

Slovenian experience with SEA/EIA in hydropower sector

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General experiences and procedures/ main topics and problems

- Strategies
- Programmes and plans
- Location alternatives
- Transboundary effects
- Cumulative effect
- Good water status
- Natura 2000 species habitats

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Levels

- STRATEGIC / SEA
- PLANS AND PROGRAMMES

- SEA
- NATIONAL SPATIAL PLANS
- LOCATION ALTERNATIVES

- EIA
- PROJECT
- TECHNICAL ALTERNATIVES

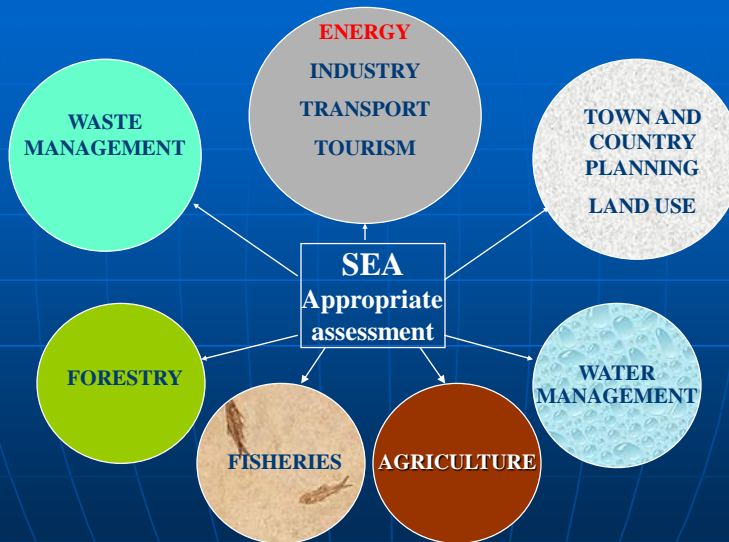
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SEA for National Energy Programme

- **The Environment Protection Act**
- Article 39 - Environmental baselines
- Article 40 – 48 SEA steps:
 - Screening
 - Scoping
 - Preparation of Environmental Report
 - Consultation with authorities
 - Consultation with public
 - Environmental acceptability
- **Nature Conservation Act**
- Appropriate assessment
- One procedure –SEA&Appropriate assessment

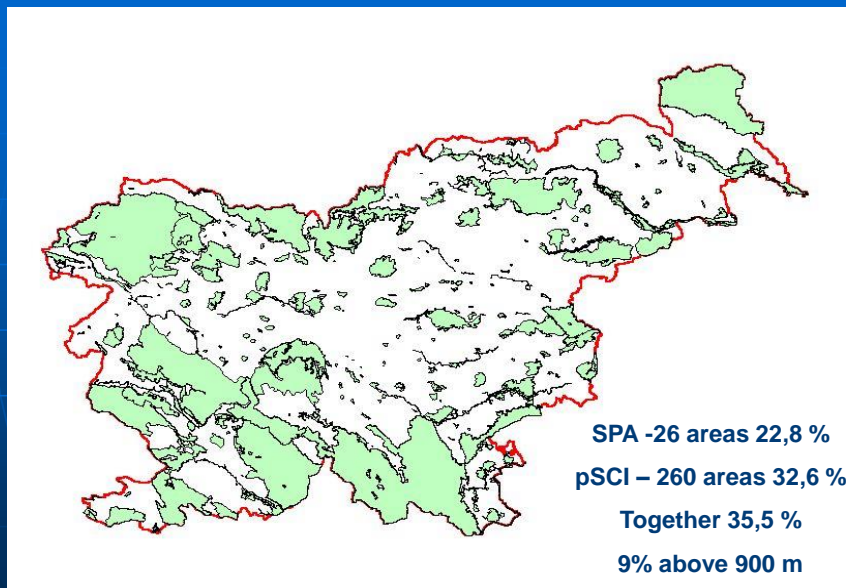
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Plans and programmes



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Decree on Natura 2000



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Scoping

- A workshop with authorities and public
 - Presentation of possible relevant environmental aims and indicators
 - Brain storming
 - Consultation with authorities
 - Expert opinion
- Draft aims and indicators defined
- Scoping report for comments of the public for 30 days on web page
- Comments included

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Measures in Energy plan

Activities in the national programme Sustainable use and local use

- Energy efficiency
- Energy in transport (more than in EU)
- Renewal energy
- Local use
- Cogeneration of heat and electric
- Electric supply and production
- Supply with gas, fuel, coal and nuclear fuel
- Horizontal measure (market, taxes, regulation of prices, education, development, spatial planning)

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Renewable Energy Action Plan

- 25 % renewable energy in final use until 2020 – SEA CHANGE % to less
- 30 % renewable energy until 2030
- 10 % renewable energy in transport
- Renewable energy like priority of economics development
- 33 % of heating on renewable energy until 2020

Actions:

- Energy renewal of buildings
- Active architecture
- Heating systems
 - change of fuel for heating with biomass and other renewable energy
- - small and medium power station:
 - wind energy (119 MW until 2020 and 295 MW until 2030);
 - small hydro power stations (43 MW until 2020 in 18 MW until 2030);
 - solar energy (337 MW until 2020 in 567 MW until 2030);
 - geothermal (25 MW until 2030);
 - forest biomass (14 MW until 2020 in 20 MW until 2030);
 - waste management gas
 - bio gas (32 MW until 2020 in 1 MW until 2030);

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Public consultation

- Presentation of the plan and environmental report to the public
- Public hearing, chamber of economic
- 30 days
- Extended to 120 days because of transboundary procedure
- Translation of abstracts
- All documents translated into English
- Public on both sides of the border has the same documents and has the right to give the comments to the plan and environmental report

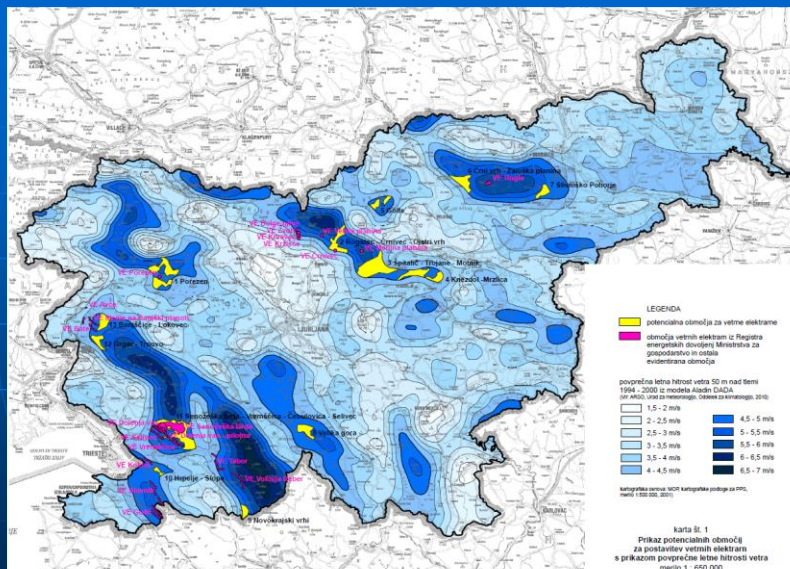
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Renewable energy source

- Wind energy fields – making possible
- Criteria for planning and the orientation map presented as part of action plan
- Biomass
- Geothermal energy
- Hydropower stations Middle Sava - reduced
- Hydropower stations Mura - reduced
- Hydropower station Učja - cancelled

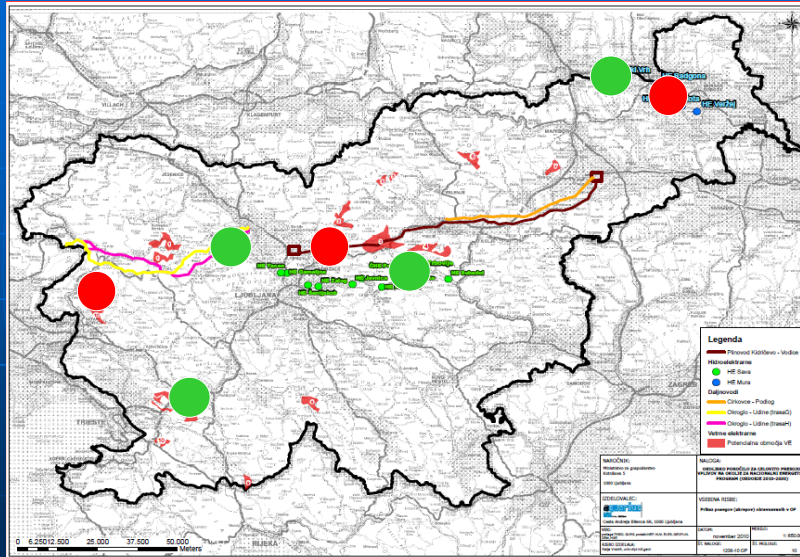
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Wind miles acceptable location



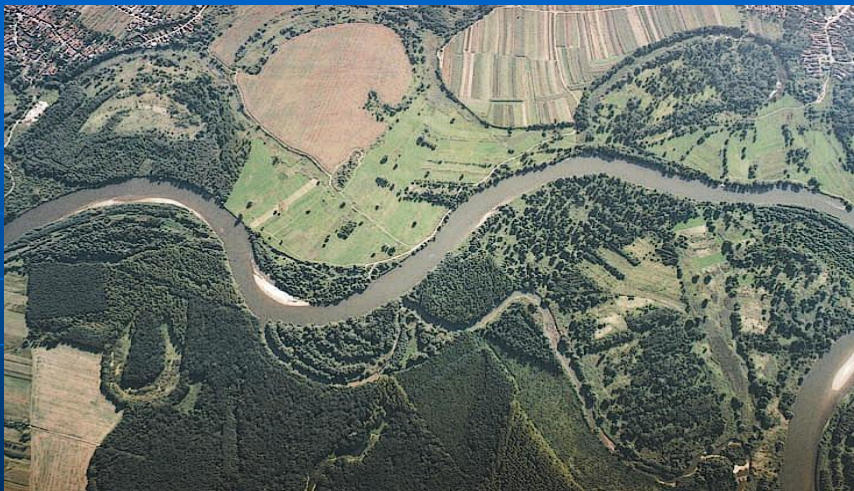
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SEA change Renewable Action Plan



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Example Mura-Natura 2000



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Alternatives on Mura

- Developed in SEA
- Chain of 9 hydropower 600 MW
 - D/not acceptable, reaching renewable energy aim, but not reaching Natura 2000 and cultural heritage aims
- Chain of 4 hydropower 400 MW
 - D/not acceptable, reaching renewable energy aim, but not reaching Natura 2000 aim
- Two small from 0/55 MW *possibility at the reconstructed chanel
 - C/acceptable, reaching both aims, but renewable aim not adequate, it must be achieved in solar or wind option

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Example-Soča /Natura 2000,



APPROPRIATE ASSESSMENT D

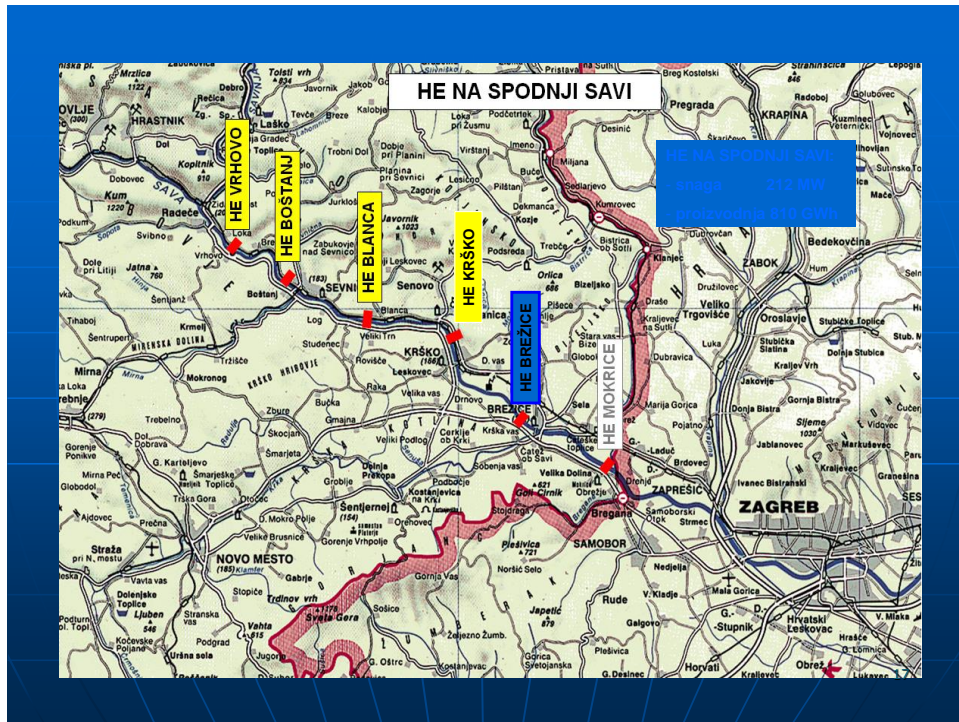
Existing state /some hydro power stations

Cumulative effects/negative

Against the Law on Soča protection

Excluded from National Energy Programme

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Methodology

The method of work was:

- implementation of two SEA transboundary procedures:
 1. for the national plan for Brežice and
 2. for the national plan for Mokrice
- a one-by-one approach starting the new one only after ending the first, while taking into account the cumulative effects of the chain in both procedures
- After SEA approval and environmental acceptability decision,
- Plan was adopted
- EIA procedures
 1. for Brežice HPP project
 2. for Mokrice HPP project

Transboundary SEA procedure

A step-by-step approach:

- notification,
- environmental report preparation,
- consultation with environment and health authorities, transboundary consultation,
- public participation,
- consultation on mitigation measures and their approval,
- draft final decision,

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Why good practice

- Transboundary SEA in the border which is under dispute on the International Court of Justice
- Good cooperation between focal points
- Transparency of all steps
- Agreement on each step and preparation of a clear conclusion of each step
- Consulting on all environmental aims with an emphasis on the state of the water bodies, including underground water and water supply, nature conservation and flood protection
- Agreement on how to deal with new facts :
- between the procedure: Croatia enter EU; Natura 2000 European ecological network, Slovenia prepare in addition appropriate assessment in line with art.6 of the habitats directive

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Screening

- In the SEA Protocol, Annex I includes a list of activities that automatically require the application of the Protocol if significant impacts may extend across a border. According to the fact that energy activities are planned in the two national spatial plans on the transboundary Sava River, the transboundary SEA thus applied.
- Annex I of the SEA Protocol, referring to paragraph 2 of Article 4, defines large dams and reservoirs.
- In the national plan there is a planned dam and reservoir on the Sava, which flows to Croatia: thus there is possibility for transboundary effects and transboundary effects **could not be excluded**.
- **At the beginning of transboundary procedure it was agreed that transboundary EIA will be conducted.**
- **Some technical questions could be solved in EIA**

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Notification

- The notification contained all documents and data according to Article 10 of the SEA Protocol:
 - a.) the draft plan and environmental report including information on its possible transboundary environmental, including health effects;
 - b.) information regarding the decision-making procedure, including a reasonable time schedule for the transmission of comments.
- Croatia responded in the proposed time of one month and sent the confirmation to cooperate in the transboundary SEA procedure supported with reasons such as care for underground water sources in Zagreb and Samobor, possible effects on the morphology of the river, nature conservation, flood protection and possible risks with the dam.

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Figure 1: Illustrative location map for national plans for hydropower use in Brežice, 13 km from the border between Slovenia and Croatia, and Mokrice, ca. 0.5 km from the border, and existing hydropower chain on the Sava River

Time and programming

- The interest of both parties that time schedules were specified as early as possible. The focal points discussed the possible timeframe according to the legislation in both countries, the legislative timeframe for the stages of the procedure, and opportunities to combine steps and prepared the time plan to avoid or minimise possible delays by planning the time schedule at early stage. The agreed time schedule was also presented to the public. As a time-saving measure, public participation on both sides of the border was organised almost **in parallel**; this could be recommended as a good practice.
- Clear agreement on schedule:
 - in sending the formal notification (30 days),
 - in responding to the notification (30 days),
 - in public consultation and participation (30 days),
 - on technical consultation (60 days),
 - in the final opinion on the draft decision (90 days) and
 - on informing of the final decision (30 days).

Financial aspects

- The application of transboundary SEA had certain financial implications. Financial aspects were agreed.
- The cases show that agreement on all elements also costs is an important aspect of the procedure, while complication could produce a much longer period and uncertainty on both sides.
- Costs of translation of the SEA report, presentation of documentation, an additional expert consultation, and the public hearing and participation were covered by Slovenia; costs of publication of the public hearing in the Croatian press and organisation of the public hearing and participation were covered by Croatia.

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Transboundary consultation

- After the SEA report was accepted by the Ministry for Agriculture and the Environment, as the competent authority in Slovenia, it was presented to the Ministry of Environment and Nature Protection of Croatia for comment.
- Environmental commissions were established on both sides. These are composed for all transboundary procedures on the Sava River, with the following members: environmental experts, environmental authorities, planning authorities and energy authorities.
- The above were consulted on the following:
 - the state of the environment;
 - possible alternatives, including a no-action alternative;
 - evaluation methods;
 - cumulative effects;
 - possible effects and mitigation measures for the following: sediment, erosion, water protection, nature conservation and flood protection.

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SEA Environmental aims

Strategic EU	EU Environmental Aims
Thematic Strategy for air protection COM (2005) 446	82% zmanjšanje emisij SO ₂ do leta 2020 glede na leto 2000
	60% zmanjšanje emisij NO _x do leta 2020 glede na leto 2000
	51% zmanjšanje emisij VOC do leta 2020 glede na leto 2000
	59% zmanjšanje emisij PM 2,5+ PM 10 do leta 2020 glede na leto 2000
	dobro kemijsko stanje voda (podzemne in površinske vode)
Thematic Strategy for soil COM(2006) 231	zmanjšanje erozijskih območij
	zmanjšanje vrednosti nevarnih snovi v tleh
	zmanjšanje površin prekomerno onesaženih območij
Thematic strategy on natural resources COM (2005) 670	20% delež električne energije iz obnovljivih virov energije do leta 2010
	zmanjšanje emisij toplogrednih plinov za 20% glede na izhodiščno leto 1990 do leta 2020
	ohranitev števila habitatnih tipov
	zmanjšanje števila ogroženih ptičjih vrst
	ustaviti zmanjšanje biotske raznovrstnosti, ohranitev in zaščita naravne in biotske raznovrstnosti pred vplivi onesnaževanja
Water Framework Directive	Dobro stanje površinske vode (dobro ekološko in kemijsko stanje voda)
	Dobro stanje podzemne vode (dobro količinsko in kemijsko stanje voda)

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SEDIMENT TRANSPORT

Effects:

- Change in dynamics and hydromorphology
Sediment study for all Sava river

First : upper Alpine part down to HPP Moste (1952)-

80.000 m³ sediment in 364.000 m³ f. sediment;

Second part> HE Medvode / Nuclear power plant:

HE Medvode (1954), HE Mavčiče (1986), HE

Vrhovo (1993)

Third part: dam of NEK until the Croatian border, leta 1993 finished HE Vrhuvo, HE Boštanj finished in 2006, HE Blanca started 2006 and concluded 2010, HE Krško started in 2007.

Mitigation measures:

- Solution for sediment movement at dam
- Management of sediment at the NPPP dam
- Building of small dams in Croatian side to slow the erosion process



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WATERS

EFFECTS

- **HYDRO MORFOLOGY**
- From river ecosystem to lake ecosystem
- Difference in the water level 1,3 m
- Deep water channel
- Flood protection
- Nature conservation

Mitigation measures

- Sustainable landscape design
- Habitats and animals
- Design of rivers
- Water manage flood protection



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NATURE CONSERVATION

State of environment:

- Biodiversity
- Natura 2000 on Krka river, new Natura 2000 on Sava

Vplivi:

- Velika raznolikost habitatnih tipov,
- Natura 2000 na Krki, predlog Nature 2000 na Spodnji Savi

Mitigation measures:

- Habitats
- Fish rivers
- Peaceful cones
- Sustainable design
- Protection from underground water prehod za vodne organizme



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Nature conservation mitigation measures



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TRANSBOUNDARY CONSULTATION ISSUES

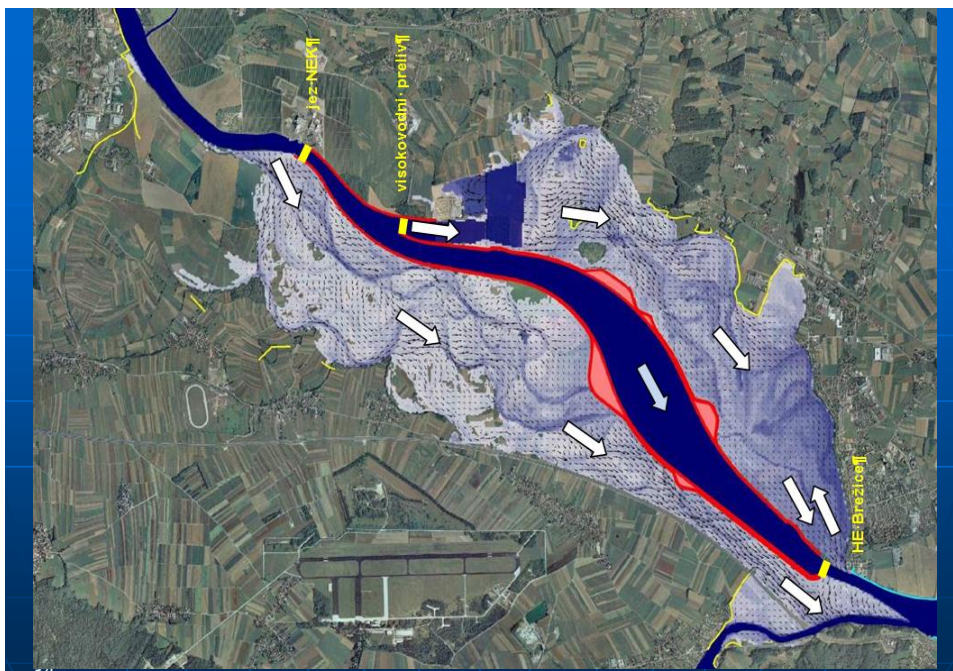
Environment	Environmental aims	Indicators
WATERS	Sediment transport Preventive measures for stopping erosion process	The m 3 for transport to Croatia
	The hydro level in border area Preventive measures for the case of dam damage	Natural hydrogram The level of damage dams water flow
NATURA 2000	Good ecological status of habitats and species	Natura 2000 species Natura 2000 habitats

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Consultation with environmental and health authorities

- Within the process, each of the responsible environmental authorities consulted mentioned authorities and has to reach consensus and common understanding of measures needed for reducing transboundary effects.
- Consultation on the national plan for Brežice, in which two alternatives were evaluated, showed that the narrow alternative was better for the environment, but in addition all flood-protected areas have to be preserved to reduce the impact to Croatia.
- In addition, a flood-protection model was prepared; Croatian experts were invited at a very early stage of its preparation and the model and its conclusion were also presented to the public and at the technical consultation.
- Consultation on the national plan for Mokrice showed at a very early stage that from the three alternatives only the alternative with project measures only on the Slovenian side was acceptable to Croatia, so this alternative was proposed for further evaluation.

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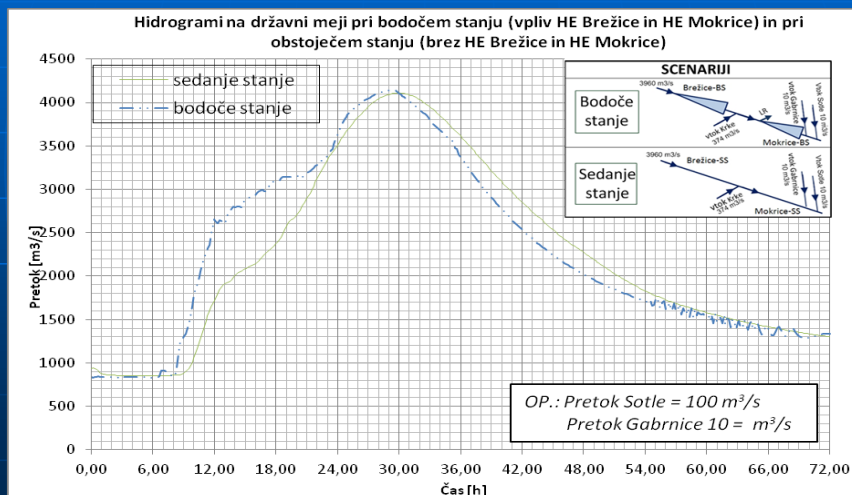


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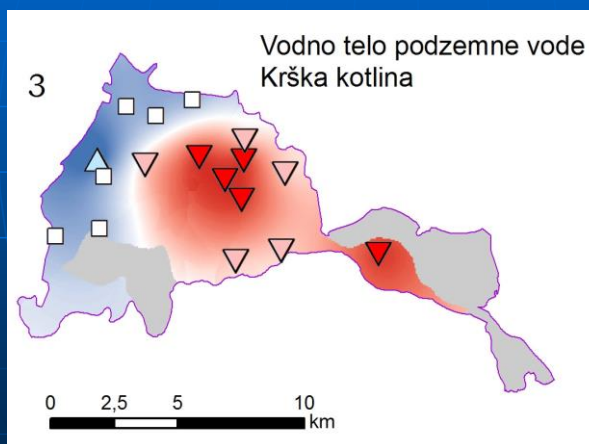
The assessment on flood protection

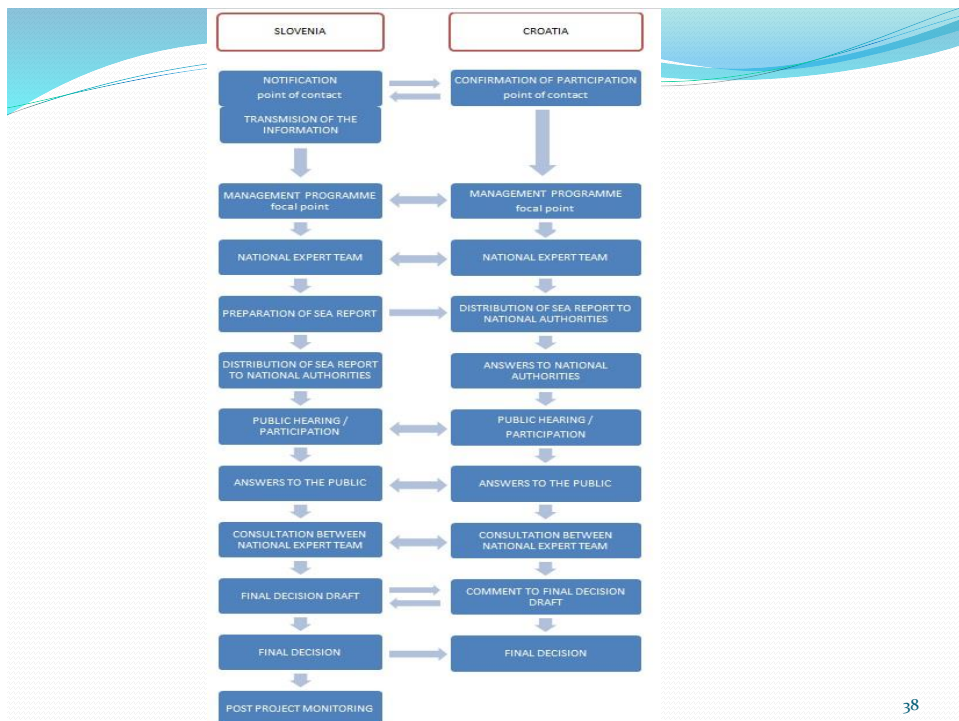
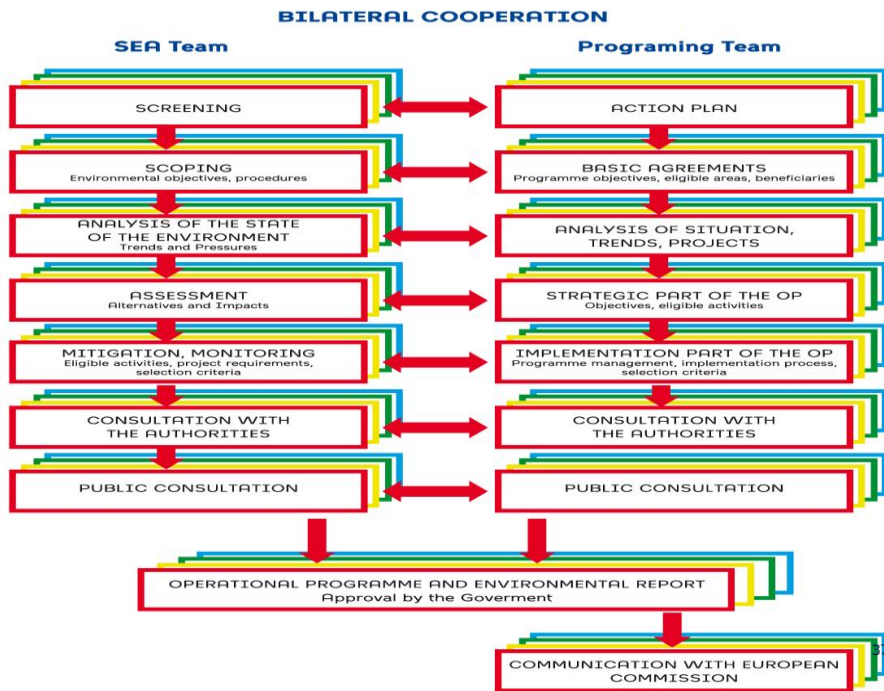
Hydrogram for existing state (SS) and future state (BS)



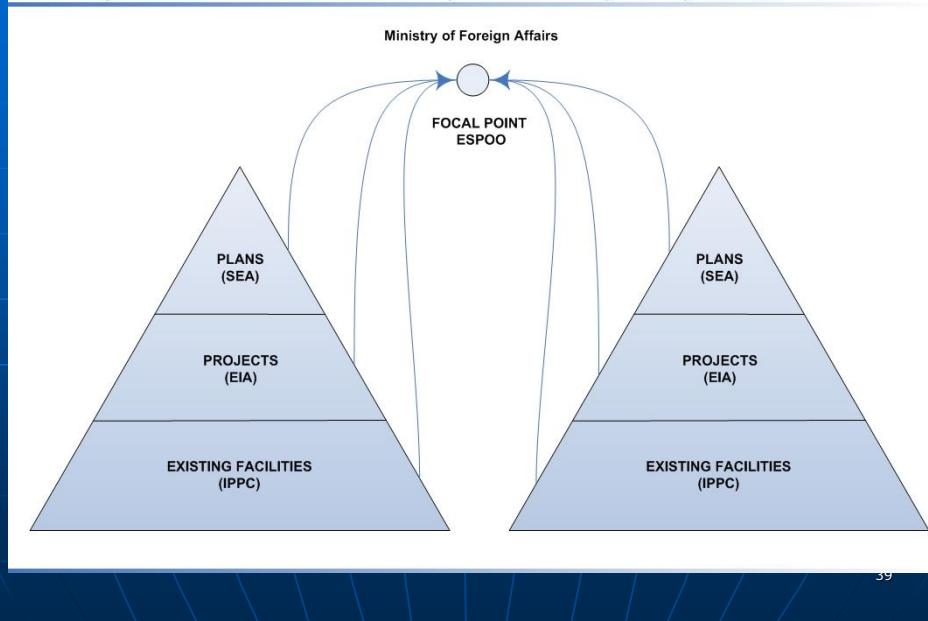
The assessment on underground water

PODZEMNE VODE





An example of communication through the focal points for ESPOO on plans, projects or existing facilities in case of transboundary effects on neighboring countries



- There was no relevant bilateral agreement between the countries, but points of contact and focal points for the purposes of the Espoo Convention and its SEA Protocol were designated with their tasks and responsibilities. The cases show that **the procedures could be managed successfully via focal points.**
- A formal contact has been carried out to meet the legal requirements of the SEA Protocol. The cooperation shows that it is important **to trigger informal negotiation throughout the process and especially at the starting, consultation and final stages.**
- Experience in the two cases shows that the negotiations which were conducted between points of contact and responsible authorities within both countries as well as between authorities and NGO and public on both sides of the borders were essential for the conclusion of the procedure.
- To manage the process, working groups – called “*delovna skupina*” in Slovenia and “*povjerenstvo*” in Croatia – were organised on both sides of the border and cooperated during the whole process until the final decision.

Lessons learned

- On the base on results on two transboundary SEA procedures, we recommend using practical advices from Guidance on Notification According to the Espoo Convention, the Guidance on the Practical Application of the Espoo Convention and the Guidance on Public Participation under the Espoo Convention, which present helpful tool also for implementation of SEA protocol in transboundary context.
- Good practice recommendation to:
 1. start with notification as early as possible,
 2. keep the process on technical level,
 3. organise active public participation with public hearing in parallel in both sides of the border;
 4. keep process transparent and open and define each stage; keep the management;
 5. discuss alternatives and mitigation measures and
 6. work on agreement on all items, even if take longer.