Sustainable Infrastructure for the SDGs – Nexus Dialogue

26<sup>th</sup> February 2019





### How UNECE's legal instruments and tools promote sustainable infrastructure

Session 2: Surveying the sustainable infrastructure landscape: existing tools, approaches, initiatives Rebecca Wardle, Consultant, United Nations Economic Commission for Europe Convention on the Transboundary Effects of Industrial Accidents



### United Nations Economic Commission for Europe (UNECE) region





56 member States across Europe, North America and Asia. Supporting countries to achieve the SDGs



#### Rapid urbanization



Urban Population in UNECE region (% of total) Source: World Bank Statistics



![](_page_3_Picture_1.jpeg)

### Industrial safety threats - Europe

![](_page_3_Figure_4.jpeg)

**Population density** 

![](_page_3_Picture_6.jpeg)

"Seveso" (hazardous industrial activities) sites, Europe

#### **Industrial safety**

![](_page_4_Picture_1.jpeg)

## Sustainable infrastructure: key issues affecting the UNECE region

### Industrial safety threats

![](_page_4_Picture_4.jpeg)

Cynaide spill from a gold mine, Baie Mare, Romania (2000)

Explosions and fire at oil depot, Buncefield, UK (2005)

Accidental spill, zinc mine in Ridder, Kazakhstan (2016)

#### **Industrial safety**

![](_page_5_Picture_1.jpeg)

## Sustainable infrastructure: key issues beyond the UNECE region

### Industrial safety threats – beyond the UNECE region

![](_page_5_Picture_4.jpeg)

Brazil on 25 January 2019 when the Brumadinho dam failed at an iron ore mine in the South East of the country, killing over 65 persons with roughly 300 still missing.

![](_page_6_Picture_1.jpeg)

### Industrial accidents triggered by natural hazards ('NATECH')

![](_page_6_Picture_4.jpeg)

Fukushima Daiichi Nuclear Disaster, triggered by a tsunami, Japan 2011

Refinery at Port Arthur, Sep. 2017 after Hurricane Harvey (USA)

![](_page_6_Picture_7.jpeg)

Industrial and chemical hazard management important in light of climate change and extreme weather events that can trigger major accidents

![](_page_7_Picture_1.jpeg)

## The Belt and Road initiative: opportunities and risks for existing and planned infrastructure

- Meets infrastructure needs for transportation, communication, energy supply and industry
- Major opportunity to enhance connectivity and economic prosperity
- Boosts socio-economic & institutional development and regional cooperation

Potential irreversible environmental impacts:

- Contamination of water
- Air pollution and impact on climate
- Destruction and fragmentation of habitats, nature reserves and migratory paths
- Deforestation and Soil erosion

![](_page_7_Figure_12.jpeg)

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![](_page_8_Picture_1.jpeg)

Belt and Road initiative

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### Infrastructure within and along transboundary waters

- 153 countries share rivers, lakes and aquifers.
- Transboundary basins cover more than 50% of Earth's land surface, account for 60% of global freshwater flow and are home to more than 40% of the world's population.
- Infrastructure development in transboundary basins can be a source of friction: dams, reservoirs, canals, diversions, irrigation systems, wastewater, industrial activities that pose a pollution risk etc.

![](_page_9_Picture_7.jpeg)

![](_page_10_Picture_1.jpeg)

### Air pollution

- Decoupling of air pollutant emissions and economic growth
- Air pollutant emissions reduced considerably in western Europe achieved through investments in more sustainable infrastructure, e.g. technological solutions such as flue gas desulphurisation, low-sulphur fuels and catalytic converters in cars and energy efficiency improvements
- However, progress uneven in the UNECE region – need for implementation of Best Available Techniques in energy in EECCA

![](_page_10_Figure_7.jpeg)

Figure 17. Determinants of reductions in sulphur dioxide (SO<sub>2</sub>) emissions in western Europe (Rafaj et al., 2014).

# How UNECE's legal instruments, tools UNECE and guidance support sustainable infrastructure

![](_page_11_Picture_1.jpeg)

- A platform for governments to discuss and advise on integrated policy development.
- Sets norms and standards and facilitates dialogue at the transboundary level about plans, development, impacts and monitoring

Housing and land management, industrial safety, environmental impact, and public participation

![](_page_12_Picture_1.jpeg)

### Guidance on Land-Use Planning, the Siting of Hazardous Activities and related Safety Aspects (2017)

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Jointly developed by UNECE Industrial Accidents Convention, Espoo Convention and Protocol on Strategic Environmental Assessment. Contributions by Committee on Housing and Land Management and Aarhus Convention.

A tool for countries to improve their planning, coordination and decision-making on land use plans and development proposals.

Part A – General guidance: synergies and interlinkages between UNECE legal instruments; countries' good practice examples of their application

Part B – Technical guidance: examples of land-use planning approaches and risk assessment methodologies; key steps to evaluate proposals

http://www.unece.org/fileadmin/DAM/env/teia/i mages/1735403E\_Final\_ENG\_web.pdf

![](_page_13_Picture_1.jpeg)

## **Guidance on Tailings Management Facilities and other industry sectors**

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Guidance on TMFs helps to improve the safety of mining operations and prevent accidents like the dam failure in Brazil (January 2019).

Other guidance developed by UNECE Industrial Accidents Convention and Water Convention and the Joint Expert Group on Water and Industrial Accidents for a variety of industry sectors.

#### Transboundary water pollution (water-food-energy-ecosystems nexus)

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## Work on the water-food-energy-ecosystems nexus under the Water Convention since 2013

- Task Force on the Water-Food-Energy-Ecosystems Nexus
- Capacity building and joint assessments with countries on resource management trade-offs and synergies
- Reconciling of different sectors' development and environmental needs.
- Participatory assessments in 7 basins Balkans, Caucasus, Central Asia, northern Africa
- Synthesis: the consolidated methodology for nexus assessment in transboundary basins, published (2018)
- Assessment reports, policy briefs (Available at: <u>http://www.unece.org/env/water/publications/pub.html</u>)
- Follow up actions: e.g. Multi-stakeholder "Hard Talks" on Renewable Energy Investment, jointly with the GERE & governments
- Foreseen 2019-2021: a synthesis of solutions (including infrastructure), guidance for navigating the trade-offs and synergies in renewable energy

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#### **Environmental impacts**

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#### UNECE Espoo Convention and the Protocol on SEA = Key tools for sustainable infrastructure

ENVIRONMENT

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- EIA: applied to projects
- SEA: applied to plans, policies / legislation, programmes
- Helps to avoid/reduce & monitor negative environmental & health impacts of planned strategies and projects
- Improve planning & project design
- Decision-making better-informed & more objective through stakeholder consultations

![](_page_15_Figure_10.jpeg)

- Enhance governance transparency, public participation
- Improve cross-boarder cooperation, help avoid tensions/conflicts
- Guidelines, legislative advice, pilots and training help countries in reforming legislation and assessing the impacts of plans and projects – important tools e.g. for Central Asian countries to green the BRI
- E.g. Guidelines on EIA in a Transboundary Context for Central Asian Countries

#### Air pollution

![](_page_16_Picture_1.jpeg)

### Task Force on Techno-Economic Issues, under the UNECE Air Convention

- Set emission limit values for air pollutants, proven to help stimulate investments in clean technologies and infrastructure, incl. in energy sector
- Task Force on Techno-Economic Issues on database of information on control technologies for air pollution abatement and their costs
- Capacity building activities on Best Available Techniques
  - Identifying technologies to reduce air pollution, through enhanced international cooperation
  - Making investments in clean technologies and sustainable infrastructure

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![](_page_17_Picture_0.jpeg)

### Conclusion

UNECE's conventions, tools and guidance are applicable for use in the region and globally.

Cross-sectoral policy integration and cooperation is crucial for the development of sustainable infrastructure

Transboundary cooperation is also vital to address these regional and global challenges.

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![](_page_18_Picture_0.jpeg)

### Thank you for your attention!

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![](_page_18_Picture_3.jpeg)

![](_page_19_Picture_0.jpeg)

### SDG9

### Goal 9: Sustainable Cities and Communities

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

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![](_page_19_Picture_6.jpeg)