

# Sub-regional workshop on land-use planning and industrial safety for Eastern Europe and the Caucasus

Practical exercise with a role play (23rd May 2019)

## Summary of the Scenario

*Decision-making on land use proposals in the towns of Westeros (in country A) and Essos (in country B): Important considerations for industrial accident prevention in a transboundary context, through negotiations between stakeholders in the planning process*

## Purpose

*The practical session with a role play aims to help participants to understand and practice methods to ensure greater safety through cooperation between land-use planners, industrial safety experts, industry operators and other stakeholders, within and across borders*

## Summary of the scenario

The scenario is based in two fictitious areas that are directly across the border ('Westeros' in Country A and 'Essos' in Country B). Westeros contains an existing hazardous industrial facility, chlorine storage, that fall within the scope of the UNECE Convention on the Transboundary Effects of Industrial Accidents. In Essos there is no hazardous industrial facility near to the border.

The authorities on both sides of the border need to review recent proposals for new developments, which are proposed to be sited near an existing hazardous facility, and decide whether to approve them or not (refer to the *Guiding Questions* handout).

***The scenario involves decision-making on siting of new development proposals, taking into consideration the local authorities' land use plans and existing hazardous facilities in the towns.***

In Westeros (in Country A), there are three new development proposals:

- development of a cruise terminal (3 different location options are shown on the plan)
- development of wind turbines
- development of a new industrial area

In Essos (in Country B), there is one new proposal:

- development of a visitor center with hotel facilities

When reviewing and assessing these proposals, the authorities must take into consideration the existing industrial facilities that have the potential to cause impacts on the surrounding populations, property and sensitive environmental areas (including the RAMSAR nature protection area, which contains protected species), on both sides of the border.

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## Descriptions of the existing hazardous facility and the proposed new developments

### 1. Description of the existing hazardous facility and the risk assessment methodologies

#### 1.1. General information about the Country A and Country B's risk assessment methodologies

Both countries A (Westeros) and B (Essos) are using a quantitative approach for the risk assessment of industrial facilities with hazardous substances. However, **the two countries use different methodologies for the quantitative risk assessment**. For example, Countries A and B use different failure frequencies for major accident scenarios and different effect models to calculate the damage of major accident scenarios at hazardous facilities. The methodology for the risk assessment for hazardous facilities in each country is made obligatory by the respective competent safety authorities. So, each country has its own rules for applying the quantitative risk assessment.

The results of the quantitative risk assessment are presented as 'Iso Risk Contours' for each facility. These risk contours are lines around the hazardous facility that connect 'points of equal risk'. The Iso Risk Contours are the sum of the risks (or 'total risk') of each hazardous facility. The contours are plotted on an area map (to produce an iso-risk contour map) and then presented on the land-use plans.

**In addition, the 'risk evaluation' (also known as the 'risk acceptability criteria') applied by the competent safety authorities in Country A is different to that in Country B.** The differences in thresholds/risk acceptability criteria are explained in the table.

Iso Risk Contour	Country A	Country B
	Contour may not overlap the following areas:	Contour may not overlap the following areas:
10 <sup>-5</sup> /year	Areas outside the premises where 10 or more persons can be present at any time	-
10 <sup>-6</sup> /year	Residential areas	<ul style="list-style-type: none"> <li>• Residential areas</li> <li>• Public services areas</li> </ul>
10 <sup>-7</sup> /year	Areas with vulnerable populations such as hospitals, schools and day nursery centers	-

### Special remarks:

**Parts of Countries A and B are situated below sea level and for that reason the countries are particularly vulnerable to floods as a natural disaster.** Therefore, when conducting risk assessments and when establishing policies or plans relating to industrial safety, environmental assessment and land-use planning, the countries need to take into consideration climate change and natural disasters such as floods. To assist them in this regard, the countries make use of the UNECE Industrial Accidents Convention (particularly article 7\* on siting), the UNECE Guidance on land-use planning, the siting of hazardous activities and related safety aspects, and the Sendai Framework for Disaster Risk Reduction 2015-2030, among others.

*\*Article 7 of the UNECE Industrial Accidents Convention (Decision-making on siting): Within the framework of its legal system, the Party of origin shall, with the objective of minimizing the risk to the population and the environment of all affected Parties, seek the establishment of policies on the siting of new hazardous activities and on significant modifications to existing hazardous activities. Within the framework of their legal systems, the affected Parties shall seek the establishment of policies on significant developments in areas which could be affected by transboundary effects of an industrial accident arising out of a hazardous activity so as to minimize the risks involved. In elaborating and establishing these policies, the Parties should consider the matters set out in Annex V, paragraph 2, subparagraphs (1) to (8), and Annex VI hereto.*

## **1.2. Description of the hazardous facility**

This description includes the main activity, the dangerous substances, the categories of hazards and the maximum effect distances in case of major accidents.

Due to the amounts of the given dangerous substances and its location close to the border with Country B, the described hazardous facility applies to the UNECE Industrial Accidents Convention. The categories of hazards correspond to the Global Harmonized System.

The maximum effect distances are presented as distances referring to the border of the facility. The effect distances represent the distances where the probability of lethality to persons is 1%.

### **1.2.1. Westeros (country A)**

Hazardous facility is storage of chlorine (brown on the land-use plan)

The main activity of the company is the production and the storage of chlorine. The chlorine is liquified at the company and stored in 6 storage tanks. Chlorine is distributed to other companies in Country A by underground pipelines.

The most important major accident would involve the release of chlorine from the storage tanks forming a toxic cloud.

<b>Dangerous substances</b>	<b>Category of hazard</b>	<b>Effect distance (1% lethality)</b>
Chlorine	Acute toxic, category 1	9580 m
Not specified	Hazardous to the aquatic environment, category acute 1 or chronic 1	-

### **1.2.2. Essos (country B)**

In Essos there is no hazardous industrial facility close to the border.

## **2. Descriptions of proposed new developments**

### **2.1. Westeros (country A)**

#### **2.1.1. Renewable energy**

The aim of the development proposal is to have as many wind turbines as possible. Because there are no buildings in the area, it is assumed that the combination with solar panels isn't possible.

The proponent of this project is: the Ministry of Energy.

#### **2.1.2. Cruise terminal**

A cruise terminal is proposed to be developed in Westeros (Country A). There is a high demand for such development. Two possible locations within the mixed residential area and one in the port area are envisaged. Each of these has advantages and disadvantages. During the role play the group decide on the best option in terms of siting which would also include designing the road to and from the cruise terminal.

Operation time for the cruise terminal is from 7:00 until 23:00.

The proponent of this project is: the Ministry of Tourism and a cruise operator.

#### **2.1.3. New industrial area**

In Westeros there is a high demand for new industrial areas. An area adjacent to an existing industrial area is proposed. The new industrial area is situated near the border of Essos (Country B) and near to the Port. The proposal is to develop industrial facilities which contain hazardous substances that fall within the scope of the UNECE Industrial Accidents Convention.

The proponent of this project is: the Ministry of Economy and a project developer/ company operating hazardous industrial facilities.

### **2.2. Essos (country B)**

#### **2.2.1. Visitor center with hotel facilities**

In Essos there is a large Nature Park near the coast. The proposal is to make the Nature Park more accessible to the public and to build a visitor center with hotel facilities. The visitor center is located at the beginning of many walking and cycling paths. The hotel has 200 rooms, 5 conference rooms, swimming and wellness facilities. Parking for about 400 cars and 50 busses is needed.

The proponent of this project is: the Ministry of Environment and a project developer.

The Nature Park consists of two protected areas under the Ramsar Convention on protected wetlands.

Along the coast: Nature Reserve 1 contains bogs, distinguished by a unique floral composition including elements of alpine communities. It includes a variety of bogs, swamps, fens and forested lands. Vegetation consists of grassy bogs and swampy forests. Various species of migratory water birds occur in internationally important numbers, and certain waterbird species nest there. Ancient artifacts are found within the reserve. Human activities include small-scale cattle grazing, mowing, forestry.

Nature Reserve 2. A coastal sandy plain, dissected by rivers with extensive wetlands and lakes. The site supports a wide range of flora and fauna species. Vegetation consists of typical bog species, with freshwater marshes supporting salt-tolerant plants. Various species of water birds use the site. Nesting species in internationally important numbers include the "white-tailed eagle" and the "sea hawk". Current

human activities in the reserve include tourism, small scale fishing, agriculture, timber cutting, peat extraction and hunting. Ancient artifacts are found at the site.

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### Practical exercise with a role play (23rd May 2019) **Stakeholder Descriptions**

Key motivations, values, responsibilities and duties in relation to the selected development proposal for the role play

STAKEHOLDERS	KEY MOTIVATIONS / VALUES	KEY RESPONSIBILITIES / DUTIES
<i>City Council (the decision-making authority for significant development projects)</i>	<ul style="list-style-type: none"> <li>Ensuring that the decision benefits the town – socially, economically and environmentally</li> <li>The long-term sustainability and attractiveness of the town, in terms of investment, economic growth, tourism, renewable energy, health and safety, etc.</li> </ul>	<ul style="list-style-type: none"> <li>For significant projects, make a decision on whether the development proposal should be approved, not approved, or approved with conditions/modifications</li> <li>Review the information and recommendations provided by the planning authority and industrial safety authority (as well as other relevant authorities)</li> <li>Ensure that the planning processes are managed by the local authorities in an effective way</li> <li>Actively engage with citizens, businesses, operators and other stakeholders who may be affected by the development proposal</li> </ul>
<i>Land-use planning authority (local level)</i>	<ul style="list-style-type: none"> <li>Making an informed decision on the proposed development</li> <li>Ensuring that the decision benefits the town (i.e. so that it is socially, economically and environmentally sustainable)</li> <li>Enhancing cooperation with the facility operators and industrial safety authority</li> </ul>	<ul style="list-style-type: none"> <li>Assessing and managing the planning application for the development proposal. Taking the relevant steps and engaging with other authorities to reach a decision</li> <li>For significant projects, providing a recommendation to the decision-making authority (i.e. the City Council) as to whether the plan with the new developments should be approved, adapted and approved or not approved</li> <li>Determine whether the proposal of the land-use plan is compatible the surrounding land uses/developments within the country and across the border</li> </ul>

STAKEHOLDERS	KEY MOTIVATIONS / VALUES	KEY RESPONSIBILITIES / DUTIES
<i>Industrial safety authority (national level)</i>		<ul style="list-style-type: none"> <li>• Identify stakeholders whose interests may be affected by the proposal, and inform and involve them early in the process</li> <li>• Ensure a transparent planning process; promoting active participation of relevant stakeholders</li> <li>• Take the relevant steps to ensure that the planning process is managed in an effective way</li> <li>• Review the recommendations of the industrial safety authority (as well as other relevant authorities)</li> </ul>
	<ul style="list-style-type: none"> <li>• Ensuring the decision on the development proposal represents a high level of safety</li> <li>• Enhancing cooperation with operators and the local planning authorities and across the border</li> </ul>	<ul style="list-style-type: none"> <li>• Assessing the development proposal in terms of preventing and managing industrial accidents, including transboundary accidents</li> <li>• Reviewing the safety report and other risk assessment information on the hazardous facilities near to the development proposal</li> <li>• Providing an explanation and a recommendation to the land-use planning authority and the City Council as to whether the proposal should be approved or not from a safety point of view, and whether particular requirements should be added.</li> </ul>
<i>Hazardous facility operator</i>	<ul style="list-style-type: none"> <li>• Maintaining safe and efficient operations without new restrictions</li> <li>• The flexibility to modify, innovate and/or expand operations in the future</li> </ul>	<ul style="list-style-type: none"> <li>• Take an active part in the planning process and be open to constructive solutions</li> <li>• Give appropriate information on the possible risks</li> </ul>
<i>Port Authority</i>	<ul style="list-style-type: none"> <li>• Ensuring efficient operations and economic viability of the Port</li> <li>• Ensuring safety standards are met</li> <li>• Enhancing tourism</li> <li>• Maintaining flexibility to expand operations in the future</li> </ul>	<ul style="list-style-type: none"> <li>• Take an active part in the planning process and offer constructive solutions</li> <li>• Respond and engage with the local planning authority and the national safety authority</li> </ul>

STAKEHOLDERS	KEY MOTIVATIONS / VALUES	KEY RESPONSIBILITIES / DUTIES
<i>Ministry of Energy</i>	<ul style="list-style-type: none"> <li>• To ensure sufficient energy supplies that meet the country's demands</li> <li>• To increase sources of renewable energy</li> </ul>	<ul style="list-style-type: none"> <li>• Generate support for renewable energy, particularly for wind energy</li> <li>• Raise awareness about energy problems - in terms of sources and emissions</li> <li>• Prepare and submit a planning application to the authorities</li> <li>• Take active part in the planning process and be open to constructive solutions, including conditions or alternative locations</li> </ul>
<i>Ministry of Tourism</i>	<ul style="list-style-type: none"> <li>• Increase tourism in the country</li> </ul>	<ul style="list-style-type: none"> <li>• Indicate the advantages of a cruise terminal</li> <li>• Cooperate with the stakeholders in order to reach a good decision on siting, taking into account social, environmental and access/mobility criteria in order to avoid negative impacts on the residents in the neighbouring country and the economic operation of the port</li> <li>• Prepare and submit a planning application to the authorities</li> <li>• Take active part in the planning process and be open to constructive solutions, including conditions or alternative locations</li> </ul>
<i>Ministry of Economy</i>	<ul style="list-style-type: none"> <li>• To enlarge the port area with a new industrial area in order to strengthen the operations of the port and industry;</li> <li>• Gain support for enlarging this particular port/industrial area</li> </ul>	<ul style="list-style-type: none"> <li>• Raise awareness about the importance of creating work for people in the area and the economic importance of industry and the port</li> <li>• Prepare and submit a planning application to the authorities</li> <li>• Take active part in the planning process and be open to constructive solutions, including conditions or alternative locations</li> </ul>
<i>Ministry of Environment</i>	<ul style="list-style-type: none"> <li>• To enhance eco-tourism in the country, taking advantage of the nature park which is of international importance</li> <li>• To protect and enhance natural assets</li> <li>• To offer conference facilities in a natural setting</li> </ul>	<ul style="list-style-type: none"> <li>• Generate support for eco-tourism as an important source of income for the town and the country and to enhance environmental protection in the long-term</li> <li>• Cooperate with the stakeholders in order to permit the development of a visitor centre</li> <li>• Find a solution in relation to the partial-siting of the visitor centre within the Iso Risk contours</li> <li>• Prepare and submit a planning application to the authorities</li> <li>• Take active part in the planning process and be open to constructive solutions, including conditions or alternative locations</li> </ul>



STAKEHOLDERS	KEY MOTIVATIONS / VALUES	KEY RESPONSIBILITIES / DUTIES
<i>NGO – Civil and nature protection proponent active in both countries</i>	<ul style="list-style-type: none"> <li>• The social and environmental sustainability of the town</li> <li>• Environmental protection and renewable energy sources</li> <li>• Avoid the environmental and social impacts of the development proposals</li> </ul>	<ul style="list-style-type: none"> <li>• Raise awareness and campaign in relation to industrial safety hazards, risks for human health, and land-use planning decisions</li> <li>• Advocate for social and environmental issues, against economic interests</li> <li>• Take active part in the planning process to influence decision-making</li> </ul>

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Practical exercise with a role play (23rd May 2019)

## Guiding Questions

The following questions are intended to initiate and steer the discussions in the role play. The stakeholders should consider these questions, among others, in relation to the development proposal.

1. **Stakeholder views:** *What are the main values, interests and responsibilities of each stakeholder in relation to the development proposal? Which stakeholders might be most affected by the proposal? More broadly, what benefits could the proposal provide to society?*
2. **Environmental impacts:** *In what ways could the environment be (positively and/or negatively) impacted?*
3. **Key information needed:** *What information is needed to assess and make a decision on the development proposal? Refer to the “UNECE Guidance on land-use planning, the siting of hazardous activities and related safety aspects” for assistance*
4. **Siting / location:** *Is the siting of the proposed development proposal appropriate and compatible with the surrounding land uses/developments? Refer to Article 7 and Annex VI of the UNECE Industrial Accidents Convention to assist the decision-making*
5. **Land use zoning:** *Within which land use zone category (e.g. mixed residential, public services, recreational, etc) is the proposed development located? Is proposed development compatible with this land use zone?*
6. **Transport / access:** *Where are the existing key transport routes? Where should the new transport routes and access points for the development go? Is the safety of the transport routes affected by the proposal or the hazardous industrial facility?*
7. **Transboundary cooperation:** *How should neighbouring countries cooperate on land-use planning and siting decisions? Is dialogue important?*
8. **Different risk assessment methodologies:** *If neighbouring countries use different risk assessment methodologies to assess the hazards and risks, how should this be managed? Which stakeholders should be involved in this regard? How does this affect cooperation and decision-making?*
9. **Development protection measures:** *What protection measures could be applied to the development proposal (or to nearby developments) to improve safety (within and across borders)?*

### Decisions on the siting/location of the development proposal and the land use zoning

Based on the basic information provided, the guiding questions, the stakeholders' views, and the debates and negotiations, each group must try to make a decision on whether the siting of the proposed development should be:

**a) Approved? If so, why?**

**b) Not approved? If so, why?**

**c) Approved but with conditions and/or significant modifications to the proposal? If so, why? Which conditions and/or modifications?**

### Rapporteur presentation

At the end of the practical exercise, when everyone has returned to the plenary, the Rapporteurs will report back on the following:

- *Provide a brief overview of the development proposal that your group reviewed, and the stakeholders in your group.*
- *What were the key views and key points raised by the stakeholders? What were the key learnings from the dialogue?*
- *Did the group decide to approve, not approve or approve with conditions?*
- *What were the key learnings overall? What difficulties/challenges did your group experience in assessing the proposal and reaching a decision?*