents Convention, as its article 2 (1) covers the effects of industrial accidents capable of causing transboundary effects that are caused by natural disasters. Natural hazards were recognized as an emerging risk in the Convention’s long-term strategy until 2030 (adopted in 2018). The instruments and provisions of the Convention can therefore apply to industrial accidents caused by natural hazards. In terms of disaster risk management, approaches to developing and carrying out risk assessments, contingency planning and land-use planning may change once Natech risks are considered.

9. OECD, in cooperation with ECE and other partners, has led a variety of initiatives to strengthen Natech risk management (see list below), notably: the Natech-I Project and workshop on Natech risk management (Dresden, Germany, 23–25 May 2012); the Natech-II Project and workshop on Natech risk management (Potsdam, Germany, 5–7 September 2018); and the ongoing Natech-III Project (2020–2024), the output of which aims to be supported by the Natech seminar:

(a) Workshop was organized in 2012 in Dresden (Germany), which investigated the specificities of Natech risk management;<sup>7</sup>

<sup>3</sup> H. O. Pörtner and others, eds., contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (n.p., Cambridge University Press, 2022).

<sup>4</sup> Available at [www.undrr.org/publication/global-assessment-report-disaster-risk-reduction-2019](http://www.undrr.org/publication/global-assessment-report-disaster-risk-reduction-2019).

<sup>5</sup> Luxembourg, Publications Office of the European Union, 2021.

<sup>6</sup> See Outcomes of the seminar and ways forward, available at <https://unece.org/environmental-policy/events/wgi-special-session-seminar-good-practices-and-lessons-learned>.

<sup>7</sup> Organisation for Economic Co-operation and Development (OECD), “Report of the workshop on Natech risk management (23–25 May 2012, Dresden, Germany)”, Series on Chemical Accidents No. 25, ENV/JM/MONO(2013)4, available at [www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=env/jm/mono\(2013\)4&doclanguage=en](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=env/jm/mono(2013)4&doclanguage=en).

(b) “Addendum Number 2 to the OECD Guiding Principles for Chemical Accident Prevention, Preparedness and Response (2nd Ed.) to address Natural Hazards Triggering Technological Accidents (Natechs)”<sup>8</sup> (published in 2015), providing specific guidance on how to consider Natech in chemical accident prevention, preparedness and response;

(c) A workshop was organized in Potsdam (Germany) in 2018, which aimed at collecting good practices for Natech risk management across OECD and non-OECD countries;<sup>9</sup>

(d) A record of good practices for Natech risk management was issued in 2020.<sup>10</sup> It includes more than 40 examples of Natech risk management-related activities across countries and from different stakeholders, presented in easy-to-read fact sheets. The record was developed and is hosted by the German Environment Agency;

(e) The publication of a brochure entitled “The Impact of Natural Hazards on Hazardous Installations” to raise awareness of Natech risk in 2022;<sup>11</sup>

(f) The OECD project also provides a forum to follow the development of Natech risk management measures and share good practices and experience in OECD countries and beyond, in cooperation with partner agencies;

(g) As a next step, the development of a guidance document on Natech risk management (planned for release in 2024).

10. In addition to those activities mentioned in paragraph 9 above, a considerable number of activities have been carried out by, or with the leadership of ECE, with a significant increase in the number of activities since the adoption of the Convention’s long-term strategy until 2030:

(a) Continuous consideration of Natech in events organized under the Industrial Accidents Convention, for example, the:

(i) Subregional workshop on strengthening tailings safety in Central Asia (Almaty, Kazakhstan, 20–21 November 2019);

(ii) Global workshop on building climate resilience through improving water management and sanitation at national and transboundary levels (Geneva (hybrid), 29–31 March 2021);

(iii) Focused thematic discussion on chemical and industrial accidents in the framework of the UNDRR European Forum on Disaster Risk Reduction (EFDRR) (Matosinhos, Portugal (hybrid), 24 November 2021);

(iv) Seminar on good practices and lessons learned in implementing the UNECE Industrial Accidents Convention (Geneva (hybrid), 3–4 February 2022);

(v) ECE online side event entitled “Governance of climate and technological risks in transboundary water bodies” (27 March 2022), held during the seventh session of the Global Platform for Disaster Risk Reduction (Bali, Indonesia, 23–28 May 2022);

(b) Consideration of Natech risks at tailings management facilities by the ECE Joint Expert Group on Water and Industrial Accidents, including through the ECE Safety Guidelines and Good Practices (e.g., for oil terminals) and in its preparations of the Joint Expert Group seminar (Budapest (hybrid), 5–6 October 2022);

<sup>8</sup> OECD, Series on Chemical Accidents No. 27, ENV/JM/MONO(2015)1, available at [www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=env/jm/mono\(2015\)1&doclanguage=en](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=env/jm/mono(2015)1&doclanguage=en).

<sup>9</sup> OECD, “Natech Risk Management: 2017–2020 Project Results”, Series on Chemical Accidents No. 32, ENV/JM/MONO(2020)4, available at [www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=env/jm/mono\(2020\)4&doclanguage=en](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=env/jm/mono(2020)4&doclanguage=en).

<sup>10</sup> Available at [www.umweltbundesamt.de/en/topics/economics-consumption/plant-safety/examples-of-good-practice-in-natech-risk-management](http://www.umweltbundesamt.de/en/topics/economics-consumption/plant-safety/examples-of-good-practice-in-natech-risk-management).

<sup>11</sup> OECD, available at [www.oecd.org/chemicalsafety/chemical-accidents/impact-of-natural-hazards-on-hazardous-installations.pdf](http://www.oecd.org/chemicalsafety/chemical-accidents/impact-of-natural-hazards-on-hazardous-installations.pdf).

(c) Establishment of a small group of the Bureau on Natech/disaster risk reduction under the Convention, which has been meeting regularly as part of the Convention's workplan for 2021–2022;

(d) Inclusion of references to natural hazards and climate change in decision 2020/1 on strengthening mine tailings safety in the ECE region and beyond, adopted at the eleventh meeting of the Conference of the Parties to the Industrial Accidents Convention (ECE/CP.TEIA/42/Add.1);

(e) The inclusion, in the seventh preambular paragraph of decision 2020/2, of a request to all Parties and beneficiaries of the Assistance and Cooperation Programme to strengthen their risk assessment and prevention measures for industrial accidents triggered by natural hazards;

(f) Covering Natech risks as part of a chapter on technological risks in the UNDRR *Regional Assessment Report for Europe and Central Asia 2022* (forthcoming), co-authored by ECE and the Joint Research Centre of the European Commission;

(g) Inclusion of Natech in updated reporting format/guidelines for the tenth reporting round (2019–2022) of the Industrial Accidents Convention;

(h) Addressing Natech risks in ongoing capacity development projects, such as that entitled “Development of joint measures to prevent and respond to pollution of the Syr Darya River in emergency situations” (Syr Darya Project (Phase I)). Such risks were also considered to some degree in previous projects, such as the “Project on Hazard and Crisis Management in the Danube Delta” (2010–2015), notably in a multi-hazard/multi-risk map of the Danube River;

(i) Mainstreaming Natech risks in the Convention's Assistance and Cooperation Programme, for example, through the integration of Natech risks into countries' national self-assessments and action plans under the Programme's Strategic Approach;

(j) Developing a dedicated Natech web page, explaining Natech risks and their relevance, and providing an overview of these and additional activities.<sup>12</sup>

11. In addition to the initiatives listed in paragraphs 9 and 10 above by, respectively, OECD and ECE, in cooperation with partners, the Joint Research Centre of the European Commission has an active programme on Natech risk management that has led to concrete outcomes that enabled ECE and OECD countries to strengthen Natech risk management:

(a) Past Natech accidents are recorded and analysed by the Joint Research Centre, which has issued several dedicated reports on lessons learned from Natech accidents;

(b) The Joint Research Centre developed and has made publicly available its web-based Rapid Natech Risk Assessment System for Natech risk analysis and mapping to support the implementation of chemical accident prevention requirements globally;

(c) The Joint Research Centre issued guidance on Natech risk management for inspectors of Seveso sites, and will also publish a technical guidance document on Natech risk management for operators of hazardous installations and national authorities in June 2022;

(d) To support the implementation of Natech risk management, the Joint Research Centre has been organizing dedicated Natech risk management capacity-building events, both in European Union member States and globally (e.g., in ECE member States);

(e) The Joint Research Centre has been supporting international initiatives to promote Natech risk management, for example, via participation in the OECD Natech project steering group, contributions to the 2019 UNDRR *Global Assessment Report and Words into Action Guidelines: Implementation Guide for Man-made and Technological Hazards*,<sup>13</sup> as well as collaboration with other international partners.

<sup>12</sup> See <https://unece.org/industrial-accidents-convention-and-natural-disasters-natech>.

<sup>13</sup> UNDRR (n.p., n.d.).

12. Furthermore, at the national level, countries have taken action to strengthen Natech risk management. Norway, for example, recently published guidance on Natech risk management, and Germany published technical rules on both hazards stemming from precipitation and floods and hazards arising from wind, snow- and ice-load.

13. Further implementation of the Convention's provisions as well as "Addendum Number 2 to the OECD Guiding Principles for Chemical Accident Prevention, Preparedness and Response"<sup>14</sup> can help to increase the readiness of ECE and OECD countries in dealing with Natech. At the national and regional governance levels, legislation and regulations need to be updated and inter-institutional cooperation improved, to allow for the expertise of operators, risk managers, policymakers, economists and engineers to be efficiently integrated into policy and legal instruments. Risk assessment practices should be updated to secure sufficient integration of natural hazards into risk assessment methodologies for industrial installations (emphasizing environmental risks).

#### IV. Objectives of the seminar

14. In the light of the above, the main objective of the seminar is to strengthen Natech risk management and provide support to countries in the implementation of the Industrial Accidents Convention, "Addendum Number 2 to the OECD Guiding Principles for Chemical Accident Prevention, Preparedness and Response", and the development and future implementation of the (draft) OECD/United Nations guidance on Natech risk management. The focus of the seminar will be on the ECE and OECD regions; interested representatives of neighbouring and other countries globally are also invited to attend.

15. More specifically, the seminar aims to:

(a) Raise awareness of the relevance of Natech risk management for industrial and chemical accident risk management, including its transboundary dimension;

(b) Follow up on the recommendations on transboundary Natech risk management established at the OECD/United Nations Natech workshop held in Potsdam, Germany, in 2018;

(c) Take stock of good examples, latest developments and tools available to address Natech risks, such as the Joint Research Centre Natech risk management guidelines, the eNatech Database<sup>15</sup> and the Rapid Natech Risk Assessment System for Natech risk analysis and mapping;

(d) Support countries in the implementation of legal and policy instruments on industrial safety, such as the Industrial Accidents Convention, the European Union Seveso-III Directive,<sup>16</sup> the OECD Guiding Principles on Chemical Accidents Prevention, Preparedness and Response and their "Addendum Number 2";

(e) Provide a platform for Governments, industry and other relevant stakeholders to present in-depth case studies on the national and transboundary implementation of Natech risk management, to be taken up in the OECD/United Nations guidance on Natech risk management;

(f) Agree on action to be taken by ECE, OECD and other countries to strengthen Natech risk management;

(g) Provide a forum to strengthen existing and build new partnerships, including with international organizations, industry representatives, experts, academia and non-

<sup>14</sup> In a forthcoming update (planned for 2023) of OECD Legal Instruments concerning chemical accidents, the definition of chemical accidents will also cover chemical accidents triggered by natural hazards.

<sup>15</sup> See <https://enatech.jrc.ec.europa.eu/>.

<sup>16</sup> Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC, Official Journal of the European Union, L 197 (2012), pp. 1–37.

governmental organizations (NGOs), through the exchange of experiences and good practices in the area of mine tailings safety.

16. The target audience for this seminar therefore includes countries in the ECE and OECD regions and beyond, as well as representatives of international organizations, industry, academia and NGOs and other stakeholders active in the field of industrial accident and Natech risk management.

## **V. Outcome of the seminar**

17. The seminar's conclusions will be presented by one of the co-moderators during the closing session. The Conference of the Parties and seminar participants will be invited to take note of the conclusions, which will be included in an annex to the report of the twelfth meeting of the Conference of the Parties that will be available in the three official languages of ECE.

18. Should dedicated additional resources be made available, the ECE secretariat, in cooperation with OECD, the seminar co-moderators and the small group, may prepare a summary report, including key discussions, conclusions and suggested lines of action to be carried out under the Convention.

19. Following the presentation of the conclusions, the Chair of the Convention will further present a decision on Natech risk management in the ECE region and beyond, for consideration and adoption by the Parties to the Industrial Accidents Convention.



## Annex

### Outline of the seminar programme

The seminar will be held on 29 November 2022, within the framework of the twelfth meeting of the Conference of the Parties. It will be co-moderated by the Chair of the Convention and the Chair of the Organisation for Economic Co-operation and Development (OECD) Working Party on Chemical Accidents. A total of four hours will be available for the seminar, with interpretation into English, French and Russian. The seminar will be held as an in-person event, while remote participation, in particular for participants from outside the United Nations Economic Commission for Europe (ECE) region, will be possible. Remote interventions for any three-hour-long session, cannot, however, exceed a total of 30 minutes for interpretation to be provided into English, French and Russian. All sessions will be moderated, and discussions among panellists and between the seminar participants and the panellists will be encouraged and facilitated. The full programme of the seminar will be made available in a separate informal document (ECE/CP.TEIA/2022/INF.1). The key elements of the agenda are listed below:

- **Seminar opening on the theme “Natech, no longer an emerging risk?”**

The opening segment will include a high-level panel with speakers from countries actively advancing Natech risk management in the ECE and OECD regions.

- **Session 1: Understanding Natech and existing tools in an international context - natural hazards and technological risks**

This session will address the current level of understanding of Natech risks, including their assessments, understanding of past events and expected outlook of future events.

- **Session 2: Towards effective Natech risk governance in the Organisation for Economic Co-operation and Development and United Nations Economic Commission for Europe regions (and beyond)**

For this session, countries in and beyond the ECE region were asked to submit case studies addressing Natech risk management. Based on the responses received, a selection of country and industry representatives will be invited to present an issue that is relevant for the forthcoming OECD/United Nations guidance document on Natech risk management. The session will consist of an introduction to existing legal instruments, policy and governance of Natech risks, followed by an overview and brief analysis of the case studies submitted.

Based on this, a panel discussion will address case studies highlighting examples of and challenges in effective management of Natech risks. The panel will consist of government and industry representatives. They will discuss what actions need to be taken for more effective use of existing instruments and key elements to be included in the forthcoming OECD/United Nations guidance document.

- **Conclusions and proposal for action to strengthen Natech risk management in the Organisation for Economic Co-operation and Development and United Nations Economic Commission for Europe regions (and beyond)**

This will include the next steps in establishing the OECD/United Nations Natech risk management guidance document, as well as a presentation on, and adoption by the Conference of the Parties of, the Decision on strengthening Natech Risk Management in the ECE region and beyond (ECE/CP.TEIA/2022/4). In addition, seminar participants will be invited to take note of the conclusions presented by the seminar co-moderators.