

Gerhard Winkelmann-Oei

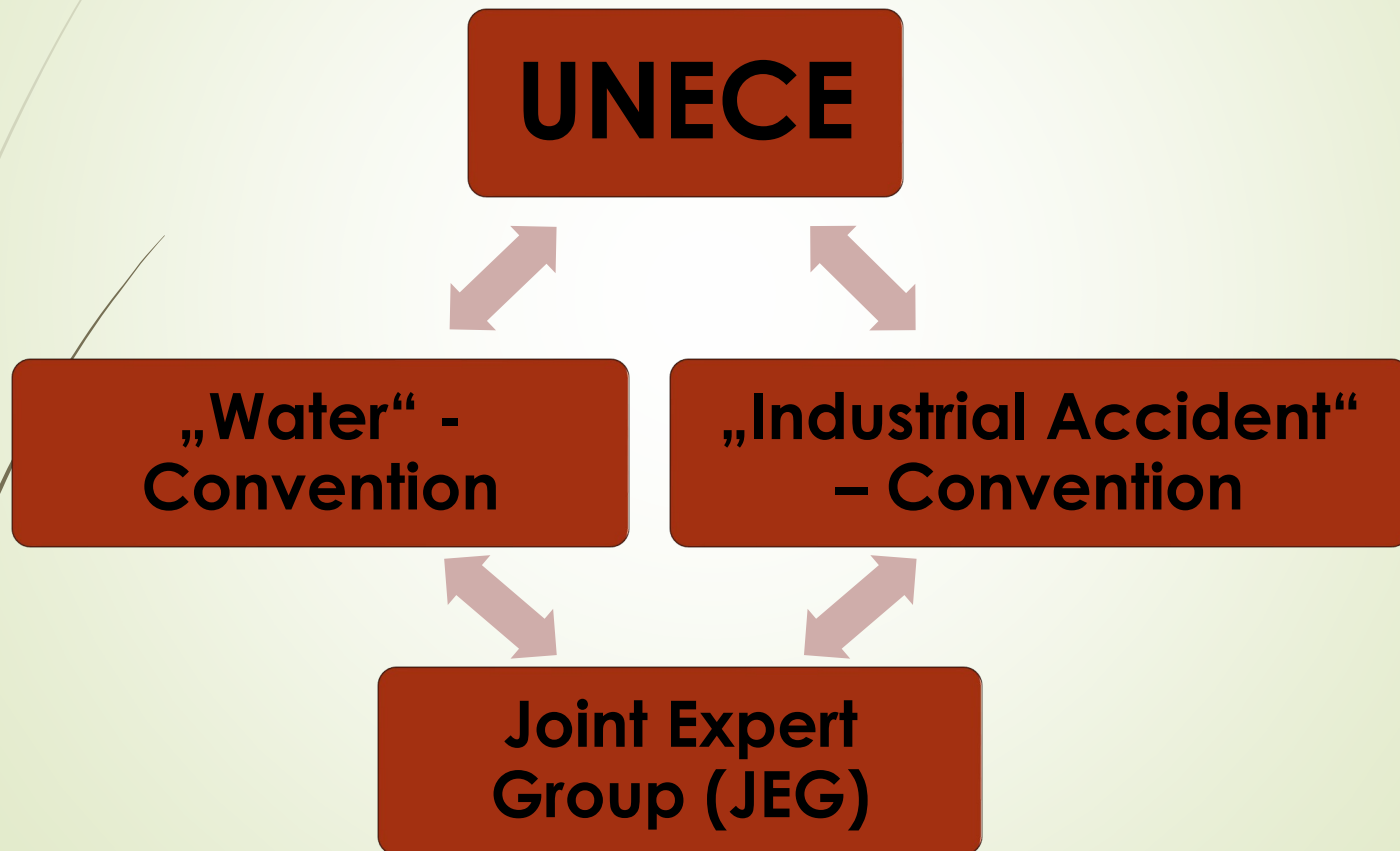
Federal Environment Agency

Dessau, Germany



Prevention of accidental water pollution

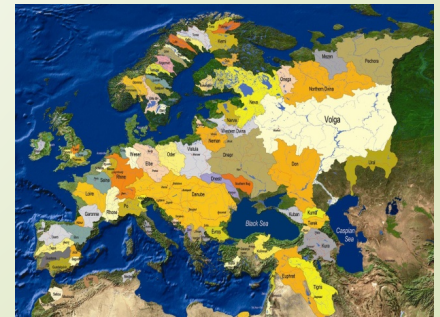
UNECE Joint Expert Group (JEG)



UBA support of UNECE JEG

- UBA is Co-Chair of the JEG
- Work of JEG is supported by Pilot Projects within the Technical Assistance Program of the German Ministry of the Environment

Example: Tailings Management Facilities



Why JEG is important ?

→ **Water Accidents > 95 %
of all transboundary accidents !!**



Water and IAs Convention provide the legal framework for addressing the risk of transboundary water pollution arising from IAs

Lessons Learnt!

- Water accidents can lead to the complete loss of an aquatic ecosystem!
 - Accidents are extremely costly!
 - Safety is the most cost-effective way to run hazardous activities!
- Safe operation of hazardous facilities is economically and ecologically a **must**

- A minimum set of requirements to ensure a basic and harmonized level of safety for hazardous activities throughout the UNECE Region
- A common understanding of safety approaches and standards for specific sectors (Pipelines, Tailings Management Facilities (TMF), Oil Terminals, etc.)
- Assistance of national authorities and operators in ensuring an adequate safety level by means of trainings and seminars

Tools & Products →

Safety Guidelines & Checklists

JEG - Tools and Products

→ Safety Guidelines

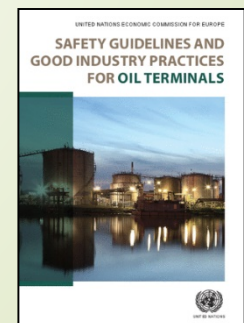
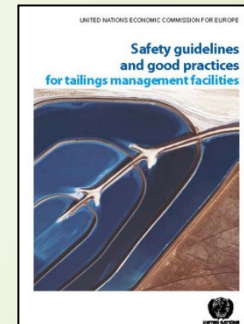
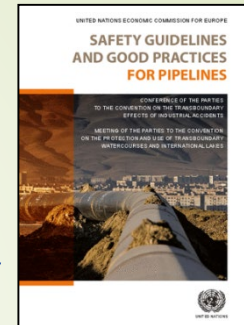
Accepted Good Practice
Procedures to ensure Conformity
with International Standards

→ Pipelines

→ Tailings Management Facilities

→ Oil-Terminals

→ Fire-Water Retention

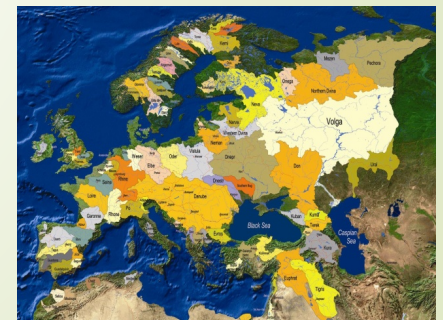


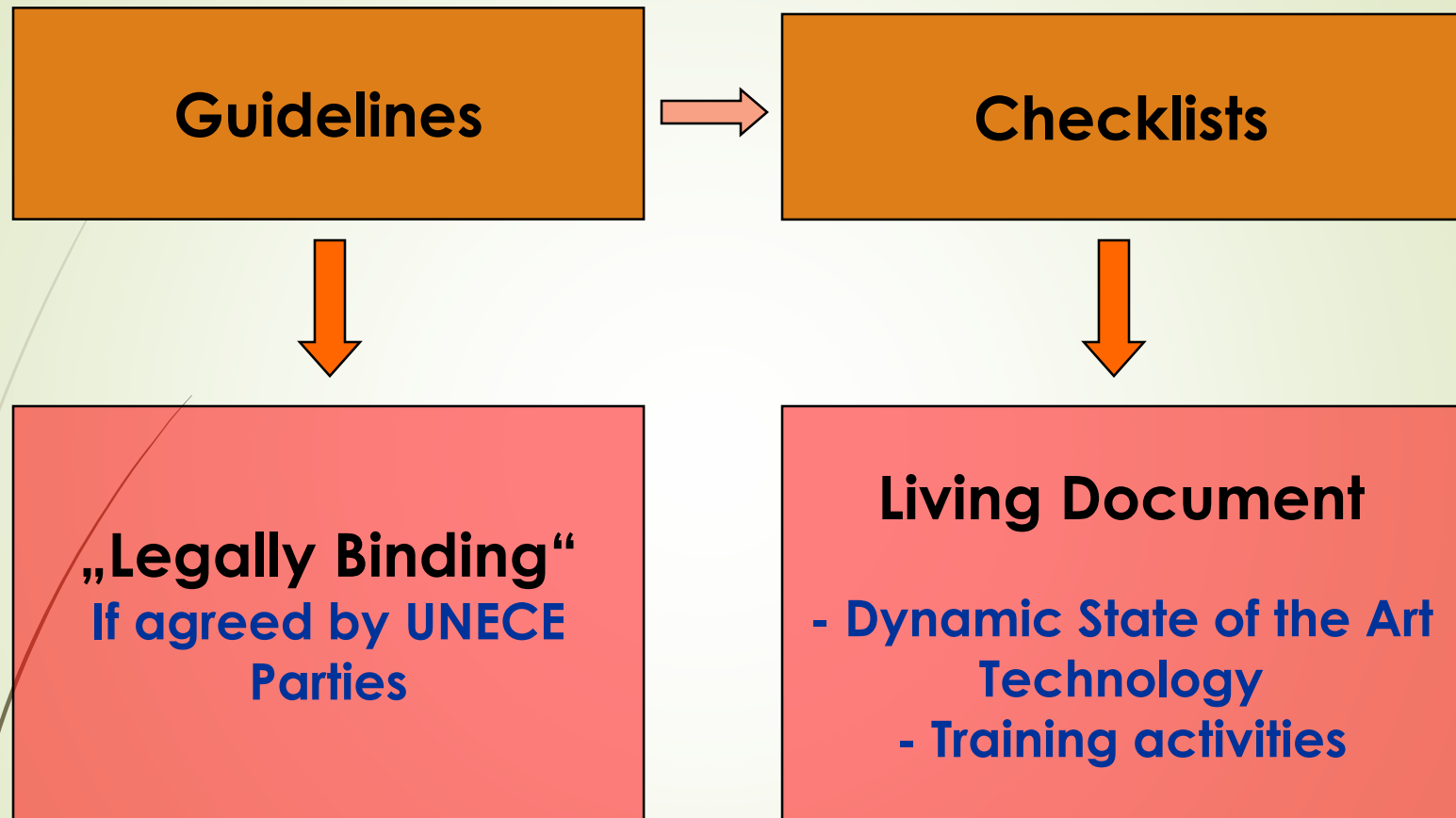
JEG - Tools and Products

→ Checklists

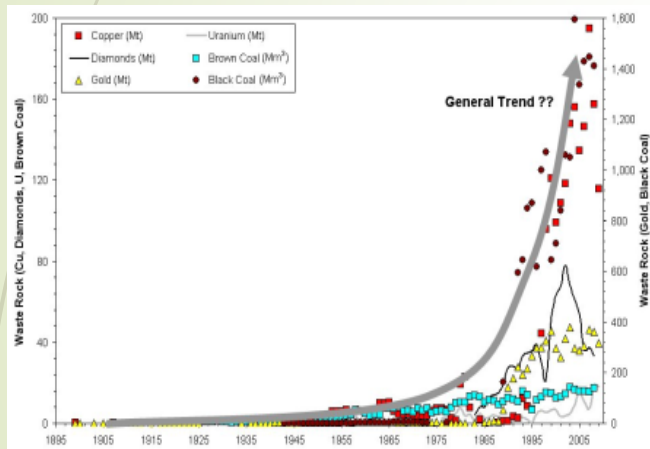
Tools for Assistance (i.e. Training) of national authorities and operators in ensuring an adequate Safety Level

- Waterendangering Facilities
- Hazardous Industries (Seveso)
- Contingency Planning
- Tailings Management Facilities





- Worldwide dramatic growth of mining waste within the last decades.
- Accidents and failures i.e. at TMFs in Romania (2000), Hungary (2010), Ukraine (2008, 2011), Finland (2012), Brazil (2015), Kazakhstan (2016).



Amounts of mining wastes
in the world
(G.V. Mudd, 2007)



The TMF at Ajka
(Hungary) after
the dam failure
(2010)



The river Ridder
after TMF dam
failure in East
Kazakhstan (2016)

Iron-Ore TMF

Bento Rodriguez, Brasil, Nov. 2015

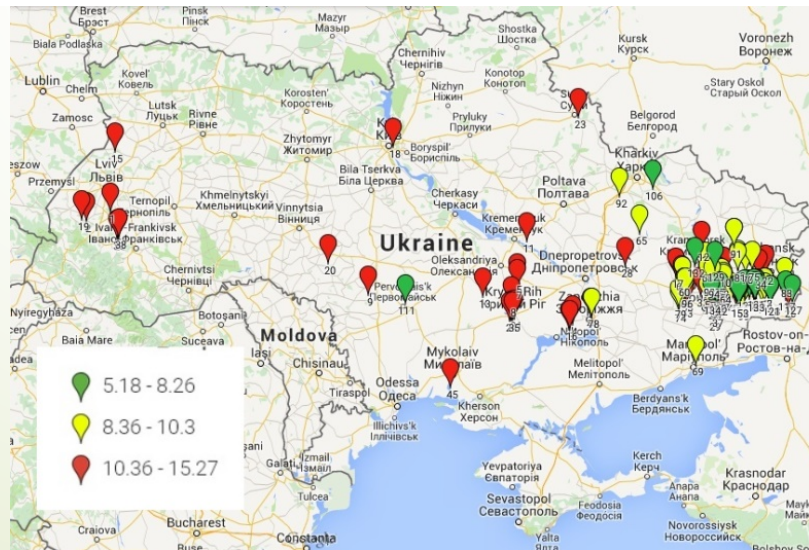


<http://www.faz.net/aktuell/gesellschaft/brasilien-giftige-schlammlawine-begraebt-ein-dorf-13897160.html>

Pilot Project: TMF in the Ukraine

Results:

- Inventory of > 400 TMF sites
- Checklist for TMF
- Tailing Hazard Index (THI)



Project Products

Methodology to improve TMF safety



TMF Checklist
- Questionnaire,
- Evaluation Matrix,
- Measure Catalogue;

for **evaluation of
the TMF safety level**
using test question method
for individual TMF



TMF Risk/Hazard Index
“Tailings Hazard/Risk
Index” (THI)

for a fast preliminary
hazard/risk ranking of TMFs
on the national/international
level

JEG Workplan 2017 -2018

1. Safety of TMF

- Cooperation with Universities, Dnipro
- Caucasian Region (Armenia, Georgia)
- Kasakhstan/Kirgistan ?
- Cooperation with ICPDR

2. JEG Cooperation with International River Commissions

- Exercises & Training
- Checklist for Contingency Planning

3. Safety Guidelines for Fire Water Retention

Safety of TMF in the Caucasian Region

- **Follow-Up Project in cooperation with Armenia and Georgia**
- Practical Training of Inspectors and operators with the Checklist-Methodology on the Safety of TMF
 - Proposal for the Legislative Implementation
 - TMF Risk-Inventory
 - Transboundary Contingency Planning
 - Pilot Platform for Information Exchange with other UNECE countries
 - Training Video

Expected Results

1. International: UNECE/JEG/ICPDR

- Improved Checklist, to be used all over the UNECE (questionnaire, measure catalogue)
- TMF Risk maps, demonstrating the need for Advisory Assistance Projects
- Adjusted Checklist for Contingency Planning, including transboundary TMF accidents
- Super-model for implementing TMF safety issues to legislation in former USSR countries

2. National: Armenia/Georgia

- Training of Trainers, set up of regular national/regional trainings (1 per year)
- Implementation of TMF Safety issues into national legislation (Armenia)
- Concrete legal implementation of TMF issues in EU-compatible law (Georgia)
- Concrete organisational and practical implementation of transboundary contingency planning due to TMF accidents

JEG Workplan 2017 -2018

JEG Cooperation with International River Commissions

- **ICPO: German - Polish Transboundary Exercise**
 - Practical Response Exercise at the Odra River
(Polish and German Fire Fighters)
 - Table Top Exercise - testing the International Warning- and Alert
System for the Odra River

- **International Workshop, 5th September 2017**
„Strategies for Fire Water Retention“, Slubice, Poland

- **ICPDR: Transboundary Exercise at the Danube River (October 2018, Hungary)**
 - Exercise at the River Danube, Hungary, 2nd October 2018
 - Workshop on Contingency Planning in Cooperation with International River Commissions,
Hungary, May 2019

3. Safety Guidelines for Fire Water Retention

Conclusion after the Joint UNECE Seminar to the 25th anniversary of the Sandoz accident (Bonn, 2011):

- Sufficient safety measure to prevent transboundary waters from spills of fire water are still not in place, endangering whole River Catchments, and demonstrating the need for a Strategy/Guidance to Fire Water Retention!



Guidelines/Best Practices for Fire Water Management and Retention

- Draft -

- Fire-Water Retention is a major element according to EU Seveso III Directive in Annex II, Point 5., to restrict the effects of a major accidents
- However nearly no EU country has specific regulations for Fire-Water Retention

Key Elements:

1. Governments should provide leadership and create suitable **administrative and legislative frameworks** to establish the need for fire-fighting water management and retention in case of emergencies at all hazardous activities (i.e. not only restricted to storage)
2. Fire-Fighting water is **dangerous to waters irrespective of the burned material** (even burned packaging material is contaminating fire-fighting waters to a water-endangering fluid)
3. Fire-Fighting water might not contaminate waters and soil and must be **retained completely and disposed adequately**.
4. Fire-Water Retention has to be established at **all** industrial activities (not only storage), which have to be subdivided in fire compartment areas **as small as possible**
5. As an example for firewater retention capacities the German VdS 2557 directive or the Swiss Guidance for firewater retention can be used in industrialized countries
6. For less industrialized countries a fast and rough estimation according to a direct proportionality of the firewater retention volume needed to the largest fire-compartment area can be assumed (JEG-model).
7. Advanced Fire-Water protection can lead to a 10 fold reduce of the retention volume assumed (Advanced JEG-model)

Summary ongoing Activities

→ Response Exercises

- Odra, Germany/Poland (4 September, 2017),
- Danube, Hungary (October, 2018)

→ On-site Trainings (TMF) in Georgia, Armenia

→ Guidance for Fire Water Retention

To be agreed at the 10th CoP, Geneva, Dec. 2018

Thank you for your Attention!

