Information about the "Georgia's Air Quality Monitoring Network Development Plan (ROADMAP)"

GEORGIA'S AIR QUALITY MONITORING NETWORK DEVELOPMENT PLAN (ROADMAP)

PROJECT: Enhancing Air Quality Management Capacities in Georgia

IMPLEMENTING ENTITY: LEPL National Environmental Agency

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In 2020 within the framework of the UNDP Governmental Reform Fund's (00097412) sub-project "Enhancing air quality management capacities in Georgia" an international expert was hired to elaborate the Air Quality Monitoring Network Development Plan (Roadmap) for Georgia.

The expert reviewed all relevant policy documents and regulations, conducted meetings with key stakeholders, assessed the number and locations of existing stations, existing measuring instruments at the stations and available human resources at NEA. At the end the expert conducted one-day workshop to share international experience.

The main requirement of the assignment was that determination of the number of stations and their specific locations had to be in line with the EU Directive (2008/50/EC) on Ambient Air Quality and Cleaner Air for Europe (CAFE).

It's important to underline that the number of the stations are referring to Air Quality Zones or Agglomerations, as indicated in the above-mentioned directive: "minimum number of sampling points for fixed measurement to assess compliance with limit values for the protection of human health and alert thresholds in zones and agglomerations where fixed measurement is the sole source of information".

This means that it was necessary to start with a hypothesis of zoning before the approval of relevant national legislative act on the establishment of these Zones that are important, not only for the implementation of the monitoring system but also for the implementation of the air quality protection measures.

For identification of Zones and Agglomerations the expert considered several issues at the same time:

- *It should be appropriate to classify then the territory;*
- *minimum number of fixed sampling points is mandatory;*
- *it's necessary to have a redundant number of stations to backup problems of instruments;*
- *zones or agglomerations have to reflect the population density;*
- *zones or agglomerations have to consider meteo-climatic conditions;*
- *zones or agglomerations have to consider emissions sources;*
- *techniques other than fixed measurements can be used;*
- *it's important to provide data from fixed stations for a long time series;*
- *AQ modelling techniques should be applied;*
- *a bottom-up emission inventory is necessary to implement AQ models;*
- *stations in rural areas are necessary to calibrate outcomes of models.*

Based on reviewing of above-mentioned topics the expert proposed to start with a hypothesis of 5 zones and one agglomeration that can maintain more or less homogeneous diffusion of pollutants and homogenous measures to deal for the reduction of levels air pollutions.

This hypothesis complies with what is request in DIR 2008/50/EC and DIR 2004/107/EC but has to be verified every 5 years as prescribed in Article 5th of AQD: "the classification […] shall be reviewed at least every five years in accordance with the procedure laid down in Section B of Annex II."

Zones & Agglomerations	Population
Agglomeration of Tbilisi	1.108.717
Black Sea Zone	635.480
West Zone	431.834
Central Zone	743.019
East Zone	287.122
High Zone	806.494
	4.012.666

FIXED STATION FOR A MONITORING NETWORK

The Air Quality Monitoring Network that was designed fulfil requirements due by the European directives and regulations.

Careful selection of monitoring equipment is essential. Reference measurement methods for each pollutant are currently defined. A primary requirement is that the principle of operation should permit compliance with the limit and guide values laid down in the directives to be assessed. This means that detection limits and averaging times must be suitable. Likely future needs for monitoring, in terms of shorter averaging periods and/or lower detection limits, should be borne in mind. These may be related to human health and other environmental effects.

The need to use data for purposes other than the estimation of compliance, e.g. the assessment of air quality concerning health effects, the dispersion of pollutants and the validation/calibration of models, should also be borne in mind.

Other important factors to be considered in the selection of monitoring equipment are:

- *ease of use;*
- *expandability (mainly for data processing equipment);*
- *reliability;*
- *durability;*
- *compatibility with any existing hardware or software;*
- *availability of training and documentation (including circuit diagrams);*
  and
- *availability of spares, warranties and after-sales services (maintenance and possibly calibration).*

On the basis of the above-mentioned information, the international expert developed Air Quality Monitoring Network Development Plan (the Roadmap) based on which Air Quality monitoring Network for Georgia can be represented as below:

Georgian Network	NOx	SOx	CO	O3	PM10 & PM2,5	Lead, HMet, BaP	BTX	Type	Zones
Tbilisi, Marshal Gelovani Av.	1	1	1	1	1	1	0	UB	Agglomeration of Tbilisi
Tbilisi, Tsereteli Av.	1	0	1	0	1	1	1	UT	
Tbilisi, Kazbegi Av.	1	0	1	0	1	1	0	UT	
Tbilisi, Agmashenebeli Av.	1	1	0	1	1	1	1	UB	
Tbilisi, Varketili	1	1	1	1	1	1	0	UT	
Batumi, Abuseridze Str.	1	1	1	1	1	1	0	UT	Black Sea Zone
Batumi, 6th May Park	1	0	0	1	1	1	1	UB	
Zugdidi, Public School N.1	1	1	0	1	1	1	0	UB	
Poti, Central Park	1	1	1	1	1	1	0	UB	
Ozurgeti, Triangular Park	1	0	1	1	1	1	0	UB	
Kutaisi, Irakli Asatiani Str.	1	0	1	1	1	0	1	UT	West Zone
Kutaisi, Park of Glory	1	0	0	1	1	1	0	UB	
Zestaponi, (industrial)	1	0	1	0	1	1	0	Ind	
Zestaponi, Irene Park	1	1	0	1	1	1	0	UB	
Rustavi, Batumi Str.	1	1	0	1	1	1	0	UB	Central Zone
Rustavi, Public School N.20	1	0	0	1	1	1	0	UB	
Rustavi, Tazaknedi	1	1	1	0	1	1	0	Ind	
Gori, Stalin Av.	1	0	1	0	1	1	1	UT	
Bolnisi, Public School N.1	1	0	0	1	1	1	0	UB	
Telavi, Gogebashvili Str.	1	1	1	1	1	1	1	UB	East Zone
Signagi, Museum	1	0	0	1	1	0	0	UB	
Akhaltsikhe, Park	1	1	1	1	1	1	0	RB	High Zone
Mestia, Svaneti Museum	1	0	0	1	1	1	0	RB	
Borjomi-Kharagauli National Park	1	0	0	1	1	1	0	RB	
Mobile Stations (3)	3	3	3	3	3	3	0	mobile	
TOTAL	**27**	**14**	**16**	**22**	**27**	**25**	**6**	**r 12/18**	
UB=Urban Background, UT=Urban Traffic, RB=Rural Background									