

NATIONAL QUESTIONNAIRE FOR FUELS AND VEHICLES: EECCA

Objectives of the Assessment: To assess the current state of vehicle fuel quality, vehicle emission standards and other related national-level information in order to develop comparative material, which will enable decision-makers and experts to discuss problems and necessities and define possible solutions at a meeting in 2007.

The questionnaire comprises of 4 main sections:

1. Personal Information
2. Air Quality
3. Fuel Quality
4. Vehicles & Emissions

Please read the following instructions before filling in the questionnaire!

4. We propose that you use **2005 or 2006** as a reporting year, and where asked, please specify the reporting year.* If data for 2006 is not yet publicized, and the available information is for a previous year, please insert this information and note the particular year in the heading of the table. If 2006 data and updates are available, please provide this data and note the year.
5. You may not find available all required data. Please, fill in the available data:
 - a) If there are data gaps, insert N/A in the respective table cell;
 - b) If such data is not measured, monitored or reported in your country, insert N/R in the respective table cell;
 - c) Please, use the text boxes to present any useful information, which is not covered by the tables or which needs additional description.

1. Personal Information

Reporting year*	2006
Country	Armenia
Date report completed	18 January 2008
Institution responsible for report	Ministry of Nature Protection
Address of institution	Government Building 3, Republik Sq., Yerevan, Armenia
Position/Person responsible for report	Senior Specialist, Department of Soil and Atmosphere department, Martiros Tsarukyan
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2. Air Quality

2.1 Institutional framework of air quality legislation

Institution name	Departments	Personnel*	Legal acts	Responsibility
Ministry of Nature Protection	Atmosphere and soil protection	Martiros Tsarukyan	“Concept on Reduction of Hazardous Emissions from Motor Vehicles” - approved by the Government of RA by the Decision N40, on the 14 th of October 2004.	All state government bodies.
Ministry of Nature Protection	Atmosphere and soil protection	Martiros Tsarukyan	“Action plan Aimed at Reduction of Emissions from Motor Vehicles” - approved by the Government of RA by the Decision N1033 on the 14th of July 2005.	Ministry of Nature Protection, Ministry of Trade and Development, Ministry of Transport and Communication, Ministry of Health, State Police, Municipality of Yerevan
Ministry of Nature Protection	Atmosphere and soil protection	Martiros Tsarukyan	Government Decision N220-N (March 3, 2005) on “Amendment of the Decision N902” (December 31, 2000) prohibited the import of the cars without hazardous emissions neutralizers into Armenia starting from the 1 st of January 2007.	State Customs Comity
Ministry of Trade and Development	National Institute of Standards	Manik Khachatryan	Government Decision N1592 (November 11, 2004) on “Approving Technical Regulation on the Internal-Combustion Engines Fuel and Recognizing the Decision N799 (December 31, 1999) of the Government of RA Invalid”.	Ministry of Trade and Development

Ministry of Nature Protection	Normative-Methodical	Anahit Arakelyan	The decision N1600 on “Approving Licensing Procedure for vehicle Hazardous Emissions Measuring activity and Approving the Form of License” adopted by the Government of RA on the 15 th of September 2005 - to establish the network of measuring points and to regulate their activities.	Ministry of Nature Protection
Ministry of Nature Protection	Atmosphere and soil protection	Martiros Tsarukyan	The decision N1750 on “Approving the List and Measuring Procedure for Pollutants Emitted from Motor Vehicles and Subject to Measuring in the Measuring Points Operating in RA” was developed and adopted by the Government of RA on the 20 th of October 2005 – to regulate activities of measuring points.	Ministry of Nature Protection
Ministry of Nature Protection	Normative-Methodical	Anahit Arakelyan	The decision N965 on “Approving the Technical Procedure for Environmental Safety of Transport Means Exploited in the Territory of RA” was developed and adopted by the Government of RA on the 22 ^d of June 2006. This decision determines the emissions standards for vehicles.	Ministry of Nature Protection
Ministry of Nature Protection	Atmosphere and soil protection	Martiros Tsarukyan	Government of RA has prohibited by its decision N913, (29.09.2001) production, and import of leaded petrol starting from 29.09.2001.	Ministry of Trade and Development

Ministry of Nature Protection	State Environmental Inspection	Marzpet Kamalyan	In order to improve the Inspection System the National Assembly of RA adopted Law on “Environmental Inspection” on the 10 th of May 2005.	Ministry of Nature Protection
Ministry of Nature Protection	Normative-Methodical	Anahit Arakelyan	The Government Decision N2410-N on “Approving the Procedure of Measuring Hazardous Emissions from Motor Vehicles Exploited in RA” was developed and adopted by the Government of RA on the 29 th of December 2005 – to regulate measuring activities to be done by inspection.	Ministry of Nature Protection
Ministry of Nature Protection	Atmosphere and soil protection	Martiros Tsarukyan	The Government Decision N160-N on “Approving the Norms of Permissible Concentrations of Air Pollutants in Settlements and those of Hazardous Substances Contained in emissions of the Motor Vehicles in RA” was developed and adopted by the Government of RA on the 2 ^d of February 2006 – to determine the norms of air pollutants in settlement and in motor vehicle emissions.	Ministry of Nature Protection
Ministry of Nature Protection	Atmosphere and soil protection	Martiros Tsarukyan	law of RA on “Atmosphere protection” from 1994	Ministry of Nature Protection
Ministry of Nature Protection	Economics of Nature Protection and Nature use	Ashot Arutyunyan	law of RA on “Rates of Environmental Pays” – from December 2006, on differentiation of rates depending of type and weight of vehicle, used fuel type, existents of neutralizers, age of imported cars	Ministry of Nature Protection

3. Fuel Quality

3.1 Contact Office(s)/Person(s)

Responsible Office(s) and Contact Person(s)	Institution	Responsibility	Contact Information	Email
Standardization Research division	National Intitue of Standards	Ministry of Trade and Development	Manik Khachatryan	

3.2 Institutional framework for fuel quality management

Institution name	Institution type*	Responsibility	Frequency of fuel testing	Number of authorized testing labs
1	2	3	4	5
Oktan-Test	Government, CJSC	Ministry of Trade and Development	Each imported consignment and 50-100 samples from all gas stations during the year.	1

*Government; Research/Academic; Private company; NGO; accredited laboratories according the ISO 17025

3.3 Technical Assistance Received for Capacity Building in Fuel Quality Control

Source: To ensure that the phase out of lead in petrol does not occur on the expense of increasing content of aromatics, including benzene, DANCEE will support the acquisition of equipment to monitor the content of these substances in imported petrol.

3.4 National Fuel Quality Legislation (please list)

Government Decision N1592(November 11, 2004) on “Approving Technical Regulation on the Internal-Combustion Engines Fuel and Recognizing the Decision N799 (December 31, 1999) of the Government of RA Invalid”.

3.5 Parameters for Market Fuels Used in Vehicles with Spark Ignition Engines (petrol) (2006 year)

Parameter	Unit	Analytical and statistical results						Limiting value	
		No. of samples	Taken where	Min.	Max.	Mean	Standard deviation	National specification	
Minimum	Maximum								
Research octane No		287	customs border	91	98	95	---	91	---
Motor octane No		287	customs border	---	---	---	---	---	---
Vapour pressure, DVPE	kPa	287	customs border	45	72	58,5	---	45	100
Distillation:		287	customs border						
- Evaporated at 100°C	%(v/v)			46	57	50,5	---	46	71
- Evaporated at 150°C	%(v/v)			77	88	79,5	---	75	---
Hydrocarbon analysis:		287	customs border						
- Olefins	%(v/v)			---	---	---	---	---	---
- Aromatics	%(v/v)			---	---	---	---	---	---
- Benzene	%(v/v)			0,8	1,0	0,95	---	---	1,0
Oxygen content									
Oxygenates:									
- Methanol	%(v/v)			---	---	---	---	---	---
- Ethanol	%(v/v)			---	---	---	---	---	---
- Iso-propil alcohol	%(v/v)			---	---	---	---	---	---
- Tert-butyl alcohol	%(v/v)			---	---	---	---	---	---
- Iso-butyl alcohol	%(v/v)			---	---	---	---	---	---
- Ethers with five or more carbon atoms per molecule	%(v/v)			---	---	---	---	---	---
- Other oxygenates	%(v/v)			---	---	---	---	---	---
Sulphur content	mg/kg	287	customs border	95	115	100	---	---	150

Lead content	g/l	287	customs border	0,0048	0,005	0,0049	---	---	0,005
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3.6 Are there any other additives in the fuel? If so, what are they and what quantity? - NO

3.7 Parameters for Market Fuels Used in Vehicles with Compression Ignition Engines (diesel) (2006 year)

Parameter	Unit	Analytical and statistical results					Limiting value	
		No. of samples	Minimum	Maximum	Mean	Standard deviation	National specification	
							Minimum	Maximum
Cetane No (index)		277	46,1	53	48,2	---	46	---
Density at 15°C	kg/m ³	277	821	842,5	832,4	---	820	845
Distillation – 95% Point	°C	277	330	360	345	---	---	360
Polycyclic aromatic hydrocarbons	%(m/m)		---	---	---	---	---	---
Sulphur content	mg/kg	277	340	350	345	---	---	350

Table 3.8 Number of samples in month (diesel) (2006 year)

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
9	22	29	22	24	24	33	17	28	41	10	18	277

3.9 Fuel quality standards (Please, shortly describe your domestic standards and any planned standards and the anticipated deadlines for their adoption, etc.)

Standards for Market Fuels Used in Vehicles with Spark Ignition Engines (petrol) - 1

Parameter	Petrol type			
	Normal	Regular	Premium	Super
Research octane No – not less	80	91	95	97
Motor octane No– not less	76	81	85	87
Hydrocarbon, volume %, not more:				
- Olefins	-	21,0	18,0	18,0
- Aromatics	-	35		
- Benzene	5,0	1,0		
Oxygen content, %	-	2.7		
Oxygenates, volume %,from1				

Dec. 2008, not more:	-	3,0
- Methanol	-	5,0
- Ethanol	-	10,0
- Iso-propil alcohol	-	10,0
- Tert-butyl alcohol	-	7,0
- Iso-butyl alcohol	-	15,0
- Ethers with five or more carbon atoms per molecule	-	10,0
- Other oxygenates	-	10,0
Sulphur content, mg/kg, not more till 1 Nov. 2008	500	150
from 1 Nov. 2008 till 1 Jan. 2010	500	50
after 1 Jan. 2010	500	10
Density at 15°C, kg/m ³	700-750	720-775
Lead content		5

Standards for Market Fuels Used in Vehicles with Spark Ignition Engines (petrol) - 2

Parameter	A-summer class	C1-transition class	F winter class
Vapour pressure, DVPE			
Not less	45,0	50,0	70,0
Not more	60,0	80,0	100,0
Distillate part, volume %:			
- Evaporated at 70°C (E 70)	20,0-48,0		22,0-50,0
- Evaporated at 100°C (E 100)		46,0-71,0	
- Evaporated at 150°C (E 150)		75	
End of boiling °C, not higher		210	
residuum in retort, , volume %, not more		2	

Standards for Market Fuels Used in Vehicles with Compression Ignition Engines (diesel)

Parameter	Standards					
	Summer	Winter				
		0-class	1-class	2-class	3-class	4-class
1	2	3	4	5	6	7
Cetane Number, not less or Cetane Index, not less	51,0 46,0	49 46	49 46	48,0 46,0	47,0 43,0	47,0 43,0
Density at 15°C, kg/m ³	820-845	800-845	800-845	800-840	800-840	800-840
Polycyclic aromatic hydrocarbons, mass part, %, not more	11					
Sulphur content, mg/kg, not more till 1 Nov. 2008	350					
from 1 Nov. 2008 till 1 Jan. 2010	50					
after 1 Jan. 2010	10					

3.10 Fuel production, import, export and consumption (2006)

Fuel grade	Production (1000 m ³ /year)	Import (1000 t/year)	Export (1000 m ³ /year)	Consumption** (1000 t/year)
1	2	3	4	5
Total leaded petrol	0	0	0	0
Total unleaded petrol	0	171,559	0	171,559
RON:		4.290		4.290
RON:		125.671		125.671
RON:		22.142		22.142
RON:		19.456		19.456
Total diesel	0	112,771	0	112,771
Total LPG	0	Not Estimated	0	Not Estimated
Other fuels (please specify)				

Compressed Natural Gas (CNG), dry		157,445	0	157,445
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*If data for 2005 is not available, insert older data and indicate the year

**Vehicle transport only (rail and marine transport excluded)

3.11 Fuel production by producers (* insert reporting year)

Refinery	Production of crude oil distillation (1000 m ³ /year)
0	0

3.12 Fuel distribution

Fuel distributors	Number of filling stations
Not Available	Petrol an Diesel 850 - in operation Compressed Natural Gas 142 – in operation LPG - Not Available

3.13 Promotion of environment friendly fuels (incentives, programs for unleaded petrol, low-sulphur petrol and diesel, biodiesel, bioethanol, LPG, etc.)

Measure	Details
Ban on leaded petrol	Government decision N913, (29.09.2001) on ban of production and import of leaded petrol starting from 29.09.2001.
Tax differentiation	law of RA on “Rates of Environmental Pays” – from December 2006, on differentiation of rates depending of type and weight of vehicle, used fuel type , existents of neutralizers, age of imported cars
Use of subsidies	No
Other (please add):	-
Planned Measures	Study the possibility and potential of biofuel production

4. Vehicle Emissions

4.1 Contact Office(s)/Person(s)

Responsible Office(s) and Contact Person(s)	Institution	Responsibility	Contact Information	Email
Atmosphere and Soil Protection Department, Mr .Martiros Tsarukyan	Ministry of Nature Protection	Emissions calculation	Phone: (37410) 58 39 34 Fax: (37410) 58 39 34	email: martiros@nature.am
Communal and Environmental department Ms. Nelly Bagdasaryan	National statistical service	Data on Imported petrol and diesel	Phone: (37410) 52 45 14	
Head of department Mr. R. Surenyan	“Armrusgasprom” CJSC	Data on sailed natural gas to Compressed natural gas stations for vehicles	Phone: (37410) 29 47 28 Fax: (37410) 29 47 28	inbox@armrusgasprom.am

4.2 National Fuel Quality Legislation (please list)

1. Government decision N913, (29.09.2001) on ban of production and import of leaded petrol starting from 29.09.2001
2. Government Decision N1592 (November 11, 2004) on “Approving Technical Regulation on the Internal-Combustion Engines Fuel and Recognizing the Decision N799 (December 31, 1999) of the Government of RA Invalid”.

4.3 Vehicle fleet structure[1]

Year: 2005	Total number of vehicles	Passenger Cars				Trucks				Buses			
		Petrol	Diesel	CNG	LPG	Petrol	Diesel	CNG	LPG	Petrol	Diesel	CNG	LPG
Number (1000s)	229,829	141,383	10,886	28,231	3,116	15,869	10,079	8,835	0.934	0.996	1,272	7,968	0.260
% of the total vehicle fleet	100	61.5	4.7	12.3	1.3	6.9	4.4	3.8	0.4	0.4	0.5	3.5	0.1

[UNDP-Armenia, “Greenhouse Gas Emissions Reduction and Energy-Efficiency Potential in Transport Sector in Armenia»]

Table 4.4 Share with catalytic converters

Year: (* please insert reporting year)	Vehicles with Catalytic Converters	
	Passenger cars	All vehicles
Number (000s)	NE*	NE
%		

*Not Estimated

Table 4.5 Newly-registered passenger cars

Year	Total number	Passenger cars				
		Total	New		Second hand	
	1000s	1000s	1000s	%	1000s	%
1995						
2005	19.788	16.471	NE	NE	NE	NE

*If data for 2003 is not available, insert older data and indicate the year

Table 4.6 Vehicle aging

Only cars registered in year 2005, in total, not in categories

Year: 2005*	0-5 years	6-10 years	11-15 years	16-20 years	>20 years
Total:					
Passenger cars (%)	NE	NE	NE	NE	NE
LDV (%)	NE	NE	NE	NE	NE
HDV (%)	NE	NE	NE	NE	NE
Buses (%)	NE	NE	NE	NE	NE
Total (%)	NE	NE	NE	NE	NE

*If data for 2005 is not available, insert older data and indicate the year

Table 4.7 Domestic vehicle production (if any)

Type	2003	2004	2005
Passenger cars (%)			
LDV (%)			
HDV (%)			
Buses (%)			
Total (%)	Not Applicable	Not Applicable	Not Applicable

* 2002 is included in order to see the trend. If data is available, any previous year can be included too.

Table 4.8 Quantity of imported vehicles**

Type	2003	2004	2005	2006
Passenger cars (%)	NE	NE	83	NE
LDV+ HDV (%)	NE	NE	14	NE
Buses (%)	NE	NE	3	NE
Total (1000s)	9.778	7.451	19.788	26.157

* 2003 is included in order to see the trend. If data is available, any previous year can be included too.

4.9 Restrictions placed on imported vehicles (age limits, requirements for catalytic converters, installation of emission technology for the HDV, etc.)

Government Decision N220-N (March 3, 2005) on “Amendment of the Decision N902” (December 31, 2000) prohibited the import of the cars without hazardous emissions neutralizers into Armenia starting from the 1st of January 2007.

4.10 Information on retrofitting imported fleets (e.g. bus fleets) with emissions control technologies or cleaner engines

NA

4.11 Institutional framework for vehicle emission testing

Institution name	Institution type	Personnel	Responsibility	Number of vehicles tested (vehicles/year)	Number of testing sites
1	2	3	4	5	6
Private companies	Different	1-2 persons in each testing site	emission testing	All operating vehicles (around 250 000)	51
Ministry of nature protection			Licensing of testing sites		

4.12 Legal and institutional framework of vehicle inspection and maintenance

Each vehicle has to Pass technical inspection ones per year and those who operates as public transport – twice per year, According to the law on Atmosphere protection (law of RA on “Atmosphere protection”).

4.13 Technical Assistance Received for Capacity Building in Vehicle Inspection and Maintenance

Not received

Source: (institution).....(department)

4.14 National Vehicle exhaust emission requirements (ONLY light duty vehicles/passenger cars)

	Petrol		Diesel (g/kvt.hour)	Gas	
CO	vol. %	4.5- prod before 1986	4.9	vol. %	2.0 -3.0
		3.5			
HC	ppm	1200	1.23	ppm	1000-2200
NO_x			9.0	-	-
HC+NO_x	-	-	-	-	-
PM	-	-	-	m ⁻¹ / %	2.26-1.065/62-36
Opacity	-	-	-	-	-

4.15 Recent Developments/Planned Vehicle exhaust emission requirements, inspection and maintenance

The Government Decision N 344 –N on “Approval of procedures of technical inspection of transport means in the Republic of Armenia” - Currently is in the process of network establishment, includes also vehicle exhaust emission checking.

Source: (institution).....(department)

4.16 Incentives for alternative fuels and vehicles (e.g. Flexi-fuel/CNG/LPG powered vehicles)

Incentive	Description
The price for CNG is about 3 times cheaper then for petrol	

4.17 Promotion of environment friendly vehicles (such as import of only new vehicles, catalytic converters, fuel cells, etc.)

Measures	Details
1. Ban on the sale of new vehicle not equipped with catalytic converters	Government Decision N220-N (March 3, 2005) on “Amendment of the Decision N902” (December 31, 2000) prohibited the import of the cars without hazardous emissions neutralizers into Armenia starting from the 1 st of January 2007.

2. Tax differentiation	<p>law of RA on “Rates of Environmental Pays” – from December 2006, on differentiation of rates depending of type and weight of vehicle, used fuel type, existents of neutralizers, age of imported cars</p> <p>Rates of Environmental Pays</p> <ul style="list-style-type: none"> • differentiation by weight of vehicle 2500AMD-15000AMD • differentiation by used fuel type multiplying coefficients 1.2, 1, 0.5 • differentiation by existents of neutralizers..... multiplying coefficients 1, 0.35, 0.15 • differentiation by age..... multiplying coefficients 1.2, 1 – for petrol, 0.5, 0.35 – for Gas <p>Rates of Pays on hazardous goods (% of custom price)</p> <ul style="list-style-type: none"> • 5-10 years old cars – 2 • 11-15 years old cars – 10 • 16 and more years old cars – 20
3. Use of subsidies	No
4. Inspection and maintenance program	The Government Decision N 344 –N on “Approval of procedures of technical inspection of transport means in the Republic of Armenia” - Currently is in the process of network establishment, includes also vehicle exhaust emission checking.
5. Retrofit program	No
6. Accelerated retirement program	No
7. Scrappage programs	No
8. Vehicle age caps	15 years- for cars in public transport
9. Other (please add):	No