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Green Economy in Eastern Partner Countries

Principles of efficient SEA practice and benefits of SEA for strategic documents

Mr. Michal Musil, International SEA Consultant to UNECE for
EU4Environment

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What is SEA?

SEA is a systematic & anticipatory process, undertaken to analyze environmental effects of proposed plans, programmes & other strategic actions and to integrate findings into decision-making

Key principles:

- Undertaken by the authority responsible for the given Plan/Programme (e.g. sectorial, spatial)
- Applied as early as possible in decision-making process
- Focused on key issues
- Evaluates reasonable range of alternatives
- Provides appropriate opportunities for involvement of key stakeholders & the public
- Carried out with appropriate, cost-effective methods & techniques of analysis

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International Legal Framework: EU SEA Directive

Defines plans and programmes that need to undergo SEA

- An SEA is mandatory for plans/programmes which are:
 - are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste/ water management, telecommunications, tourism, town & country planning or land use **and** which set the framework for future development consent of projects listed in the EIA Directive.
- Defines topics to be assessed: roughly 4:
 - environment,
 - nature,
 - human health and
 - cultural heritage

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International Legal Framework: SEA Protocol

Protocol to the so-called Espoo Convention (Convention on Environmental Impact Assessment in a Transboundary Context)

Signed in 2003 in Kyiv, entry into force July 2010

- also known as „Kyiv“ Protocol
- Signatories: 38; Parties: 25

Similar to SEA Directive, but additional focus on:

- Impacts on human health
- Public consultation

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What is SEA?

Environmental assessment of 'strategic' initiatives = policies, plans, programmes, strategies, actions...

SEA Protocol	SEA Directive(2001/42/EC)
<p><u>evaluation</u> of the likely environmental, including health, effects, which comprises the determination of the scope of an environmental report and its preparation, the <u>carrying-out of public participation and consultations</u>, and the <u>taking into account</u> of the environmental report and the results of the public participation and consultations <u>in a plan or programme</u></p>	<p>The <u>preparation of an environmental report</u>, the <u>carrying out of consultations</u>, the <u>taking into account</u> of the environmental report and the results of the consultations <u>in decision-making</u> and the provision of information on the decision</p>

Typical / Generic SEA Steps

0. Screening: to determine if SEA is required for the specific plan or programme (P/P)

1. Scoping / Baseline Analysis

Determination of key issues that should be considered within the SEA process

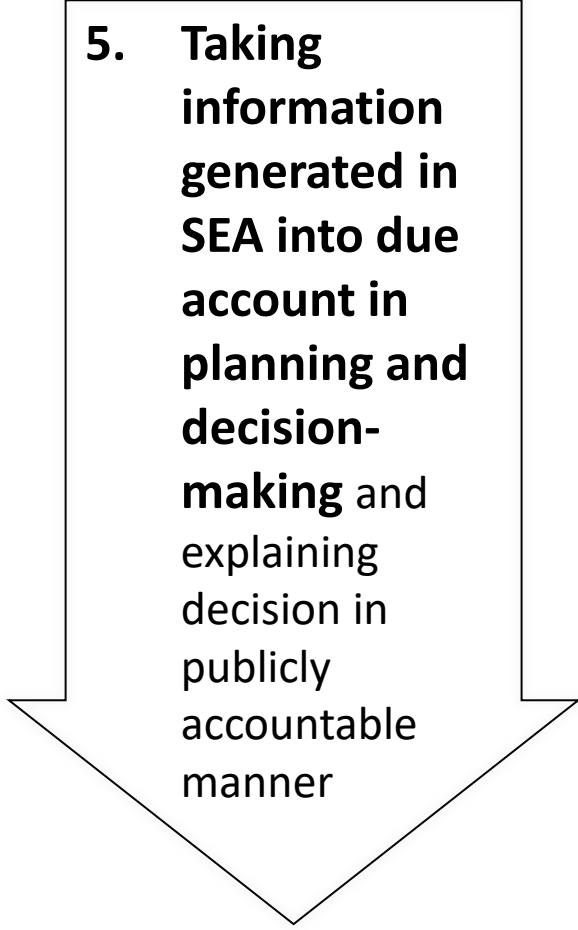
Analysis of key issues i.e. past evolution, current situation and likely future evolution if the plan or programme is not implemented

2. Assessment of effects of the plan or programme on the key issues and development of mitigation measures (including monitoring scheme)

3. Compilation of the SEA Report and its submission for consultations with environmental and health authorities and the public



4. Consultations



5. Taking information generated in SEA into due account in planning and decision-making and explaining decision in publicly accountable manner



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SEA: What does it take?

- SEA runs in parallel with Planning (drafting of the Plan or Programme)
- SEA team of environmental specialists looks into the draft Plan/Programme and provide comments to planning (drafting) team about:
 - Potential impacts(risks) from the proposed actions to the environment, and
 - Measures to prevent, mitigate, and minimize identified risks
 - Measures to enhance likely positive effects
- SEA team put together Environmental Report summarizing its findings and recommendations
- Planning institution takes the SEA findings (Environmental Report) into consideration when finalizing and approving the draft Plan or Programme

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SEA: What does it take? (2)

- SEA initiation – when main thesis, objectives and priorities of the Plan or Programme are available.
- SEA Scoping – identification of what environmental issues are relevant for given Plan or Programme, where the environmental impacts are likely to appear.
- Draft Plan/Programme evaluation by environmental experts
- Environmental Report compilation
- Public consultation of the draft Plan/Programme together with the Environmental Report
- SEA Authority (Ministry of Environment) concludes the SEA process, and the Plan can be subsequently approved while taking into account the results of the SEA process

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SEA: Key tangible deliverables

1. Scoping Report, which outlines the scope of assessment and suggests further analyses – submitted to the governmental authorities and other stakeholders for consultations to determine of the scope and focus of the future SEA Report.
2. SEA Report summarizing all environmental expert analyses, assessment findings and recommendations – subject of stakeholder consultations and basis for SEA conclusion.

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SEA Guiding principles

- Undertaken by the authority responsible for Plan
- Applied as early as possible in decision-making process
- Focused on key issues
- Evaluates reasonable range of alternatives
- Provides appropriate opportunities for involvement of key stakeholders & the public
- Carried out with appropriate, cost-effective methods & techniques of analysis

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Why do we need SEA ?

- To support the preparation (i.e. planning) and implementation of good quality planning documents
- To ensure that sustainability considerations inform & are integrated into planning and decision-making
- To ensure that economic planning is consistent with environmental obligations and policies (e.g. regarding climate change, air quality, biodiversity)
- To address strategic issues of concern that cannot be effectively addressed through project-level decision-making (SEA is not a mega-EIA!)

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SEA Benefits

- Provide for high level of environmental protection
- Improve quality of P/P making
- Increase efficiency of decision-making
- Facilitate identification of new development opportunities
- Help prevent costly mistakes
- Strengthen governance
- Facilitate transboundary cooperation

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EIA vs SEA differences

EIA of Projects	SEA of Policies, Plans and Programmes
Takes place near the end of decision-making cycle: aims to minimise impacts	Takes place at earlier stages of decision-making cycle: aims to prevent impacts
Reactive approach to development proposal	Pro-active approach to development proposals
Considers limited number of feasible alternatives	Considers broad range of potential alternatives
Limited review of cumulative effects	Cumulative effects assessment is key to SEA
Emphasis on mitigating and minimizing impacts	Emphasis on meeting environmental objectives, maintaining natural systems
Narrow perspective, high level of detail	Broad perspective, lower level of detail to provide a vision and overall framework
Well-defined process, clear beginning and end	Multi-stage process, overlapping components, policy level is continuing, iterative
Focuses on standard agenda, treats systems of environmental deterioration	Focuses on sustainability agenda, gets at sources of environmental deterioration

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EIA vs SEA differences (2)

- Specific location vs lack of spatial specification
- Smaller territory (local impacts) vs regional/national scope
- Focus on technical analysis and (semi)quantitative evaluation vs compliance with policy objectives and expert opinion
- Product-oriented (focus on preparing an EIA Report/construction permit and developing a project) vs process-oriented (focus on promoting a careful, well-balanced planning process)
- Often use field research vs rely on aggregated data and official publications
- Produce EMP included as condition in project permit vs recommendations for future planning and permitting processes

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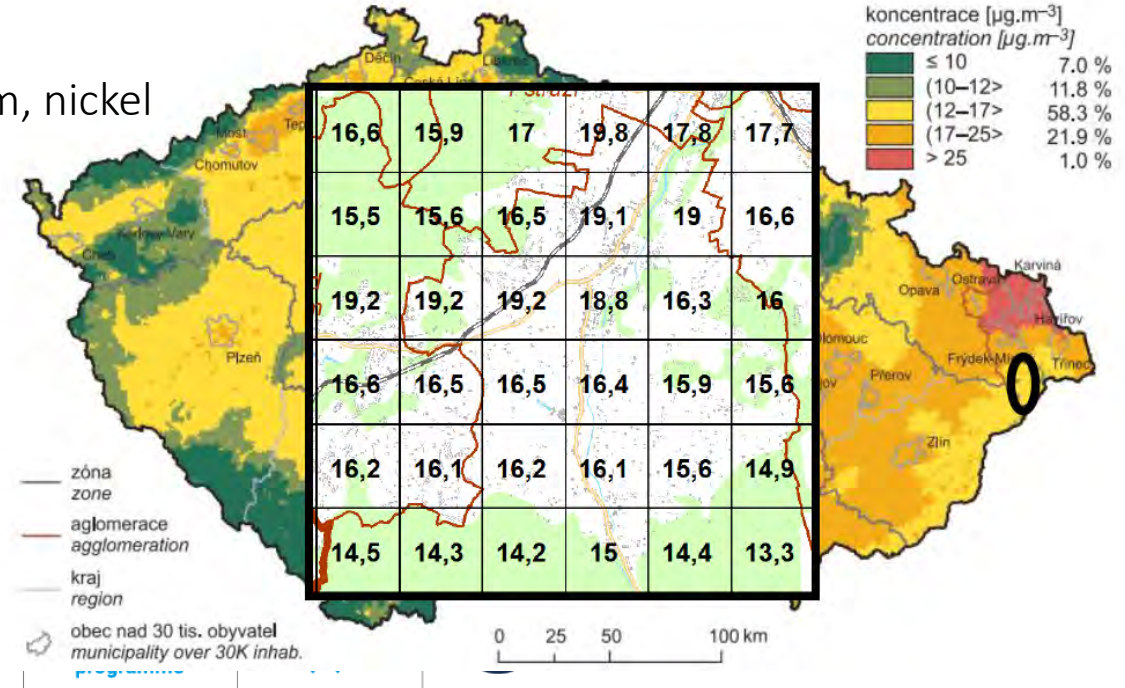
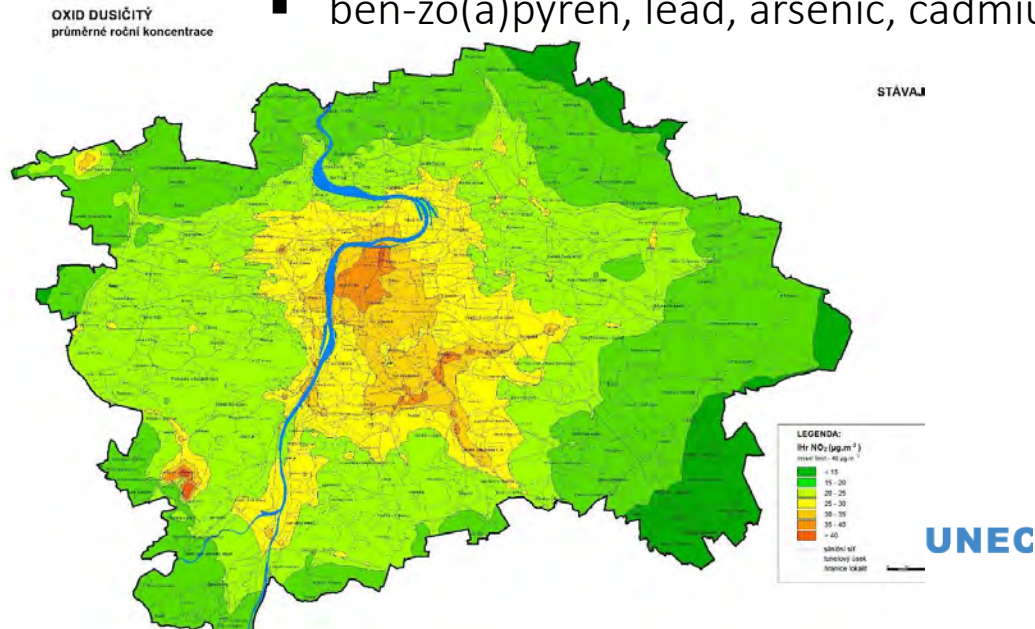
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Typical Environmental Issues: Air Quality

- Areas with deteriorated air quality
- Number of settlements and population within areas with deteriorated air quality
- Spatial limit: 1km square where legal limits were exceeded within last five years
- Indicators:

- SO₂, NO₂, PM₁₀, PM_{2,5}, CO, benzen,
- ben-zo(a)pyren, lead, arsenic, cadmium, nickel

Obrázek 7: Pětiletý průměr ročních průměrných koncentrací PM_{2,5}; pro období 2014–2018

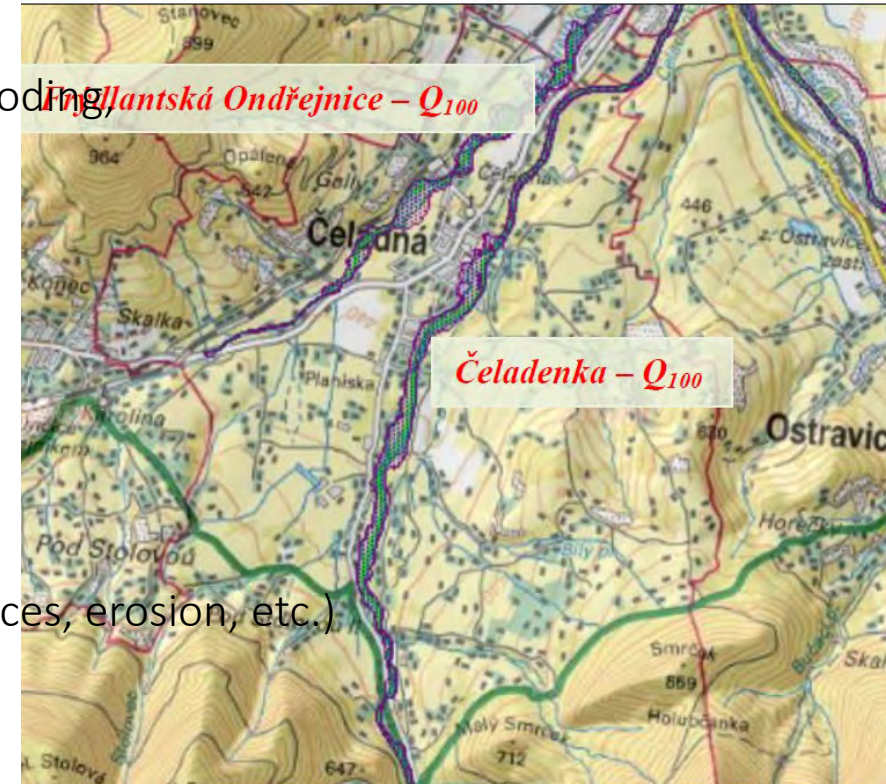




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Typical Environmental Issues: Water

- Spatial categories:
 - Water resources, rivers, lakes etc. and their buffer zones
 - Flooding areas, flooding zones, designated zones for natural flooding, flood management objects
 - Natural water accumulation areas (regional-scale category)
 - Vulnerable areas (EU Nitrate Directive)
 - Mineral water resources
- Analyses:
 - Flow characteristic
 - Factors affecting natural flow (rapid discharge from paved surfaces, erosion, etc.)
 - Water pollution, pollution sources
 - Resources use and balance
 - ...



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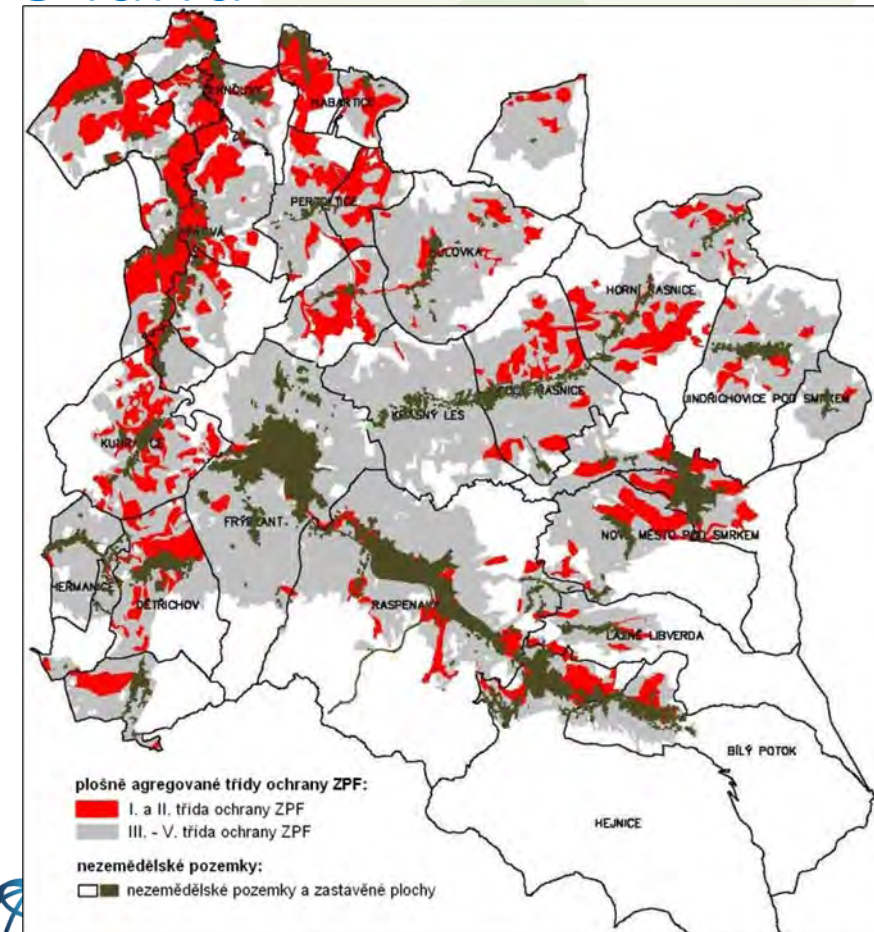
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Typical Environmental Issues: Agriculture land

- Spatial categories:
 - Arable land
 - Permanent grass cultures
 - Special agricultural cultures (orchards, vineyards, gardens...)
 - Soil quality categories
 - Soil affected by erosion
- Analyses:
 - Area change in different categories
 - past trend and
 - proposed changes



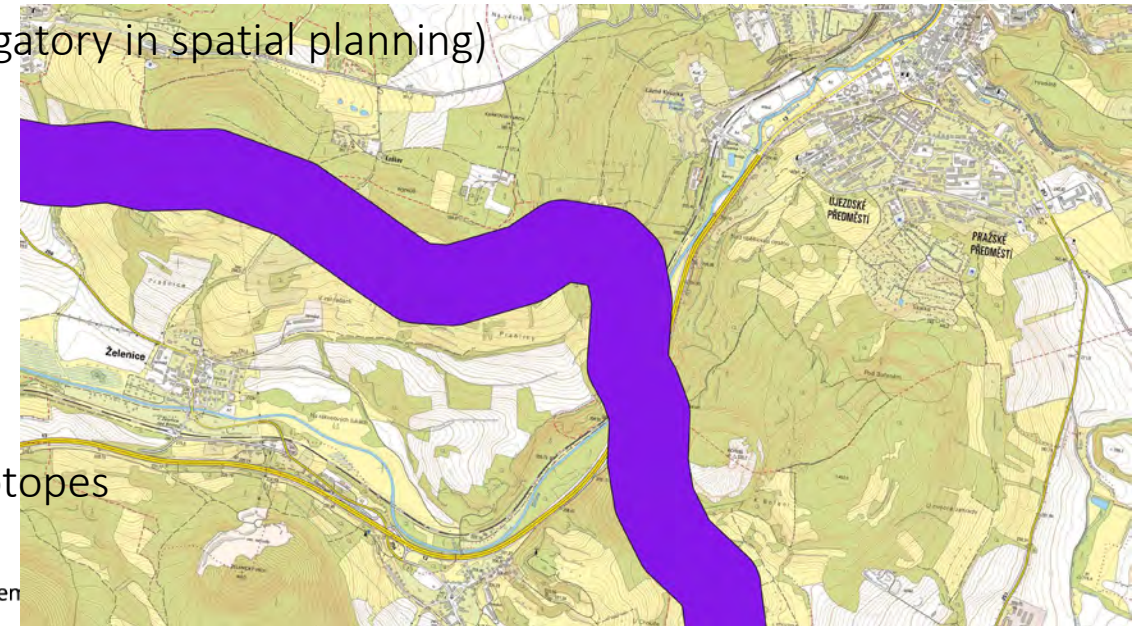
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Typical Environmental Issues: Biodiversity

- Spatial categories:
 - Formally protected areas (multiple categories)
 - Localities with occurrence of protected species
 - Spatial system of ecological stability (defined obligatory in spatial planning)
- Analyses:
 - Status of the Spatial system of ecological stability (formal delineation vs actual functionality vs newly proposed components)
 - Occurrence of protected species and valuable biotopes
 - Wildlife Migration corridors



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Typical Environmental Issues: Landscape

- Spatial categories:
 - Formally protected areas
 - unique landscape, visual quality, distinctive natural or urbanistic features,...
- Analyses:
 - Spatial relations, aesthetical values
 - Important visual characteristics, viewpoints
 - Fragmentation of landscape (disturbance)



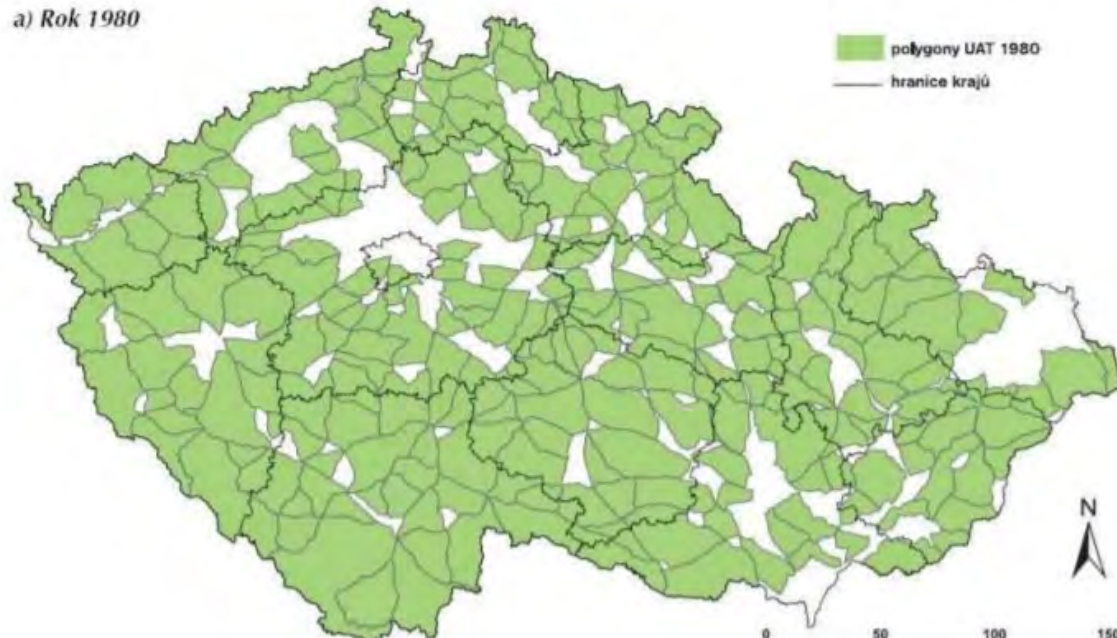


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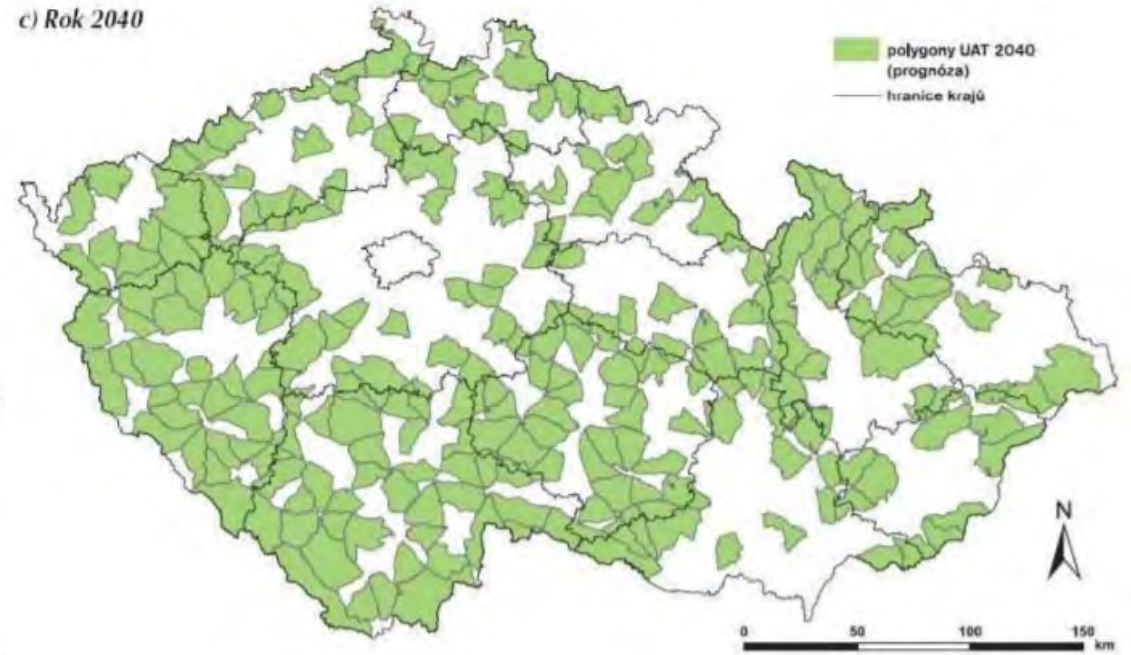
Typical Environmental Issues: Landscape (2)

- Fragmentation of landscape (disturbance)
- UAT method: unfragmented area with traffic
 - a) area not interrupted by roads with traffic intensity higher than 1000 vehicles/day or by railway with more than 1 track
 - b) the area is more or equal 100 km²

a) Rok 1980



c) Rok 2040



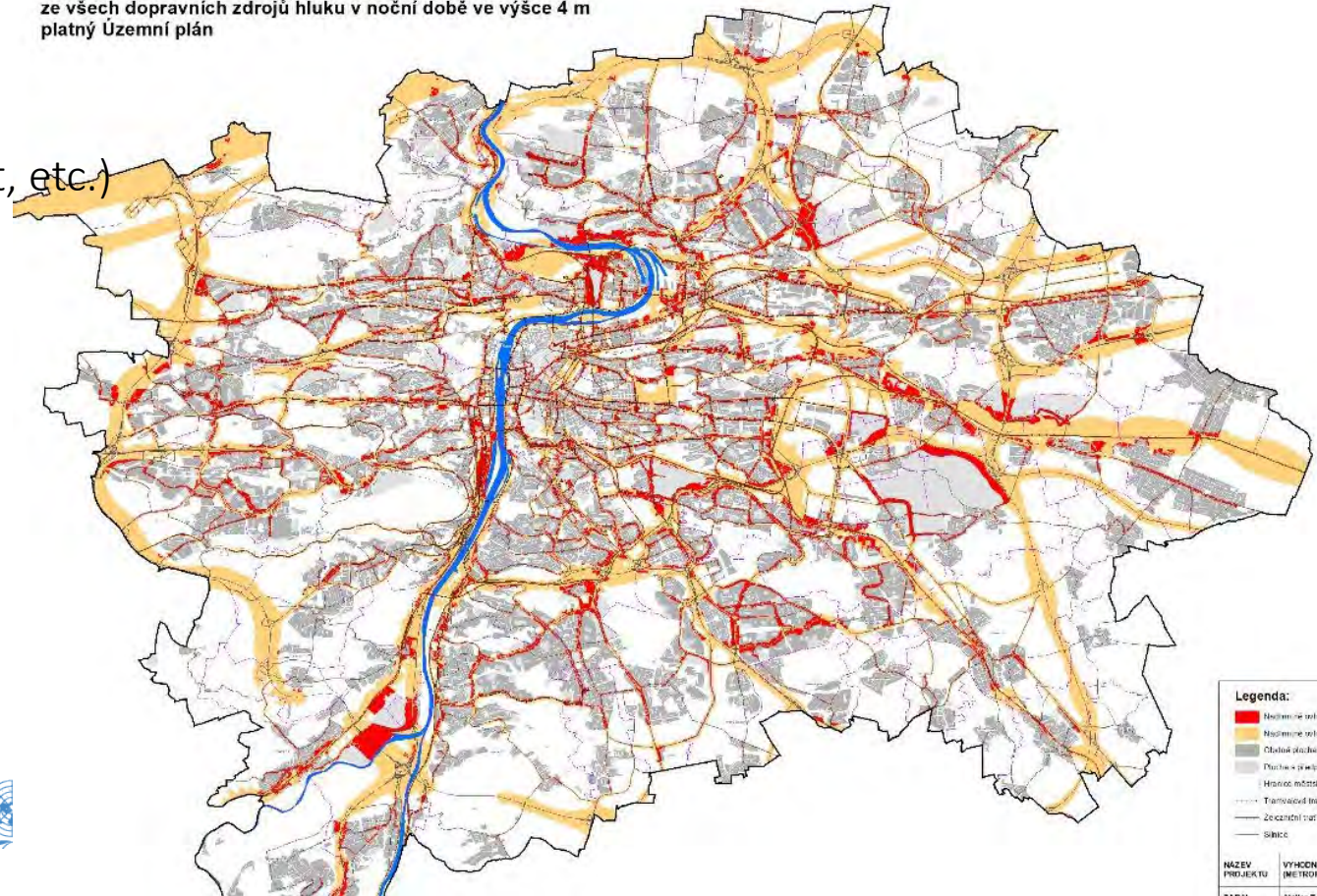


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Typical Environmental Issues: Population

- Spatial categories:
 - Residential areas
 - Infrastructure (transport, technical, waste management, etc.)
 - Contaminated areas
- Analyses:
 - Noise pollution

CELKOVÁ AKUSTICKÁ SITUACE
včetně nadlimitně ovlivněných obytných ploch
ze všech dopravních zdrojů hluku v noční době ve výšce 4 m
platný Územní plán





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Addressing cumulative effects

- **Cumulative effect** – aggregation of the same effects (e.g. nitrogen oxid) from numerous pollution sources (if projects evaluated in isolation, such effect could not be detected)
- **Synergic effect** – combination of different effects (e.g. different pollutants) creates a qualitatively different pressure on the receiving environmental component

- Typical cumulative effects:
 - Land uptake
 - Multiple pollution sources (emissions to air, water,...)
 - Fragmentation of biotopes
 - ...?

- Problem is lack of standards/quantified objectives/thresholds

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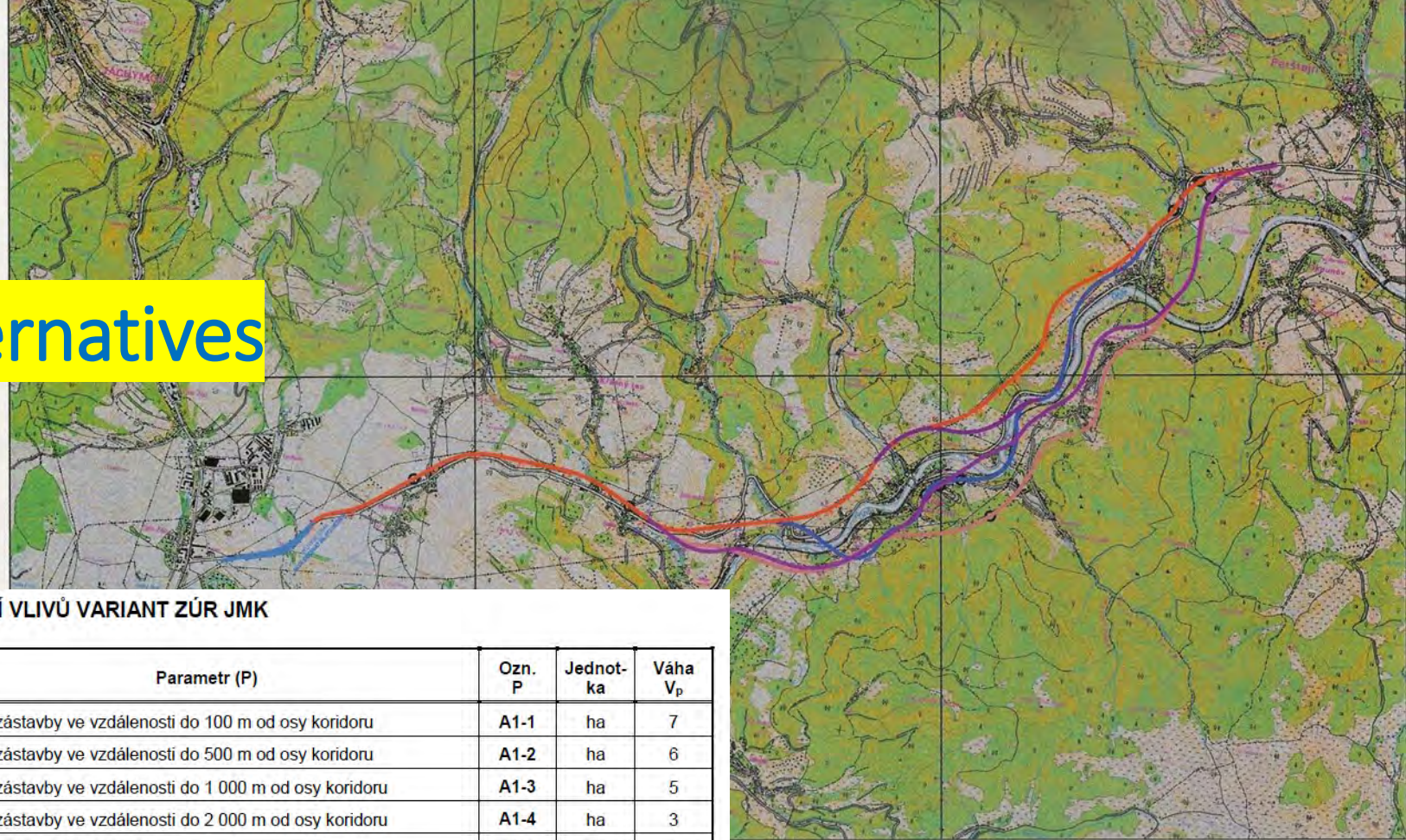
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Comparison of Alternatives

- Multi-criterial comparison
- Selection of relevant criteria



UKÁZKA – KATALOG PARAMETRŮ POUŽITÝ PŘI HODNOCENÍ VLIVŮ VARIANT ZŮR JMK

Skupina kritérií	Ozn. Sk	Váha Sk	Kritérium (K)	Ozn. K	Parametr (P)	Ozn. P	Jednotka	Váha V _p
Obyvatelstvo a ovzduší	A	26	Vlivy na obyvatelstvo	A1	Plocha zástavby ve vzdálenosti do 100 m od osy koridoru	A1-1	ha	7
					Plocha zástavby ve vzdálenosti do 500 m od osy koridoru	A1-2	ha	6
					Plocha zástavby ve vzdálenosti do 1 000 m od osy koridoru	A1-3	ha	5
					Plocha zástavby ve vzdálenosti do 2 000 m od osy koridoru	A1-4	ha	3
			Vlivy na emisní zátěž území	A2	Celková délka trasy záměru	A2-1	km	5
Příroda a krajina	B	23	Vlivy na zvláště chráněná území (ZCHÚ) a biosférické rezervace	B1	Podíl plochy koridoru spadající do CHKO (3 a 4.zóna) ^[1] , biosférická rezervace (BR)	B1-1	%	5
					Podíl plochy maloplošných zvláště chráněných území (NPR, NPP, PR, PP) v ploše koridoru	B1-2	%	6
			Vlivy na flóru a faunu	B2	Podíl plochy lokality výskytu zvláště chráněných druhů národního významu v ploše koridoru	B2-1	%	5
			Vlivy na územní systém ekologické stability a ostatní plochy se zvýšeným stupněm ekologické stability ¹⁵	B3	Podíl plochy nadregionálních a regionálních biocenter v ploše koridoru a ostatních ploch se zvýšeným stupněm ekologické stability	B3-1	%	3
					Podíl plochy nadregionálních a regionálních biokoridorů v ploše koridoru	B3-2	%	1
Vlivy na krajinný ráz	B4	Podíl plochy přírodního parku a ostatních hodnotných segmentů krajiny v ploše koridoru	B4-1	%	3			



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Example: SEA for Transport Strategy of Kosice City, Slovakia



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Background information

- Strategy was elaborated in two levels
 - Strategic i.e. priorities for further transport development (mainly focused on public transport)
 - Project i.e. indication of priority activities and projects to be implemented (e.g. new tram lines, road sections etc.)
- SEA was conducted in parallel with Strategy preparation

Key aspects addressed in SEA

- Air quality
- Human health (air quality, noise, road safety)
- Biodiversity and nature protection

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Approach to impact assessment – air quality

- Transport model available i.e. expected transport intensities in 2030 with and without the Strategy
- Emissions of NO_x, PM₁₀, PM_{2.5}, and PAH from transport were calculated and compared for both scenarios
- Results were displayed in the maps and linked to population density i.e. for how many inhabitants the emissions of air pollutants will change

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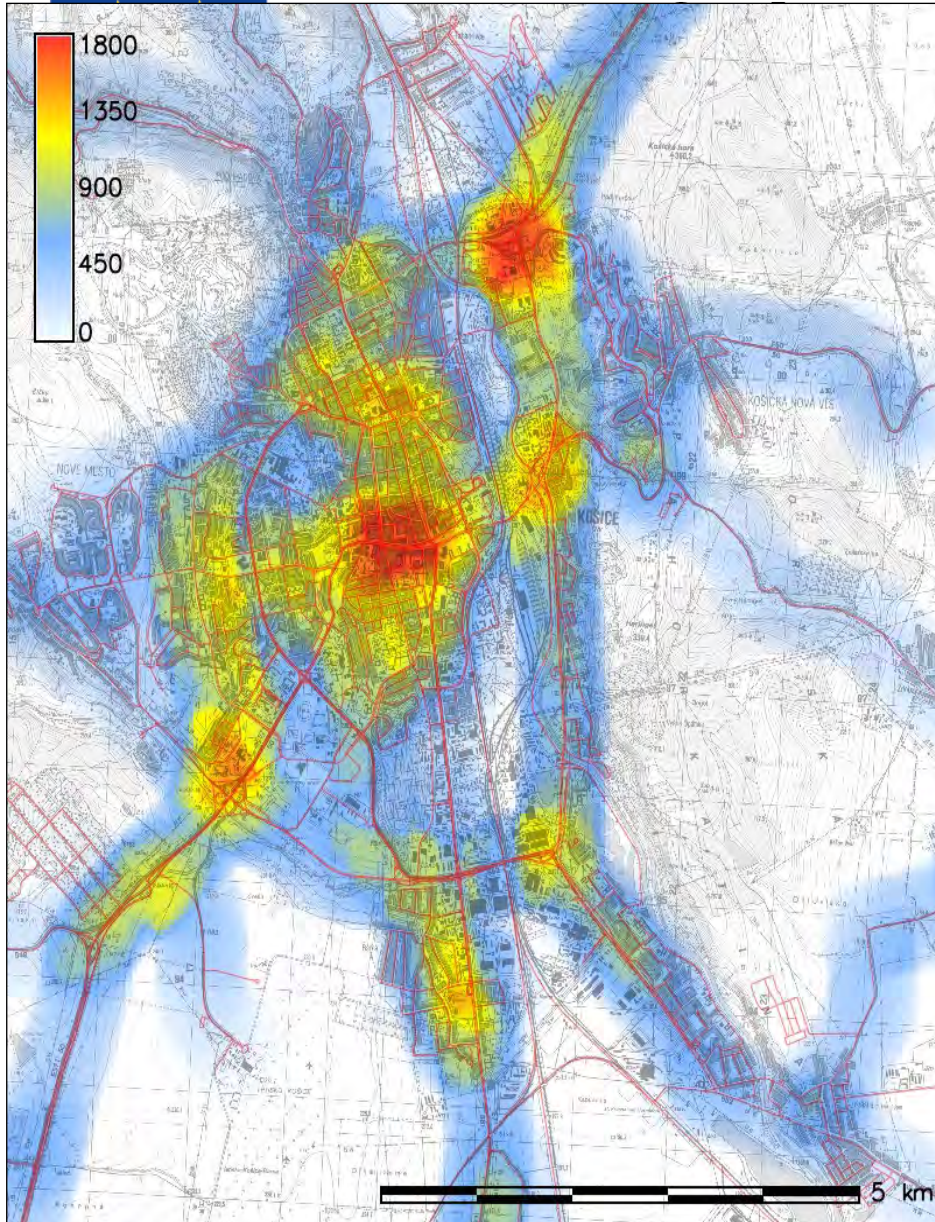
Approach to impact assessment – air quality

Scenario	NO _x	NO ₂	PM ₁₀	PM _{2,5}	B(a)P
	t/year	t/year	t/year	t/year	g/year
Zero	785	194	374	120	715
Active	646	163	375	116	609
Difference	-139	-31	1	-5	-106
	-18%	-16%	0,3%	-3,8%	-15%

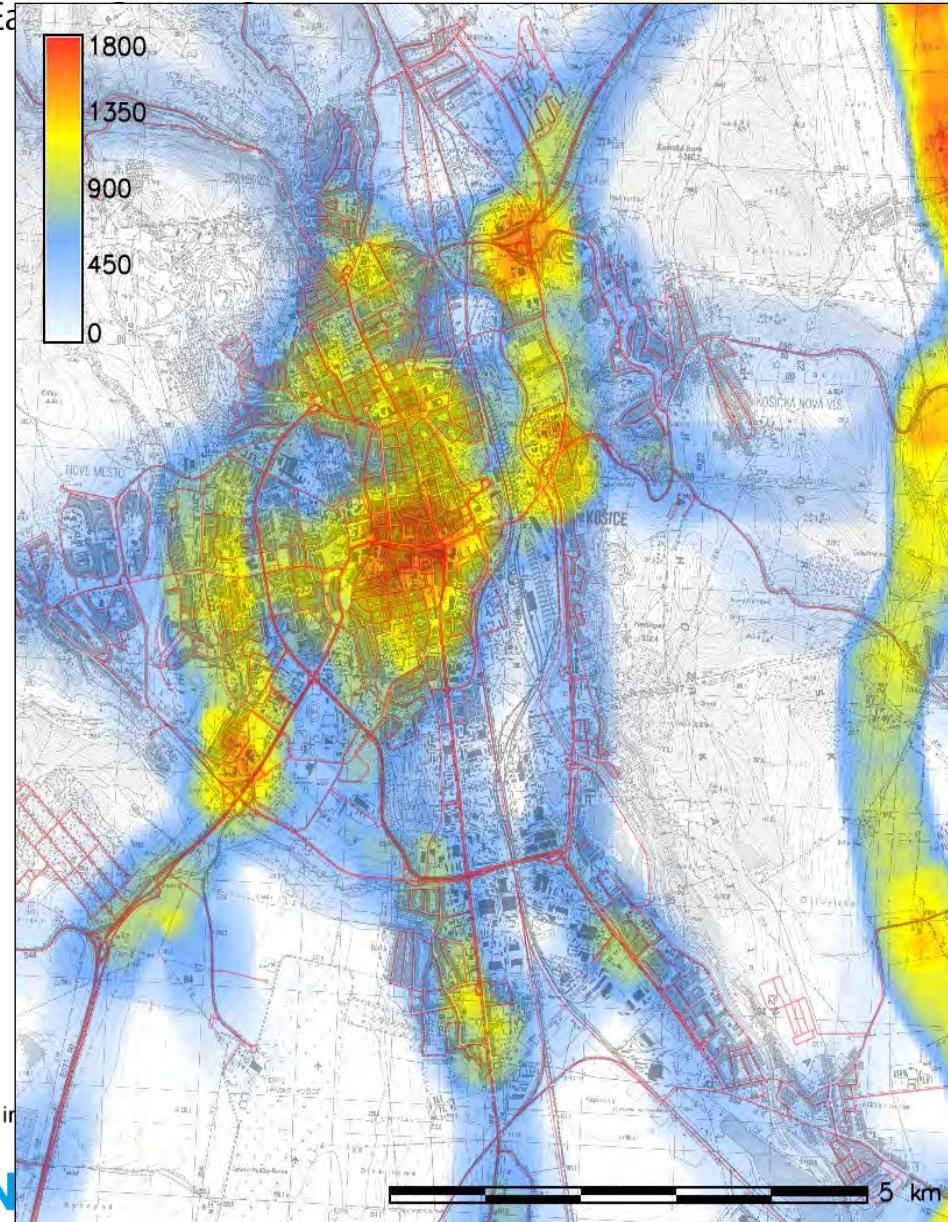
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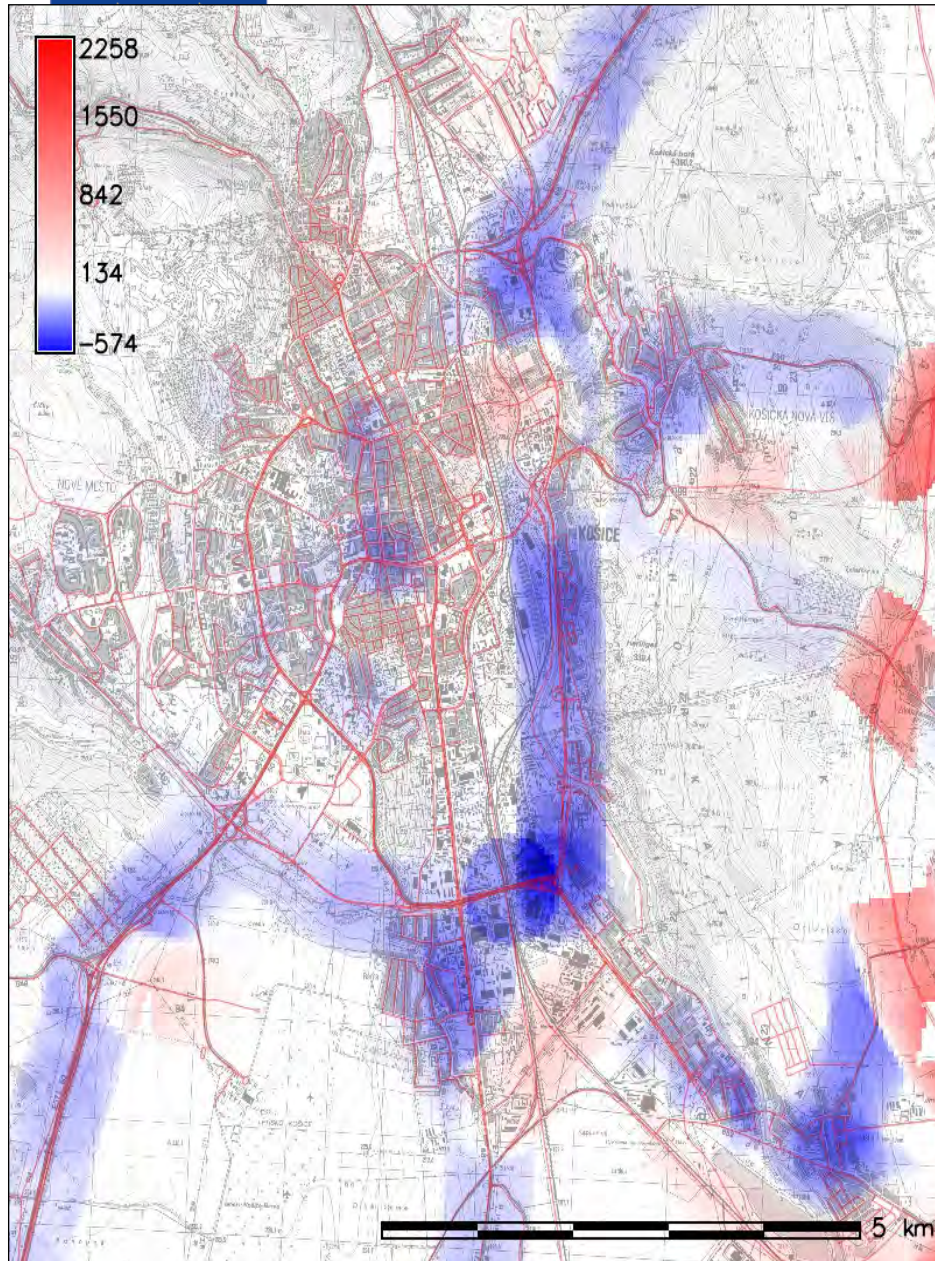
Emisná hustota PM_{2.5} - nulový variant (kg/rok/ha)



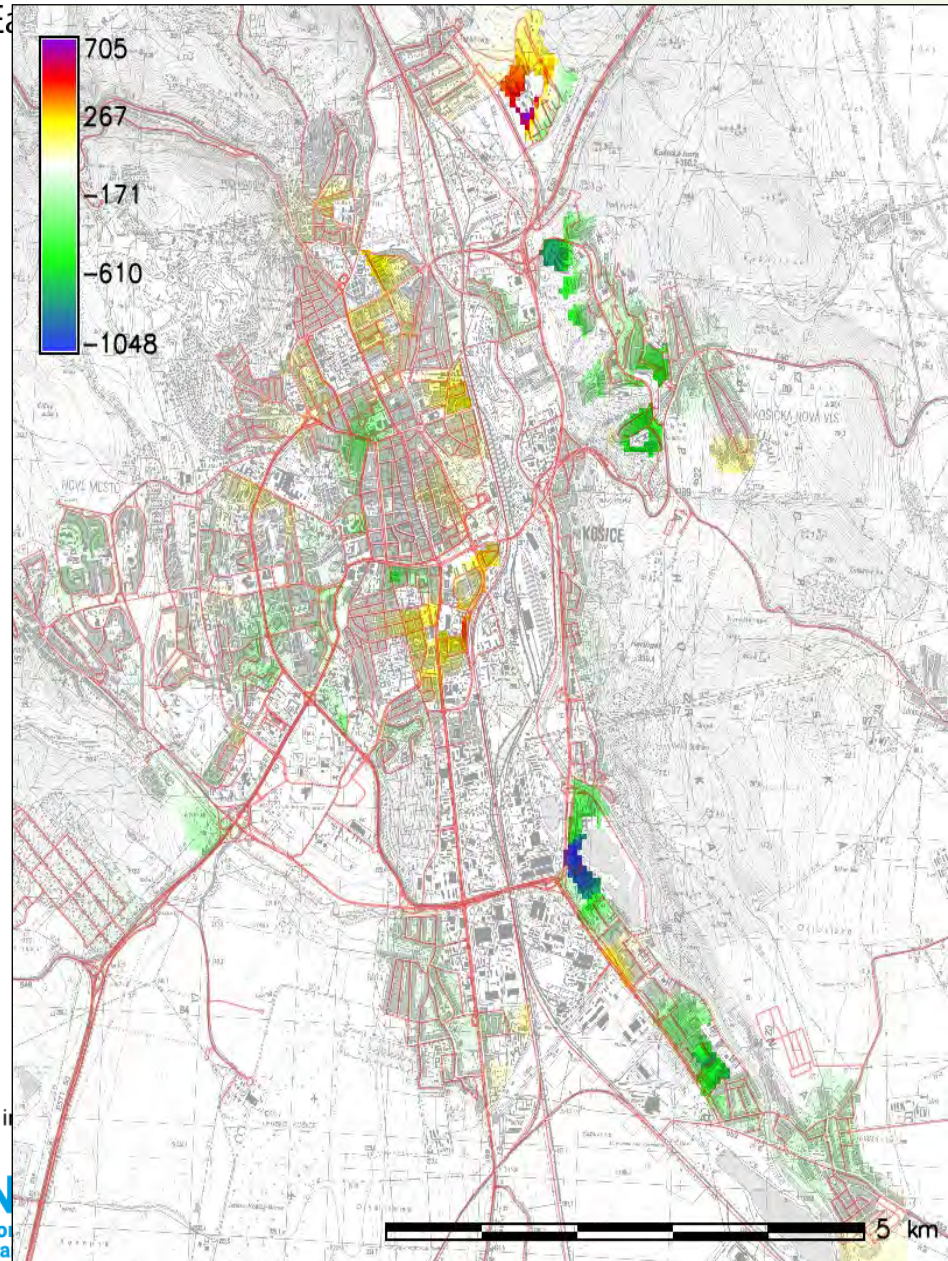
Emisná hustota PM_{2.5} - návrhový variant (kg/rok/ha)



Emisná hustota PM_{2.5} - rozdielová mapa (kg/rok/ha)



Emisná hustota PM_{2.5} - rozdielová mapa (kg/rok/ha).(obyv/ha)





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Proposed mitigation measures

- To apply additional measures to decrease dust in the city – i.e. to clean the streets on a regular basis (twice a week)
- To implement measure to protect inhabitants from noise in the most affected areas (noise protection walls, better windows)
- To construct certain new roads only if not other transport option is available (to avoid effects to nature)
- Selection on alternatives for specific road sections based on likely impacts on human health (air, noise) and biodiversity

The most of the recommendations were integrated in the final version of the Strategy

Success factors

- Primary goals of the Strategy
- Transport experts open for communication
- Timing of SEA i.e. initiation of SEA process together with start of the planning process
- Existence of the transport model enabling calculations of future noise levels and emissions to the air



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Example: SEA for Development Strategy for the Bratislava port, 2nd phase





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Armenia, Azerbaijan, Belarus, Georgia, Republic of Moldova, Ukraine

Background information

- **Bratislava Public Port**
 - Important part of the national water transport system;
 - First established in 1897, further major development in 1970 – 1985;
 - Mainly cargo port, with limited capacity for passengers vessels;
 - Close to the Bratislava City center;
- **Purpose of the Master Plan**
 - To estimate future demand on the various Port's services;
 - To define a long-term concept for development of the Port;
 - To determine general spatial arrangements for specific aspects and functions of the Port (in alternatives) – Multi-Criterial Analysis (MCA) applied to select alternatives.

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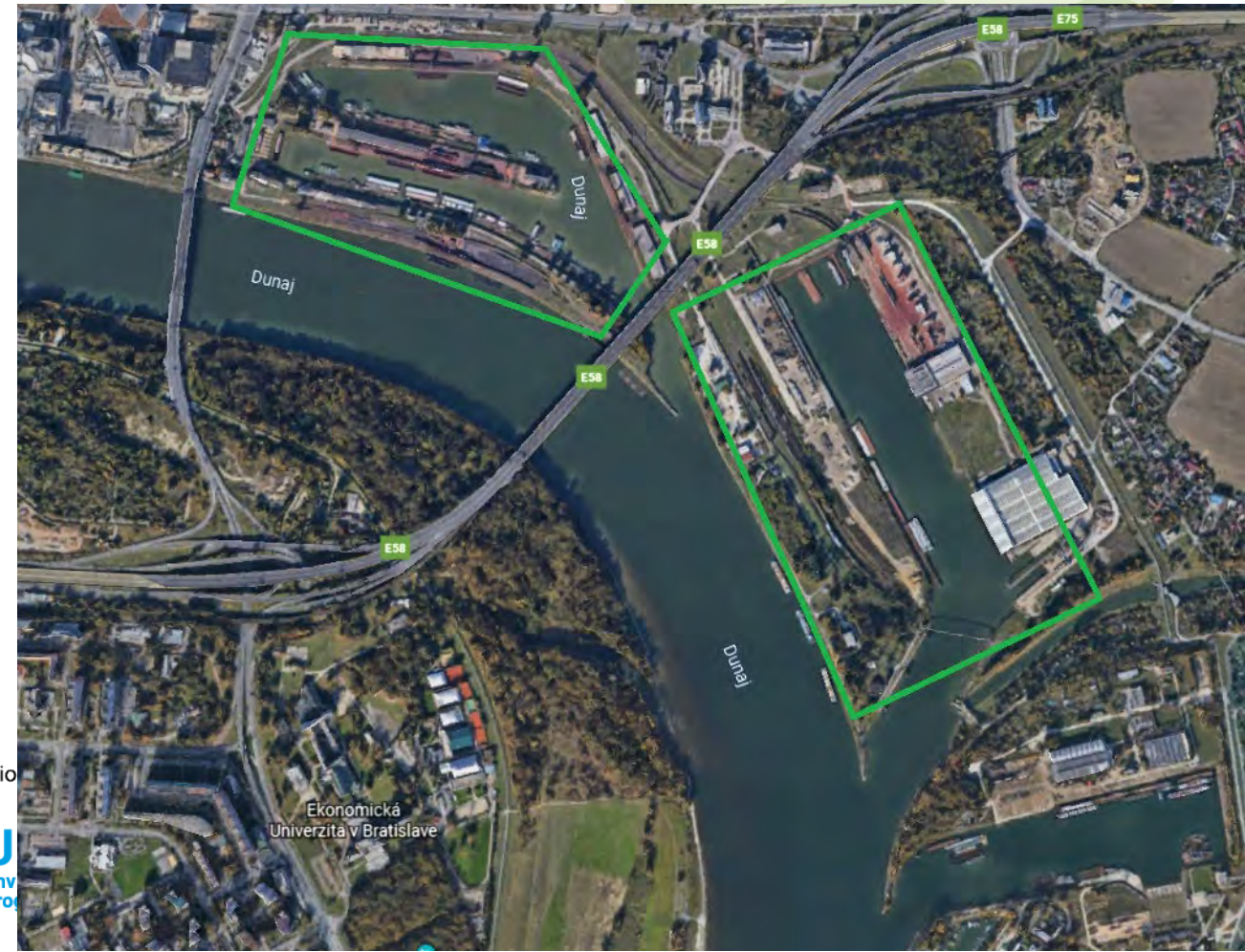
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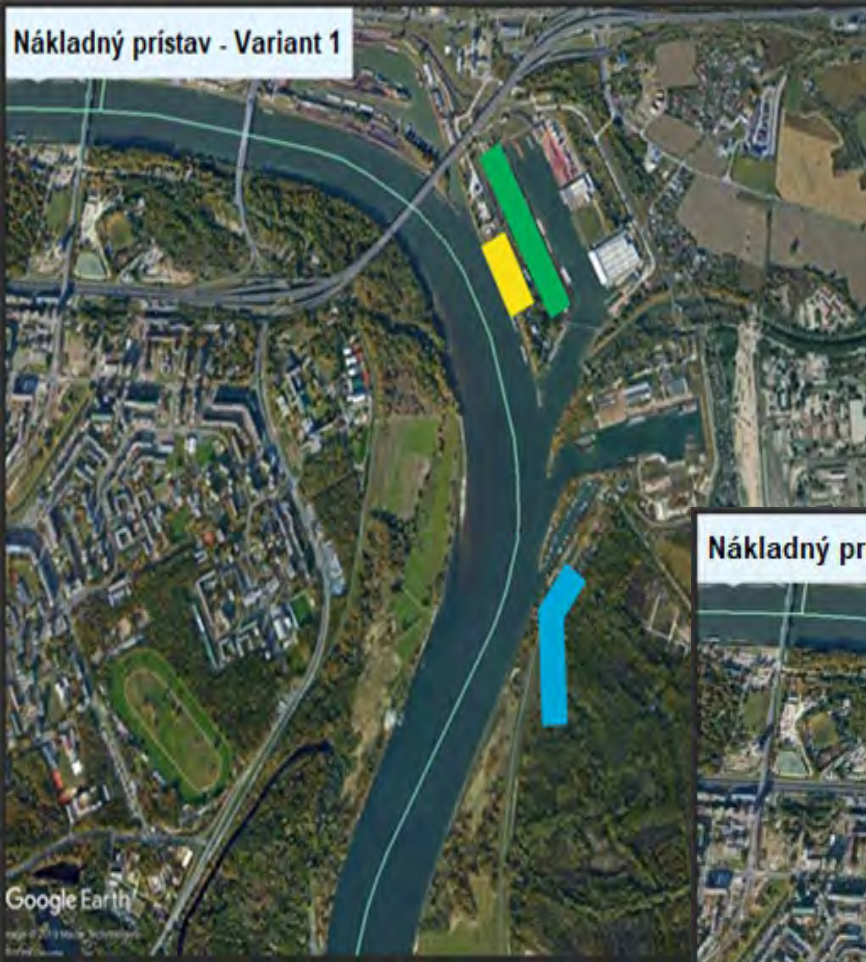
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Proposed development of the Port (alternatives)

- Reallocation of cargo terminal further from the City center
- Reallocation of winter terminal further from the City center
- Increased capacities for private boats and cruises (new terminal)
- New intermodal terminal
- LNG terminal and other new services (petrol station, solid waste management system)



Nákladný prístav - Variant 1

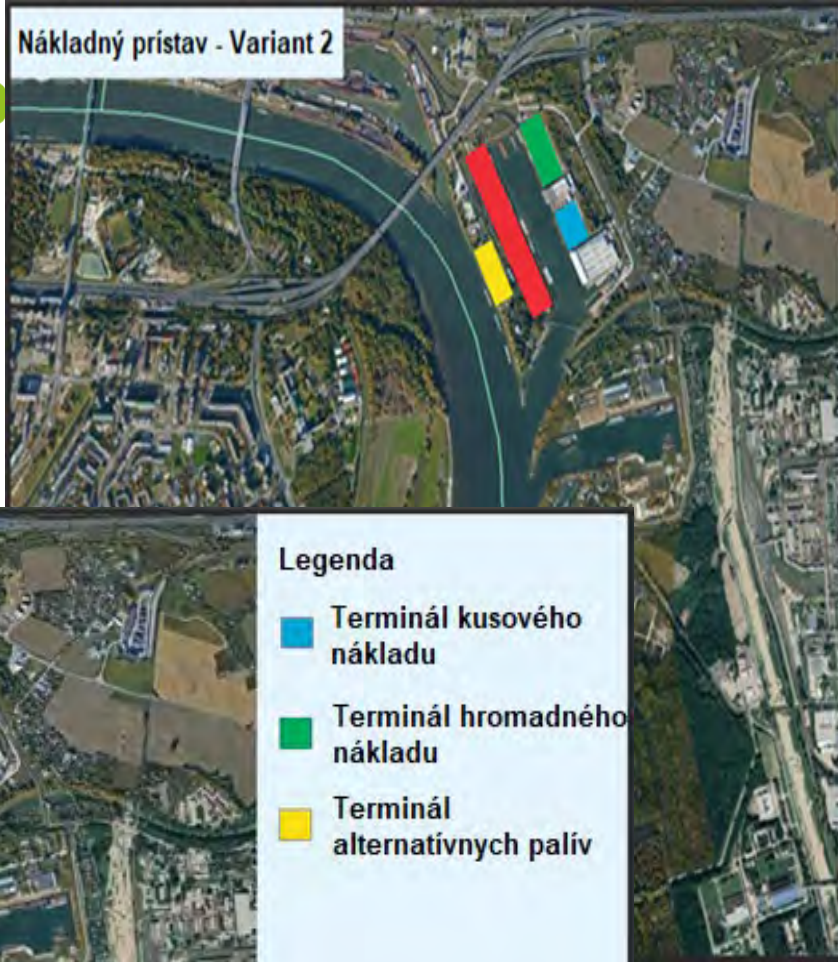


Legenda

- Nový bazén - lokalita Vlčie hrdlo
- Terminál hromadného nákladu
- Terminál alternatívnych palív

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Nákladný prístav - Variant 2



Legenda

- Terminál kusového nákladu
- Terminál hromadného nákladu
- Terminál alternatívnych palív
- Terminál intermodálnej prepravy

Nákladný prístav - Variant 3



Legenda

- Terminál kusového nákladu
- Terminál hromadného nákladu
- Terminál alternatívnych palív

Google Earth

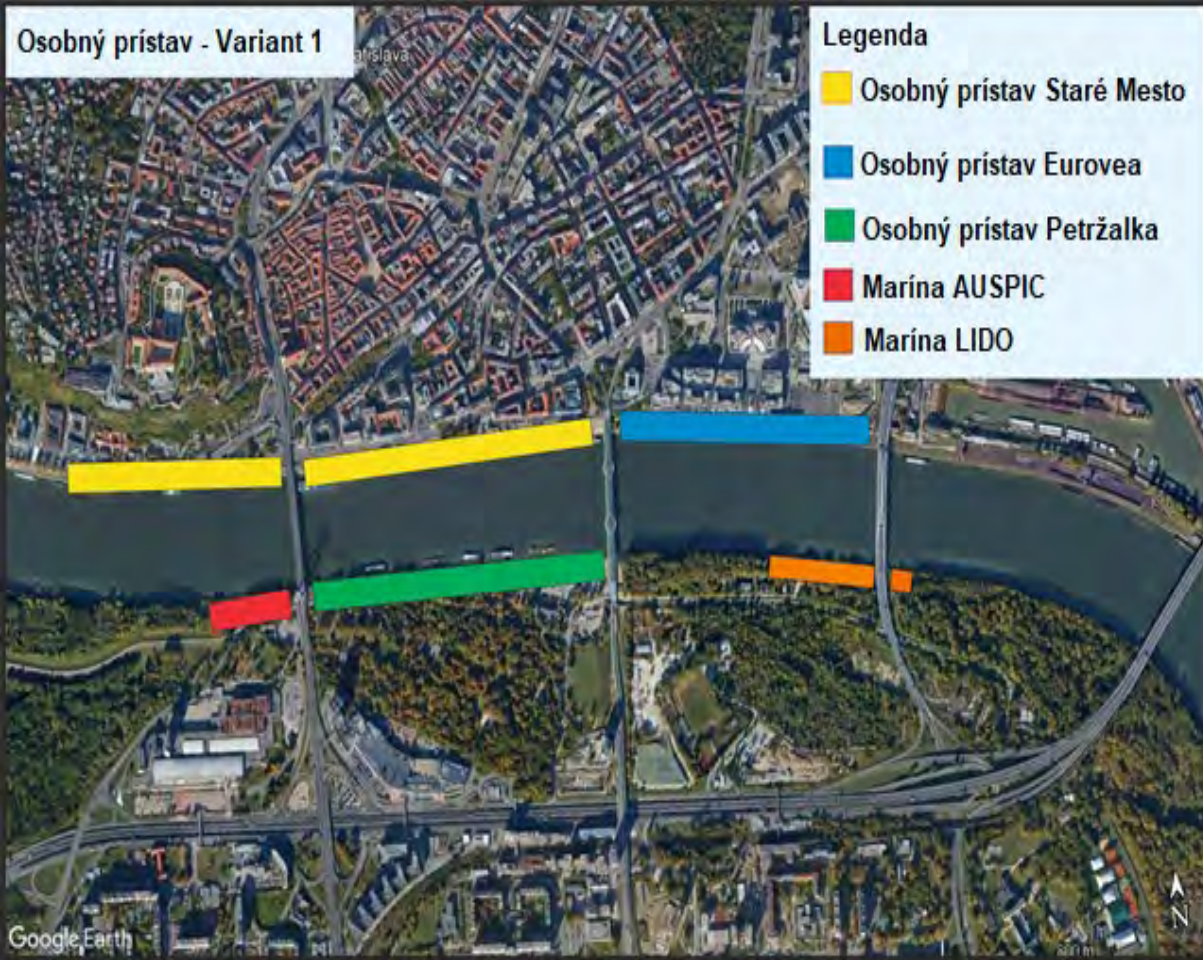


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Osobný prístav - Variant 1



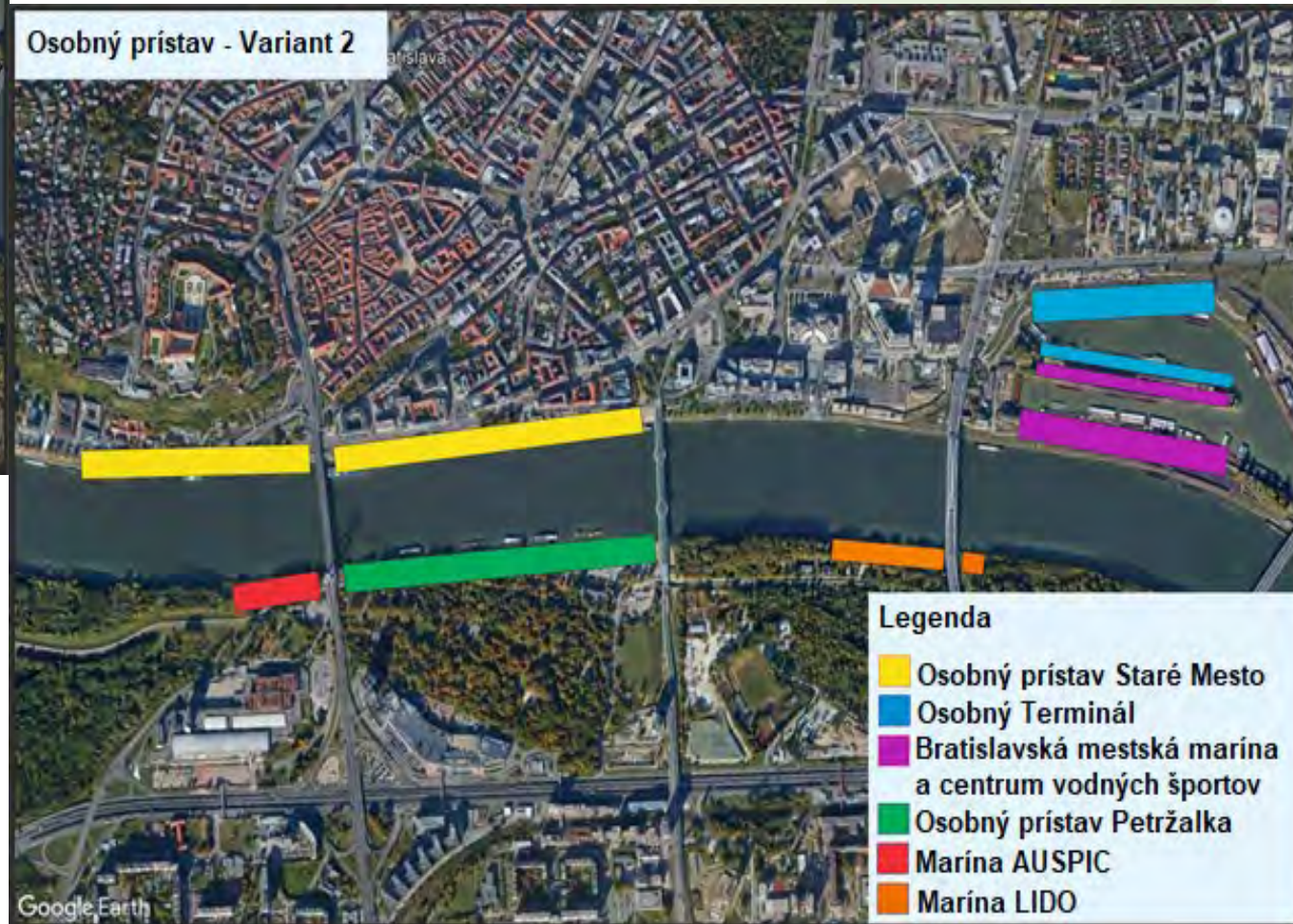
- Legenda**
- Osobný prístav Staré Mesto
 - Osobný prístav Eurovea
 - Osobný prístav Petržalka
 - Marina AUSPIC
 - Marina LIDO

Environment

Policy in Eastern Partner Countries



Osobný prístav - Variant 2



- Legenda**
- Osobný prístav Staré Mesto
 - Osobný Terminál
 - Bratislavská mestská marina a centrum vodných športov
 - Osobný prístav Petržalka
 - Marina AUSPIC
 - Marina LIDO



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Approach to SEA

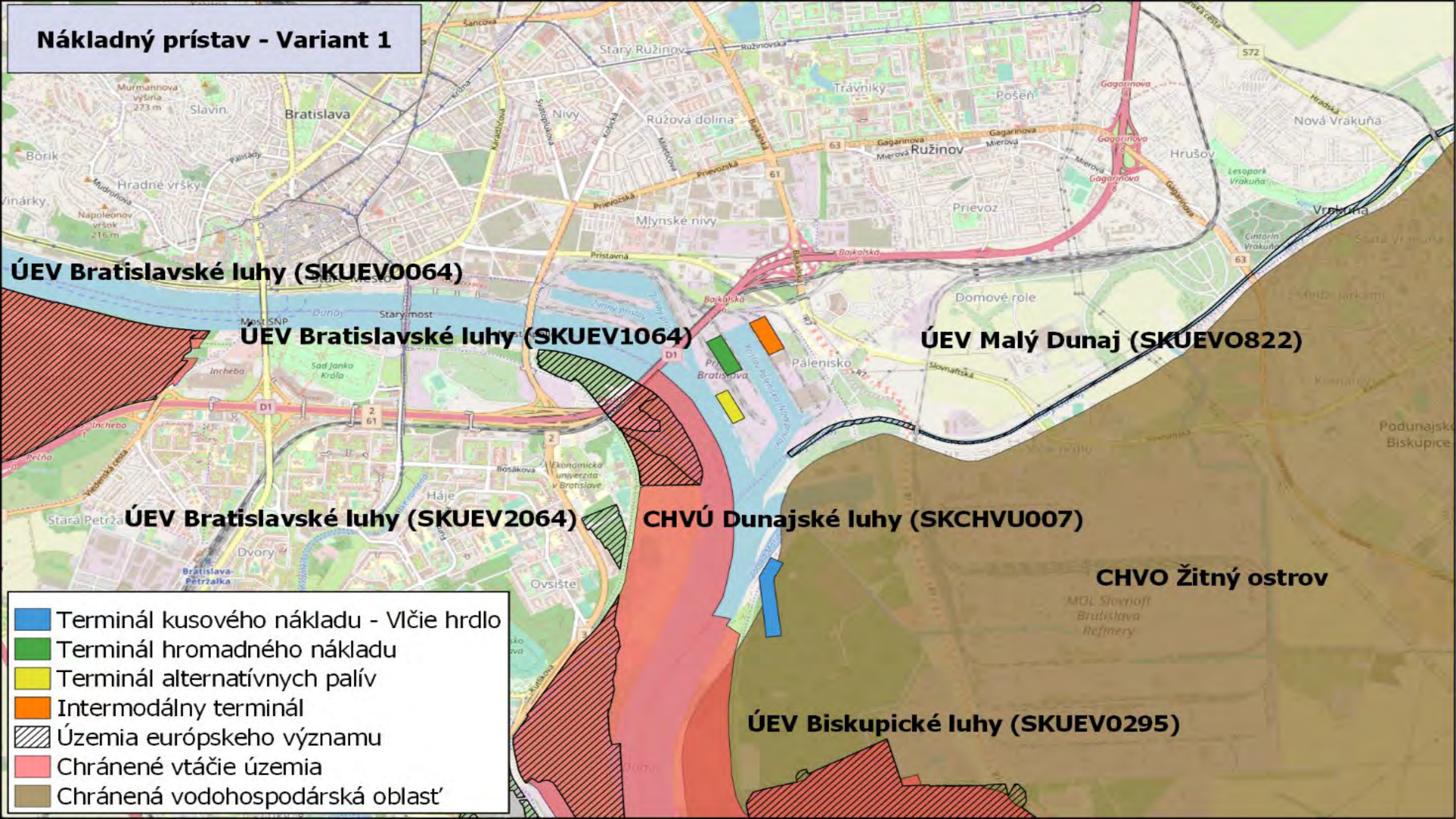
- Combination of qualitative assessment and spatial analyses
- Emphasis on evaluation and comparison of alternatives (including ‘business as usual’ scenario i.e. no further development of the Port)
- Providing inputs to Multi-Criterial Analysis (MCA)
- Key issues: air quality, water resources, soil, nature and protected areas (including Natura 2000), waste, climate change risks, noise, culture heritage, health

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Nákladný prístav - Variant 1



ÚEV Bratislavské luhy (SKUEV0064)

ÚEV Bratislavské luhy (SKUEV1064)

ÚEV Malý Dunaj (SKUEV0822)

ÚEV Bratislavské luhy (SKUEV2064)

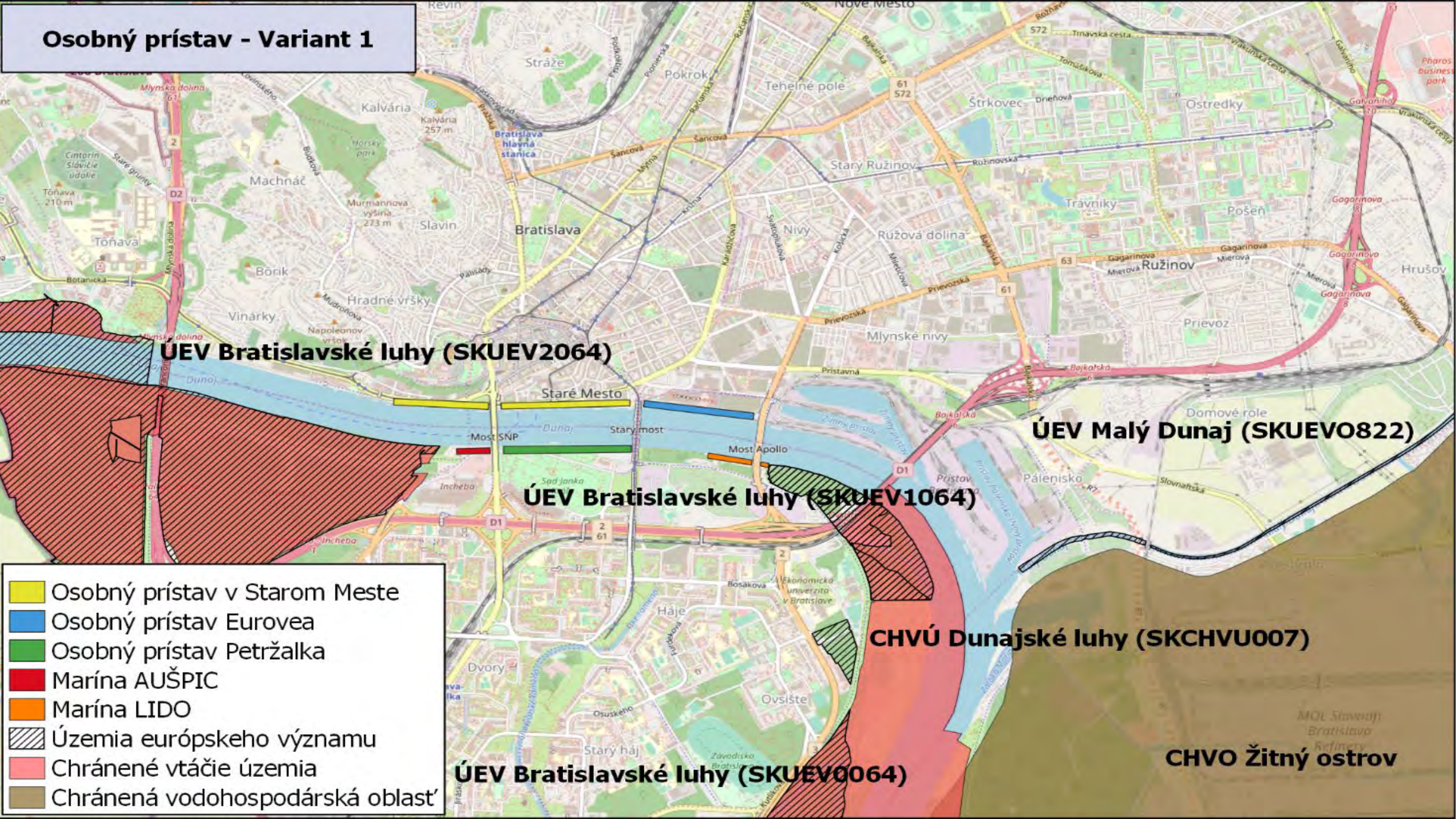
CHVÚ Dunajské luhy (SKCHVU007)

CHVO Žitný ostrov

ÚEV Biskupické luhy (SKUEV0295)

- Terminál kusového nákladu - Vlčie hrdlo
- Terminál hromadného nákladu
- Terminál alternatívnych palív
- Intermodálny terminál
- Územia európskeho významu
- Chránené vtáacie územia
- Chránená vodohospodárska oblasť

Osobný prístav - Variant 1



ÚEV Bratislavské luhy (SKUEV2064)

ÚEV Malý Dunaj (SKUEVO822)

ÚEV Bratislavské luhy (SKUEV1064)

CHVÚ Dunajské luhy (SKCHVU007)


ÚEV Bratislavské luhy (SKUEV0064)

CHVO Žitný ostrov

- Osobný prístav v Starom Meste
- Osobný prístav Eurovea
- Osobný prístav Petržalka
- Marína AUŠPIC
- Marína LIDO
- Územia európskeho významu
- Chránené vtáče územia
- Chránená vodohospodárska oblasť

Environmental (including health) issue	Location			Comments
	Pálenisko	Zimný prístav	Osobný prístav	

1. Air quality

Air emissions from operations in the port (vessels)	1	1	1	<p>A frequency of shipping and the type of fuel(s) need to be considered in further assessment.</p> <p>Assessment shall consider effects to the city centre (from operations getting close/closer, in particular regarding PM) and also likely positive effects resulting from relocation of the cargo port to the Pálenisko.</p>
Air emissions from the land transport related to the port: cargo transport	1	1	0	The cargo transport to/from the port significantly affects the quality in the areas along the transport routes. Also transport for LNG terminal operations needs to be considered.
Air emissions from the land transport: passengers transport	0	1/0	1	<p>Impacts on the air quality in the vicinity of new P&R capacities and access roads (mainly local – up to approx. 500 m distance – but potential significant).</p> <p>Action implemented by:</p>
				



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Environmental and health issues	Likely effects														
	Cargo port – Alt. 1			Cargo port – Alt. 2			Cargo port – Alt. 3			Passengers port – Alt. 1			Passengers port – var. 2		
Air	-2			-1			-1			-1		-2		-1	
Water resources	-2			-1			-1			-1			-1	+1	
Soil	-2			?			?			?			?		
Nature and protected areas	-2			-1			-1			-1			-1		
Waste	-1			-1			-1			-1			-1	+1	
Climate change risks	-1	0	?	-1	0	?	-1	0	?	-1	0	?	-1	0	?
Noise	-2			-1	-2		-1			-1			-1	-2	
Health	-1			+1			+1			-1			+1		
Cultural heritage	0			0			0			0			+1		

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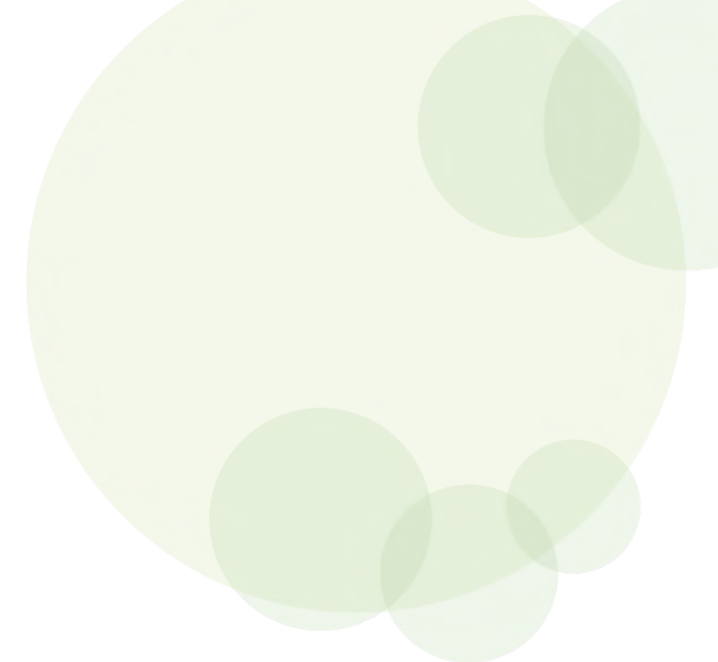
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SEA conclusions and results

- BAU scenario will mean a ‘missed opportunity’ to upgrade the Port’s services and thus reduce current adverse effects on the environment
- Alternative 1 of cargo port evaluated as unacceptable due to likely significant effects on nature protection
- Likely effects of other alternatives can be effectively mitigated
- Likely environmental and health effects fully considered in MCA
- Alternative 1 of cargo port excluded from the final draft Master Plan
- The public hearing to be organised when Covid-19 restrictions allow so



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What makes good SEA?

- Proper participatory process
- A good reliable report with
 - Identifies environmental risks and opportunities
 - Scientifically sound estimation of likely effects
 - Mitigation measures proposed
- Improvement of the plan under assessment
 - Ensured compliance with environmental goals
 - Put in place safeguards and monitoring for unforeseen effects
- Final decision (permit/approval) considering SEA conclusions
- Something else?
 - Seeking windows of opportunity to influence planning and decision making
 - Quality of planning and decision making are critical limits

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Thank you for your attention!

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