

*Training on identification of  
hazardous activities  
23-24 March 2010, Skopje*

# **The Serbian approach to the identification of hazardous activities under the Convention**

*Suzana Milutinović  
Ministry of Environment and Spatial Planning  
Section for Risk Management*

# Convention on the transboundary effects of industrial accidents

## Identification of hazardous activities

### Article 4. paragraph 1 of the Convention


The Party of origin shall take measures to identify hazardous activities within its jurisdiction.

According to the definitions of the Convention:

**"Hazardous activities"** are activities capable of causing transboundary effects that involve the manufacture, use, storage, handling or disposal of hazardous substances in quantities above the threshold limits laid down in Annex I to the Convention.

**"Effects"** – any direct or indirect, immediate or delayed adverse consequences caused by an industrial accident on, inter alia, human beings, flora and fauna, soil, water, air and landscape, material assets and cultural heritage.

**"Transboundary effects "** - serious effects within the jurisdiction of a Party as a result of an industrial accident occurring within the jurisdiction of another Party.



# Guidelines to facilitate the identification of hazardous activities for the purposes of the Industrial Accidents Convention

Guidelines refer on:

1. Facilitating the implementation of Annex I →  
Substance and quantity criteria
2. Defining the location criteria

# Substance and quantity criteria

One or more hazardous substances are present or may be present in quantities at or in excess of the threshold quantities listed in Annex I to the Convention

## Annex I

- List of hazardous substances and preparations with thresholds, for the purposes of defining hazardous activities
- Listed quantities relate to each activity or group of activities
- Take into consideration activities where the hazardous substances are present in a quantities less then qualifying, if the transboundary effects could be expected (depending on risk assessment)

*\* According to Council Decision 98/685/EC of 23 March 1998, for EU member States all establishments covered by article 9 of Council Directive 96/82/EC of 9 December 1996 (Seveso II), i.e. upper-tier establishments, are taken to meet these criteria.*

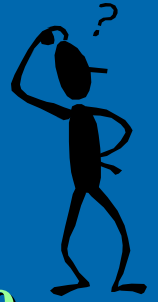
# Location criteria

Two location criteria:

- 1) Within 15 kilometres from the border for activities involving substances that may cause:
  - fire or
  - explosion or
  - release of toxic substances into the air
- 2) Along or within catchment areas of transboundary and border rivers, transboundary or international lakes, or within the catchment areas of transboundary groundwaters, for activities involving toxic, very toxic, oxidizing substances and substances dangerous for the environment (category 4, 5, 6 or 8 of part I of annex I) that may be released into watercourses in the event of an accident causing transboundary effects.

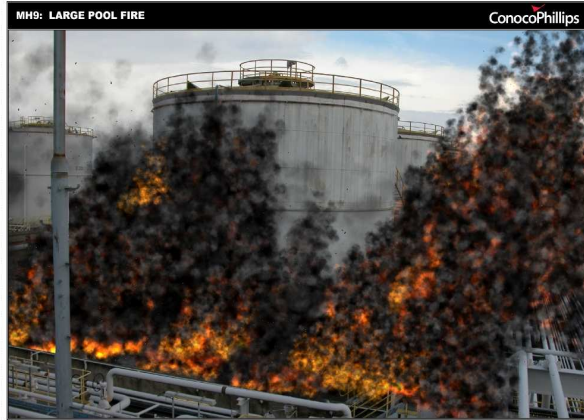


# Principles for using location criteria



Which scenarios are relevant for identification in the scope of first location criteria?

- Fire (thermal exposal)
- Explosion (thermal and pressure exposal)
- Releasing of toxic substances into the air



## Identification of hazardous activities in the scope of second location criteria

Party of origin should decide if some activity can cause transboundary effect in the case of releasing the hazardous substance into the water path in the case of accident

- Evaluation – in consultation with joint bodies, based on simple criteria, including existing alarm systems and distance from location of hazardous activity to the border
- Risk assessment, if needed



- The Joint ad hoc expert group on water and industrial accidents recommended that distance between the location of the hazardous activity and the border should correspond to approximately a flowing period of two days of average flow velocity.



# SERBIAN LEGISLATION

- Law on Environmental Protection (Official Gazette RS No. 66/91)
- Rulebook of Methodology for accident hazard assessment and the environmental pollution assessment, with the measures of preparation and mitigation measures (Official Gazette RS No. 60/94 and 63/94)
- Law on Environmental Protection (Official Gazette RS No. 135/04)
- Law on amending the LEP (Official Gazette RS No. 36/09)
- Law on production and trade of toxic substances (Official Gazette SRY No. 15/95)
- Law on Ratification of the Convention on transboundary effects of industrial accidents (Official Gazette RS No. 42/09)

# Data collection

## Rulebook of Methodology for accident hazard assessment

- ❖ Obligation of the operators of hazardous activities to submit to the Ministry, once a year, by 31st January of current year for previous year, data about establishment and data on hazardous substances they use/storage/handle and their quantities
- ❖ Data are collected by fulfilling forms
- ❖ Data are collected for all installations where hazardous substances are present in quantities equal to or greater than thresholds listed in Annex I of Rulebook (List of hazardous substances).

# Analyzing of data

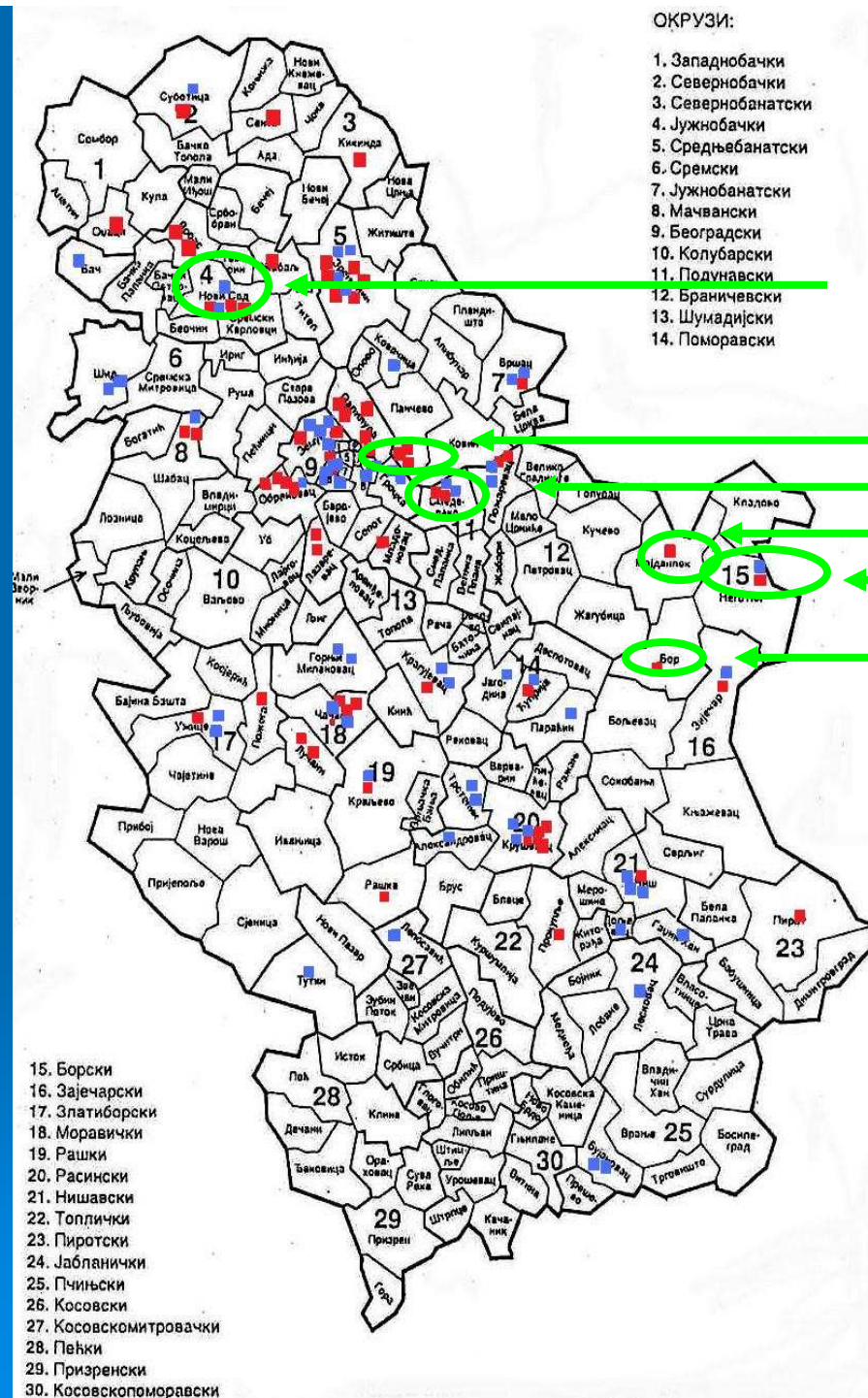
- List of establishments where hazardous substances are present
- Scope of the Convention - Exclusion criteria (Art.2.2)
- Using of a system for classification of chemicals according the physical, chemical and toxicological properties:
  - List of hazardous substances (Rulebook)
  - Law on production and trade of toxic substances
  - ADR Classification of the chemicals
  - MSDS
- Substance and quantity criteria – Annex I
- Location criteria
- Risk assessment

# Preliminary list of hazardous activities under the Convention

	Hazardous activity	Geographical location	Type of activity
1	Chemical industry Prahovo	Prahovo	Production of mineral fertilizers
2	Copper Mines Bor	Bor	Tailing
3	Copper Mines Majdanpek	Majdanpek	Tailing
4	Oil Refinery Pancevo	Pancevo	Oil refinery
5	Fertilizer company	Pancevo	Production of mineral fertilizers, nitric compounds and ammonia
6	Petrochemical company	Pancevo	Polymers production
7	Oil refinery Novi Sad	Novi Sad	Oil refinery
8	NIS Petrol Jugopetrol – Installation Prahovo	Prahovo	Storage of petroleum products
9	NIS Petrol Jugopetrol – Installation Smederevo	Smederevo	Storage of petroleum products



# Hazardous activities in Republic of Serbia



- Upper tier
- Lower tier
- Under the Convention



# Applying the mechanism for data assessment

- Within the Project for Bulgaria, Romania and Serbia on joint management of transboundary emergencies from spills of hazardous substance into the Danube river, in-field exercise in Prahovo region was held
- Petroleum storage located at the bank of the Danube River in Prahovo, Serbia, was identified as a possible source for causing transboundary effects in the event of an accident
- In the scope of this Project, it was confirmed that hazardous activity identified within the Preliminary list of hazardous activities, may cause transboundary effects

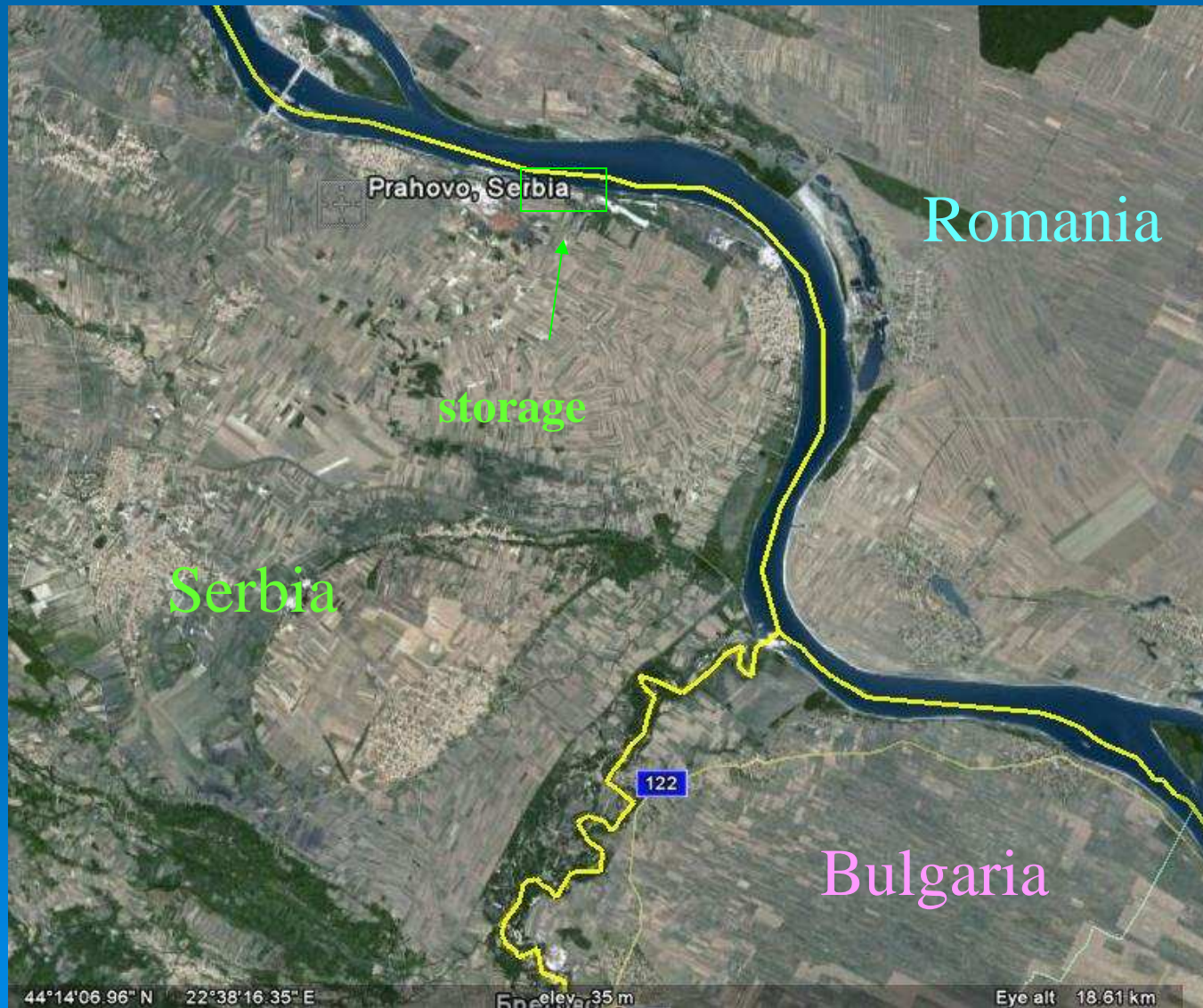
# Substance and quantity criteria

- Storage of petroleum products
- Tanks for gasoline and diesel fuel - meeting the criteria of Annex I
- **Part II – Named substances**  
Petroleum products: gasolines and naphthas kerosens (including jet fuels); gas oils (including diesel fuels, home heating oils and gas oil blending streams) – threshold 25 000 tones
- Total capacity of the storage is: ***24000 m<sup>3</sup> of petroleum products (≈ 20 000 tones) - under the threshold of Annex I***

## Location criteria

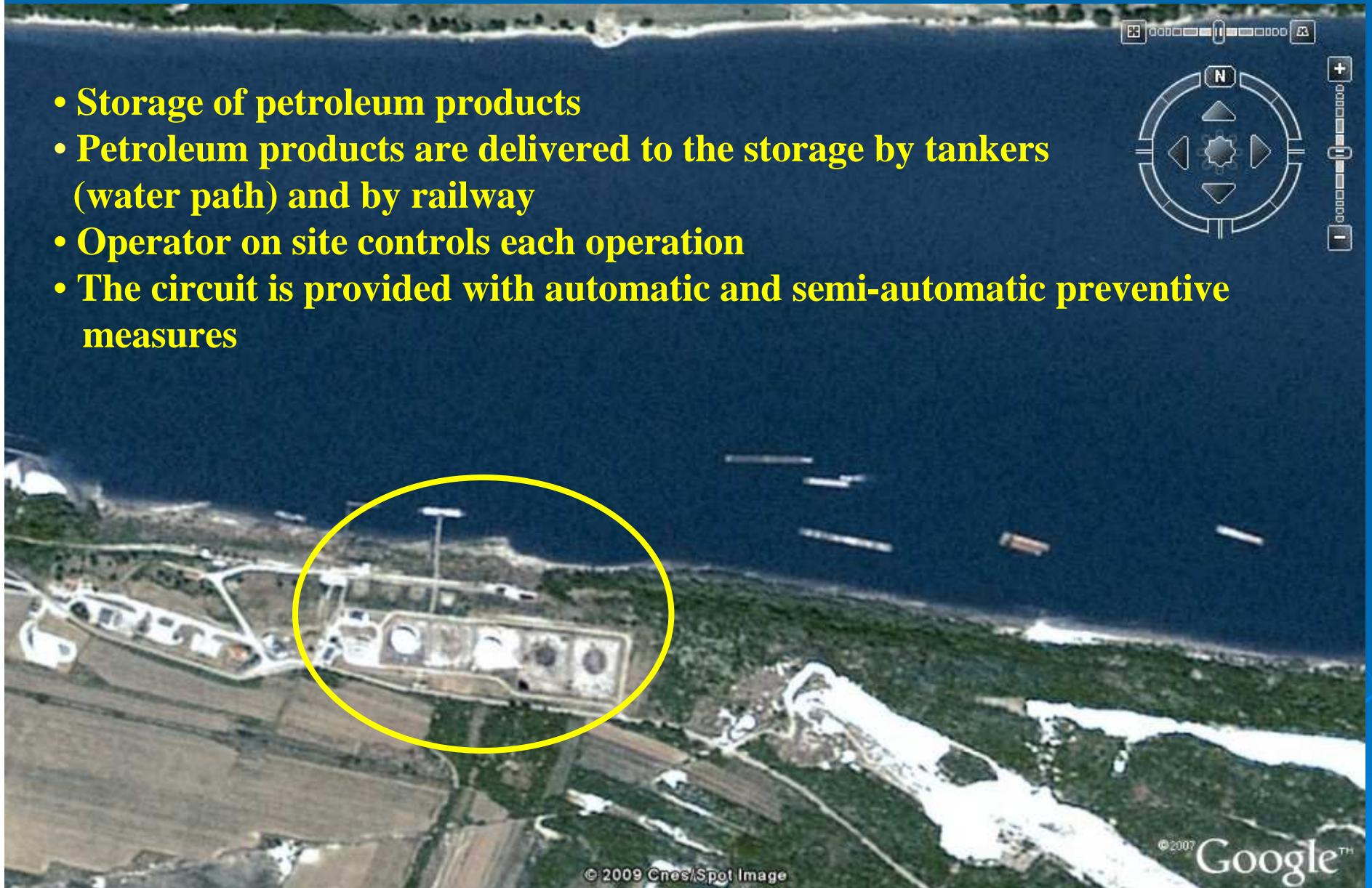
- Installation is located at the right side of river Danube, Eastern Serbia.
- Border with Romania is on the river Danube.
- Storage is approximately 9 km distant from Bulgaria through air path; approximate distance by water path to Bulgaria is 13 km.
- In diameter of 3km around the installation there are no protected natural resources, cultural or social objects.

# Border between three countries





- **Storage of petroleum products**
- **Petroleum products are delivered to the storage by tankers (water path) and by railway**
- **Operator on site controls each operation**
- **The circuit is provided with automatic and semi-automatic preventive measures**



## REFERENCE SCENARIO

### Data for scenario

- Sudden rupture of loading arm (diameter of 200 mm)
- Release of 118 kg/s of diesel fuel on the Danube river

### Mitigation measures

- Continuous presence of operators in the jetty
- Possibility to stop the pumps and isolate the line

Release time = 3 minutes

Total released amount = 21250 kg of diesel oil

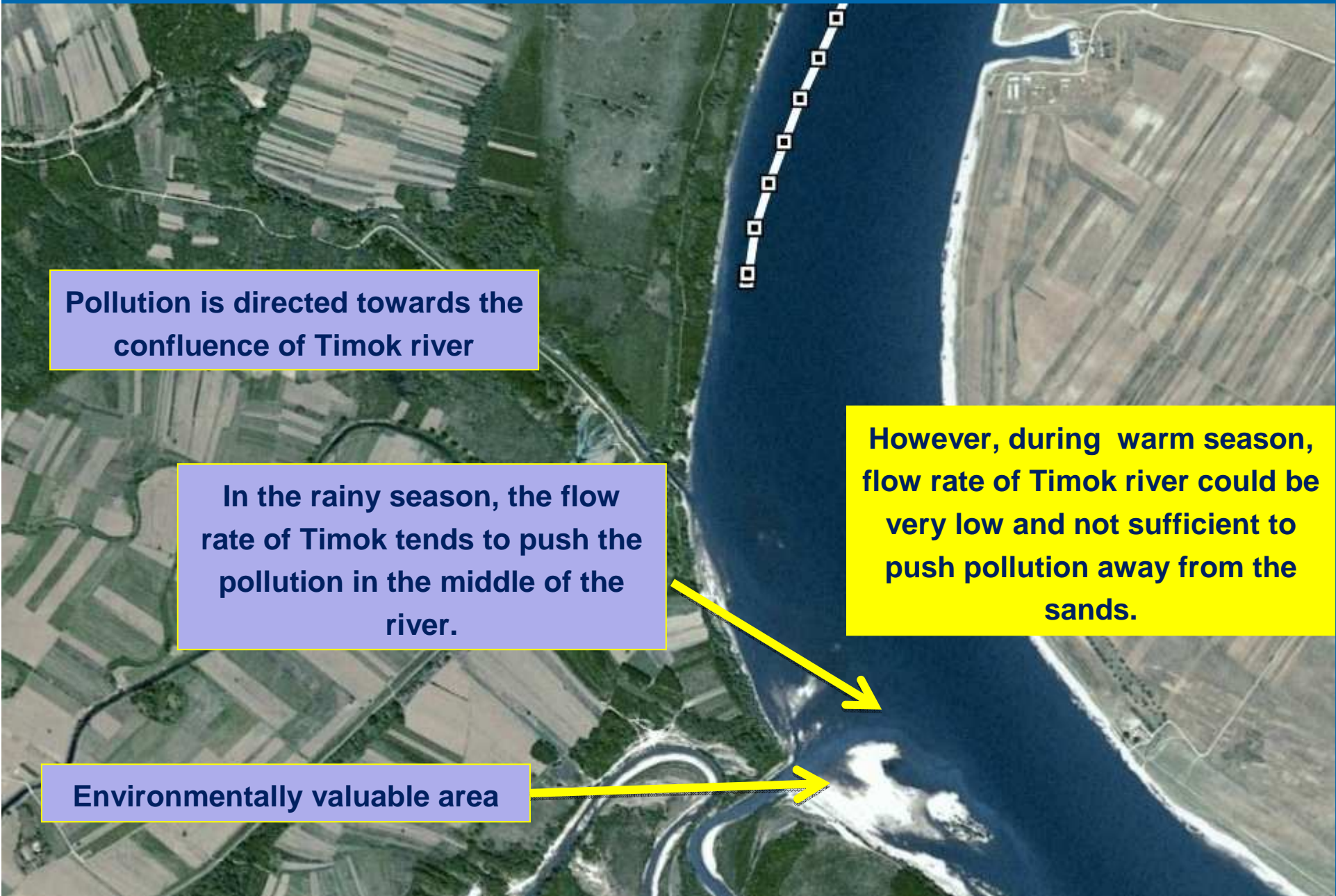
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## MODELLING

Use of modeling tools in assessing the movement of the spill



**Pollution is directed towards the confluence of Timok river**

**In the rainy season, the flow rate of Timok tends to push the pollution in the middle of the river.**

**However, during warm season, flow rate of Timok river could be very low and not sufficient to push pollution away from the sands.**

**Environmentally valuable area**





9:00 a.m.

Pollution very close to Timok  
river

At low (september) river flow rate,  
it would take at least 12 hours to  
oil spill to reach Vidin area

Vidin (Bulgaria) is  
50 km downstream border

14.44 a.m.

# Conclusion

- It is estimated that pollution will reach the border in four hours
- Distance between the location of the hazardous activity and the border corresponds to approximately a flowing period of two days of average flow velocity
- *Hazardous activity is under the Convention.*



**THANK YOU FOR YOUR ATTENTION!**