



Identification of Tailings Sites and Review of Available Information and Initiatives on Issues Related to Tailings Management in EECOA countries

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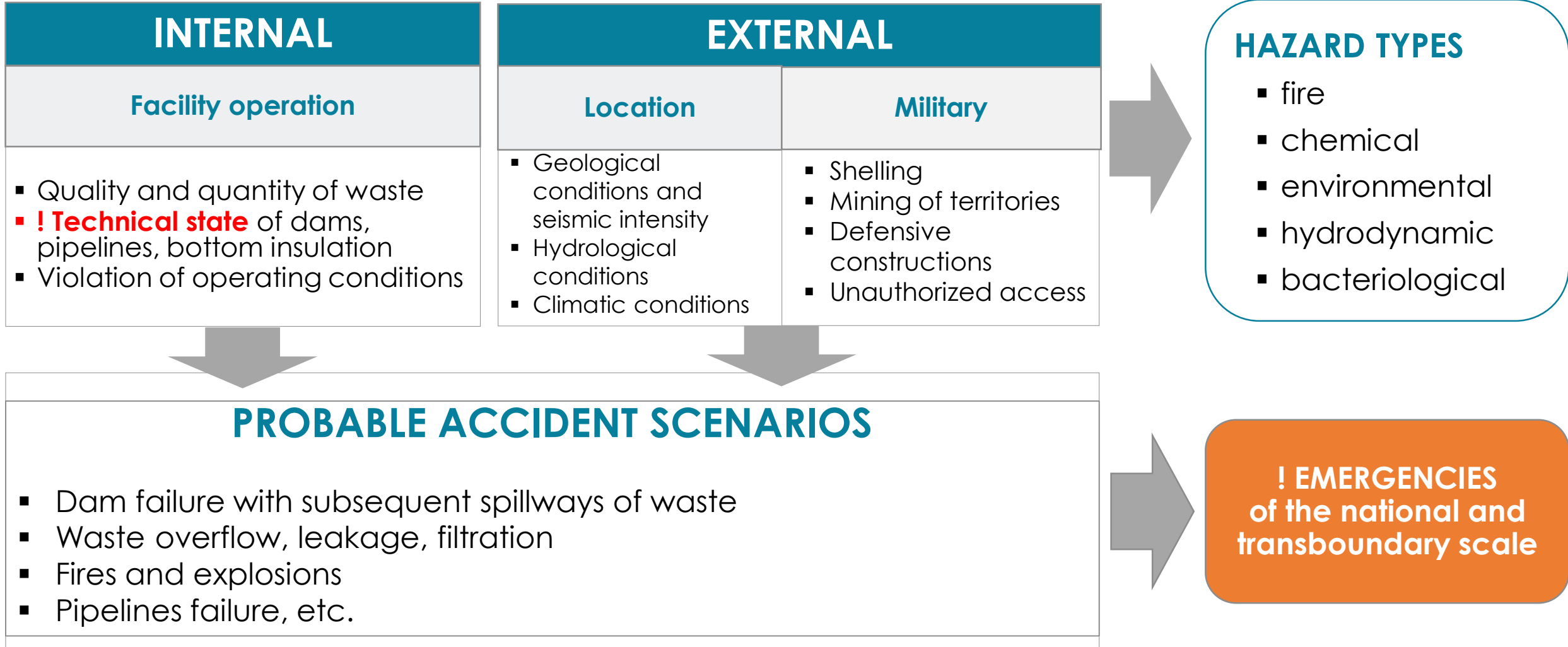
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Introduction



TMF as an object of research

TMF HAZARD DRIVERS



Tailings management in EECCA countries



TMFs identification in the EECCA region



Map of EECCA countries

Country	Number of TSFs
1. Ukraine	465
2. Kazakhstan	121
3. Kyrgyzstan	56
4. Uzbekistan	36
5. Armenia	23
6. Tajikistan	13
7. Belarus	9
8. Georgia	5
9. Azerbaijan	4

Data sources:

- 1) TMF Hazard Maps (en) © UNECE;
- 2) Hazard map TMFs © UBA;
- 3) TMF map © OSCE;
- 4) State registers;
- 5) Monitoring programs; and other open data sources.

TMFs identification in Kazakhstan

Total number of TSFs	121 TMFs
Status of TSFs	<ul style="list-style-type: none"> • Active - 94 • Closed - 25 • Rehabilitated - 2
Total amount of waste stored	2.868 billion tons
Age of TMFs (commissioning year)	<p>≥ 30 years (1937-1990): 70 TMFs</p> <p>< 30 years (1991-2018): 51 TMFs</p>
Industries	recommended
River Basins	recommended



Map of TSFs in Kazakhstan. © UNECE

Data sources:

1) TMF Hazard Map of Kazakhstan (en). © UNECE; 2) TMF map. © UBA

TMFs identification in Kazakhstan

8 River Basins (incl. transboundary)

potentially affected by TMFs in Kazakhstan

Nura-Sarysu, Aral-Syrdarya, Balkhash-Alakol, Irtysh, Ishim, Shy-Talas, Tobol-Turgai, Ural-Caspian



Data on River Basins potentially affected by TMFs is needed for
Assesment of TMF safety:

EIA procedure, Emergency Plan, TMFs accounting System, Emergency Notification System, incl. transboundary emergencies, etc.

Legal framework review

STANDARDS ON TMFs SAFETY as
way-marks for enhancing national legislation on tailings management

Safety Guidelines and Good Practices
for Tailings Management Facilities,
UNECE

Global Industry Standard
on Tailings Management

Methodology
for Comprehensive
Evaluation of TMF Safety

BAT Reference Document
for the Management of
Waste from Extractive
Industries

Legal framework review

Legal aspects of environmental and technogenic safety of TMFs

Industrial Waste Management

- Strategy on industrial waste management
- Licensing/permitting regime
- EIA procedure
- **TMF accounting System**

TMF safe operation

TMF life-cycle approach

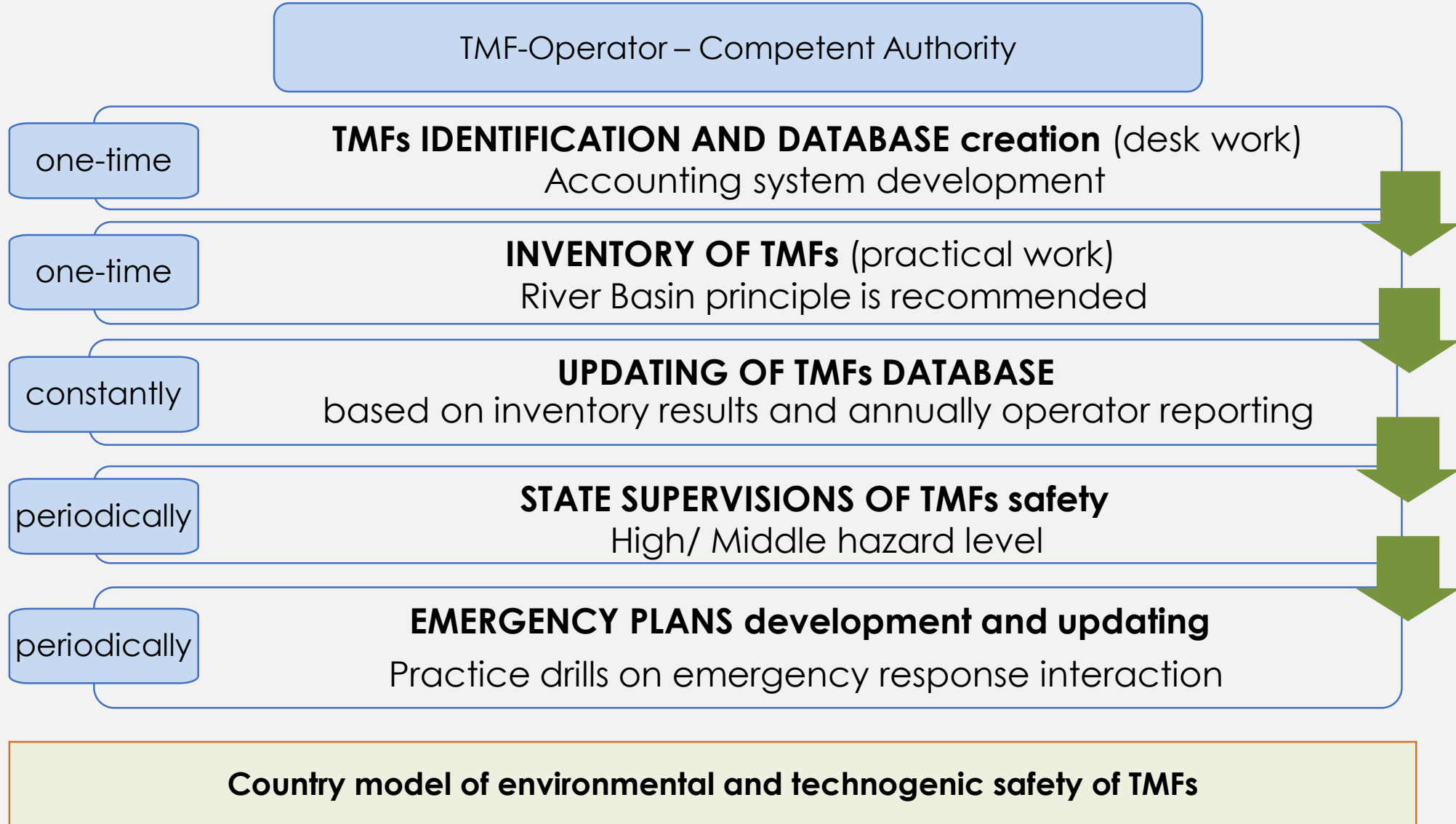
- Design and construction
- Operation
- Monitoring and Management
- Closure and post-closure
- Land rehabilitation

Emergency prevention, preparedness, response

- **Emergency Plans**
 - Transboundary water pollution prevention
 - Accident scenario modeling

Minimum required

Actions to be taken



Possible areas of follow up study



Possible areas of follow up study

Actions to be taken for enhancing TMF safety

The possible pilot projects with further dissemination of the results achieved

1. Inventory of TMFs using River Basin principle (field work), resulting in recommendations on:

- improving the TMF safety level
- accidents prevention
- reducing the risks of water pollution

1.2. Trainings on application of the TMF Methodology involving state supervisors / operators/ independent auditors

2. Development of software for the National TMFs accounting system (TMF-Operator → Competent Authority), data collection and updating process using a modern tool, which will be used by the Competent Authority to make informed management decisions

Possible areas of follow up study

3. Emergency preparedness support at TMF of high-hazard level with potential transboundary impact (TMF-Operator ↔ Competent Authority)

- Developing Emergency Plan for TMF-operator, including a part of the plan on method of modelling of the dam failure scenario and considering the potential transboundary impact
- Conducting practical exercises to enhance interaction between the Competent Authorities and TMF-operator (field work)

4. Satellite monitoring of TMF dam stability and trainings of specialists for further self-use for:

- TMFs located in limited access areas (e.g. mountain locations, territories of the armed conflicts)
- Abandoned multi-tonnage TMFs in emergency state

5. Review of industrial waste recycling technologies for TMFs storing large tonnage waste of high resource value for decades



Thank you for your attention!

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