

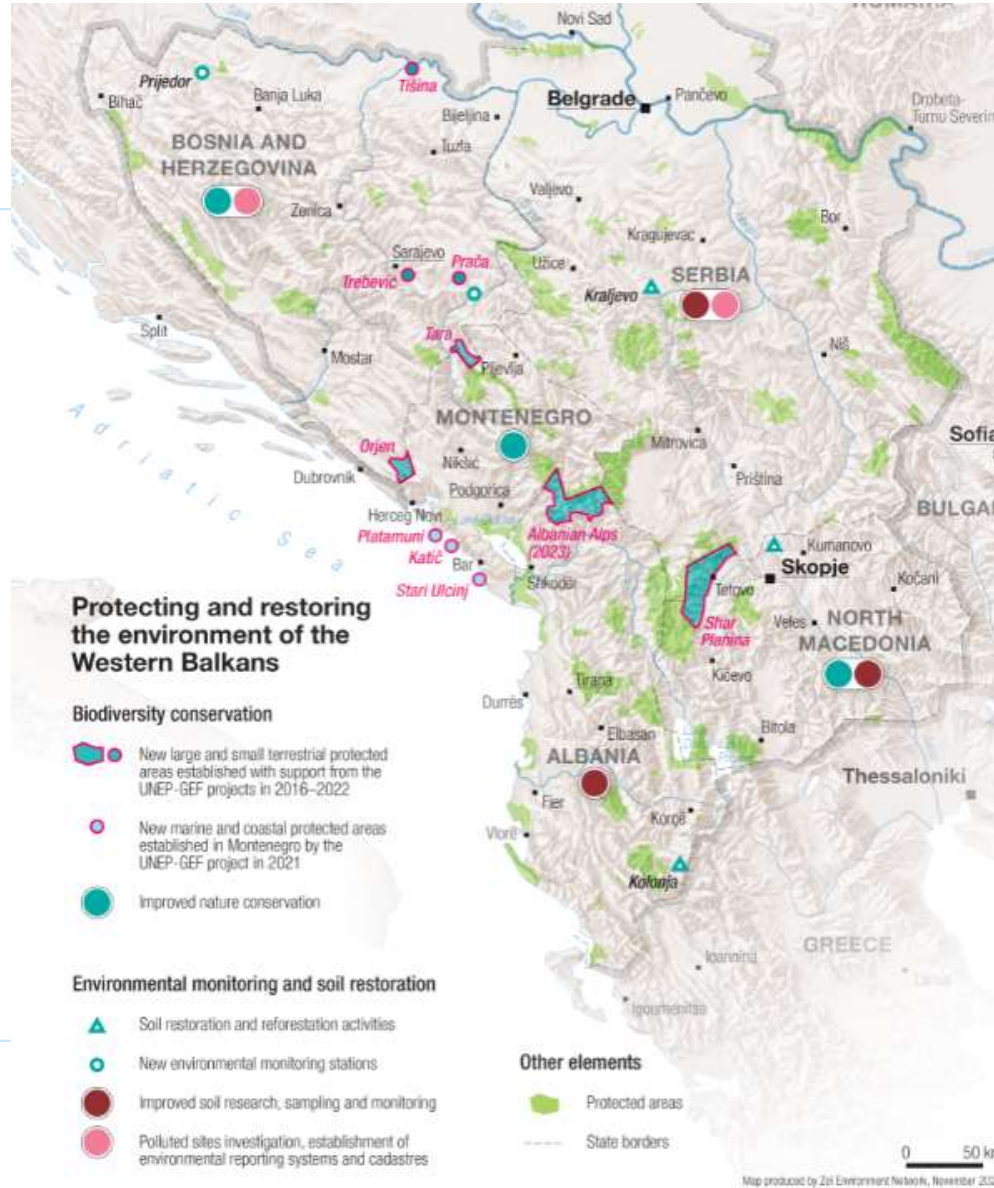


WESTERN BALKANS FORUM: ENVIRONMENTAL/CLIMATE ACHIEVEMENTS AND FUTURE CHALLENGES

*Regional exchange organized by the
United Nations Environment Programme*

WESTERN BALKANS ENVIRONMENTAL PORTFOLIO

17th and 18th November 2022
Vienna






**UNITED
NATIONS
ENVIRONMENT
PROGRAMME**

**WESTERN
BALKANS
PORTFOLIO**

BIODIVERSITY





Achieving Biodiversity Conservation through Creation, Effective Management and Spatial Designation of Protected Areas and Capacity Building in Bosnia and Herzegovina

(2016-2021)



Component 1: Establishment and effective management of protected areas and biological diversity

10 natural areas identified in the project preparation phase

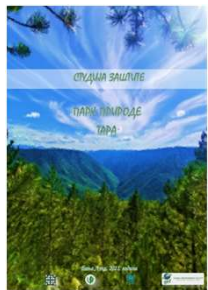
Component 2: Management effectiveness of the national protected areas system

Capacity building activities for advocacy and communication of the natural values and benefits to PA staff and conservation authorities

Public awareness raising on nature conservation

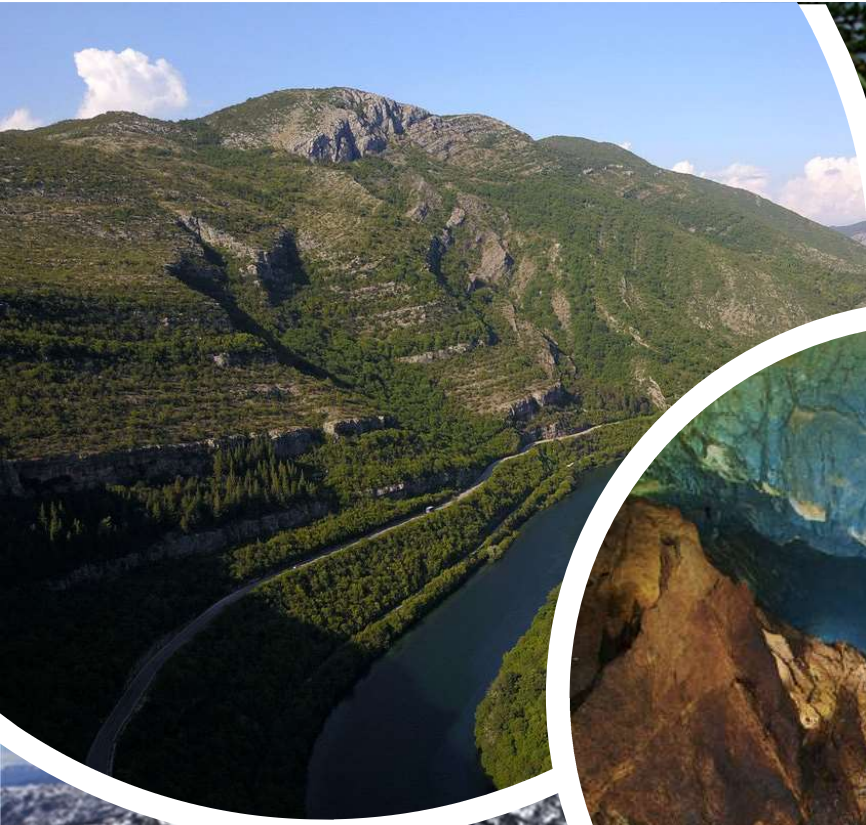
Component 3: Biodiversity monitoring

Inclusive and functional BD monitoring system in BiH addressing the important obstacles in nature conservation









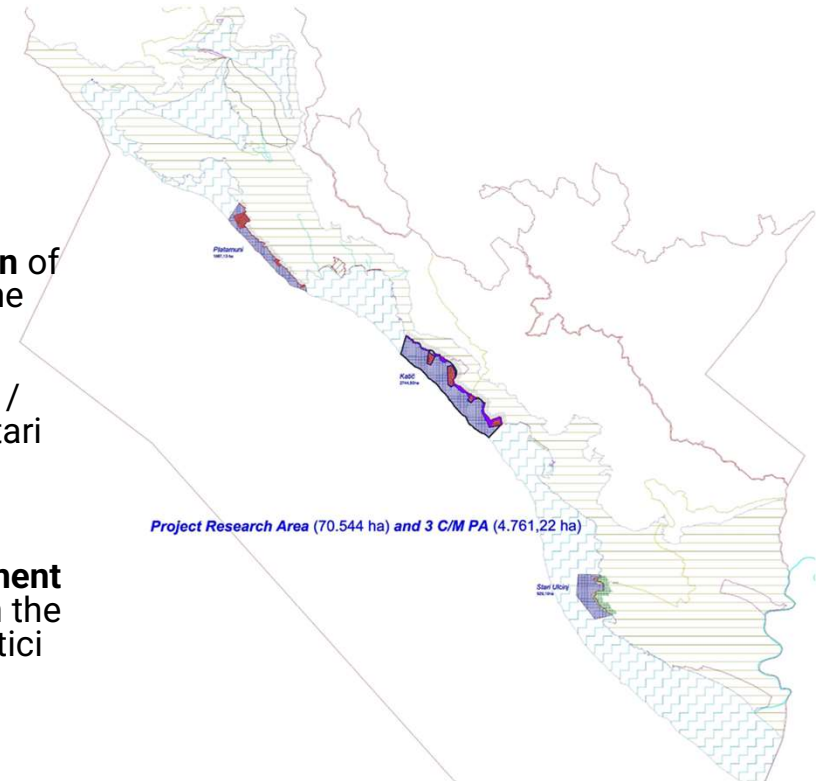


Promoting Protected Areas Management through Integrated Marine and Coastal Ecosystems Protection in Coastal Area of Montenegro (2017–2022)



❑ Component 1: **Protection** of valuable coastal and marine biodiversity assets and establishment of the subsystem of integrated C / MPAs (Platamuni, Katič, Stari Ulcinj)

❑ Component 2: **Management** effectiveness is ensured in the C / MPAs in Platamuni, Katici and Stari Ulcinj critical land/seascapes



Results

INVENTORY OF HABITATS AND SPECIES IMPORTANT FOR CONSERVATION

(a) PREPARATION

1. **Training**/preparation of experts for fieldwork - NATURA requirements
2. **Documents** supporting field inventory: (i) General methodology for BD survey and assessment, (ii) Biological characterization (iii) Data Gap Assessment
3. Procurement of survey enabling **equipment**,
4. Technical **support** provided: (i) Aerial photos, 2018 (Ministry), (ii) Use of Fulcrum application (project)



(b) EXECUTION

1. Field work:

Marine part: (i) hydrographic survey (ii) (biological) inventory / survey - data collection:

Terrestrial part: (ii) (biological) inventory - field data collection for species and habitats important for conservation (+ data entered in Fulcrum application *)

2. Data processing and GIS mapping:

Marine part: (i) Vector data processing on SSS images (polygonization); (ii) Processing and verification of data on habitats and species, GIS mapping (SDF, biological characterization)

Terrestrial part: (i) Data processing, GIS mapping (SHP); (ii) Verification of data on habitat and species

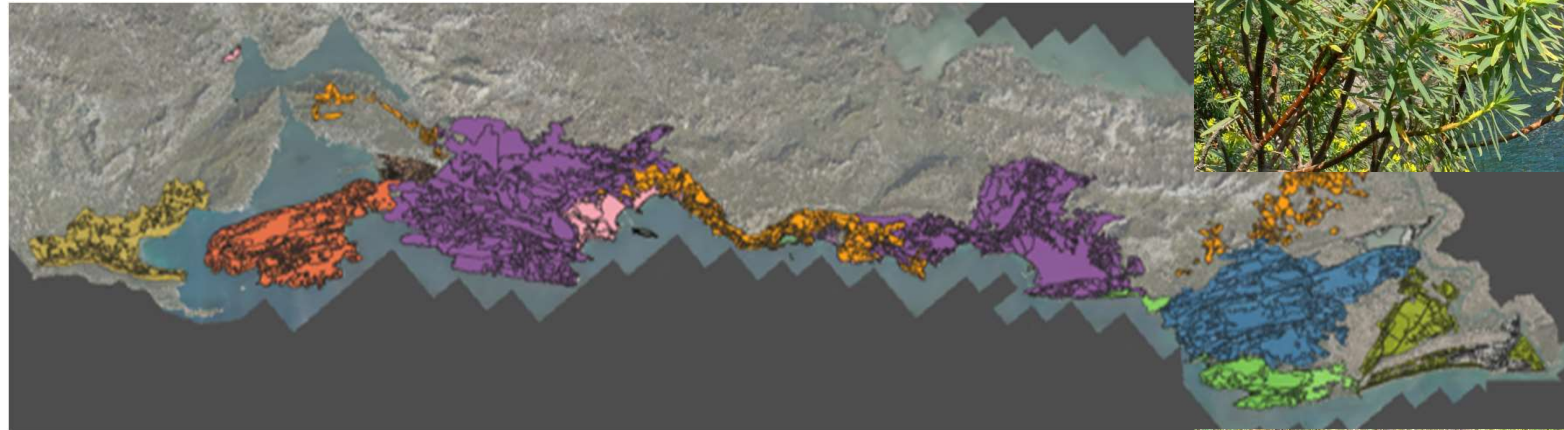
SUPPORT IN C / MPAS MANAGEMENT:

1. *National Planning Framework* for integrated C/M PAs - extended with *Review of Potential PAs*
2. Management plans and a Business plan for 3 C/M PAs:
 - (a) *Trainings* for preparation [of MPs, Financial / Business plan, Annual operational management programs]
 - (b) Developed and consulted *Management plans for Nature park Platomuni, Katič and Stari Ulcinj*
 - (c) *Business / Financial plan (2022)*
3. Support in purchasing *patrolling boat* for PAs Manager "Morsko Dobro"

Results

GIS mapping of habitats and species important for conservation - Terrestrial part

Habitats



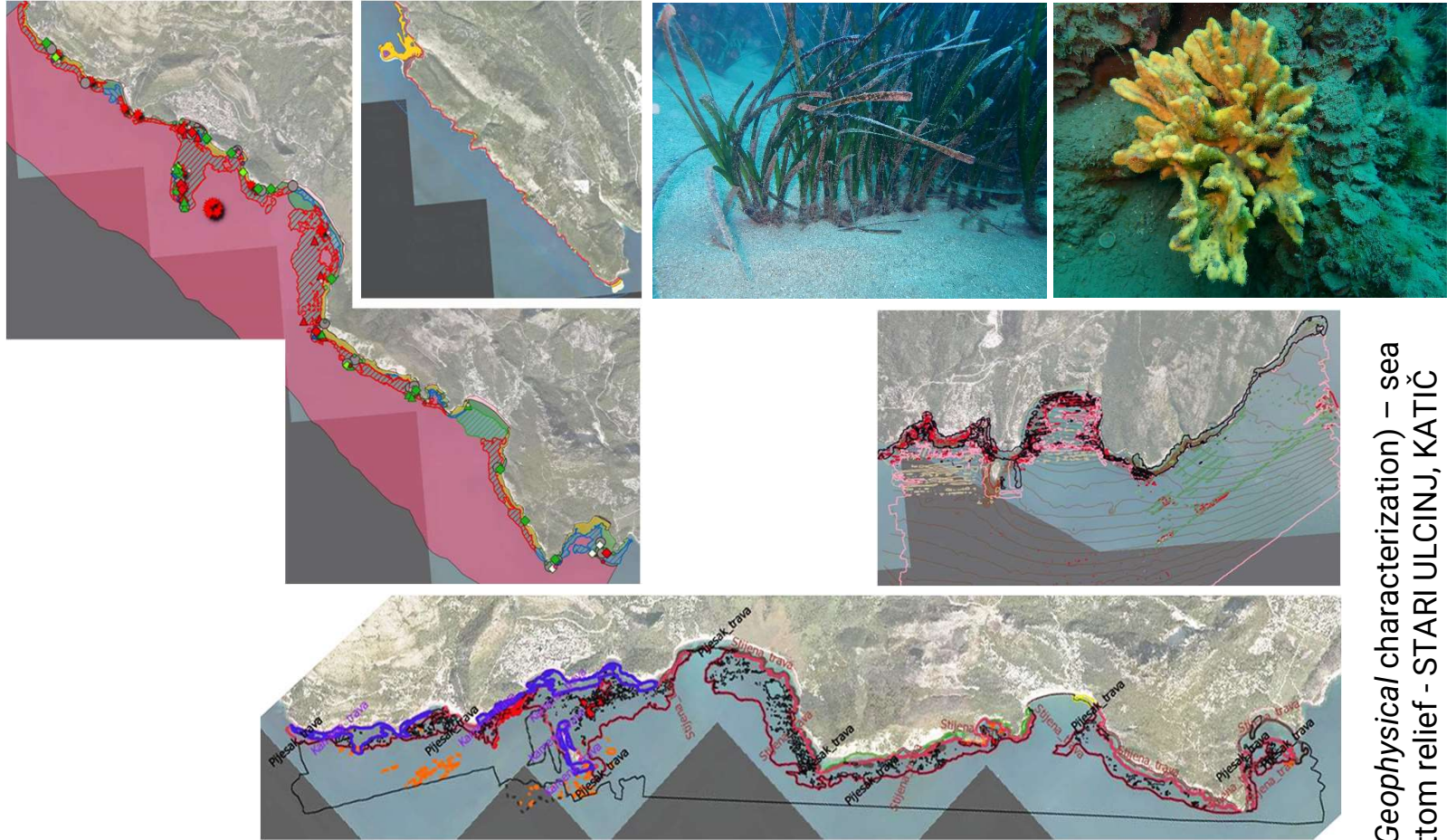
Species



Results

GIS mapping of habitats and species important for conservation – Marine part

(Biological characterization)
PLATAMUNI, STARI ULCINJ, KATIĆ



(+ Geophysical characterization) – sea bottom relief - STARI ULCINJ, KATIĆ

Results

SUPPORTING PROCLAMATION

1

**PLATAMUNI
MARINE
PROTECTED
AREA**


22 April 2021



2

**KATIČ MARINE
PROTECTED
AREA**

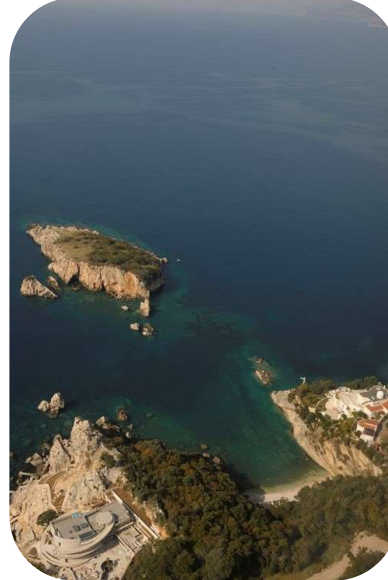
16 Sept. 2021



3

**STARI ULCINJ
MARINE
PROTECTED
AREA**

30 Dec.2021



SUPPORTING EFFECTIVE MANAGEMENT



Achieving Biodiversity Conservation through Creation and Effective Management of Protected Areas and Mainstreaming Biodiversity into Land Use Planning

(2016-2022)

Component 1: Increased national PAs network

- Support of the proclamation process: Shar Mountains NP (valorization, public awareness, capacity building)

- Ohrid Lake Re/valorization study

- Pilot projects for managing MAK-NEN (management of bio-corridors)

Component 2: Increased effectiveness of BD management

- Red Lists and Books of reptiles and amphibians/plants priority list

- HNVPs + management guidelines

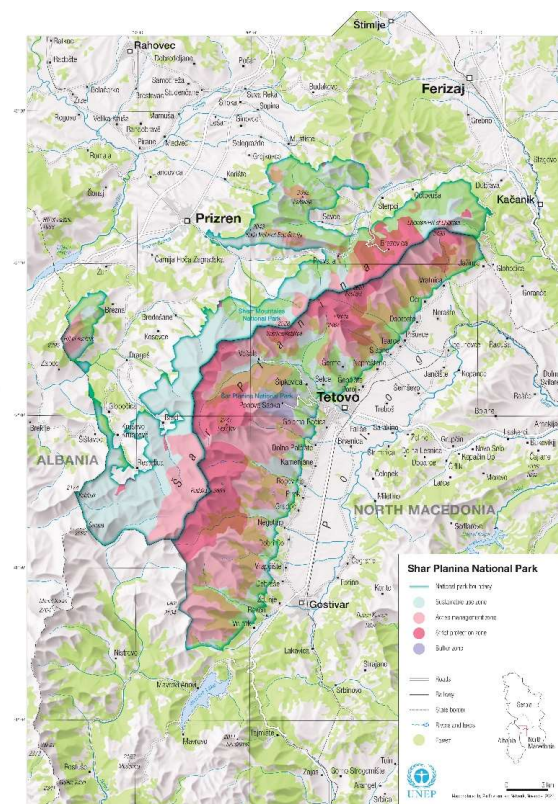
- PA management plans + trainings

Component 3: Land use planning and BD mainstreaming

- National erosion map/soil sealing rate/forest vegetation maps

- NTFP quotas + piloting

- Proposed revision of Forest Management Plans / National Spatial Plan + trainings



Results



Shar Mts. National Park

Valorization study
Public consultation
Supporting
Proclamation
30 June 2021



Shar promo video:
<https://youtu.be/GKNxgnbX4W4>



Shar Mts. Management plan

Development
Public consultation
SEA procedure
Adoption-ongoing



Ohrid Lake valorization

Re/valorization study
Public consultation
MoU between 3 municipalities



Ohrid Lake Management Plan

Development
Public consultation
Feasibility study
Land use planning



MAK-NEN Bio-corridors

Large carnivores
Two sites piloting
Recommendations



Bio-corridors video:
<https://youtu.be/v3HZaPU-uRI>



Results



Red Lists and Red Books

Reptiles
Amphibians
Priority list – plant species



High Nature Value Forests

Identification
Suggested management guidelines for Bukovikj and Belasica pilot areas



Bearberry video:
<https://youtu.be/S-lfXqZM16o>



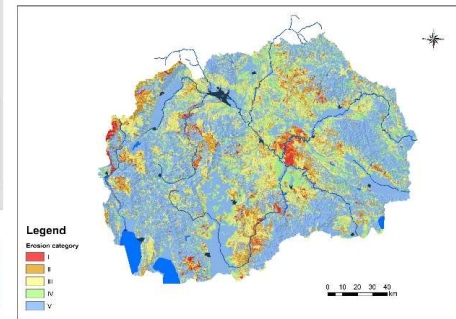
Quotas for Non-timber forest products

Analysis of status
Collection and use
Testing methodologies
Bearberry legal protection



Soil Erosion Map Soil sealing rate database Forest vegetation maps

Soil erosion map; SOM database: Ohrid, Prilep, Strumica; Maleshevo FVMs



SLM/LD materials:
<https://bit.ly/3E84SfM>
<https://bit.ly/3A4njAA>



Capacity building Awareness

Trainings
Study visits
Public campaigns
Gender equality



Shar proclamation
promo story
700,000,000
potential readers



Biodiversity conservation, sustainable land management and sustainable tourism development in North Macedonia (2023-2027)

- ❑ **Component 1:** Practical application of integrated landscape approach to achieving LDN (Land Degradation Neutrality) and BD (Biological Diversity) targets in the pilot area of the Shar Mountains and dependent ecosystems service area (peripheral productive landscape)
- ❑ **Component 2:** Support to national level adoption and upscaling of ILM and related LD and BD best practices



Achieving biodiversity conservation through effective management and enhanced resilience to climate change in the existing protected area of the North Albanian Mountainous Region (2023-2026)

- ❑ **Component 1:** Enabling environment for effective management of the Albanian Alps National Park
- ❑ **Component 2:** Strengthening the practical experience and “know-how” of the Albanian Alps NP stakeholders to address threats
- ❑ **Component 3:** Support to national level adoption and upscaling of sustainable PAs management best practices





**UNITED NATIONS
ENVIRONMENT
PROGRAMME**

**WESTERN
BALKANS
PORTFOLIO**

**SUSTAINABLE
LAND
MANAGEMENT**





Promoting Sustainable Land Management (SLM) in Albania through Integrated Restoration of Ecosystems (2017-2021)



Project Objective: Strengthening capacity and skills of national and local government institutions and promoting sustainable land management (SLM) practices in Albania through integrated ecosystem restoration

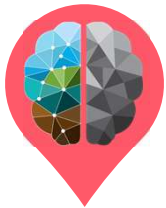
The project aimed to address this objective through two components and three outcomes:

- ❑ **Component 1:** Strengthened legal and institutional framework and capacity building for SLM
 - Outcome 1.1: Shift from unsustainable to sustainable land use in agriculture and forestry sectors
 - Outcome 1.2: Capacities and support for SLM strengthened

- ❑ **Component 2:** Demonstrating and Scaling-up of SLM Best Practices
 - Outcome 2.1: Pressures on natural resources in at least 20,000 ha reduced through application of SLM activities

Results

Outcome 1.1



Legal Gap Analysis

May 2019



PROJECT: Promoting Sustainable Land Management (SLM) in Albania through Integrated Restoration of Ecosystems

Report on legislative gap analysis and recommendations for revision
Date 05.2019



Handbook /guidelines for embedding SLM and erosion control into national planning and strategic documents

Nov. 2020



PROJECT: Promoting Sustainable Land Management (SLM) in Albania through Integrated Restoration of Ecosystems

Handbook on SLM priorities to be mainstreamed in multi-sectorial strategies and plans tackling land management
FINAL
Date 11.2020



Two sub-legal acts for the new law on forestry: Guidelines for classification of forests & Qualification criteria for local forest staff

Dec. 2020

DOKUMENTI EMBLEMI PËR AKTIN NEN LIGJIN NR. 1		DOKUMENTI EMBLEMI PËR AKTIN NEN LIGJIN NR. 2	
Titulli i aktit	Udhëzuesi i punës për klasifikimin e pyjeve	Titulli i aktit	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje
Udhëzuesi i punës për klasifikimin e pyjeve	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje
Numri i ligjit	Numri 472 Ligji i Punës në pyje të reviduar nga Kuvendi më 2020.06.03	Numri i ligjit	Numri 472 Ligji i Punës në pyje të reviduar nga Kuvendi më 2020.06.03
Udhëzuesi i punës për klasifikimin e pyjeve	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje
Udhëzuesi i punës për klasifikimin e pyjeve	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje



Proposal for a new grazing system

Oct. 2021

Vendosja e nje sistemi specifik te kultjetjes



Indeksi	Indeksi i Kujdesit	Indeksi i Kujdesit	Indeksi i Kujdesit
Udhëzuesi i punës për klasifikimin e pyjeve	400	8	1
Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	340	7	0.75
Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	40	1	0.1
Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	540	16	1.6
Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	370	8	1.00



Priority indicator monitoring system for sustainable forest and pasture management

Dec. 2021

Indeksi	Indeksi	Indeksi	Indeksi
Udhëzuesi i punës për klasifikimin e pyjeve	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje
Udhëzuesi i punës për klasifikimin e pyjeve	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje
Udhëzuesi i punës për klasifikimin e pyjeve	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje	Udhëzuesi i punës për kualifikimin e personelit të punës në pyje

Annex 1: Summary table of Suggested Priority SFM Indicators for Kolonja Municipality

Results

Outcome 1.2



**5 days training -
National and local
institutions -Ossiach,
Austria**

April 2019



**2 days training -
National Institutions
– Tirana, Albania**

Jun. 2021



**2 days training - Regional
and local resource
managers -Kolonja,
Albania**

Jul. 2021



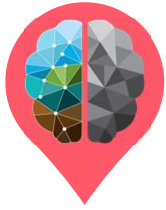
**Farming households -
Kolonja, Albania**

2020 - 2021



Results

Outreach



**World Soil Day,
International Forest
Day, World
Environment Day**



**Three promotional
videos –broadcasted in
local media, and
showcased in social
media periodically**



**Project webspace –
Kolonja Municipality
Official Website**



**Office in Kolonja
Municipality –
showcasing
Promotional Material**



Results

Outcome 2.1



Mapping across 22,000 ha of degraded forest and pasturelands



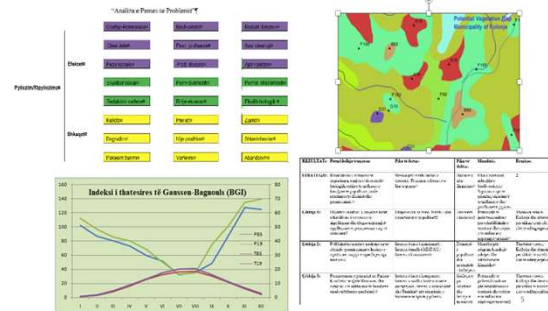
Rehabilitation plan for 120 ha of the most degraded forest and pastures



Reforestation at Perroi Varishtes and rehabilitation at Kabash forest



Aspekte inovative te projektit te rehabilitimit



Promoting Sustainable Land Management (SLM) through Strengthening Legal and Institutional Framework, Capacity Building and Restoration of the Most Vulnerable Mountain Landscapes (2019-2023/4)



Project objective: to develop and strengthen national policy and institutional capacity for SLM and to contribute to achieving the national land degradation neutrality (LDN) targets with integrated landscape management in north-western mountainous ecosystems of North Macedonia

- Component 1: Strengthened legal and institutional framework and capacity building for SLM and SFM**
 - Outcome 1.1. Addressing gaps and weaknesses in the land use and land degradation policy, legal and regulatory framework to accelerate the achievement of LDN
 - Outcome 1.2. Trained national and municipal resource managers to integrate SLM/SFM in LDN, in coordination with the NCSD
- Component 2: Sustainable land and forest management practices for reducing the effects of LD in 3 pilot sites in the most vulnerable mountainous region (testing and demonstration in selected pilot sites, as basis for lessons learned, replication and upscaling)**
 - Outcome 2.1. Local governments in North Macedonia apply practical methods, approaches and practices for halting or reversing land degradation and deforestation beyond the pilots
- Component 3: Knowledge management and public awareness**
 - Outcome 3.1. Private sector land developers and users apply SLM/SFM best practices for mitigating erosion and degradation applicable for North Macedonia

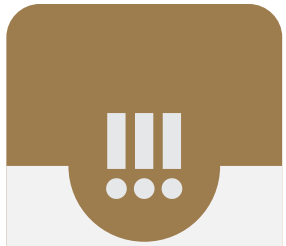
**ONGOING
ACTIVITIES**



**LEAPs WITH
FOCUS ON LAND
DEGRADATION,
EROSION AND
FOREST FIRES
PREVENTION**



**ASSESSMENT
AND MAPPING
OF ECOSYSTEM
SERVICE
VALUES
CHANGE**



**FUNCTIONAL
ANALYSIS AND
ROADMAP FOR
LAW ON SOIL
PROTECTION**



EFFECITIVE LAND MANAGEMENT



Promoting Sustainable Management through Strengthening Legal and Institutional Framework, Capacity Building and Restoration of Most Vulnerable Mountain Landscapes

UN Environment Programme



Creating an Enabling Environment to Support LDN Target Implementation Through Strengthening Capacities and Establishing an LDN Monitoring and Reporting System in Bosnia and Herzegovina

(2022)



Food and Agriculture Organization of the United Nations

Project Objective: to foster a coherent policy environment and track progress towards achieving the national LDN targets

❑ Component 1: Creating an enabling environment for LDN

- Outcome 1.1: Improved institutional, legal and policy framework for LDN implementation
- Outcome 1.2: Enhanced LDN target implementation capacity of relevant stakeholders

❑ Component 2: Establishing LDN monitoring and reporting system and development of LDN roadmap

- Outcome 2.1: LDN monitoring and reporting capacity improved at national and sub-national levels to support LDN in production landscapes in line with the Global Support Programme III



**UNITED NATIONS
ENVIRONMENT
PROGRAMME**

**WESTERN
BALKANS
PORTFOLIO**

**CLIMATE
CHANGE
POLLUTION**





South Eastern Europe Pollution Platform (SEEPP)

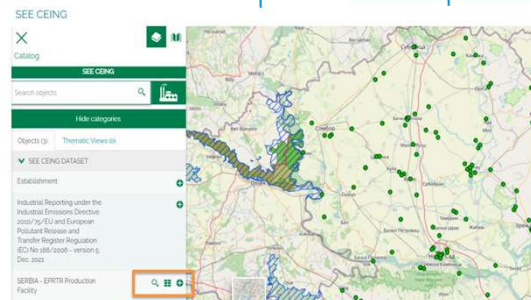


12 MARCH 2019
Nairobi, Kenya
Presentation at UNEA 4



4-5 DECEMBER 2018, Belgrade, Serbia

Ministerial Conference on Innovative Solutions to Pollution in South East Europe



24-25 JUNE 2019, Vienna, Austria

Platform Sub-Regional Consultation Meeting. Identification of SEEPP priorities: Environment and Health; Rule of Law



FEBRUARY 2019 - 2021
SEE-CEING Project (kick off) exchange environmental info and good practices



South Eastern Europe Pollution Platform (SEEPP)



OCTOBER 2021 **Webinar Polluter Pays Principle**

Save the Date for the **Environment and Human Health** in the **Western Balkans** : Challenges and opportunities regional exchange webinar

Monday **21.06.2021**
10.00-11.30 CEST

Innovative Solutions to Pollution in South East and Southern Europe organized in collaboration with the United Nations Environment Programme

This webinar aims at showing linkages between the environment and human health and to discuss potential solutions in the Western Balkans. A detailed programme will be provided closer to the event.





February - March 2022
UNEA 5



2023

JUNE 2021 – **Webinar Environment and Health**



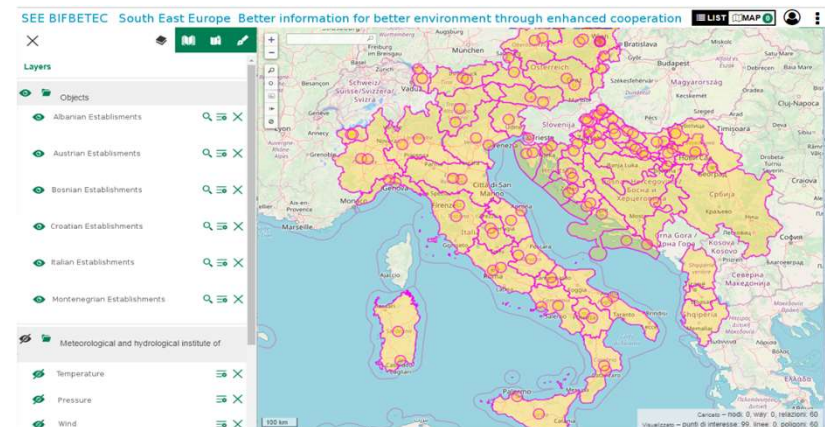
November – December 2021
UNEP-EU Policy Dialogue on Zero Pollution



2022 **Waste study**



- Expanding knowledge and support an evidenced-based decision making process to improve the environment and human health
- Environment and health sector engagement and coordination
- Inter-sector / Inter-country cooperation and engagement and transboundary coordination
- Improve monitoring and reporting mechanisms at national and regional level on health trends associated with exposure to environmental pollution and its sources
- Improve risk assessment and management procedures, effectiveness of the responses
- Define corporate responsibilities





South East Europe Platform to Beat Pollution – Overarching framework for coordinated action and implementation of pollution prevention activities



District Heating Initiatives:

- Bosnia and Herzegovina
- Serbia

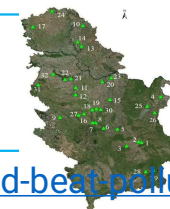
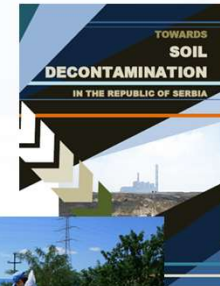
Energy efficiency in buildings:

- Belgrade, Serbia



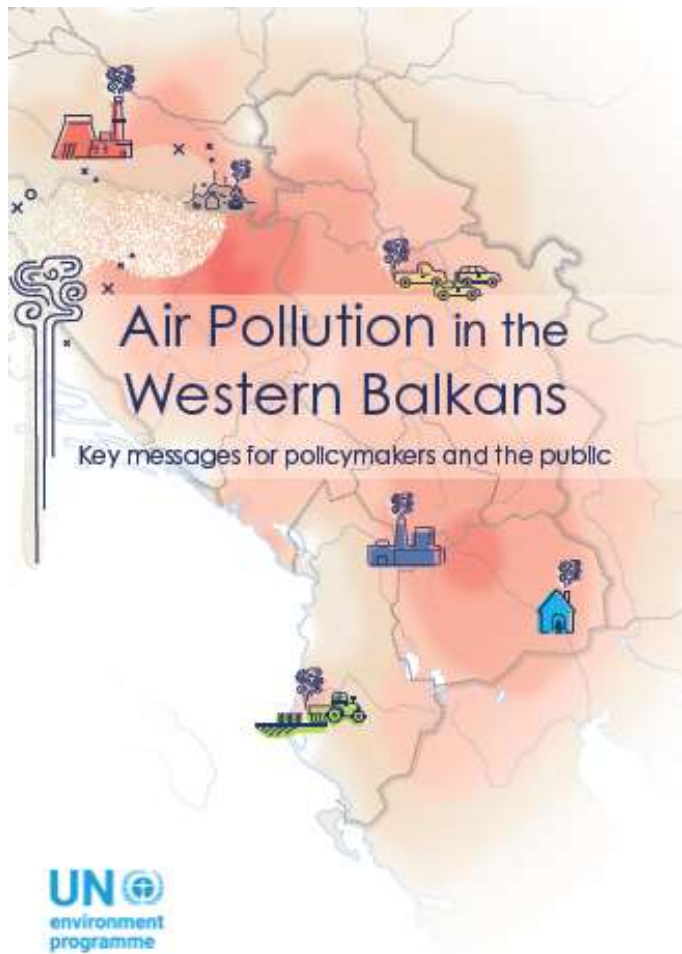
HEAT AND HEALTH

Knowledge products on health and air pollution
inefficient combustion of
s for solid fuel-burning

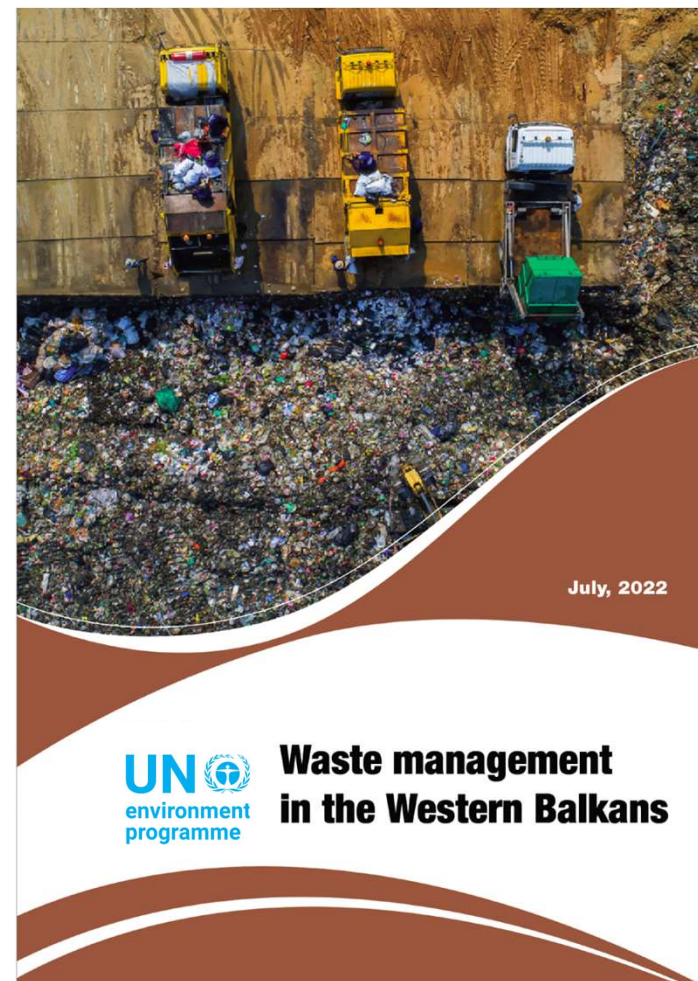


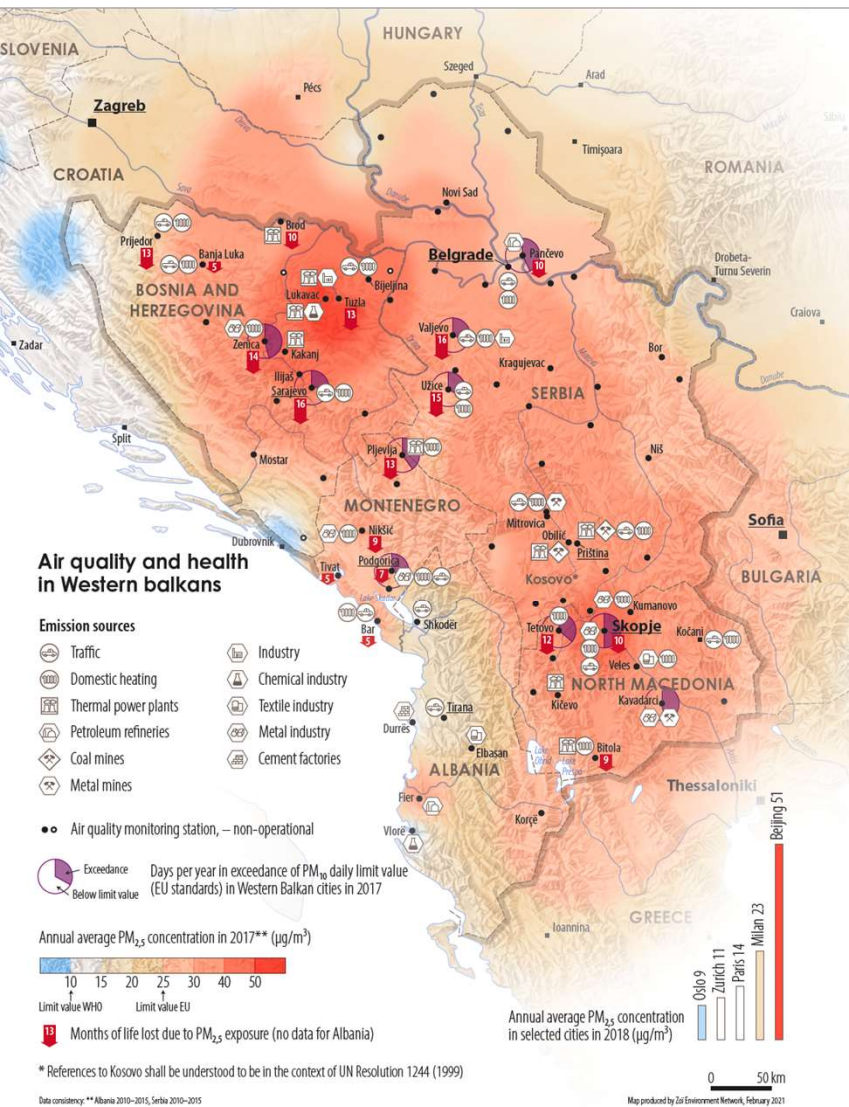
City	PM10	PM2.5	O3	NO2	SO2
Belgrade	15	10	15	10	5
Nis	12	8	12	8	4
Kragujevac	10	7	10	7	3
Novi Sad	11	8	11	8	4
Zrenjanin	13	9	13	9	5
Subotica	14	10	14	10	6
Novi Pazar	16	11	16	11	7
Trnava	17	12	17	12	8
Crna Trava	18	13	18	13	9
Stara Pazova	19	14	19	14	10
Novi Beograd	20	15	20	15	11
Novi Beograd - East	21	16	21	16	12
Novi Beograd - West	22	17	22	17	13
Novi Beograd - South	23	18	23	18	14
Novi Beograd - North	24	19	24	19	15
Novi Beograd - Center	25	20	25	20	16
Novi Beograd - East-Center	26	21	26	21	17
Novi Beograd - West-Center	27	22	27	22	18
Novi Beograd - South-Center	28	23	28	23	19
Novi Beograd - North-Center	29	24	29	24	20
Novi Beograd - Center-Center	30	25	30	25	21

<https://www.unep.org/regions/europe/our-projects/equipping-southeastern-europe-join-forces-and-beat-pollution>
<https://www.seepollutionplatform.org>

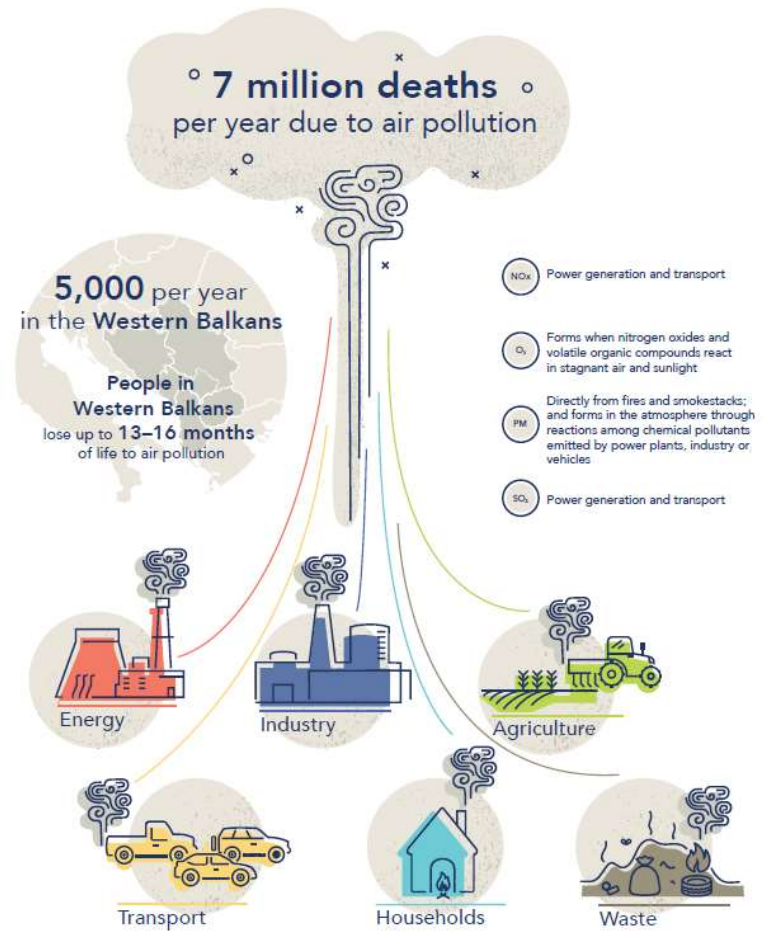


Collaboration with WHO





First regional study that quantifies the impact of air pollution on human health, considering 19 representative towns and cities across the region





Introducing stricter emission standards for vehicles, power plants and large- and small-scale industry

Requiring industry to reduce and eliminate emissions of harmful air pollutants -

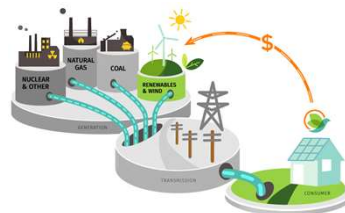
- highly polluting industrial facilities such as coke ovens, smelters, refineries, cement plants and brick kilns



Monitoring and raising awareness of air pollution by publishing air quality monitoring data and promoting awareness campaigns



Assistance follow up



Supporting the renewable energy sector and promoting the reduction of fossil fuel use to generate electricity

Informing citizens of the health risks associated with air pollution



Establishment of a stronger environment and health nexus

Enabling citizens to switch to cleaner heating and cooking technologies

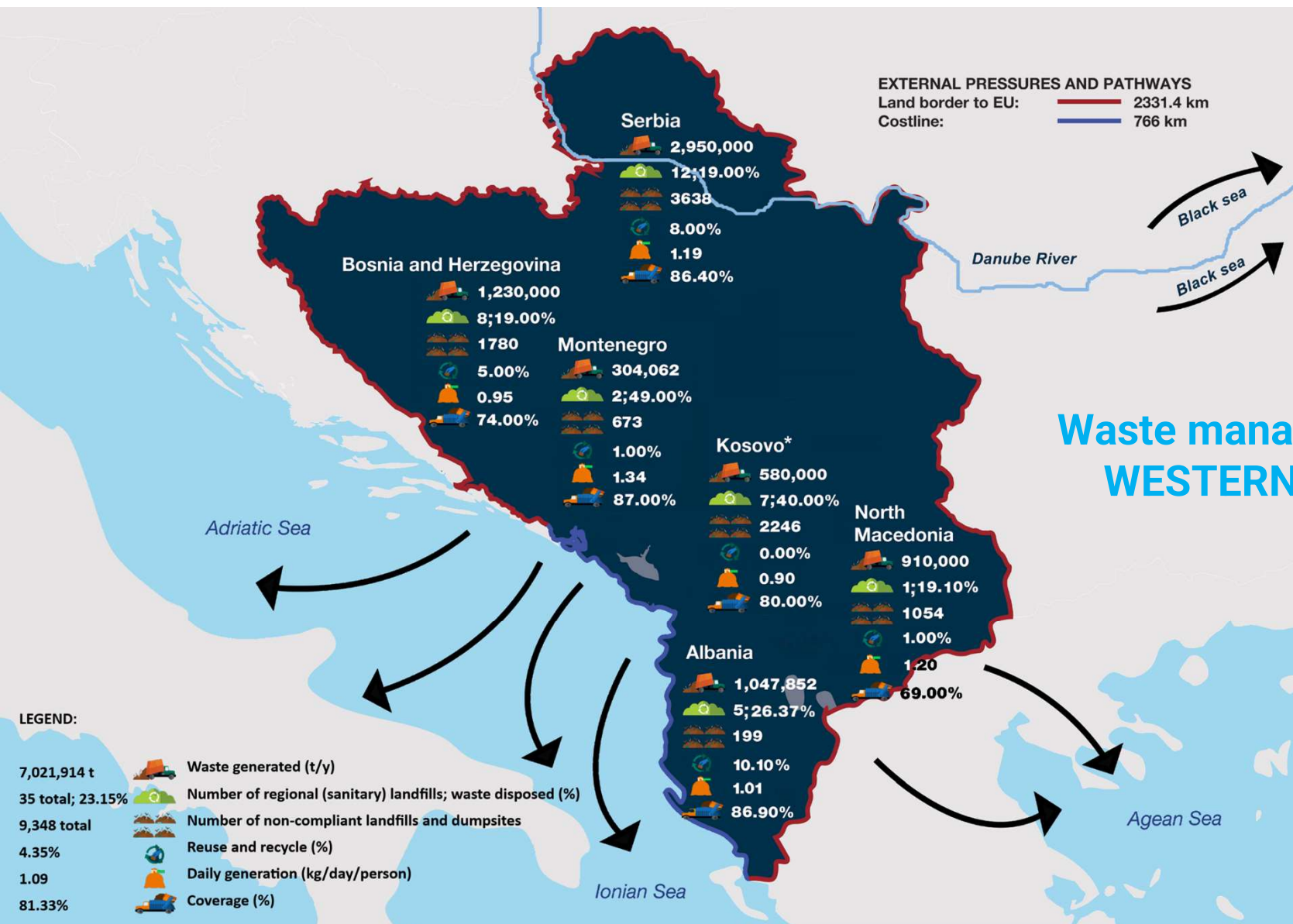


Creating national, regional and international frameworks to address the environmental challenges



Joining the UNEP air quality programme, which supports governments at all levels in building evidence on the effects of air pollution





Waste management in the WESTERN BALKANS



*This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence

Waste management in the WESTERN BALKANS

Issues / opportunities





Enhanced Cross-sectoral Land Management through Land Use Pressure Reduction and Planning in Serbia (2015-2021)



- ❑ Project Objective: Preparing the groundwork for cleaner soil
- ❑ **Component 1:** Improved institutional, policy and science cooperation in integrated land use planning
- ❑ **Component 2:** Support for local authorities and communities in planning and implementing integrated natural resources management
- ❑ **Component 3:** Capacity building, awareness raising and information sharing

Promotional video:

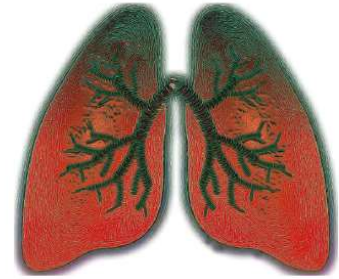
<https://www.youtube.com/watch?v=PgZGmdObYZI>



UNEP activities on Air Pollution in Serbia

Heat and Health

- Ambient and indoor air pollution and health - review of available data
- Desk analysis on policy framework for energy poverty in Serbia (including gender aspects)
- Focus group discussions



HEAT AND HEALTH

Knowledge products on health and air pollution stemming from the inefficient combustion of household devices for solid fuel-burning

Waste disposal and air pollution

Nature based solutions for enhanced resilience to COVID19 and urban air pollution in the Western Balkans and Central Asia





UNEP activities on Air Quality in Serbia

Programming framework:

- ❑ Pillar 1: Policies and standards resulting in air quality in line with EU and national regulatory standards developed
- ❑ Pillar 2: Capacities to implement air quality policies and eco design standards for heating devices developed and enhanced
- ❑ Pillar 3: Subsidy schemes calibrated, replacement programme designed and implemented
- ❑ Pillar 4: Increased understanding and awareness and knowledge about the benefits of air quality policies and eco standards for domestic heaters

UN Joint Programme on Air Pollution from
Domestic Heating – DRAFT

THEMATIC SUBGROUP OF RESULTS GROUP 1 UNDER
THE UNSD COOPERATION FRAMEWORK 2021-2025

SEPTEMBER 2022

Thank you for the attention!

Western Balkans team in UNEP Vienna Programme Office:

sonja.gebert@un.org

iskra.stojanova@un.org

elena.stefanoni@un.org

National Project offices in the Western Balkans:

Albania: valmira.bozgo@un.org

BiH: matea.grabovac@un.org

Montenegro: vasilije.buskovic@un.org

North Macedonia: metodija.sazdov@un.org, fjolla.halili@un.org, liljana.dinev@un.org

Serbia: aleksandra.siljictomic@un.org

UNEP consultant on pollution and waste: Maja Colovic-Daul



Enhancing Environmental Performance and Climate Proofing of Infrastructure Investments in the Western Balkan Region from an EU integration perspective

Sonja Gebert
UN Environment Programme

With funding from
 Austrian
Development
Cooperation


UN
environment
programme



Objective:

To reduce vulnerability of road infrastructure to climate change in the Western Balkan by mainstreaming EU best practices on climate proofing infrastructure and green infrastructure



The ClimaProof Strategy

Component 1

UNDERSTANDING

Understanding the future climate and weather patterns in the target region

ICC-OBS TOOL

MODEL SELECTION TOOL

DOWNSCALING TOOL

Component 2

PLANNING

Planning for the future climate and weather patterns in the target region

FOCUS REPORTS

GAP ANALYSIS REPORTS

RECOMMENDATIONS FOR COUNTRIES

Component 3

BUILDING

Building infrastructure adapted to the future climate and weather patterns

REGIONAL CONFERENCES

WEBINARS

STRATEGY FOR THE WESTERN BALKANS



With funding from
Austrian
Development
Cooperation





Project start

24.10.2017



Project duration

5 years



Project area

Western Balkans



Component 1

Strengthening national capacities to understand climate change and related risks in the region through improvement of the information base

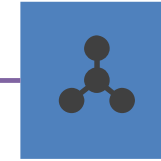
ICC-OBS Tool
Model Selection Tool
Downscaling Tool



Component 2

Strengthening national capacities to integrate climate change projections and climate proofing and green infrastructure in the development on a regional and national level

Focus reports
GAP Analysis Reports
Recommendations for countries



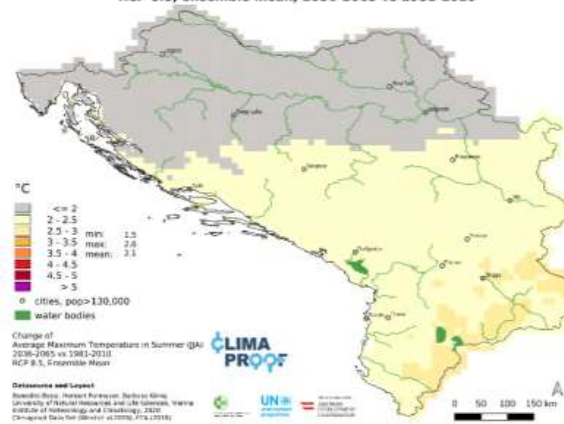
Component 3

Creating an enabling environment for regional cooperation and investments in climate resilient road infrastructure in the Western Balkans

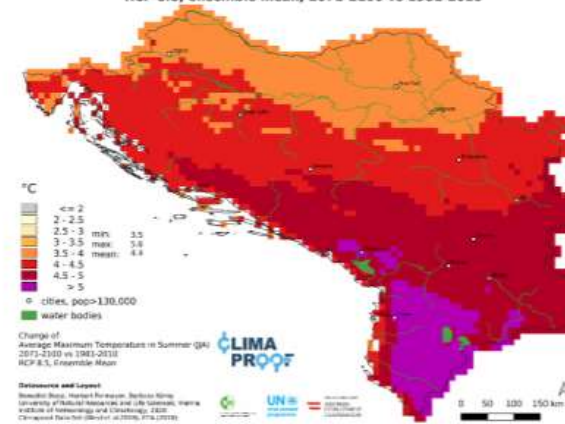
Regional conferences
Webinars
Strategy for the Western Balkans

Change of Average Temperature (Tmax JJA, Tmin DJF)

Change of Average Maximum Temperature in Summer
RCP 8.5, ensemble mean, 2036-2065 vs 1981-2010



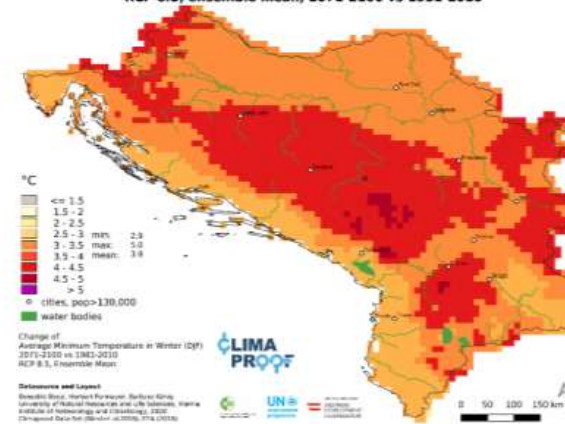
Change of Average Maximum Temperature in Summer
RCP 8.5, ensemble mean, 2071-2100 vs 1981-2010



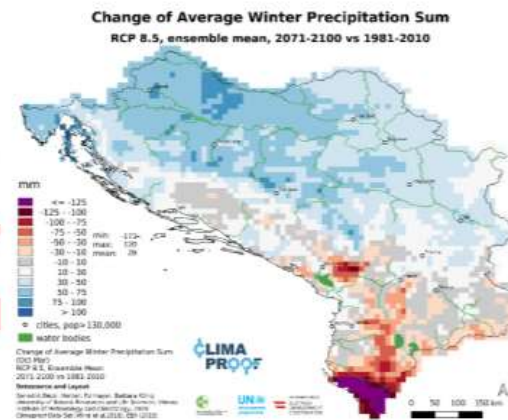
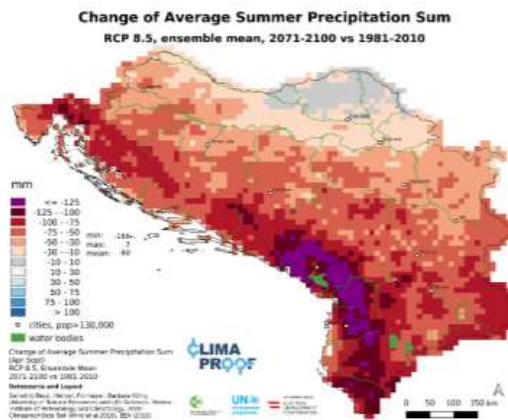
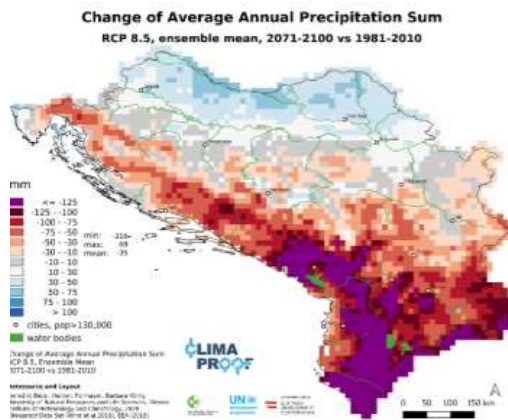
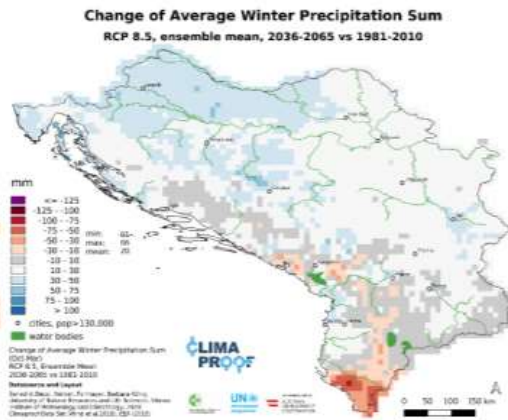
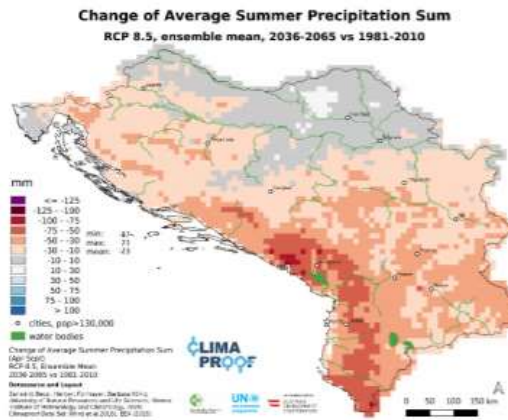
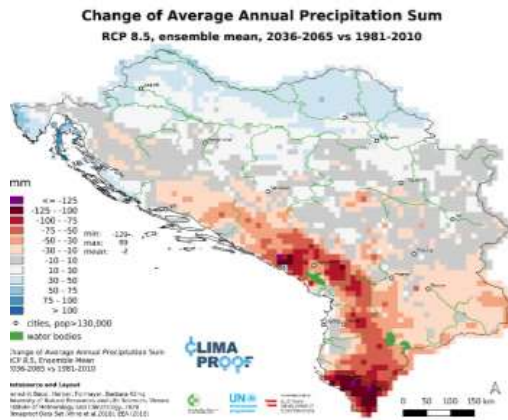
Change of Average Minimum Temperature in Winter
RCP 8.5, ensemble mean, 2036-2065 vs 1981-2010



Change of Average Minimum Temperature in Winter
RCP 8.5, ensemble mean, 2071-2100 vs 1981-2010



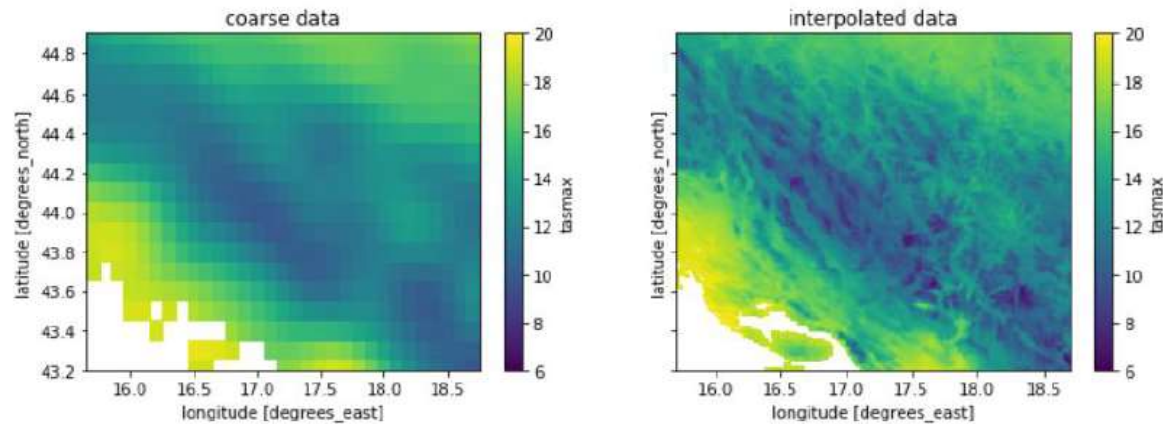
Change of Precipitation



Downscaling Tool

<https://github.com/boku-met/climaproof-tools>

- For applications that need a higher horizontal resolution
- Easy-to-use tool to **downscale model and observational data** from default (0.1°) to high resolution (0.01°)



<p>Extreme Rainfall events (local or regional)</p> 	<ul style="list-style-type: none"> • Flooding of road surface • Erosion of road embankments • Weakening of the road embankments and road foundation due to standing water • Landslides and mudflows • Loss of road structure integrity • Overloading of drainage systems • Damage to energy supply and communication • Traffic hindrance and safety (aquaplaning)
<p>Seasonal or annual rainfall (sum)</p> 	<ul style="list-style-type: none"> • Structural integrity of roads, bridges and tunnels (soil moisture levels) • Damage of the road base due to standing water • Risk of floods, landslides and slope failures (if change in precipitation pa
<p>Max Temperature/ Heatdays</p> 	<ul style="list-style-type: none"> • Pavement integrity (Rutting, cracking and blow-ups of asphalt; migrator liquid bitumen) • Thermal expansion in bridge expansion joints and pavements
<p>Drought</p> 	<ul style="list-style-type: none"> • Increased risk of wildfires threatening transport infrastructure • Threats from areas deforested by wildfires (decreased soil integrity) • Increased generation of smog
<p>Thaw/Frost-Thaw Cycle</p> 	<ul style="list-style-type: none"> • Cracking due to weakening of the road base • Increased demand for reconstruction • Increases risk of stone chipping
<p>Extreme wind speed (storm surge, worst gales and wind gusts)</p> 	<ul style="list-style-type: none"> • Threat to stability of bridges • Damage to signs, lightings etc • Trees, windmill, noise barriers and trucks falling on the road • Reduced vehicle control



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Planning for the future climate and weather patterns



- **Assessment** of climate change **adaptation policies and EIA and SEA** procedures in place in the countries of the WB region
- **Enhanced technical capacity** of relevant national stakeholders to effectively **respond to climate change** related risks through **climate proofing** measures, including **green infrastructure**; and to **integrate climate change projections and climate proofing measures into infrastructure development**, in accordance with EU best practices
- **Guidelines** on integrating climate change in **EIA and SEA procedures**
- **Improved awareness** of both relevant **stakeholders** and **general public** climate change impacts on road infrastructure, including increased resilience options such as green infrastructure

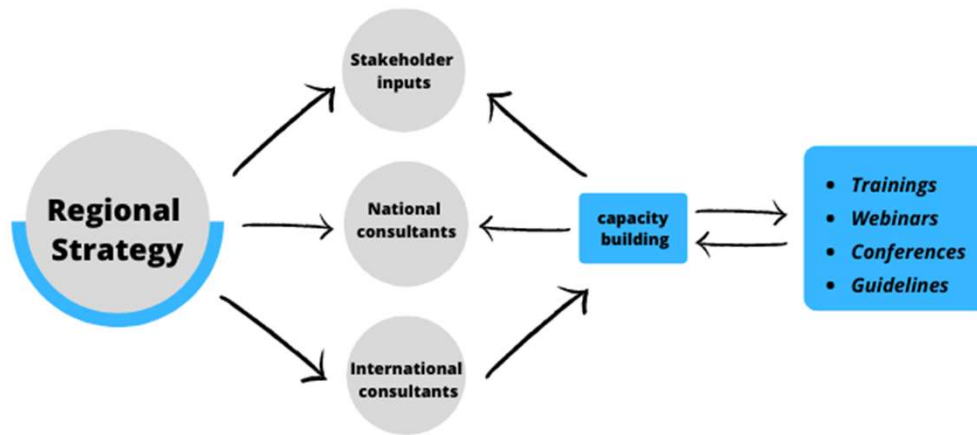
Building infrastructure adapted to the future climate and weather patterns



- **Regional strategy** for climate resilient infrastructure development, followed with an **action plan** identifying concrete climate proofing measures, including green infrastructure
- **Enhanced national capacities** for replicating **EU best practices** regarding **financing and economic instruments** for climate proofing and green infrastructure
- **Guidelines** on **EU best practices** on economic instruments
- **Fund-raising mechanism** for climate resilient infrastructure development in the WB region
- **Evaluation mechanism for projects** integrating climate proofing and green infrastructure

The Strategy seeks to complement national strategies and relevant WB policy initiatives by fostering the integration of climate proofing into development projects, facilitating the process of planning the climate-resilient infrastructure and selecting the appropriate funding sources.

Preparation process



Outline of the document

Climate Change Projections
in the Region

Road Infrastructure
Vulnerability on Climate
Change

Resilience Planning in Road
Infrastructure Development

Risk Assessment and
Management – Case
Studies



Summary of the State of Climate
Proofing in the Western Balkans

Recommendations (Regional and
Country-specific)

Roadmap for Adaptation Planning

Annexes:
Checklist: Evaluation
mechanism for project
proposals
Guideline on Best Practices for
Financing Climate Proofing
Measures

General Regional Recommendations

Hydrometeorological institutes in cooperation with road agencies to set a hazard/risk assessment methodology, including the list of necessary data for its development.

Hydrometeorological institutes in cooperation with road agencies to develop missing probability hazard/risk maps and diagrams.

Responsible ministries of transport and environment in close cooperation with road agencies and hydrometeorological institutes to set-up national integrated information systems with all data/ hazard/risk maps and diagrams available.

Operationalize institutional cooperation for relevant data collection and risk assessment

Build and strengthen institutional capacities for infrastructure risk assessment, resilience planning and mainstreaming of climate adaptation measures across infrastructure sectors

Strengthen normative and institutional framework for resilience planning and design



Measures

Governance measures (18)

Elaborated into an Action Plan which covers responsibility, indicator, relevance to the objective and area of action

Technical measures (19)

Covering advantages, disadvantages, indicative costs, timing for implementation, governance, acceptability, feasibility and technical requirements



Thank you for your attention!

www.climaproof.net



Sonja Gebert
Associate Programme Management Officer
Vienna Programme Office
UN Environment Programme
sonja.gebert@un.org

www.unenvironment.org