

Together for warm homes and clean air

Joint action on air pollution from domestic heating in Serbia

Background

Domestic heating is a significant source of air pollution in Serbia as many households operate wood or coal-fired stoves as the main source of heating. These devices emit large quantities of polluting substances, e.g. fine particles (PM_{2.5} and PM₁₀), including black carbon and volatile organic compounds (VOCs) resulting from incomplete combustion. A recent study by WHO on the health impact of air pollution in Serbia finds that nearly 3600 premature deaths every year are attributable to exposure to PM_{2.5} in 11 cities in Serbia. Large urban areas are particularly affected by poor air quality, particularly during winter, when solid fuels are commonly burned to heat homes. The situation is aggravated by the fact that energy poverty – a condition generally recognized to exist when people spend a disproportionate share of their income on fuel to heat their homes – is widespread in Serbia and the Western Balkans. Major health and economic benefits can thus be reaped by improving air quality through energy efficiency measures, awareness raising, and air quality monitoring, among others.

Key facts about air pollution from domestic heating in Serbia

	9,9% of households in Serbia cannot keep their homes adequately warm		
	More than one fourth (26%) are not capable of covering their bills for utility services on a regular basis		These are regularly three or more than three times higher than legally prescribed thresholds, both in terms of their levels and concentrations and in terms of the number of days with severe exceedance in one calendar year
	There is a strong correlation between poverty and use of inefficient wood-burning stoves for heating		300,000 households in Serbia do not have adequate insulation of their houses. An estimated 1 million households use inefficient solid fuel stoves for heating
	Serbia has recorded significant exceedances in air pollution by particulate matter, especially in the heating season		Women spend twice as much time on housework as men, especially preparing meals. It can be assumed that they are more exposed to the effects of indoor air pollution

Together – a wealth of knowledge

At the request of the Resident Coordinator in Serbia, the task team on air pollution under the Issue-Based Coalition (IBC) on Environment and Climate Change mapped impacts, challenges and solutions on air pollution from domestic heating in Serbia in a webinar, which considered pollution from domestic heating and other sources, experiences in addressing this issue, solutions and funding opportunities.

WHO

Air pollution from both outdoor and indoor sources represents the single largest environmental risk to health globally. Exposure to air pollution, especially airborne particulate matter is associated with increased mortality and morbidity, particularly from cardiovascular and respiratory diseases. WHO estimated that exposure to ambient air pollution accounted for 4.2 million premature deaths globally in 2016, including 0.5 million in the WHO European Region.

This disease burden is preventable if air quality improves. Solutions to address air pollution and protect human health require multisectorial and multi-stakeholder cooperation. WHO focuses on bringing forward the health argument, through consolidating scientific evidence, such as through WHO air quality guidelines, development of methods and decision support tools, capacity building and advocacy.

Residential heating with wood and coal is an important source of ambient and indoor air pollution. Evidence links emissions from that source to serious health effects. WHO analysis of health and policy aspects of residential heating with wood and coal highlights the relevance of addressing this source in the global efforts to tackle outdoor air pollution problems. A better understanding of the role of wood biomass heating as a major source of harmful outdoor air pollutants is needed, as well as better alignment between air pollution and climate policies and consideration of co-benefits for health and climate of reducing residential heating emissions.

In 2019, WHO published a report on the health impacts of air pollution in Serbia, applying the WHO AirQ+ tool. The analysis based on the concentrations of air pollutants measured in the national network of automatic monitoring stations and national data on mortality showed that the overall health impact of air pollution for the urban areas in Serbia was estimated at 6 394 attributable deaths, including 1796 premature deaths attributable to exposure to PM_{2.5} in Belgrade alone. The report provides evidence to inform policy-makers in devising strategies for disease prevention and health promotion. Policies to reduce air pollution need to target several sectors and sources, including access to affordable clean energy for cooking, heating and lighting in households.

Coherent multi-sectoral policies and actions are crucial, also in the context of future development and ensuring post-COVID-19 'building forward better'. Actions targeting transport, industry, power generation, agriculture, housing and land use, as well as efforts to set and implement air quality standards in line with WHO's Air Quality Guidelines are also among actions outlined in the WHO Manifesto for a health recovery from COVID-19.

UNICEF

Children are particularly vulnerable to the effects of air pollution from domestic heating, and data from UNICEF's Multiple Indicator Cluster Survey (2019) tell us that only 52 percent of households in the general population and 12 percent of households in Roma settlements primarily use clean fuels and technologies for cooking, space heating and lighting.

Children that are most impacted by indoor air pollution are those living in rural areas, those with lower economic status, children living in Southern and Eastern Serbia, and in Šumadija and Western Serbia, among others. Children younger than the age of 5, those with existing health conditions or disability and children living in Roma settlements are particularly vulnerable. Research shows that early-life exposure to air pollutants harms children's developing lungs, and contributes to higher risks of developing chronic diseases later in life.

To address the impact of air pollution on children, UNICEF recommends that a child rights and an inequality lens is introduced to existing air pollution action in Serbia - including improved data, improved transparency of public and private sector spending data etc. Active participation of children and youth is also required to bring in the child rights lens as they are the subjects of air pollution hazards, and funding gaps for child-sensitive action to mitigate air pollution need to be addressed.

UNDP

Air pollution recognizes no geographic boundaries and in fact is a transboundary environmental problem, it requires multiple resources, partnerships, and diverse capacities. In 2019, 6.7 million deaths were associated with air pollution, ranking the problem the fourth leading risk factor for death and disability worldwide.

UNDP Istanbul Regional Hub supports these efforts by identifying the policies with the highest potential to deliver on improved health and better air quality. A recently launched advocacy report on "Tackling air pollution in Europe and Central Asia for improved health and a greener future" assesses links between air pollution, climate and health, and explores holistic solutions with a set of policy interventions for major economic activities like industry, transport, health (health-care) waste, as well as domestic household activities such as heating and cooking. The report also examines international and corporate frameworks (e.g. the EU Green Deal, Paris Agreement and UNDP's Climate Promise, 2030 Agenda for Sustainable Development) and explores a set of interconnected policy interventions related to nature, climate, energy, and socio-economic themes linked to air quality. These interventions can pave the way for UN country teams to frame air pollution prevention as post-covid-19 recovery efforts.

UNEP

The Western Balkans region suffers from high levels of energy poverty, preventing a smooth transition to more sustainable heating systems through the replacement of the technologically outdated inefficient stoves. These are an environmental and health hazard. According to the recent study on Air Pollution and Human Health: the case of the Western Balkans, air pollution contributes to 15–19% of total mortality and reduces life expectancy by up to 13–16 months in Western Balkan cities.

At its first and third session, the United Nations Environment Assembly adopted resolutions UNEP/EA.1/RES.7 and UNEP/EA.3/RES.8, encouraging governments at all levels to take action across sectors to reduce all forms of air pollution. UNEP started the development of a UNEP-wide air quality programme with a view to offering an integrated menu of services to governments at different levels. Under this programme, UNEP works collaboratively with UN country teams and national partners in the Western Balkans to address urban air pollution challenges, through assessments, direct support to local action at city level, and through advocacy and awareness-raising including through the Southeast Europe Pollution Platform (SEEPP).

UNECE

A code of good practices for wood-burning and small combustion installations was developed under the UNECE Convention on Long-range Transboundary Air Pollution to guide Parties in applying best available techniques and good practices to abate emissions. While changing to best available combustion technologies is the measure of choice, the code also discusses behavioural measures regarding the selection of installation, selection of firewood, fuel loading, lighting the fire, combustion, extinguishing the fire, maintenance and inspection of domestic wood-heating devices that can lead to significant emission reductions and are cost-efficient and easy to implement. For example, the commonly used “bottom-fire” ignition method, by which the fire is lit at the bottom, produces about 75 per cent more emissions of fine PM than the modern “top-fire” ignition method. Awareness-raising is needed to reach this shift in behaviour.

WMO

WMO is committed to supporting air quality and health through enhanced observations, forecasts, warning, advisory services, capacity building and development.

Global Atmosphere Watch Programme, led by World Meteorological Organisation (WMO), provides reliable scientific information for policymakers, supports international conventions on stratospheric ozone depletions and monitors climate change and long-range transboundary air pollution.



UNEP DTU Partnership

UNEP DTU Partnership hosts the Copenhagen Centre on Energy Efficiency (C2E2) that works to accelerate adoption of energy efficiency programmes of cities and countries. It has a technical unit dedicated to development of district energy solutions and its activities include policy design, pre-feasibility and feasibility studies and capacity building.

Air pollution is a major driver for energy-efficient heating deployment and building retrofiting, in countries where there is urgent need for action - like Serbia, where C2E2 supported the development of the strategy for district heating utility 2015-2025. A district heating action plan was also adopted by the City of Belgrade. C2E2 developed a pre-feasibility study on the interconnection of four large heating zones of Belgrade and advanced the pre-feasibility study of solar thermal plant to complement existing district heating plant. In the future, together with other partners, work is expected to be developed under the Green Agenda for Serbia, which has the following objectives:

- **advance sustainable, low-carbon and renewable forms of energy provision;**
- **increase energy efficiency (e.g. of buildings) and uptake of bioenergy in district heating systems and by EPS;**
- **strengthen capacity for improved urban air quality;**
- **promote opportunities for green jobs and growth across a portfolio of targeted value chains.**

UNOPS

UNOPS supports its partners through high quality project and financial management, procurement and infrastructure services to expand partner impact on the ground in line with national and international development agendas, including the SDGs. It works with local and national governments, UN agencies and International Organizations, bilateral donors and other partners. Its sector neutrality and operational focus allows it to integrate the complementary competencies of various partners under a joint programming approach.

UNOPS can support national and local energy efficiency and heating priorities through the integration of actions within ongoing projects such as EU PRO Plus, design projects and joint programming initiatives in collaboration with partners, and provide technical assistance for development and implementation of projects to Government and municipalities. UNOPS familiarity with the country and infrastructure expertise can support the development of technically, financially and managerially sound investment proposals.

UNOPS can support building assessments, energy audits and the implementation of energy measures to enhance the energy performance of residential and public buildings. UNOPS procurement expertise can benefit the purchase of specialized equipment and appliances.

Together in a joint programme

A thematic subgroup on air pollution from domestic heating was established under the UN Country Team Results Group on Environment and Climate Change. This subgroup is the first of its kind to tackle a specific topic and aims to start discussions on a coherent joint programme, designed together to support the people and government of Serbia in solving the many challenges of clean and efficient heating for homes across the country, so that no one is left behind in the country's accelerating energy transition.

IBC on Environment
and Climate Change



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