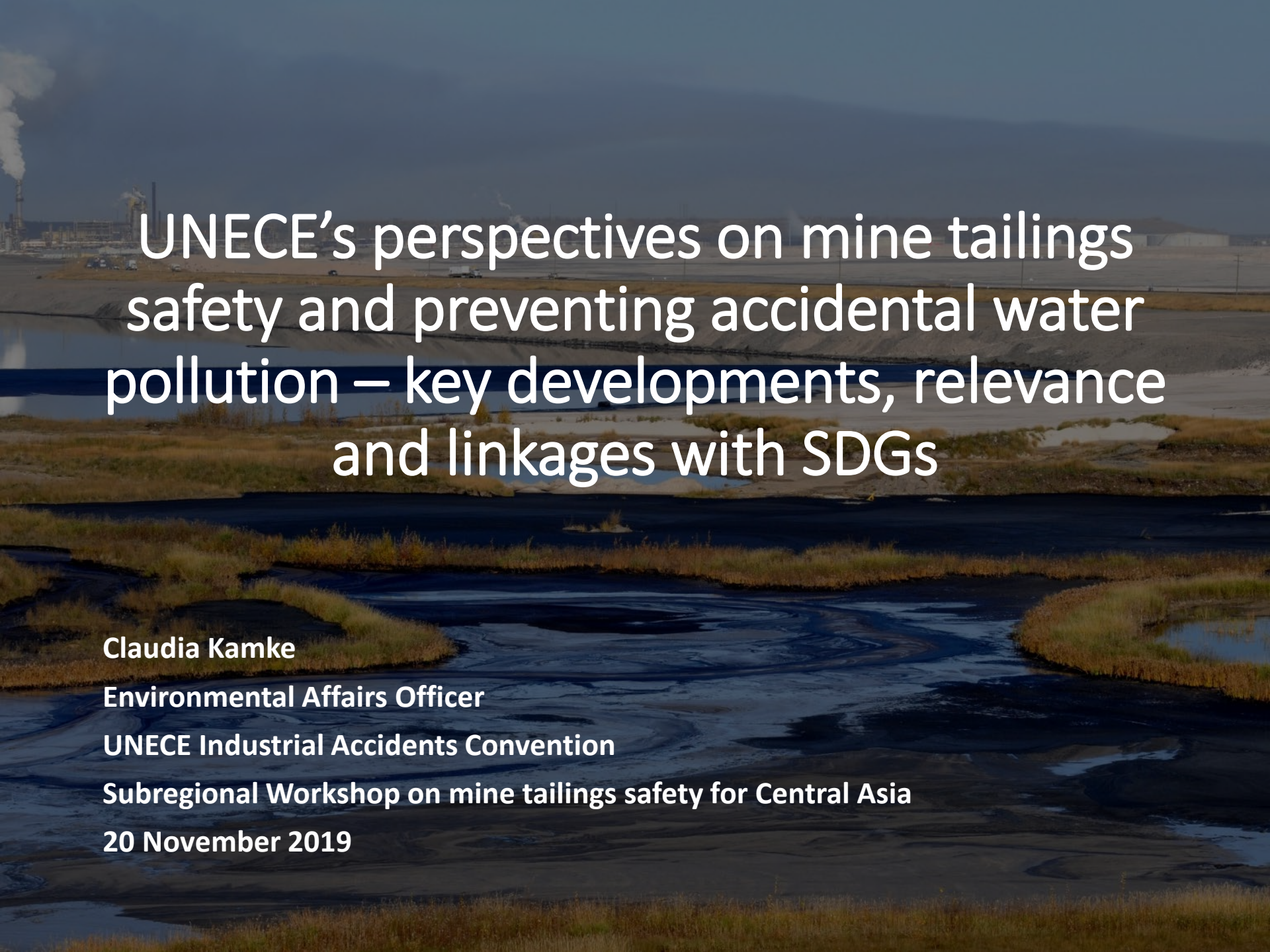


UNECE's perspectives on mine tailings safety and preventing accidental water pollution – key developments, relevance and linkages with SDGs

Claudia Kamke

Environmental Affairs Officer

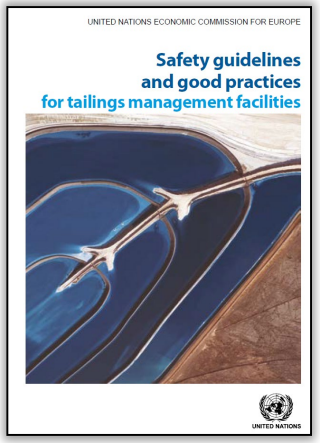
UNECE Industrial Accidents Convention

Subregional Workshop on mine tailings safety for Central Asia

20 November 2019

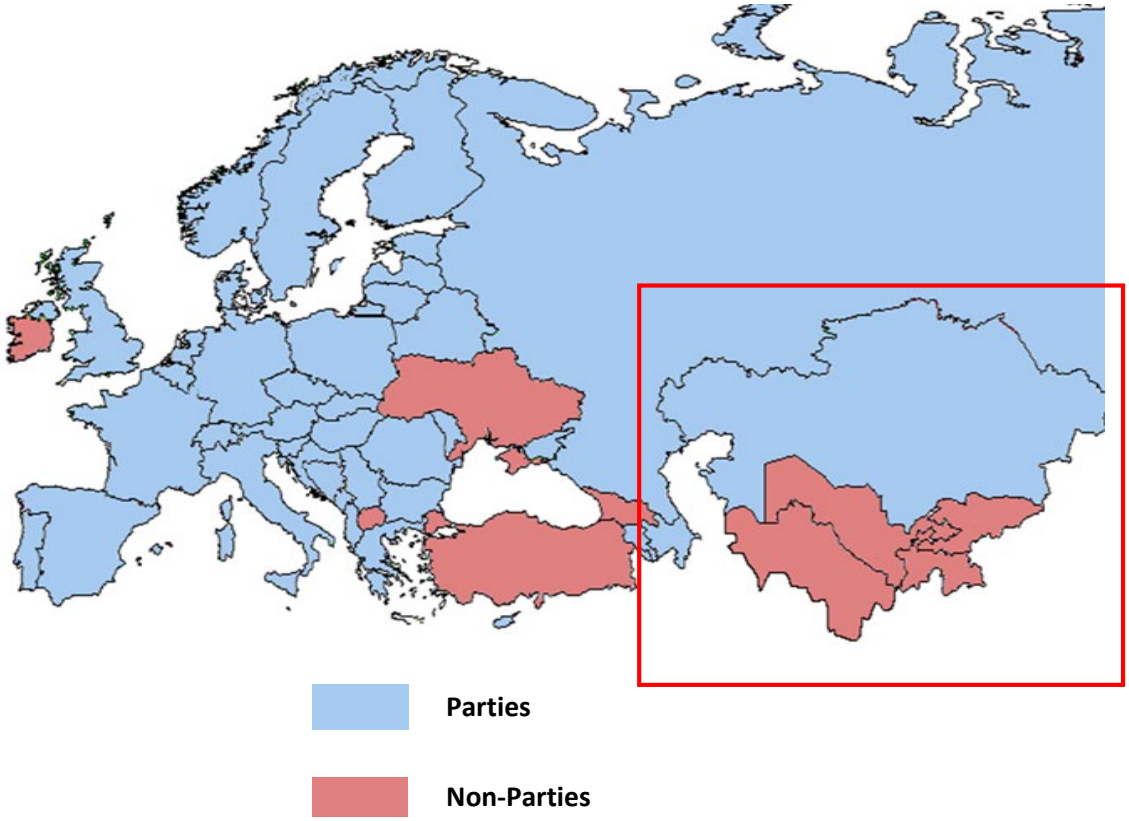
UNECE Industrial Accidents Convention

- **Adopted in 1992, in force since 2000**
- **41 Parties** in the UNECE region
- Designed to protect **people and the environment** against industrial accidents
- Focus on **transboundary cooperation**
- Active international cooperation between Parties before, during and after an accident
- Covers **mine tailings** and **NATECH** (natural-hazard triggered technological) **events**
- UNECE Safety Guidelines and Good Practices for Tailings Management Facilities (TMFs)



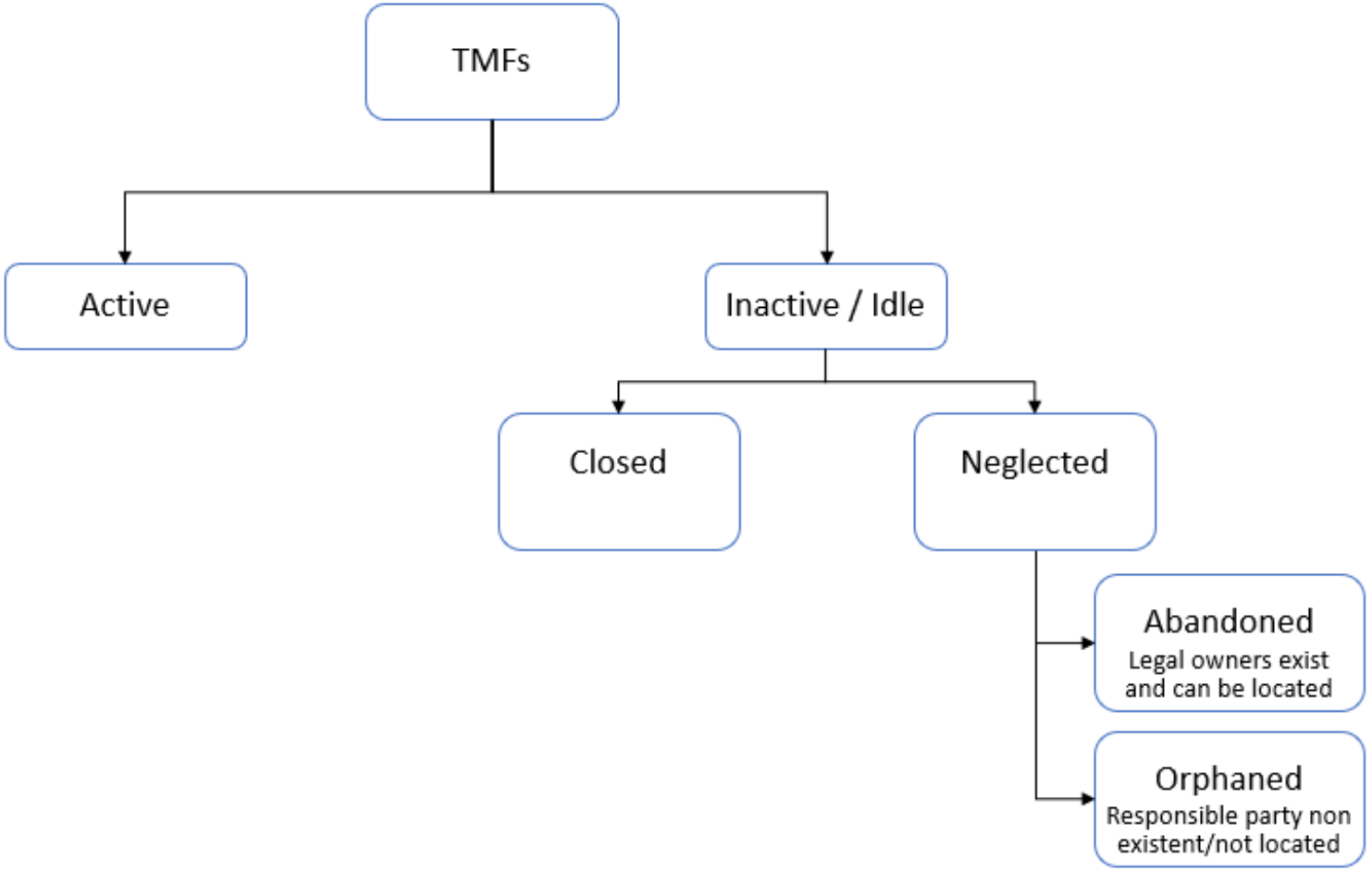
Parties of the Industrial Accidents Convention

- Kazakhstan is the only Party in Central Asia to the Convention
- Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan are beneficiaries of the **Assistance and Cooperation Programme**



What are Tailings Management Facilities (TMFs)?

Tailings are large amounts of mining waste which are generated as a by-product when extracting minerals.



What risks do TMFs pose and why do we need to attend to them?

- Failures can release a **tsunami-like wave of mine waste** capable of killing and destroying everything in its path
- Threat to **human health/lives**, damage **infrastructure** and **environmental resources** – within and cross countries
- **Accidental water pollution** and environmental **degradation of transboundary watercourses**/international lakes
- **Significant costs** for emergency response, clean-up, repairs, disruption of economic activity, claims for damages, and legal costs for governments and businesses
- **Negative** consequences for the **social acceptance** of mining

Brazil: Brumadinho, Minas Gerais (2019)

- Brumadinho dam failed at an iron ore mine in the South East of Brazil
- At least 248 deaths, 22 missing

Source: https://www.youtube.com/watch?time_continue=8&v=lCoTcIMQ27k

Russ. Fed.: Region of Krasnoyarsk (2019)

- Dam collapse at a gold mine in Siberia on the Seiba river
- At least 15 deaths, 13 missing

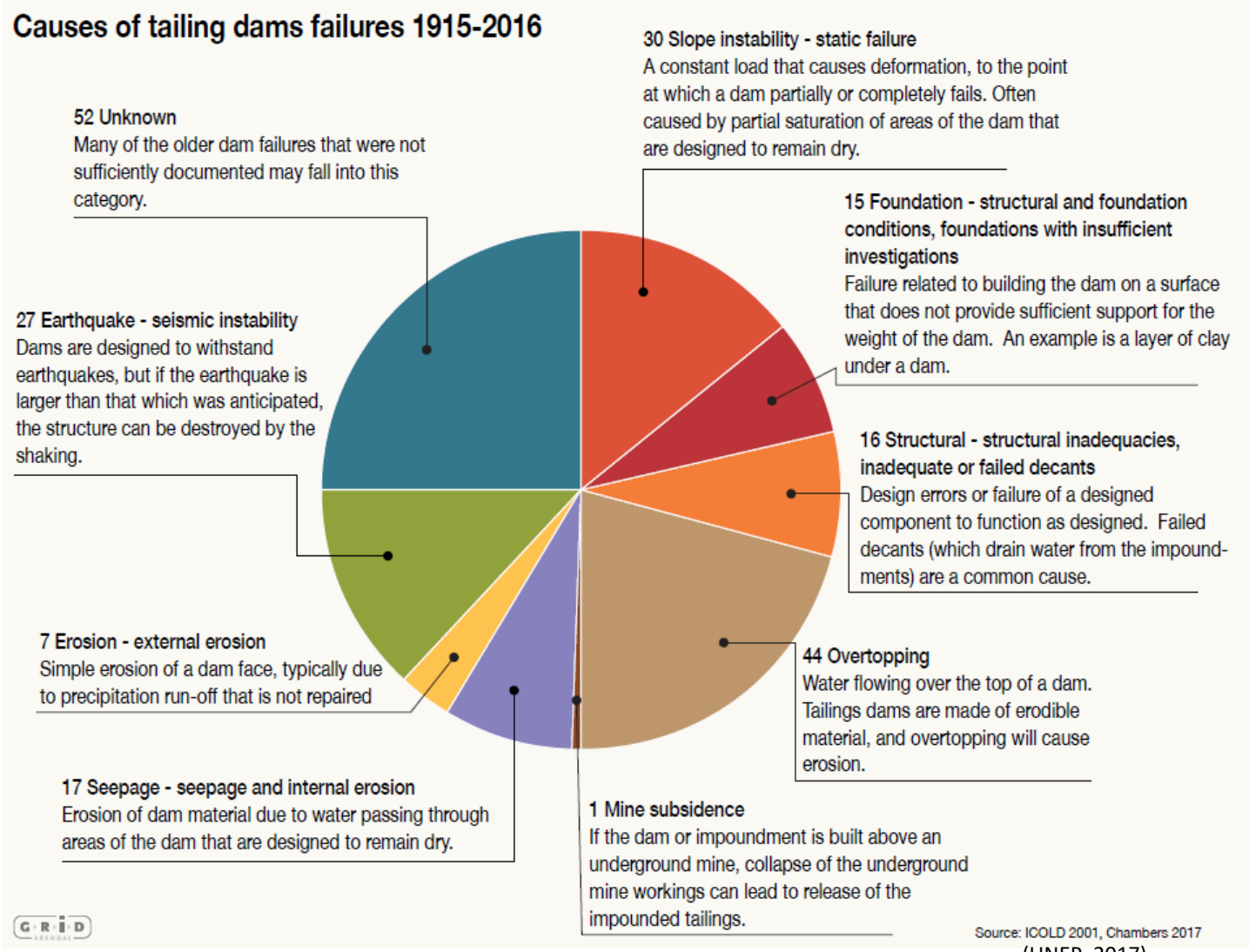
Source: https://www.bbc.com/news/world-europe-50108413

Kazakhstan: Ridder, Ust-Kamenogorsk (2016)

- Pollution from a zinc mine waste dump in Ridder spilled into the Ulba and Filippovka Rivers, flowing into Siberia → **Transboundary water pollution**

Source: https://siberiantimes.com/ecology/others/news/n0671-stinking-poisoned-water-flows-towards-siberia-from-mining-city-ridder-in-kazakhstan/

Main causes of TMFs failures (1 / 2)



(UNEP, 2017)

Main causes of TMFs failures (2 / 2)

- **Lack of management continuity** and **inadequate resourcing (especially financial)** for the facility (UNEP Report, 2017)
- **Poor management** combined with **inadequate commitment to safety** was the cause of most failures (ICOLD, 2001)
- **All failures were avoidable** (ICOLD, 2001)
- Climate change/**extreme weather events**: 25% of global and 35% of European TMF failures due to heavy rain **(NATECH accidents)**

Mining industry needs to put safety first
→ **zero-failure objective**

Global trends and developments

- Global resource extraction has more than tripled since 1970
- Extraction of mineral resources will continue to grow
  - Transition towards carbon-clean energy production / electric vehicles
  - Growing global population growth & urbanization
- Climate change → elevated risks of tailings accidents due to more frequent and extreme weather events
- SDG Target 12.4 (until 2020) will not be achieved (GCO II, 2019)
- **Global** infrastructure projects (Belt&Road Initiative)
- Adoption of **two UNEA4** resolutions in 2019: on **mineral resource governance** and on **sustainable infrastructure**

Specific situation in Central Asia

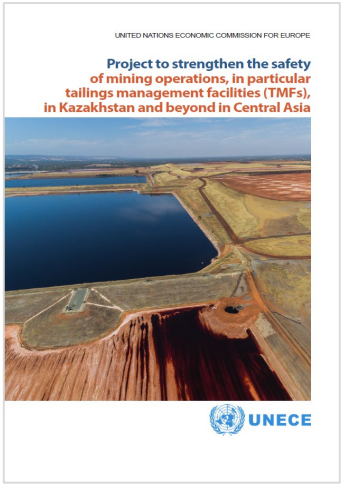
- **Many neglected TMFs** (Soviet legacy)→ "**ticking time bombs**"
- Ageing equipment → lack of resources (human/financial) to address this
- Degradation of tailings poses **risk of water contamination** and ecosystem damage → need to ensure water quality
- **Transboundary impacts** through mine tailings which are located close to transboundary rivers or state borders
- Central Asian countries prone to **NATECH accidents** caused by extreme weather events (heavy rain, **landslides**, earthquakes)

UNECE projects on mine tailings safety in Central Asia

Implemented with the support of the Swiss Federal Office for the Environment

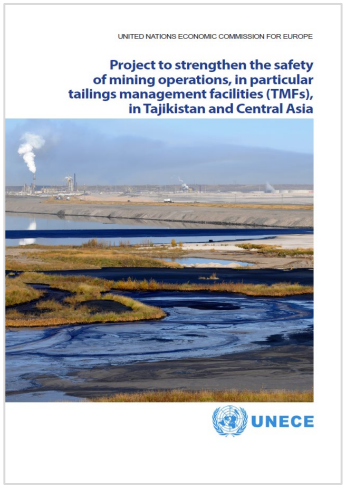
Kazakh project (2018-2019)

- Objective: Strengthen the safety of TMFs in Kazakhstan
- Beneficiaries: Kazakhstan and competent authorities and operators; other countries in Central Asia.



Tajik project (2019-2020)

- Objective: Strengthen the safety of TMFs in Tajikistan
- Beneficiaries: Tajikistan and competent authorities and operators; other countries in Central Asia.



Application of UNECE Safety Guidelines and good practices for TMFs and related methodology

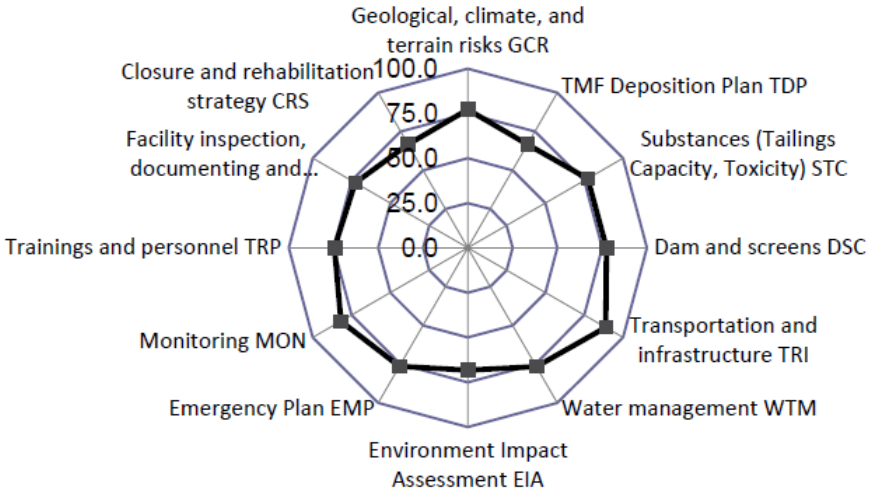
To support countries in the practical application of the guidelines, a related methodology was developed.

Tailings Hazard Index (THI) Method

- Ranking TMFs according to their hazard
- Basic data needed to determine it (volume, toxicity…)

TMF Checklist

- Questionnaire
- Evaluation Matrix for the TMF safety level
- Measure Catalogue



UNECE

SUSTAINABLE DEVELOPMENT GOALS

Avoids deaths and illnesses from hazardous chemicals by reducing the risk of technological disasters releasing chemical substances

Prevents accidental water pollution from industrial accidents

Promotes safe management of industrial installations to make them sustainable

Encourages integrated policies to achieve resilience to disasters, in line with the Sendai Framework for Disaster Risk Reduction 2015-30

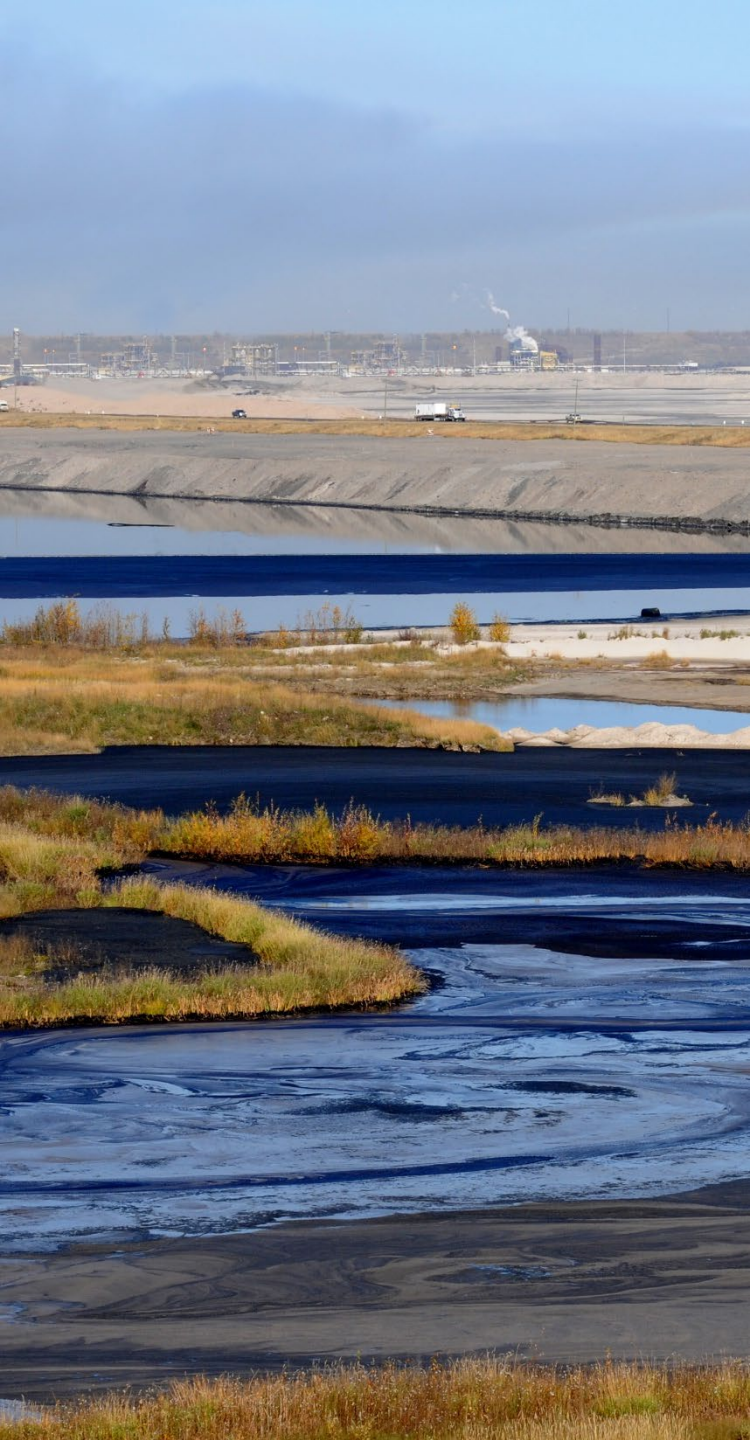
Provides a framework to prevent accidental release of chemicals, thus contributing to their environmentally sound management

Strengthens resilience to climate-related hazards and natural disasters by promoting adequate siting, land-use policies and emergency plans

Sendai Framework for Disaster Risk Reduction
Priorities for Action

Conclusions

- Mining will remain an important sector in the foreseeable future despite efforts towards a circular economy / greater recycling
- Responsibility to ensure the safe management of mine tailings to prevent tailings accidents and related water pollution
- Need to accelerate progress and ensure higher level of governance to achieve SDG target 12.4



Thank you for your attention!

For more information please visit:

www.unece.org/env/teia

Or contact:

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