



AIR QUALITY MANAGEMENT IN MONTENEGRO

**ECRAN-TAIEX Workshop on air
quality modelling, 2nd annual working
group meeting**

20-21 October 2015
Ankara, Turkey

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Milestones

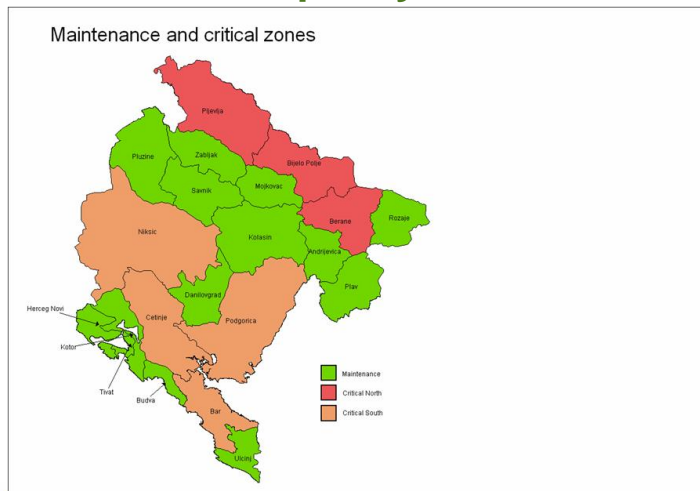
- 2010
Law on Air Protection adopted, followed by set of secondary acts (12)
- 2011
AQ Monitoring Network established in accordance with EU legislation
Reporting to EEA in accordance with requirements
- 2012
National Strategy for Air Quality Management
- 2013
AQ Plan for Municipality of Pljevlja
- 2014
Real time reporting on Air Quality
AQ Plan for Municipality of Nikšić
- 2015
Pollen monitoring network (5 stations)
IPA funds insured for improvement of the AQ Network
AQ Plan for Capital City Podgorica, Amendments to Law on Air
Protection, full transposition of AQ directive



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Air quality zones

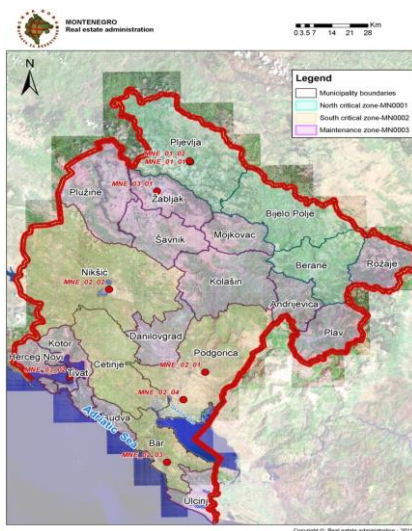


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Air quality monitoring network



In accordance to **Regulation on air quality monitoring network (2010)** EPA has started activities for establishing **National Air Quality Network**. Regulation foresees 7+1 (EMEP) monitoring sites in 3 zones – **South and North Critical Zones and Maintenance Zone**

Pljevlja (PM hot spot) UB
Gradina (SB)
Žabljak (EMEP)
Nikšić UB
Podgorica (UT)
Golubovci (SB)
Bar UB
Tivat UB



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Measured parameters

	Zone	Type of measurement site	Pollutants measured for the protection of human health	Pollutants measured for the protection of vegetation
1	Maintenance Zone - Tivat	UB	NO ₂ , PM ₁₀ , PM _{2.5}	
2	Maintenance Zone - Žabljak	RB	O ₃ , EMEP	
3	North Critical Zone - Pljevlja	UB	SO ₂ , NO ₂ , PM ₁₀ , PM _{2.5} , Cadmium, Arsenic, Nickel, benzo(a)piren	
4	North Critical Zones - Gradina	SB	O ₃	NOx, SO ₂ , volatile organic compounds (VOC)
5	South Critical Zones - Golubovci	SB	O ₃	
6	South Critical Zones - Nikšić	UB	NO ₂ , SO ₂ , PM ₁₀ , PM _{2.5} , Cadmium, Arsenic, Nickel, benzo(a)piren, O ₃ , CO, benzene	
7	South Critical Zones - Bar	UB	NO ₂ , SO ₂ , PM ₁₀ , PM _{2.5} , Cadmium, Arsenic, Nickel, benzo(a)piren, O ₃ , CO, benzene	
8	South Critical Zones - Podgorica	UT	NO ₂ , PM ₁₀ , CO, benzene, benzo(a)piren, lead	



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The main sources of air pollution

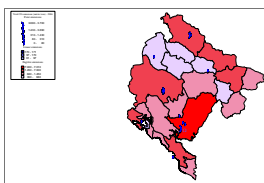
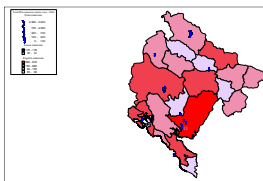
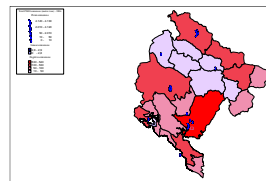
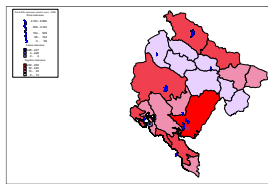
- Relatively small number of industrial installations (TPP, KAP, Still Plant)
- Domestic heating combined with meteo conditions
- Transport



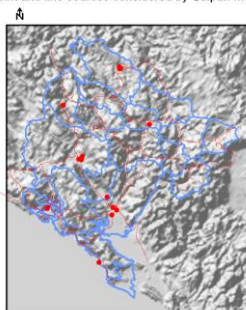
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Emissions sources**Emissions sources - CO****Emissions sources - NO_x****Emissions sources – PM****Emissions sources - SO_x**

Point and line sources considered by Calpuff model



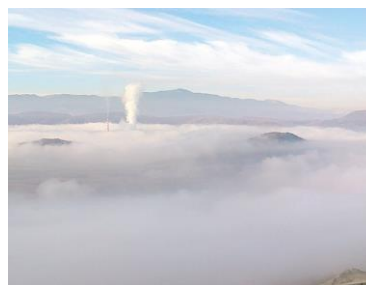
The map shows the location of the main point and line sources over the whole territory of Montenegro



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Air pollution monitoring data**WHO PM₁₀ - 20 µg/m³ (annual mean)**Pljevlja (UB - hot spot) **79,51 µg/m³**Nikšić (UB) **45,72 µg/m³**Podgorica (UT) **33,97 µg/m³**Bar (UB) **32,92 µg/m³****WHO PM_{2,5} - 10 µg/m³**Pljevlja (UB - hot spot) **45,69 µg/m³**Nikšić (UB) **26,21 µg/m³**Tivat (UB) **16,22 µg/m³**Bar (UB) **14,22 µg/m³**

Winter day in Pljevlja valley

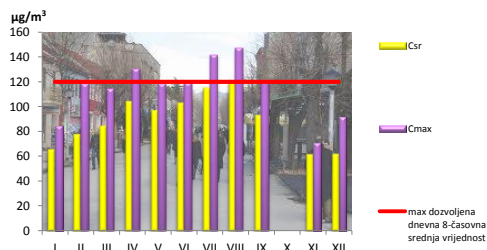


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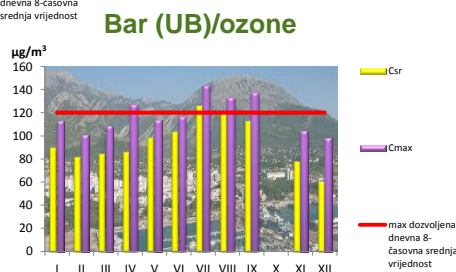
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Air pollution monitoring data



Nikšić (UB)/ozone

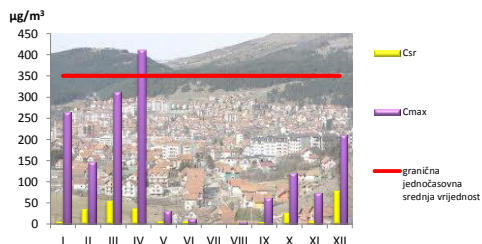


Bar (UB)/ozone



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Pljevlja (UB hot-spot)



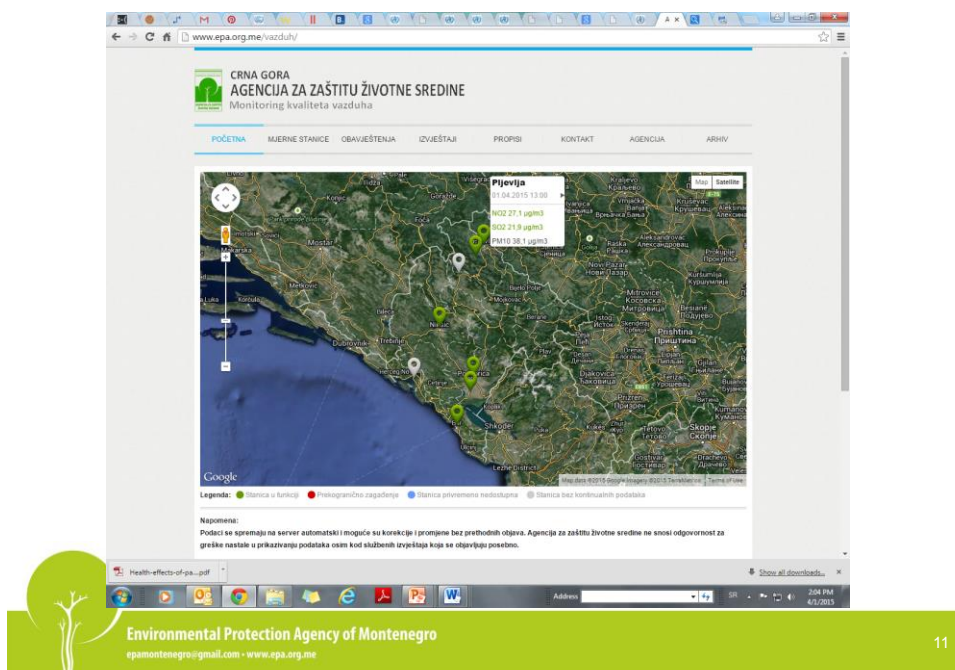
SO2

- Podgorica (UB) 24,45 µg/m³
- Bar (UB) 13,18 µg/m³
- Nikšić (UB) 15,26 µg/m³
- Pljevlja (UB) 16,17 µg/m³



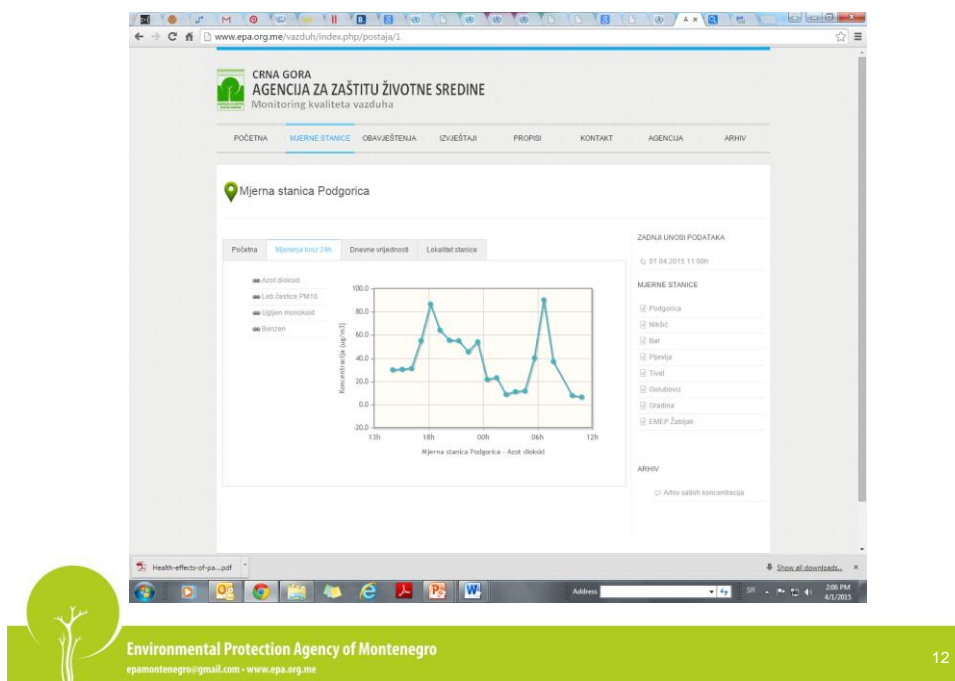
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Future work

- AQ monitoring network started with 5 automatic stations in 2009. Now there are 7 and with IPA funds insured, in 2016/17 there will be total 10 including one functional EMEP station. The same project will provide for lab equipment and revision of the network
- There is a plan to make a pilot health impact assessment in Pljevlja with support of WHO (with possible follow-up with other AQ zones)
- There is also a plan to enlarge network for pollen (currently 5 stations)
- World Bank (WBIF) included Montenegro in the regional study on possibilities to use alternative fuels (biomass) for domestic heating.

THANK YOU FOR YOUR ATTENTION

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