

The background of the slide is a silhouette of an industrial facility, likely a steel mill or refinery, with several tall smokestacks and complex piping structures. The scene is set against a gradient background that transitions from a light orange at the top to a dark blue at the bottom, suggesting a sunset or sunrise. The industrial structures are rendered in a dark blue color, matching the bottom of the gradient.

Tackling Sustainability Through Resource & Tailings Management within and beyond the UNECE region

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Briefing on the Implementation of UNEA Resolution 5/12 on Environmental Aspects of Minerals and Metals Management

Geneva, 28 February 2023

Presentation prepared in cooperation with: Mr. Harikrishnan Tulsidas, Economic Affairs Officer, Sustainable Energy Division, UNECE

United Nations Economic for Europe

As a regional commission with global reach UNECE offers:

- Global frameworks to address sustainable mineral resources governance
 - ⇒ **Classification and Reporting of Resources (UNFC)**
 - ⇒ **Resource Management System (UNRMS)**
- Legal instruments to strengthen mine tailings safety and reduce risk of water pollution
 - ⇒ **Industrial Accidents Convention (42 Parties)**
 - ⇒ **Water Convention (global; 47 Parties, plus ~20 in accession process)**
- Assessments and recommendations to improve environmental policies
 - ⇒ **Environmental Performance Reviews (incl. beyond the UNECE region, e.g. EPR for Mongolia)**

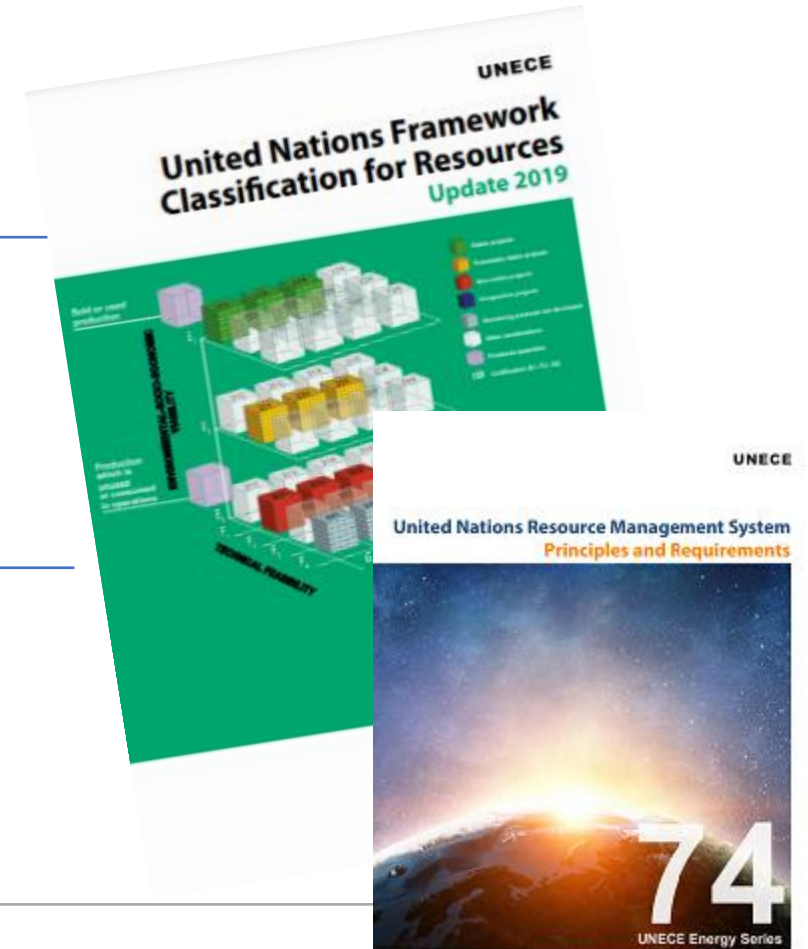
UNFC & UNRMS Toolkit

Global tools to manage Sustainably

Integrated and sustainable management of natural resources is critical to meeting universal needs.

Resources must be managed as a **public good** to achieve key SDGs.

UNFC and UMRMS provide the right information and tools to **manage natural resources**.



UNECE



UNITED NATIONS

Sustainable and Integrated resource management



UNFC and UNRMS

- Environmental performance
- Social engagement
- Financial resilience.



UNFC and UNRMS in practice

Increasing global uptake



- **UNFC Europe – European Commission-** led initiative to harmonize raw material resource management, including establishment of centres of excellence
- **UNFC Africa - African Union** has adopted UNFC as the sustainable management, the African Mineral and Energy Resource Classification and management System (AMREC)
- **CIS region** - International Centre for Sustainable Resource Management
- **China** has bridged its minerals and petroleum classifications. Adopted in **India, Indonesia, Kazakhstan, Ukraine** etc.
- **Mexico and Latin America** pilot studies progressing.



ECOSOC recommends UNFC for global application

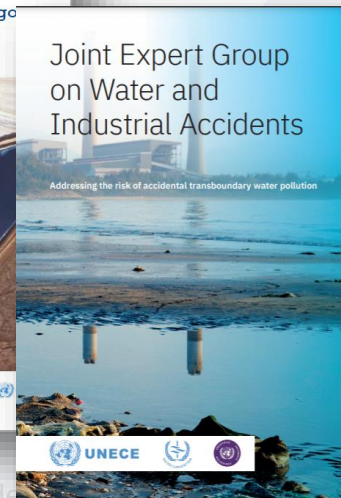
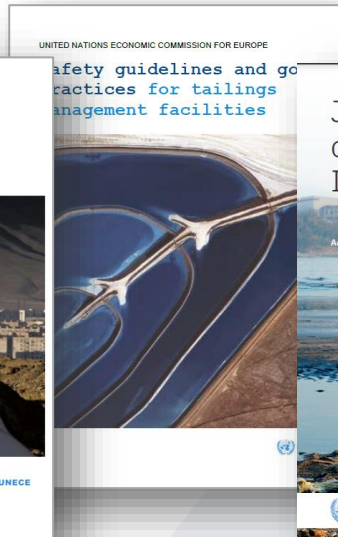
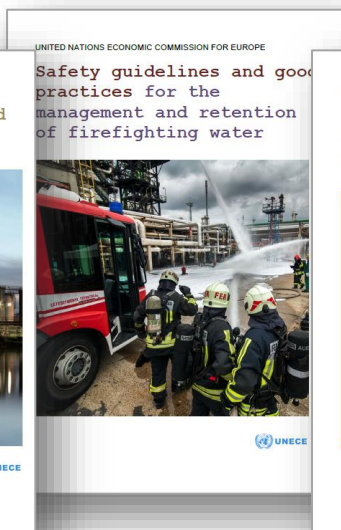
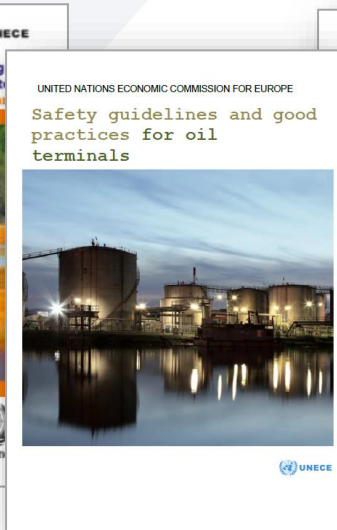
Joint Expert Group on Water and Industrial Accidents (JEG)

UNECE Water Convention

UNECE Industrial Accidents Convention

JEG

- Established in 1998
- Focus on prevention of accidental water pollution and its consequences
- Linking integrated water resources management to industrial safety





UNECE Safety Guidelines and Good Practices for Tailings Management Facilities and a related methodology

- Developed under UNECE Industrial Accidents and Water Conventions and endorsed at CoP-5 (2008) and MoP-5 (2009) respectively
- Aim to reduce the frequency and severity of accidents at TMFs
- Contain safety principles and recommendations to be used by
 - Governments
 - Competent authorities
 - TMF operators
- Include aspects related to
 - Pre-construction and construction
 - Operation and management
 - Facility inspections
 - Identification, assessment and management of abandoned sites
 - Emergency planning



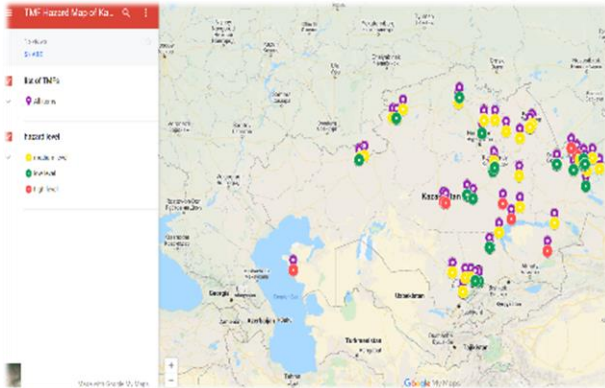
To support countries in the practical application of the guidelines, a related methodology was developed



237 Tailings management facilities (TMFs) in Central Asia

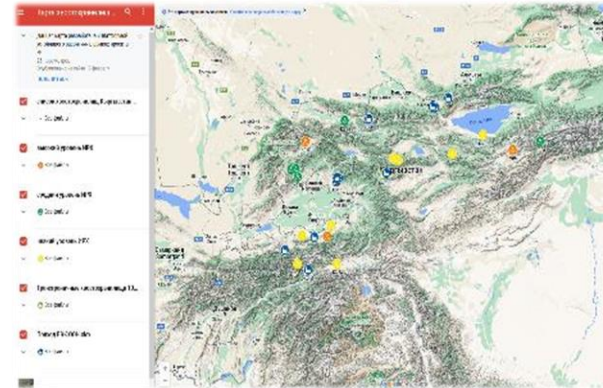
Mapped under the UNECE Industrial Accidents Convention thanks to projects funded by Switzerland, Germany and the EU

TMF mapping in Kazakhstan



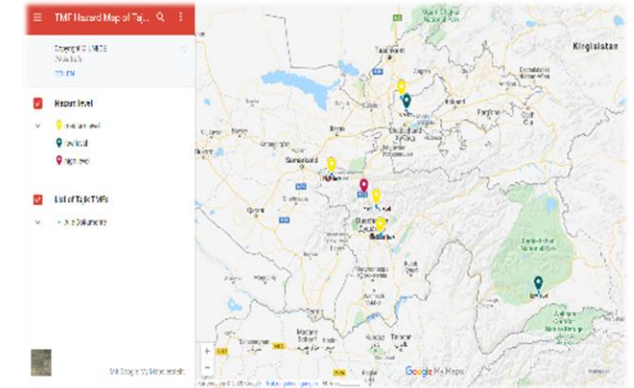
✓ Inventory and mapping of **121 TMFs**, incl. **7 with transb. effects**

TMF mapping in Kyrgyzstan



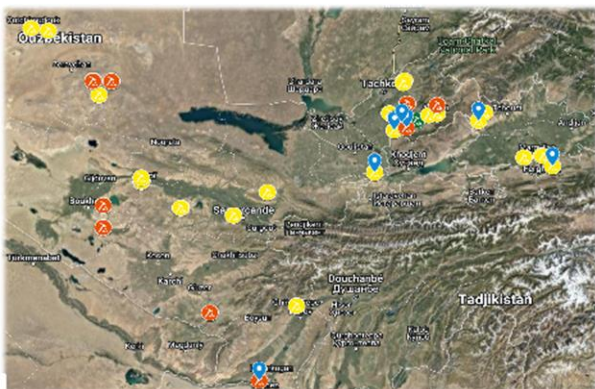
✓ Inventory and mapping of **62 TMFs**, incl. **38 with transb. effects**

TMF mapping in Tajikistan



✓ Inventory and mapping of **13 TMFs**, incl. **4 with transb. effects**

TMF mapping in Uzbekistan



✓ Inventory and mapping of **41 TMFs**, incl. **10 with transb. effects**

All TMFs were assessed using the TMF [Methodology](#), incl. Tailings Hazard (THI) and Tailings Risk (TRI) Indexes

59 out of 237 TMFs may have potential transboundary effects → 25%

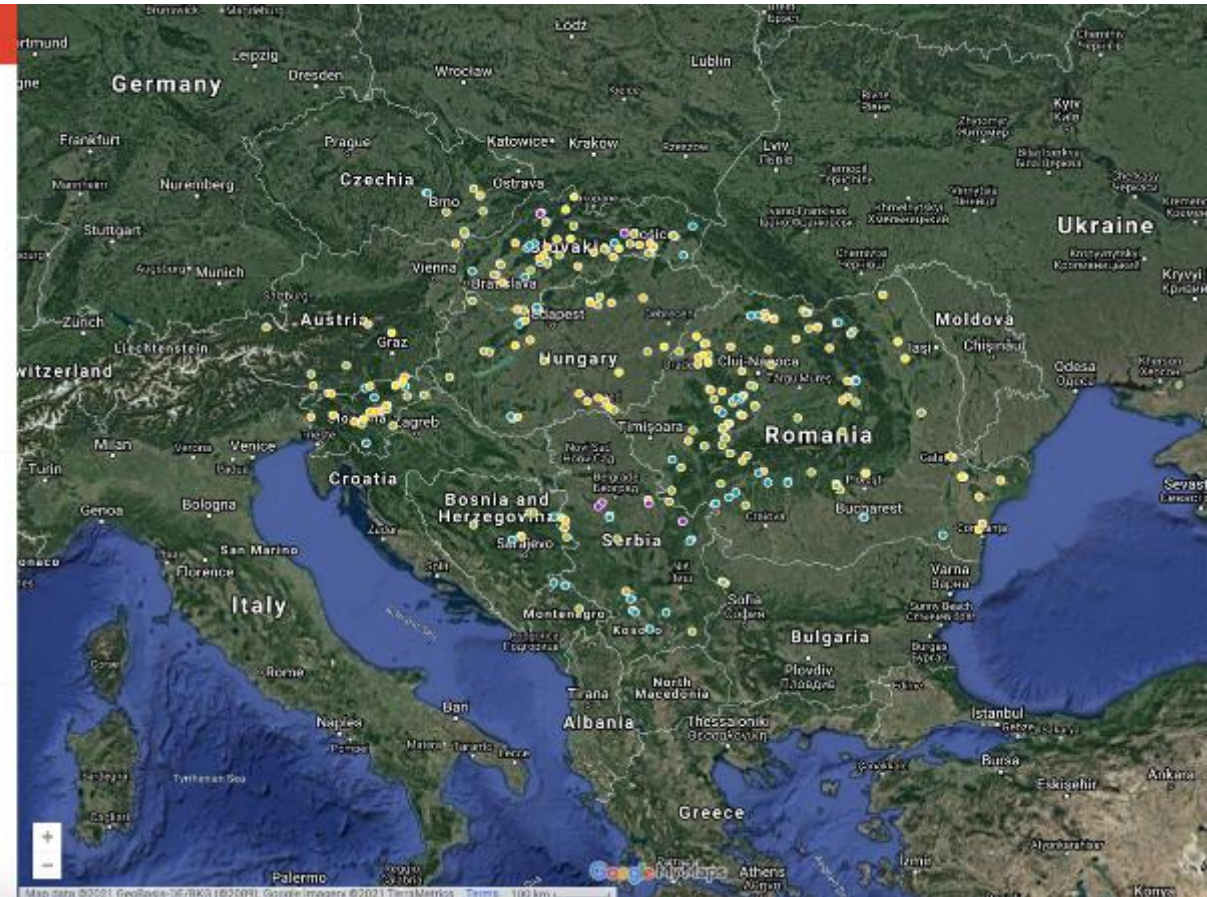
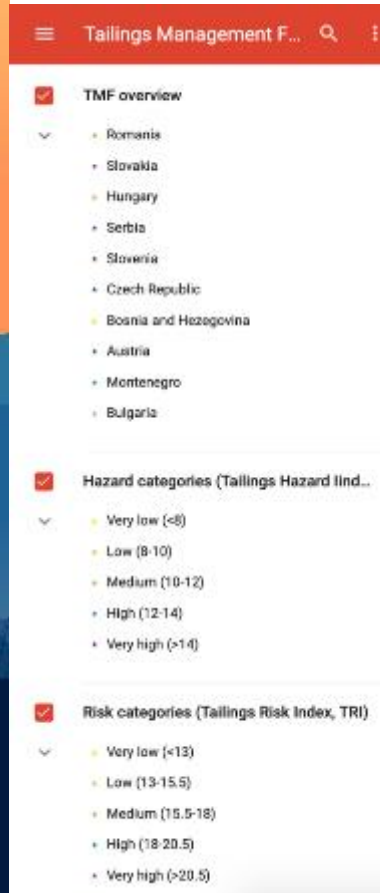
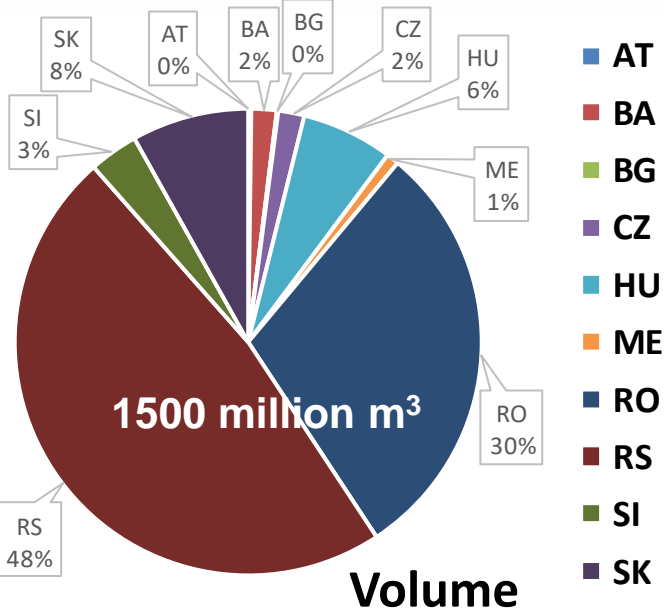
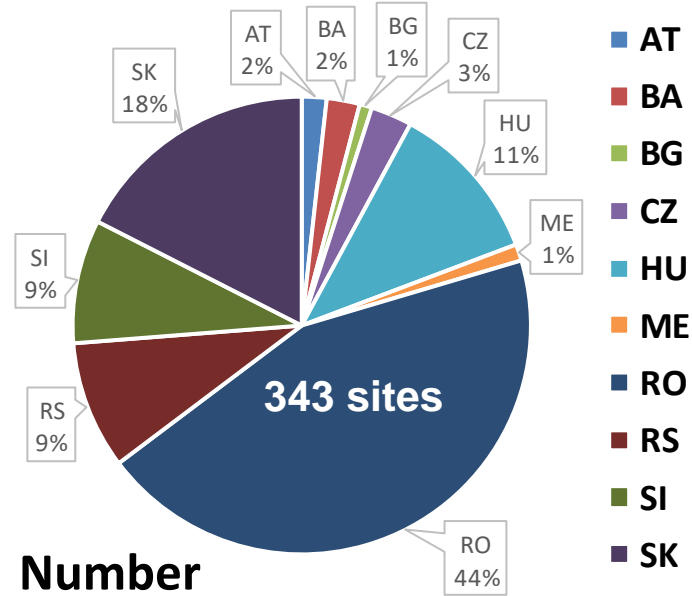
TMF mapping in Syr Darya river basin



✓ Inventory and mapping of **61 TMFs**, incl. **33 with transb. effects**

343 TMFs in the Danube River Basin

Mapped under the Project “Capacity development to improve safety conditions of tailings management facilities in the Danube River Basin – Phase I: North-Eastern Danube countries” carried out by the International Commission for the Protection of the Danube River (ICPDR) and financed by the German Environment Agency.



Capacity-building to understand risks

On-site training in Kazakhstan (2019)

- Held in Kokshetau 11-13 June together with Kyrgyzstan and Tajikistan
- On-site training report was prepared based on safety evaluation of «Altyntau Kokshetau» TMF

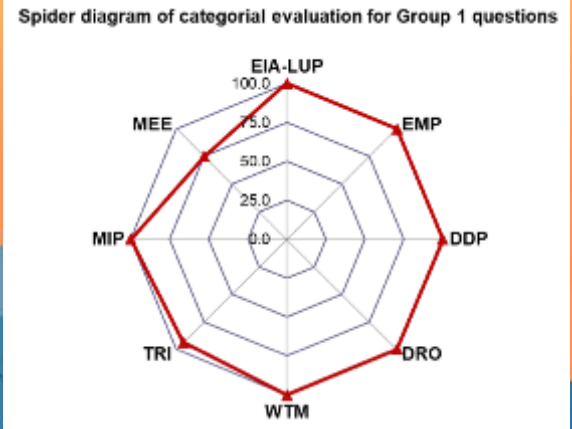


On-site training in Tajikistan (2021)

- 23 April – technical/preparatory meeting
- 2-4 June – on-site training in Penjikent and online evaluation workshop
- On-site training report was prepared based on safety evaluation of «Zarafshon» TMF
- E.g: short –term recommended measure:”Develop an action and monitoring plan for TMF closure”



Reports contain the results of TMF Methodology application and recommendations for operators and competent authorities to improve TMF safety



Report from the onsite training (Penjikent, Tajikistan, 2-4 June 2021) and results of the application of the tailings management facilities (TMF) Methodology, based on the safety evaluation of the TMF of JV «Zarafshon» (Penjikent, Republic of Tajikistan)

UNECE Online seminar and [Decision 2020/1](#) on strengthening mine tailings safety

- **Online seminar** – 43 countries, 115 participants, 37 organizations, 12 speakers
- Preparedness and response are important, but prevention is key
- Mine tailings safety is a regional issue, not just a national matter

- **Decision** – adopted at CoP-11 (Industrial Accidents Convention; 7-9 Dec 2020);
- **Contains invitation** to other UN(ECE) member states to take action
- **Agreed actions**, e.g.:

Use the Safety guidelines and good practices for TMFs to achieve harmonized application

Improve inter-institutional and stakeholder coordination

Review legislation and policies on mine tailings against int. GP, e.g. the SG

Increase efforts to strengthen tailings safety and prevent failures, in view of more extreme weather events due to climate change

Include TMFs in the identification and notification of hazardous activities



Decision 2020/1, above all, stresses the commitment of countries to prevent TMF accidents, recommends countries in the UNECE region and invites those beyond it to apply UNECE Safety Guidelines for TMFs and the relevant Methodology

Interinstitutional Working Groups on Tailings Safety and the Prevention of Accidental Water Pollution (IIWG)

- Aim to enhance tailings governance, preventing accidental water pollution and addressing existing legislative and administrative gaps
- Platform for cooperation and policy dialogue, exchange of knowledge and good practices (e.g. UNECE Safety Guidelines and Methodology) among competent authorities, operators, academia, NGOs and other stakeholders
- Formally established by Kazakhstan and Tajikistan in 2022 under UNECE projects with financial support from Switzerland; discussions on the establishment of IIWG are ongoing in Uzbekistan
- Will result in:
 - ✓ Better coordination and governance
 - ✓ Increased understanding of TMFs Safety; existing tools and instruments
 - ✓ Higher awareness of TMFs hazards and related disaster risks, incl. Natech
 - ✓ Strengthened outreach and partnership with other international organization, industry, NGOs and academia
 - ✓ Enhanced transboundary cooperation and exchange of the information





Baia Mare (Romania) in 2000: overflow of TMF



2019 TMF dam break in Krasnoyarsk (Russia) after heavy rains



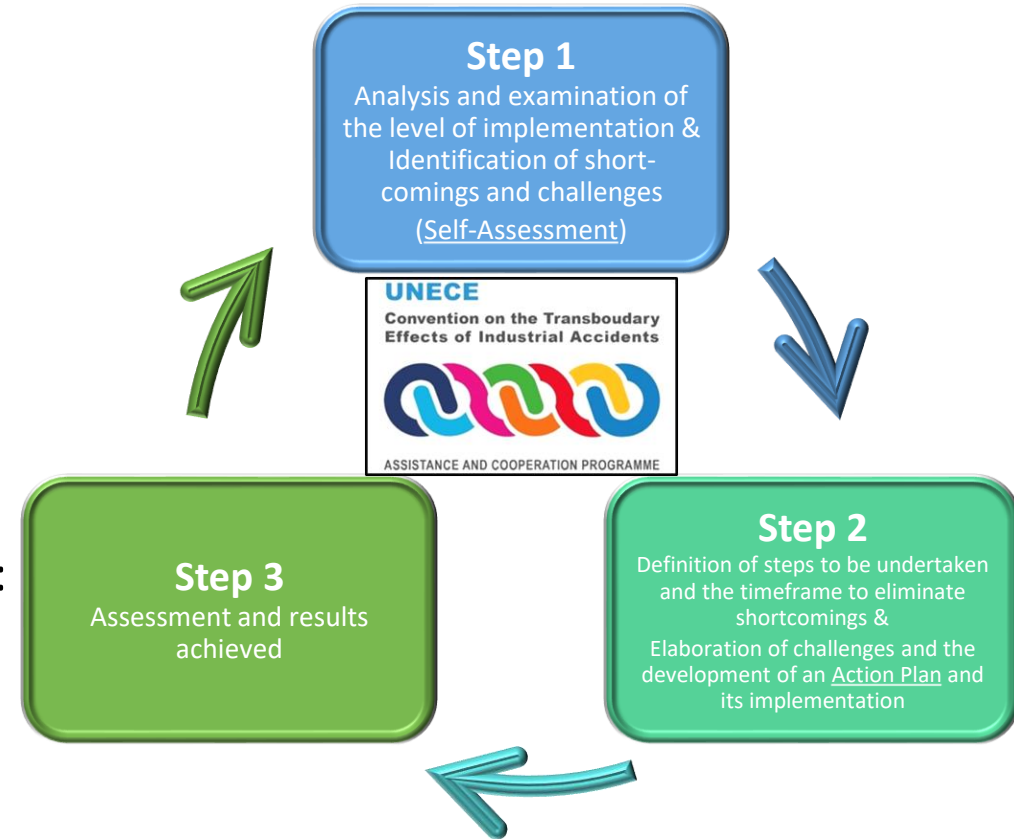
Landslide in Serbia in 2014 damaging the Stolice TMF



Integration of Natech* and TMF risks into national self-assessments and action plans

*Natural Hazards Triggering Technological Disasters (Natech events)

- 2021: Kyrgyzstan – SA and AP updated to integrate Natech and TMF risks
- 2022: [JEG seminar](#) on emerging risks in accidental water pollution: focus on Natech risks



Sources:

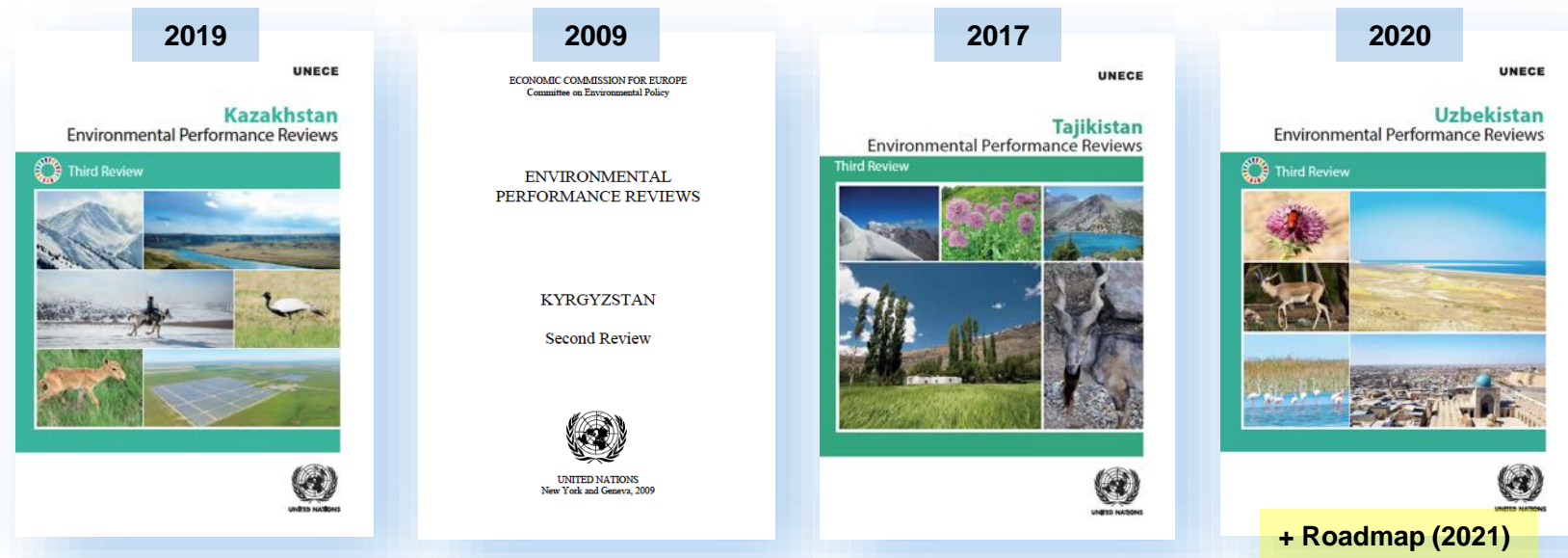
<https://commons.wikimedia.org/w/index.php?curid=42070845>

<https://www.bbc.com/news/world-europe-50108413>

<https://earthworks.org/blog/history-of-mine-waste-failures-in-serbia-sheds-light-on-new-threats/>

Environmental Performance Reviews (EPRs)

- EPRs contain recommendations related to the Industrial Accidents (IA) Convention and tailings management



- Development of EPR Action Plans in 2021 to specifically guide the implementation of EPR recommendations on the IA Convention and tailings in CA countries

2030 Road Map for action to strengthen mine tailings safety within and beyond the UNECE region

Contains 5 key objectives:

A. **Understanding** TMF-related risks within and across national borders

B. **Addressing** TMF risks through policy and governance

C. **Prevention and preparedness for accidental water pollution from TMFs** to ensure water quality

D. **Prevention of natural hazard-triggered industrial accidents** (Natech events) and adaptation to climate change

E. **Exchange of information** and knowledge and capacity-building

→ For each objective:

- Objective summary
- Proposed approach to achieve objective
- **Actions for Parties and MS within the ECE region and beyond**
- Actions by ECE-secretariat
- Joint or complementary actions by ECE secretariat and other international organizations

→ Road Map available in [ENG](#), [FRE](#) and [RUS](#).



2030 Road Map for action to strengthen mine tailings safety within and beyond the UNECE region



Next steps

2023–2024

- Advance understanding of TMF risks
- Review and update existing policies and legislation**
- Use existing or set up new working groups and national coordination mechanisms
- Report on TMFs as part of the hazardous activities (10th reporting round)

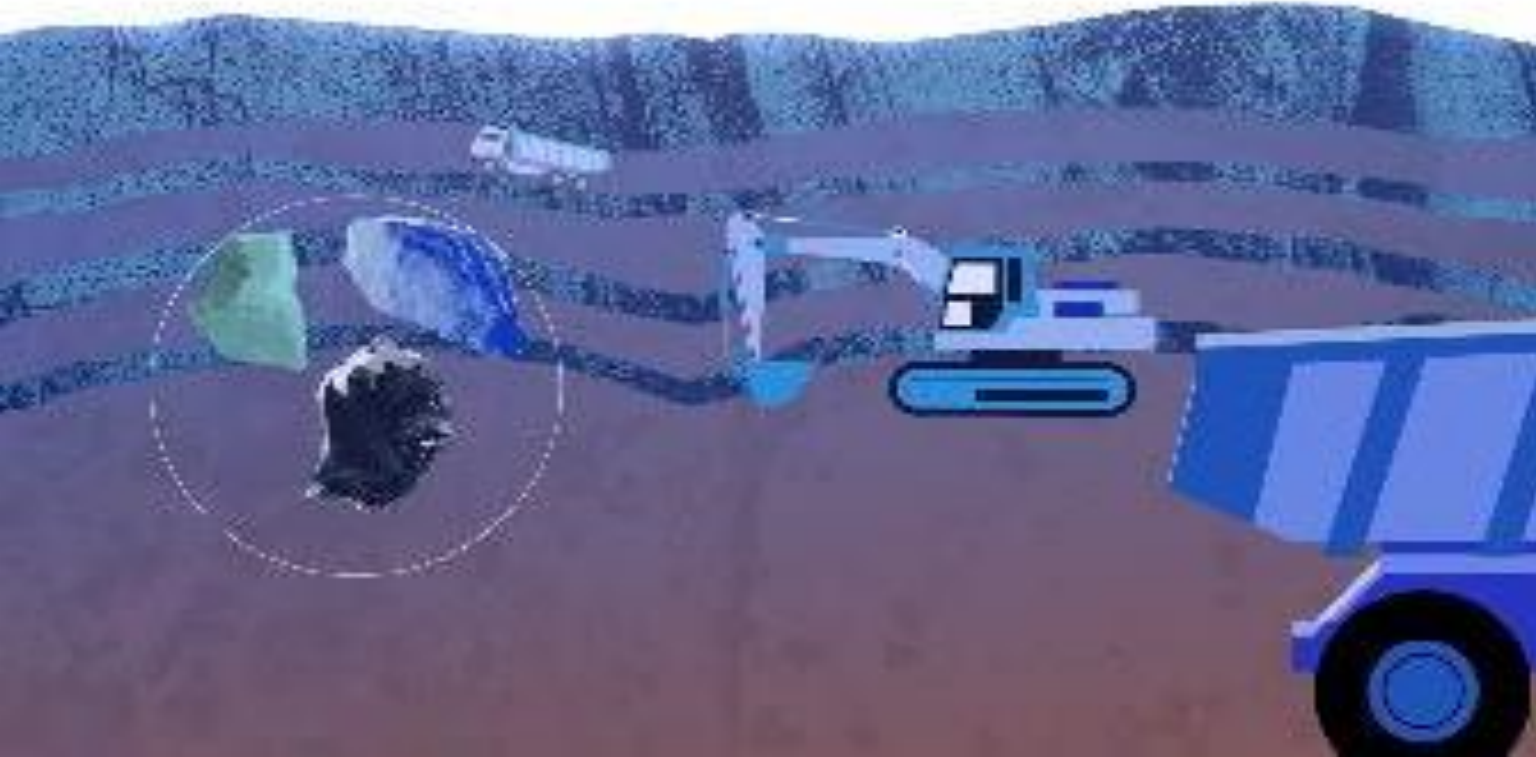
Depending on the availability of funding

- Prepare overview of: TMFs in the ECE region, possibly existing hazards, risks and hotspots
- Improve joint understanding and governance of the risks among countries
- Facilitate a multi-stakeholder dialogue on strengths and challenges across the UNECE region**

2025–2026

Online Toolkit and Training for Strengthening Mine Tailings Safety

- To assist countries in strengthening TMF safety and management practices an [online toolkit](#) was developed
- Contributes to improved knowledge on TMF safety through online training on application of relevant safety guidelines and methodology
- Consists of
 - Background information on TMF safety
 - 3-step practical training (including a video in [ENG](#) and [RUS](#))
 - Summary of UNECE TMF-related work and partners
 - Further reading (key reports and references)





Thank you for your attention!

For more information, please consult UNECE webpage:

www.unece.org/env/teia

<https://unece.org/sustainable-energy/sustainable-resource-management>

or contact:

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