

Sub-regional workshop on land-use planning and industrial safety (South-Eastern Europe)

27-29 October 2021,
Belgrade, Serbia



What is missing? TMF risks and NATECH considerations in land-use planning process

Bojan Srdić
Ministry of Environmental protection

Republic of Serbia

TMFs, NATECH and SDG implementation

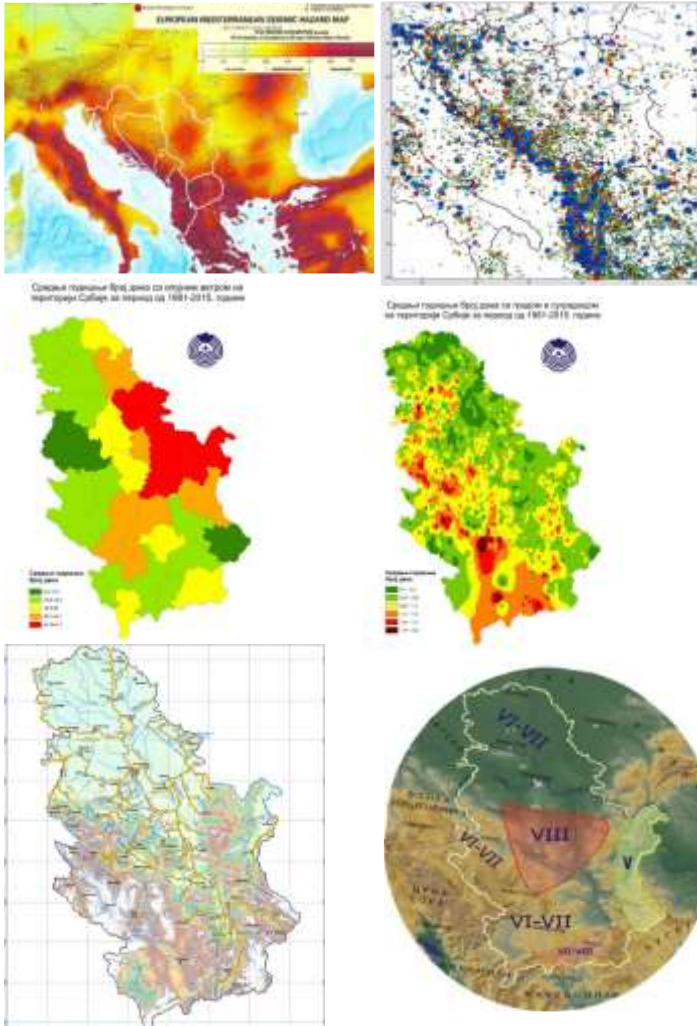


- TMF accidents and Natural hazard-triggered technological accidents – some of worst accident effects for water bodies and environment.
- Climate change - impacts the probability of “Natech” accidents.
- TMFs are Hazardous Activities.
- Landslides, floods and earthquakes can lead to TMF failures with potentially large-scale and transboundary effects.
- The combined increases in demand for mining and impacts of climate change require strong actions to be taken to ensure TMF safety.



TMFs in relation to industrial safety and land-use planning

NATURAL HAZARDS



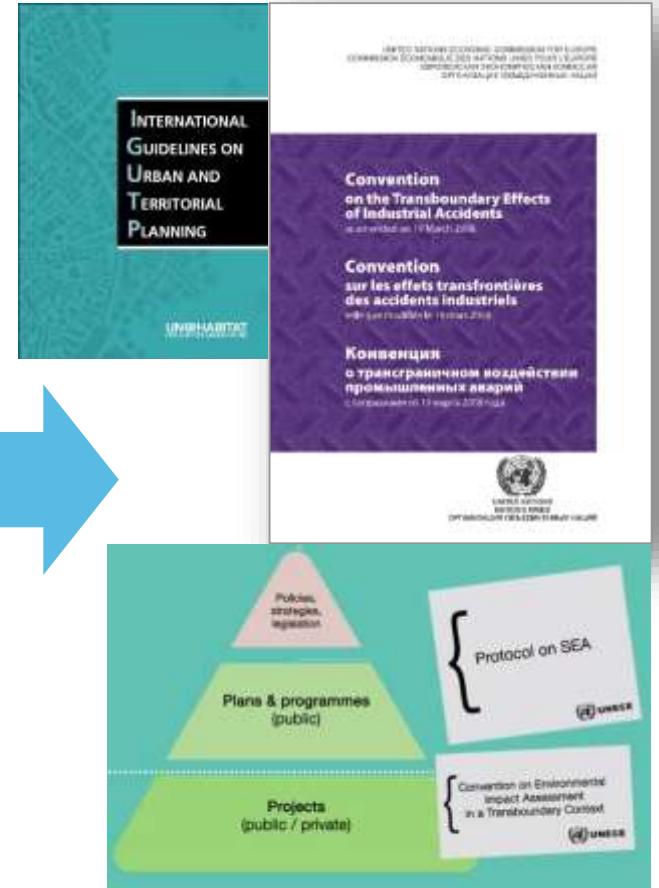
TMF

Identification process

Hazardous Activities considerations and notification

Major Accident effects modelling

Inputs for spatial planning process



Overview of legislation and institutional structures on TMFs in relation to industrial safety and land-use planning

- Law on Planning and Construction prescribes mandatory content of territorial/spatial and urban plans:
 - Environment protection measures are integral part of any spatial plan and planning rules in urban plans;
 - Spatial plans contain report of Strategic Environmental Impact Assessment (SEA) as part of documentation basis, which affects to the formulation of measures;
- Mandatory Environmental Impact Assessment for large infrastructure facilities, inter alia Seveso facilities and establishments;
- Law on Environment Protection treats TMFs as Hazardous Activities – Seveso establishments;
- Disaster Risk Assessment of Republic of Serbia has identified and mapped natural risk hazards;
- Gap in transposition and implementation of Directive 2006/21/EC on the management of waste from extractive industries decisively influenced identification of TMFs as Hazardous Activities – Seveso establishments;
- Logging in identification is influencing logging in risk assessment and use of data in spatial planning process;
- Quality of major accident effects modelling is questionable for TMFs, thus further influencing use in spatial planning process;

Opportunities



Tailings Risk Index for TMF Risk evaluation

$$TRI = THI + TEI$$

Tailings Exposure Index (TEI), combined with the THI resulting in the TRI

$$TEI = TEI_{Pop} + TEI_{Env}$$

Abbreviation	Component of risk to people or environment
TEI_{Pop}	the downstream population in a distance up to 10 km from the TMF (PAR)
TEI_{Env}	the size of the nearest waterbody to the TMF located downstream in the distance of 10 km from TMF that may be polluted by a TMF accident

Countries can use Tailings Risk Index as step towards better risk assessment for TMFs.

It was developed by Joint Expert Group on Water and Industrial Accidents.

Historic approach was used and data for 323 TMF accidents in DRB and UNECE region was collected. Main issue, data for the runout distance during TMF accident, existed in 91 case.

According to the distribution of the runout distances, for majority of the cases (60%) the runout distance did not exceed 10 km. No data on serious health damages out of 10 km zone were found at other TMF accidents within the DRB or the UNECE region.

Standard runout distance of 10 km was defined to assess the population at risk within the DRB (also recommended for the UNECE region).

Way forward

Identification issue needs an alignment of CA identification procedures followed by adequate information exchange.

Notification is possible only after adequate identification.
Risk assessment for TMFs must include considerations of natural hazards as triggers of Major accidents at TMF locations.

Major Accident effects modelling – remains an issue. Stakeholders must work towards defining uniform method, usable for all TMFs.

Inputs in spatial planning process can be either for locations of new TMFs, for modifications at existing TMFs or developments in area near TMFs. These inputs may not be adequate if previous steps in process are not corrected.



Way forward



Disaster risk reduction must start in spatial planning and construction & permitting processes.

Risk assessments must be taken into account when planning for locations of new TMFs, despite possible lack of information.

Modifications at existing TMFs that are aggravating existing risks should not be allowed. Modifications minimising risk should be encouraged.

Developments in area near TMFs should be minimised, and ones downstream of TMFs should be stopped.

Thank you for your attention!

Bojan Srdić

Ministry of Environmental protection

bojan.srdic@ekologija.gov.rs