



Overview of UNECE activities on pollution in the Western Balkans

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3 December 2024
Sarajevo





Set up in **1947** as one of five regional commissions of the United Nations **56 member countries** in Western and Eastern Europe, South-Eastern Europe, Caucasus, Central Asia and North America

As a multilateral platform, UNECE facilitates greater economic integration and cooperation among its member countries and promotes sustainable development and economic prosperity through:

- policy dialogue,
- negotiation of international legal instruments,
- development of regulations and norms,
- exchange and application of best practices as well as economic and technical expertise,
- technical cooperation for countries with economies in transition.



UNECE Multilateral Environmental Agreements (MEAs)



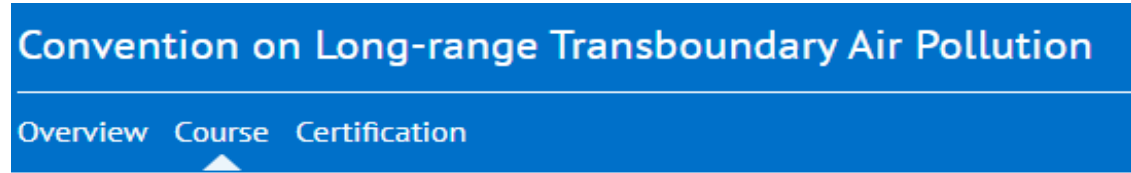
UNECE has negotiated in the framework of UNECE five environmental conventions:

- Convention on the Protection and Use of Transboundary Watercourses and International Lakes and its Protocol on **Water and Health**
- Convention on Long-range Transboundary **Air Pollution** and its Protocols
- Convention on the Transboundary Effects of Industrial Accidents
- Convention on Environmental Impact Assessment in a Transboundary Context and the Protocol on Strategic Environmental Assessment
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters and the Protocol on **pollutant release and transfer registers** (PRTR) - [publicly accessible online database, which covers releases and transfers of at least 86 pollutants from certain types of major point sources](#)



Convention on Long-range Transboundary Air Pollution - main areas of work:

- **International agreement setting emission reduction targets** for the following pollutants: sulphur, nitrogen oxides, volatile organic compounds, persistent organic pollutants, heavy metals, and particulate matter, including black carbon
- **Science underpinning policy:**
 - The Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) and the Working Group on Effects
- **Compliance monitoring**
- **Capacity development, awareness raising and communications**
 - ✓ Advisory services for policy development in AQM
 - ✓ Assistance in implementing emission reduction measures, including BATs
 - ✓ Technical support for emission inventories, modeling, and projections
 - ✓ Awareness-raising and information sharing within the region



❑ Starter course on the Convention and its protocols

Module 1: The Air Convention

Module 2: The Gothenburg Protocol

Module 3: The Protocol on Heavy Metals

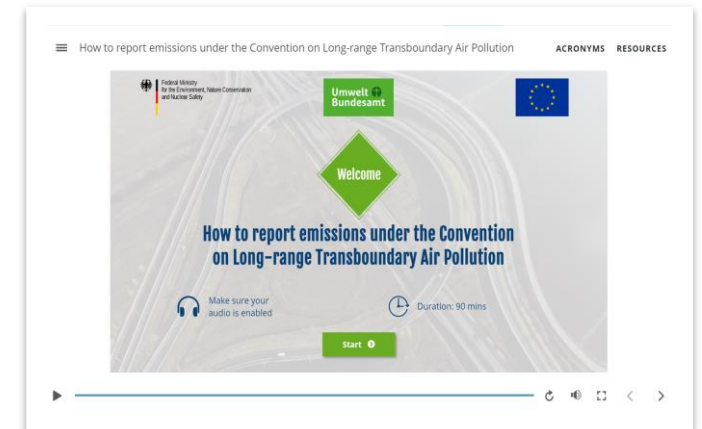
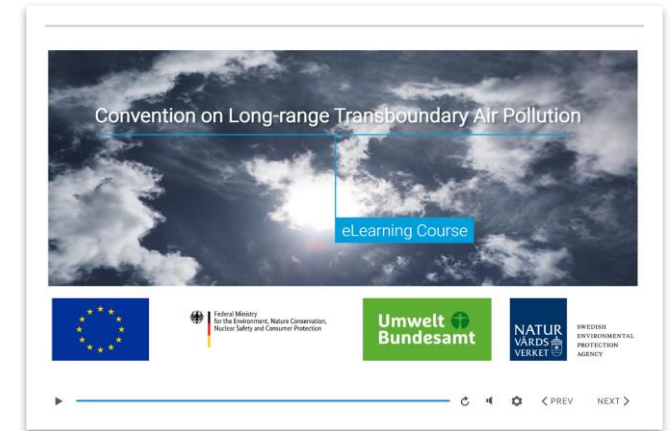
Module 4: The Protocol on POPs

❑ Introductory course on emission inventories

Module 1: Purpose and scope of emission inventories

Module 2: Reporting process and templates

Module 3: Emission estimation methods



2024-2025 workplan to the implementation of the Convention

Section IV. Capacity-building to promote ratification and implementation.

4.1. Alignment of national legal and policy framework with the provisions of the protocols

4.2. Introduction of BATs and/or other cost-effective measures in various economic sector for positive impacts on air and climate

4.3. Development of emission inventories, emission projections, and setting emission reduction targets

4.4. Promoting good practices and intersectoral cooperation, including on climate and biodiversity policies

4.5. Tracking progress, setting future priorities and promote peer-to-peer learning

Target countries: *Eastern and South-Eastern Europe, the Caucasus, Central Asia, Türkiye*

Capacity development activities in Western Balkans and the EECCA region



- **Workshop on emission inventories and reporting in Montenegro:** Improved emission inventory skills and reporting data quality – October 2024
- **Subregional Webinar for Western Balkans:** Focused on emissions estimation principles and data accuracy improvements – November 2024
- **Workshop on Air Pollution Impacts and on Best Available Techniques (BATs) for pollution control, including implementation strategies and cost analysis** – Paris, October 2024 (participants from Albania, Montenegro, North Macedonia)
- **Workshops on Gridded Emission and Data Reporting in Georgia and Armenia** (skills for spatial distribution of emission data and to facilitate the reporting)
- **Subregional Workshop on Integrated Planning for Climate and Air:** on methane management strategies and the alignment of AP&GHG emission inventories, Kazakhstan
- **Workshop on Good Agricultural Practices in Georgia** (low-emission agricultural practices in alignment with the Gothenburg Protocol, with practical demonstrations on a farm visit)
- **Project on Emission Projection in Moldova** (setting long-term emission reduction targets, advancing their progress toward Gothenburg Protocol ratification)



Environmental Performance Review

- **Review** of progress made by the country in improving environmental policy
- Voluntary exercise, Comprehensive approach, done by experts from UNECE member States and international organizations, strong involvement of the country under review
- **Recommendations:** addressed to the country under review, agreed by all UNECE member States, the country commits to implementation

Environmental monitoring and assessment assists member States in working with environmental data and information to ensure their timely flow and adequate assessment.

Transport, Health and Environment Pan-European Programme – designed to integrate environmental and health aspects into transport, mobility and urban planning policies.

Education for Sustainable Development (ESD)

Environmental Performance Reviews

ENVIRONMENT

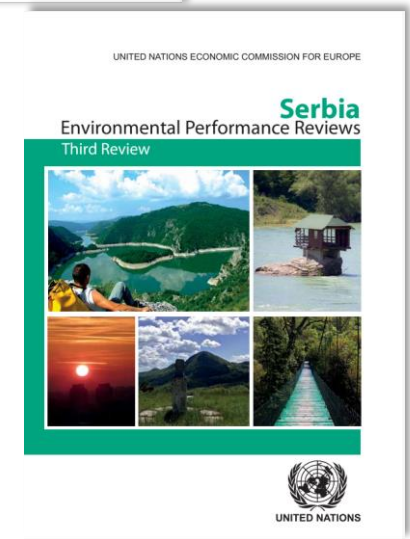
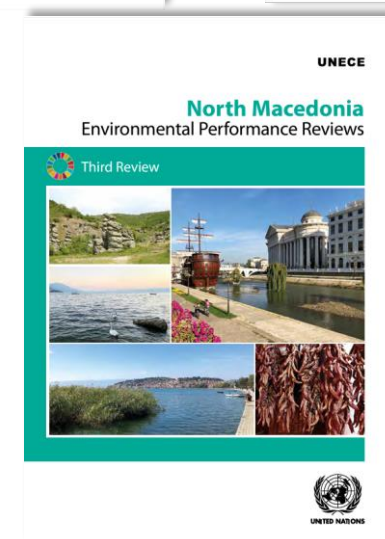
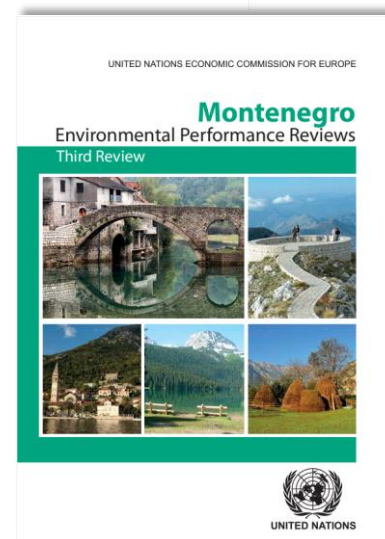
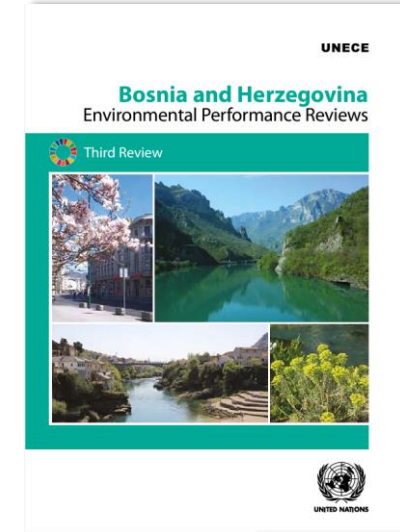
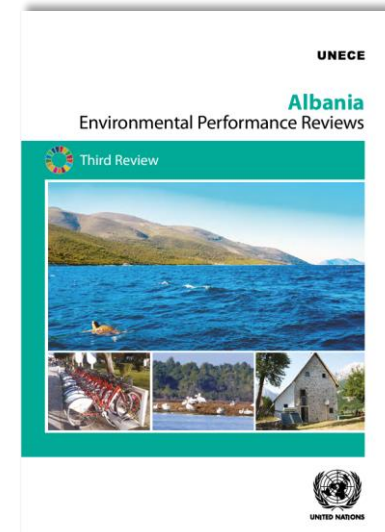
- 1st cycle (1994–2004 (2011)
- 2nd cycle (2000-2013)
- 3rd cycle (2012–2022)
- 4th cycle (2023–on-going)

3rd EPR

4th EPR

UNECE region

Albania	2018	
Bosnia and Herzegovina	2018	
Montenegro	2015	on-going
North Macedonia	2019	
Serbia	2015	





ENVIRONMENT

Crosscutting issues related to pollution across all five countries

- Air pollution (residential heating, industrial and transport emissions)
- Energy transition and clean energy (renewable energy development; coal dependency)
- Pollution charges and environmental economics
- Environmental health (impact of pollution on health; lack of comprehensive health monitoring)
- Waste management and pollution control (waste management systems; special waste streams)
- Institutional capacity and governance (enforcement and regulation and data collection and monitoring)
- EU integration and alignment with EU standards
- Public awareness and education

Collaborative approaches to environmental pollution

District heating and energy efficiency solutions for improved urban air quality, health and wellbeing

UN Environment Programme, Cities Unit

Why district heating to address air quality?

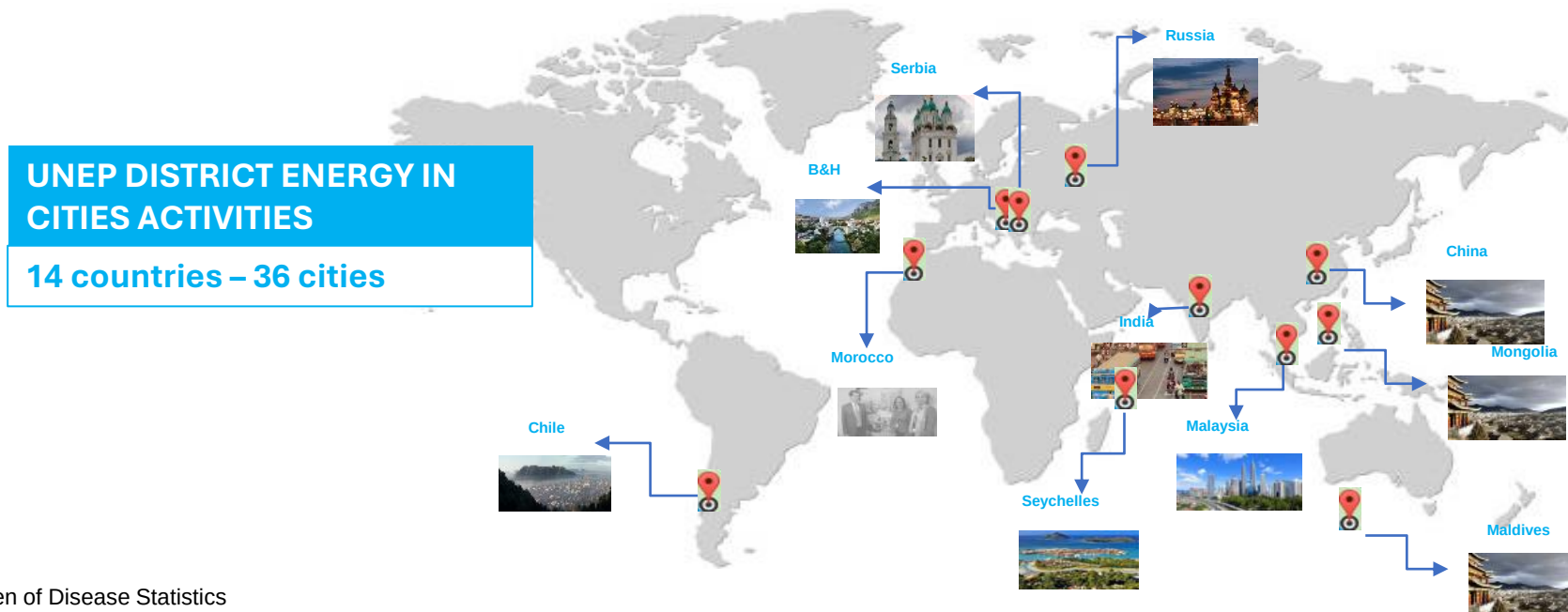
- Burning fuels in homes for heating caused 46 % of total primary emissions of PM2.5 in Europe – twice as much PM 2.5 as cars.
- An estimated half of premature deaths from PM 2.5, and 81% of those from household fine particulate pollution occur in Eastern and Central European countries¹
- For every 1000 excess deaths from air pollution, up to 167 can be avoided by addressing heating alone.¹
- Co-benefits for GHG mitigation, decarbonising heat, renewable energy development

How does district heating improve air quality?

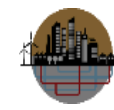
Combining energy efficiency interventions to reduce heating load, with modernising and expanding district heating to new areas:

1. Centralises emissions, allowing for much greater environmental control
2. Enables connection of new heating sources with much lower particulate and fine matter emissions, like bioenergy, solar thermal, electric heat pumps or geothermal

Diversification away from fossil fuels and action on air quality are two sides of the same coin



¹ Lancet Global Burden of Disease Statistics



PREVIOUS SITUATION

- Utility 70 % owned by the municipality.
- **Inefficient district heating network** with large heat and water losses and run 85% on heavy fuel oil.
- Utility near **financial collapse** due to expensive heavy fuel oil purchases.
- **Lack of strategy** on the long-term role of district heating in meeting city objectives.
- **Lack of interest** in early-stage feasibility from financiers.



UN ENVIRONMENT's INTERVENTION

- The CTCN and the DES Initiative undertook a **feasibility study** to refurbish the network and shift from fuel oil to biomass boilers.
- **Alternative business models** were suggested to engage the private sector.
- **EBRD showed interest** in the assessment results
- The Municipality launched an open **call for tender** to search for a potential private partner, change the business model and develop the project.
- A **new public-private partnership** was conformed. EBRD provided a loan to the Municipality to cover their part **€ 8.9 M.**

Environmental benefits of the project

-  Air pollutant reduction, e.g. SOx reduced **94%**
-  Heavy fuel oil reduced **93%**
-  Renewable share increased **75%**, CO2 reduced **91%**,





PREVIOUS SITUATION

- Annual PM_{2,5} concentrations above to WHO recommendations
- 4000 annual cases of fatal cardiovascular diseases with huge costs in medical expenses.
- Comparable levels to Bosnia and Herzegovina of heat-driven environmental pollution
- Wood burning for heating is responsible for approx. 56% of PM_{2,5} emissions at national level. In cities like Temuco it is 93%.



DISTRICT ENERGY
IN CITIES
INITIATIVE

UN ENVIRONMENT's INTERVENTION

- Temuco: district energy masterplanning, GIS energy mapping, long-term policy- investment plan, pre-feasibility studies of two projects, procurement plan to take one to tender
- 12 additional cities signed up and 10 projects identified for further feasibility or procurement - biomass or waste heat, geothermal and waste to energy plants
- District Energy in the Presidential Plan and National Plan for Decontamination to help replicate what Temuco has done
- New National Delivery Unit for District Energy Dedicated to Project Using Initiative Tools
- 2.4M US\$ of GEF 7 funds available to Chile to create a national market for district energy
- Creation of a regulatory framework under development



UKRAINE – Integrated Urban Energy project

Supporting decentralized energy for an environmentally sustainable reconstruction

UNEP and IRENA have established a multi-year and multi-city Integrated Urban Energy support program in Ukraine with support from the Government of Italy. Prepared in consultation with Ministry of Energy and Ukrainian cities to support action on urban energy systems planning and implementation.

Focus is on a sustainable reconstruction that addresses health and environmental challenges by focusing on **local, decentralised energy solutions** like district heating

ACTIVITIES IN 2 CITIES IN 2024, EXPANDING TO 5



Rapid technical assistance on through Urban Energy Helpdesk Ukraine.

Rapid assessment facility connecting local Ukrainian stakeholders with international expertise on integrated energy systems – e.g. review of local energy plans



Mapping and spatial assessments. The initiative will map resources, demands and renewable energy potentials (solar, geothermal, alternative renewables) in Ukrainian cities.



Pre-feasibility studies and priority investment plans. UNEP and IRENA are working with a range of stakeholders local and international to validate local energy business models through feasibility studies, in consultation with potential investors to facilitate scale-up



Scaling up and coordinating engagement. UNEP and IRENA are setting up working groups, local dialogues and local-international expert engagements for Ukrainian cities to facilitate urban energy knowledge sharing and capacity building across in-country efforts

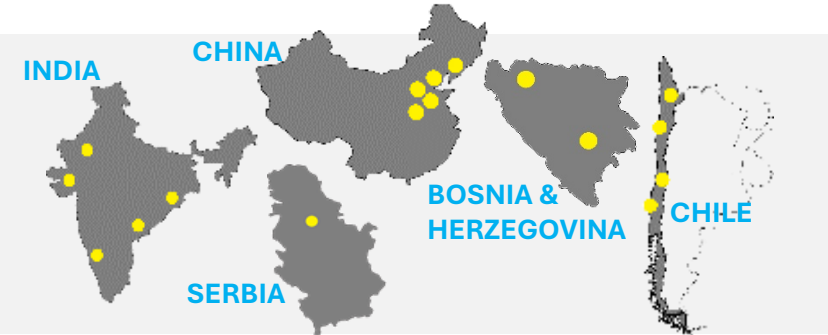
HOW UNEP CAN SUPPORT

UNEP is combining its support on district heating to countries alongside wider urban energy strategies through a range of technical assistance activities. We can work with national governments on incorporating local/urban approaches into national energy transition/pollution plans.

CAPACITY BUILDING

Increase **knowledge** of multiple benefits of district energy, inc. on air quality

- ASSESSMENTS
- LOCAL PLANNING POLICIES
- STAKEHOLDER COORDINATION
- BEST PRACTICE SHARING



TECHNICAL ASSISTANCE

Provide **technical assistance** to identify projects, design business models, support procurement

- PRE-FEASIBILITY
- CITY-WIDE DES PLANNING
- TRAINING WORKSHOPS
- PRICING STRUCTURES
- NATIONAL SUPPORT PROGRAMMES
- MRV



PIPELINE CREATION

Scale-up through the establishment of multi-stakeholder coordination units, trainings, dissemination

- TOOLS AND METHODOLOGIES
- TRAINING THE TRAINERS
- MENTOR CITIES
- VIRTUAL PLATFORM



To provide full assistance UNEP is open to working with countries on fundraising for technical assistance. Denmark and GEF supported the Serbia/China/Chile work, BiH supported by CTCN, Italy is supporting in Ukraine.

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Contacts:

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Overview of UNEP pollution in the Western Balkans – Elena Stefanoni

*Regional meeting on Collaborative Approaches to Environmental Pollution and One Health in
the Western Balkans*

Sarajevo 4 - 5 December 2024

South-Eastern Europe (de)Pollution Platform (SEPP): To facilitate the creation of innovative partnerships on pollution in the region; To foster transboundary cooperation on pollution related policies; To support exchange of information, know-how and provide a strategic regional platform for discussion Activities **2019 - 2022**



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

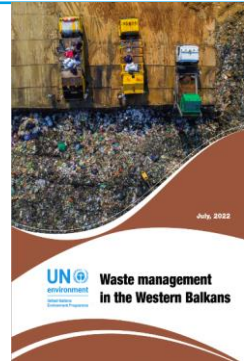
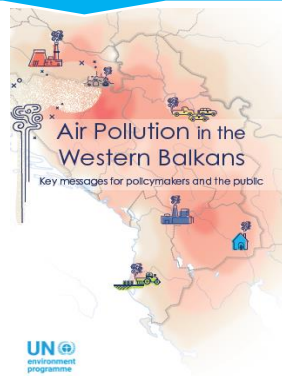
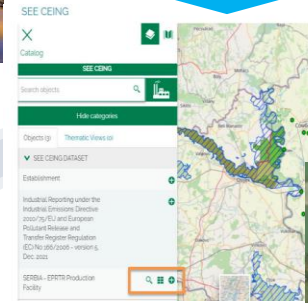
Platform Sub-Regional Consultation Meeting. Identification of SEPP priorities: Environment and Health; Rule of Law



2021 – Webinars on Environment and Health and PPP



2019–2021 SEE-CEING Project exchange environmental info and good practices
GEF LM in Serbia (2015 – 2021)



2022 - Waste assessment report



South-Eastern Europe (de)Pollution Platform (SEEPP) Activities 2024 - 2025

- ❖ Western Balkans Regional Waste Conference (26-27 March 2024)

- ❖ Regional E-waste Monitor for the Western Balkans

Towards Zero Waste



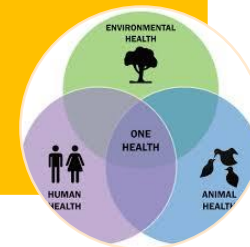
- ❖ Innovative circular economy approaches to agricultural and municipal waste management for better air quality in Asia Pacific and the Western Balkans

Circularity in Sectors



- ❖ Contaminated Sites in BiH-SRB
- ❖ Policy action for mitigating health impacts of air pollution from high-impact sectors

Pollution and Health



Agenda 2030 Multilateral Environmental Agreements (MEAs)





Western Balkans Regional Waste Conference, Vienna, 26th - 27th March 2024 - MAIN TAKEAWAYS

- ❖ Importance of bolstering waste management globally and the need to promote sustainable consumption and production patterns.
- ❖ Data and digitalization need to be improved, mandatory schemes to ensure that polluters pay, adopt inclusive approaches to engage citizens, just transition into decision making, build national expertise.
- ❖ E-waste: the involvement of the informal sector would be extremely important in the process of e-waste management. Manual dismantling of the e-waste would be essential for the process, but it is necessary to ensure that there is not adverse effect on human health.
- ❖ The weak environmental monitoring was emphasized during the discussion: with reference to landfill fires and air pollution, the soil monitoring is also missing, therefore the identification of the main sources of soil pollution / contamination remains a challenge.

Regional E-waste Monitor for the Western Balkans- (2023)



❖ **Project objective:** to assist the beneficiary countries in making digitalization policies and strategies green and sustainable as well as based on evidence, with particular focus on e-waste management



❖ **Results achieved:**

- Baseline Assessment, including country profiles and regional statistics trainings with NSOs
- Regional E-waste Monitor and Media Campaign



Strengthening the capacity in the management of Contaminated Sites in BiH and Serbia to reduce pollution into the environment (2023 - 2026)

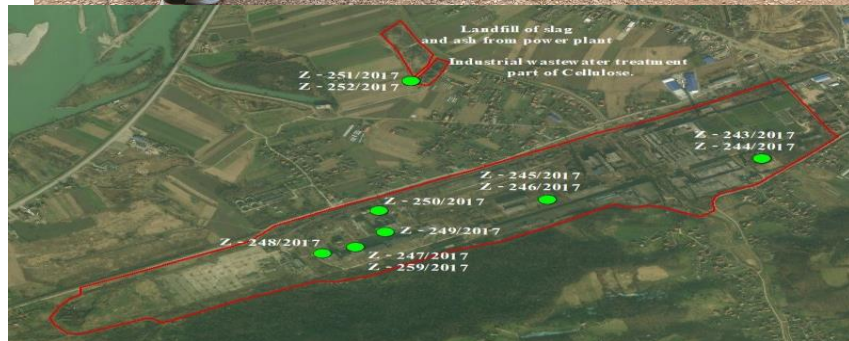


Objective: To reduce pollution, increase environmental protection practices and improve human health, through strengthening institutions and capacities in identifying and prioritize pollution-prevention and related environmental priorities

**1. Coordination,
strengthening
networks**

**2. Strengthening
capacities**

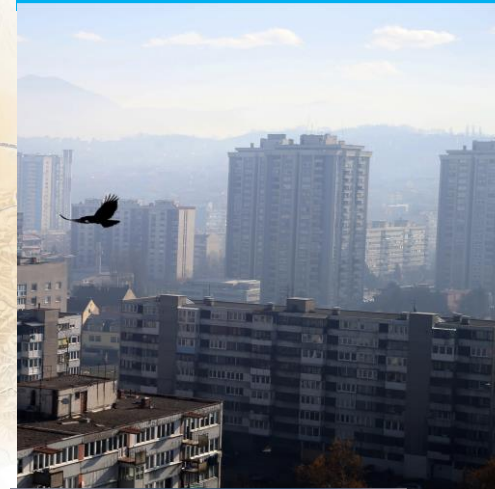
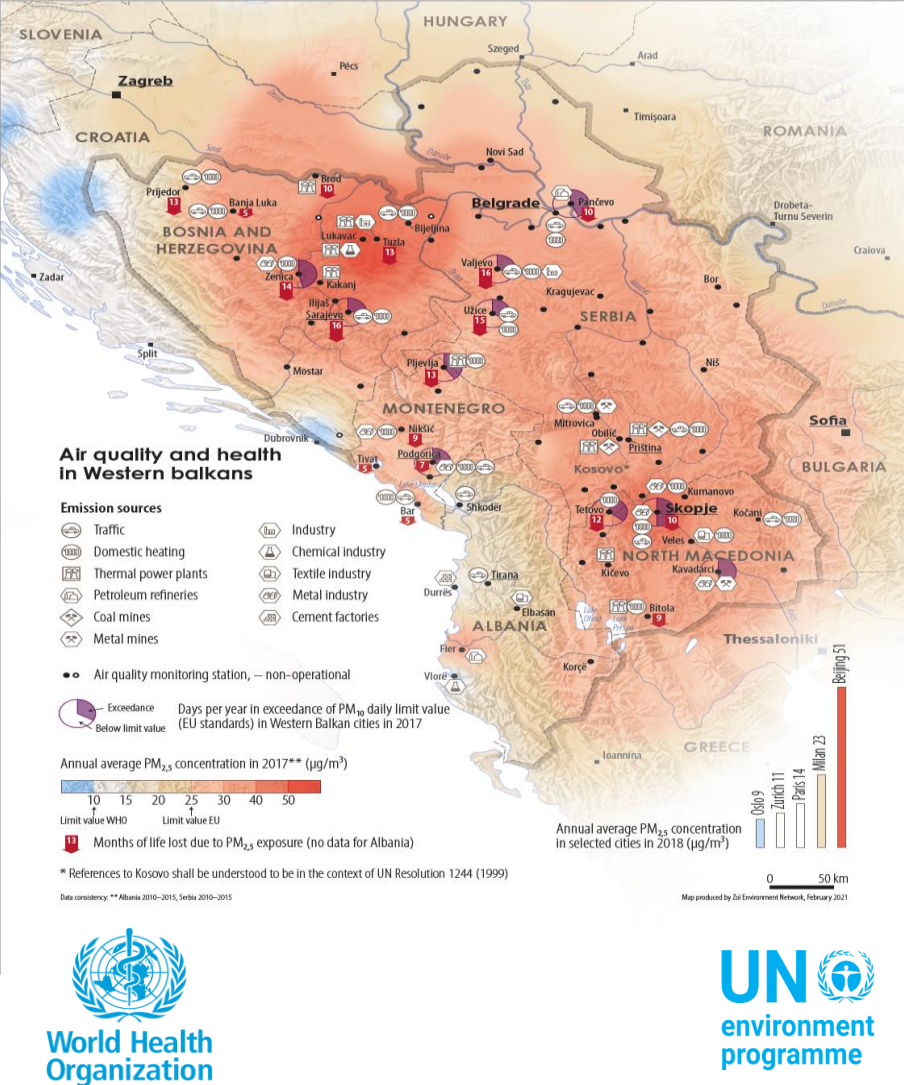
**3. Pilot sites
preliminary
characterization**



Background: GEF project Enhanced Cross-sectoral Land Management through Land Use Pressure Reduction and Planning in Serbia, Co-funded by Italy
SEPP – Phase I

Policy action for mitigating health impacts of air pollution from high-impact sectors

Objective: To improve evidence-based policymaking and action to reduce air pollution from high-impact sectors and their effects on human health



1: Set of recommendations to enhance existing policy options in the identified high impact sector

2: Prioritisation of air quality in the development of policies taking into account the cost of inaction on air pollution

3: Advocacy on the socio-economic costs of air pollution-induced health impacts

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

Thank you

Elena Stefanoni
elena.stefanoni@un.org

<https://www.unep.org/beatpollution/>

<https://www.seepollutionplatform.org>

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

The Climate and Clean Air Coalition (CCAC) and AQMx

UNEP Regional Meeting in the Western Balkans | December 4th 2024

Juliette Laurent, Air Quality Specialist, CCAC Secretariat

Agenda

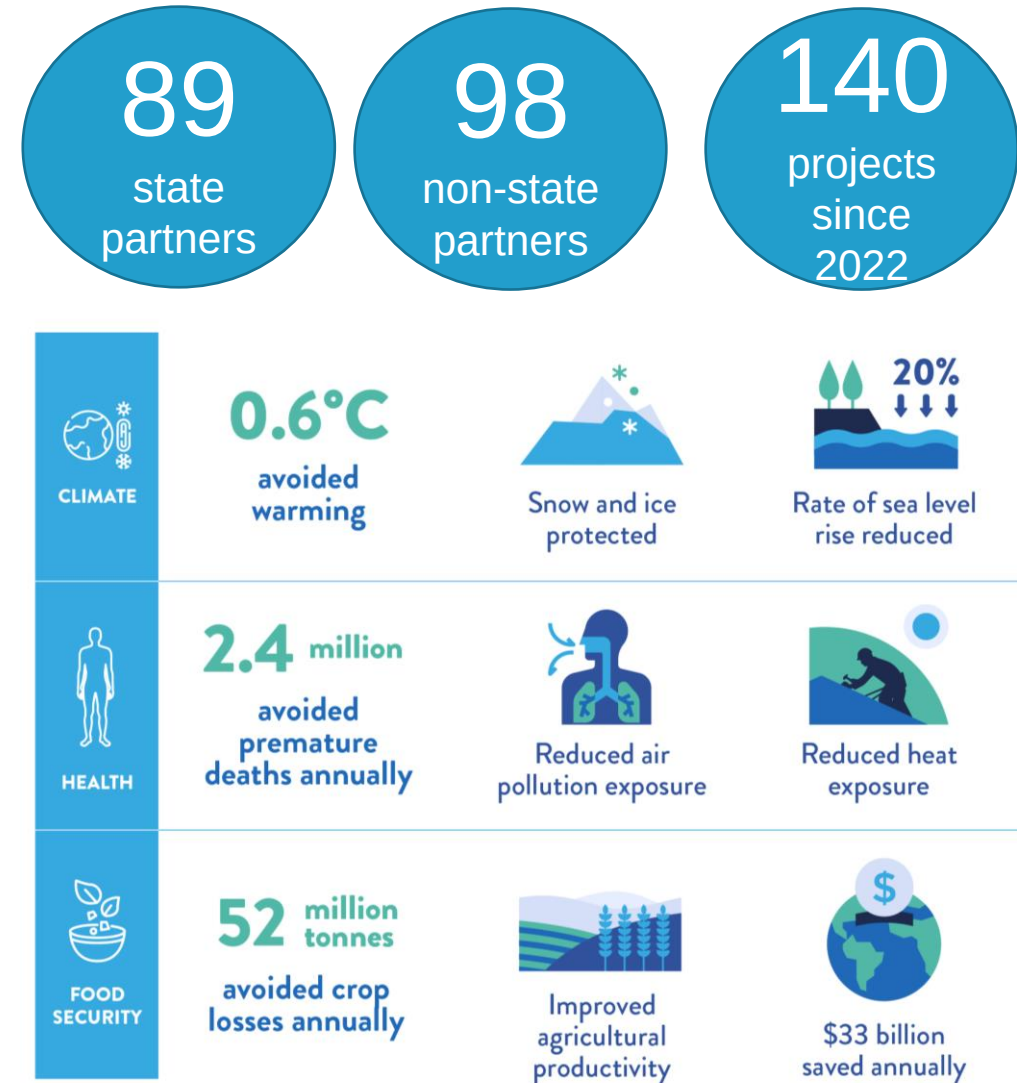


a UNEP convened initiative

- 1** The Climate and Clean Air Coalition (CCAC)
- 2** Our Clean Air Flagship (2024-2026)
- 3** The Air Quality Management Exchange Platform (AQMx)

WHO WE ARE

- Started in 2012 and convened by UNEP, the CCAC is a voluntary partnership to reduce **short-lived climate pollutants (SLCPs)** including black carbon, methane, ozone, and hydrofluorocarbons.
- An **integrated approach** to climate and clean air, with low-cost, readily available solutions to be implemented this decade.
- Essential to keeping 1.5 alive, and generating significant **co-benefits** to health, food security, economic development & ecosystems.
- High-level ambition, support to national & transformative action, and policy-relevant research and analysis.



CCAC Clean Air Flagship: Vision



a UNEP convened initiative

SAVE LIVES

and improve well-being by bringing all the CCAC resources and network assets to bear in supporting governments to achieve cleaner air as quickly as possible, consistent with improved air quality interim targets established by the WHO Air Quality Guidelines

SLOW CLIMATE CHANGE

by taking full advantage of win/win opportunities to reduce the emissions of health-harmful pollutants and short-lived climate pollutants simultaneously, by coordinating across all responsible agencies and relevant planning mechanisms

MAXIMIZE CO-BENEFITS

to improve agricultural productivity, economic development and the overall quality of life. The Flagship will provide a global voice focused on clean air solutions to mobilize CCAC Partners and other key actors within the context of the broader energy transition to achieve the Sustainable Development Goals



CCAC Clean Air Flagship: Goals

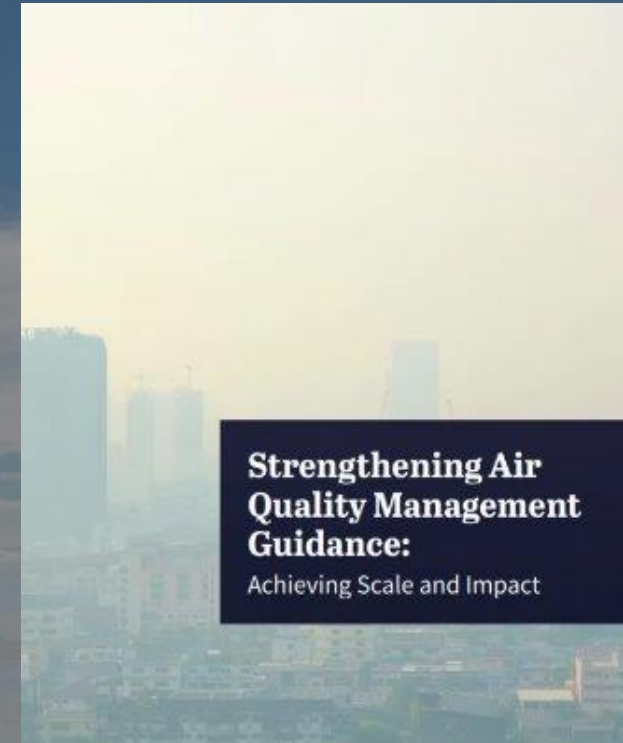
- 1 Amplify and strengthen regional and multi-level **governance, cooperation, and capacity** on integrated climate and air quality management
- 2 Strengthen **science communication** to support policy action and fill critical information gaps, especially on the **economic costs and benefits** of clean air action, and through integrated inventories monitoring and air pollution modelling
- 3 Elevate air quality agenda through **advocacy**, by highlighting readily available solutions, providing capacity support for data and implementation, and reinvigorating the BreatheLife Network
- 4 Promote transparency to encourage **private sector action** on integrated climate and air quality management
- 5 **Mobilize finance** for air quality agenda by raising US\$30-40 million through a Clean Air Sprint

Background on AQMx: Needs assessment report

Key finding 1: Lack of capacity/technical or other knowledge to carry out work was identified as the 2nd biggest barrier faced by air quality managers (after lack of access to funding).

Key finding 2: Delivery of guidance needs to be harmonized, accessible, and facilitate cross-learning.

Key finding 3: Guidance needs to be expanded and strengthened to address critical gaps, and should be adapted to different contexts and capacities.



Strengthening Air Quality Management Guidance (Clean Air Fund, GHV, UNEP – 2023)

Background on AQMx: UNEA-6 Resolution (March 2024)

- "Promoting regional cooperation on air pollution to improve air quality globally"
- This resolution encourages Member States to accelerate efforts to improve air quality globally, including by setting national ambient air quality standards.
- ... It requests UNEP to form and facilitate an air quality network and provide an **updated global online platform for information sharing.**

What is AQMx?

- A "**one-stop-shop**" for knowledge and guidance on air quality management
- A platform which acts as a **trusted source** for air quality managers worldwide, supporting them in the implementation of effective clean air policies and in meeting the WHO air quality guidelines and interim targets
- **A collaborative process, harnessing collective knowledge:** members of the CCAC Clean Air Task Team and Air Quality Managers focus group have taken part in the review process for the curated guidance to ensure buy-in

And soon...

- A community of users engaging in knowledge and best practice sharing through Communities of Practice and peer-to-peer exchange

AQMx Curated Guidance

8 Curated Guidance pages for Stage 1 jurisdictions, with 10 basic steps to get started with AQM.

Air Quality Monitoring



Source attribution



Emissions Inventory



Health Impact Assessment



Sustainable Development Benefits Assessment



Decision Support



Public Engagement and Communication



Legal Framework, Policy Design and Implementation



AQMx Resource Exchange Library

800 resources in the Resource Exchange Library, to be updated over time.

Suggestions for additional resources are welcome!

AQMx Resource Exchange Library

Filters

Reset All

AQM Activity Type



Resource Type



Theme



Region



Location



Organisation



Governance level



Capacity



Language



Date Range



Search the AQMx Resource Exchange Library



Sort: Newest to Oldest



A call to action: Air pollution in early childhood

The evidence is clear: Air pollution is harmful to early childhood, and can affect the health and development of children. It is important to take action to reduce air pollution and protect children's health. This report provides a call to action for governments, businesses, and individuals to take action to reduce air pollution and protect children's health.



A clean, healthy, and sustainable environment underpins the Nurturing Care Framework, influencing health and development of young children.

Young children in the Asia-Pacific face the highest burden of air pollution.

A call to action: Air Pollution in Early...

2024

Reports, Case Studies & Assessments

Accelerating the Health Benefits of Scaling Clean Household Energy in India

A State-wise Cost-Effectiveness Analysis

July 2024



Accelerating the Health Benefits of Scaling...

2024

Reports, Case Studies & Assessments

AI-driven environmental sensor networks and digital platforms for urban air pollution monitoring and modelling

Abstract

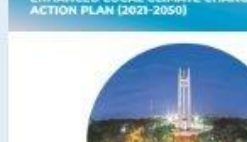
Recent advances in digital technologies (AI) have opened up new opportunities for monitoring air pollution and its health impacts. AI-powered sensor networks and digital platforms can provide real-time monitoring and modelling of air pollution, enabling better understanding of its sources and impacts. This paper presents a review of AI-driven environmental sensor networks and digital platforms for urban air pollution monitoring and modelling, highlighting their potential to improve air quality management and public health outcomes.

AI-driven environmental sensor...

2024

Scientific publications

AIR QUALITY AND HEALTH IMPLICATIONS OF THE QUEZON CITY ENHANCED LOCAL CLIMATE CHANGE ACTION PLAN (2021-2050)



Air Quality and Health Implications of the...

2024

Reports, Case Studies & Assessments



STATE OF GLOBAL AIR /2024

A SPECIAL REPORT ON GLOBAL EXPOSURE TO AIR POLLUTION AND ITS HEALTH IMPACTS, WITH A FOCUS ON CHILDREN'S HEALTH

HEI IHME

Air Quality and Health in Cities - State of...

2024



AIR QUALITY ASSESSMENT FOR TASHKENT

Air Quality Assessment for Tashkent and the...

2024



Quality Communications Tool

Air Quality Communications...

2024



Air Quality Management for Decision Makers in Indian Cities

Air Quality Management for...

2024

AQMx Next Steps

- **Development of Curated Guidance for AQM for stages 2-5**
- **Development of Sectoral Guidance for key emitting sectors**
- **Training and outreach workshops at the (sub)regional level**
- **Establishment of regional chapters and Communities of Practice for air quality managers**

AQMx Feedback Form



a UNEP convened initiative

We would love to get your feedback and suggestions on the AQMx platform!

Your inputs would be appreciated for the development of AQMx phase 2.

**AQMx - Feedback and suggestions
from UNEP Regional Meeting for
the Western Balkans particip**



Thank you for your attention!



Photo: Tirana, the view from the aircraft, 2024.

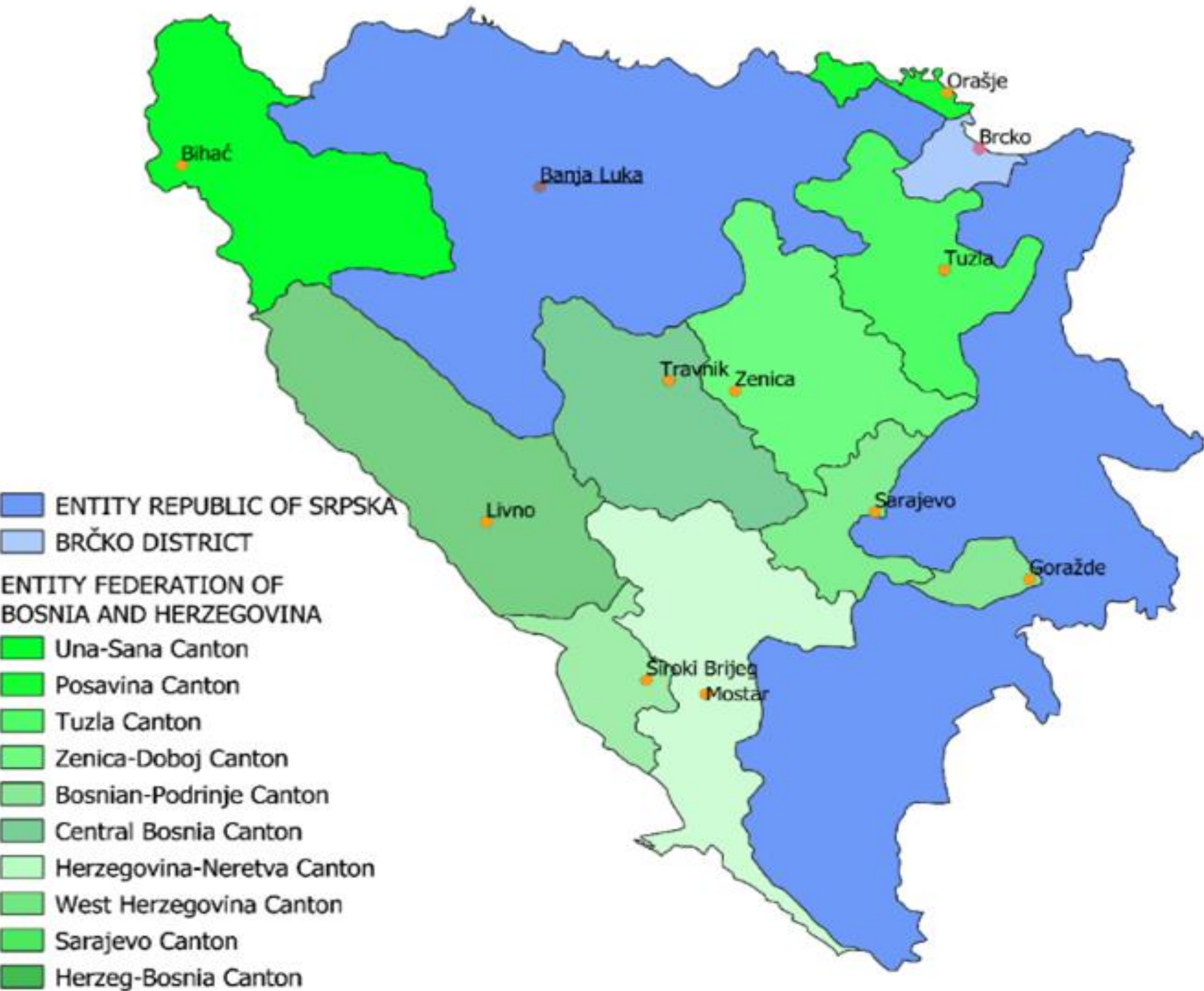
Available data on Contaminated and Potentially Contaminated sites in the Bosnia and Herzegovina

Prof. dr Marijana Kapović Solomun

Sarajevo, 2024

ADMINISTRATIVE STRUCTURE

DECENTRALIZED STATE



Republic of Srpska Entity

Ministry of Agriculture, Forestry and Water Management of RS



Federation of BiH entity

Ministry of Agriculture, Forestry and Water Management of FBiH (11 Ministries)

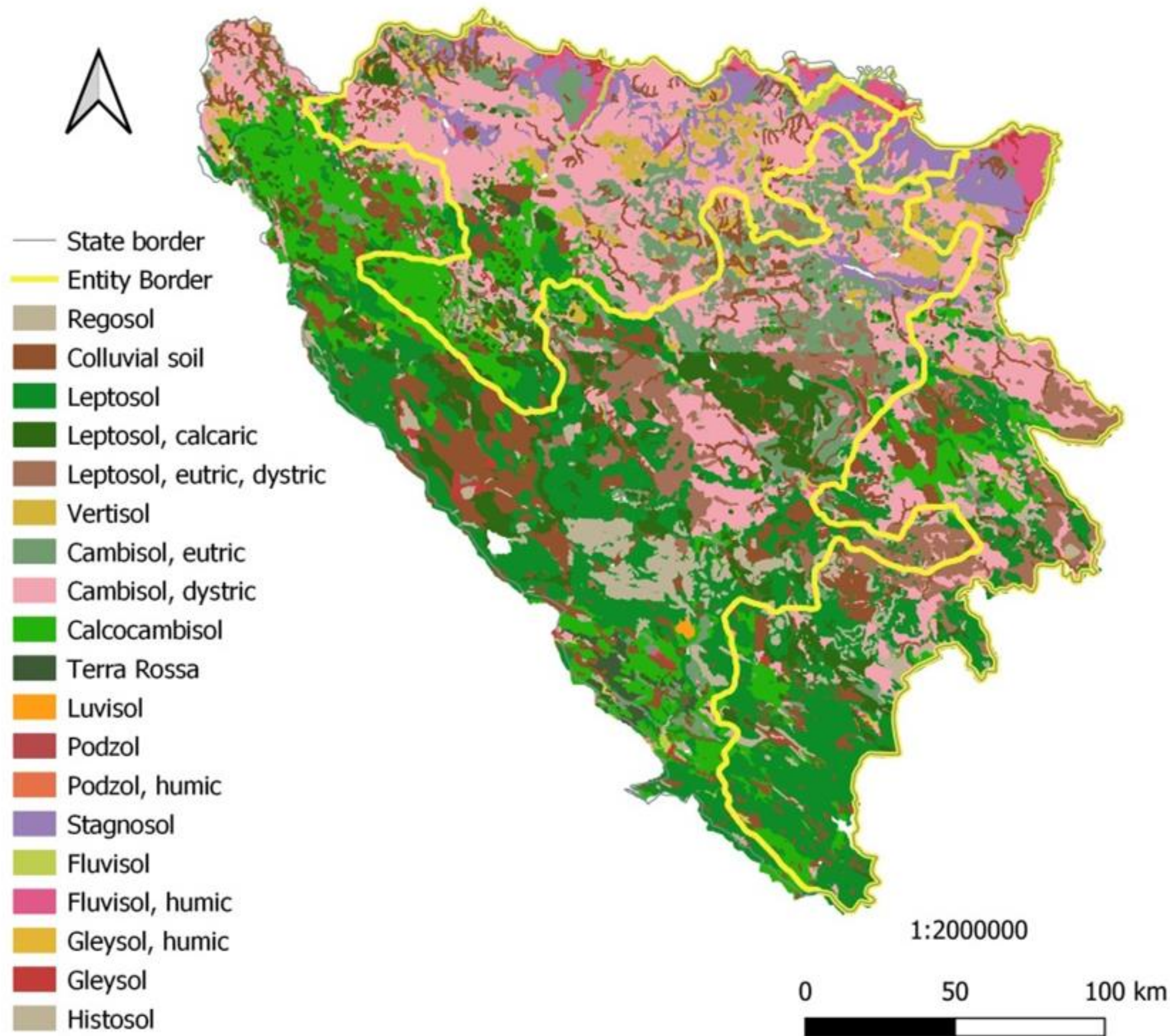


District Brčko

Ministry of Agriculture, Forestry and Water Management of BD



SOILS AND LAND IN BOSNIA AND HERZEGOVINA - JURISTICTION OF THE ENTITIES



Contaminated and potentially contaminated sites

Data, existing policy and strategic framework on the level of:

- Republika Srpska Entity
- Federation of Bosnia and Herzegovina Entity
- Brčko District of Bosnia and Herzegovina

Potentially contaminated and contaminated sites:

The Regulation on plants and facilities for which an environmental impact assessment is mandatory and plants and facilities that can be built and put into operation only if they have an environmental permit (***Official Gazette of the Federation of Bosnia and Herzegovina 19/04***)

The Regulation on facilities that can be built and put into operation only if they have an environmental permit (***Official Gazette of the Republic of Srpska 124/12***)

District Brčko?

FEDERATION OF BIH

Potential contaminants defined by The Regulation on plants and facilities for which an environmental impact assessment is mandatory and plants and facilities that can be built and put into operation only if they have an environmental permit (*Official Gazette of the Federation of Bosnia and Herzegovina 19/04*)

1 Energy Production:

- 1.1 Plants for the production of thermal or electrical energy
- 1.2 Oil and gas refineries
- 1.3 Coke plants
- 1.4 Plants for coal gasification and production of liquid fuels

2 Production and Processing of Metals:

- 2.1 Integrated factories for the initial melting of cast iron and steel
- 2.2 Plants for the production of non-ferrous raw metals from ore, concentrate or secondary raw materials through metallurgical, chemical or electrolytic processes
- 2.3 Plants for processing in the ferrous metallurgy
- 2.4 Ferrous metallurgy foundries
- 2.5 Plants for the production of non-ferrous raw metals, for smelting incl. alloying, for surface treatments
- 2.6 Plants for surface treatment of metals and plastic materials

3 Mineral Industry:

- 3.1 Plants for the production of ceramic products
- 3.2 Plants for the production of artificial mineral fibers

4 Chemical Industry:

- 4.1 Chemical plants for the production of basic plant protection products and biocides
- 4.2 Chemical plants for the production of explosives
- 4.3 Production of paints and varnishes, elastomers and peroxides

5 Waste Management:

- 5.1 Plants for the incineration of municipal waste
- 5.2 Plants for the disposal of non-hazardous waste
- 5.3 Landfills
- 5.4 Unsanitary landfills - dumps managed locally

6 Other Activities:

- 6.1 Industrial plants for the production of pulp and paper
- 6.2 Plants for pre-treatment (washing, bleaching, etc.) or dyeing of yarns or textiles
- 6.3 Plants for tanning hides
- 6.4 Food processing plants incl. slaughterhouses; treatment of vegetable and animal raw materials, milk processing
- 6.5 Plants for animal fattening
- 6.6 Gas stations and facilities for the storage of oil, petroleum products, and biofuels
- 6.7 Airports for civil passenger transport
- 6.8 Railway marshalling yards
- 6.9 Cemeteries
- 6.10 Plants for the treatment of municipal wastewater.

REPUBLIKA SRPSKA

Potential contaminants defined by The Regulation on facilities that can be built and put into operation only if they have an environmental permit (*Official Gazette of the Republic of Srpska 124/12*)

a) energy industry:

- 1) thermal power plants with a thermal power of 10 MW and more,
- 2) internal combustion engines with a power of 2 MW and more,
- 3) oil, oil derivatives and gas storage facilities in quantities of 5,000 t and more,
- 4) devices for the transmission of electricity by surface transmission lines of voltage 220 kV and 110 kV, the length of which is less than 15 km;

b) chemical industry:

- 1) plants for the production of basic plastic materials (polymeric synthetic fibers),
- 2) plants for the production of synthetic rubber,
- 3) plants for the production of dyes and pigments,
- 4) plants for the production of soaps, detergents, hygiene and cleaning products and cosmetic products with an annual capacity of 15,000 t and more,
- 5) plants for the production of carbon or electrographite by combustion or graphite for tubes;

c) metal industry:

- 1) hot and cold rolling mills, with an annual capacity of 10,000 t and more,
- 2) forges with an annual capacity of 10,000 t and more,
- 3) application of molten metal coatings, with an annual processing capacity of 5,000 t and more,
- 4) plants for the production of raw non-ferrous metals from ore, concentrates or secondary raw materials by metallurgical, chemical or electrolytic processes,
- 5) plants for the surface treatment of metals and plastic materials where electrolytic or chemical processes are used and where the volume of the treatment tank is 10 m³ and more,
- 6) plants for the industrial production of metal powder,
- 7) plants for the production of lead batteries;

g) mineral industry:

- 1) lime production plants,
- 2) plants for calcining gypsum, bauxite, magnesite, diatomaceous earth, quartzite or clay into fireclay,
- 3) plants for the production of glass, including glass wool, with a daily capacity of 10 t and more,
- 4) plants for the melting of mineral substances, including the production of mineral fibres, with a daily capacity of 10 t and more,
- 5) plants for the production of ceramic products by firing, in particular roof tiles, bricks, refractory bricks, pottery made of flint, clay or porcelain, with a daily capacity of 30 t and more,
- 6) plants for the production of concrete and building materials using cement, with a capacity of 100 m³/h and more,
- 7) plants for the production or melting of asphalt, tar and bitumen, with a production capacity of 25 t/h and more;

d) extractive industry:

1. exploitation of clay, gravel and sand with an annual capacity of 100,000 m³ and more,
2. exploitation of mineral raw materials by river or lake dredging, with an annual capacity of 100,000 m³ and more;

đ) agriculture:

- 1) facilities for intensive breeding of poultry, pigs, large and small livestock with the specified capacity and more: 8,000 places for the number of pigs, 5,000 places for chickens, 500 places for the production of pigs over 30 kg in weight, 200 places for sows, 200 places for large livestock, 300 places for other types of livestock (sheep, goats);

Potential contaminants defined by The Regulation on facilities that can be built and put into operation only if they have an environmental permit (*Official Gazette of the Republic of Srpska 124/12*)

e) wood industry:

- 1) sawmills with an annual capacity of 15,000 m³ and more,
- 2) plants for the production of wood products (chipboard, hardboard, media, plywood), with an annual capacity of 15,000 m³ and more,
- 3) plants for the processing, treatment and refinement of wood, with an annual capacity of 15,000 m³ and more;

h) food industry:

- 1) slaughterhouses and industrial slaughterhouses, with an annual carcass capacity of 3,000 t and more,
- 2) plants for the production, treatment, processing or processing of products from:- raw materials of animal origin (except milk), with a daily production capacity of final products of 25 t and more,- raw materials of plant origin, with a daily capacity of finished products of 100 t and more;
- 3) production or refining of sugar or starch production, with an annual capacity of 3000 t and more,
- 4) processing and milk processing, with an annual quantity of milk processed or processed of 5000 t and more,
- 5) breweries and malting plants, with an annual capacity of 100,000 hl and more,
- 6) installations for the production of alcoholic beverages, excluding alcoholic beverages and vinegar, with a daily capacity of 3000 l and more;z)

surface treatment:

- 1) installations for the surface treatment and treatment of materials, objects or products using organic solvents, in particular for clothing, printing, protective coating, degreasing, waterproofing, sorting, painting, cleaning or impregnation, with an annual consumption capacity of organic solvents of 75 t and more;

i) other projects:

- 1) mobile plants for the treatment of all types of waste,
- 2) mobile plants for mixing and shaping explosives,
- 3) pipelines for the transport of wastewater with a length of 20 km and more,
- 4) coal and ore storage with a capacity of 10,000 t and more,
- 5) natural gas storage with a capacity of 100 m³ and more,
- 6) plants for dry distillation of coal (gas plants, smoldering furnaces, etc.),
- 7) plants for the production of charcoal with an annual capacity of 500 t and more,
- 8) plants for the capture and processing of groundwater, processing and packaging of water, with a capacity of 10,000 l/h and more,
- 9) mills and dryers with a daily capacity of 200 t and more,
- 10) cold storage facilities (without raw material processing facilities) with a capacity of 10 t and more of refrigerant in the system,
- 11) transformer stations and switchgear

Potentially Contaminated sites in Bosnia and Herzegovina⁸



National implementation plan on Stockholm Convention in BiH (2015) – main outcomes:

1. There is no monitoring of environment in both entities of BiH, towards the presence of POPs, or official evidence of the contaminated sites.
2. Bosnia and Herzegovina, has outdated technology used in the basic industry but also other problems related to the environment.
3. During the creation of the inventory, the Group identified more than 10 locations of potential contaminated areas where some industrial activity took place or is still taking place. There was no field research of this sites.

Potentially Contaminated sites in Bosnia and Herzegovina 9



POPs pesticides - large production plants (AIPK "Mladen Stojanović" - Nova Topola, Plantaže Gradiška - Trebovljani, PIK "Šamac" - Šamac, Economy of the Agricultural Institute Banja Luka - Banja Luka - Trapisti, Agricultural Institute Butmir - Sarajevo HEPOK" Mostar, OOUR - for the purchase and processing of "Bosanac" tobacco in Orašje) where intensive agricultural production took place;

Polychlorinated biphenyls (PCBs) - locations where the presence of PCBs and equipment containing PCBs was determined (power distribution in Sarajevo, Maglaj, Tešnje, Jelah, Visoko, Vitez, brown coal mines in Zenica, Breza, Đurđevik, hydropower plant in Čapljina, Jelšingrad steel foundry Livar a.d. in Banja Port and two authorized operators for the collection of hazardous waste in Tuzla, Kemokop d.o.o. and Lukavac, Kemis d.o.o.);

Dioxins and furans - oil refineries in Brod and Modriča, former chloralkali complex in Tuzla, Visoko leather factory, former Incel industrial complex in Banja Luka, Arcelor Mittal ironworks in Zenica, alumina factory in Zvornik, sludge landfill in the vicinity of the aluminum factory in Mostar, lead and zinc mines in Srebrenica and Vares, various wild dumping sites, including pesticides in the lower reaches of the Vrbas River;

These areas need to be further investigated to verify their contamination, as part of another project, or in the phase of the next inventory audit.

Contaminated sites in Federation of Bosnia and Herzegovina

Name of Location	Municipality	Activity	Type of soil contamination
Thermal power plant	Tuzla	Coal mine	heavy metals, sulfur,...(ash and slug)
Thermal power plant	Kakanj	Coal mine	heavy metals, sulfur (ash and slug)
ArcelorMittal	Zenica	Iron ore processing	heavy metals
Global Ispat Coke Industry Lukavac (GIKIL)	Lukavac	Production of coke, maleic anhydride, ammonium sulfate, calcium ammonium nitrate, crude benzene and crude tar	Sulfur oxides, nitrogen oxides, carbon oxides, dust particles, polycyclic aromatic compounds, PAHs and heavy metals
Šiřecam Soda Lukavac	Lukavac	Production of synthetic soda	Wastewater from the soda production process is drained to the "White Sea" ("Bijelo more") settling tanks. The waters that are drained to the "Bjelo More" sedimentation tanks mostly contain: dissolved substances (CaCl2, NaCl, Na2SO4),and suspended matter (CaCO3, CaSO4, Ca(OH)2, SiO2, MgCO3, Al2O3 and Fe2O3)
Iron mine	Vareř	Iron mine	Heavy metals

Data source:
Federation Bosnia and Herzegovina: Project: Models of protection and remediation of soil contaminated with heavy metals in industrial areas of the Federation of Bosnia and Herzegovina, Environmental Protection Fund of the Federation of Bosnia and Herzegovina, Sarajevo 2020; Data provider: Prof Hamdija Čivić

Contaminated sites in Republika Srpska

Name of Location	Municipality	Activity	Type of soil contamination
Iron mine	Vareš	Iron mine	Heavy metals
Thermal power plant	Ugljevik	coal mine	heavy metals, sulfur,...(ash and slug)
Thermal power plant	Gacko	Coal mine	heavy metals, sulfur,...(ash and slug)
Thermal power plant EFT	Stanari	Coal mine	heavy metals, sulfur,...(ash and slug)
ArcelorMittal	Prijedor	Iron mine	heavy metals
"Boksit" Milići	Milići	Bauxite mine (aluminium industry)	Al and other heavy metals (red mud)
Gross" doo	Srebrenica (Sase)	Lead (Pb) and Zinc (Zn) mine	Pb, Zn and other heavy metals
Oil refinery	Modriča	Oil refinery	gudron, heavy metals
Oil and petroleum refinery	Brod	Oil and diesel refinery	gudron, heavy metals
"Incel" business zone	Banja Luka	Cellulose (paper production plant)	POPs
Petrovo, asbestos mining	Petrovo	Asbestos exploitation, No exploitation at the moment	Asbestos mud

Data source:

Republic of Srpska: Environmental Protection Strategy of the Republic of Srpska, 2022; Data provider: Prof Mihajlo Marković

TAUW project (2019-2025)

Pregled lokacija kontaminiranih postojanim organskim zagađujućim materijama (POPs)

GAP analiza iz 2015.godine:

Inventar kontaminiranih lokacija

Navedeno je 29 lokacija koje su potencijalno kontaminirane postojanim organskim zagađujućim materijama (POPs). Dalji inventar lokacija baziran je na POPs inventaru

- Posjećene su 62 lokacije

Odabir 17 lokacija za dalje istraživanje + 8 rezervnih lokacija

- 6 iz NIP-a, zatim 11 + 8 iz faze POPs inventara
- Inicijalna istraga na 13 lokacija

Neki od rezultata projekta:

Izrađen inventar POPs supstanci,

Izrađena Studija izvodljivosti za implementaciju sistema upravljanja ambalažnim otpadom (WCMS) u BiH,

[Pravilno prikupljeno](#) i odloženo 20 tona ambalaže od pesticida,

Završen Projekat remedijacije i rekultivacije za dvije lokacije kontaminirane polihlorisanim bifenilima (PCB),

Pripremljen početni registar uređaja za klimatizaciju, grijanje i hlađenje (KGH uređaji) koji sadrže supstance koje oštećuju ozonski omotač.

Nabavljeno i distribuisano devet sterilizatora za tretman i upravljanje infektivnim otpadom,

Završena brza procjena upravljanja infektivnim otpadom za šest bolnica i 20 ambulanti koje su bile ozbiljno pogođene pandemijom COVID-19.

Za diskusiju

1. Vrste kontaminacije koje smatrate najvažnijim?
1. Da li institucije imaju novije podatke o kontaminisanim ili potencijalno kontaminisanim lokacijama. Ako je odgovor da, kakvi su to podaci (opisni, prostorni, georeferencirani sa površinama i atributnim tabelama itd.).
1. Selekcija jednog pilot područja po entitetu (javno vlasništvo), sa površinama, vrstom kontaminacije i drugim relevantnim podacima.

THANK YOU FOR ATTENTION

15

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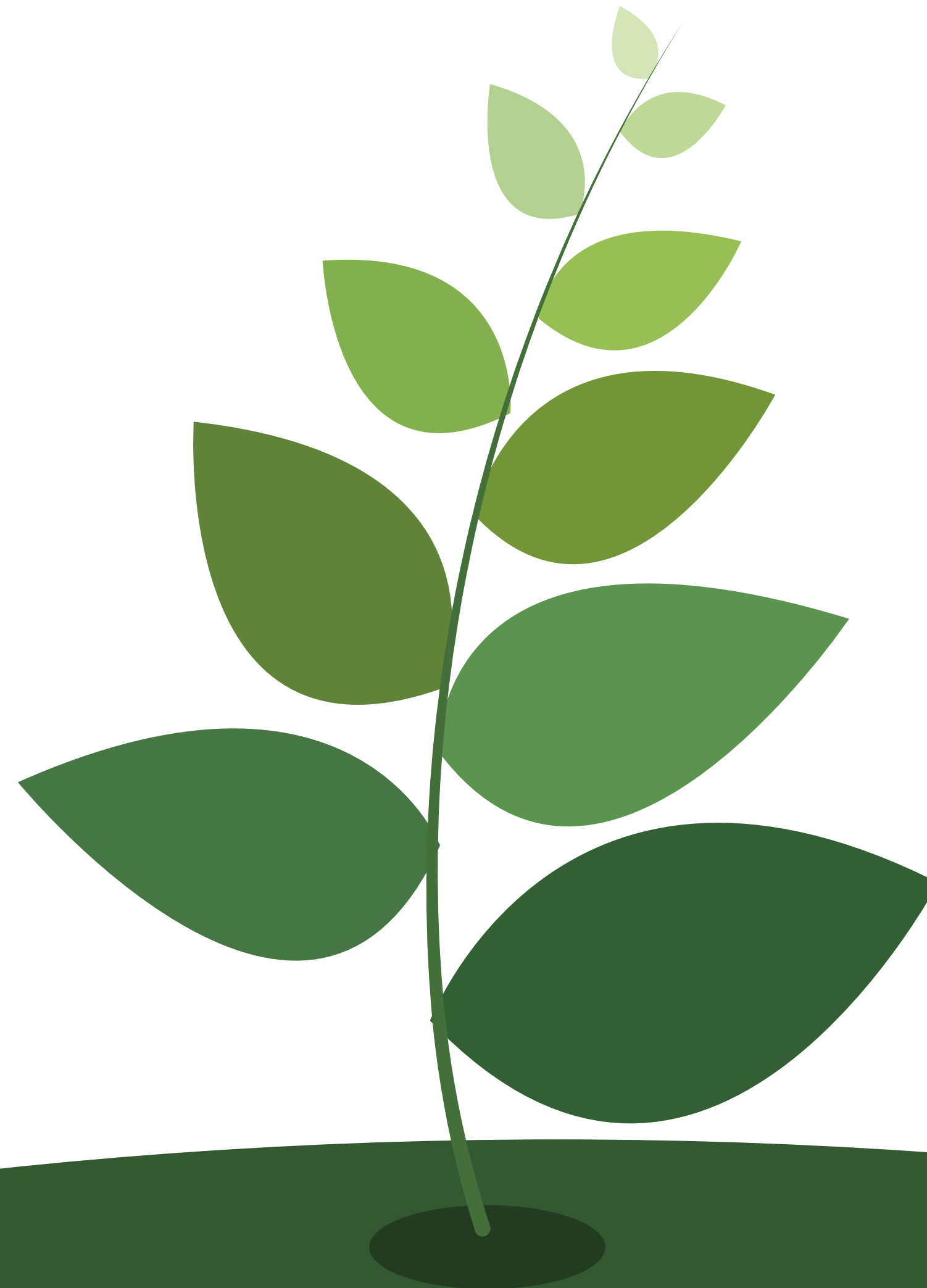
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One Health - Overview

Pablo Sagredo Martín

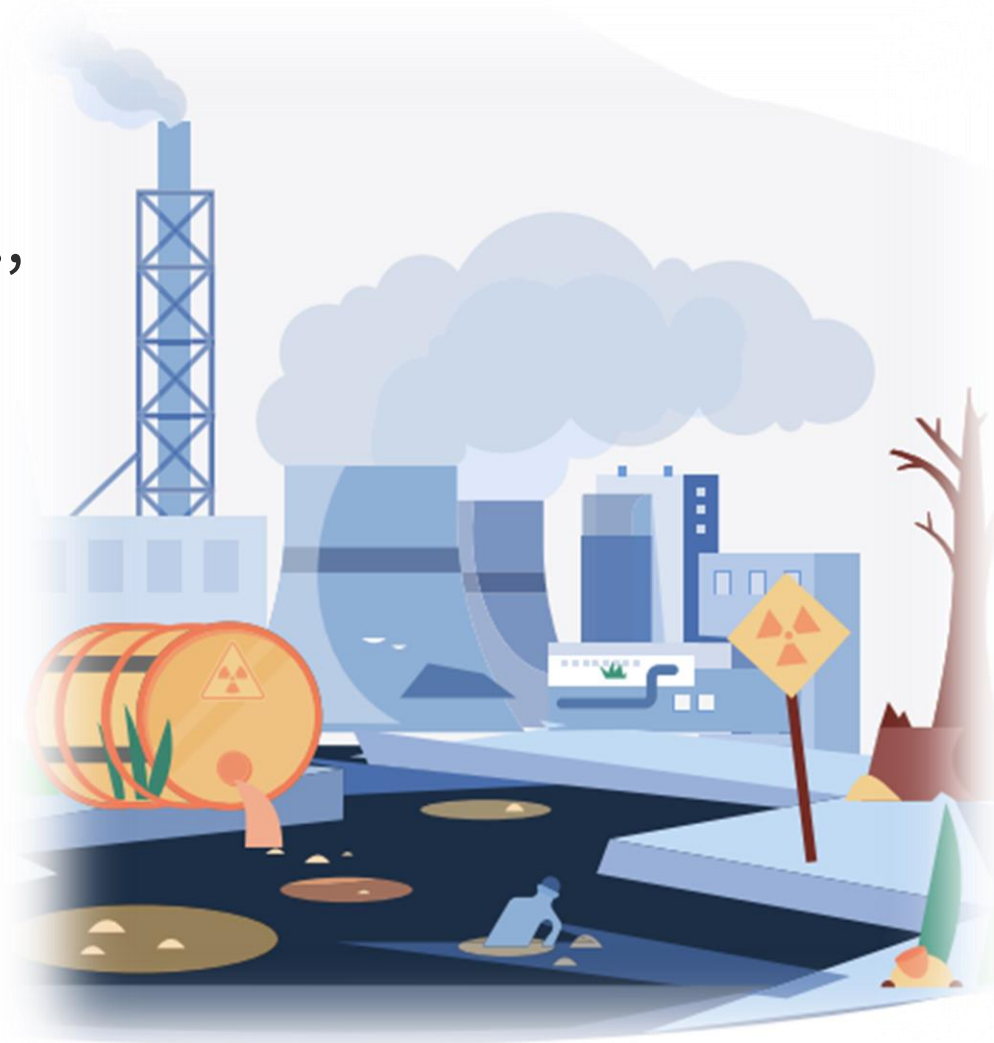
OH Officer

Regional meeting on Collaborative Approaches to Environmental Pollution and One Health in the Western Balkans

Pablo.sagredomartin@un.org

Pollution and health

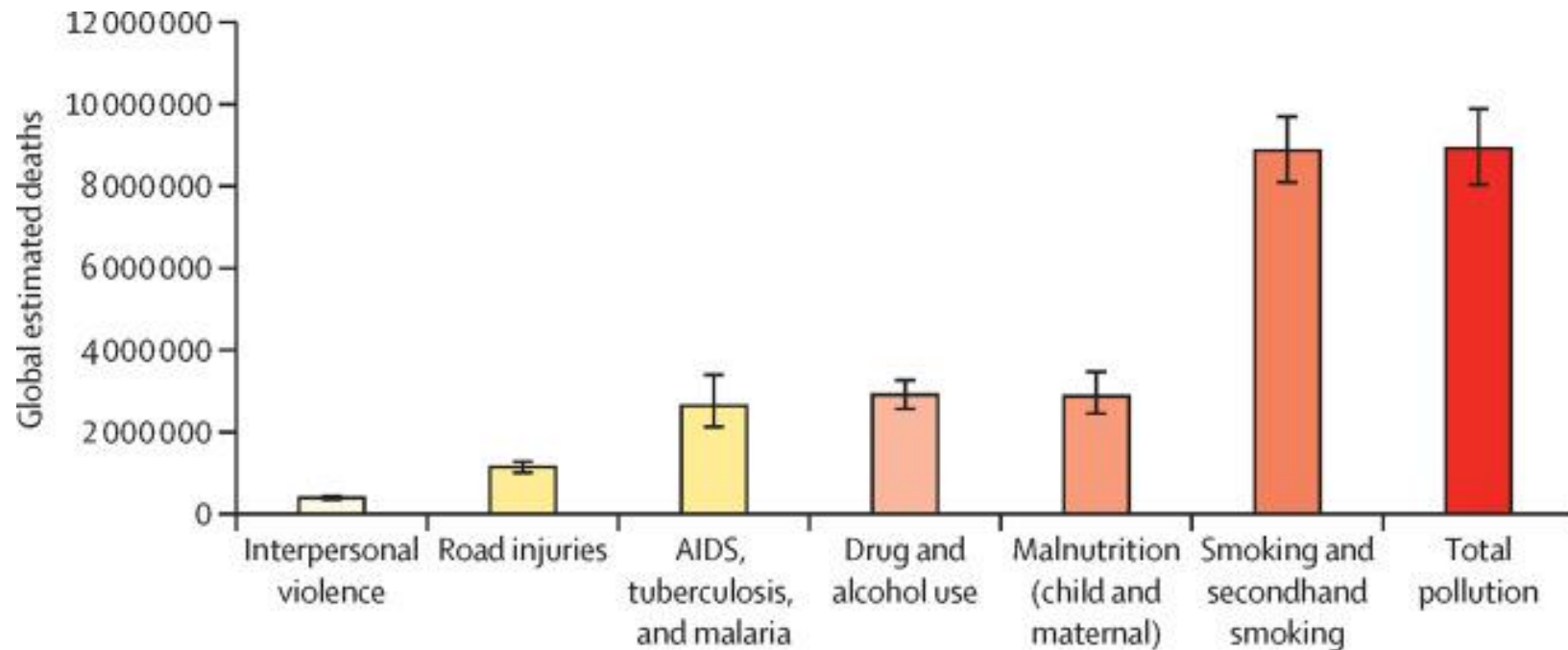
- **Global Health Impact:** Pollution causes 9M deaths annually, with modern pollutants (e.g., air pollution, lead) increasing deaths by 66% since 2000.
- **Air Pollution:** 99% of the global population is exposed to unsafe air pollution levels.
- **Lead Exposure:** 1 in 3 children has elevated lead levels, linked to lower IQ and behavioral issues.
- **AMR and Pollution:** AMR deaths, tied to pollution, could reach 8M annually by 2050.



Pollution and health

- **Chemical Pollution on the Rise:** Global chemical manufacturing grows at 3.5% annually, set to double by 2030.
- **Undercounted Impacts:** Most of the thousands of chemicals in commerce lack adequate safety or toxicity testing.
- **Health Risks:** Key effects include developmental neurotoxicity, reproductive toxicity, and immunotoxicity

Global estimated deaths by major risk factor or cause

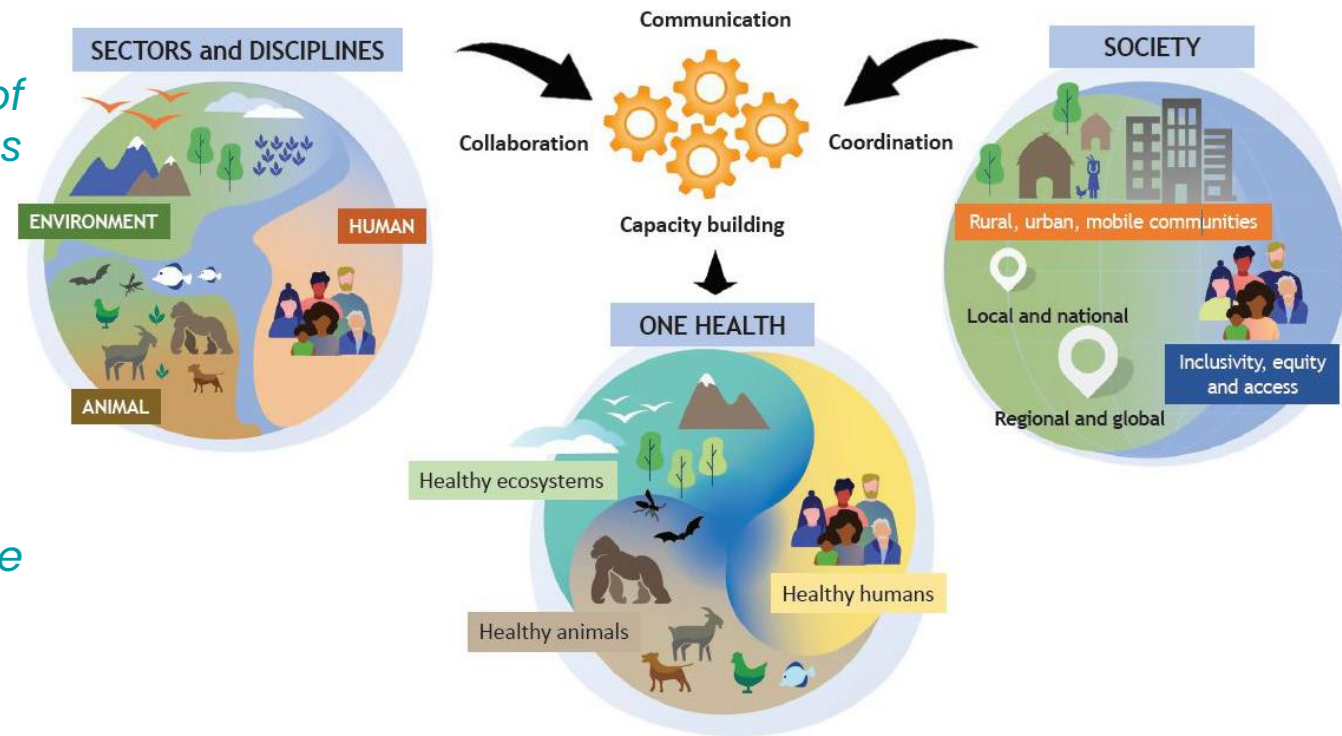


Data from Institute for Health Metrics and Evaluation and Global Burden of Diseases, Injuries, and Risk Factors Study 2019.

One Health

*One Health is an integrated, unifying **approach** that aims to sustainably balance and optimize the health of humans, animals, plants and ecosystems. It recognizes the health of humans, domestic and wild animals, plants and the wider environment (including ecosystems) are **closely linked and interdependent**.*

*The approach mobilizes **multiple sectors**, disciplines and communities at varying levels of society to work together to foster well-being and tackle threats to health and ecosystems, while addressing the collective need for clean water, energy and air, safe and nutritious food, taking action on climate change, and contributing to sustainable development.*



One Health definition developed by the One Health High-Level Expert Panel

Expanding the Scope of OH

- Historically, One Health has focused narrowly on **zoonotic diseases** and **AMR**...
- This perspective overlooks the broader interconnections between **biodiversity**, **ecosystem health**, and **long-term human and animal well-being**.
- Strengthening the voice of the environmental sector in One Health is vital to **ecological integrity** and the prevention of health risks.



*Addressing the triple planetary crisis requires a holistic approach that acknowledges these interconnections and emphasizes that the **health of the environment is a fundamental goal in itself for both the short and long term benefit of human health.***

Ecosystem Service Provision

The environmental dimension of One Health is the **least well understood** and **prioritised** in OH strategies and public health.

- The environment should be central to the One Health approach, acting as:
 - a **reservoir** of both pathogens and beneficial microorganisms
 - a key interface for **ecological processes**
 - a **health mediator** that buffers the transmission of zoonotic diseases, for example.
 - a provider of health services (i.e., water purification, clean air and climate regulation, medicines)



Change pathways

1. Policy, legislation, advocacy and financing
2. Organizational development, implementation and sectoral integration
3. Data, evidence and knowledge



Action tracks

1. Enhancing **One Health capacities** to strengthen health systems.
2. **Reducing the risks** from emerging and re-emerging **zoonotic** epidemics and pandemics.
3. Controlling and eliminating **endemic zoonotic**, neglected **tropical and vector-borne** diseases.
4. Strengthening the assessment, management and communication of **food safety risks**.
5. Curbing the **silent pandemic** of **AMR**.
6. **Integrating the environment into One Health**



A Guide to implementing the One Health Joint Plan of Action at national level

**ONE HEALTH
JOINT PLAN OF ACTION**
(2022-2028)



Step 1: Situation analysis

Step 2: Set-up or strengthening of a multisectoral, One Health coordination mechanism

Step 3: Planning for implementation

Step 4: Implementation of national One Health action plans

Step 5: Review, sharing and incorporation of lessons learned



Food and Agriculture
Organization of the
United Nations



World Health
Organization



World Organisation
for Animal Health
Founded as OIE

Environmental Integration at the Global Level

- Advance **collaboration** through the **JPA** and **Action Track 6**.
- Align national actions with the **Global Biodiversity Framework**.
- Promote the **adoption** of the **Global Action Plan on Biodiversity and Health**.
- Environmental dimension of **AMR**.
- Integrate **One Health principles** into **NBSAPs** and climate policies.
- **Leveraging the role of the environment sector/MEAs** to Prevent, Prepare for, and Respond to emerging health threats.
- **Expanding the scope** of the OH approach.

Nature4Health

- Acts to **reduce** the **risk** of health threats **upstream**.
- Promotes participatory, systemic approaches to **maximise co-benefits** and **minimize trade-offs**.
- Strengthening **environmental aspects** of One Health



Thank you!

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Linkages between environment and health: the main regional issues from WHO perspective

**Regional meeting on Collaborative Approaches to Environmental Pollution and One Health
in the Western Balkans**

Bosnia and Herzegovina, 4-5 December 2024

Sinaia Netanyahu, PhD.

Programme Manager for Environment and Health Impact Assessment

WHO European Centre for Environment and Health

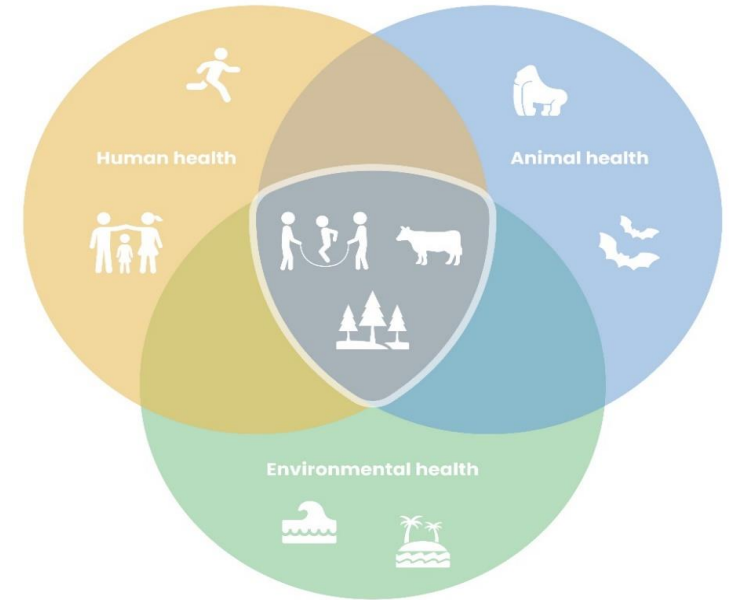
netanyahus@who.int

What is One Health?

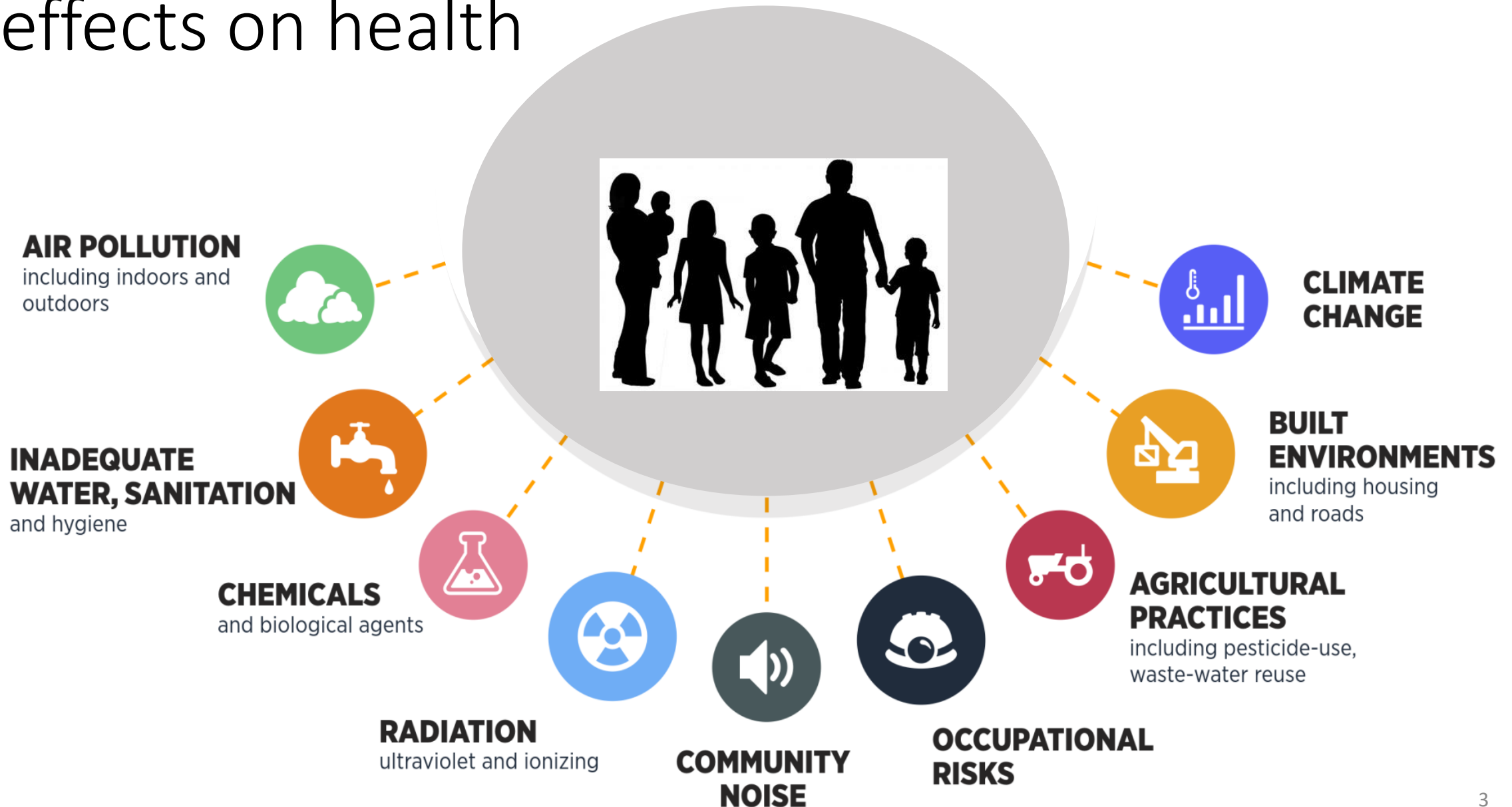
One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of **people, animals and ecosystems**.

It recognizes the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent.

*The approach mobilizes multiple sectors, disciplines and communities at varying levels of society to work together to foster well-being and tackle threats to health and ecosystems, while addressing the collective need for **clean water, energy and air, safe and nutritious food, taking action on climate change, and contributing to sustainable development**.*



Environmental risk factors with likely (significant) effects on health



Environmental burden of disease

- In 2012, **12.6 million deaths globally**, were attributable to the environment – nearly 1 in 4 of total global deaths.
- When accounting for both death and disability, the fraction of the **global burden of disease*** due to the environment is **22%**.
- In **children under five years**, up to 26% of all deaths could be prevented, if environmental risks were removed.
- 1.4 million in the **WHO European Region** → 15% of all deaths

Source: Prüss-Üstün A, et al., 2016

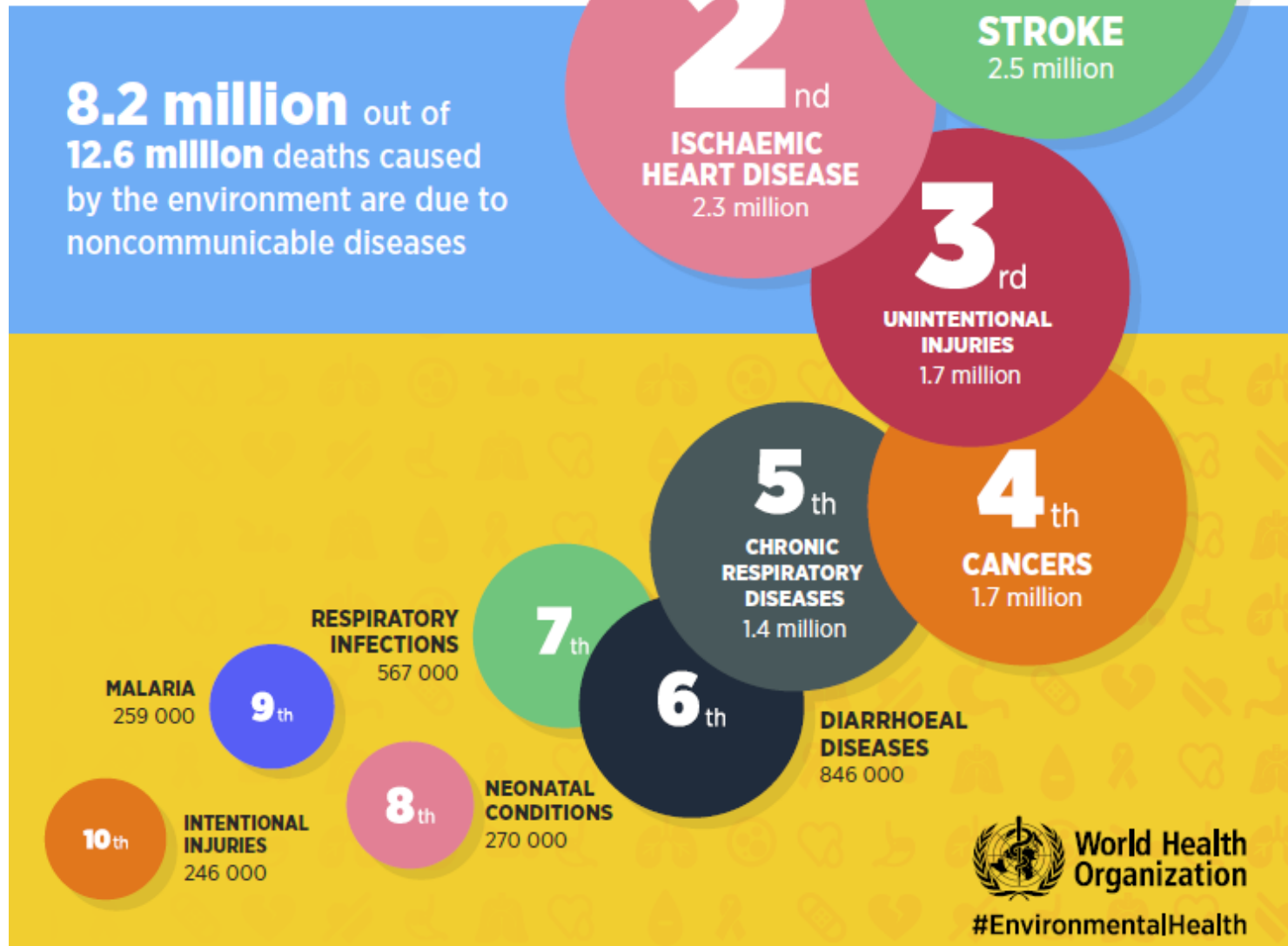
*Burden of disease is concept that was developed in the 1990s by the Harvard School of Public Health, the World Bank and the World Health Organization (WHO) to describe death and loss of health due to diseases, injuries and risk factors for all regions of the world:

Years life lost (YLL) + Years of Live lived with a Disability (YLD) + Disability Adjusted Life Years (DALYs).

1 DALY = the loss of one year of life lived in full health.

(World Health Organization (2015) Global Burden of Disease. (www.who.int/topics/global_burden_of_disease/en/))

TOP 10 CAUSES OF DEATH FROM THE ENVIRONMENT



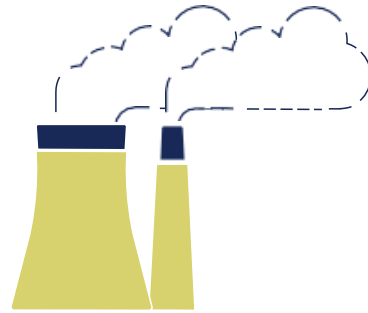
Ambient and household air pollution

Key risks to health

In the WHO European Region in 2019:



97% of the population
were exposed to PM_{2.5}
concentrations above the
WHO air quality guidelines.



569 000 premature
deaths can be attributed
to ambient air pollution.



154 000 deaths
can be attributable to
household air pollution.

Ambient and household air pollution

Key risks to health

Of the 10 million disability adjusted life years in 2019 caused by ambient air pollution:

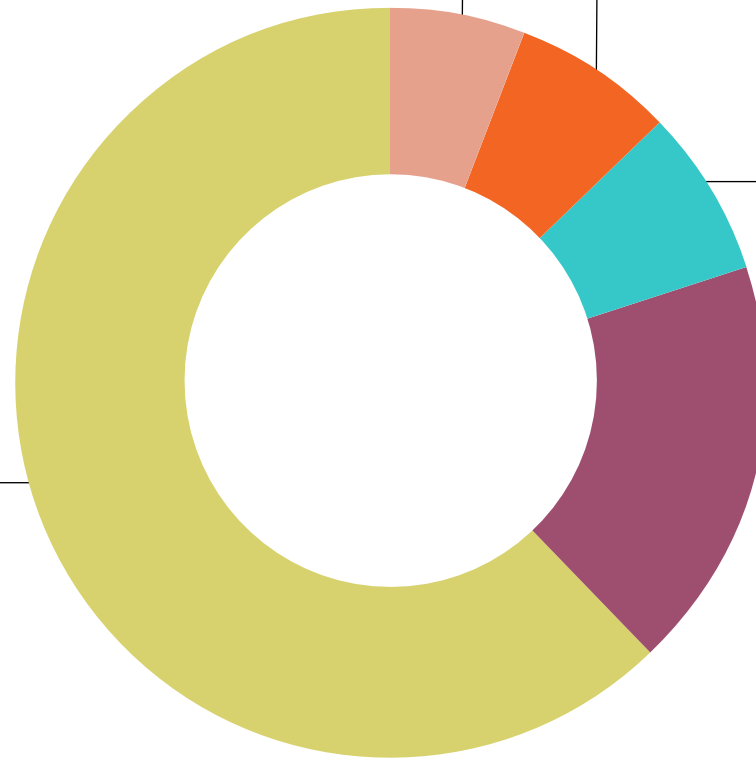
6% were due to trachea, bronchus, lung cancers

62% were due to ischemic heart disease

7% were due to lower respiratory infections

7% were due to chronic obstructive pulmonary disease

18% were due to stroke

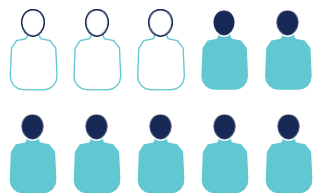


WASH

Key risks to health

Access to adequate WASH services is still limited in the Region.

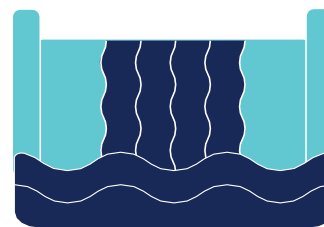
Data from 2020 and 2021 showed that:



Only **7/10** people
used safely managed
sanitation services².



About **77** million people
lacked safely managed
drinking-water.



2.7 million people
relied on surface water
as their main drinking
source.



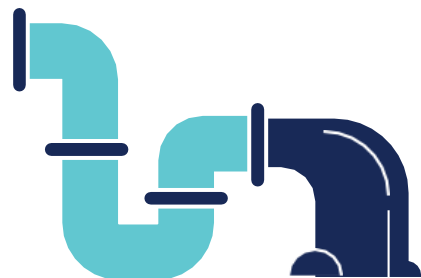
Around **350 000**
people still practiced
open defecation³.

WASH

Key risks to health

Access to adequate WASH services is still limited in the Region.

Data from 2020 and 2021 showed that:



Only **2/3** of domestic
waste-water
was safely treated.



Around **96%** of pupils
had access to basic drinking-water
services in schools. Access rates for
basic sanitation and hygiene services
were around 94%.

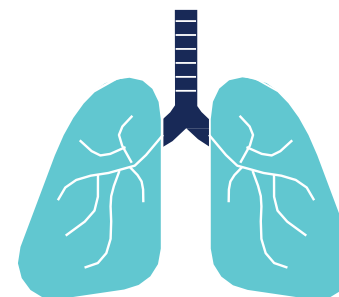
WASH

Key risks to health

The health burden related to WASH is preventable.

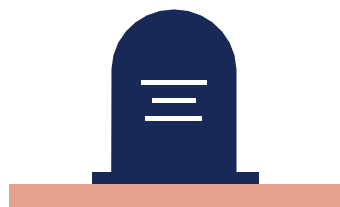


About **33500** deaths
were attributed to inadequate
WASH conditions and services in
2019. That's 92 deaths per day.



11% of all acute respiratory deaths
are attributable to
poor hygiene and 30% of diarrhoea-
related deaths to poor WASH services.

Chemicals Key risks to health



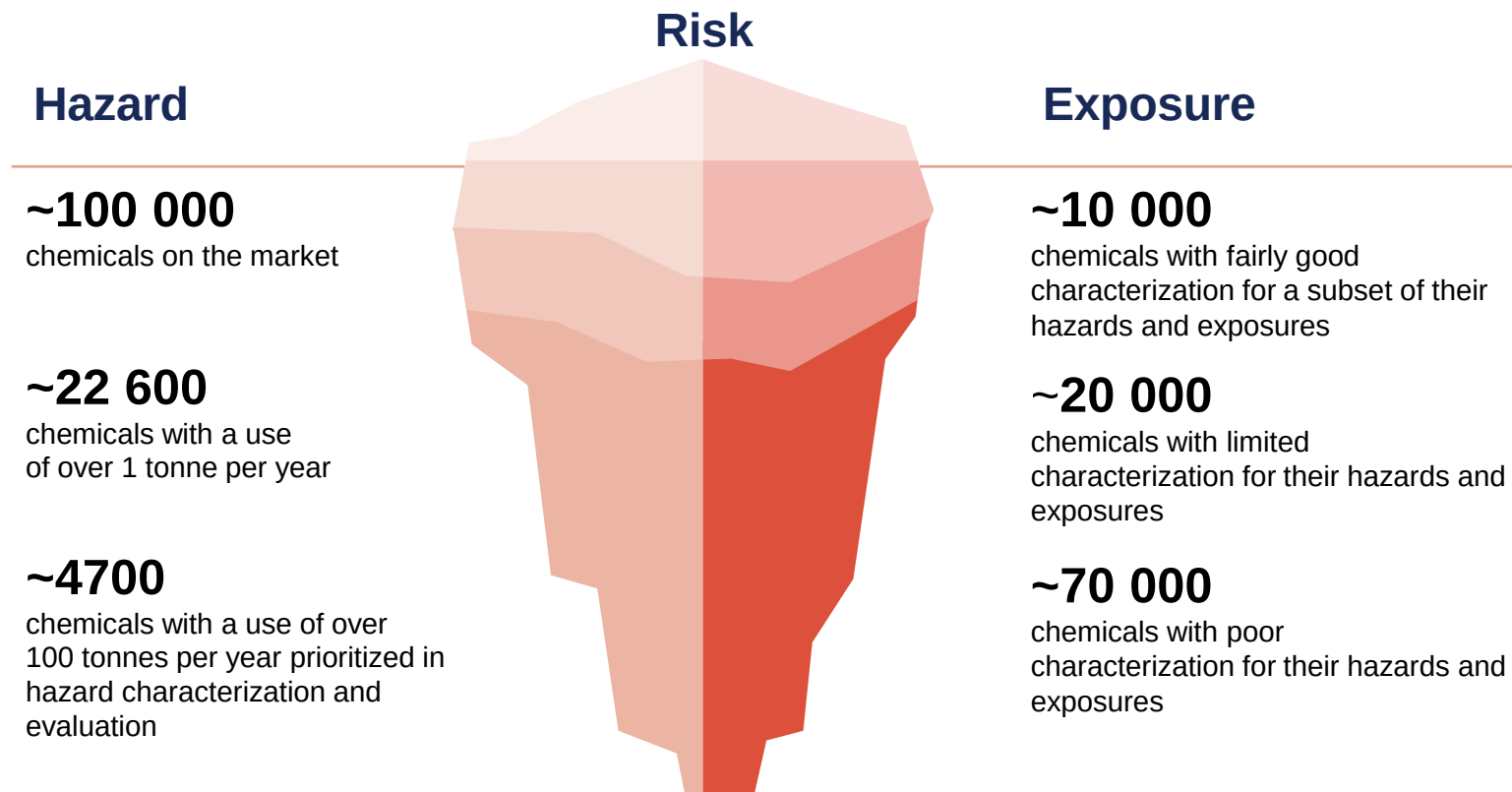
In 2019 in the WHO European Region,
269 500 deaths
were attributable to exposure to chemicals
or groups of chemicals such as pesticides,
occupational carcinogens, lead and
occupational particles.



However, as this assessment is
based on only a specified and,
therefore, limited list of particular
chemicals and groups, the true
burden is considerably larger.

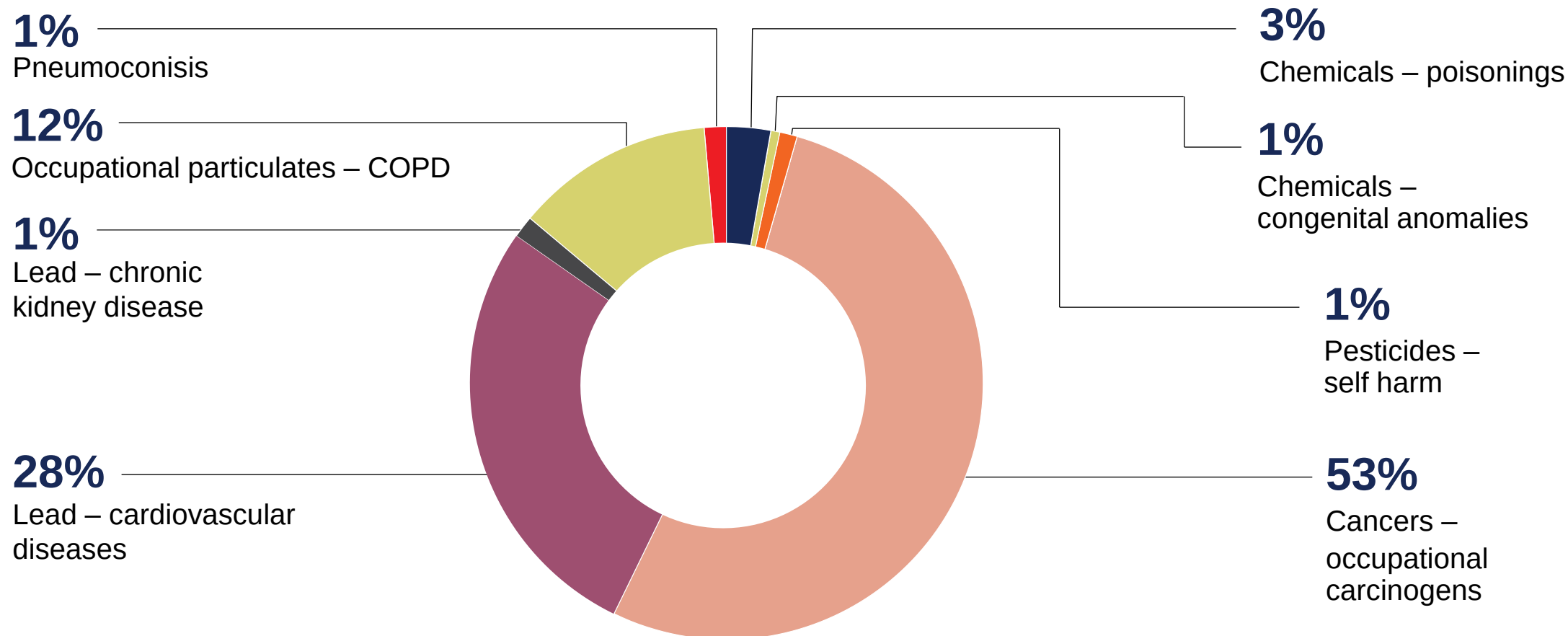
Chemicals Key risks to health

Figure 1. Health impact of exposure to hazardous chemicals within the WHO European Region



Chemicals Key risks to health

Figure 2. Proportion of deaths caused by diseases attributed to chemicals



Sustainable Development Goals and environment-health links

- ✓ Ensure that people enjoy the highest level of health and well-being throughout their lives
- ✓ Work across sectors and on the different factors that affect people's health, including social, economic, commercial and environmental determinants



Progress in the WHO European Region
towards the SDGs in the context of the
Ostrava Declaration on Environment and Health
Mid-way to 2030



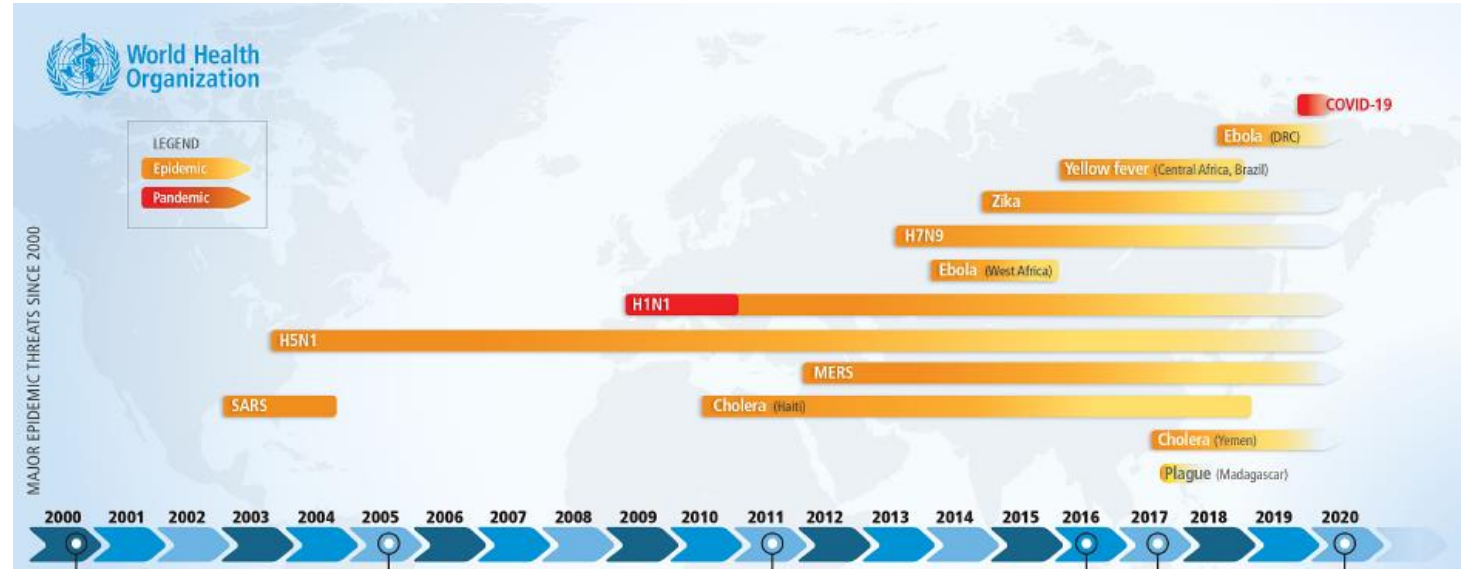
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**Progress in the
WHO European Region
towards the SDGs in the context
of the Ostrava Declaration on
Environment and Health**

Mid-way to 2030



21st century: rise in Emerging Infectious Diseases (EID) outbreaks



- **60%** of Emerging Infectious Diseases (EIDs) are zoonotic
75% of Zoonotic diseases in humans come from wildlife

The Role of the Environment

- Formulate the role of the environment within the One Health approach, specifically, in *animal mediated diseases*
- Understand how One Health is relevant to *all* aspects of human health, including communicable, non-communicable diseases, and injuries
- Understand how the stressors to the environment play a role in animal mediated diseases (land-use change, biodiversity loss, climate change, and environmental pollution)



Environmental stressors & One Health

‘Threat multipliers’
exacerbate the health effects of animal-mediated diseases

Land use change

Biodiversity loss

Climate change

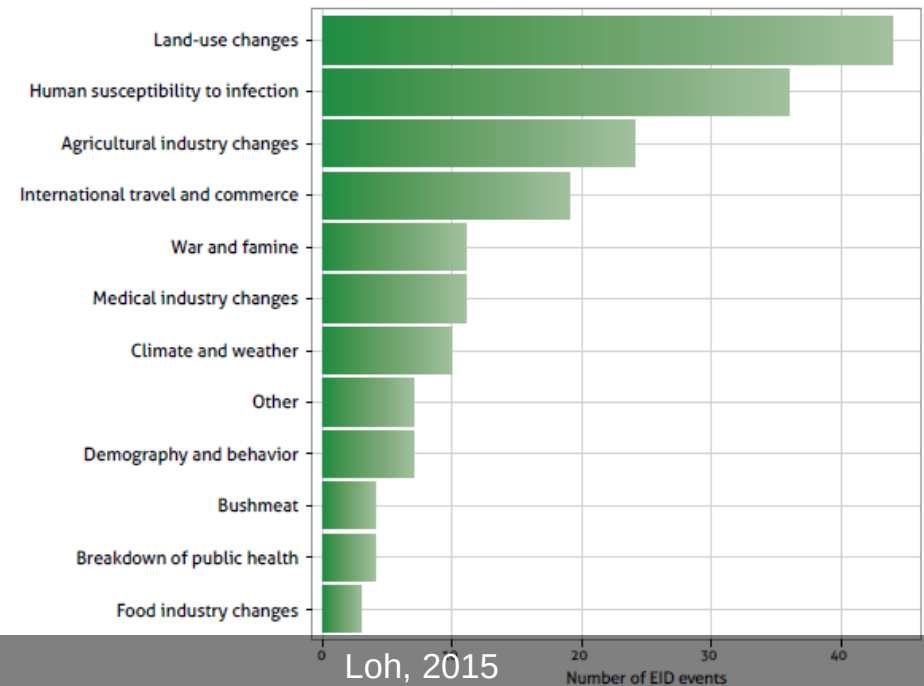
Environmental Pollution

- Air pollution
- Water pollution
- Ocean pollution

Land-use change & One Health

- Land use change is the main driver of zoonotic disease expansion
- Main driver of emerging infectious diseases (EID)
- Agriculture is associated with 50% of zoonotic disease emergence (Rohr et al. 2019)
- People who live near agriculture are more likely to be infected with zoonotic diseases.

FIGURE 1: Drivers of emerging infectious diseases from wildlife (Loh et al., Vector Borne and Zoonotic Diseases. In press)



Urbanization & One Health

- 55% of human population lives in cities
- A major driver of land use change
- High population density increases infection spread
- Local/ international trade centered in cities
 - Rapid exchange of people, food, consumer goods
 - increased exchange of pathogens and risk of epidemics
- Urban expansion to natural areas, urban waste, urban green areas attract wildlife → Increased human-wildlife conflict, injuries, zoonosis
- Cities create new habitat for reservoir host species

Land-use change & zoonosis: mechanisms

1) **Fragmentation**

Increased contact of wildlife with humans/livestock → increased infection

2) **Increase in generalist species**

Thrive in diverse natural and human environments → transfer diseases

3) **Biodiversity loss**

Reduced dilution effect

4) **Increased wildlife stress**

Habitat degradation → reduced immunity → pathogen replication & spillover

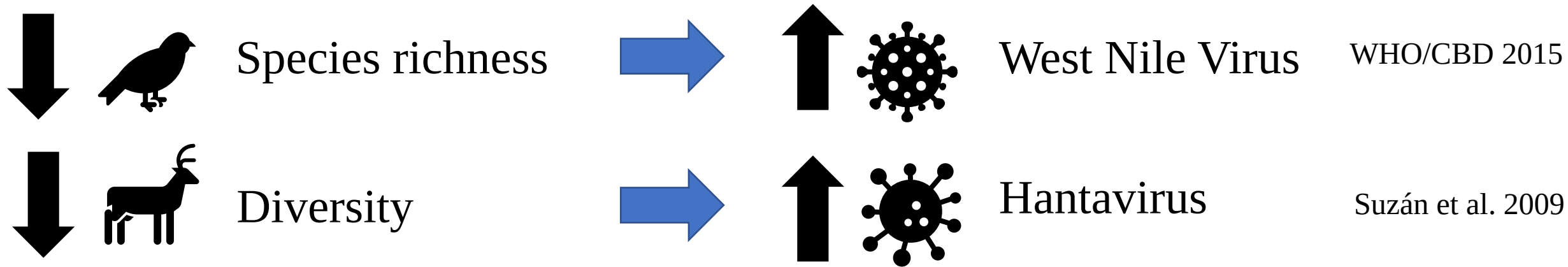
5) **Expedite microbial evolution**

Increase microbial reproduction → higher chance of virulent variants

Pathogen evolution within confined habitat "islands" (genetic drift)

Biodiversity Loss

- 25% of all known species (~ 1 million) are threatened with extinction (IPBES, 2019)
- High correlation between biodiversity decline & zoonotic risk



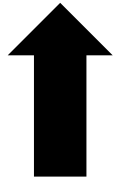
- Ecological processes control populations of natural zoonotic hosts and vectors
- **Dilution effect** - decrease in biodiversity is critical to increased zoonotic infection risk. Host diversity inhibits parasite abundance (Civitello et al. 2015)

Climate change

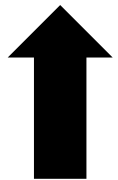
Climate change is a “Threat multiplier” to other environmental stressors



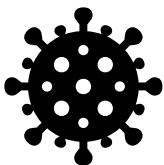
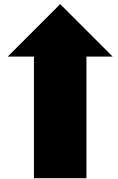
Increased temperatures



Range expansion of zoonotic
hosts and vectors



Growing populations of vectors



Faster multiplication of pathogens

Examples of
**Vector-Borne
pathogens**

Malaria

Dengue, Chikungunya

Zika

Japanese encephalitis

West Nile virus

Borrelia burgdorferi



Increased **Wildfires**

Natural habitat degradation → reduced immune response in wildlife → **pathogen shedding** to the environment



Increased temperatures



Food borne diseases



Heavy rainfall & floods

Wastewater
overflow

**Water-borne
disease
outbreaks**

Climate change

Pollution



Mostly related to **Non-Communicable Diseases**



Pollution of air, soil, water, oceans



Animal husbandry releases feces, pollution and antibiotics to the environment



Accumulation of chemicals & heavy metals in animal products (e.g. Mercury)



More than 90% of human exposure to Dioxins is through food – mainly meat and dairy products, fish and shellfish, causing Carcinogenic, reproductive and developmental problems, damages to the immune system

Thank You!

Introduction and presentation of the conference agenda

UNEP Chemicals and Pollution Action (CPA) Programme

Regional meeting on Collaborative Approaches to Environmental Pollution and One Health in the Western Balkans

Sarajevo, Bosnia and Herzegovina, 4 - 5 December 2024

Tomas Marques, Regional Sub-Programme Coordinator, Chemicals and Pollution Action, Europe Office, tomas.marques@un.org

Conference objectives



Agenda: 4-5 December, 2024	
Title	Collaborative Approaches to Environmental Pollution and One Health in the Western Balkans
Objective	• To explore the intricate relationship between One Health and environmental pollution, emphasizing the interconnectedness of human, animal, and environmental health, and to identify practical strategies for addressing these challenges in the Western Balkans. • To present new UNEP environmental initiatives in the Western Balkans addressing chemicals, <u>waste</u> and pollution challenges, and supporting evidence-based policymaking and action to reduce air pollution from high-impact sectors and their effects on human health.
Location	Day 1: UN House in BiH, <u>Zmaja od Bosne bb</u> , Sarajevo, <u>Bosnia</u> and Herzegovina Day 2: Hotel Europe, <u>Vladislava Skarića 5</u> , Sarajevo, <u>Bosnia</u> and Herzegovina Zoom link: https://zoom.us/j/99521454199

Agenda for Day 1 (4th December)



Agenda – Day 1: 4 th of December, 2024			
Introductory session			
Moderator: Matea Grabovac - UNEP			
13.30-14.00	Registration of participants and welcome coffee		
14.00-14.10	Introductory statements	UN BiH Resident Coordinator, <u>Dr. Ingrid Macdonald</u> <u>Mr. Mirza Hujic</u> , Ministry of Foreign Trade and Economic Relations of BiH	Introductory statements
14.10-14.20	Introduction and presentation of the agenda and UNEP Chemicals and Pollution Action: regional perspective	Tomas Marques - UNEP	- Presentation of the Agenda and purpose of the event. - UNEP chemicals and pollution action: regional perspective
14.20-14.30	Overview of UNEP pollution in the Western Balkans	Elena Stefanoni - UNEP	Brief overview of UNEP's current regional pollution portfolio
14.30 – 14.45	District heating and energy efficiency solutions for improved urban air quality, <u>health</u> and wellbeing	Celia Martinez Juez - UNEP Cities Unit	Potentials of district heating and energy efficiency solutions to support action on clean air
14.45 – 14.55	Overview of the One Health approach	Pablo Sagredo Martín - UNEP	Brief overview of UNEP's One Health activities

Agenda – Day 1: 4 th of December, 2024			
15.15 – 15.30	Common drivers of air pollution and climate change and their impacts on human health	Juliette Laurent - Climate and Clean Air Coalition (CCAC)	Overview of common drivers of air pollution and climate change and of CCAC's <u>AQMx</u> knowledge management platform
15.30 - 15.45	Overview of UNECE activities on pollution in the Western Balkans	Sarangoo Radnaaragchaa, Regional Adviser on Environment UNECE	Brief overview of UNECE's regional instruments and initiatives on pollution in the context of the Western Balkans
15.45 – 16.00	Children and Air Pollution in the Western Balkan	<u>Marc Lucet</u> - UNICEF representative in BiH	Brief overview of UNICEF's current initiatives on pollution and children's health in the Western Balkans
16.00 – 16:15	UN Women ongoing and planned activities in the Western Balkans	Arielle Allouche, UN Women	Ongoing and planned activities, highlighting the interlinkages among climate, pollution, and gender
16:15–16:45	Discussion and main conclusions of the Introductory session	All participants with the moderator	

Agenda for Day 2 (5th December)



Agenda – Day 2: 5 th of December, 2024			
Introductory session			
08.30 – 9.00	Welcome Coffee		
09.00 – 09.10	Introductory statements	Ms Stojanka Dražić , Ministry of Spatial Planning, Construction and Ecology of Republika Srpska ; Federal Ministry of Environment and Tourism	
9.10 – 9.25	One Health challenges in the Western Balkan	Rusmir Goletić, Balkan One Health Network (BOHN)	Brief description of main OH challenges and priorities in the Western Balkan
09:25 – 12.30	Session I - One Health and Air Pollution: to address the public health challenges posed by pollution and explore integrated strategies for improvement. Moderator(s): Olivera Kujundžić, Pablo Sagredo Martín, UNEP		
9:25– 9:30	Introduction to the session	Moderator(s)	Brief description of the session and agenda
9:30-9:45	Air pollution in urban areas. A case study in the Western Balkans	Claudio Belis – European Commission, Joint Research Centre	Presentation of the study on the assessment of health impacts and costs attributable to air pollution in urban areas using two different approaches. A case study in the Western Balkans

Agenda – Day 2: 5 th of December, 2024			
9:45–10:00	Air Quality: The World Bank's Insights on Economic Costs and Health Implications	Esma Kreso , Senior Environmental Specialist - World Bank in BiH	Air Quality and its economic & health Implications: World Bank's Insights and Assessment
10:00– 11:15	Statements from representatives from the six WB economies	Representatives of the WB economies	Air quality data available, Brief overview of the existing policies, challenges, priorities and responses / adopted measures
11:15– 11:30	Two case studies for technological pathways to address Air Pollution.	Nadine Allemand = Citepa/TFTEI	Best Available Techniques and technological pathways to mitigate emissions form high-impact sectors
11:30– 11:45	x Eco Air software/app	Air quality expert Dejan Lekic	Showcase a tool for real-time air quality data dissemination from various sources, including government networks and citizen science platforms, emphasizing the importance of providing information on air quality exceedances of legal limit values
11:45 – 12:00	Use of new technologies for health impact assessment	Branislava Matic Savicevic, Srdjan Mancevic and Snezana Zivkovic , National Public Health Institute, Serbia	Introduction to the AirQ+ tool and overview of successful application in the cities of Valjevo, Novi Pazar, and Leskovac in Serbia
12:00 – 12:30	Discussion		
12.30 – 13.30	Lunch break & Coffee		

Agenda for Day 2 (5th December)



Agenda – Day 2: 5th of December, 2024

13:30 – 16:40	Session II - One Health and Chemicals & Waste: to explore the impacts of chemical exposure and waste management on health and the environment in the Western Balkans. Moderator(s): Maja Colovic Daul - Expert, Pablo Sagredo Martín - UNEP		
13:30 – 13:40	Introduction to the session	Moderator(s)	Brief description of the session and agenda
13:40 – 13:55	Overview of the latest developments in global and regional chemical and waste policies addressing pollution	Janyl Moldalieva - UNEP expert	Overview of the latest developments in global and regional chemical and waste policies addressing pollution
13:55 – 14:05	Global Framework on Chemicals, overview and upcoming opportunities	Rebecca Marlen Chudaska – UNEP expert	Vision and scope of the GFC and funding opportunities
14:05 – 14:10	New UNDA funded UNEP project on pollution and waste management in Serbia and BiH	Aleksandra Siljic Tomic - UNEP	Brief overview of the new UNEP project on pollution and waste management in Serbia and BiH
14:10 – 14:25	Tackling the Illegal Waste Trade	Kajetan Pradetto, UNODC	Tackling the Illegal Waste Trade

13:30 – 16:40	Session II - One Health and Chemicals & Waste: to explore the impacts of chemical exposure and waste management on health and the environment in the Western Balkans. Moderator(s): Maja Colovic Daul - Expert, Pablo Sagredo Martín - UNEP		
14:25 – 14:40	POPs contaminated sites in BiH: investigation and remediation plans	Alma Mirvić Kapić, UNDP	Persistent organic pollutants contaminated sites in BiH: investigation and remediation plans
14:40 – 14:55	UNEP Special Programme-funded interventions in BiH	Dzeina Milaković Ramadani, Ministry of Health and Social Welfare of Republika Srpska	Presentation of the Special Programme – funded projects in Bosnia and Herzegovina
14:55 – 15:10	UNEP Special Programme-funded interventions in Serbia	Sonja Roglic, Ministry of Environmental Protection, Serbia	Presentation of Special programme – funded projects in Serbia
15:10 – 16:10	Statements of the six WB economies	Representatives of the WB economies	Brief overview of the existing policies, challenges, priorities and responses / adopted measures
16:10 – 16:40	Discussion and closing up	All participants Moderator UNEP	



Human health and environmental outcomes are optimized through enhanced capacity and leadership in the **sound management of chemicals and waste**

Waste management is improved, including through circular processes, safe recovery of secondary raw materials and progressive reduction of open burning and dump sites

Releases of pollutants to air, water, soil and the ocean are reduced

UNEP Programme on Chemicals and Pollution

Action: Significant progress is made towards a pollution-free planet

UNEP Programmatic areas



Objective:

- Improve **waste and wastewater management** through :
 - Minimizing material input and waste and wastewater generation
 - Circular processes
 - Safe recovery of secondary raw materials and
 - progressive reduction of open burning and dump sites

Towards Zero Waste



Objective:

- Scale up the **adoption of circularity policies and practices across key high-impact sectors** and systems, while also ensuring positive social and economic outcomes.

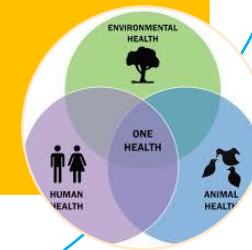
Circularity in Sectors



Objective:

- Strengthen global action to prevent chemicals and pollution risks to the environment and health (**Themes:** Air pollution - primarily PM2.5 - Chemicals posing significant threats to environment & health, **Antimicrobial resistance**, Source to sea pollution, Disasters and conflict-related pollution)

Pollution and Health



Agenda 2030 Multilateral Environmental Agreements (MEAs)

THANK YOU!

Regional meeting on Collaborative Approaches to Environmental Pollution and One Health in the Western Balkans

Sarajevo, Bosnia and Herzegovina, 4 - 5 December 2024

Tomas Marques, Regional Sub-Programme Coordinator, Chemicals and Pollution Action, Europe Office, tomas.marques@un.org

"South- East Europe Pollution Platform - Strengthening Capacity in the Management of Contaminated Sites in Bosnia and Herzegovina and Serbia" - Presentation of the project progress and expected milestones

Sarajevo 4 December 2024

Elena Stefanoni

Title: Strengthen the capacity in the management of Contaminated Sites in BiH and Serbia

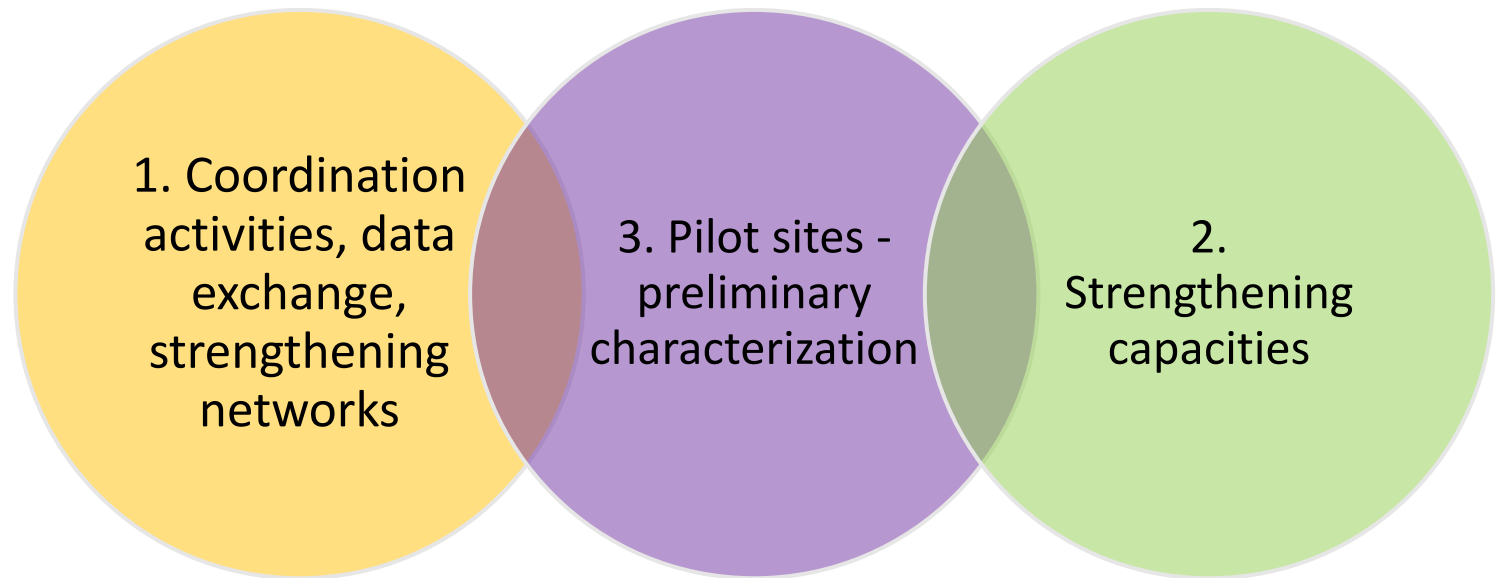
Duration:
Oct. 2023
Sept. 2026

Budget: 300.000 EUR

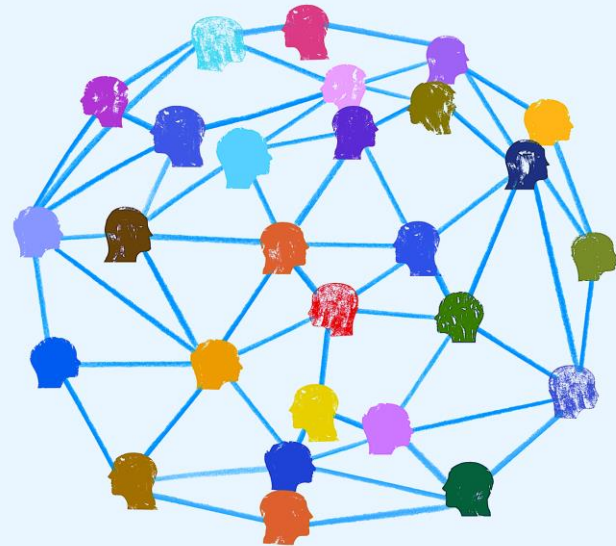
Project Objective: To reduce pollution, increase environmental protection practices and improve human health, through strengthening institutions and capacities of the Western Balkan Countries in the management of contaminated sites



3 PROJECT COMPONENTS



COMPONENT 1 - Coordination activities, data exchange, strengthening networks



Activity	Progress 2023 - 2024
1.1 Launching event	Launching event on 26 of March 2024, SEEPP waste conference
1.2 Establishment of the Technical Working Group (TWG) Group and Project Steering Committee (PSC)	• Inception meeting held in Mostar 28 – 29 of May • TWG and PSC established in November 2024 • 1st Meeting of the TWG on 4th December 2024 • 1st Meeting of the PSC to be defined (first QR 2025)
1.3 Visibility	• Communication plan developed (implementation from 2025) • Attending events at regional and international level

COMPONENT 2 - Strengthening capacities of WB countries in addressing pollution-prevention, with specific focus on soil and water pollution, and related environmental priorities



Activity	Progress 2023 – 2024
2.1 Policy assessment	Initiated policy assessment and report drafting
2.2 Data survey and collection of data on contaminated sites	Initiated collection of data related to contaminated and potentially contaminated sites and potential polluting activities, to be presented at the 1st TWG meeting
2.3 Capacity building activities	Training Needs Assessment initiated during the inception meeting in May 2024



COMPONENT 3

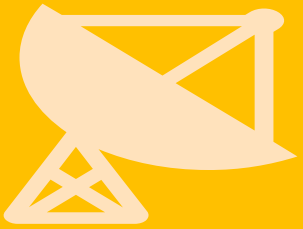
Identification of pilot site(s) and design of preliminary characterization plan



Activity	Outputs
3.1 Identification and selection of pilot site(s)	Initiated data collection for the Pilot site(s)
3.2 Field investigation activities to determine the sampling points at selected sites for soil and groundwater	NA
3.3 On-the job training on the development of characterization plans	NA
3.4. Drafting characterization plan for the selected pilot site(s)	NA



Planned activities 2025



Component 1

- Meeting of the PSC (1st QR 2025 - TBC)
- Implementation of the visibility plan (UNEP webpage, LinkedIn, visibility materials)



Component 2

- Finalising data collection and analysis
- Developing policy recommendations and legal support
- Capacity building plan finalised and (partially) implemented, together with C3



Component 3

- Pilot sites identified
- On site visits and implementation of the training activities



Workplan of activities 2024 – 2025 – OUTCOME 1

Outcome (s)	Actions / Time frame proposed
OUTCOME 1	
C1.1 Launching event, inception meeting (including preparation	November 2023– May 2024 (C 1.1, 1.3).
C.1.2 Establishment PSC and TWG: • Definition of the project steering committee and technical working group: The letters to request the appointment of representatives from the relevant institutions will be sent within the summer (see Annex 3) ○ A first coordination meeting of the TWG will be held online indicatively mid-October 2024. ○ A second meeting will be held tentatively end of November / beginning of December 2024, exact date, and location TBD.	May – October 2024:
	Mid-October 2024 (ONLINE)
	4 th December 2024 (TBD)
C. 1.3 Visibility	As above

Workplan of activities 2024 - 2025

Outcome (s)	Actions / Time frame proposed
OUTCOME 2	
C 2.1: Policy assessment at regional level	
Collection of existing legislations in the environmental field (someway related to contaminated sites)	by November 2024
Analysis of existing legislations	by December 2024
First comparison with the three entities in Bosnia-Herzegovina and Serbia	Meetings in Jan-Apr 2025
Regional report on the relevant environmental and health legislation	by September 2025
EU best practices relevant for the WB Region	by September 2025
Identification of policy actions needed to improve contaminated soil management	by September 2025
C 2.2: Strengthening capacities	
Survey preparation on contaminated, potentially contaminated sites and potential polluting activities	by 24 June 2024
Survey collection (deadline for compilation)	by 31 October 2024
Development / Updating of a register of contaminated, potentially contaminated sites and potential polluting activities	by December 2025
Development of the regional list of the main soil contaminants in the region	by December 2025

Workplan of activities 2024 – 2025 – OUTCOME 3

Outcome (s)	Actions / Time frame proposed
OUTCOME 3	
C 3.1: Identification of pilot sites	
Survey preparation for sites that could candidate for being a pilot site in this project	by 24 June 2024
Survey collection (deadline for compilation)	by 31 October 2024
Identification of pilot sites	by April 2025

Thank you

Elena Stefanoni
elena.stefanoni@un.org

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



EMPOWERING WOMEN IN ENVIRONMENTAL DECISION-MAKING AND BRIDGING DATA GAPS ON THE GENDER-CLIMATE NEXUS

ARIELLE ALLOUCHE, UN WOMEN

4 DECEMBER 2024

Photo | UN Women/Amanda Voisard.

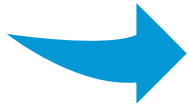
INTRODUCTION

- The impacts of Climate Change are not distributed equally and have different consequences for women and men.
- Without understanding the gendered effects of climate change, we risk worsening existing disparities and inequalities between women and men.
- Integrating gender equality within climate action ensures that efforts to mitigate climate change are inclusive. This is aligned with concepts of social justice and for European integration.
- Gender-sensitive climate policies build more resilient communities and promote sustainable development.



This presentation will present UN Women's work on environment, climate and gender.

OUTLINE



Understanding the environment, climate and gender nexus



Women in environmental decision-making



Data gaps



Focus on activism



Building capacities and bridging gaps

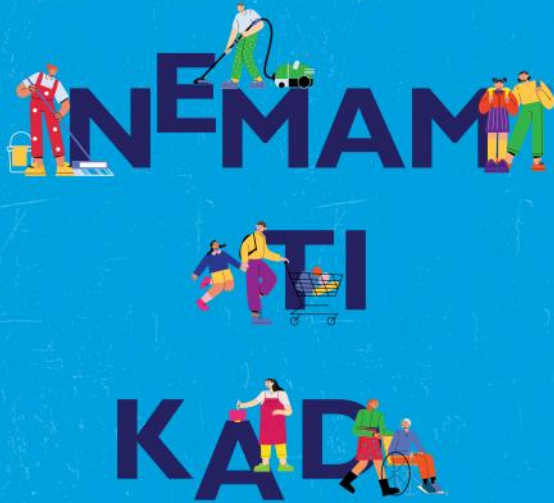


A look back on COP29



I. UNDERSTANDING THE ENVIRONMENT, CLIMATE AND GENDER NEXUS

- Climate change is **impacted by and intertwined with** social structures, societal roles, including gender.
- The **energy transition** can intensify traditional gender roles and can affect women's livelihoods.
- Climate change's impact on **agriculture** fragilizes women who are more likely to depend on agriculture for their livelihoods.
- Scarcity of access to **water resources** is more likely to impact women.
- Unequal **access to resources** negatively impacts women's resilience to climate change.



II. WOMEN IN ENVIRONMENTAL DECISION-MAKING

- Women's participation in decision-making processes is a matter of **equality, efficiency, sustainability and diversity**.
- Women's participation in **environmental decision-making** is limited in BiH.
 - Female ministers lead only two of the 13 ministries related to energy, environment, and agriculture.
 - no woman holds a director position in energy public companies, and only 2 out of 24 supervisory board members are female.
 - No systematic data on municipal, entity-level BiH level employee workforce that works on climate or environment-related fields.



GENDER AND CLIMATE FINANCING BASELINE STUDY FOR SERBIA AND BOSNIA AND HERZEGOVINA

Overview of key denominators, policy and programming options

III. DATA GAPS

- We see a lack of **availability of gender-disaggregated data** which leads to **limited knowledge**.
- UN Women's **Gender and Climate Financing Baseline Study for Serbia and Bosnia and Herzegovina** analyses the linkages between **gender-responsive budgeting** and **climate financing**.
- UN Women is developing a **gender and climate country snapshot** focusing on gender roles in climate policy, structural barriers to women's engagement, economic Vulnerability, health risks and educational challenges.
- A **paper on women's participation in agriculture and agricultural decision-making** will be published next year, based on desk and field data collection.



IV. SHOWCASING ACTIVISM

- Women tend to be **more interested and invested** about climate action and the green transition
- Examples of activism:
 - The **Kruščica River Blockade**: Women protested hydropower developments on the Kruščica River
 - The **Uborak Landfill Protests**: Women mobilized to address the environmental and health hazards of a poorly managed landfill near Mostar
 - The **Doljanka river protests**: In Jablanica, the grassroots activism surrounding the Doljanka River hydropower project
 - In **Stolac**, another local movement has emerged to address an ecological crisis caused by **illegal fish dumping**, which has polluted local waterways and disrupted the ecosystem.
 - **Let me flow**: On the Neretvica River, the “Let Me Flow” movement (Pusti me da tečem) also led by women, was formed in response to the approval of fifteen small hydropower plants.
 - In Serbia, women have led **community-based environmental projects** that have significantly improved **local air quality**.
 - In North Macedonia, women have been at the forefront of **policy changes aimed at improving air quality**, showcasing their ability to drive meaningful change.



V. BUILDING CAPACITIES ON GENDER AND CLIMATE

- **Gender and Climate** remain largely **siloed**; climate experts and government workers typically have low or no gender awareness and technical knowledge, and vice-versa.
- In 2023, UN Women BiH organized **Gender and Climate Financing GRB trainings**, meant to equip municipal workers with knowledge on how to integrate RB into climate financing.
- Now, UN Women is exploring opportunities for **further intervention** and capacity-building at the local level.
- Possibility of holding **trainings for climate-related workers in municipalities** (environment; waste management; industries and all others) on how to integrate gender and how to design gender-sensitive plans.



| VI. A LOOK BACK ON COP29

- Extension of the **Enhanced Lima Work Programme on Gender**
- The New Collective Quantified Goal on Finance (**NCQG**) **lacks specific targets for gender-responsive finance.**
- UN Women ECA side events **on gender-responsive governance, investing in gender equality for a fair and green transition, unlocking financing for gender-responsive climate security and peace, and women's perspectives on the climate-water nexus and human mobility.**



Thank you