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European Structural and Investment Funds
OP Integrated Infrastructure 2014 – 2020

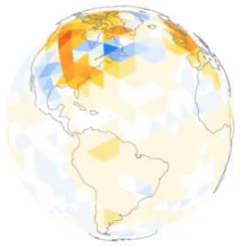
MINISTRY
OF TRANSPORT
AND CONSTRUCTION
OF THE SLOVAK REPUBLIC

Operational Programme Integrated Infrastructure 2014 – 2020

Experiences of the Slovak Ministry of Transport – from initial projects to the development of national guidelines

JASPERS Networking Platform Seminar, 12-13.6.2017, Brussel

Slovak experience with new rules related to climate change



Programming of OP Integrated Infrastructure 2014 – 2020

- Commenting procedure by Commission Services
- **Comment raised:** *„Adaptation to climate change and disaster risk prevention should be duly considered during the modernisation and development of any transport infrastructure in order to ensure that investments are more climate and disaster-resilient.“*
- **Text in OP:** *„The key aim during project assessment in relation to climate change is to establish the vulnerability of project variants on risks associated with climate change, identify the scope of exposure of individual variants to present and future risks in order to identify and prioritise them. For the mentioned reasons, a screening of projects will take place with the objective of evaluating the resistance of projects against climate change risks. The screening will take place in accordance with the „Guidelines for Project Managers: Making vulnerable investments climate resilient“.*

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Climate change related requirements EU to the OP Integrated Infrastructure 2014 - 2020

Methodology for considering climate change risks within infrastructural planning and project preparation

- Participation: Jaspers and relevant stakeholders
- Challenge – blending of Guidance: DG CLIMA & DG ENV

- *Non-paper Guidelines for Project Managers:*
  Making vulnerable investments climate resilient (DG CLIMA)

- *Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment*
  (DG ENV)

Comparison between CC proofing steps and EIA (CLIMA & ENV)

Climate change proofing steps	Similarities with EIA
Module 1: Identify the climate sensitivities of the project	Screening
Module 2: Evaluate exposure to climate hazards	Baseline analyses
Module 3: Assess vulnerability	Assess impacts
Module 4: Assess risks	Determining impact significance
Module 5: Identify adaptation options	Identify alternative options and mitigation measures
Module 6: Appraise adaptation options	Compare options and mitigation measures
Module 7: Integrate adaptation action plan into the project development cycle	EIA Report, take into account during design and decision-making

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Slovak Methodology of Climate change – Phase I

Slovak Methodology for considering climate change risks within infrastructural planning and project preparation
Module 1: Assessment of the sensitivity of the proposed Climate Change Action Plan
Module 2: Assessment of the exposure and development of the climate hazards
Module 3: Assessment of the vulnerability and risk measure
Module 4: Identification and selection of options for the adaptation to climate change intentions
Module 5: Design of warning and monitoring systems

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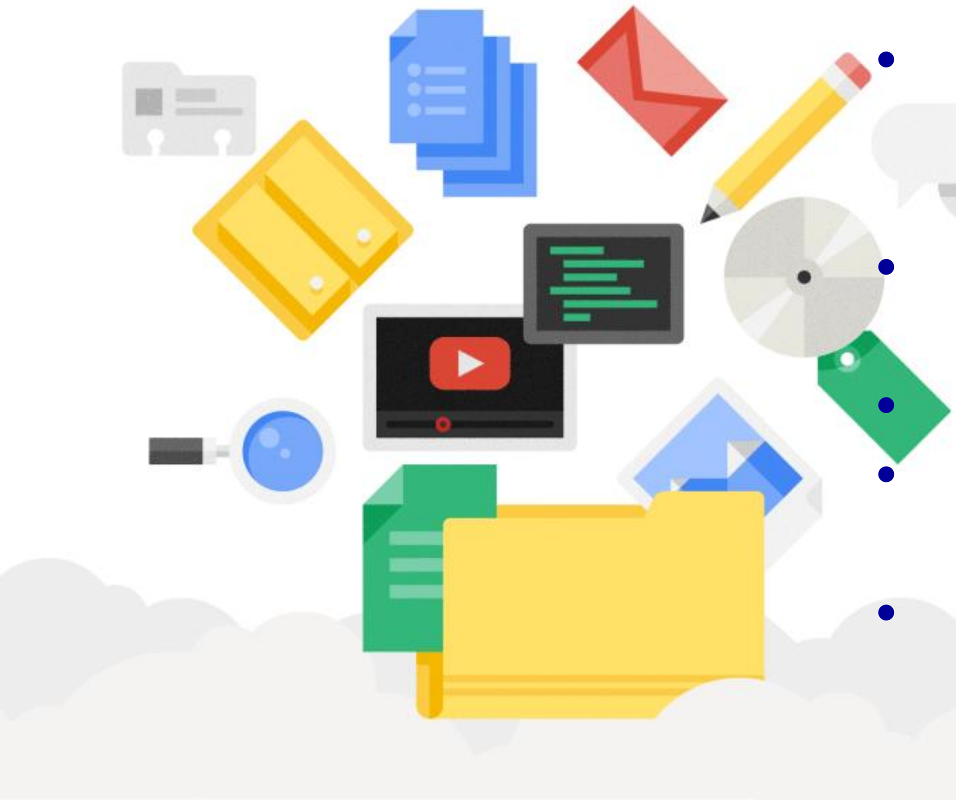
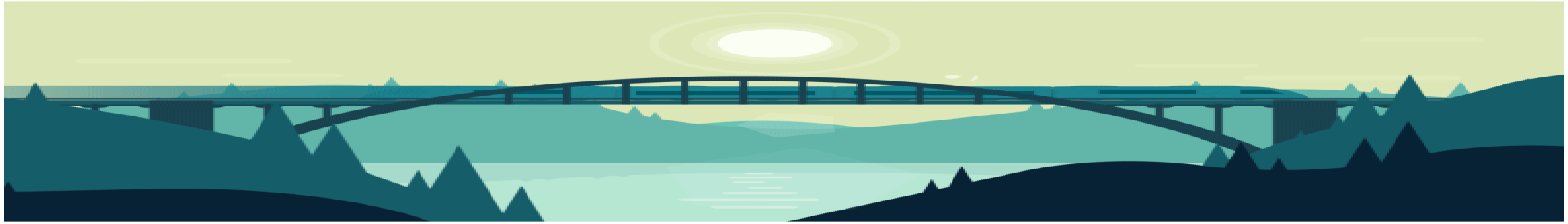
Slovak Methodology of Climate change – Phase II



- Reacting to the comments made by all national authorities and experts to the first version,
- All stages of the project preparation cycle (different level of detail allows for more detail of assessment),
- Practical tool for EU projects applicants and non-EU funded projects (incl. checklists),
- Plan is to make it binding,
- Will remain focused on transport sector, inspiration for other sectors,
- Will create steering board composed of all relevant stakeholders, authorities and experts (including JASPERS).

Experiences of Slovak Republic

- V Rail corridor Climate Change Assessment experience
  - Žilina – Košice – Čierna nad Tisou state border (Feasibility study)
- IV Rail corridor Climate Change Assessment experience
  - state border CZ/SR – Kúty – Bratislava – Nové Zámky - Štúrovo/Komárno – state border SR/HU (Feasibility study)
- V Rail corridor Climate Change Assessment experience
  - Modernization „Púchov – Považská Teplá“ (project)



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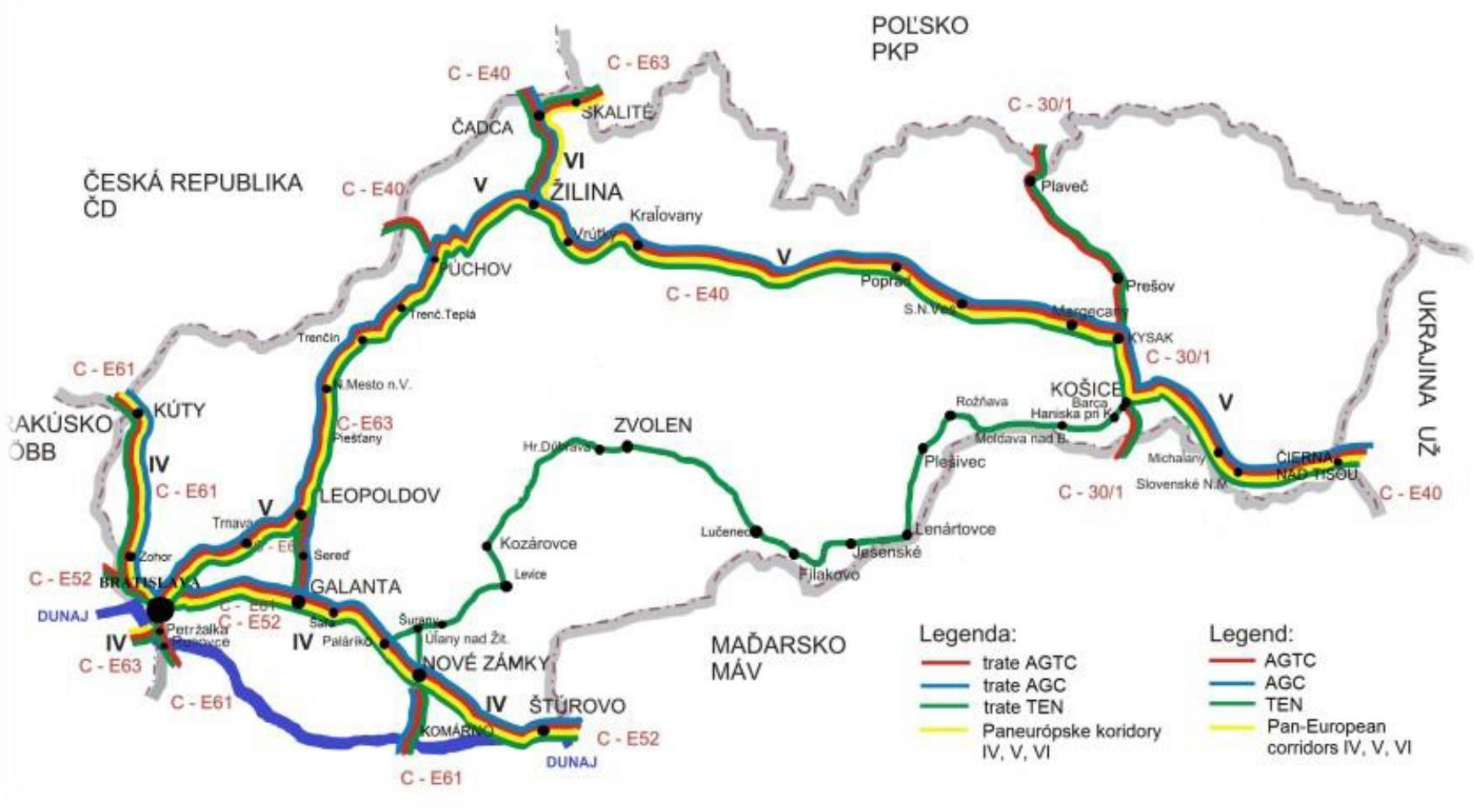
Corridors of the Rail Network of Slovak Republic



V Rail corridor: Žilina – Košice – Čierna nad Tisou state border

- Feasibility study of the 5th of Pan-European corridor
- Modernization of the existing railway line with length 337 km
- 3 regions of Slovakia – Žilinský, Prešovský, Košický
- Identification of the climate sensitivities of the project
- Expert judgment used to determine key risks

<u>Key issues:</u>

- ➢ Flooding – riverine and flash floods
- ➢ Landslides (in conjunction with flooding)
- ➢ Avalanches
- ➢ Icing /freezing rain
- ➢ Extreme winds

V Rail corridor: Žilina – Košice – Čierna nad Tisou state border

Symbol	Impact	Explanation
-	None	Risk was considered and rulled out (on the level of feasibility study
1	Insignificant	Risk can be addressed through standard technical design (for planned projects) or within normal operation (for existing infrastructure)
2	Small	Risk requires partical change of technical design (for planned projects) or operations (for existing infrastructure)
3	Medium	Risk requires significant change of technical design (for planned projects) or stnadard risk management (for existing infrastructure)
4	Significant	Risk requires fundamental change of technical design (for planned projects) or emergency management (for existing infrastructure)
5	Catastrophic	Risk can lead to long-term closure of operation or collapse of relevant asset. Do not pursue this option.

Example of assessment

Stationing	Object	Risk	Risk rate
105.774	Current route	The current bridge is located quite low above the water level - ca. 1.5 m above standard discharge. It complies with Q100. During a model flood of Q1000, the water would overflow the track and bridge with discharge speed of 2.0 m/s. The body of the track can get destroyed - the levelling of the track must be increased in the technical proposal.	**4**
108.125	Current route	The current bridge complies with Q100 and Q1000. The embankment got damaged during a recent flood. There will be a local increase in the discharge speeds of up to 4 m/s during Q1000. It can be solved by partial local technical measures during reconstruction.	**2**
	Relaying	The new bridge foundation and adjacent body must respect the highest speed of the watercourse.	**-**
109.5-112.2	V160/1	The route goes to a great extent through the overflow area during Q100 and Q1000. There are two new bridges in the proposal – first one is almost perpendicularly crossing the river, the second one in the angle of 20° degrees, which seems to be very problematic. The route gets at the end of the relaying to the river basin. We assess this proposed variant for 160 km/h as problematic. We recommend to adjust the route - only on the left bank of the river with the decrease of speed to 150km/h with arch radius of 1100 m	**3**


13/06/2010

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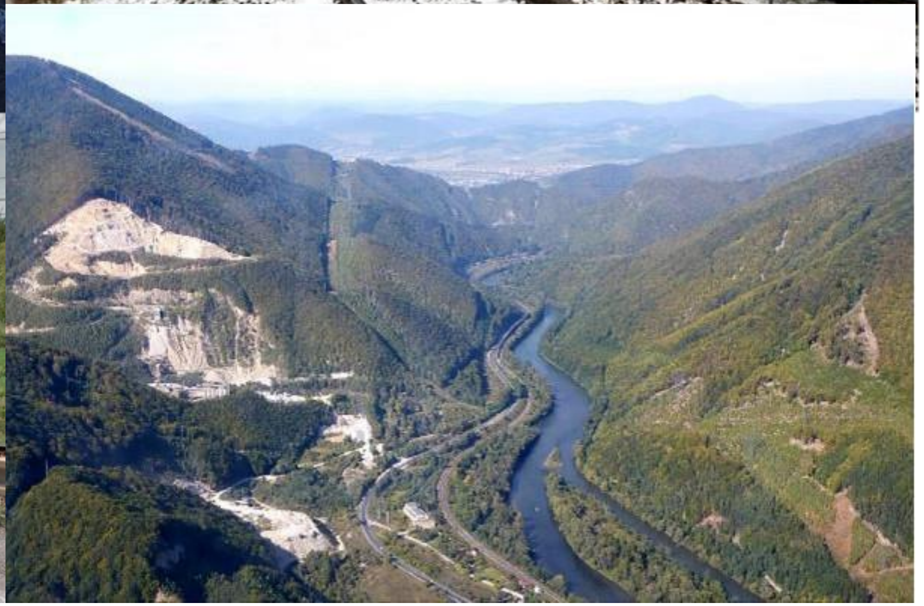

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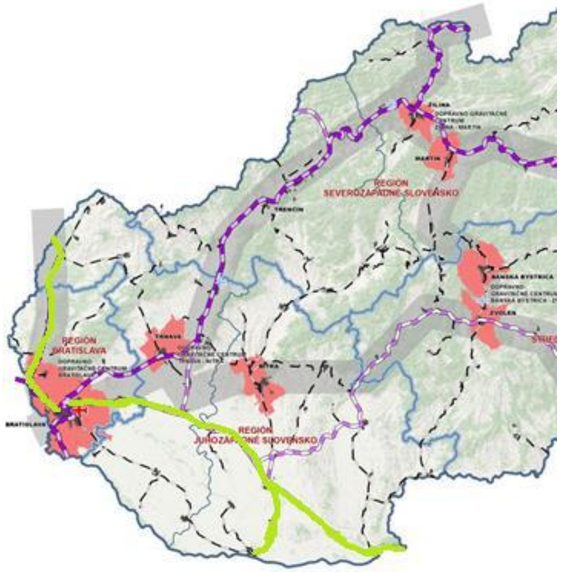
IV Rail corridor: state border CZ/SR – Kúty – Bratislava – Nové Zámky - Štúrovo/Komárno – state border SR/HU

- Feasibility study of the 4th of Pan-European corridor
- The length of corridor of the railway line is 60 km
- 3 regions of Slovakia – Bratislavský, Trnavský, Nitriansky
- Identification of the climate sensitivities of the project
- Expert judgment used to determine key risks (Atkins, 2016)



Key issues:

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- Landslides (in conjunction with flooding)
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Modernization „Púchov – Považská Teplá“ - V Rail corridor

- Modernization of the existing railway line with length 18.742 km
- The proposed route three times crosses the major watercourse Vah and its derivation canal and twice is crossing mountain range via tunnels.
- Sensitivity of the project is assessed in the context of the sensitivity of its individual engineering objects to the relevant climatic phenomena and secondary risks caused by them:
  - Strong wind (windstorms)
  - Snow phenomena
  - Frost phenomena
  - Heavy rainfalls
  - Thunderstorms
  - High temperatures
  - Fires
  - Floods
  - Landslides

Selection of the risks assessment issues

Púchov – Považská Teplá				
164,1 rkm		**LANDSLIDE.** Approach retaining wall (44.33.02.1) reconstructed from the original retaining wall has a length of 865 meters. Eastern edge of the retaining wall can be threatened by an active landslide no. 57067. The slope is registered as dry, with a gradient of 16 ° and a total area of 0.9 hectares.	**5%**	**3**
173,000 rkm		**FLOOD.** Vertical alignment of access sidewalk (47.38.06), bringing passengers from the municipality of Považská Teplá to the railway station, is within the range of 287.7 to 289.95. Q100 level of the Manínsky potok watercourse running along the sidewalk in the length of approx. 118 m is around 287.43 to 288.37. The smallest difference between the sidewalk vertical alignment and Q100-level of the Manínsky potok watercourse is about 15 cm.	**5%**	**2**
173,02 rkm		**FLOOD.** New railway bridge (47.33.13) passes over the regulated Manínsky potok stream in the municipality of Považská Teplá. Bridge opening diameter is 7.7 meters with a free height under the bridge of 1.4 meters from the riverbed bottom. According to project documentation the Q100-level of uncleaned bed of the Manínsky potok stream reaches the level of 287.42, which will be about 20 cm above the lower edge of the bridge.	**5%**	**2**

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THANK YOU
FOR YOUR ATTENTION

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For info or further questions on this workshop and the activities of the JASPERS Networking Platform, please contact:

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