

Air quality monitoring in Republic of North Macedonia

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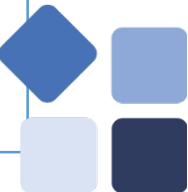
Air quality monitoring



Ministry of environment and physical planning is responsible for management with the State air quality monitoring system

Establishment of the SAMSAQ is based on Rulebook on the methodology for monitoring of the ambient air quality

- Criteria for location selection for measurements
- Classification of measurements locations
- Referent methods for measurements
- Criteria for establishing the minimum number of fixed measurement locations for sampling



Air quality monitoring



1998 year

- JICA – study for air quality monitoring in Republic of Macedonia
- 4 monitoring stations and a central software

2002 year

- PHARE COP'99 - 3 monitoring stations and 3 high volume samplers

2004 year

- CARDS 2001 - 8 monitoring stations, 1 high volume sampler and 6 low volume samplers
- Calibration laboratory, balance and a service vehicle

2011 year

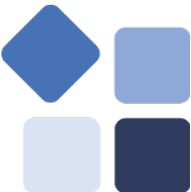
- IPA 2008 – 2 monitoring stations and software for air quality data management

2017 year

- IPA 2012/2013 – 11 analyzers, mobile station and a service vehicle

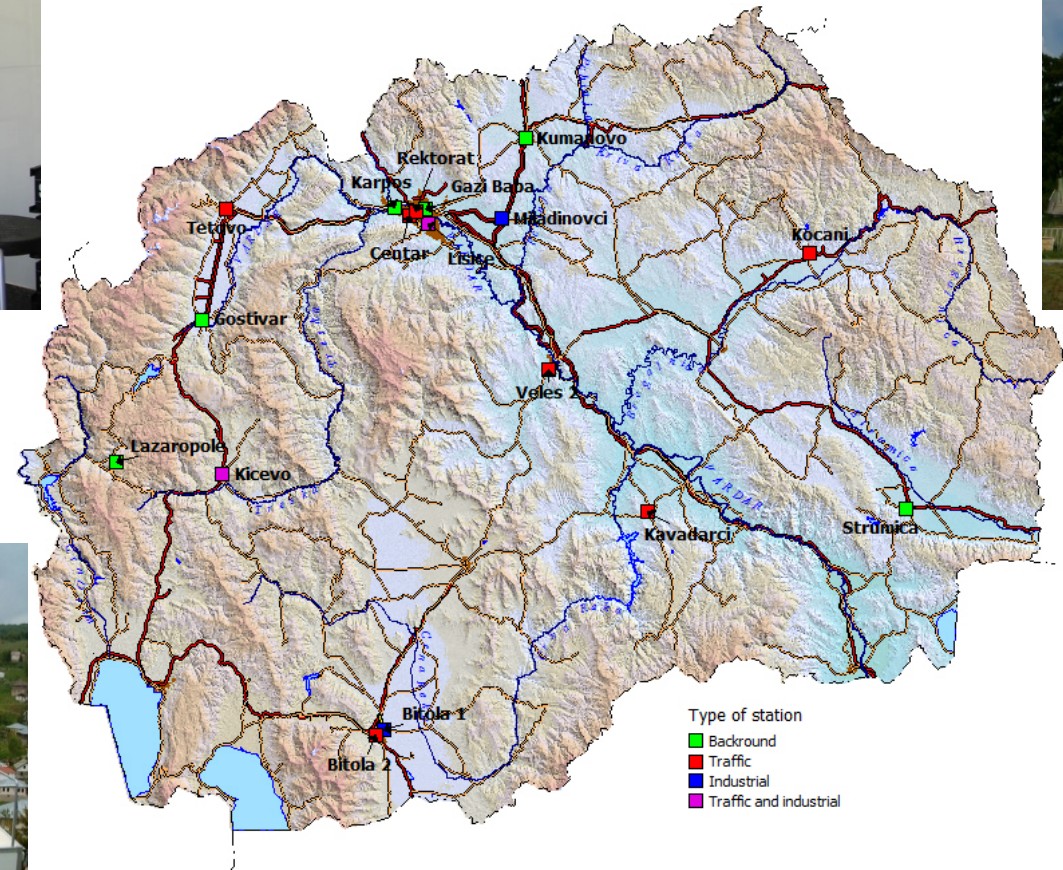
2020 year

- IPA CBC MK - Greece – 1 monitoring station, 7 instruments



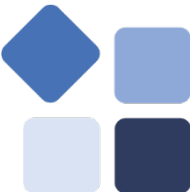
State monitoring system for ambient air quality

- 18 fixed monitoring stations and 1 mobile monitoring station
- Parameters: SO₂, NO, NO₂, NOX, CO, O₃, PM10, PM2.5
- Indicative measurements for heavy metals and PAHs



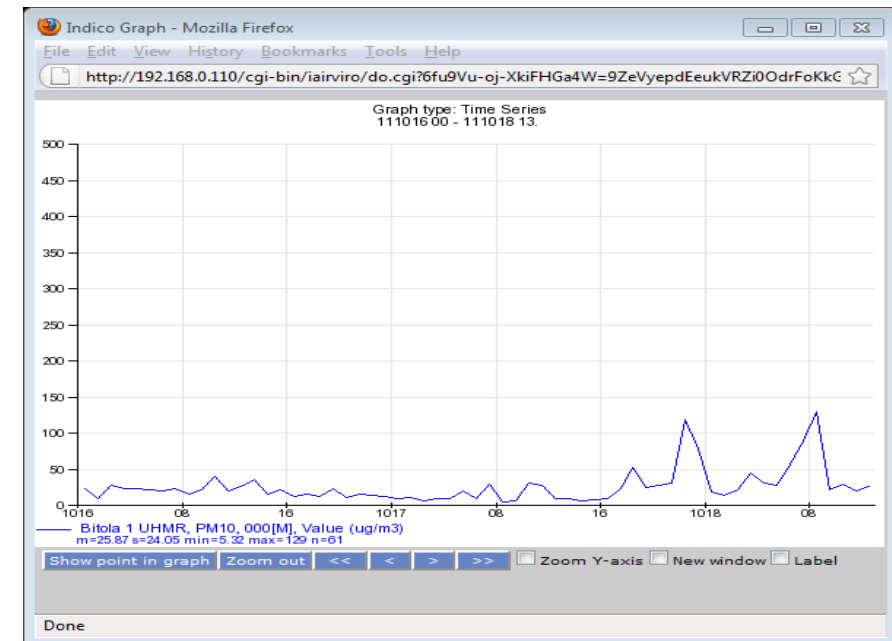
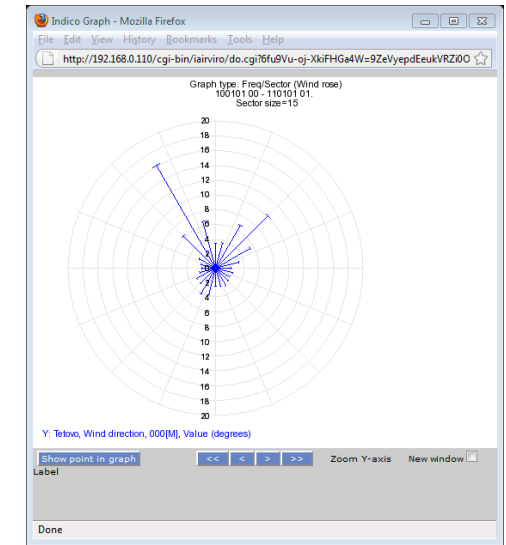
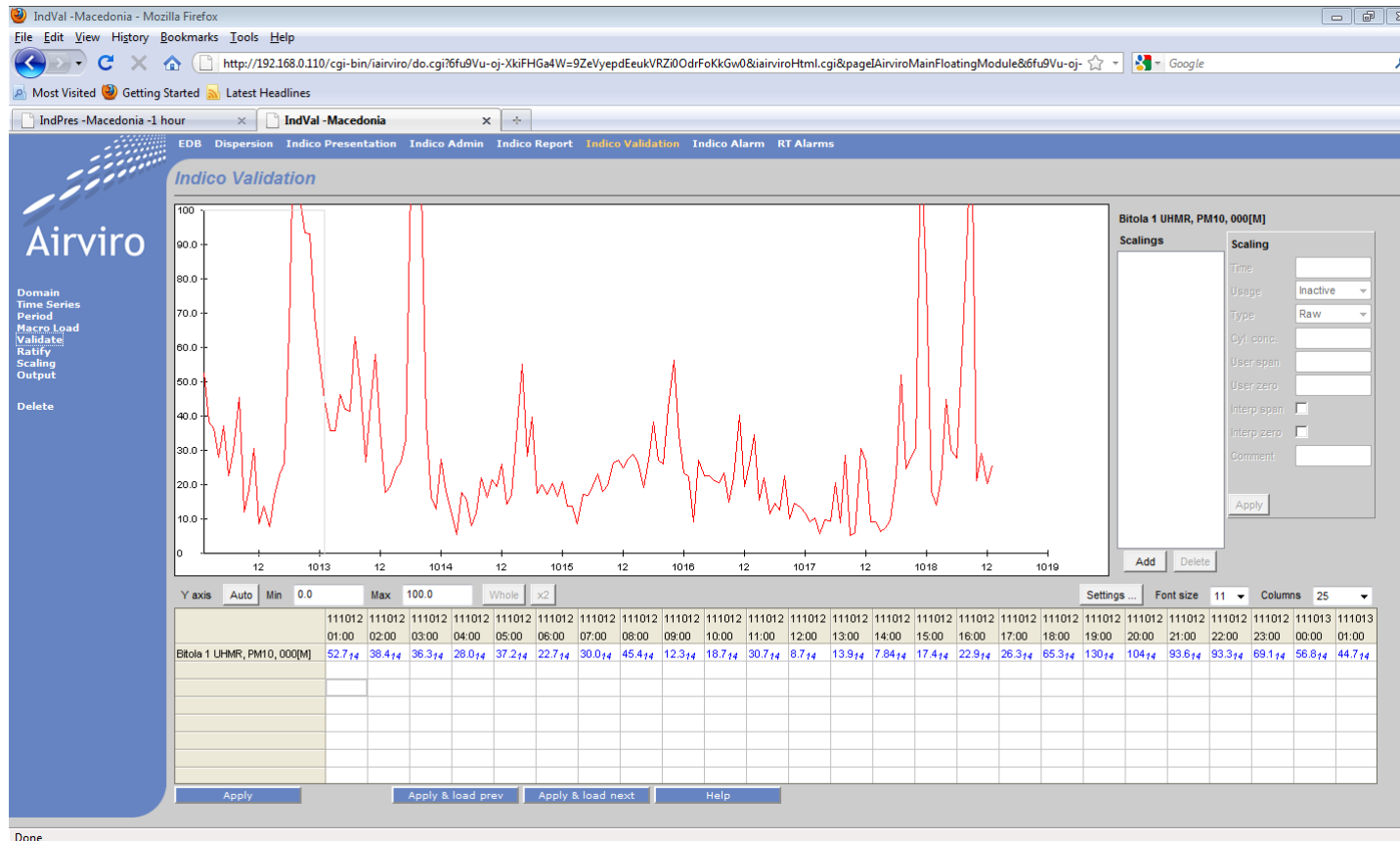
Calibration laboratory

- Established in May 2004
- Calibration of the reference analyzers with a primary static injection system
- Determining the correlation between the primary calibration method and other methods used
 - Secondary dynamic dilution system
 - Referent gases
 - Field calibrator
- Participation in inter-laboratory comparative measurements
- Preparations for accreditation have been started



Data management

AIRVIRO – web-based system for management of air quality monitoring data



Information and Reporting



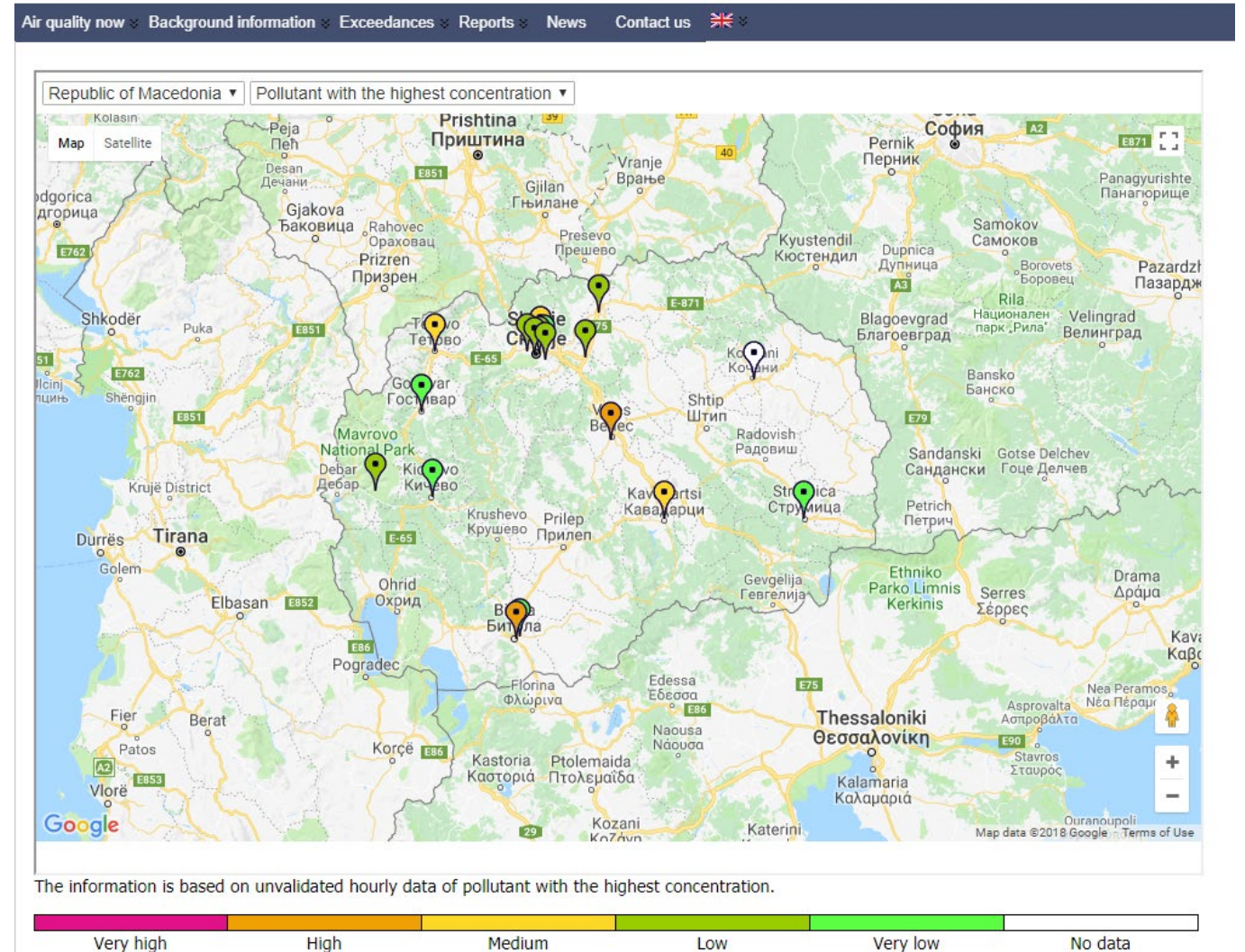
National AQ reports

- Daily, Monthly and Yearly reports

Air Quality Portal

- Access to real time data from the national monitoring system
- Reports, information, legal acts, planning documents, news ...

<http://air.moiepp.gov.mk/>



Information and Reporting

International reporting towards EEA

Air quality index

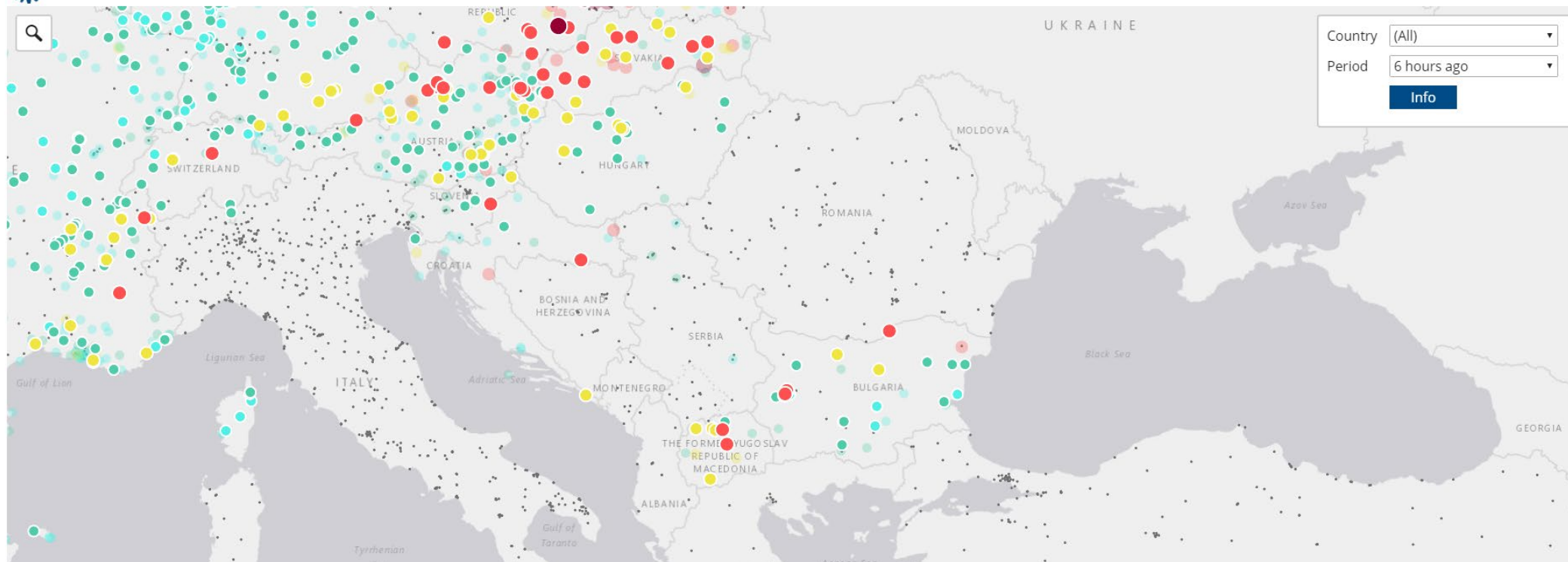
GIS Map Application — Published 16 Nov 2017 — Last modified 15 Nov 2017 — 1 min read

How clean is the air you're breathing right now? How does the air in your city compare with that of a neighbouring city or region? Air pollution is the single largest environmental health risk in Europe. The European Environment Agency's European Air Quality Index allows users to understand more about air quality where they live. Displaying up-to-the-minute data for the whole of Europe, users can gain new insights into the air quality of individual countries, regions and cities.



European Air Quality Index

2018-02-27 05:00 UTC+1



Reporting – SDG indicators

National Air quality Indicators

MK NI 004

- exceedance of air quality limit values in urban areas – SO₂
- exceedance of air quality limit values in urban areas – PM10
- exceedance of air quality limit values in urban areas – CO
- exceedance of air quality limit values in urban areas – NO₂

MK - NI 004 – 2 EXCEEDANCE OF AIR QUALITY LIMIT VALUES IN URBAN AREAS - PM₁₀	Institution/Set of indicator	Indicator name
	EEA – European Environmental Agency	IND-34-en CSI 004 , AIR 003 Exceedance of air quality standards in urban areas
	UNECE - United Nations Economic Commission for Europe	A2/18 - Annual average concentration of PM10
	Catalog of environmental indicators	19 - Exceedance of air quality standards in urban areas (EEA CSI004)
	SDG - Goals for sustainable development	3 - 3.9.1: Mortality rate attributed to household and ambient air pollution 9 - 9.4.1: CO2 emission per unit of value added 11 - 11.6.2: Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)
	GGI - Green growth indicators	yes
	Circular economy	no

http://www.moepp.gov.mk/?page_id=746&lang=en

Topics	DPSIR	Code	Title of the indicator	Trend
AIR POLLUTION	Pressures	MK NI 001	EMISSIONS OF ACIDIFYING SUBSTANCES	
AIR POLLUTION	Pressures	MK NI 002	EMISSIONS OF OZONE PRECURSORS	
AIR POLLUTION	State	MK NI 004	EXCEEDANCE OF AIR QUALITY LIMIT VALUES IN URBAN AREAS - By monitoring station	
AIR POLLUTION	State		Sulphur dioxide (SO2)	
AIR POLLUTION	State		Nitrogen dioxide (NO2)	
AIR POLLUTION	State		Particulate matter of a size up to 10 micrometer (PM10)	
AIR POLLUTION	State		Ozone (O3)	
AIR POLLUTION	Pressures	MK NI 050	EMISSION OF THE MAIN POLLUTING SUBSTANCES – EMISSION OF AMMONIA (NH3)	
AIR POLLUTION	Pressures		EMISSION OF THE MAIN POLLUTING SUBSTANCES – EMISSION OF SULPHUR OXIDES (SOx)	
AIR POLLUTION	Pressures		EMISSION OF THE MAIN POLLUTING SUBSTANCES – EMISSION OF NITROGEN OXIDES EXPRESSED AS NITROGEN DIOXIDE (NOx)	

State Statistical Office - data base

<http://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/?rxid=46ee0f64-2992-4b45-a2d9-cb4e5f7ec5ef>

Public Awareness Raising

- Social network Initiative for cleaner air, via Facebook, YouTube

<https://www.facebook.com/dishemezaedno/>

- Brochures for public awareness raising

Дишеме заедно
@dishemezaedno

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Future steps



- Completion of the air quality monitoring system
 - Renewal of air quality monitoring instruments
 - Improvement of measurements in rural background locations
 - Systematic measurements of VOC, PAHs and HMs
- Accreditation of the calibration laboratory
- Improve the air quality e-reporting
- Raising the public awareness

Thank you

