



Republic of Serbia
Ministry of Environmental Protection
Department for Major Chemical Accident Protection

Interventions to spatial plans regarding major accident hazards

Seminar on the implementation of EU Directive on the Integrated Environmental Impact Assessment
and SEVESO III

Ljubljana, Slovenija

14 March 2019

Overview of structure of influenced spatial plans

- In past 4 years many spatial plans have been made or revised.
- Seveso competent authority officially influenced more than 140 spatial plans.
- Influenced spatial plans were made for areas of development with existing establishments or for areas of development with no establishments.
- Interventions were made to:
 - Regional spatial plans (11),
 - Spatial plans for areas of special purpose (66)
 - For major infrastructure projects
 - For environmental protection areas
 - Plans of general regulation (23)
 - Plans of detail regulation (42)

Overview of structure of influenced spatial plans

- Spatial plans, before intervention regarding major accident hazards usually:
 - Have no information on identification of establishments
 - Do not envisage any safety distances between establishments and residential areas, public areas and areas of particular sensitivity
 - Have no information on types of possible effects to human life and health and the environment
 - Do not envisage any measures and conditions for mitigation of effects of major accident hazards
- Out of total number of influenced spatial plans about 20% had establishments in its borders and measures and conditions of environmental protection where proscribed.
- Some spatial plans could have possible effects to human life and health and the environment from establishments outside the borders of plan and measures and warnings for emergency planning and environmental protection were given.
- On all other influenced spatial plans „educational approach“ was used.

Process

- After receiving request for information and measures regarding establishments and major accident hazards, first step is to inform planning authority if establishments exist in borders or near the borders of spatial plan.
- If there are no establishments in borders or near the borders of spatial plan, and for any future constructions of such establishments, “Educational approach” is used.
- If there are existing establishments in borders or near the borders of spatial plan, planning authority is informed of their location and tier.
- For lower tier establishments, 1.000 meters from its borders is named as vulnerable zone, that zone is used for planning emergency evacuation and it is advised against construction of non-industrial objects and areas.
- For upper tier establishments modelled effects of major accidents, for every possible type of effect on that complex are used, using endpoints of effects proscribed by Rulebook.
- Ban of construction of non-industrial objects and areas is issued for all 50% casualties zones or IDLH zones.

Process

- Also, if industrial objects are planned in 50% casualties zones or IDLH zones, personal safety equipment and general protection measures from Safety Data Sheets of every hazardous substance on establishment site, are proscribed as mandatory for all possible industrial investors in that zone (for their personal and visitors).
- Other injury zones (1st degree burns, 0,1IDLH etc.) are most often used as vulnerable zone for planning emergency evacuation.
- Sometimes but, since it is not proscribed by law, not always, planning authorities return their draft outputs with interventions regarding industrial safety measures for additional comments and additional information.

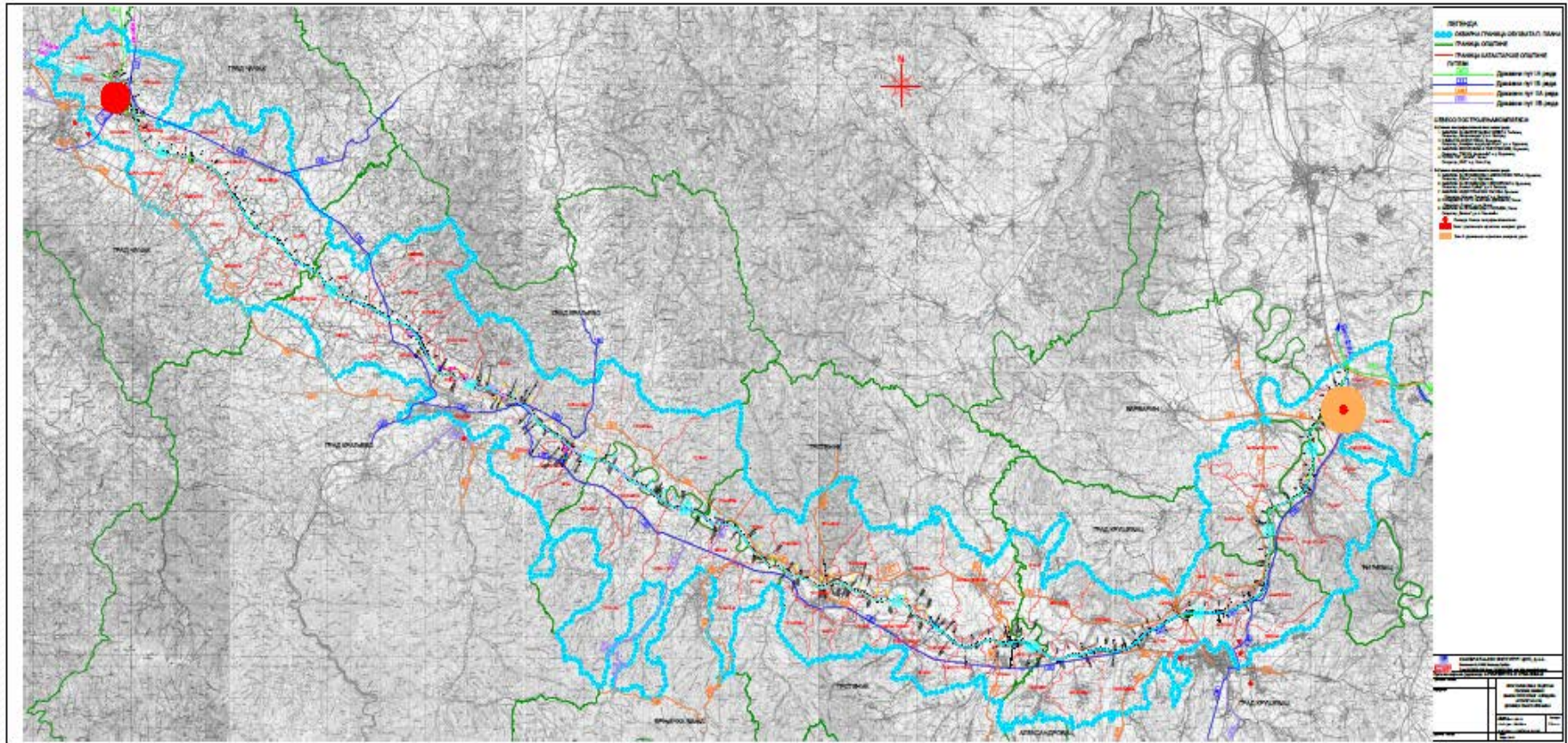
“Educational approach”

- Process of implementing safety measures regarding major accident hazards in spatial plans without existing establishments, or when planning the construction of such new establishments, is not proscribed by law.
- CA then uses “Educational approach” when answering spatial planning information and measures requests.
- General obligations of operators are explained in detail, alongside with the warning of possible ban of operation that may be issued for new establishment according to LEP, if modelled risk is not acceptable or obligations regarding drafting Safety Report and Emergency Plan, or not taking preventive measures are not met.
- Since the level of risk of accidents depends on area around the new establishment and present number of people, it is always advised that planning of location of new establishment should be done according to modelled effects of accidents (according to planned hazardous substance capacities on site) or the investor will have additional expenses regarding either additional risk reduction measures (if such are possible) or complete ban of operation of new establishment.

Case 1 - Regional spatial plan

- Spatial plan was developed for major infrastructural corridor (new highway) in central Serbia.
- Highway is planned within territories of 8 different cities.
- Interventions to spatial plan were made in two iterations between CA for major accident prevention and CA for spatial planning.
- At first iteration, total of 9 establishments were identified either in borders of spatial plan, or near its borders.
- From identified, 4 are upper tier and 5 are lower tier establishments.
- All of them are known to CA for major accident prevention and all have passed the process requested by Law on environmental protection.
- At second iteration, more detailed cooperation between CA's was in place to identify if all 9 can influence, in case of accidents, planned route of new highway.
- At the end 2 have been identified as ones with possible direct influence to planned new highway, 1 lower tier and 1 upper tier establishment.

Case 1 - Regional spatial plan



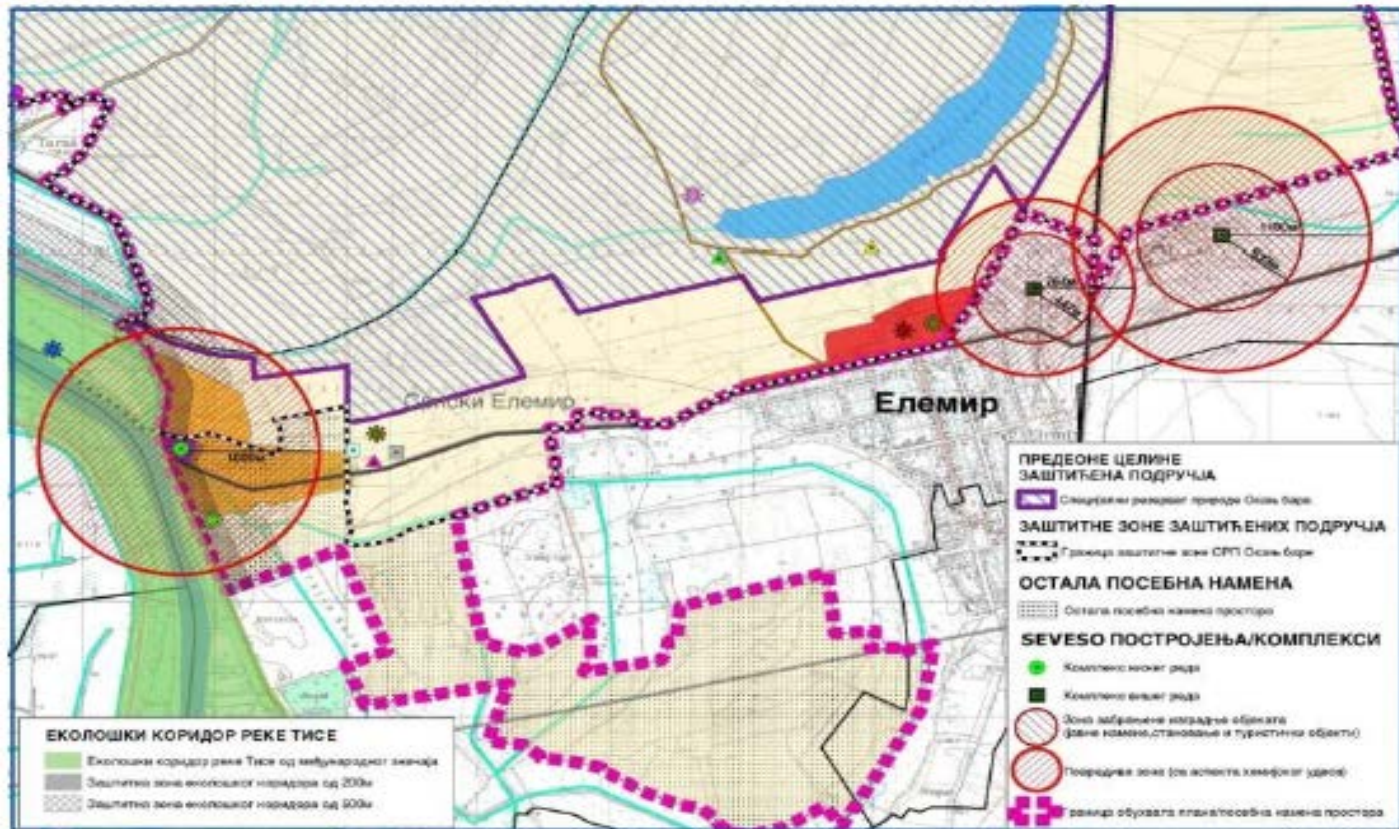
Case 1 - Regional spatial plan

- All 9 establishments are noted in spatial plan.
- For those 2 with direct influence to highway it was elaborated in more detail about types of effects.
- Since both establishments have dangerous substances that are hazardous to environment, for this spatial plan, accent was placed on possible effects of substances generated in case of accident (fire in this case).
- On both establishments substances generated in case of fire are acute toxic and safety distances were defined according to modeled IDLH and 0,1IDLH values.
- Total of 5 measures defining areas to maintain appropriate distances between establishments and residential areas, public areas and areas of particular sensitivity or interest for protection of human life and health and the environment, were issued.
- One of them proscribes that emergency planning must include stopping and evacuating all the traffic from highway in case of fire accident, for both establishments.

Case 2 - Spatial plan for areas of special purpose

- Spatial plan was developed for environmental protection areas.
- It includes part of Environmental corridor of Tisa river, Special nature reserve Okanj swamp and Nature park Rusanda.
- Interventions to spatial plan were made in two iterations between CA for major accident prevention and CA for spatial planning.
- At first iteration, total of 3 establishments were identified either in borders of spatial plan, or near its borders.
- From identified, 2 are upper tier and 1 is lower tier establishment.
- All of them are known to CA for major accident prevention and all have passed the process requested by Law on environmental protection.
- At second iteration, more detailed cooperation between CA's was in place to change parts of spatial plan and to proscribe measures of protection.
- Domino zone was also mentioned.
- Dock with loading station at lower tier establishments at Tisa riverbank was mentioned also.

Case 2 - Spatial plan for areas of special purpose



Case 2 - Spatial plan for areas of special purpose

- All 3 establishments are noted in spatial plan.
- Possible effects for spatial plan were based on primary categories of effects of present dangerous substances.
- For both upper tier est.- thermal radiation from BLEVE was noted.
- For lower tier est. - thermal radiation from fire and toxic for environment effects were noted.
- Zones of 50% lethality, 1% lethality and first degree burns were used for thermal radiation.



Case 2 - Spatial plan for areas of special purpose

- Ban of construction of residential areas, public areas and areas of particular sensitivity was issued for zones of 50% lethality.
- Measures for emergency planning for other effect zones were given.
- Planned new zones around lower tier act. were changed from holiday housing to industrial zone.
- Operator stopped using dock with loading station at lower tier establishment at Tisa riverbank and started decommissioning the dock.

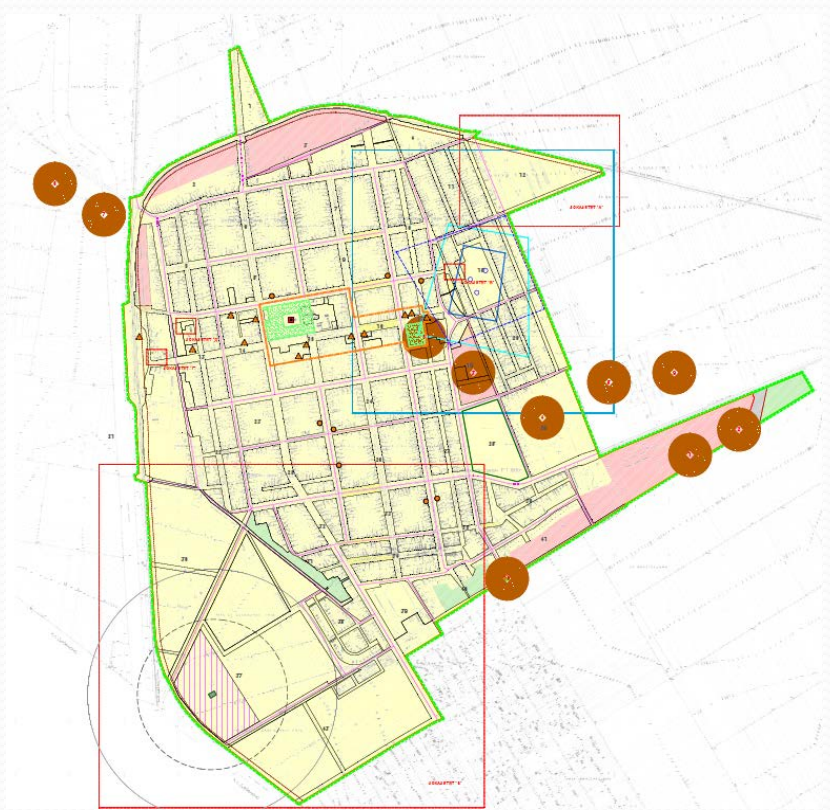


Case 3 - Spatial plan for general regulation

- Spatial plan was developed by local government for small town area.
- Interventions to spatial plan were made in 3 iterations between CA for major accident prevention and CA for spatial planning.
- At first iteration, 1 establishment was identified in borders of spatial plan.
- It is upper tier establishment with present LPG and petroleum products.
- Process requested by Law on environmental protection for that y was ongoing.
- At second iteration, measures of protection where issued based on worst case scenario with possible BLEVE effects and thermal radiation.
- Local government identified planed new vulnerable object (nursing home) at very end of safety zone.
- At third iteration meeting with local government, spatial planers and emergency services was held.

Case 3 - Spatial plan for general regulation

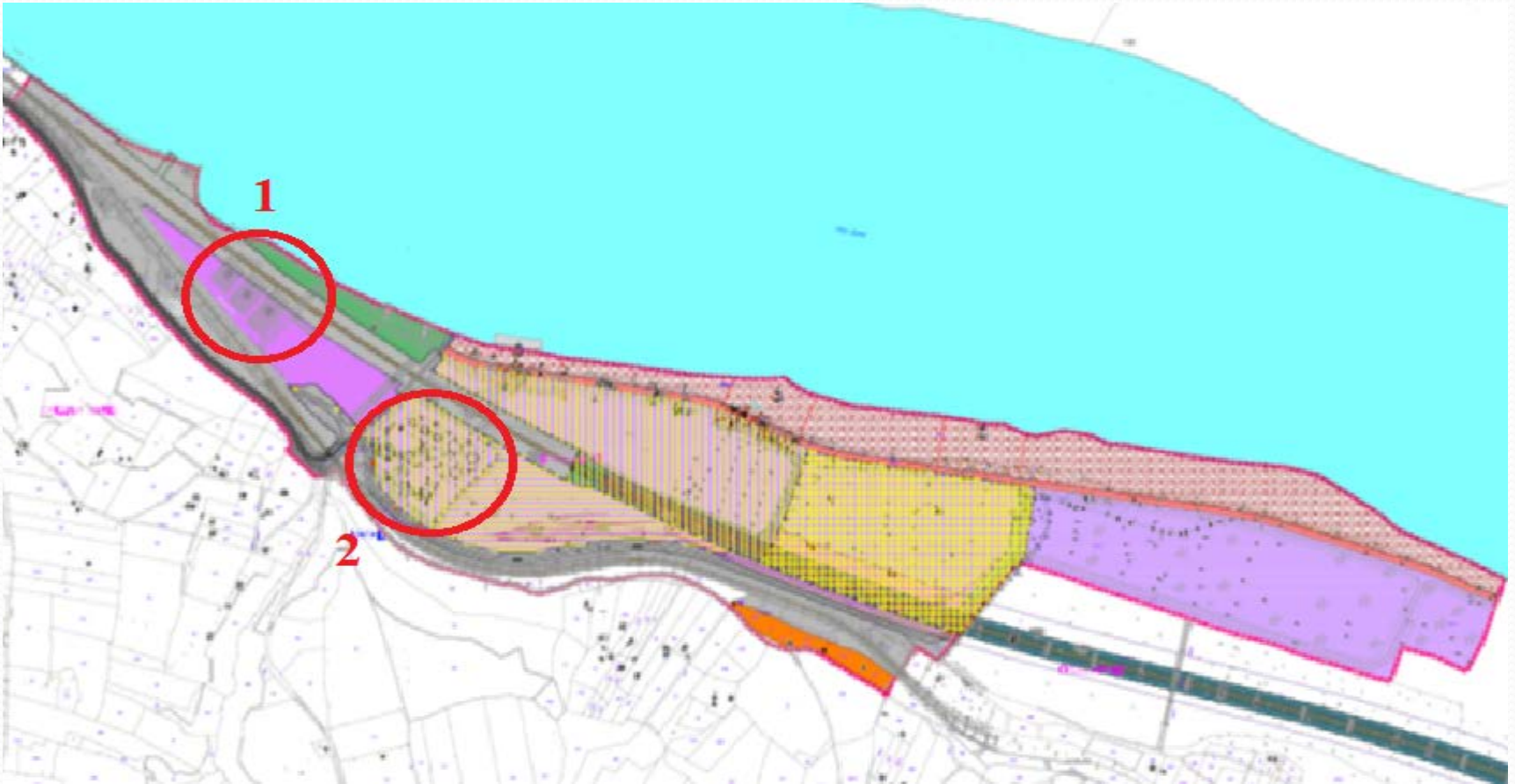
- Establishment was noted in spatial plan.
- Thermal radiation from BLEVE was noted.
- Zones of 50% lethality, 1% lethality and first degree burns were used for thermal radiation.
- Ban of construction of residential areas, public areas and areas of particular sensitivity was issued for zones of 50% lethality.
- Measures for emergency planning for other effect zones were given.
- Evacuation plan for nursing home was noted as urgent to develop by emergency services.



Case 4 - Spatial plan for detail regulation

- Spatial plan was developed for enlargement of existing industrial zone.
- This local spatial plan had interference with regional spatial plan for major infrastructure corridor (new railroad route).
- Interventions to spatial plan were made in 3 iterations between CA for major accident prevention and CA for spatial planning.
- At first iteration, total of 2 establishments were identified in borders of spatial plan.
- From identified, 1 is upper tier and 1 is lower tier establishment with ongoing changes causing change to upper tier.
- All of them are known to CA for major accident prevention but the process requested by Law on environmental protection was ongoing.
- At second iteration, more detailed cooperation between CA's was in place to change parts of spatial plan and to proscribe measures of protection.
- Domino zone was also mentioned.
- Collision of new regional spatial plan with upper tier location was noted.
- At third iteration meeting was held with spatial planners and investors at industrial zone.

Case 4 - Spatial plan for detail regulation



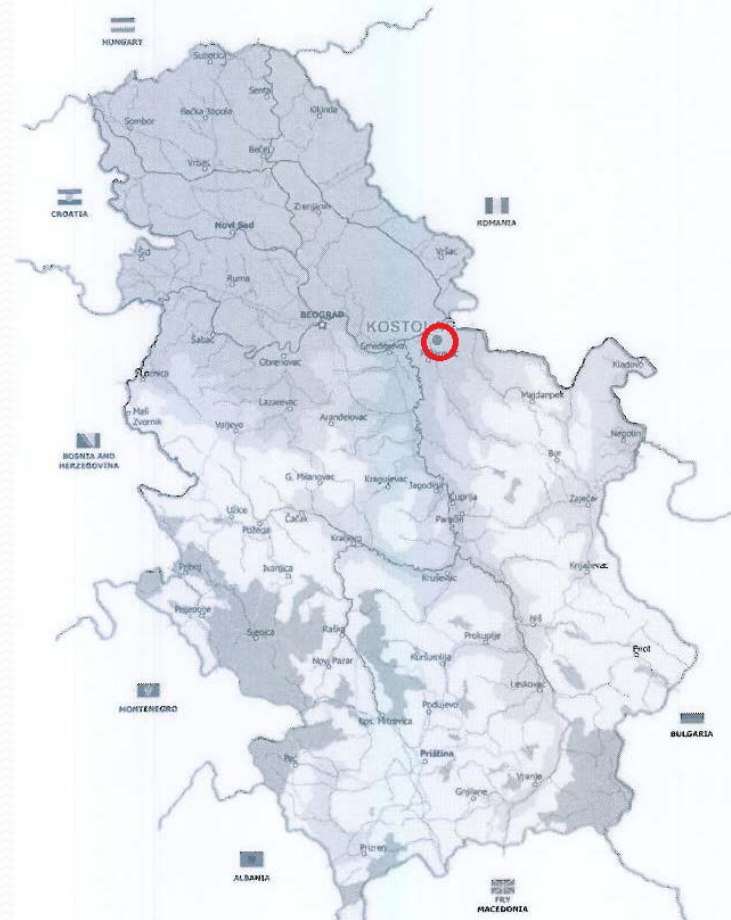
- 1 – upper tier establishment
- 2 – lower tier establishment

Case 4 - Spatial plan for detail regulation

- Due to severe lack of preventive measures, presence of ammonium nitrate based fertilizer and planed railroad bridge over upper tier est. CA for major accident prevention issued ban of operation to this establishment.
- Operator did not complain and has removed dangerous substance from this location.
- It was advised against modifications of lower tier establishment, but due to gaps in legislation operator may continue investing.
- Lower tier establishment operator was informed that ban of operation may be issued after investment was completed, prior to start of operation of than upper tier establishment.
- Local government was advised to plan different activities at this location.
- Further development of this spatial plan was stopped.
- Construction of new railroad route according to regional plan is ongoing and has reached the location of this spatial plan for detail regulation.

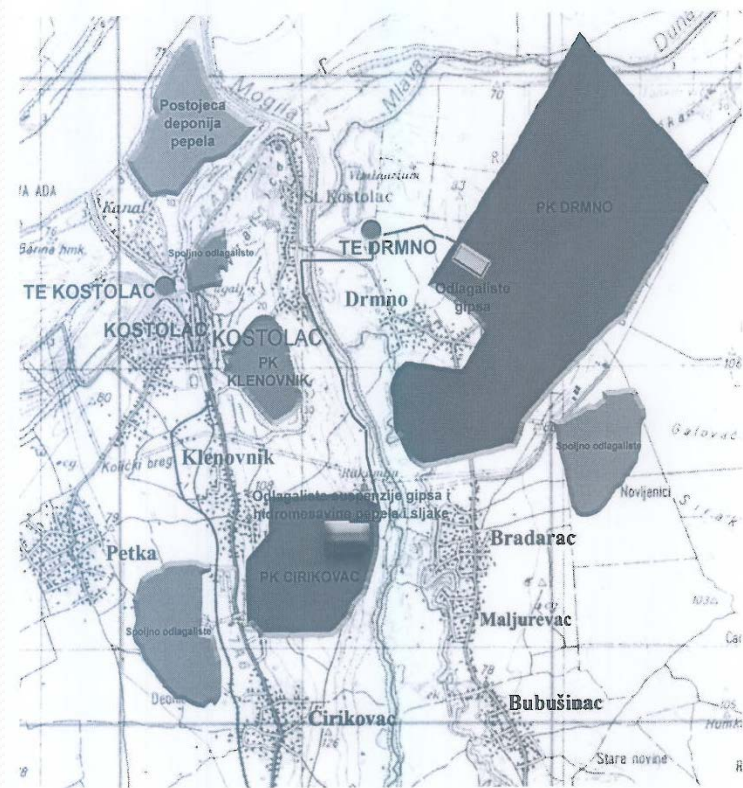
Case 5 – Considerations of transboundary effects of industrial accidents

- Consultations in ESPOO Convention process were held with Republic of Romania for modifications at upper tier establishment in 2017.
- Consultations referred to planned construction of a new block at existing thermal power plant.
- Consultations took place at Oravica, Caras-Severin region on August 31st 2017.
- Establishment is situated at more than 15km from border (for air pollution), and 4km from Danube river (with possible water connection to Danube).



Case 5 – Considerations of transboundary effects of industrial accidents

- Establishment is known to CA for major accident prevention and has passed the process requested by Law on environmental protection.
- Due to dangerous substances present at site and modeling of worst case scenarios, transboundary effects were noted as not possible.
- Failure of air filters of existing blocks was also modeled.
- Heavy crude oil present at site can not reach Danube river since it is situated in a tank with concrete bund and no connection to river flow.



Future steps needed

- Gaps in transposition of Seveso directive have been noted.
- New Law on control of major accidents involving dangerous substances is being drafted.
- Among other, it`s aim is to fully transpose relevant spatial planning requirements which will remove current legal obstacles in cooperation between spatial planning and industrial safety.
- Joint efforts must be made with relevant spatial planning authorities for continuous improvement of knowledge of relevant stakeholders regarding cooperation between spatial planning and industrial safety.
- Awareness raising campaign is being planned through the new National policy dialogue for industrial safety.
- All stakeholders are planned for participation to this National policy dialogue.



THANK YOU FOR YOUR ATTENTION!

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