



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

Interventions to spatial plans regarding industrial safety measures for planned future developments in areas with hazardous industrial facilities

Seminar on Land-Use Planning and Industrial Safety
Lamot Convention and Heritage Center, Mechelen, Belgium
16-17 May 2018

Legal framework

Republic of Serbia is the Party to

- Convention on the Transboundary Effects of Industrial Accidents
- Convention on Environmental Impact Assessment in a Transboundary Context (the Espoo Convention) and
- Protocol on Strategic Environmental Assessment (SEA)
- Amendments to ESPOO Convention, Decision II/14 and Decision III/7, ratified 2016

EU legislation – partially transposed

- Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU
- Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment
- Seveso III Directive (2012/18/EU of 4 July 2012) on the control of major-accident hazards involving dangerous substance

Legal framework

- Integration of industrial accidents safety considerations into the land use planning is done via SEA, EIA or separate assessment of industrial accidents safety.

General obligations

- The competent authority responsible for plan and programme preparation cannot continue further procedure of adoption of plans or programmes without having obtained the approval from the competent environmental protection authority for the strategic assessment report.
- Law on Environmental Protection defines that planning authority must take into account data, measures and conditions of prevention of major chemical accidents when developing spatial plans.
- LEP prescribes that spatial and urban plans shall ensure measures and conditions of environmental protection and in particular: defining areas to maintain appropriate distances between hazardous activities and residential areas, public areas and areas of particular sensitivity or interest for protection of human life and health and the environment.

Overview of structure of influenced spatial plans

- In past 3 years many spatial plans have been made or revised.
- Seveso competent authority officially influenced about 100 spatial plans.
- Influenced spatial plans where made for areas of development with existing hazardous activity or for areas of development with no hazardous activity.
- Interventions where made to:
 - Regional spatial plans (7),
 - Spatial plans for areas of special purpose (45)
 - For major infrastructure projects
 - For environmental protection areas
 - Spatial plans of general regulation (19)
 - Spatial plans of detail regulation (29)

Overview of structure of influenced spatial plans

- Spatial plans, before intervention regarding industrial safety usually:
 - Have no information on identification of hazardous activity
 - Do not envisage any safety distances between hazardous activity 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 industrial accidents
- Out of total number of influenced spatial plans about 20% had hazardous activity in its borders and measures and conditions of environmental protection were proscribed.
- Some spatial plans could have possible effects to human life and health and the environment from hazardous activity 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.

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 hazardous activities were identified either in borders of spatial plan, or near its borders.
- From identified, 4 are upper tier and 5 are lower tier hazardous activities.
- 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 hazardous activities.

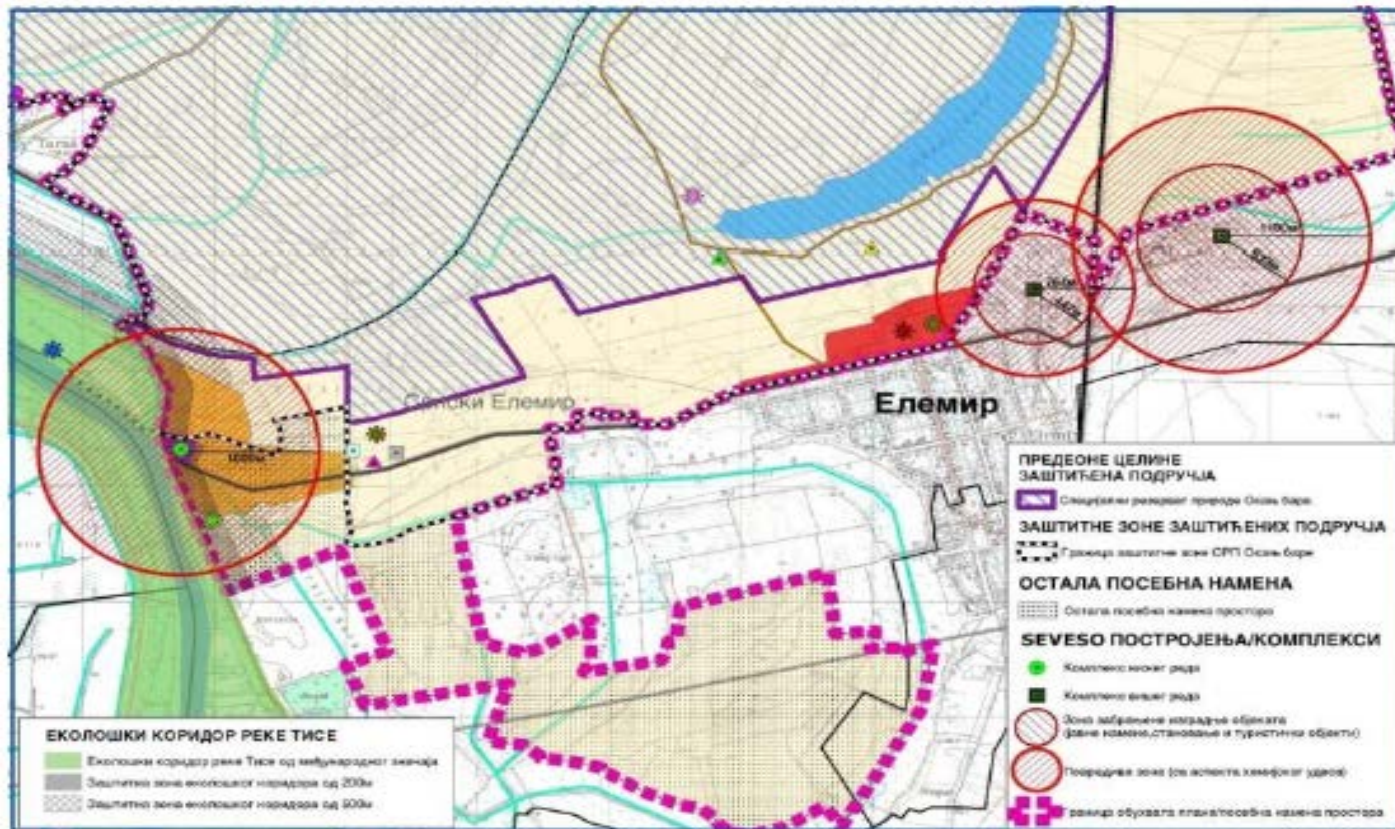
Case 1 - Regional spatial plan

- All 9 hazardous activities 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 hazardous activities 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 hazardous activities 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 hazardous activities 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 hazardous activities.

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 hazardous activities were identified either in borders of spatial plan, or near its borders.
- From identified, 2 are upper tier and 1 is lower tier hazardous activities.
- 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 hazardous activity 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 hazardous activities 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 act.- thermal radiation from BLEVE was noted.
- For lower tier act. - 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 hazardous activity at Tisa riverbank and started decommissioning the dock.

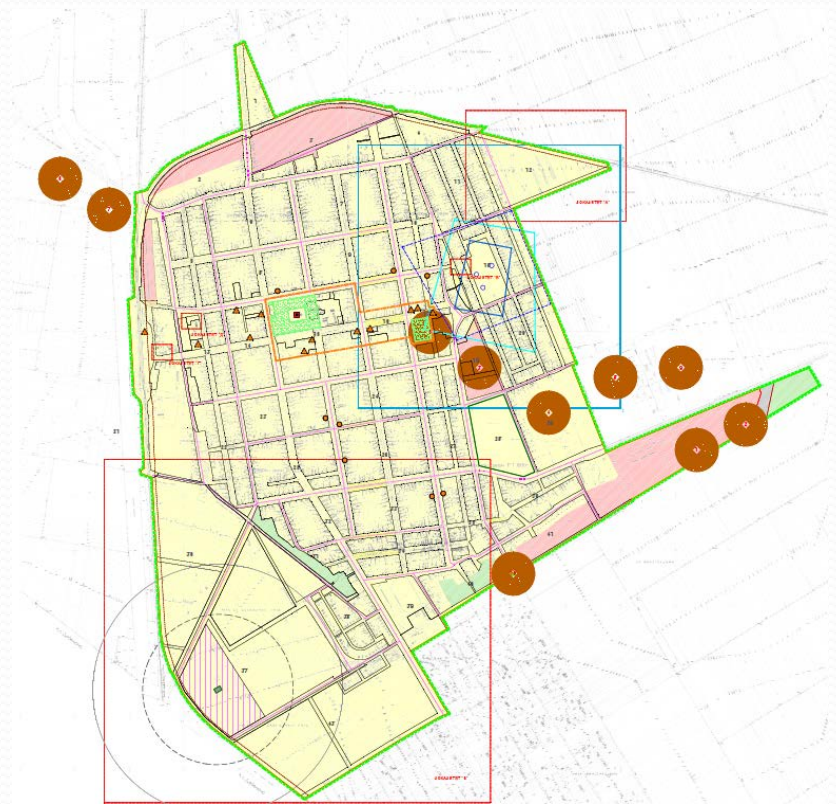


Case 3 - Spatial plan for general regulation

- 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 hazardous activity was identified in borders of spatial plan.
- It is upper tier activity with present LPG and petroleum products.
- Process requested by Law on environmental protection for that activity was ongoing.
- At second iteration, measures of protection were issued based on worst case scenario with possible BLEVE effects and thermal radiation.
- Local government identified planned new vulnerable object (nursing home) at very end of safety zone.
- At third iteration meeting with local government, spatial planners and emergency services was held.

Case 3 - Spatial plan for general regulation

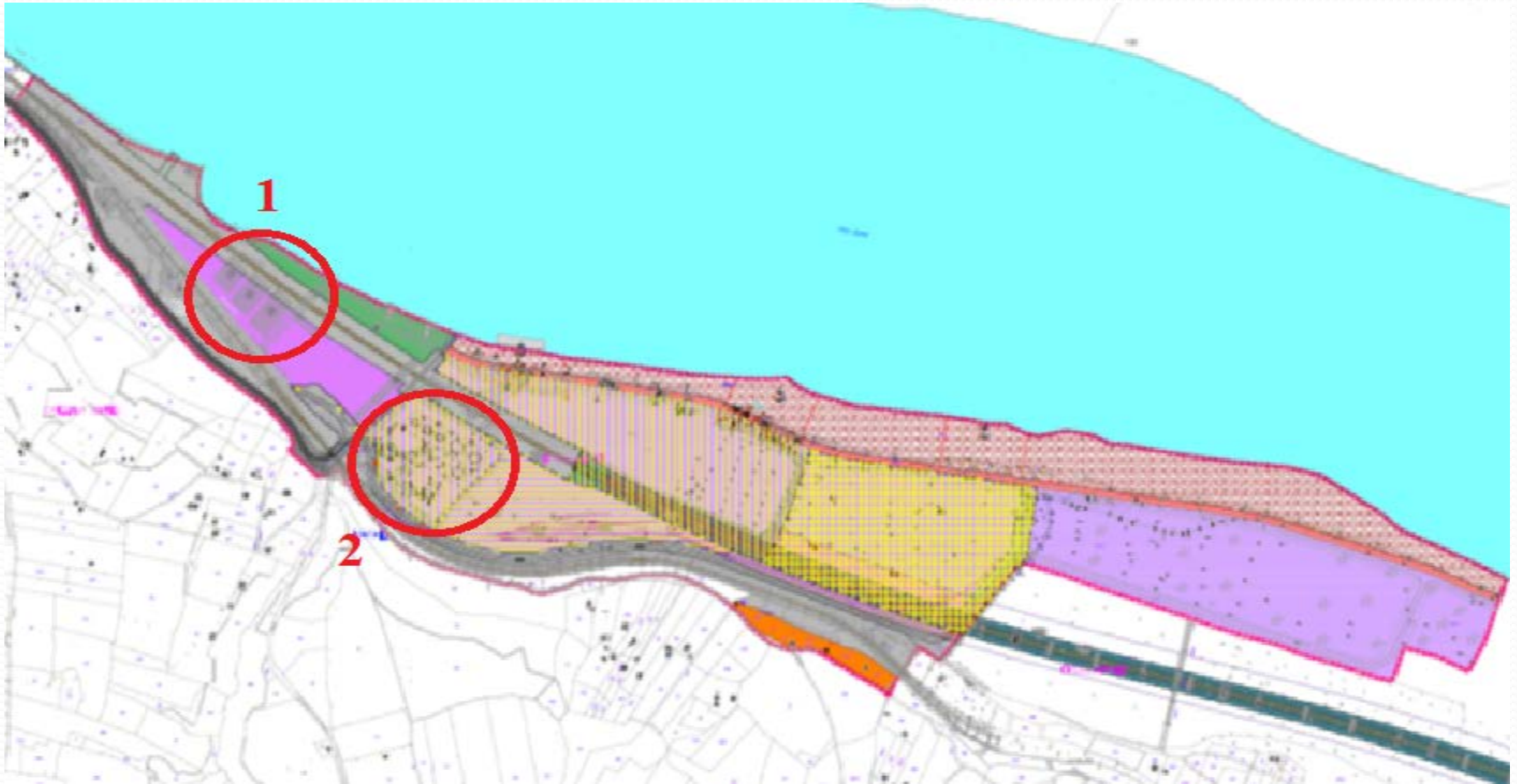
- Hazardous activity was noted in spatial plan.
- Thermal radiation from BLEVE was noted.
- Zones of 50% lethality, 1% lethality and first degree burns were used for thermal radiation.
- Ban of construction of residential areas, public areas and areas of particular sensitivity was issued for zones of 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 hazardous activities were identified in borders of spatial plan.
- From identified, 1 is upper tier and 1 is lower tier hazardous activities 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



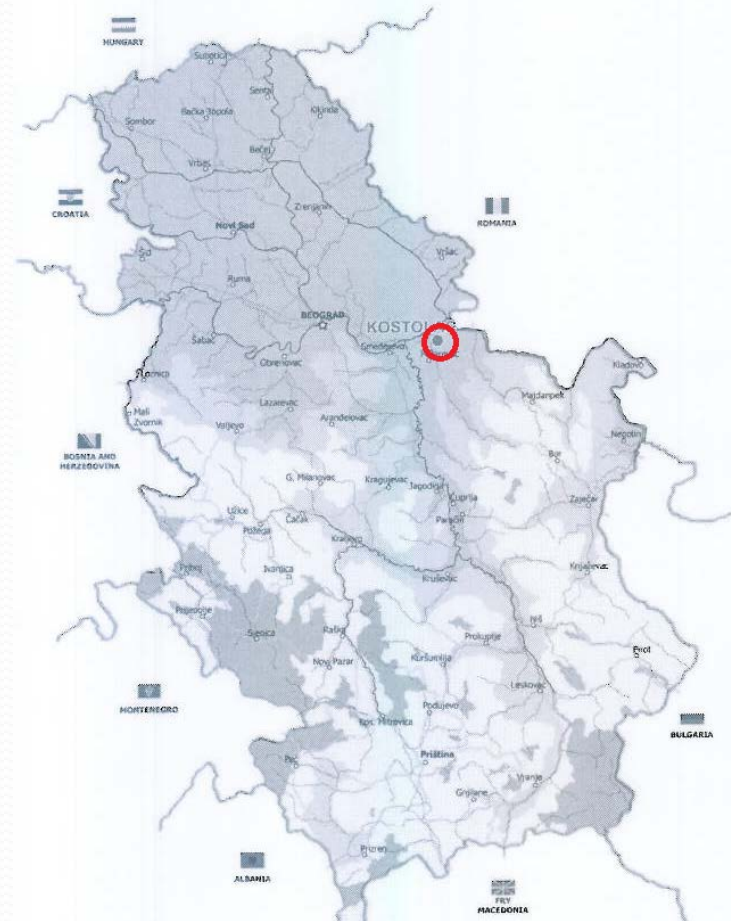
- 1 – upper tier activity
- 2 – lower tier activity

Case 4 - Spatial plan for detail regulation

- Due to severe lack of preventive measures, presence of ammonium nitrate based fertilizer and planned railroad bridge over upper tier act. CA for major accident prevention issued ban of operation to this activity.
- Operator did not complain and has removed dangerous substance from this location.
- It was advised against modifications of lower tier activity, but due to gaps in legislation operator may continue investing.
- Lower tier activity operator was informed that ban of operation may be issued after investment was completed, prior to start of operation of than upper tier activity.
- 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.

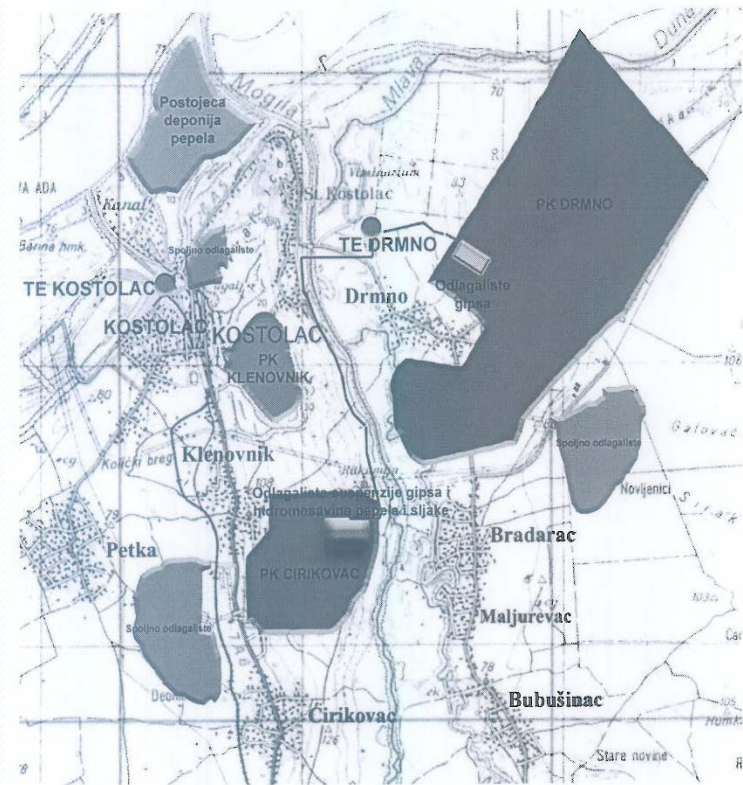
Case 5 – Considerations of transboundary effects of industrial accidents

- Consultations in ESPOO Convention process were held with Republic of Romania for modifications at upper tier activity 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.
- Hazardous activity 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

- Dangerous activity 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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