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Battle for Cleaner Air: Bosnia and Herzegovina and North Macedonia



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Defeating statistics and a will for a healthier environment

The Western Balkans countries in recent times became a synonym for air pollution, waste mismanagement, and urbanization that is taking the toll on the rich biodiversity in the region. The lack of environmental awareness on political, communal and individual level is often pointed out as one of the causes to blame¹. The last thirty years brought up generations dealing with a post-war and transitional economy, rushing for better life and more money on the expense of the communal spaces and the nature². A sense of community and care for the environment indeed were present in Yugoslavia to some extent, even though industrialization prevailed³. Nevertheless, most of it started to get lost as other, seemingly more important topics, took over the public domain in the post-wars period. As a consequence, today the Western Balkan countries are living through the negative impacts of this negligence. Nowadays, waves of activists, experts, eminent professors⁴, non-profit organizations and politicians are joining more and more the fight against the air pollution, with the aim to restore a healthy environment and ensuring a sustainable development.

North Macedonia and Bosnia and Herzegovina in the last decade have been struggling with both maintaining the natural richness and biodiversity they possess, and combating the impact of pollution and climate change. From the number of issues, such as the still prevailing fossil-fuel economy, waste mismanagement, and construction of small hydropower plants, among others, the air pollution remains as the most severe problem. The capital cities Sarajevo and Skopje, but also Belgrade, are frequently present on the lists and statistics as one of the most polluted cities in the world⁵. As "European Western Balkans" reports, based on the real-time Air Quality Index (AQI), in 2020 Sarajevo held the 4th place on the list of the world's most polluted cities⁶. The quality of air in Sarajevo has been marked as "very unhealthy", with PM10 and PM2.5 particles high above the recommended World Health Organization health threshold⁷. The Macedonian capital Skopje, similar to Sarajevo, has a 4.5 times higher concentration of PM2.5 particles than the limit recommended by the WHO. Moreover, the neighboring

¹ Danova, Elena. Personal Interview. August 2021.

² Personal Interview. 02. August 2021.

³ Ibid.

⁴ Personal Interview. 03. July 2021.

⁵ EMB. "Sarajevo and Belgrade among the most polluted world capitals". European Western Balkans. available at: https://europeanwesternbalkans.com/2020/01/13/sarajevo-and-belgrade-among-the-most-polluted-world-capitals/ (accessed July 2021)

⁶ Krupalija, Rasid. "Bosnian Capital Chokes "In Own Category" of Air Pollution". Balkan Insight. available at: https://balkaninsight.com/2020/01/13/bosnian-capital-in-its-own-category-as-air-pollution-levels-soar-in-sarajevo/ (accessed July 2021)

⁷ World Health Organization. "Ambient (outdoor) air pollution". World Health Organization. available at: https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health (accessed August 2021)

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city of Tetovo's has reached even 8.1 times higher⁸, and Bitola during winter months is no different. In BIH, Tuzla and Zenica are also periodically found on the lists of cities with some of the worst air quality in the region.

Knowing that both BIH and North Macedonia are heavily affected by the severe air pollution, especially during winter months, is worth looking into what kind of measures are being implemented on national and local level, and what is their potential to induce positive changes. Therefore, this research will provide an outlook of the local implementation in various Bosnian and Macedonian cities, bringing together opinions from activists and experts working on the topic. Why this is important? As the air pollution rises, the recorded rate of premature deaths is higher than the European average, for example. Different statistics and different experts point out to different sources and contributors to the air pollution in BIH and North Macedonia, with two contributing factors named as the leading sources: households heating solutions and the geography of the cities⁹.

⁸ Lusuan, Angelique. "Air pollution in Skopje: how citizens spurred policymakers towards the change". European Commission. Brussels: European Commission, 2020. available at: https://cordis.europa.eu/article/id/413275-air-pollution-in-skopje-how-citizens-spurred-policymakers-towards-the-change (accessed July 2021)

⁹ Personal Interview. 03. July 2021.

Context, causes, plans and measures in BIH and in North Macedonia

Causes for the air pollution may vary in the two countries, however as Mr. Rijad Tikvesha, president of the Sarajevo-based "Ekotim" summarized, they all more or less fall under the following three main categories: 1) the households and their heating solutions, 2) the industry and 3) the traffic¹¹. Moreover, experts from both countries say that the combination of partially closed off valleys with dense urbanization in relatively small surface areas, characterized with improper planning and high concentration of households using pollutants for heating should be considered as the largest contributor to the air pollution¹². Nevertheless, investigative journalism efforts in North Macedonia have put forward serious allegations towards leading industrial capacities, claiming them as responsible for polluting the air, and without any legal consequences¹³, by using fossil fuels and refuse derivate fuels¹⁴ that are damaging for the environment and the air quality. Consulted experts from BIH say the situation is similar with the domestic industrial capacities and polluting thermal power plants¹⁵.

Nevertheless, both in BIH and North Macedonia the energy transition is accelerating as well, with national energy strategies and plans being adopted and some progress being noted. For instance, both in North Macedonia and BIH, renewable energy capacities are being installed and more are planned to rise, with solar and wind energy investments¹⁶ primarily finding their way on the market. Ultimately, more renewables should mean less pollution and cleaner air, as well as better preserved biodiversity. In that sense, the question of the small hydropower plants is becoming an increasing problem in both countries¹⁷ and the latest hot potato to hold. On one hand, the water itself nominally is a clean energy source and there is an abundance of water potential in both countries. Therefore, the idea itself for investing in hydropower plants for the purpose of generating clean energy is not necessarily the ultimate evil. However, a number of activists from both countries¹⁸ are determined in the opinion that the intensity and

¹⁰ Ekotim. Pocetna [Home Page]. available at: http://ekotim.net/bs/ (accessed August 2021)

¹¹ Tikvesha, Rijad. Personal Interview. August 2021.

¹² Personal Interview. 02. August 2021.

¹³ Cvetkovska S., et al. "Последната европска депонија: Се печалат милиони на сметка на здравјето на македонските граѓани" [The last European landfill: Millions are being made at the cost of the Macedonian citizens]. Deutsche Welle in Macedonian (2021). available at: https://www.dw.com/mk/ (accessed July 2021)

¹⁴ RDF: Waste-produced fuel, highly contaminating

¹⁵ Tikvesha, Rijad. Personal Interview. August 2021.

¹⁶ Spasic, Vladimir. "Think tanks supporting Western Balkans accelerate energy transition, reach Green Deal". Balkan Green Energy News (2021). available at: https://balkangreenenergynews.com/think-tanks-supporting-western-balkans-accelerate-energy-transition-reach-green-deal/ (accessed July 2021)

¹⁷ Gallop P., et al. "Western Balkans hydropower: Who pays, who profits?" Bankwatch Network (2019). available at: https://bankwatch.org/wp-content/uploads/2019/09/who-pays-who-profits.pdf (accessed August 2021)

¹⁸ Kordic, Vedran. Personal Interview. August, 2021.

the positioning of the small hydropower plants has turned out to be highly damaging for the biodiversity of BIH and North Macedonia¹⁹, causing more harm than benefits.

Going back to the air quality and putting things into a broader political context, we need to keep in mind that the two countries are aspiring EU member states, and the process of integration is bound to bring improvements. At least the people are hoping so it will happen. North Macedonia is already a NATO member too, and the EU journey as rocky as it is, is still moving forward and faster than that of BIH. In recent years, the two countries have adopted laws, plans and strategies to improve the air quality. The Macedonian government has adopted a program for reducing the air pollution in the country, following a survey done at the beginning of 2017 to detect the main pollutants coming from the domestic heating solutions. The findings of the survey based on a representative sample of 5044 households²⁰ together with analysis of data collected during the previous years formed the basis for creating the program. The main causes for the air pollution were categorized based on the polluting sources and then divided into primary and secondary sources. The primary sources have been defined as those emitting the pollution into the air directly, while the secondary sources as those causing air pollution through an interaction with either other sources or forming polluting particles in combination with the unpolluted air. Furthermore, based on the sources the pollution originates from and the type of activities needing to be undertaken, the Macedonian government presented the following priority actions²¹:

- Monitoring the air quality
- Improving the capacities of the inspectorates for environmental inspection
- Increasing the public awareness through educational campaigns
- Reduction of emissions of polluting substances from household warming
- Urban greenery expansion
- Waste management
- Transport: amending the vehicles' law and improving the public transportation
- Industry inspections
- Construction sites controls

¹⁹ Gallop P., et al. "Western Balkans hydropower: Who pays, who profits?" Bankwatch Network (2019). available at: https://bankwatch.org/wp-content/uploads/2019/09/who-pays-who-profits.pdf (accessed August 2021)

²⁰ Government of the Republic of North Macedonia. "Plan for Clean Air." Government of the Republic of North Macedonia (2019). available at: https://vlada.mk/node/15965?ln=en-gb (accessed August 2021)

²¹ Ibid



These activities started to be undertaken in 2019 and 2020, with a continuation into the present day (2021), with some of the actions containing clauses for urgent measures on local level when the air pollution would be increasing. The goals predicted to be achieved through this action plan by the end of 2020 are: 1) reducing the air pollution by 50% in Skopje and 2) between 30% and 50% in the other Macedonian cities²². There has been some success achieved, however experts say that these ambitious goals are still far from being reached and sustained over a longer period of time. In BIH on the other hand, both Republika Srpska and the Federation of BIH have worked up laws for air quality protection. The FBIH's draft law for air quality protection contains articles defining various terms, definitions, pollutants and other aspects of the air pollution, then what kind of measures should each of its cantons follow, and defines the process of inspecting and fining the pollutants²³. Having this law as a framework on entity level, is left up to the cantons to further implement concrete actions and measures on local level. Republika Srpska's law for air quality protection from 2011²⁴ sets a similar framework and concrete actions and plans have been left to be additionally adopted. In both cases, these Bosnian laws stipulate establishing systems and mechanism in place for monitoring the air quality, inspecting pollutants, undertaking measures on local level and fining procedures.

²² Ibid

²³ Government of the Federation of Bosnia and Herzegovina. NACRT ZAKON 0 ZAŠTITI ZRAKA [Draft Law for Air Protection]." Government of the Federation of Bosnia and Herzegovina (2019). Sarajevo: FBIH, 2019. available at: https://parlamentfbih.gov.ba/v2/userfiles/file/Materijali%20u%20proceduri_2019/Nacrt%20zakona%20o%20zastiti%20zraka%20bos.pdf (accessed August 2021)

²⁴ Government of Republika Srpska. "ЗАКОН 0 ЗАШТИТИ ВАЗДУХА [Law for Air Protection]." Government of Republika Srpska (2011). available at: https://rhmzrs.com/wp-content/uploads/2019/01/zakonm-o-zastiti-vazduha. pdf (accessed August 2021)

How to win the battle?

Knowing the main causes for the air pollution, the plans and laws adopted, the availability of data, specialists, and the international support – the question of how to continue further in order to win the battle remains. The European Environment Agency, in addition to the opinions from the regional experts, reaffirms that the pollution specific to the Western Balkans is a result of the old industrial capacities still in operation, and the domestic heating, which in many populated areas is not properly organized²⁵. Both countries already have some good winning positioning, at least when it comes to nominally setting up the framework through their laws and plans directed towards air quality protection. Moreover, statistics and data both on local and national level are available as well. When comparing the two countries in their battle for a cleaner air, North Macedonia seems to have a more visible progress, mostly due to the more specific plans and action strategies for improving the air quality that have been adopted on national level, but also more diversified measures on local level in several cities, including the capital of Skopje²⁶.

²⁵ European Environmental Agency. Western Balkans Brochure. ISBN: 978-92-9480-192-0. Luxembourg: Publications Office of the European Union, 2019. DOI: 10.2800/299674

Even with the progress made in recent years, North Macedonia still has a long way to go in untangling itself from the air pollution and win the battle for a greener future. For instance, the country still uses lignite that is present in many of its industrial capacities and thermal power plants, which comes in abundance there, is cheap, but also very polluting²⁷. Moreover, old vehicles crowd Skopje and other bigger cities in North Macedonia. The Macedonian government²⁸ and some municipalities have adopted plans for gradual replacement and removal of old vehicles through regulation of the market and a string of limitations for those wanting to purchase old vehicles both for commercial and business use. Results from these type of measures are yet to be seen and materialized in the upcoming years. Of course, the citizens keep on complaining for the rising price of cars and petrol. Consequently, a better-organized public transportation is in the works as a good alternative for a greener future. Skopje, for instance, plans to offer it in the upcoming years with its latest project for rapid bus transit tracks²⁹, that should better connect the city and its suburbs. Another Macedonian city, Tetovo, announced an organized public transportation by buses to be put in place during summer 202130. In comparison, plans and news on improving and expanding local public transportation in Bosnia and Herzegovina come more rarely.

²⁷ Lee, Joi and Viktorija Mickute. "Inside Skopje, Europe's most polluted capital city." *Al Jazeera* (2019). https://www.aljazeera.com/features/2019/3/19/inside-skopje-europes-most-polluted-capital-city (accessed July 2021)

²⁸ Ministry of Economy. "Закон за моторни возила [Law for motor vehicles]". Government of the Republic of North Macedonia. available at: https://www.economy.gov.mk/ (accessed July 2021)

²⁹ Reiserer, Axel. "Skopje to introduce first Bus Rapid Transit system in Western Balkans." European Bank for Reconstruction and Development (2021). available at: https://www.ebrd.com/news/2021/skopje-to-introduce-first-bus-rapid-transit-system-in-western-balkans.html (accessed July 2021)

³⁰ Samardziev, Aleksandar. "Општина Тетово ги промовираше петте нови автобуси за jaвен превоз [The Municipality of Tetovo promoted the new five buses for public transportation]." *Macedonian News Agency (2021).* available at: https://mia.mk/opshtina-tetovo-gi-promovirashe-pette-novi-avtobusi-za-aven-prevoz/ (accessed July 2021)

Environmental specialists and activists speak up

When discussing about the air pollution, and what the progress in the fight against it is, the environmental activists in both countries show a degree of skepticism. They claim that better solutions are out there³¹ and are willing to provide recommendations if the officials would show more will to collaborate, instead of being threatened by the criticism and file lawsuits against them³². Furthermore, the political circumstances influence the situation in both BIH and North Macedonia and the approach towards the measures adopted is judged differently in the two countries. Local officials in North Macedonia and the deputy minister for environment, Mr. Jani Makraduli reinforce the statistics on the air pollution sources, saying that definitely one of the main reasons is that many citizen use firewood and old furnaces for heating during winter months due to their financial situation³³, and that the government is doing its best to provide alternatives. As much as the domestic experts would agree to an extent, the impact of the industrial capacities is not to be underestimated as well. According to the activists in both countries, putting the blame solely on the back of the income-weak citizens is seen as unjust, saying that the officials can indeed do better while combating the air pollution and provide stronger systematic solutions.

The activists are putting the emphasis on the fact that many of the people are only trying to fight back life in energy poverty. Adding that the corruption linking the politicians, local authorities and businesses is in fact the bigger issue causing large chunk of the air pollution. Strong evidence for these claims are still yet to be found and presented. Moreover, the electricity tariffs both in North Macedonia and BIH are among the lowest in Europe and yet the total energy bills often take up larger amounts of most of the salaries paid in the countries, compared to the EU average. As a result, many residents, especially those living in the urban areas, cannot always afford clean energy heating sources. As many as up to 45% of Skopje's residents in the last decade on average have turned to firewood to heat their homes. The percentages are similar for Sarajevo in BIH as well. Looking into the quality of the furnaces and the firewood used, a lot of them are often purchased on the black market, with low efficiency, and other fueling alternatives are reportedly also used, that are much more polluting³⁴, such as old furniture, clothes and pallets.

³¹ Podic, Anes. Personal Interview. July 2021.

³² Lemeš S., et al. "Studija o uticaju kvaliteta zraka na zdravlje opće populacije stanovnika Tuzle, Lukavca i Živinica - Kratak vodič o pravnoj zaštiti žrtava zagađenosti [Study on the impact of air quality on the general population of Tuzla, Lukavica and Zivinica – Brief guide for legal protection of the victims of pollution]." Centar za Energija I Ekologija [Center for Energy and Ecology]. Tuzla: Center for Energy and Ecology, 2020. available at: http://ekologija.ba/wp-content/uploads/2020/12/2 studija- vodic-o-pravnoj-zastiti-zrtava-zagadienosti.pdf

³³ Press24. "Јани Макрадули: Чист воздух мора да има за сите, тоа е приоритет од кој нема откажување [Jani Makraduli: Clean air has to be for all, it is a priority from which there is no backing up]." Press24 (2019). available at: https://press24.mk/node/409729 (accessed July 2021)

³⁴ Lee, Joi and Viktorija Mickute. "Inside Skopje, Europe's most polluted capital city." Al Jazeera (2019). https://www.aljazeera.com/features/2019/3/19/inside-skopje-europes-most-polluted-capital-city (accessed July 2021)

Low-efficiency furnaces using wood, coal and other polluting alternatives through their combustion are producing a large input of the PM2.5 particles in the air the during winter months. Mrs. Julijana Peneva, environmental specialist working in the Municipality of Tetovo explains that there is no other more damaging source for pollution nowadays in North Macedonia that these types of heating solutions³⁵. A specialist understanding the situation and dealing with the same problematic in Sarajevo reassures the same is true there as well³⁶. No wonder one of the most popular measures in both North Macedonia and BIH have been replacing old household furnaces with new ones. Aside from replacing old furnaces, the Macedonian authorities started offering vouchers for bikes, electronic scooters and for cleaning households' chimneys. In North Macedonia, there are also plans for trying out some innovative solutions involving modern technology, such as measuring the air quality with drones. Bosnia and Herzegovina, on the other hand, when compared to North Macedonia, is perceived as lacking behind³⁷ also in regards to implementing similar innovative solutions.

In addition to getting the praise of being the region's leader with the latest measures against air pollution, accelerating the energy transition and the environmental protection in recent years, Macedonian cities on their local level have also been pointed out for introducing measures deemed as more efficient compared to the Bosnian cities. Why? Factors vary. In the next parts of this research, some comparative examples will be presented, with Skopje and Sarajevo as capital cities "facing off" next in the battle for cleaner air. Other cities from North Macedonia and BIH are considered as well, in order to see the level of success the countries have on local level when implementing various measures, understand if really North Macedonia is leading the way and ultimately seeing what the two countries can learn from one another. The bottom line is that working on this topic is never too exhaustive and experts agree that it needs to get more intense if we want a real change for the better, in both North Macedonia and BIH. Finally, motivating the citizens³⁸, especially young generations, to take charge, to continue to fight against air pollution, contribute with personal examples and demand environmental protection and mindful management of the natural resources, is crucial for securing a prosperous and sustainable development of the region.

³⁵ Peneva, Julijana. Personal Interview. July 2021.

³⁶ Ceric, Faruk. Personal Interview. July, 2021

³⁷ Personal Interview. 03. July 2021.

³⁸ Danova, Elena. Personal Interview. August 2021.

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