

Minutes of meetings

Title: Regional Conference on Climate Change Impacts and Resilience of Transport Infrastructure

Moderator: Maja Kurtagić-Hadžić (CENER21) and Selma Totić (Congress Service Center – service provider)

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Date: November 15, 2021

Time: 09:30 – 15:00, on-line, Zoom platform

Aim of the Conference:

- Disseminate knowledge, expertise and hands-on experience of relevant panellists among the project stakeholders from Western Balkan countries, thus offering new perspective on the importance of climate change considerations in road infrastructure design, and the possibilities for climate change adaptation and mitigation

Participants response:

The meeting was attended by a total of 134 participants. The list of participants is given in Annex 1 of these minutes.

Agenda:

Session/ theme	Panelist	Time
Formal introduction to the Project		
		09:30 – 10:20
<ul style="list-style-type: none"> <i>Introduction to the conference</i> 	Maja Kurtagić-Hadžić, CENER 21	09:30 – 09:40
<ul style="list-style-type: none"> <i>Opening and welcome speech</i> 	Harald Egerer/ Sonja Gebert, UNEP	09:40 – 10:00
<ul style="list-style-type: none"> <i>Western Balkans Green Agenda</i> 	Radovan Nikčević, RCC	10:00 – 10:20
Session 1 – Climate risk challenges for road infrastructure development		
		10:20 – 12:30
<ul style="list-style-type: none"> <i>Overview of the ClimaProof results: Climate change projections for WB – challenges for road infrastructure development – indicators</i> 	Benedikt Becsi, Austrian Institute of Meteorology and Climatology (BOKU-Met)	10:20 – 10:35
<ul style="list-style-type: none"> <i>Mapping out climate vulnerabilities of the main road network</i> 	Besim Islami, ClimaProof National Consultant for Albania	10:35 – 10:55
<ul style="list-style-type: none"> <i>Road infrastructure flooding</i> 	Aleksandar Simić, ClimaProof National Consultant for Serbia	10:55 – 11:10
<ul style="list-style-type: none"> <i>Flood risks mapping – a powerful tool for risk assessment</i> 	Adnan Topalović, Sava River Watershed Agency	11:10 – 11:25
<ul style="list-style-type: none"> <i>Frameworks for quantification of risk and resilience</i> 	Thomas Bles, Deltares	11:25 – 11:45
<ul style="list-style-type: none"> <i>Discussion</i> 		11:45 – 12:30
Break		12:30 – 13:00
Session 2 – Frameworks for climate change adaptation		
		13:00 – 15:00
<ul style="list-style-type: none"> <i>Gap analysis of climate change framework, EIA and SEA requirements</i> 	Teodora Obradovic Grncarovska, Ministry of Environment and Physical Planning Macedonia	13:00 – 13:20
<ul style="list-style-type: none"> <i>Incorporating climate change into Road Asset Management System (RAMS)</i> 	Senad Smajović, PC Ceste Federacije	13:20 – 13:40
<ul style="list-style-type: none"> <i>Step to action perspective</i> 	Mike Woning, Deltares	13:40 – 14:00
Break		14:00 – 14:10
<ul style="list-style-type: none"> <i>Best practices for mainstreaming climate proofing</i> 	Brendan Keirnan, Head of Office for UNOPS in Pristina	14:10 – 14:30
<ul style="list-style-type: none"> <i>Discussion</i> 		14:30 – 15:00

Course of the Conference:

In the introduction part of the Conference, the participants were welcomed by Ms. Sonja Gebert, Associate Programme Manager within the UNEP Office Vienna, and Mr. Harald Egerer, Head of the UNEP Office Vienna. Ms. Gebert informed participants about the activities, objectives, and results of the ClimaProof project, emphasizing its special importance given the floods that hit Bosnia and Herzegovina in November 2021, but also exposure of the entire Western Balkans (WB) region to these effects of climate change. Mr. Egerer gave a brief overview of the ClimaProof project, previously implemented activities within the first two components, and underlined the importance of its implementation for the entire WB.

Ms. Michaela Flenner, on behalf of the Austrian Development Cooperation, also greeted the audience and emphasized the importance of this Project to the WB region.

In the introduction part, the participants were also welcomed by Ms. Maja Kurtagić-Hadžić, project manager on behalf of CENER21 and Mr. Radovan Nikčević, an expert on connectivity in charge of energy, environmental protection and digital transformation of WB – on behalf of Regional Cooperation Council. Ms. Kurtagić-Hadžić introduced the participants in more details to the Component 3 of the ClimaProof project and upcoming activities, while Mr. Nikčević introduced the Green Agenda and the accompanying Action Plan for the WB, as well as the Sofia Declaration. Mr. Nikčević emphasized the importance of developing a long-term low-emission strategy in WB countries by 2025 and the revision of climate-related legislation until 2030.

Session 1: Climate risk challenges for road infrastructure development was opened by a representative of the Austrian Institute of Meteorology and Climatology (BOKU-Met), Mr. Benedikt Becsi, who presented the results of the first two components of the ClimaProof project, ie. the expected changes in temperature and precipitation in the WB by 2100. Mr. Becsi also presented the developed tools that offer an overview of expected climate changes for various input data. At the end of his presentation, Mr. Becsi gave an overview of key climate indicators and how their impact on road infrastructure projects can be interpreted.

Continuing with the presentations within the first session, Mr. Besim Islami, National consultant for Albania, presented the results of the project Feasibility Study: Climate resilient road assets in Albania, which was conducted by SEED Consulting and Deltares companies and financed by the World Bank. Mr. Islami presented risk maps for individual types of disasters related to climate change, and appropriate mitigation measures for each of the identified hazards, as well as cost benefit analysis.

Mr. Metodija Sazdov, North Macedonia national coordinator on behalf of UNEP, had a question for Mr. Islami: The World Bank and the EBRD have introduced environmental and social standards into their projects, and now there is a special emphasis on climate change. He wondered if this project had gone through such an assessment, given that it was funded by the World Bank, and what the reactions were. Mr. Islami answered that although he does not have much experience in considering climate change in road infrastructure projects, he is familiar with World Bank and EBRD standards in other energy projects and that each project financed by the said banks must pass an appropriate environmental and social assessment. Mr. Mike Woning, on behalf of Deltares, who worked on the implementation of this project, pointed out that environmental and social aspects are important in the development of each project and are usually required by the larger investment banks.

Ms. Gebert thanked Mr. Islami for an excellent technical presentation. She was interested in the extent to which the climate change analysis is in line with the requirements of national legislation, i.e. whether Albania has certain requirements regarding the assessment of climate change risks and impacts or this was left in the hands of investors. Mr. Islami replied that the project has been considered by the Albanian Government and that certain recommendations are being included in the Action Plan, which would certainly change the way future

roads are designed. Mr. Woning emphasized that the project was done in accordance with the requirements of national legislation, but also the investor – the World Bank.

Also, Ms. Gebert asked Mr. Islami about his own experience in assessing the resilience of climate change in the energy sector (e.g. hydropower). Mr. Islami emphasized that the assessment of climate impacts in Albania's energy sector (focused on hydropower) has a long history, primarily due to Albania's dependence on water energy as primary source of electricity production in the country.

Mr. Aleksandar Simić, national consultant for Serbia, presented the historical impact of the floods on Serbia's infrastructure, emphasizing, in particular, the dangers and losses within the road network. Mr. Simić emphasized how long it takes for Serbia, but also for all the countries of the WB, to recover from the consequences of floods, and therefore stressed that the prevention of future climate impacts is of great importance.

Considering that Mr. Simić pointed out in his presentation that there is a problem of climate resistance of local roads in Serbia since these do not go through a proper assessment of climate resistance during construction, Ms. Gebert was interested in the difference in national legislation between the design of local (smaller roads) and regional roads (major roads). Mr. Simić pointed out that the design of local roads is not covered by climate change assessment under national legislation, and expressed hope that the aspect of climate change has been taken into account by civil engineers in the process of road designing. One of the reasons for this may lay in the fact that the construction of smaller roads is mainly funded by state funds and not by large investment banks. When it comes to designing regional roads, the construction of which is mainly financed by foreign loans, Mr. Simić pointed out that national legislation is two steps behind the requirements of any bank as an investor.

Ms. Gebert emphasized that the presented statistics on the quality of roads in Serbia are not at a satisfactory level and that nature-based solutions can help in the fight against climate change. Mr. Simić replied that one of the major problems in Serbia is uncontrolled deforestation, which greatly affects the occurrence of landslides and floods.

Mr. Dorian Kaba, on behalf of Infratransproject, commented that the problem of floods in Serbia is similar in Albania but also in other WB countries. He emphasized the importance of considering all environmental impacts during the construction of climate resistance infrastructure, especially cumulative impacts and other projects.

Continuing with the topics of floods, Mr. Adnan Topalović, on behalf of the Sava River Watershed Agency, presented flood hazard maps and flood risk maps for Bosnia and Herzegovina. These maps are used to define "hotspots" in the design of various infrastructure projects, showing the possible extent and consequences of floods. The development of the *Flood Risk Management Plan in Bosnia and Herzegovina* is underway, with the aim of improving flood prevention, protection and preparedness.

Mr. Sazdov, on behalf of UNEP, was interested in current state of the preparation or implementation of River Basin Management Plans in Bosnia and Herzegovina. Mr. Topalović replied that the first plan has been drafted and that the drafting of the second one is now in the phase of public discussion.

Mr. Mirza Hamzić asked Mr. Topalović about the role of municipalities in the process of flood forecasting and early warning. Mr. Topalović replied that one of the positive consequences of the flood was the development of an *early flood warning system*. The current problem is the communication between the competent authorities and the public. The Sava River Watershed Agency will make additional efforts to solve this problem.

Mr. Vasko Popovski, National consultant for North Macedonia, was interested in whether Bosnia and Herzegovina has adopted a Law on Critical Infrastructure. Mr. Topalović explained he was not informed of such a law at the level of BiH, emphasizing that the Sava River Watershed Agency is ready to provide support and the necessary information for its development.

The first session ended with a presentation by Mr. Thomas Bles, senior consultant at Deltares, who presented participants with the case studies of increasing the climate resilience of road infrastructure from Paraguay, Albania, the Dominican Republic and the Netherlands. Mr. Bles emphasized the importance of meeting the minimum requirements related to road infrastructure safety, and then minimizing the negative impact on the environment and adapting to future climate change.

Within the discussion session, Ms. Aleksandra Stevkov, advisor at North Macedonia Hydrometeorological Service, asked Mr. Becsi whether it was planned to hold trainings relevant to the use of software and interpretation of the results from the first two components of the ClimaProof project. Mr. Becsi replied that one training had already taken place at an earlier stage of the Project and that he is not sure what has been planned. Mr. Becsi introduced Ms. Stevkov to the developed online guidelines for the use and interpretation of the data.

Ms. Teodora Obradovic Grncharovska, a state counsellor on climate change, opened *Session 2 of the Conference: Frameworks for climate change adaptation* and presented the legal framework of North Macedonia in the field of climate change, as well as relevant strategies, emphasizing the degree of harmonization of national legislation with the EIA Directive 85/337/ECC and the identified shortcomings. Mr. Obradovic Grncharovska also presented the next steps and goals of North Macedonia regarding the legal framework in the field of climate change.

Mr. Senad Smajlović, on behalf of PC Ceste Federacije, introduced the participants to the problems the company faces every year as a consequence of climate change, and presented the most important projects that the public company has implemented in recent years to increase climate resilience of road infrastructure. Mr. Smajlović emphasized the importance of establishing an appropriate institutional framework for assessment, management and provision of information on climate risks on the road network.

Mr. Amir Sinanović, National consultant for Bosnia and Herzegovina, commented on the presentation of Mr. Smajlović, stating that in BiH there is no institution that deals with the processing of collected data on precipitation that would take into account the impact of climate change; concluding that it would be useful to consider establishing such an institution. Mr. Smajlović agreed with the statement.

Ms. Gebert asked Mr. Smajlović about the relevance of the hydrometeorological data used to interpret climate data, given that it was stated during the presentation that data from the 1980s are being used. Mr. Smajlović pointed out that more recent data are used, but the key problem is in the interpretation and analysis of these data, a process for which several different sources must be used. Therefore, at the moment although climatological data is being collected, nobody is analysing it in such a way that it can be used for infrastructure planning.

The importance of understanding the root of the problem and linking hazard, exposure and vulnerability to risk was explained by Mr. Mike Woning, on behalf of Deltares. Mr. Woning introduced the participants to the methods of prioritizing the location with regard to the expressed danger to the environment, society and infrastructure, and the method of selecting and implementing suitable measures.

Ms. Gebert asked Mr. Woning how to conduct a risk assessment for a place in cases when the data gathered and analysed is scarce. Mr. Woning replied that data availability is the basis of a good risk assessment and historical data. In cases where, for example, climate data are not available, it is possible to use other available national data, usually the proximity of environmental receptors (e.g. rivers) and the geomorphology of the terrain.

Session 2 ended with a presentation held by Mr. Brendan Keirnan, who presented the best practices for mainstreaming climate proofing. During his presentation, Mr. Keirnan further explained the impact of the road network on GHG emissions emphasizing that it has never been a more critical time to take action and improve the resilience of infrastructure.

In the time allotted for the discussion, Mr. Sinanović additionally commented on the problem of the lack of updated data from the aspect of climate change, especially for local regions within the country.

Ms. Tatjana Kapetanović, on behalf of the Environmental Protection Fund of the Federation of Bosnia and Herzegovina, thanked the panellists for the excellent presentations and pointed out that the said institution has recently been in charge of managing the environmental information system, which will include climate change. Ms. Kapetanović mentioned that certain climate indicators have already been developed, and expressed hope that these will be available to the public in the near future. Also, Ms. Kapetanović emphasized that the progress of national institutions in the interpretation and analysis of data is crucial. Mr. Sinanović agreed that the database, which would be publicly available, is the key to designing various infrastructure projects. Ms. Kapetanović emphasized the importance of communication and cooperation in order to review the needs of all sectors. Both Ms. Kapetanović and Mr. Sinanović raised an important issue when it comes to the lack of relevant climate data in BiH: there are institutions, such as hydrometeorological institutes, that collect relevant data very thoroughly and promptly, however the collection of data is done individually, within the institution, and not collectively in terms of gathering the data in an official data base. The hydrometeorological institutes collect data, but there is an entire phase missing between the collection and analysis and processing of these data, and further on using this analysed data for EIA and SEA procedures in infrastructural planning – at the moment there is no systematic approach in any of the countries in regards to this. Therefore, climate indicators can be calculated from the existing data but this requires a multi-sectoral approach as well as adequate capacities for processing of data within the institutions involved.

Ms. Gebert emphasized the importance of capacity building in climaproofing of infrastructures, therefore, in the methods of interpreting and analysing the available data, which will be considered as a potential activity in the upcoming period within the ClimaProof project. Mr. Becsi briefly commented on the importance of the correct interpretation of data and results. To this end, Ms. Gebert asked would the countries be interested in another set of capacity building on development of indicators that could be tailored to the specific country needs as well as on the use of existing climate projections for the region, developed within Component 1 of the ClimaProof project. These trainings would not only include the hydrometeorological institutes, but also the accredited consultancy companies/agencies that deal with inclusion of such data in EIAs and other institutions responsible for consideration of climate in infrastructural planning. Someone answered yes – please check who – we need to connect to BOKU for this

Ms. Kapetanović also pointed out this may require adoption of certain procedures on the institutional level, prior to adopting a new set of indicators as well as considerations regarding the level at which these indicators could be used. She also stressed the problem of the lack of capacities for such an extensive work, particularly when it comes to indicators that include two or three sets of data sourcing from various institutions. Therefore, educating a number of institutions on the interpretation of climate data is crucial. Mr. Sinanović agreed with the multidisciplinary approach, emphasizing that the analysis and statistical processing of climate data can be done by consulting companies

Ms. Gebert emphasized that the additional training proposed remains as an open option to all relevant institutions, and the Project will do its best to organize and deliver the trainings should the stakeholders be interested in upgrading their knowledge and capacity. She also stated that a Regional Strategy with an Action Plan is being developed within the third component of the Project, that will include the results of the first two components of the ClimaProof project.

Ms. Valbona Berisha, National consultant for Kosovo, pointed out that all countries in the Western Balkans share similar experiences and challenges in the field of climate change, emphasizing the importance of involving local authorities (municipal level) in such projects.

Mr. Keirnan (UNOPS) emphasized the importance of cooperation of all levels of government, engineers, meteorological institutions, consulting companies, and other entities involved in the design of road infrastructure, as well as increasing the allocation of funds for these purposes.

Mr. Smajlović (PC Roads of Federation of BiH) emphasized that in addition to floods and indicators related to precipitation, it is important to monitor the entire scope of other indicators related to climate change.

Upon completion of the discussion session, the conference was closed by Ms. Gebert and Ms. Kurtagić-Hadžić who greeted all participants and panellists thanking them for their active participation in the conference and inviting them to join the two upcoming webinars and give their contribution to the next activities within the ClimaProof project.

Conclusions:

- Best practices presented have shown that there are specific ways to adapt and mitigate climate change in the planning and construction of infrastructures.
- Legal framework in the field of climate change in the countries of the WB is undeveloped or insufficiently developed. This is mostly due to the lack of capacities needed for taking climate change into consideration when planning infrastructural projects, in particular when it comes to bridging the gap between the data gathered and their analysis and adequate use of the analysed data within the EIA and SEA procedures as well as the use of such data for purposes of strategic planning.
- Although there is a system for collection of data on climate change, the interpretation and analysis of climate indicators is difficult due to the insufficiently developed capacity of institutions. Therefore, educating a number of institutions on the interpretation of climate data is crucial.
- In accordance with the expressed interest of institutions and companies of the WB, there is a possibility of implementing additional workshops relevant to the implementation and interpretation of climate data and indicators derived from the ClimaProof project.

Annex 1: Attendee Report

No.	Name and surname	Institution	Job title	Country	Gender	Contact
1	Xheva Berisha	UNDP	PM	Kosovo*	Female	xhevrije.berisha@undp.org
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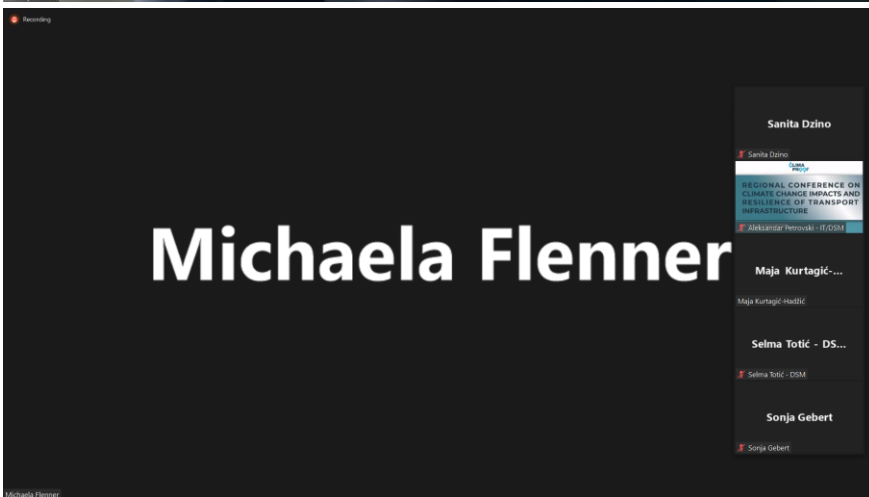
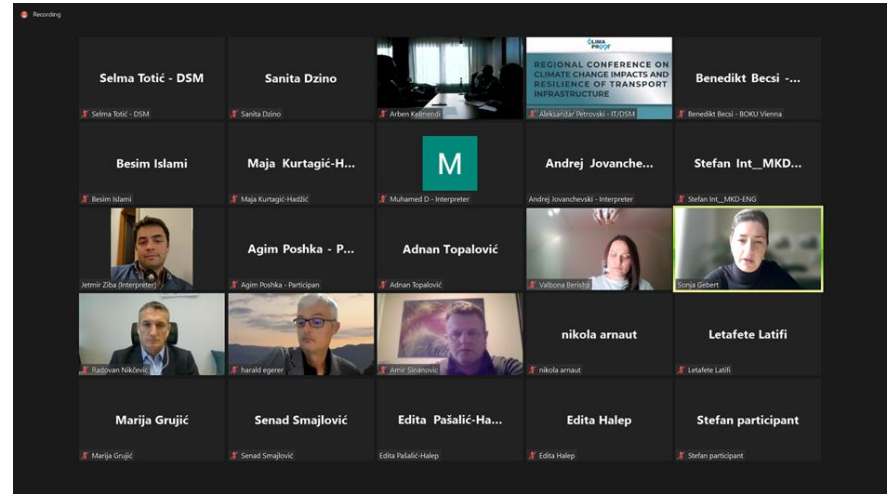
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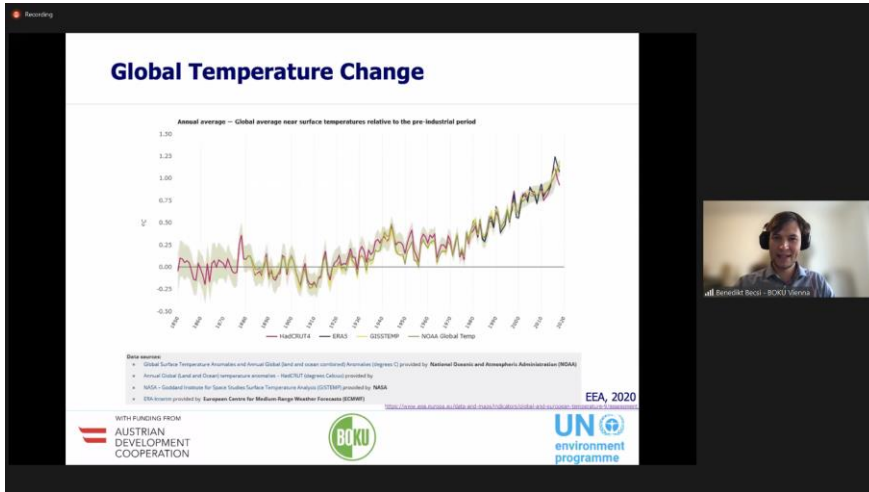
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* The designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Advisory Opinion on the Kosovo declaration of Independence.

Annex 2: Photo Material





Approach – Risk analysis and action planning

Risk analysis per hazard

- Hazard maps
- Risk analysis → Annual Expected Damages (AED)
 - Repair costs: Repairs to road assets
 - Corridor disruption: Economic damages from additional travel time and/or travel distance

Action planning

- Measures
- Cost benefit analysis (B/C ratio)
 - Cost = Cost of measures
 - Benefit = Reduction of AED
- Criticality

SEED Consulting

Deltares

Recording - You are viewing Besim Ismaili's screen

Final Climate resilient road_Albania_v5 Short_Final.pptx - PowerPoint

File Home Insert Design Transitions Animations Slide Show Review View ACROBAT Tell me what you want to do... Sign in Share

**Feasibility Study
Climate resilient road assets in Albania**
a project financed by the World Bank

Ylli GJONI, MSc. Civil Engineer
CEO SEED Consulting

10 November 2021

Participants: Sanita Dzino, Besim Ismaili

Recording

Sanita Dzino

REGIONAL CONFERENCE ON CLIMATE CHANGE IMPACTS AND RESILIENCE OF TRANSPORT INFRASTRUCTURE

Maja Kurtagić-...

Dorian Kaba

Recording - You are viewing Aleksandar Senic's screen

Serbia floods 2014.

Participants: Aleksandar Senic

UZROCI NASTANKA POPLAVA

Direktni:

- padavine (kiša, snijeg)
- pojava koincidencije velikih voda
- pojava klizišta
- meandriranje toka

Indirektni:

- veličina i oblik sliva
- gustina riječne mreže
- reljef i njegove karakteristike
- zasićenost zemljišta vodom
- stanje nivoa podzemnih voda
- promjene klime na našem geografskom području
- stepen pošumljenosti i način obrađivanja poljoprivrednih površina u slivu
- ljudski faktor, odnosno nepridržavanje određenih propisa (neadekvatno upravljanje vodotocima, izgradnja objekata u inundacijama,...)

Participants: Sanita Dzino, Maja Kurtagić-...

Maslow's Hierarchy of needs

Self-actualization
personal growth and fulfillment

Esteem needs
achievement, status, responsibility, reputation

Belongingness and Love needs
family, affection, relationships, work group, etc.

Safety needs
protection, security, order, law, limits, stability, etc.

Biological and Physiological needs
basic life needs - air, food, drink, shelter, warmth, sex, sleep, etc.

Biological, physiological and safety needs are the most basic and are the most difficult to satisfy.

Deltares

LONG TERM VISSION AND OBJECTIVES

- ▶ **THE LONG TERM VISSION** The Republic of North Macedonia is, by 2050, a prosperous, low carbon economy, following sustainable and climate resilient development pathways, enhancing competitiveness and promoting social cohesion through action to combat climate change and its impacts.
- ▶ Specific objective 5: To build solid systems for the regular and periodic collection data for the production and dissemination of scientific and technical knowledge.
- ▶ Specific objective 6: To increase the resilience of climate change impacts of key socio-economic sectors and ecosystems

Teodora Gmcar...

INTEGRACIJA U RAMS

Uncontrolled deterioration of road asset (little or no maintenance)

Controlled deterioration of road asset (by wise investment of funds)

Condition

Age

Date of construction

Level of maintenance required to control deterioration and extend life

Major maintenance e.g. resurfacing

Minimum tolerable condition

Condition at which pavements are actually replaced

Remaining service life

Remaining actual life

Year X

RISK

Hazard

Vulnerability

Exposure

What happened previously...

Hazard
What can cause risk?

Exposure
What road infrastructure is in harm's way?

Vulnerability
How much damage to the road will it cause?

Cascading effects
How much damage will society bear?


Impact

Deltares


Recording

The two sides of climate action

Mitigation
- reducing climate change
Involves reducing the flow of heat-trapping greenhouse gases into the atmosphere



Adaptation
- adapting to life in a changing climate
Involves adjusting to actual or expected future climate



UNOPS

all Bredjan Kerman

Recording



Tatjana Kapetan...

Bredjan Kermanovic

Sanita Dzino

Sanita Dzino

REGIONAL CONFERENCE ON CLIMATE CHANGE IMPACTS AND RESILIENCE OF TRANSPORT INFRASTRUCTURE

Selma Totic - DSM

Atim Kermanovic

Bredjan Kerman

all Amir Sitarovic

Recording

Sanita Dzino

Sanita Dzino

REGIONAL CONFERENCE ON CLIMATE CHANGE IMPACTS AND RESILIENCE OF TRANSPORT INFRASTRUCTURE

Selma Totic - DSM

Bredjan Kerman

Amir Sitarovic

Maja Kurtagic-...

Maja Kurtagic-H4DC

