



Photocover
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The Challenger
Air Quality In Kosovo

Newsletter 2
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FACTS

Project Title
Supply of Project Management, Air Quality Information Management, Behavior Change and Communication Services

Contract no.
RFP / MFK / 2019/ GCBS / No. 006

Budget
1.960.000 USD

Duration
24 months
(01.10.2019 – 30.09.2021)

Source of Funding
Millennium Challenge Corporation

Contracting Authority
Millennium Foundation Kosovo

Beneficiaries
National Institute of Public Health (NIPH)
Kosovo Environmental Protection Agency (KEPA)
Kosovo Hydro-Meteorological Institute (KHMI)

Contractor
NIRAS IC Sp. z o.o. (Poland) in consortium with Atmoxterm S.A. (Poland) and Umweltbundesamt GmbH (Austria)

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PROJECT IN THE COVID-19 PANDEMIC

The project Supply of project management, air quality information management, behavior change and communication services financed by Millennium Challenge Corporation (MCC) has continued intensively. Since mid-March 2020 the project continued under the severe restrictions imposed due to the COVID-19 pandemic. It resulted in the curtailment of air travel to Kosovo, a ban on crossing international borders, and restrictions on travel within the country. This has resulted in the international staff operating from the cities of Vienna, Opole, Zolotarev, Zagreb, Skopje). In agreement with MFK, all project communication is organized online, until restrictions related to the virus are lifted. This included meetings, workshops and training. Only activities related to Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) 4-weekly sampling and analysis were done in Kosovo with Kosovo Hydrometeorological Institute (KHMI) installing and collecting sampling tubes.

MAIN RESULTS TO DATE

The project achieved good progress despite the impact of COVID-19. Specifically, among the key results achieved are:

- Data platform and Open Data Service were prepared.
- Smartphone application (phase 1) was prepared.
- First draft of the emission inventory for Kosovo was prepared.
- Modelling of NO₂, SO₂, PM₁₀ and PM_{2.5} concentrations for all of Kosovo was completed.
- A draft short-term forecasting system for Kosovo, for O₃, NO₂, PM₁₀ and PM_{2.5} for the Air Quality Portal and Smartphone Application was developed.
- Outreach and Behaviour Change Concept Plan for the whole project was approved, which guides all outreach and awareness raising activities. A stakeholder workshop was held on 11 November 2020 which punctuates the start of an air quality public awareness campaign.
- Two cross-sectoral workshops were held for project beneficiaries (NIPH, KHMI and KEPA) and Government of Kosovo officials respectively.
- Project Gender and Social Inclusion Policy was developed.
- 2 Steering Committee, 1 Donor Coordination and 4 Technical Committee meetings were held.
- COVID-19 Risk Mitigation Plan has been developed to guide further successful implementation of the project in times of pandemic.

Air Quality Portal

The Air Quality Portal is an easy-to-navigate modern KHMI branded web portal using real-time and historical air quality data with a simple map and chart-based interface. The portal presents data from 13 air quality monitoring stations and the modelling and forecasting system. The Air Quality Portal for Kosovo was developed by Niras and reviewed by Millennium Foundation Kosovo (MFK), Kosovo Hydrometeorological Institute (KHMI) and National Institute of Public Health (NIPH). The current software structure diagram is presented in Figure 1. The web address <http://airqualitykosovo.rks-gov.net> is active (Figure 2 and 3 show visualization of air quality portal) but will not be made publicly available until testing is completed and the portal will be approved for public launch.



Figure 1.
Current software structure diagram.

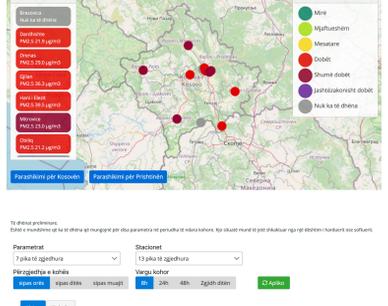


Figure 2.
Screenshot of air quality portal showing monitoring station locations

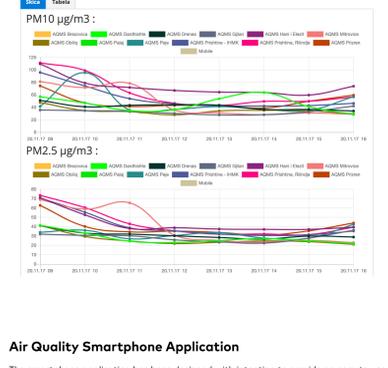


Figure 3.
Screenshot from air quality portal showing daily concentration of PM10 and PM2.5.

Air Quality Smartphone Application

The smartphone application has been designed with intention to provide an easy to use solution for iOS and Android platforms providing real time data on the level of air pollution in the EU Air Quality Index (AQI) data presented in a simple graphical format. The dissemination of information by smartphone application is the most effective way to inform citizens on "What is the air quality like today?" and what they should do in the event of high pollution levels. The smartphone application includes additional information like health effects for every level of pollution and recommended actions with specific advice for sensitive and vulnerable populations. Work on Phase 1 of the smartphone application resulted in developing the software and making it available to project stakeholders for testing and comments. The smartphone application is undergoing continuous improvement and will be reviewed by a focus group at the end of September prior to its finalization (Figure 4).

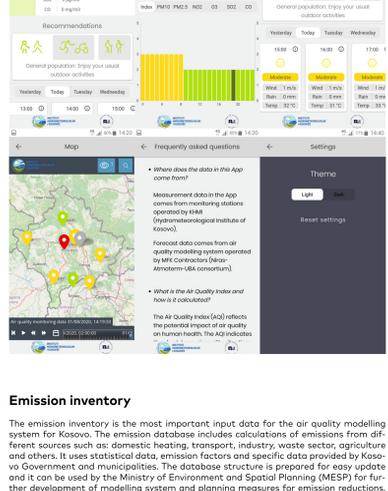


Figure 4.
Screenshot of the mobile application showing air quality and health advisory information.

Emission inventory

The emission inventory is the most important input data for the air quality modelling system for Kosovo. The emission database includes calculations of emissions from different sources such as domestic heating, transport, industry, waste sector, agriculture and others. It uses statistical data, emission factors and specific data provided by Kosovo Government and municipalities. The database structure is prepared for easy update and it can be used by the Ministry of Environment and Spatial Planning (MESP) for further development of modelling system and planning measures for emission reduction. An Emission Inventory Methodology Report was prepared by Niras with files and maps for the main pollutants. Work effort has been focused on completion of data collection for the emission inventory, and building an Excel data base. Site visits to see pollution sources, were organized in January, February and March 2020 in Merivocë, Prizren, Peja, Gjakova and Drenas.

Air quality modelling

For modeling of NO₂, SO₂, PM₁₀ and PM_{2.5} concentrations for all of Kosovo for comparison against the national ambient air quality standards the modelling system used the following main components:

- CALMET (a diagnostic three-dimensional meteorological model);
- CALPUFF (an air quality dispersion model); and
- CALPOST (a post-processing package).

Development of the modeling system will allow assessment and presentation of pollution levels in all of Kosovo, not only at the monitoring stations. Spatial distribution of pollutants modelled by CALPUFF enable the identification of the most polluted areas and estimate where and how many people are exposed to high levels of air pollution (Figure 5). This information is important for assessing potential health effects and in planning mitigation measures.

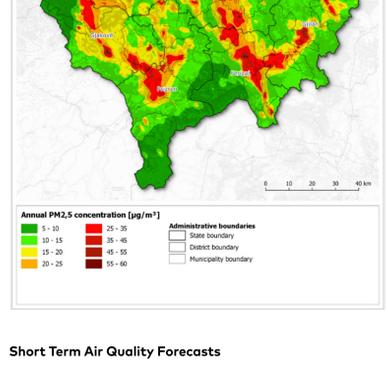


Figure 5.
Modelled concentration of PM2.5 in Kosovo.

Short Term Air Quality Forecasts

The focus of this Project's activity was on creation of a short-term forecasting system for Kosovo, for O₃, NO₂, PM₁₀ and PM_{2.5} as 3-day forecast which could be accessed through the Air Quality Portal and Smartphone Application.

A forecast system, based on air quality modelling, plays a crucial role in informing citizens about expected pollution levels. This information will enable people planning activities to reduce exposure to high pollution levels. The Project's experts continue to work on the short-term forecasting system for O₃, NO₂, PM₁₀ and PM_{2.5} on a grid of 1x1km in rural areas, and 0.5x0.5km in Pristina. The forecast is in operation (Figure 6) but is not yet publicly accessible. Niras continues to work on the development of forecasts in Pristina at street level and visualizations to be presented in the air quality portal.

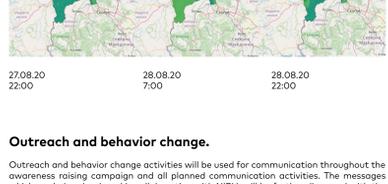


Figure 6.
Samples of 3 hours of PM10 forecast available in AQP

Outreach and behavior change.

Outreach and behavior change activities will be used for communication throughout the awareness raising campaign and all planned communication activities. The messages which are being developed in collaboration with NIPH, will be further discussed with the stakeholders and NGOs. The messages will be informed by best practice in communicating health messages on air pollution, tested first on adequate target groups before engaging in public communication (Figure 7). The languages used for communication of general messages will be Albanian and Serbian. The main goals of outreach and behavior change activities are:

- Explain what air pollution is (with focus on: smog and particle pollution).
- Explain main sources of air pollution in Kosovo (including individual heating using coal and wood, transportation, and thermal power plant).
- Explain what effects air pollution has on human health (direct effects which endanger human health and indirect by polluting the environment as sources of drinking water and food – vegetables and animals).
- Introduce health protection behavior in relation to the level of pollution.
- Educate on ways for air pollution reduction to motivate change of behavior.

Figure 7.
Health messages in the public campaign.

AQ Index	General population	Sensitive Populations (adults and children with respiratory problems and adults with heart conditions).
Good	The air quality is good. Enjoy your usual outdoor activities.	The air quality is good. Enjoy your usual outdoor activities.
Fair	Enjoy your usual outdoor activities.	Enjoy your usual outdoor activities.
Moderate	Enjoy your usual outdoor activities.	Consider reducing intense activities outdoors, if you experience symptoms.
Poor	Consider reducing intense activities outdoors, if you experience symptoms such as sore eyes, a cough, or sore throat.	Consider reducing activities, particularly outdoors, especially if you experience symptoms.
Very poor	Consider reducing intense activities outdoors, if you experience symptoms such as sore eyes, a cough, or sore throat.	Reduce activities, particularly outdoors, especially if you experience symptoms.
Extremely poor	Reduce physical activities outdoors.	Avoid physical activities outdoors.

A range of methods will be used during Outreach and Behavior Change campaign, including:

- Websites containing information on air quality and health.
- Real time information on air quality.
- Smartphone application.
- Media campaigns.
- Carry-on informative-educational pocket brochure.
- Informative-educational poster.
- Informative fact sheets.
- AQ supportive selfie video clips.
- Education of children on the subject of air pollution.
- Air Quality Day event

Revised Concept of Outreach and Behavior Change was approved by MFK on July 29, 2020. The launch of the public campaign is postponed to late October 2020. However, all technical functionalities needed successful implementation of the Campaign (figures as real-time information on actual level of air-pollution and related smartphone application, will be completed and be fully operational before the launch. The first phase of awareness raising campaign will be completed in mid-December 2020 and launched in early November 2020. It is planned to last until mid-December 2020 and to be continued with its second phase starting from January and lasting until March 2021.

Cross-sectoral workshops

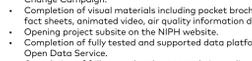
Two cross-sectoral workshops were conducted in January and February 2020. The first workshop was organized for the key project beneficiaries: NIPH, KHMI and KEPA. The air pollution signage was agreed in voting. Public Campaign was discussed and useful advice was obtained regarding the sub-website of the NIPH website. Role Play provided useful information regarding the use of monitoring data and health advisory to educate the population. Advice for vulnerable groups behavior in relation to high levels of air pollution was also obtained (free public transportation, subsidies for masks, stay at home during high level of pollution, subsidies for air cleaners). A list of measures to reduce pollution levels was discussed.



Figure 8.
First inter-governmental workshop, January 21, 2020.

Gender and Social Inclusion

The Gender and Social Inclusion Policy was mainstreamed into project activities since May 2020 through a number of recommended actions grouped under Air Pollution Data, Provision Access and Use, Behavior change communication, and Strengthening partnerships between the government institutions and the Civil Society.



Upcoming activities

The project is entering very intensive phase. The following activities are planned in Q4 2020:

- Stakeholders Conference.
- Launching of Outreach and Behavior Change Campaign.
- Completion of visual materials including pocket brochure, poster, fact sheets, animated video, air quality information days.
- Opening project sub-site on the NIPH website.
- Completion of fully tested and supported data platform and Open Data Service.
- Completion of fully tested and supported air quality application.
- Completion of fully tested and supported Phase 1 of smartphone application.
- Completion of emission inventory.
- Training on emission inventory.
- Third donor newsletter.
- Donor coordination meeting.
- Training of KHMI staff on heavy metals analysis.

Read more about those activities in the next edition of our newsletter.

