Review of the Health Effects from Motor Vehicle Traffic in Tbilisi

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AIRNET
A Thematic Network on Air Pollution and Health

NERAM
Network for Environmental Risk Assessment and Management

The Factors Contributing to Air Pollution in Tbilisi

In Georgia atmospheric air pollution has always been the environmentally most sensitive issue. Despite the sharp decline in transportation and industrial activities in recent years, Tbilisi continues to show signs of environmental stress - poor air quality, excessive noise, traffic congestion, loss of green areas and degradation of historical buildings and monuments. Many stresses, especially from transport, are increasingly leading to deterioration in the quality of life and human health.

Vehicles overload the capital nowadays. Most of them are 15-20 years old. The key common feature is that Soviet-made cars are designed to run relatively low octane petrol. They are characterized with low efficiency of fuel consumption; obsolete burning system, lack of any emission control equipment and thus very high level of emissions.

Table 1 The Quantity of Motor Vehicles in Tbilisi (31.10.02).

#	Type of vehicle	Total		Properly maintained	
		Soviet-made	Foreign	Soviet-made	Foreign
1.	Cars	81763	12377	68327	9933
2.	Buses	453	-----	348	-----
3.	Trolley-buses	17607	100	31107	70
4.	Trucks	1455	322	1319	243
5.	Vans		-----		-----

Four fifths of Tbilisi air pollution results from motor transport. Some part of it origins due to deficient traffic management and the other part is due to the poor technical condition of vehicles.

According to HYDROMET information air quality in Tbilisi in 2002 was represented by the following data:

Table 2 Air Pollution Substances in Tbilisi

Pollutants	Dust	CO	NO_2	Formaldehyde	Phenol	NO
Mean ann. con. [mg/m^3]	0.55	4.8	0.04	0.015	0.005	0.03
Max. ann. con. [mg/m^3]	1.00	11.5	0.10	0.028	0.01	0.07

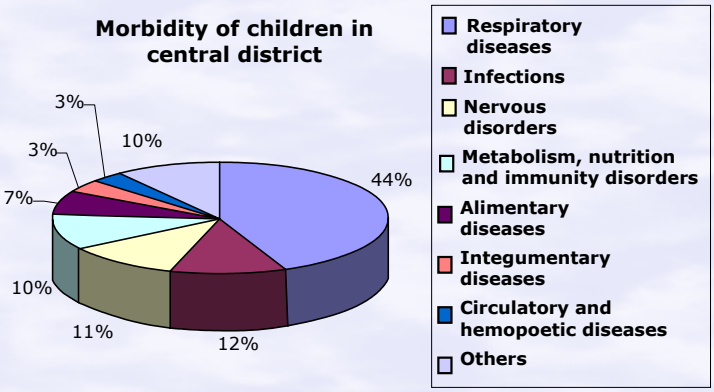
According to the data mean annual concentration of dust exceeds MPC (maximum permissible concentration) 2.2 times, mean annual concentration of CO is 1.18 MPC, concentration of formaldehyde is 5 MPC, concentration of phenol – 1.6 MPC. Mean annual concentrations of nitrogen oxides are within the allowed limits. Maximum annual concentration of dust is 4 MPC, concentration of CO is 2.8 MPC, concentration of NO2 – 3.78 MPC. Maximum annual concentrations of phenol, formaldehyde and NO are within the allowed limits.

Health Effects

High instances of respiratory and circulatory diseases in the capital of Georgia appear to be related to high levels of air pollution.

We carried out a special investigation of the state of health of 7-17 years old children. Two districts have been selected for study – central, with permanently heavy traffic and high air pollution and suburb, where the traffic is less intensive, as control district for comparison. Following results has been obtained:

Level of respiratory illness higher among the children from central district than among those from the suburb. Also the skin diseases are obtained 2.5 times more. Some changes in immune system are investigated too.



Approximation of EU and Georgia legislation

There is an obvious necessity of development of the traffic circulation management system in the city. Traffic management and road improvements thus should be studied simultaneously, and both should have high priority in any strategy to reduce air pollution.

Georgian authorities have stated a long-term objective for our country to become an EU member. This will require approximation of Georgian law to the Council Directive 96/62/EC on Ambient Air Quality Assessment and Management.

It is worthwhile to mention that some progress towards harmonization has already been achieved in Georgia. The use of leaded petrol was completely banned in 1999 and new standard specifications for petrol were developed and introduced in 2000

Notes

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