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Air Quality Governance in the ENPI East Countries

National Pilot Project – Azerbaijan

"Improvement of Legislation on Assessment and Management of Ambient Air"

Comprehensive overview and gap analysis of the existing legislation and institutional framework on AQAM

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Summary

PROJECT TITLE: Improvement of Legislation on Assessment and Management of Ambient Air

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COUNTRY: Azerbaijan

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ABBREVIATIONS

AQAM	Air Quality Assessment and Management
CLRTAP	Convention on Long-range Transboundary Air Pollution
EIA	Environmental Impact Assessment
EMEP	Emissions Prediction of the Co-operative Programme
EU	European Union
IPCC	International Panel on Climate Change
GEF	Global Environmental Facility
GHG	Greenhouse gas
NGO	Non-governmental Organization
MAC	Maximum allowed concentration
MENR	Ministry of Ecology and Natural Resources
MED	Ministry of Economic Development
MoH	Ministry of Health
MoT	Ministry of Transport
OSC	Open Stock Company
PSC	Project Steering Committee
REC	Regional Environmental Center
SOCAR	State Oil Company of Azerbaijan Republic
TACIS	Technical Assistance for the Commonwealth of Independent States
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
UNESCOUN	Educational, Scientific and Cultural Organization
UNEP	United Nations Environmental Program
UNDP	United Nations Development Program
USSR	United Soviet Socialist Republics
WB	World Bank
WHO	World Health Organization

TABLE OF CONTENTS

BACKGROUND 6

1. INTRODUCTION 8

1.1. SCOPE OF THE REPORT 8
1.2. BACKGROUND INFORMATION 8
1.3. OBJECTIVES 9

2. ANALYSIS OF CURRENT POLICY AND LEGISLATION ON AIR QUALITY 10

2.1. INTERNATIONAL REPORTING 10
2.2. AIR QUALITY LIMIT VALUES 12
2.3. POLLUTION PERMITS 15
2.4. EMISSION DATA 20
2.4.1. Emission data 20
2.4.2. Reporting 22
2.5. ANALYSIS OF CURRENT LEGISLATION IN VIEW OF EUROPEAN REQUIREMENTS 23
2.5.1. Environmental legislative base 23
2.5.2. Main identified gaps in legislation base 27
2.5.3. Approximation to EU directives 30
2.5.4. Comparison of EU Directives with national legislation on air quality 38
2.5.5. Measures taken for harmonization of national air legislation to EU directives 41
2.5.6. Key issues regarding Plan of Actions on Approximation of Legislation with that of the European Union 42
2.6. ANALYSIS OF THE INSTITUTIONAL SET UP 42
2.6.1. Analysis of current institutional set up 43
2.6.2. Gaps and overlapping in institutional setup 46
2.6.3. Key institutional setup related issues and recommendations 48

3. EXISTING AIR QUALITY ASSESSMENT AND MANAGEMENT SYSTEM IN AZERBAIJAN 51

3.1. AIR QUALITY MONITORING 51
3.1.1. Institutions responsible for air quality measurements in Azerbaijan 51
3.1.2. Overview of the air quality monitoring network 52
3.1.3. Measurement methods and quality criteria 54
3.1.4. Validation of the monitoring data 55
3.2. DISPERSION MODELLING 56
3.2.1. Requirements on modelling 56
3.2.2. Input data for modelling 59
3.3. NATIONAL EMISSION DATABASES 60
3.3.1. Emission data collection and handling 60
3.3.2. Pollution permits 61
3.3.3. Emission data retrieval and storage 61
3.3.4. Data validation and verification 62
3.3.5. Fugitive and mobile sources 63
4. CONCLUSIONS 68
5. RECOMMENDATIONS 70

ANNEXES 72

Annex 1: Ecological condition and ecological importance coefficient of ambient air in economic regions of Azerbaijan: 72
Annex 2: Norms of payments by emission of pollutants to ambient air 73
Annex 3: Official statistical report form - (2-TG (air-transport) 77
Annex 4: Official statistical report form – protection of ambient air 79
Annex 5: Information on atmospheric emission from transport 85

List of tables

Table 1: Limit values and comparison with EU limit and target values and neighbouring countries limit values 13

Table 2. Coefficient depending on danger category of the substance 17

Table 3. Coefficients for identification of danger category of the entity 17

Table 4: Norms for payments due to pollutants emitted from fuel combustion 19

Table 5: Emission sources and emissions data for 2010-2011 20

Table 6: Emission from stationery sources by pollutants 2007-2011 22

Table 7.Air quality management related laws 24

Table 8. Substantive gaps in Azerbaijani environmental laws 27

Table 9: Principles for current air quality management 31

Table 10: Monitored substances and concentration limits 54

Table 11: Background concentration of harmful substances in ambient air in Baku city for 1994-1998 calculated on the basis of observation results 58

Table 12: Coefficients for emission calculation from fuel consumption 64

Table 13: Emissions from combustion of 1 kg gasoline 64

Table 14: Emissions from combustion of 1 kg diesel 64

Table 15: Emissions from combustion of 1 kg liquefied petroleum gas 65

Table 16: Emissions from combustion of 1 kg compressed gas 65

Table 17: Number of vehicles by type 66

Table 18: Compliance with ecological classification according to origin of production and year 66

List of figures

Figure 1: Emissions by sources, 2011 20

Figure 2: Emission from stationary sources to ambient air by sectors, 2011 21

Figure 3: Emission to ambient air in the country, 2006-2011 years 22

Figure 3: Map of monitoring stations in Azerbaijan 52

Figure 5: Sample of modelling developed for one enterprise 56

BACKGROUND

The Republic of Azerbaijan has a total area of 86.6 thousand km^2 and is situated in the Southern Caucasus being the biggest country of the region. Mountains dominate the northern, southern, and western regions of Azerbaijan, covering roughly 43% of the country, and flatlands run throughout the centre of the country, accounting for the other 57% of Azerbaijan's land area. Forests make up roughly 12% of the total land area.

Azerbaijan's population in 2012 was 9.235 million, as compared to 8.5 million in 2006. About 52.9% of the country's citizens reside in urban areas and 47.1% in rural areas.

Since 1995, Azerbaijan has started to implement market oriented reform policies for transition from a planned to a free market economy. After independence it was evident that there was a need to initiate reforms to transform the political and socio-economic system, to form an independent national economy system, based upon a democratic state system, including free market relations.

Throughout 20-years period of its independence, Azerbaijan has constantly been improving its environmental protection system, including institutional and legislative base. Along with adaptation of more than 40 environmental laws, the country has taken strategy of harmonization of the laws to international standards and approximation to relevant EU directives.

Azerbaijan has also ratified up to 20 international conventions related to environmental conventions. It should be mentioned that 3 of them are directly related to protection of air quality: The Convention of Long Range Transboundary Air Pollution, the Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol on Substances that Deplete the Ozone Layer and the United Nations Framework Convention on Climate Change.

It should be noted that during the previous decade, Azerbaijan's environmental policy focused on remediation of environmental burdens from the past, e.g. clean-up of contaminated soil, and on waste and water management. However, this situation changed recently and government provides particular attention to measures for improvement of air quality (e.g. application of modern technologies at production units with less emission, improvement of transportation management system and so on).

At present, there is an urgent need for improvement of national legislation on air quality assessment and management, in particular approximation of main laws to relevant EU directives, as well drafting action plan related to air quality management for capital city – Baku and finally, developing National strategy on air quality assessment and management.

Above-mentioned needs are addressed under current National Pilot project: Improvement of legislation on assessment and management of ambient air which is implemented within Air Quality Governance in ENPI Countries project funded by the European Union. National project intends to achieve project goals through implementation of project activities in 3 directions: 1) Comprehensive overview and gap analysis of the existing legislative and institutional framework on air quality assessment and management; 2) Draft action plan for Baku and 3) Draft National Strategy on Air Quality Assessment and Management.

Upon signature of the contract with MWH consortium (11 March 2013), Azerbaijan Branch office of RECC has launched project activities based on the approved work plan.As an initial step,letters were submitted to the relevant organizations to appoint representatives to the

Project Steering Committee. After nomination of the representatives of the respective stakeholdersProject Steering Committee (PSC)was formed involving members representing respective stakeholders such as National Parliament, Ministry of Ecology and Natural Resources, Ministry of Transport, Ministry of Health, Ministry of Industry and Energy, State Statistical Committee, State Oil Company of Azerbaijan Republic (SOCAR), “Azerenergy” Open Stock Company (OSC), national focal points of relevant conventions, non-governmental organizations and so on. First PSC was organized on 03 April 2013 with participation of 12 members of PSC. Project methodology, work plan and next activities were discussed at the PSC meeting and it was decided to start recruitment of relevant experts for the implementation of project activities within Milestone 1 and 2.

Current report describes results of Comprehensive overview of legislation and gap analysis and institutional framework on air quality assessment and management.

1. INTRODUCTION

1.1. SCOPE OF THE REPORT

Current report on Comprehensive overview and gap analysis of the existing legislative and institutional framework on air quality assessment and management aims to provide detailed analysis of current policy and legislation on air quality in Azerbaijan. Along with this, the report covers issues such as international and national reporting obligations, air quality limit values, pollution permits, emission data and analysis of current legislation in view of European requirements (EU directives). Report also includes description of the analysis of the institutional set up, recommendations to address any gaps and overlapping in institutional setup working with air quality, existing air quality assessment and management system in Azerbaijan, air quality monitoring network, dispersion modelling, emission data retrieval and storage, data validation and verification and information on fugitive and mobile sources. Conclusion chapter of the report provides summary of all issues tackled by the report and in recommendation part it is provided recommendations on measures on how to improve air quality assessment and management in Azerbaijan.

1.2. BACKGROUND INFORMATION

Main principles of environmental protection and use of natural resources are reflected in the Constitution of the Republic of Azerbaijan which provides a basis for the legislative system of the country. Up-to-date, more than 40 essential laws were adopted in the field of environmental protection and efficient use of natural resources in Azerbaijan.

Management of ambient air quality is regulated by the Law of the Azerbaijan Republic on Protection of Ambient Air entered into force in 27 March 2001. The Law identifies juridical framework of the ambient air protection and focused on fulfilment of human rights for living in a healthy environment and getting exact information on the environment. Law on Air Protection was last amended in 2007.

Some issues related to air quality management has been also reflected in other Laws such as the Law "On Environmental Protection", the Law "On Hydrometeorologycal Activity", the Law "On Environmental Safety", the Law "On use of Energy resources", the Law "On Energy", the Law "on Transport", the Law "On Radioactive safety" and so on.Efficient implementation of the requirements derived from the Law on ambient air is regulated by a number of regulations issued by the Cabinet of Ministers of Azerbaijan.

Main document regulating economic mechanism in ambient air protection is the decision of the Cabinet of Ministers on "Application of fees for use of nature, emission of pollutants and rules of use of the amount collected from those fees".

Initial assessments of the Law on ambient air of Azerbaijan show that there are some gaps in legislation in regards to EU directives and collision in a number of regulations. During last years, some measuresare provided towards harmonization of the Law to EU directives. For instance, it was submitted a proposal of amendment to the current Law to the Cabinet of Ministers related to global pollution of the ambient air, namely inclusion of the articles related to greenhouses gases leading to global warming.

1.3. OBJECTIVES

Main objectives of the report on Comprehensive overview and gap analysis of the existing legislative and institutional framework on air quality assessment and management are to provide an overview of the current policy and legislation, national and international reporting, assess the institutional set up, gaps and overlapping in responsibilities, analyze the current air quality monitoring system, addressing weaknesses in existing system, emission data handling and storage, data validation and reporting, identifying institutional gaps in data handling and reporting, as well recommendations on improvement of the current legislative basis on air quality assessment and management.

2. ANALYSIS OF CURRENT POLICY AND LEGISLATION ON AIR QUALITY

2.1. INTERNATIONAL REPORTING

Azerbaijan pays significant attention to participation in international conventions related to environment and up-to-date more than 20 Conventions have been ratified by the government. Three of those Conventions are mostly related to air protection and air quality management. Information on those conventions, status of the fulfilment of the obligations of the conventions, authorities and institutions responsible on international reporting, data flows and focal points are provided in below paragraphs:

i) Convention on Long-Range Transboundary Air Pollution:

Azerbaijan ratified the Convention on Long-range Transboundary Air Pollution in 2002. Ministry of Ecology and Natural Resources is responsible institution for reporting within the convention. MENR has appointed National Focal Point (Mr.SadigShiraliyev) for the Convention and working group was established for the purpose of implementation of works in this sphere. The data on the emissions to the atmosphere over the Republic of Azerbaijan covering the year of 2002 were submitted to the Convention Secretariat.

Pursuant to the order of the President of the Republic of Azerbaijan No1396 on additional measures concerning the issues arising from the international conventions and agreements on the environmental protection, to which the Republic of Azerbaijan acceded, dated 30 March, 2006, it is purported to implement measures on the establishment of observation stations equipped with certain devices for the purpose of improvement of monitoring system of the ambient air, and preparation for ratification of nine protocols of the Convention.

The Working Group is carrying out certain measures in order to prepare for ratification of the following protocols of the Convention - on "Heavy metals", "Persistent Organic Pollutants", "Reduction of acidification", "Eutrophication" and "Ground-level ozone".

Until the ratification of the Convention protocols, the Convention Secretariat and its other agencies shall not require reports and data from the Republic of Azerbaijan, excluding the information on the Protocol concerning the Co-operative Programme (EMEP) for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe.

Because of the lack of inventory of air pollutants due to the shortage of relevant technical capacity at the related agencies, problems appear on the preparation of data on the inventory of air pollutants to the Center on the Cadastres and EMEP for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe.

In Azerbaijan, the station of background monitoring of atmospheric air defining transboundary pollutants in the ambient air is installed in the territory of Altiagaj National Park by the Ministry of Ecology and Natural Resources of the Republic of Azerbaijan and Chemical Coordination Center operating under the Norwegian Air Research Institute (NILU) within EMEP of the Convention in February, 2012. These devices are used to calculate the level of anions and gaseous pollutants. The station has been included in the monitoring system of pollution of the ambient air in the territory of the country. The station was provided with relevant devices such as ICS-1100 ion chromatograph system, ozone analyser 400T, Teledne device for measuring

environmental pollution, information receiving system - "NDL-3, "WXT 520", sensor for identification of weather condition - "IVL 16,7 IPM" device and other supplementary devices.

Samples of observation are taken on daily base at 8^{00} in the mornings. It is provided analysis on anions (Cl, SO_4, NO_3) and cations (Na, K, Mg, Ca, NH_4) at the laboratories. Results of analysis are sent to National Monitoring Department on Environment. It should be mentioned that, PM_{10} filters are sent by post to NILU, as well.

Based on the data obtained from the above mentioned station, climate changes, dynamics of transboundary transportation of pollutants, impact of the ambient air on the environment and human health is determined, predictions are made and regular exchanges on results are made with the appropriate study centre of the Convention.

ii) Convention for the Protection of the Ozone Layer:

Azerbaijan ratified the Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol on Substances that Deplete the Ozone Layer, including the London and Copenhagen amendments, on 12.06.1996. The ratification of the Montreal Amendment followed in 2000 and on 29 June 2012 its Beijing Amendment has been approved by Presidential decree. MENRis responsible institution for reporting within the convention. National focal point of the convention is representative of the MENR - Mr. Imran Abdulov.

After ratification of the Convention, a number of projects listed belowwas implemented with the financial support of Global Environmental Facility (GEF) and technical assistance of United Nations Environmental Program (UNEP):

- Remove use of substances that deplete ozone layer at "Chinar" Open Stock Company and Sumgayit Compressor Plant;
- Restore and reuse of cooling equipment with substances that deplete ozone layer at the different sectors of industry and residential sector;
- Capacity building for technical specialists;
- Strengthening institutional structure in order to improve situation in fulfilment of obligations under Montreal protocol.

As a results of implemented activities, import of substances to Azerbaijan indicated in Annex A regulated by Montreal protocol has been stopped. There was also prepared a strategy for protection of ozone layer in Azerbaijan.

At present time, substances indicated in Annex C mainly HCFC-22 and HCFC-141b (R-22, R-141b) are used in the foaming process. Those substances are not produced in Azerbaijan, only imported. According to the terms of Montreal protocol those substances are imported to Azerbaijan based on the specific procedures. So, first of all, Importer Company applies to the Ministry of Ecology and Natural Resources to get specific license. Only after getting license, the company can pass imported goods from the customs. If there is no license, customs do not allow import of the goods to the country and goods are sent back.

As a partner country of Montreal protocol, Azerbaijan submits annual report to the secretariat on use of substances that deplete ozone layer, as well on the use of HCFC. When deadline for the submission of the report was 30 September, there was no delay in report submission. After changing this date to 30 of June, it is 2 years that there is delay in submission of the report. It is mainly related to the issue that it is not possible to get reports from the entities by that time.

Another important problem is weak institutional capacity. The coordinating organization for reporting is Climate Change and Ozone Center within the Ministry of Ecology and Natural Resources and low level of salaries are leading to turnover of personnel. At present, there is only one qualified specialist with previous experience working for the organization. This leads to delay in monitoring procedures, as well to delays in reporting.

At present, United Nations Industrial Development Organization (UNIDO) has developed project proposal on "Gradually removal of use of HCFC substances in Azerbaijan" and submitted it to GEF.

iii) UN Framework Convention on Climate Change:

Azerbaijan ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1995. Taking into account the importance of the issue, State Commission on Climate Change has been established in Azerbaijan by the Presidential Decree of 30 April 1997. Composed of leaders of 18 ministries and other governmental institutions, the Commission has been entrusted to coordinate implementation of commitments made under the UNFCCC.Azerbaijan joined to Its Kyoto Protocol in 2000 as a Non-Annex 1 country. MENR is responsible institution of reporting within the convention. National Focal Point of the convention is Mr.Issa Aliyev.

Despite of fact that the country has not taken any qualitative obligation, Azerbaijan has committed to develop, implement and publish national and regional programmes which would include mitigation measures. One of the other important components in implementing the commitments under UNFCCC is the development and promotion of public awareness on climate change and its consequences, preparation of scientific and technical specialists.

In this regards, Azerbaijan has developed and submitted to the secretariat its First National Communication to UNFCCC in 2000 and Phase 2 report related to technological needs assessment in 2001. Second National Communication was developed and submitted to the secretariat in 2010. Currently, there is on-going project for the preparation of Third Communication which will cover period from 2005 to 2010. Third National Communication is going to be submitted in the beginning of 2015. At the same time, it has been already started activities for implementation of one of the commitment for preparation of Biennial Update Report for submission to UNFCCC Secretariat. Currently, proposal to GEF for starting for development of Biennial Update Report is prepared. The report will be prepared and submitted to UNFCCC Secretariat by the end of 2014.

2.2. AIR QUALITY LIMIT VALUES

During former Soviet times, Standards of USSR (Sanitary norms - CH245-71) for maximum allowed concentration values were used. According to Constitution Act on State Independency, adopted on 18 October 1991, "Soviet Laws keep their juridical power until adoption of appropriate national Laws…".

Currently, air quality norms of Soviet times are applied. Regards number of regulated substances, Soviet norms are applied for those substances which are specific for the region, area or enterprise.

The table below provides comparison of limit values for EU regulated substances in Azerbaijan with EU and neighbouring countries (see table 1):

Table 1: Limit values and comparison with EU limit and target values and neighbouring countries limit values

Substance	Averaging period	EU	Turkey	Azerbaijan, Georgia, Russia	
		µg/m3	µg/m^3	MAC_{on}µg/m^3	MAC_{ad}µg/m^3
SO_2	20-30 min	-	-	500	-
	One hour	350, not to be exceededmore than 24 times a calendaryear	900	-	-
	24 hours	125, not to be exceededmore than 3 times a calendar year	310	-	50
NO_2	20-30 min	-	-	85	-
	One hour	200, not to be exceededmore than 18 times a calendaryear	300	-	-
	24 hours	-	-	-	40
	Calendar year	40	84	-	-
CO	20-30 min	-	-	5mg/m^3	-
	maximum dailyeight hourmean	10mg/m^3	-	-	-
	24 hours	-	-	-	3 mg/m^3
O_3	20-30 min	-	-	160	-
	maximum daily eight hour mean (target value for protection of humanhealth)	120, not to be exceeded on more than25 days per calendar year averaged over threeyears	-	-	-
	24 hours	-	-	-	30
C_6H_6	20-30 min	-	-	1500	-
	24 hours	-	-	-	100
	Calendar year	5	-	-	-

Substance	Averaging period	EU	Turkey	Azerbaijan, Georgia, Russia	
		µg/m3	µg/m^3	MAC_{on}µg/m^3	MAC_{ad}µg/m^3
PM_{10}	24 hours	50, not to be exceededmore than 35 times a calendaryear	-	-	-
	Calendar year	40	-	-	-
$PM_{2.5}$	Calendar year	25, to be met by 1 January 2015	-	-	-
Pb	20-30 min	-	-	1	-
	24 hours	-	-	-	0.3
	Calendar year	0,5	1,4	-	-
As	24 hours	-	-	-	2
	Calendar year (target value)	0,006	-	-	-
Cd	24 hours	-	-	-	0.3
	Calendar year (target value)	0,005	-	-	-
Ni	24 hours	-	-	-	1
	Calendar year (target value)	0,02	-	-	-

MAC_{on} - the maximum allowable maximum single concentration of a chemical in the air of residential areas, mg/m3. This concentration inhalation for 20-30 minutes should not cause reflex responses in humans.

MAC_{ad} - the maximum allowable daily average concentration of a chemical in the air of residential areas, mg/m3. This concentration should not affect a person direct or indirect harmful effects with an indefinite period of time.

For EU countries and Turkey MAC is assigned for different periods (hour, 8 hours, 24 hours, year-round). But, in Azerbaijan, Georgia and Russia it is used 2 types of MAC:

1) Allowed concentration limit for once only - for 20-30 minutes period;

2) Allowed concentration limit for average daily base –for 24 hours period;

At present time, most post-soviet countries are using standards of Russian Federation.

Comparative analysis of air quality limit values of Europe-Turkey-Russia shows that limit values of Turkey are very high and limit values of Russia are unrealistically low. Russian limit values were adopted during former Soviet times based on an outdate approach. Meeting these limits is neither easy, nor practical. On the other hand, an aspect of positive health effect of application of EU standards is very important as EU standards are based on WHO recommendations and

will positively affect population health. Thus, for current situation, European limit values are most acceptable for our country and project experts recommend applying European air quality limit values for Azerbaijan. Besides, it allows tocontrol less substances and all substances can be controlled by automatic devices. This statement is also supported by decision of government of Azerbaijan for integration to EU. It is obvious that introduction of EU air quality limits will introduce new averaging periods and this will lead to the changes in assessment methodologies (like air emission calculations, air pollution dispersion modelling, self-monitoring), but shifting to modern standards is the necessity.

MENR has approved special methodology on "Calculations of limit values of emitted harmful substances to ambient air" (order No228, dated 18.05.2009). According to this methodology, enterprises can prepare this document by itself, but if it is not capable to prepare such document they can hire individual or juridical persons specialized in this field. Methodology provides all relevant tables to be filled necessary informaiton by enterpises according to type and cathegory of activities.

2.3. POLLUTION PERMITS

Special permission

According to the Law on the protection of ambient air of Azerbaijan Republic, only enterprises which have "Special Permission" issued by MENR are permitted to emit harmful substances to ambient air. "Special Permission" is a document providing permission to natural and legal persons (entities) for emission of harmful substances and physical pressure to ambient air. "Special Permission" is provided for 3 years period.

In order to get "Special Permission" natural and legal persons (entities) should submit the following documents to the MENR:

- letter of application to the MENR asking for Special Permission;
- copies of registration documents of the entity;
- bank receipt on transfer of payment to relevant account for getting special permission for emission of harmful substances and physical impact to ambient air;
- project of limits of emission of harmful substances to ambient air and 2TG (air) state statistical report;
- plan of measures on prevention of emission during accidents and short-term emissions (for entities with current technological processes allowing such cases);
- efficient plan of measures for regulating emission of harmful substances to ambient air during adverse weather conditions;
- plan of measures to achieve norms of maximum allowed concentration;
- monitoring plan on emission of harmful substances to ambient air from stationery sources agreed with relevant unit of MENR;
- sanitary-hygienic passport of the entity.

Document for getting special permission is registered by relevant unit at MENR, considered and if there is no basis for refusal, permission is provided not later than 15 days after application date. If any short-comings are identified in submitted documents, the applicant is informed on the issue, and after submission of remaining documents latter, the application is considered other 5 days and respective decision is taken.

In the following cases provision of special permission is refused:

- when all required documentation was not submitted;
- when inaccurate or distorted information is identified in submitted documents;
- when applicant applies after the end of special or temporarily stoppage of permission on activity issued by respective unit;
- in other cases considered in relevant legislation.

Special permission document should include name of the Ministry issued permission, name, address of the entity, maximum allowed emissions of harmful substances, other terms on protection of ambient air, period of validity, number and date of issue.

Environmental Impact Assessment and ecological passport

In the current configuration for obtaining permission to operate, a new enterprise submits an application for permission to discharge pollution and generate waste. In general, the Ministry reviews the application, which includes information about the facility's planned operations and informs the applicant whether it must file an Environmental Impact Assessment (EIA) that addresses broader scope of environmental impacts.

If an EIS is submitted, the EIA section of MENR's Expertise Department reviews the EIS. The EIA process for projects sponsored by IFIs and other external actors is relatively open to the public. In these cases, individuals and non-governmental organizations are allowed to comment during the EIA process. It must be noted that, in practice, they were able to participate in EIA processes involving IFI sponsored projects, i.e., NGOs could submit comments during the public comment period.

A second form of environmental review is the ecological passport. In principle, all new enterprises that discharge pollution, generate solid or hazardous wastes, or that use natural resources must obtain an ecological passport that forecasts and describes the concentration of air emissions and water discharges for a variety of pollutants, the expected volume of air and water discharges, quantity of expected water use, the expected amount of solid waste generated, and any other important environmental impacts. The passport is at first drafted by the enterprise itself. The Expertise Department reviews the draft passport and any other available documents, such as construction plans, that are relevant to the anticipated environmental impact of the new enterprise for compliance with environmental standards and norms. The MENR may direct the enterprise to modify its design or its operations if it does not conform to expected emissions levels for the given production activity.

Despite of fact that Ecological Passport is not a legal act and is not mandatory, enterprises that have already proceeded EIA should have such passports. There is not any legal act regulating ecological passport. Ecological passports are only mentioned in Charter of the MENR (article 10.76). There is not any applied penalty for enterprises not having such passports. MENR only recommends all enterprises to have ecological passports and if during control process State Expertise Service identifies that the enterprise does not have ecological passport, it notifies the enterprise to prepare ecological passport during given time framework.

Pollution taxation system

The amount of payment for provision of special permission is identified based on safety category of the entities (decision of Cabinet of Ministers of Azerbaijan Republic No 112 dated 13 July 2002).The amounts of payment are listed below:

For entities under safety category I - 720 fold of conditional financial unit (792 AZN);
For entities under safety category II - 360 fold of conditional financial unit (396 AZN);
For entities under safety category III - 180 fold of conditional financial unit (198 AZN);
For entities under safety category IV - 90 fold of conditional financial unit (99 AZN).

Main document regulating economic mechanism in ambient air protection is the decision number 122 of the Cabinet of Ministers on "Application of fees for use of nature, emission of pollutants and rules of use of the amount collected from those fees" dated 03 March 1992. By this decision the rules of payments for pollution were identified, as well asuse of natural resources, principles of use of collected amount from those payments.

Based on decision No 112 of the Cabinet of the Ministers dated 13 July 2002 on regulations on "Amount of fines for getting specific permission for emission to ambient air and for harmful physical impact and use of collected fines" entities are divided into 4 categories due to danger rates. Danger category of the entity (DCE) is calculated according to the following formula:

$$P = \sum_{i=1}^{n} \left(\frac{M_i}{J\Gamma h_i}\right)^{a_i}$$

Here,

P – danger category indicator of the entity;

M_i – emission of *i* substance (tons/year);

$J\Gamma h_i$– average allowed daily concentration of *i*substance

n – number of pollutant emitted to the air by the entity;

a_i – coefficient depending on danger category of the substance (see below explanation table)

Table 2. Coefficient depending on danger category of the substance

Danger category of the substance	1	2	3	4
a_i	1,7	1,3	1,0	0,8

Table 3. Coefficients for identification of danger category of the entity

DCE	Conventional
I	$P \geq 10^6$
II	$10^6 > P \geq 10^4$
III	$10^4 > P \geq 10^3$
IV	$P < 10^3$

If divide entities by size and type of activities and sectors, the following 4 danger category specified by the decision of the Cabinet of Ministers number 63, dated 15 April 2002:

Entities of I danger category: big entities of oil-gas extraction, production of construction materials, metallurgy, ore extraction, energy production, oil-chemical industry;

Entities of II danger category: some entities of oil-gas extraction, production of construction materials, metallurgy, ore extraction, energy production, oil-chemical industry, entities of big engineering, automobile production, ship production, ship repair, cotton cleaning and transportation;

Entities of III danger category: some entities of engineering, automobile production, ship production, ship repair, transportation, as well entities of light industry and food industry;

Entities of IV danger category: some entities of light industry, food industry and transportation, as well entities of service sector.

All above-mentioned entities with stationery emission sources (not depending on production characteristics, activity type and amount of emission) in the territory of the country dealing with production or service activities should get Special permission on obligatory basis.

Entities mentioned above are providing emissions to ambient air on regular basis and from stationary sources. Entities that do not have such emission sources, but still emitting to ambient air do not need special permission. Despite of that, those entities provide registration of emission on annual base, pay for pollution and submit report on emission to Statistical Committee after negotiating with local units of MENR. As a result, comprehensive information of atmospheric pollution is gathered and summarized by Statistical Committee.

Special permission document is not related to preparation of statistical report, negotiating report with relevant authorities and its submission. Entities dealing with **production activities** that do not need special permission (entities without regular and stationary emission sources) are providing registration of emission and submit statistical reports to relevant authorities.

Regards the entities that do not need special permission (entities without regular and stationary emission sources) and entities that deal with **service activities**, those entities do not provide registration of emission. Emission from such entities is not reflected in the summary report on emission. There is not any information on such emission at all.

Payments for emission of pollutants are compensation for economic losses for environment and are paid by users of natural resources (natural and legal persons – entities). Payments include:

- payments within allowed emission limits;
- payments for surplus emission;

Payments for surplus emission are five times more than payment for emission limits. Payments for surplus environmental pollution are identified based on ecological situation and importance of the areas (territories).

If environmental damage occurred due to fault of users of natural resources, payment for harmful substances is paid 10 times more than for allowed emission. Amount of harmful substances is identified during period of violation using measurement devices or calculated based on approved methodologies.

Payments do not release entities and citizens from the following:

- from compensations due to deterioration of the quality of natural resources or withdraw of aimed (complex) use of natural resources as a result of activities of those entities or citizens;

- from fees and penalties due to natural pollution and not fulfilling security requirements, inefficient use of natural resources, violation of rules of ecological safety, sanitary-hygienic norms, requirements for protection of health of workers and employees.

Payments for emission of harmful substances are paid from the income of the entity and if the entity does not have any income, payments are paid from other eligible sources of the entity according to respective legislation.

Fine rates by emission of pollutants to ambient air are provided in Annex 2. Norms for payments approved by decision of the Cabinet of Ministers, dated 03.03.1992) due to pollutants emitted from fuel combustion is provided in below table:

Table 4: Norms for payments due to pollutants emitted from fuel combustion

Type of fuel	*Norms for payments due to pollutants emitted from fuel combustion (1 ton/AZN)*
Diesel	0.1
Gasoline (ethylated)	0.12
Ethylated	0.07

Note: *when using treating elements for rendering harmless of gases, it is used coefficient of 0.75 for fine rates*

Based on the decision of the Cabinet of Ministers dated 01.05.1993 fine rates have been increased by 10 times. On the other hand, in 2005, the government made denomination of national currency (1 new AZN = 5000 old AZN).

Above table demonstrate fine rates for use of 1 ton fuel. Thus, one entity should pay 0.1 AZN for use of 1 ton of diesel and 0.12 AZN for use of gasoline.

If the entity emits harmful substances to ambient air not from stationery source, but from mobile sources according to production or service profile, it is not required to have "Special Permission". These include emission from automobiles, welding aggregates and from other mobile devices. If there is no "Special Permission", emission of harmful substances to ambient air is calculated based on the methodology that uses activity data (materials (such as welding rods, paints) or used fuel (diesel, benzene, natural gases, black oil etc.)). Emission is calculated for statistics purposes.

The cost of preparing EIAs and passports falls on the applicant. An Ecological Center (separate from the Expertise Department) in MENR is available to assist enterprises in developing these documents.

In reviewing EIAs or passports, the Expertise Department employs emission factors that are based on a 1998 Russian publication. The norms are rates of emissions in tons (metric tons) of pollution per unit of product. For example, there is a norm for tons of sulfur dioxide air emission per ton of cement production. An important document that accompanies the passport specifies the enterprise's "maximum allowable emission/discharge" to air, water, or land, as relevant. Once the passport and maximum allowable emission document are approved, the enterprise has permission to conduct business within the stated limits for three years. Maximum allowable discharge documents dealing with air pollution are reviewed every three years.

The setting of charges for enterprises that emit pollution – i.e., the charge that is paid by enterprises - is *not* the responsibility of the permitting authority in the Expertise Department. Passports and maximum allowable discharge documents typically do not specify charges nor include a tariff scale. The responsibility for establishing pollution charges rests with the regional inspectorate, part of the Environmental Inspectorate of MENR.

2.4. EMISSION DATA

2.4.1. Emission data

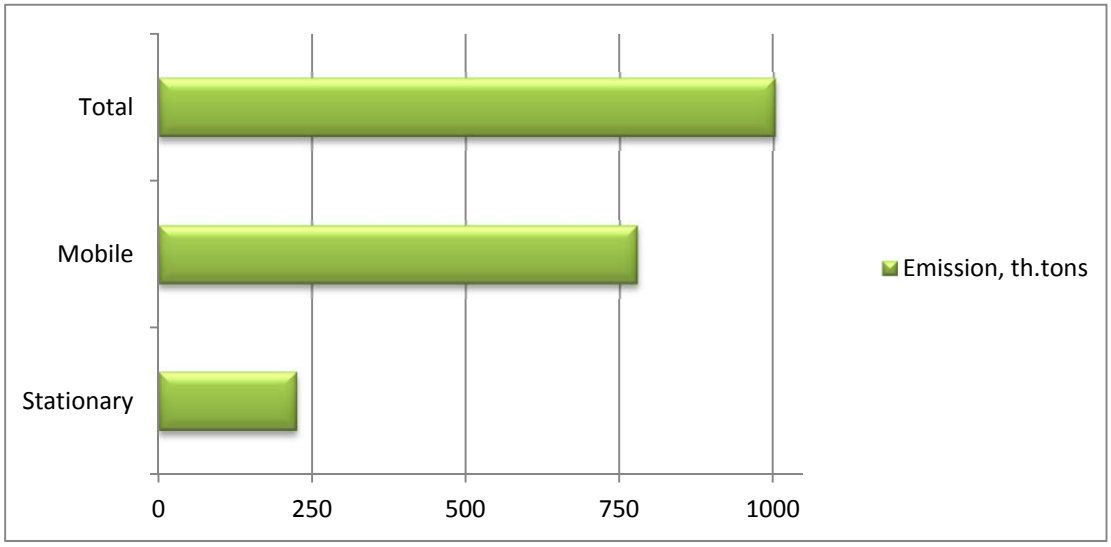
Characteristics of emission sources and emissions in Azerbaijan (based on the inventory of industrial sites) are provided in below table using official statistical data:

Table 5: Emission sources and emissions data for 2010-2011

#	Sources of pollution	2010	2011
1	The number of stationary sources – total	12486	11665
2	Among them organized	3816	3751
3	Amount of harmful substances emitted from the sources - thousand tonnes (industry)	491	479
4	Captured and treated- thousand tones – dust	277	255
5	Noted and neutralized in percentage to the total amount of harmful substances	56	53
6	Amount of harmful substances, emitted to the atmosphere, thousand tonnes (industry and traffic)	957	1003
	Including		
7	From stationary sources	215	224
8	From mobile sources	742	779

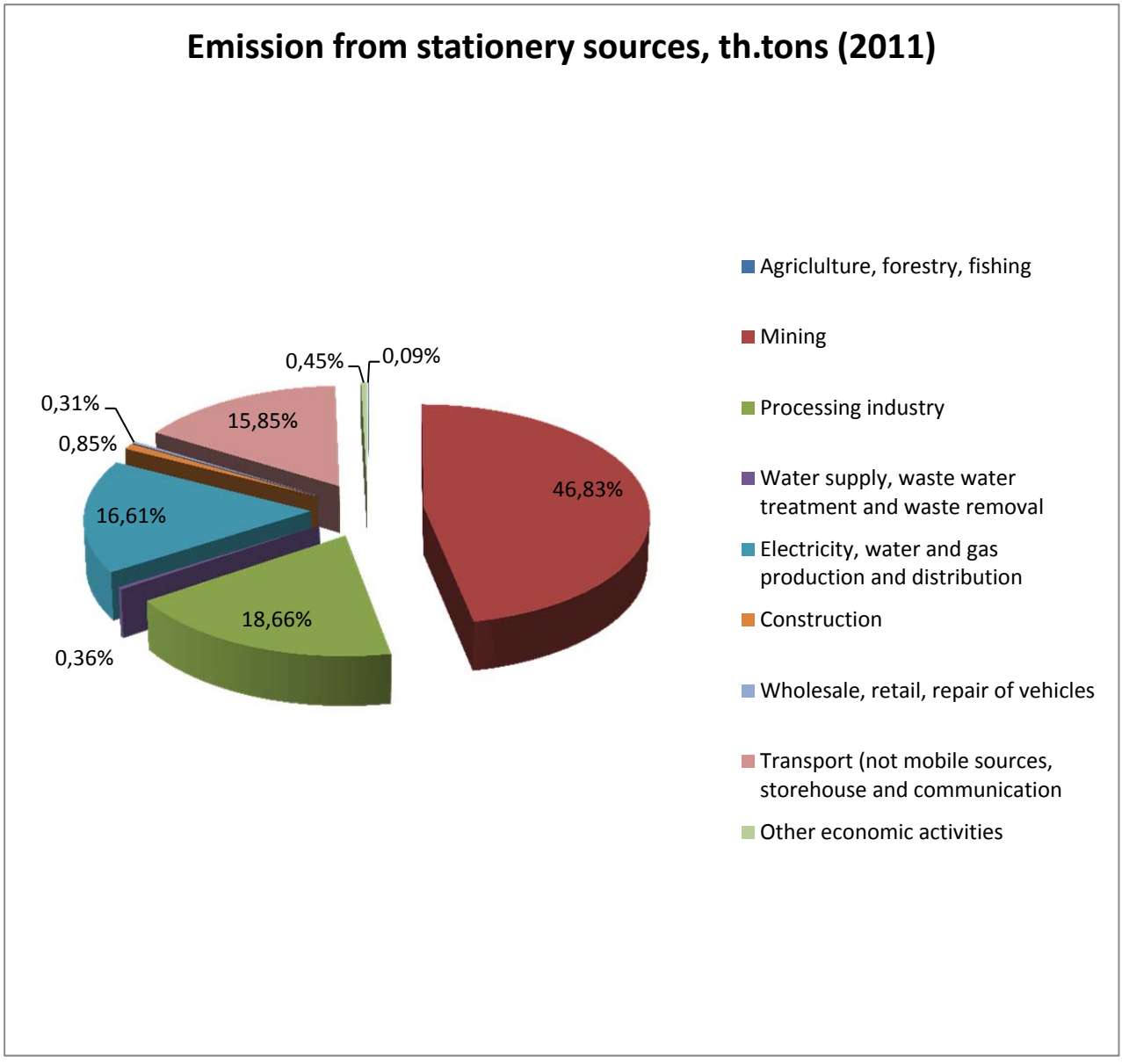
** Difference between numbers of emission from stationary sources in row 3and 7is due to deduction of captured and treated emission.*

Figure 1: Emissions by sources, 2011



Regards emissions by sectors, it should be mentioned that in Azerbaijan mainly enterprises having stationary emission sources not depending on production characteristics, activity type and amount of emissionsdealing with production or service activities in the territory of the country should get Special permission on obligatory basis and submit 2 TG statistical reports. Besides, enterprises not having stationary emission sources, but still emitting pollution to ambient air provide information about emissions on annual base, pay for pollution and submit reports to Statistical Committee after negotiating with local units of MENR. There is no data on emissions from commercial and residential sector and it makes some uncertainties in providing exact numbers by sectors. But, GHG emissions from commercial and residential sector are calculated using IPPC (Intergovernmental Panel on Climate Change) methodology under Second National Communication. Thus, comparing the numbers, estimates of experts showed that emissions from commercial and residential sector are approximately 10% from total emission.

Figure 2: Emission from stationary sources to ambient air by sectors, 2011

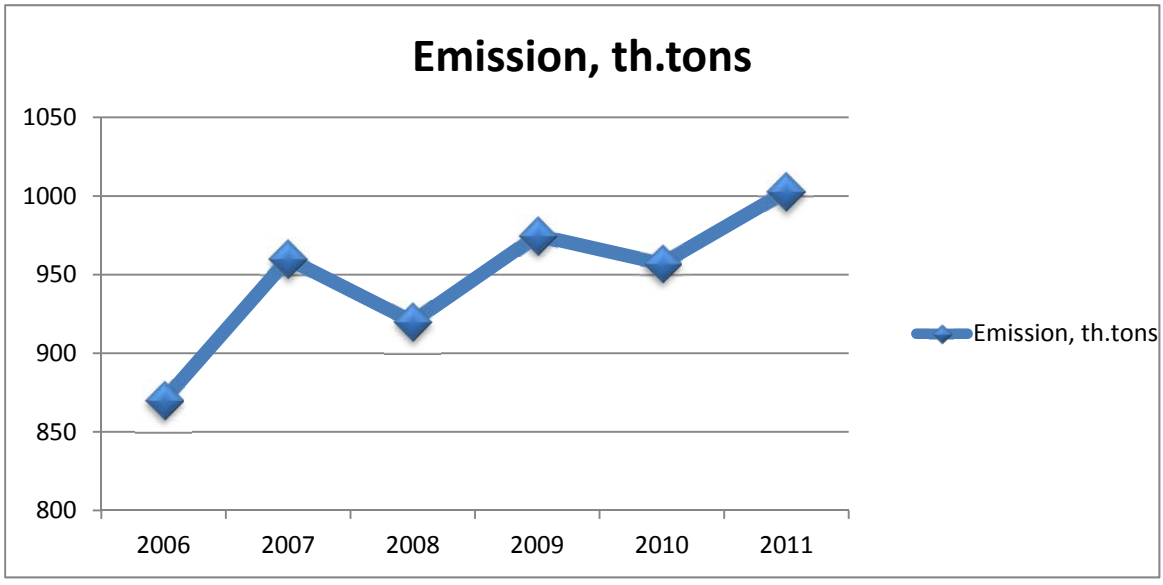


According to official statistical data (source: www.stat.gov.az) main pollutants forming the stationary sources are divided to solid substances, gas and fluid substances, including sulphuric dioxide, carbon oxide and nitrogen oxides (NOx – sum of NO and No_2).

Table 6: Emission from stationery sources by pollutants 2007-2011

Years	Total pollution	including:				
		Solid substances	Gaseous and liquid substances	from which:		
				sulphiric dioxide	carbon oxide	nitrogen oxide
	thousand tons					
2007	385.9	28.4	357.5	9.2	25.3	23.1
2008	295.0	31.3	263.7	7.2	32.0	28.7
2009	300.0	19.8	280.2	4.3	27.6	24.2
2010	214.8	19.3	195.5	2.2	27.2	19.8
2011	224.0	18.0	206	2.7	33.5	21.3

Figure 3: Total emission to ambient air in the country, 2006-2011 years



In 2000, total amount of wastes emitted into the atmosphere from stationary sources was 515 thousand tons. This figure was 224 thousand tons in 2011. However, in the recent years, rapid increase of vehicles in the Republic, mainly in Baku city raised the number of harmful gases released into the atmosphere by mobile sources. In 2011, harmful substances emitted into the atmosphere from motor vehicles held 78% of total emissions.

2.4.2. Reporting

The information on emitted into atmosphere harmful substances is collected by the State Statistical Committee of Azerbaijan Republic on the base of two official statistical report forms. These are forms named #2-TG (air) "On protection of atmospheric air" and #2-TG (air-transport)

“On emission of harmful substances into atmosphere from automobile transport” annual official statistical reports (see Annex 4).

Statistical form # 2-TG (air) of emissions is elaborated by enterprises and organizations having stationary sources and polluting atmospheric airregardless type of ownership. There also involved housing and communal services, boilers on the balance of transport and other enterprises. The report reflects indicators characterizing amount of captured, destroyed and emitted harmful substances by stationary pollution sources and other data.At present, inventory of emissions from stationary sources in Azerbaijan is carried out based on the "Rules of the inventory of hazardous air emissions and sources that have a physical effect," that was approved by the decision number 63 of Cabinet of Ministers of Azerbaijan Republic on April 15, 2002. Forthe calculation of emissions methodological guidelines for the calculation of emissions from stationary sources developed in Soviet times are used. For instance, for calculations of emission from oil processing sector РД-17-86 methodology is used and for calculation of emission from boilers and thermal power stations methodology of РД-34.02.305-90is used.

Statistical report includes information on harmful substances emitted from stationery sources and all harmful substances in the air entering the cleaning devices. Quantitative and qualitative indicators of harmful substances are calculated based on identified methodology or identified through analytical assessment and measuring. Relevant information on the emission sources is also described in provided report, however, this information is aggregated by enterprise. This includes sources such as special devices, pipes, as well other sources.

There is emission data for separate entities, for different production sectors and for different cities of the country, but, at present, there is no metadata for use in air pollution dispersion modelling.

Report # 2-TG (air) also reflects indicators on emitting harmful substances sources. They include special installations that are emitting harmful substances, in other words organized emission sources (pipes, ventilation shafts and etc.).

Besides this, as an significant improvement it should be mentioned that, since 2010, the Statistical Committee is collecting information on atmospheric GHG emission from stationary sources – carbon dioxide (CO_2), nitric oxide (I) (N_2O), methane (CH_4), hydrofluorocarbons (HFC), sulphur hexafluoride (SF_6), perfluorinatedcarbons (PFC). But, data from residential stationery sources, as well from mobile sources still are not reflected in statistical reports.

Filled out by the enterprises official statistical report form is verified by local departments of the Ministry of Ecology and Natural Resources and after obtaining required consent (signature) presented to statistical bodies of district (city), where the enterprises are located and to higher level structures within the Ministry.

2.5. ANALYSIS OF CURRENT LEGISLATION IN VIEW OF EUROPEAN REQUIREMENTS

2.5.1. Environmental legislative base

The Azerbaijani system of environmental laws has largely evolved from Soviet frameworks and practices. The system emphasizes the use of norms along with fees for emissions and fines for exceeding the norms. The government has signalled its intention to gradually shift to a legal system that approximates that of the EU *acquiscommunautaire*.

Azerbaijani environmental law is based on broad legislative enabling or framework acts that describe the environmental aspirations of the government. For example, the Law on Protection of the Environment (1999) recognizes the principles of:

• The interrelated nature of socio-economic and cultural-aesthetic issues;

• The importance of maintaining and repairing natural ecosystems;

• Efficient use of resources and use of economic incentives for environmental protection;

• Maintenance of biological diversity, prevention of damages to the environment, and valuation of damages that do occur;

• Participation of individuals and public organizations in environmental protection; and

• International cooperation for environmental protection.

This law describes, in general terms, the rights and duties of the state, local authorities, individuals, and public organizations; acceptable uses of nature and natural resources; the system of regulation of the uses of nature; the development of cadastres (inventories) and monitoring of environmental and natural resources; the regulation of the degree of overall environmental protection and the activities that damage the environment; the examination of enterprises and activities for compliance with "norms and ecological requirements" and impact on the environment; and research, public education, and data development.

The Law on Ecological Safety (1999) similarly provides broad guidance related to protection of the public from "hazards arising as a result of anthropogenic and natural impacts" on the environment. Like the Law on Protection of the Environment, this act specifies the rights and duties of the state, local authorities, individuals, and public organizations; generation and dissemination of information; and requirements for maintenance of ecological safety.

Table 7.Air quality management related laws

Year	Law
1995	Constitution of Azerbaijan Republic
1997	Law of the Azerbaijan Republic on Radiation Safety of the Population
1998	Law of the Azerbaijan Republic on Hydro-Meteorology
1998	Law of the Azerbaijan Republic On Industrial and Domestic Wastes
1999	Law of the Azerbaijan Republic on Protection of the Environment
1999	Law of the Azerbaijan Republic on Ecological Safety
2001	Law of the Azerbaijan Republic on Protection of Ambient Air
2002	Law of Azerbaijan Republic on Obtaining of Environmental Information

Like the Law on Protection of the Environment, the Law on Protection of Ambient Air lays out underlying principles as the bases for the law, including emphases on protecting human health, productivity of the atmosphere; prevention of irreversible environmental damages through state regulation; complete, accurate and transparent provision of information on air quality; and the establishment of a systematic scientific approach to protect air quality.

What is most impressive about these broad laws is that they contain the seeds for a sound, progressive, environmental legal system. Taken as a whole the laws recognize a number of important legal and regulatory principles, including:

• The importance of environmental quality for a healthy and productive society;

• The need to address both discharges of environmental pollution and ambient levels of environmental contamination;

• The importance of maintaining a transparent system of environmental information for the public;

• The importance of avoiding potential conflicts of interest for reviewers of environmental impacts and requests for discharge permissions;

• The importance of adequately funding a government entity for the protection of the environment;

• The "polluter pays" principle;

• The advantages of using economic incentives and market-oriented policy tools to regulate the environmental activities of enterprises; and

• The need for more specific laws to implement the goals of environmental policies.

On this latter point, the system is designed such that MENR, working with the Parliament, Cabinet of Ministers, and the President, is responsible for developing additional, specific regulations or "sub-laws" in the areas of environmental protection. In fact, seven "decisions of the Parliament" and 103 "decisions of the Cabinet of Ministers" – all of which constitute sub-laws – have been promulgated in the environmental arena. These sub-laws cover areas such as legislation establishing the Ministry of Ecology and Natural Resources, on norms governing "illegal development of natural resources," on the establishment of fees for certain classes of pollution and amendments thereof, on the creation of an "environmental protection state fund," "on specially protected areas", and environmental and natural resource management areas (including land management, forests, and fisheries).

Efficient implementation of the requirements derived from the Law on ambient air is regulated by a number of regulations issues by the Cabinet of Ministers of Azerbaijan. As an example of such regulations it could be mentioned "Regulations on inventory on air pollutants and physical impact sources to pollution", "Regulations on state control on ambient air protection", "Regulations on organization of air protection by juridical persons having chemical, biological and physical sources of pollution", "Regulations on registration of air pollutants and physical impact to pollution", "Regulations on provision of special permission on emission and physical pollution", "Regulations on amount of payment for obtaining special permission and use of it", "Regulationson certification endorsing relevance of fuel, technical devices, technological procedures, engines, transport and other mobile mechanisms to the requirements of air protection", "Hygienic and ecological norms of ambient air and regulations to identify permitted level on physical impact" and "Regulations on state registration of potential hazardous substances for environment and human health, as well harmful substances".

Main document regulating economic mechanism in ambient air protection is the decision of the Cabinet of Ministers on "Application of fees for use of nature, emission of pollutants and rules of use of the amount collected from those fees" (*approved by the Decree No.122 of March 3, 1992*

of the Cabinet of Ministers (last updated in 1995)). By this decision the rules of payments for pollution, use of natural resources, as well principles of use of collected amount from those paymentswere identified.

Some issues related to air quality management have been also reflected in other Laws such as the Law "On Environmental Protection", the Law "On Hydrometeorologycal Activity", the Law "On Environmental Safety", the Law "On use of Energy resources", the Law "On Energy", the Law "on transport", the Law "On Radioactive safety" and so on.

One of the first actions taken by Azerbaijani environmental authorities in the post-Soviet period was to develop a system of charges on air pollutants emitted by enterprises. Initially promulgated in 1992 and updated to account for inflation in 1993, the fees would appear to be a manifestation of an incentive-based environmental policy scheme. However, two factors suggest otherwise. First, the figures have never been updated to reflect the inflation. Second, the fee schedule does not appear to be used in practice. Rather, environmental inspectors set the charges during inspections. This means that firms can not directly calculate reductions in fees that would result from investments in pollution abatement.

Under the current system, new public or private enterprises must obtain approval from MENR before they are legally operable. Enterprises have some incentive to comply with this procedure because, at least in principle, if they are discovered by MENR's environmental inspectorate to be operating without an "ecological passport" or permission to emit pollution, they can be fined or closed.

A resolution (sub-law) establishes classes of projects, defined by the size of the project. These classes determine the scale and scope of the environmental assessment to be performed (i.e., major enterprises are to be subject to a comprehensive EIA; medium-sized projects must undergo a less comprehensive review, and so on). *However, no law in Azerbaijan requires thatany new enterprise or major construction project – internationally financedordomestic – actually undergo an environmental assessment.* Hence the "sub-law" creating different levels of assessment for proposed projects constitutes guidance and is not "legal," in the de jure sense. It operates in the absence of an enabling or framework law.

No doubt, a well-articulated enabling law, that specified under what circumstances major projects must be subject to an EIA, would help regularize the EIA process. It would also create expectations among line ministries and other actors about EIAs as part of an obligatory, open, and environmentally sensible regulatory process. A reasonable model is EU Directive 97/11/EC which amends an earlier directive governing "assessment of the effects of certain public and private projects on the environment". This directive is more appropriate than the equivalent US statute, the National Environmental Policy Act, because the EU directive considers both publicly and privately-funded infrastructure and construction projects – consistent with the current Azerbaijani EIA context.

Resolution 122 (Cabinet of Ministers, 1992) contains different charges for different classes of fuels and for "solid wastes" based on their "toxicity." (The resolution does not list specific pollutants nor create classes of water or air pollutants). As mentioned above, the charges have not been updated since Resolution 122 was amended in 1993.

2.5.2. Main identified gaps in legislation base

There are a variety of gaps to be addressed in Azerbaijani environmental law and regulatory practices. First, there are substantive gaps. Even though the Cabinet of Ministers and Parliament have elaborated specific regulations ("resolutions" and comparable sub-laws), many such rules remain too generic for the practical purposes of day-to-day regulation, e.g., of enterprises' pollution emissions.

Substantive Gaps

EU's TACIS program has compared Azerbaijani and EU environmental legislation as part of Azerbaijan's endeavour to approximate the *acquiscommunautaire*. The comparison uncovered several substantive gaps. EU TACIS identifies that the permit procedures in different legislative acts in Azerbaijan are determined in a very general way and no further concretizing normative acts are adopted. In comparing Azerbaijani and EU laws, large gaps were found in the various codes (which include combinations of separate laws), individual laws, orders, and resolutions.

Here TACIS found that provisions were neither sufficiently targeted nor strong enough to induce industry, businesses, and individuals to modify their behaviour. Drawing on the EU TACIS evaluation (EU, 2004), last updated in 2007, Table 8 provides a summary of the substantive gaps.

Table 8. Substantive gaps in Azerbaijani environmental laws

Substantive Area	Relevant Azerbaijan Laws	Recommended Action
Air Quality		
Ambient Air Quality	Law of Republic of Azerbaijan on Air Protection #109-IIQ of 27.03.2001	Develop air quality standards, monitoring requirements, standardized methods of measurement, possibly differentiated for urban, rural, and national park conditions. .
Stationary Sources of Air Pollution	Law of Republic of Azerbaijan on AirProtection #109-IIQ of 27.03.2001	Develop specific, risk-based, air quality emissions regulations designed to reduce levels of a broad array of specific air pollution discharges. Regulations could be market-based, performance-based, or technology- specific.
Mobile Sources of Air Pollution	Law of Republic of Azerbaijan on Air Protection #109-IIQ of 27.03.2001	Develop standards for emissions from petrol and diesel fuelled vehicles, including performance based standards (emissions per

Substantive Area	Relevant Azerbaijan Laws	Recommended Action
		kilometre) and, where necessary, technology specifying standards (e.g., lead-free petrol, catalytic converters, fuel quality). Adopt EU standards, phased in from EU1 (no lead) to EU4 (most advanced). May include requirements for periodic emissions testing and certification of all vehicles
Waste Law related to air quality management		
Industrial and Domestic Waste Disposal	Law of Republic of Azerbaijan on the Protection of Environment # 678-IQ, dated 08.06.1999 Law of Republic of Azerbaijan on Industrial and Domestic Waste #514- IQ, dated 30.06.1998	Develop specific regulations for the incineration and landfill of wastes to assure the protection of air from contamination by soot and etc.

Perhaps the most striking feature of Azerbaijani law is the lack of clearly defined: (1) standards for ambient levels, (2) modern (i.e., European) norms for the discharge amounts and concentrations of pollutants from enterprises, (3) regulations to control mobile source air pollution and (4) clearly defined measurement standards for ambient and discharge monitoring. The need for more comprehensive and specific norms was identified in the Environment State Program which called for:

• Action 7.2: Draft law to amend the Law on Protection of the Environment to:

- Improve environmental norms
- Assess environmental impacts
- Monitor the environment
- Strengthen ecological control;

• Action 7.7: Draft laws to amend the Law on Air Protection to define environmental norms;

• For air quality protection, a comprehensive program would address ambient air levels of:

• Sulphur dioxide

• Nitrogen oxides

• Particulate matter, PM_{10}, $PM_{2.5}$

• Carbon monoxide

• Ozone

• Lead

• Mercury

• Benzene

• Asbestos

• Cadmium

• Arsenic

• Nickel

• Toxic substances and hazardous air pollutants

• Volatile Organic Compounds

Many of these ambient pollutants are already addressed in enterprises' environmental passports. However, a clear scheme to systematically establish risk-based, ambient standards is not in place. To illustrate, the 2001 Law on Protection of Ambient Air:

… sets out the requirements for monitoring, organization of activities, responsibilities of institutions, control and inspections, court procedures, and international cooperation. The law foresaw the issuance of regulations with detailed procedures for air protection, which have now been adopted (the last one in 2003) but not yet implemented. The law also calls for changing the ambient quality standards from the old GOST standards to those consistent with international guidelines and standards, such as the health based air quality guidelines of WHO. However, the conversion of GOST standards into internationally accepted standards would be complicated and require significant financing and training inputs, requiring not only changes in quantitative values, but also resource and time consuming changes in the data collection, processing, and analytical systems.

(Source: "Environmental Policy and Institutional Reform in Azerbaijan" Report for the Ministry of Ecology and Natural Resources, Government of Azerbaijan prepared by Bloomington Energy and Environmental Intelligence LLC)

If, in fact, "detailed procedures" for air monitoring are found in any current Azerbaijani environmental sub-law, these procedures are almost certainly not being implemented. Some indication of this is the fact that the World Bank is underwriting the modernization of MENR's central laboratory facility which, in the Bank's estimation, contains analytical equipment that is "consistently simple and outdated" and automated sampling equipment that is "restricted to very few items" (MENR/WB, 2008: 6). Another indicator that procedural details remain to be developed and/or implemented is the call for the "determination of norms" for air pollution in the Environment State Program (action 7.7).

EU TACIS stated that the Government of Azerbaijan must develop clear, risk-based standards to reduce emissions of air pollutants from stationary and mobile sources. Of all air pollutants, control of lead is the one that consistently offers the highest benefit-to-cost ratio.

The phased-in adoption of EU standards in the area of control of emissions from spark ignition and diesel passenger vehicles would be consistent with the Government of Azerbaijan's commitment to work toward approximation of EU environmental law.

The phased-in adoption of EU standards in the area of control of emissions from spark ignition and diesel passenger vehicles would be consistent with the Government of Azerbaijan's commitment to work toward approximation of EU environmental law.

Given the international standing that the Government of Azerbaijan has developed in the area of greenhouse gas (GHG) emissions, the government might also choose to address emissions of Carbon dioxide, Methane and Fluorocarbons.

2.5.3. Approximation to EU directives

Azerbaijan gives high priority to cooperation with the European Union (EU). Azerbaijan was included in the EU Neighbourhood Policy in 2004, which is replacing the TACIS programme. The National Indicative Programmes for the period 2011–2014 define priority areas and related objectives for which the EU is providing grant-financed technical assistance.

Since the late 1970s the European Union has recognized air pollution as one of Europe's main political concerns. The Community is acting at many levels to reduce exposure to air pollution: through legislation, through work on a wider international level in order to reduce cross-border pollution, through collaboration with sectors responsible for air pollution and with national, regional authorities and NGOs, and through research. The European Union policy on air quality aims to develop and implement appropriate instruments to improve air quality.

The European Union airquality policy actions focus on:

- Establishing minimum quality standards for ambient air;
- Tackling the problems of acid rain and ground level ozone;
- Controlling emissions from stationary and mobile sources;
- Improving fuel quality;
- Promoting and integrating environmental protection requirements into the transport and energy sectors; and
- Ensuring that the public is appropriately informed and can participate in the development of pollution abatement measures

On the basis of the EU air quality policy actions, 11 directives and decisions were selected for further review. They are grouped into 4 areas representing (see Box 1 below): the central legislation on ambient air quality assessment and management with its fourth daughter directive, and the directives addressing emissions form stationary sources and directives on air quality assessment reporting.

c1) Selected directives in the air-quality policy sector:

Ambient air quality assessment and management:

Directive 2008/50/EC on ambient air quality and cleaner air for Europe

Ambient air quality standards (limit values and guidelines):

The fourth Daughter Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air.

Decision 97/101/EC on the exchange of information and data from networks and stations measuring ambient air quality within Member States.

Standards for stationary sources:

Directive 2001/80/EC on the limitation of emissions of certain pollutants into the air from large combustion plants (the LCP Directive).

Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control)

Directive 2000/76/EC of the European Parliament and of the Council of 4th December 2000 on the incineration of waste.

Directive 94/63/EC of the European Parliament and of the Council on the control of VOC emissions resulting from the storage of petrol and its distribution from terminals to service stations.

Council Directive 1999/13/EC on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations.

Reporting on Air quality assessment

Commission Decision 2004/224/EC laying down the obligation of Member States to submit within two years so-called Plans and Programmes for those air quality zones where certain assessment thresholds set in the Directives are exceeded.

Commission Decision 2004/461/EC laying down a questionnaire for annual reporting on ambient air quality assessment under Council Directives 96/62/EC and 1999/30/EC and under Directives 2000/69/EC and 2002/3/EC of the European Parliament and of the Council.

The directives are presented, focusing on the aim of a directive, its main principles and instruments as well as the benefits seen from the implementation of the directive.

c2) Overarching Principles of Air Quality Management in the EU

The European Community air quality legislation designates a number of overarching principles for current air quality management (see Table 8).

Table 9: Principles for current air quality management

Principles	Relevant Directives in EU Air Quality Policy Sector
For ambient air quality standards (limit values and guide values): ***Effects-based approach.***Ambient air quality standards (limit values and guide values) for pollutants are set according to their scientifically-observed or estimated effects on human health and/or on the environment and are not based on the technological or economic feasibility of achieving them.	Directive 2008/50/EC on ambient air quality and cleaner air for Europe
For product control, material handling, and emissions standards: ***Technologically and economically feasible standards***.	Directives setting emissions standards and limit values for products (e.g. in fuel). In particular the group of directives on product control and material handling.
Polluter Pays Principle.The potential polluter should in general bear the costs of pollution prevention and control measures as well as remediation. In the context of air quality management, this means that potentialemitters of air pollutants should bear the full costs of carrying out their activities in an environmentally sound manner i.e. taking air quality (and other issues) into account.	Directives that deal with air emissions.

Principles	Relevant Directives in EU Air Quality Policy Sector
Integrated approach.Measures taken to reduce air pollution at one point or in one area should not lead to an increase in air pollution elsewhere or to an increase in pollution of another environmental medium (based on principles of Integrated Pollution Prevention and Control (IPPC).	Directive 2008/50/EC on ambient air quality and cleaner air for Europe. Also directives regulating emissions from stationary sources, in particular the Industrial Emissions Directive, the LCP Directive. The NEC Directive.
Cost-effective measures.Under the National Emission Ceilings Directivethe emission ceilings for the Member States are based on the principle of achieving the environmental objectives though cost-effective measures, i.e. at the least cost for the European Community.	National Emission Ceilings Directive.
International approach.The international, trans-boundary, nature of air pollution is recognized in two respects. Firstly, Member States are not expected to achieve independently satisfactory air quality with respect to pollutants originating outside their territory. Secondly, Member States are required to take into account the effects of their own emissions on other countries even when those emissions have no significant adverse effects within their own frontiers. Member States with a common border are expected to consult each other, when necessary, regarding air quality.	In particular directives regulating emissions from stationary sources and setting national emission ceilings. Also Directive 2008/50/EC on ambient air quality and cleaner air for Europe.
Communication and information.Member States are required to inform the Commission about air quality issues in their territory and (in more recent legislation) to inform the public.	Almost all the directives concerned, in particular the group of directives concerning "Monitoring and information exchange"
Public participation.Member States are required to provide up-to-date information to the public and appropriate organizations on ambient air concentrations of certain pollutants. Plans or programs setting out pollution abatement measures for the zones or agglomerations concerned must also be made available to the public.	Almost all the Directives concerned, in particular the Directive 2008/50/EC on ambient air quality and cleaner air for Europe.

c3) Ambient air quality assessment and management and standards

The Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe entered into force on 11 June 2008.

This Directive includes the following key elements:

- The merging of most of existing legislation into a single directive (except for the fourth daughter directive) with no change to existing air quality objectives*;

- New air quality objectives for $PM_{2.5}$ (fine particles) including the limit value and exposure related objectives – exposure concentration obligation and exposure reduction target;

- The possibility to discount natural sources of pollution when assessing compliance against limit values;

- The possibility for time extensions of three years (PM_{10}) or up to five years (NO_2, benzene) for complying with limit values, based on conditions and the assessment by the European Commission.

As for allowing Member States to apply for additional time to meet certain limit values the Directive recognizes the fact that most Member States have had particular difficulties in achieving compliance within the original attainment dates set out in the EU legislation.

Under EU law a limit value is legally binding from the date it enters into force subject to any exceedances permitted by the legislation. A target value is to be attained as far as possible by the attainment date and so is less strict than a limit value.

Assessing the main provisions of the European legislation relating to air quality, there is an obligation for Member States to divide their territory into a number of zones and agglomerations. Zones and agglomerations are declared by the Member States, covering complete territory of the given Member State. The zones represent basic areas for which assessment and management provisions are prescribed. In these zones and agglomerations, Member States should undertake assessments of air pollution levels using measurements and modelling and other empirical techniques. Where levels are elevated, the Member States should prepare an air quality plan or programme to ensure compliance with the limit value before the date when the limit value formally enters into force. In addition, information on air quality should be disseminated to the public.

Regarding the requirement of assessment, the Directive also requires the assessment of the ambient air quality existing in Member States. Assessment of ambient air quality through monitoring, modelling, and objective estimation provides information on the compliance with the environmental standards and informs further air pollution abatement effort. This assessment shall be done with continuous monitoring or modelling, on the basis of common methods and criteria introduced by the European legislation. In the Directives, the minimum assessment requirements are described, however additional assessment shall be needed as well, performed by the Member States, such as source apportionment, in particular in those agglomerations and areas, where the pollution is high. They are linked to the specific concentration thresholds as well as the population within each air quality zone or agglomeration.

As regards management of air pollution in the Member States, it is needed to ensure that limit values are complied with throughout the territory of Member States, by their respective attainment dates, and that target values are respected to the extent possible. Action is required before the attainment dates when certain assessment thresholds set in the Directives are exceeded, generating a requirement to prepare and implement air quality plans or programmes. The necessary air pollution reduction measures are compiled in air quality plans or programmes which describe how the measures are bringing concentrations below respective limits or target values by the attainment date defined in the Directive. Minimum requirements of such plans and programmes are set in the Directive.

Plans and programmes need to be available to the public. Public participation requirements contain minimum amount of information that needs to be provided to the public as regards to assessment of concentrations. It also requires the public availability of abatement plans and

programmes. Specific actions are needed when information and alert thresholds are exceeded, which inform the public on the health hazards and the recommended personal behaviour to minimize exposure.

Reporting under the Directive 2008/50/EC

Commission implementing Decision of 12 December 2011 laying down rules for Directives 2004/107/EC and 2008/50/EC of the European Parliament and of the Council as regards the reciprocal exchange of information and reporting on ambient air quality

Directive 2008/50/EC introduces new reporting provisions which take into account the previous implementation experience, IT development and legislative frameworks such as INSPIRE. As the directive also embeds the current Council Decision 97/101/EC on Exchange of Information (EoI), it includes both mandatory and voluntary information streams on ambient air quality assessment and management.

The new Commission implementing Decision has been developed by the Commission with the support of the Ambient Air Quality Committee and the working group on data exchange consisting of national experts, the EEA and Commission representatives. The Committee approved the draft which has been adopted by the Commission on 12 December 2011. The new requirements with regard to reporting and exchange of air quality information apply as from 1 January 2014.

Other Legislation

- Directive 2004/107/EC of the European Parliament and of the Council relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air. Target values for all pollutants except mercury are defined for the listed substances, though for PAHs, the target is defined in terms of concentration of benzo(a)pyrene which is used as a marker substance for PAHs generally. Only monitoring requirements are specified for mercury;

- Council Decision 97/101/EC establishing a reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within the Member States. This "EoI Decision" describes the procedures for the dissemination of air quality monitoring information by the Member States to the Commission and to the public;

- Commission Decision 2004/461/EC laying down a questionnaire for annual reporting on ambient air quality assessment under Council Directives 96/62/EC and 1999/30/EC and under Directives 2000/69/EC and 2002/3/EC of the European Parliament and of the Council. This decision specifies the format and content of Member States' Annual Report on ambient air quality in their territories.

Council Directive 96/62/EC on ambient air quality assessment and management, Council Directive 1999/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air, Directive 2000/69/EC of the European Parliament and of the Council relating to limit values for benzene and carbon monoxide in ambient air and Directive 2002/3/EC of the European Parliament and of the Council relating to ozone in ambient air were repealed as from 11 June 2010, by Directive 2008/50/EC.

Exchange of Information Decision Directive (97/101/EC)

With the Exchange of Information Decision (97/101/EC) the European Union has established a Community-wide procedure for exchanging information and data on ambient air quality in the EU. The Decision introduces a reciprocal exchange of information and data relating to:

• networks and stations set up in the Member States to measure air pollution; and

• air quality measurements taken by those stations.

Exchange includes information on the:

• characteristics of the measurement stations (e.g. location, responsible body, etc.);

• measurement equipment/techniques (e.g. type, method, frequency, etc.);

• operational procedures followed in those stations (e.g. data validation and quality assurance procedures); and

• structure and organization of the network to which they belong (e.g. geographical extent and organization of the network).

Standards for stationary sources

Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control)

This Directive brings together Directive 2008/1/EC (the 'IPPC Directive') and six other directives in a single directive on industrial emissions.

This Directive covers industrial activities with a major pollution potential, defined in Annex I to the Directive (energy industries, production and processing of metals, mineral industry, chemical industry, waste management, rearing of animals, etc.).

The Directive contains special provisions for the following installations:

- combustion plants (≥ 50 MW);
- waste incineration or co-incineration plants;
- certain installations and activities using organic solvents;
- installations producing titanium dioxide.

For other activities subject to special provisions, the provisions of the current directives have been largely maintained.

Directive 2010/75/EU replaces definitively,*with effect from 7 January 2014:*

Directive 78/176/EEC on titanium dioxide industrial waste;

Directive 82/883/EEC on the surveillance and monitoring of titanium dioxide waste;

Directive 92/112/EEC on the reduction of titanium dioxide industrial waste;

Directive 1999/13/EC on reducing emissions of volatile organic compounds (VOCs);

Directive 2000/76/EC on waste incineration;

Directive 2008/1/EC concerning integrated pollution prevention and control;

with effect from 1January 2016:

Directive 2001/80/EC on the limitation of emissions of certain pollutants from large combustion plants.

The Large Combustion Plants Directive 2001/80/EC

The overall aim of the LCP Directive is to reduce emissions of acidifying pollutants, particles, and ozone precursors. Control of emissions from large combustion plants - those whose rated thermal input is equal to or greater than 50 MW - plays an important role in the Union's efforts to combat acidification, eutrophication and ground-level ozone as part of the overall strategy to reduce air pollution.

The LCP Directive entered into force on 27 November 2001. It replaced the old Directive on large combustion plants (Directive 88/609/EEC as amended by Directive 94/66/EC).

The LCP Directive contains the following provisions:

Plants licensed after 26 November 2002 have to comply with the (stricter) emission limit values for SO2, NOx and dust fixed in part B of the Annexes III to VII.

Plants licensed on or after 1 July 1987 and before 27 November 2002 have to comply with the (less strict) emission limit values fixed in part A of the Annexes III to VII.

Significant emission reductions from "existing plants" (licensed before 1 July 1987) are required to be achieved by 1 January 2008:
a) by individual compliance with the same emission limit values as established for the plants referred to in point 2 above or
b) through a national emission reduction plan (NERP) that achieves overall reductions calculated on the basis of those emission limit values.

The Commission considers that it is possible to adopt a "combined approach" (combination of points a) and b)) for these "existing plants". A NERP must address all three pollutants covered by the Directive for all the plants covered by the plan.

Directive 2000/76/EC of the European Parliament and of the Council of 4th December 2000 on the incineration of waste

The Waste Incineration Directive aims to minimise the impacts on the environment and human health of emissions to air, land and water from the incineration or co-incineration of hazardous and non-hazardous waste. It was introduced by the European Parliament and Council on the 4 December 2000.

The Directive applies to dedicated incineration plants and co-incineration plants and sets stringent operating conditions, technical requirements and emission limit values (ELVs). Co-incineration plants are installations whose main purpose is to produce energy or goods and which use waste as a regular or additional fuel source.

All incineration or co-incineration plants must be permitted and the permit lists the categories and quantities of hazardous and non-hazardous waste which may be treated, the plant's incineration or co-incineration capacity and the sampling and measurement procedures to be used. Strict rules are imposed on the process to retain the waste at a sufficient temperature to guarantee complete waste combustion and stringent ELVs are placed on the emissions from the plant.

Directive 2000/76/EC on waste incinerationis replaced by the Directive 2010/75/EU with effect from 7 January 2014.

Directive 94/63/EC of the European Parliament and of the Council on the control of VOC emissions resulting from the storage of petrol and its distribution from terminals to service stations.

This Directive, which aims at the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution, shall apply to the operations, installations, vehicles and vessels used for storage, loading and transport of petrol from one terminal to another or from a terminal to a service station. Storage installations shall be designed and operated in accordance with the technical provisions of Annex I, which are designed to reduce the total annual loss of petrol. Moreover, loading and unloading equipment shall be designed and operated in accordance with the technical provisions of Annex II. Mobile containers shall be designed and operated in accordance with the requirements prescribed by article 5.

Council Directive 1999/13/EC on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations.

The Directive 1999/13/EC of 11 March 1999 sets the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain stationary commercial and industrial sources, including the rubber industry plants when their consumption is exceeding the threshold levels set in the annexes.

The Directive sets emission limits for such compounds and is laying down operating conditions for installations using organic solvents. For the existing installations not subject to IPPC legislation, the Industrial operators were obliged to obtain a registration/authorisation for their installation or activities from the national Competent Authorities before 30 October 2007.

Directive 1999/13/EC on reducing emissions of volatile organic compounds is replaced by the Directive 2010/75/EU with effect from 7 January 2014.

Plans and programmes - Commission Decision 2004/224/EC

When preparing plans and programmes, Member States need to fill in information in specific forms and communicate these to the Commission, according to Commission Decision 2004/224/EC laying down the obligation of Member States to submit within two years so-called Plans and Programmes for those air quality zones where certain assessment thresholds set in the Directives are exceeded.

Member States have to prepare attainment programmes showing how the limit values will be met on time for those areas where attainments by "business as usual" cannot be presumed. These programmes must be made directly available to the public, and must also be sent to the Commission.

To facilitate a harmonized and structured way of reporting, detailed arrangements for Member States to submit the information on plans and programmes were laid down in this Commission Decision 2004/224/EC.

2.5.4. Comparison of EU Directives with national legislation on air quality

Relevant Azerbaijani legislation

- Law on Environmental Protection #678-IQ, 08/06/1999
- Law On Sanitary and Epidemiological Well-Being of the Population #371-IQ, 10.11.1992
- Law on Air Protection #109-IQ, 27.03.2001
- Law "On Hydrometeorologycal Activity" #485-IQ, 17.04.1998
- Law "On Environmental Safety", #677-IQ, 08.06.1999
- Law "On Industrial and Domestic Wastes" #514-IQ, 30.06.1998
- Law "On Specially Protected natural territories and objects" #840-IQ, 24.03.2000
- Law "On use of Energy resources" #94-IQ, 30.05.1996
- Law "On Electrical and thermal power stations" #784-IQ, 28.12.1999
- Law "On Energy" #541-IQ, 24.11.1998
- "Regulations on state registration of toxic substances emitted to atmospheric air and harmful physical impacts to it" Approved by the Decree No. 112 of July 13, 2002 of the Cabinet of Ministers
- "Regulations on inventory of toxic substances emitted to atmospheric air and its physical impact sources" (Approved by the Decree No.63 of April 15, 2002 of the Cabinet of Ministers)
- "Regulations on state control procedure on atmospheric air protection" (Approved by the Decree No.63 of April 15, 2002 of the Cabinet of Ministers)
- "Regulations on organization of air protection by juridical persons having toxic chemical, biological and physical sources of impacts to atmospheric air" (Approved by the Decree No.63 of April 15, 2002 of the Cabinet of Ministers),
- "Regulations on provision of special permission on emission of harmful substances to atmosphere and on harmful physical impacts (Approved by the Decree No. 112 of July 13, 2002 of the Cabinet of Ministers)
- "Regulations on amount of payment for obtaining special permission on emission of harmful substances to atmosphere and on harmful physical impacts and use of it" (Approved by the Decree No. 112 of July 13, 2002 of the Cabinet of Ministers),
- "Regulations on certification endorsing relevance of fuel, technical devices, technological procedures, engines, transport and other mobile mechanisms to the requirements of air protection" (Approved by the Decree No.159 of October 17, 2002)

Scope

The scope of the Azerbaijan legislation, in particular the Law on Environmental Protection 1999, the Law on Air Protection 2001 applies to all enterprises without any distinctions. There is no separate legislation specifically targeted at the more polluting enterprises, or those enterprises that would be covered by the Directive on Industrial Emissionswere they located in the EU.

The Law on Air Protection Art.23 requires that the state monitoring system shall be created and conducted for the purposes of observation of pollution of atmospheric air, complex evaluation and forecasting of its condition. But there is no separate legislation on creation of such state monitoring system including cooperation activities of main relevant authorities.

Permits

Separate permits are required for emissions to air, discharges to water and disposal of waste. The same permit system applies to all enterprises, regardless of their size or polluting potential. Draft Emission Limit Values (ELVs) (Maximum Permissible Releases – PDV in Azerbaijan) required to comply with Environmental Quality Objectives (Maximum Allowed Concentrations – PDK in Azerbaijan) are prepared by the enterprise itself. Draft PDV is to be approved by the Ministry of Ecology and Natural Resources (its territorial units) and is to be inscribed into individual permits. Since that PDVs become legally binding for a specific installation.

According to Article 32 of the Law "On Environmental Protection" pollutant emissions into air within the established PDV is allowed to be effected upon permits. Installation should apply a separate permit for each type of pollution i.e. separately for wastewater discharges and air emissions to be issued by competent authorities. Permitting procedures, forms of permits and their contents are set in relevant laws and regulations.

Permits for air emissions are issued in conformity with Article 12 of the Law "On Air Protection" and implementing Decree of Cabinet of Ministries dated July 13, 2002 "On Approval of Regulations on provision of special permission on emission of harmful substances to atmosphere and on harmful physical impacts". Both acts do not require from an operator submission of information as listed in the Directive on Industrial Emissions,except for showing the approvedPDV i.e. no need to show that the energy is used efficiently, all preventive measures against pollution are taken, etc.

Integrated approach

The Law on Environmental Protection, Art.3 proclaims an integrated approach as a principle only. There is no integrated approach mentioned in the Laws on Air Protection. In practice no integrated approach is taken to protect the environment as a whole. Separate permits are required for air emissions, water discharges and waste disposal, with no consideration being taken of the other media. Nor do the laws require any coordination between the different permitting units of the MENR, although coordination as a mechanism yet is employed in certain cases, mostly in relation to one media.

General principles

Most of the AQ Directive general principles are mentioned in the Law on Environmental Protection, although the requirement to use energy efficiently is lacking. However, they are mentioned in general terms and are not implemented by way of regulations or otherwise. In particular, there is no requirement that these general principles are taken into account in the permit conditions or that the operator is otherwise required to comply with them.

Environmental Quality Objectives

The Azerbaijan Maximum Allowed Concentrations (MACs; PDKs abbreviation is used in former Soviet states) are similar in concept to the EU air quality standards and objectives. There are three sets of PDKs for air, listing a large number of parameters that must be met – ecological limitations (PDK), hygienic ones and limits of physical impacts (noise, radiation and so forth).

The first two are supposed to be established for the same pollutants, however, it is not clear if the ecological and hygienic limitations are different for one and the same pollutant, which one

shall be taken into consideration for establishing ELVs. The Law does not provide for the way how they should be interrelated and no implementing regulations on this issue have been adopted yet.

Emission Limit Values

The Azerbaijan Maximum Permissible Releases PDVs (emissions to air) are similar in concept to the EU Emission Limit Values (ELVs).

The Law "On Environmental Protection", Law on "Air Protection", "Regulations on state registration of toxic substances emitted to atmospheric air and harmful physical impacts to it" (Approved by the Decree No. 112 of July 13, 2002 by the Cabinet of Ministers) generally distributes between relevant agencies obligations to develop methodological instructions about how to calculate PDV. No reference to best available techniques (or technologies) is made of in such methodologies.

There is no Azerbaijan legislation which establishes minimum ELVs. In addition, there are no regulations setting emission or other standards on an industrial sector basis.

Monitoring

The Law on Environmental Protection Art 18 establishes a general obligation on operators to install monitoring. Operators are also obliged to inform the competent authorities about results of monitoring. As noted above, monitoring requirements, however, are not laid down in the permit, nor are reference methods of measurements. Competent authorities are empowered to monitor the compliance with permits conditions.

Inspections

The Law on Environmental Protection Art 71and Law on Air Protection Art 24 "Regulations on state control procedure on atmospheric air protection" (Approved by the Decree No.63 of April 15, 2002 of the Cabinet of Ministers) authorizeinspectors to enter enterprises to inspect, take samples, examine documents etc.

Public consultation and public information

Article 41 of the Law on Environmental Protection requires that the opinion of the public is taken into account in the decision-making process when deciding on the location of an enterprise. However, there is no obligation to consult the public on applications for permits for new enterprises or for substantial changes.

Both the Constitution and Article 6 of the Law on Environmental Protection, Law of the Azerbaijan Republic "On Receipt of Information on Environment" state that the public have a right to information on the state of the environment.

In practice, information on the state of the environment covers data on the quality of air, water and other characteristics of the environment without clear statement that it may cover information on the emissions from particular facilities. In particular, it is not clearly stated that the public is entitled to see permit conditions, decisions by the competent authorities and results of monitoring.

2.5.5. Measures taken for harmonization of national air legislation to EU directives

The harmonization of the legislation of Azerbaijan with EU law is an important component of Azerbaijan's cooperation with the EU. While in recent years EU legislation has usually been studied and taken into account when drafting new legislation, the Government approved the Plan of Actions on Approximation of Legislation with that of the European Union for the period 2009–2012 which provided comparison between EU andnational legislation. Many EU directives in environmental areas were translated into Azeri during this period.

On the basis of the EU air quality policy actions, 11 directives and decisions are selected for further comparative analysis with Azerbaijan legislation. They are grouped into 4 areas representing the central legislation on ambient air quality assessment and management with its fourth daughter directive, and the directives addressing emissions form stationary sources and directives on air quality assessment reporting.

Initial assessments of the Law on ambient air of Azerbaijan show that there are some gaps in legislation in regards to EU directives and collision in a number of regulations. During last years some measure towards harmonization of the Law to EU directives were provided. For instance, proposal of amendment to the current Law to the Cabinet of Ministers related to global pollution of the ambient air, namely inclusion of the articles related to greenhouses gases leading to global warming, was submitted.

Along with this, proposals of amendments, related to inclusion to current legislation of articles on compulsory terms on assessmentand management of ambient air, relevant norms regulating monitoring and management of air quality considered in EU directive 2008/50/EC on "Ambient air quality and cleaner air for Europe"dated 21 May 2008, as well in EU directive 2008/1/EC on "Integrated pollution prevention and control" dated 15 January 2008,were prepared. According to the norms indicated in the constitutional law of Azerbaijan Republic on "Juridical regulations" proposal of amendments have been submitted to respective state bodies and at current time internalstate procedures of concordance is on-going.

At the same time, work on proposals of amendments to the regulations of the Cabinet of Ministers on "Regulations on hygienic and ecological norms of ambient air and identification of physical impact on it", "Regulations on state registration of harmful substances and potential hazardous substances", "Regulations on state registration of air pollutants and harmful physical impacts", "Regulations on special permission on air pollution and harmful impacts" and "Regulations on amount of fee and use of collected amount from provision of special permissions on air pollution and harmful impacts", related to articles on measures for identification of air quality status and air management considered in EU Directive 2008/50/EC named "Air quality and cleaner air for Europe", is continuing. After development of final versions of the amendments, proposals will be submitted to the Cabinet of Ministers for further consideration.

Despite of above-mentioned initiatives related to approximation of air legislation to EU directives, there is still a need for further assessments for improvement of the current legislation. Especially, additional analyses should be conducted on the needs of amendments towards approximation of the current Law and bylaws to EU directives such as directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air, Council Decision 97/101/EC establishing a reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within the Member States, The Directive 2008/50/EC of the European Parliament and of the

Council of 21 May 2008 on ambient air quality and cleaner air for Europe , Directive 2010/75/EU on industrial emissions, Directive 2001/80/EC on the limitation of emissions of certain pollutants into the air from Large Combustion Plants, Directive 2000/76/EC on the incineration of waste, Directive 94/63/EC of the European Parliament and of the Council on the control of VOC emissions resulting from the storage of petrol and its distribution from terminals to service stations, Council Directive 1999/13/EC on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations.

2.5.6. Key issues regarding Plan of Actions on Approximation of Legislation with that of theEuropean Union

Issue 1: Quantified emission limits are only applied for emissions into the air and discharges of wastewater and are calculated on an ad hoc basis for individual installations. General Binding Rules to reduce environmental pollution are not in place.

Recommendation 1:

Introduction of IPPC and Best Available Techniques (BAT) concepts as well as technology-based emission limit values and other technical requirements could bring considerable environmental benefits: an integrated approach to permit issuing would eliminate or at least reducethe transfer of pollution from one environmental medium to another. In addition, it would lead to effective use of energy and material resources and to the minimization of waste generation.

It would ensure, together with technology-based emission limit values and other technical requirements, a certain levelof environmental performance of all installations while making it possible to set more stringent requirements in particular cases where compliance with environmental quality standards is endangered.

Application of Best Available Techniques (BAT) would lead, besides positive environmental impacts, to an increase of average level of technological performancein the country.

The approach of ecological passports is recommendedbe retained to serve as a background for integrated permit issuing for existing installations in accordance with the IPPC approach applied in the EU, as all environmental information is collected in one technical document.

If technology-based emission limit values and other general binding pollution reduction requirements are introduced, the existingad hoc approach to permit issuing could be retained (in an updated form) to allow additional ad hoc flexibility if necessary (within the "space" created by general binding requirements).

Issue 2: Since the ratification of the UNECE CLRTAP in 2002, none of its protocols has been ratified or at least signed, whereas with other environmental conventions and protocols some progress can be seen. It should also be noted that some other countries in the region have moved towards ratification of recent UNECE CLRTAP protocols.

Recommendation 2: Timely and properly, particularly integrate implementation of the requirements of protocols could bring considerable improvement in air quality in Azerbaijan. In this regard, it is planned to draft Action Plan on accession to CLRTAP protocols under Regional Pilot Project - "Development of the Road maps for ratification and implementation of CLRTAP protocols" funded by EU. The aim of the Regional Pilot Project is to enhance the capacity of joining the CLRTAP protocols and meeting corresponding commitments through the

development and assessment of various protocols' ratification and implementation scenarios and development of the National Action Plans.The main objective of this Activity is to develop a strategic plan or "road map" for the ratification and implementation of the CLRTAP protocols in Azerbaijan. Azerbaijan has identified 3 protocols of CLTRAP as the priority (The 1998 Aarhus Protocol on Heavy Metals, The 1998 Aarhus Protocol on Persistent Organic Pollutants (POPs), The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone).

Issue 3: The existing air quality standards were established according to the former Soviet GOST standards. Generally, these standards are based on maximum allowable concentrations (MACs), as in the former Soviet Union.

According to the Law on Air Protection, Azerbaijan introduces new international standards. The switch from GOST standards to international (EU or WHO) standards is complicated due to the old and deteriorated monitoring and electronic equipment.

Recommendation 3: The Ministry of Ecology and Natural Resources should strengthen the development of Azerbaijan's legislation on AQAM, with particular reference to the Partnership and Cooperation Agreement with the European Union. Conclusions of this development, and especially the draft National Strategy for AQAM would provide the basis for the development of a Plan for Legislative Work in the Environmental Sector, together with the National Parliament Commission on Environment and other stakeholders, especially national non-governmental organizations. The Plan should avoid being overambitious, and should take a step-by-step approach, sufficiently supported by growing human and financial resources throughout its implementation.

2.6. ANALYSIS OF THE INSTITUTIONAL SET UP

2.6.1. Analysis of current institutional set up

The activities in the field of environmental protection and effective use of natural resources take an important place in the Republic of Azerbaijan. The government has conducted serious structural reforms in this field. The State Committee on Ecology and Control on Nature Use, "Azerforest" Production Association, State Geology and Mineral Resources Committee, State Fishery Corporation "Azerbalig" and the State Hydrometeorological Committee that were in charge of different aspects of environmental protection and use of natural resources and partially duplicated activities of each other, were abolished in 2001 and a single central executive body - Ministry of Ecology and Natural Resources - was established on their basis. Since its establishment the Ministry has been working on strengthening environmental legislation, developing National Programmes on the important aspects of environmental protection, broadening regional and international collaboration. As a result of implemented activities, effective use of natural resources has been moved to first priority, the basis for careful treatment of environment and promotion of environmental awareness has been improved.

MENR was established on 23 May 2001, with responsibility for formulating and implementing environment policy, developing environmental protection measures, screening projects for potential adverse environmental impacts, monitoring implementation of environmental legislation and imposing sanctions, and administering a pollution permit system.

Within the Ministry, several bodies have specific responsibilities relating to air:

- The Division of Environmental Policy and Environmental Protection;
- The Department of National Environmental Monitoring;
- The Hydrometeorological Department;
- The Climate Change and Ozone Centre;
- The State Control Inspectorate for Environment and Use of Natural Resources.

Within the MENR, several departments have specific responsibilities relating to air. The Department of State Environmental Expertise has responsibilities for permit issuing, the Department of Environmental Protection for inspecting and the Department of Environmental Monitoring for monitoring.

The 14 MENR regional departments (13 regions and Baku City) are the main inspection bodies. Their responsibility is to inspect and monitor the implementation of legislation on environmental protection, especially as regards compliance with requirements set in air pollution permits. The regional departments are obliged to report their activities to the appropriate departments at the Ministry on a monthly, quarterly, half yearly and annual basis.

On 16 March 2009, the Hydrometeorological and Environmental Scientific Research Center was established to study ambient air pollution and meteorological conditions. In April 2009, a section dealing with Investment, Innovation and Projects was created.

Other Government bodies play an important albeit indirect, role, including the Ministry of Economic Development, the Ministry of Energy and Industry, the Ministry of Transport, the Ministry of Health. As a rule, ministries also have a Department of Environment coordinating activities with MENR, although coordination is not always effective. Within the Cabinet of Ministers, a separate section on environment was established, whereas before there was a Section on Environment and Agriculture.

Other ministries and State institutions have specific responsibilities with regard to air management:

(a) The Sanitary Epidemiological Service of the ***Ministry of Health*** is responsible for the sanitary and epidemiology protection of the atmosphere in urban and working areas and the protection of the population against harmful effects;

(b) ***The State Statistical Committee*** collects the data reports annually on the state of the atmosphere and on emissions; data flow regarding international reporting is organized in the Division of Environmental Statistical Information;

(c) ***The Ministry of Transport*** is responsible for measures to reduce emissions from transport sector (both at the level of vehicles and fuels and the level of infrastructure).Collection of data for COPERT will be also responsibility of this ministry;

(d) ***The State Traffic Police of the Ministry of Internal Affairs***, together with MENR, inspects the observance of legal requirements for environmental pollution from car exhaust; and

(e) ***The Department for Transport of the Executive Power of Baku*** is responsible for managing urban transport in Baku and presenting appropriate transport data to the Ministry of Ecology and Natural Resources and State Statistical Committee.

MENR shares responsibility for the protection of the atmosphere with the Ministry of Health, namely the Sanitary Epidemiological Service of the Ministry of Health which is responsible for

the protection of the atmosphere in urban and working areas and the protection of the population against harmful effects.

Along with this the Ministry of Transport is also responsible for measures to reduce emissions from transport sector (both at the level of vehicles and fuels and the level of infrastructure).

The Environmental Department of the State Oil Company of Azerbaijan Republic (they are acting only as an operator) which is involved in exploring oil and gas fields, producing, processing, and transporting oil, gas, and gas condensate, marketing petroleum and petrochemical products in domestic and international markets, and supplying natural gas also provides several measures in regards to reduce of air emissions, use of alternative energy, as well carries out quantitative and qualitative monitoring of harmful wastes in gaseous, liquid and solid forms emitted to the atmosphere as a result of natural and anthropogenic impacts at facilities of the company. The Environmental Department within the SOCAR company was established in accordance with the Decree of the President of the Republic of Azerbaijan of September 14, 2006 "Concerning the Improvement of the Structure of the State Oil Company of the Azerbaijan Republic".

The Department's primary objectives are to improve the environmental performance of SOCAR's divisions, perform environmental work and services and implement comprehensive programs that conform to international standards and regulations, resolve environmental safety problems arising in the process of producing and processing hydrocarbons, manage industrial waste, build constructive environmental relationships with third parties, assess and review the company's environmental impact, select and apply advanced methods for monitoring industrial pollutants, respond to manmade and natural hazards, ensure that SOCAR landscaping conforms to the applicable regulations, and meet the demand for landscaping materials of the requisite quality on the Absheron Peninsula, including SOCAR's departments, divisions, Operating Companies, and Joint Ventures.

The Department also conducts analyses of soils contaminated with oil, petroleum products, produced water, and other production wastes, identifies pollution sources, determines the depth of pollutant infiltration and the degree of contamination, measures background radiation at oilfields, analyzes air pollutant emissions, and conducts comprehensive environmental monitoring for pollution prevention purposes.

The Law on Normative Acts and the Constitution provide the basis for inter-ministerial cooperation, which takes place on two levels. The first such level is policy formulation and implementation, usually in the form of State programs and their action plans. On the basis of the implementation of these State 21 documents, there is usually a division of tasks and allocation of areas of responsibility to individual ministries or agencies. Subsequently, cooperation and coordination mainly pertain to reporting: collecting and compiling implementation reports.

The second level is institutional and may take two forms: the most formal, at the Cabinet of Ministers and the less formal at the inter-ministerial level. At the inter-ministerial level, cooperation takes place within State commissions or lower level working groups.

Working groups may be established to implement various State programmes, events of national or international importance, as well as to develop relations and joint activities with international organizations. However, experience shows that cooperation at this functional level of working groups is not widespread.

State commissions are lower than ministries in the relative institutional hierarchy. Specifically, there are three levels of executive authority. Supreme executive power rests with the President. The Cabinet of Ministers holds higher executive power, while State committees and ministries wield high executive power. In the relative hierarchy, State committees rank higher than ministries, at least in terms of protocol. State commissions are formed under the Cabinet of Ministers and are usually headed by a minister. The functioning of a State commission is regulated by its statutes. Generally, many agencies and ministries are involved, sometimes at the level of ministers or deputy ministers, all of which are separately accountable to the Cabinet of Ministers as well.

Regards legislation part, Azerbaijan has adopted a structured procedural framework for law-making, stipulated in the Constitution and the Law on Normative-Legal Acts.

Theoretically, the public can take part in the law-making process; in practice, the extent of its participation depends on the leading institution (National Parliament, or relevant government agency). According to the Law on Normative-Legal Acts, National Parliament and appropriate bodies of the executive power compose plans of legislative acts that should be drafted and adopted. A body in charge of developing the draft law, as a rule, creates a commission consisting of its own employees, outside experts and scientists. Representatives of various stakeholders – NGOs, local authorities, scientists and State agencies – may be involved in the work at this stage. Law drafting may also be contracted to State agencies, academic and scientific institutions, NGOs or physical persons, including tendering for the best project. The leading agency may publish the draft law and/or initiate national discussion; however, there is no obligation to do so.

2.6.2. Gaps and overlapping in institutional setup

State control over emissions from stationary pollution sources is one of the means of preventing and reducing ambient air pollution with harmful substances. Its main function is to provide the enforcement of the norms set by the law. For this purpose, state institutions are functioning in many countries, which are authorized by law and have relevant knowledge and technical equipment to receive and check information, whether this or that enterprise observes environmental legislation, or standards and rules established by the law.

According to the Law of Azerbaijan on Atmospheric Air Protection, state control and supervision over air pollution from stationary sources is carried out by the Ministry of Ecology and Natural Resources (article 8). However, actually the Ministry’s human resources, technical means and legislative framework are quite limited in terms of controlling the emissions into ambient air from the enterprises.

Comparing the functions of the National Department of Environmental Monitoring of the MENR and the Sanitary Epidemiological Service of the Ministry of Health it wasanalyzed“Regulations on state control procedure on atmospheric air protection”, approved the Decree No.063 of the Cabinet of Ministries of April 15, 2002. According to the Paragraph 1.5 of these Regulations, the MENR is responsible for monitoring sanitary - protection regimes of objects polluting atmospheric air fromstationary sources. According to the paragraph 1.4 of these Regulations, the MENR carried out control over compliance with the requirements of air protection during production, import and use of petrol, technical facilities, technological process and etc. But the

similar functions are also stated by the Statutes of the Sanitary Epidemiological Service of Ministry of Health (MoH), since this Service is responsible for such activities. It's clear that functions of the MENR and MoH are overlapped in terms of carrying out state control in the sphere of environmental protection, including ambient air protection.

The main institutional gap in relations between the MENR and MH related to air quality control is an absence of an effective mechanism of cooperation on monitoring, control, inspecting of objects of pollution sources. There is the strong need to elaborate normative acts regulating creation of such mechanism and principles of its work.

As it has been mentioned, automobile transport is the major source of pollutionof ambient air in urban areas of Azerbaijan. Despite it, emissions from mobile sources are the most unregulated sphere in Azerbaijan legislation. The Decree No.045 "On harmonization of the requirements on emissions to the atmospheric air from automobile transport (exported and produced in the territory of the Republic of Azerbaijan) released into circulation in the territory of the Republic of Azerbaijan, with European standards" of March 06, 2010 approved by the Cabinet of Ministries envisages approaches to limit emissions from motor transport. According to this Decree, the quality norms for petrol and diesel fuel should be established in compliance with the requirements of the EU legislation.

The Ministry of Transport prepared and started to implement several important measures. The Intelligent Transport System (ITS) for Baku was introduced and is to be fully operational in 2015. This scheme is expected to reduce transport-related emissions significantly by improving the flow of traffic and reducing traffic jams. In addition, other step will be implemented in Baku: finalization of a city bypass, extension of metro lines, extension of parking sites, relocation of the railway station and harbour outside the city centre, and non-licensing of vehicles that fails to comply with at least the EURO 2 standard. The current quality of fuels can meet requirements on air pollutants in the EURO 2 standards.It should be mentioned decision of Cabinet of Ministers 06 March 2010 endorses application of Euro-2 standards for vehicles and action plan for implementation of necessary measures. In this regard, State Committee for Standardization Metrology and Patent of the Republic of Azerbaijan has endorsed AZS 636-2012 standard (Standards on mobile vehicles: ecological classes) and implementation was launched from 01 August 2012 It is also planned application of Euro-3 standards in 2013, but there is a delay in the process. At present, guidelines for application of Euro-3 standards has been developed by the Committee on Standards, Meteorology and Patents and submitted to the Cabinet of Ministers for final approval.

Analyzing the structure of the Ministry of Transport, it is shown show that despite of huge financial resources for improvement of the road infrastructure and for measures to reduce emissions from mobile sources there is an importance of special institution's establishment within the Ministry of Transport on monitoring of mobile sources' emissions. The main need for establishing such institution is the control of efficiency of the above mentioned implementing measures.

Another serious problem regarding state control on mobile sources' emissions is a lack of appropriate technologies to calculate and establish an informational database of mobile sources' emission in the State Traffic Police of the Ministry of Internal Affairs. Though formally the State Traffic Police of the Ministry of Internal Affairs inspects the observance of legal

requirements for environmental pollution from car exhaust with the relevant institution of the MENR, there is no clear mechanism and appropriate legislation base of their coordination.

2.6.3. Key institutional setup related issues and recommendations

Issue 1: Some short-term priorities in this area are identified by certain ad hoc decisions by the President and Cabinet of Ministers, e.g. air emissions from mobile sources in 2010. In practice, they are followed by certain interventions by environmental enforcement authorities and even in some cases by urgent investments out of the President's Reserve Fund. However, one of the shortcomings of this approach is that it precludes the design of a more effective environmental enforcement system with a set of key measures that mesh together and are most likely to improve compliance. Moreover, it hinders the formulation of a strategic view towards the planning and management of the activity of MENR inspectors, including the evaluation of the resource requirements for staffing and infrastructure and capacity-building needs.

Recommendation 1:

In order to follow international practices on environmental inspection, the Ministry of Ecology and Natural Resources should:

- *Improve the operational and human resources management of the Department for Environment Protection, including staff training, and upgrade its technical capabilities;*
- *Streamline the instruments used to achieve compliance and enforcement. A first step would be to identify particular groups of the regulated community and their impact on ambient environment conditions. Further priorities should then be set among the most problematic geographic areas and the most polluting installations, and enforcement tools selected that will affect the most appropriate enforcement response; and*
- *Improve the existing set of indicators, which currently falls short of measuring both environmental improvements (e.g. pollution reduction amounts) and enforcement results (e.g. compliance rates and timeliness of compliance actions), so that the effectiveness of enforcement can be assessed more accurately.*

Issue 2: Until 2009, air quality was not a priority in terms of environmental policy. Recently, several positive measures were implemented or planned to reduce emissions of pollutants into the air, especially in the case of mobile sources (development of transport infrastructure in Baku, licensing of vehicles, management of transport system in Baku, improvement of fuel quality, planting of trees around roads). Highly polluting industrial installations in Baku will be closed down and replaced by newly built ones located in sparely populated sites.

Recommendation 2:

The Ministry of Transport, in cooperation with relevant organizations should:

- *Develop a sustainable transport strategy addressing the air pollution due to traffic problems and congestions in major cities with the appropriate measures and fully incorporating environmental considerations;*
- *Strengthen cooperation with relevant ministries in continuing succesful enforcement of EURO standards for mobile sources and set up adequate vehicle emission and technical control schemes to check compliance with these standards and to reduce emissions from private cars;*

- *In implementation of new fuel quality standards and set up adequate fuel quality control schemes the Ministry of Industry and Energy should establish new mechanism (tool) for closely cooperation with relevant ministries.*

Issue 3: As an air quality assessment and management system is being developed and implemented separately from mitigation of climate change (reduction of GHGs emissions), potential synergies cannot be exploited. Use of an integrated approach, financing of GHG emission reduction measures could bring a "second effect" in improving air quality (and vice versa).

Recommendation 3:

The Ministry of Ecology and Natural Resources, introducing an integrated approach to air quality management and climate change mitigation, should avoid gaps in integration with relevant ministries. In this respect, the Ministry of Ecology and Natural Resources should focus on multi-ministerial preferential support to non-combustion renewable sources of energy (hydro, solar, wind) as well as to energy efficiency measures and energy savings.

Issue 4: According to the Paragraph 1.5 of "The Regulations on state control procedure on atmospheric air protection", approved the Decree No.063 of the Cabinet of Ministries of April 15, 2002, the MENR is responsible for monitoring sanitary - protection regimes of objects polluting atmospheric air from stationary sources. According to the paragraph 1.4 of these Regulations, the MENR carried out control over compliance with the requirements of air protection during production, import and use of petrol, technical facilities, technological process and etc. But the similar functions are also stated by the Statutes of the Sanitary Epidemiological Service of MoH, since this Service is responsible for such activities. It's clear that functions of the MENR and MoH are overlapped in terms of carrying out state control in the sphere of environmental protection, including ambient air protection.

Recommendation 4:

Normative legal acts on state control on atmospheric air protection should be updated; appropriate amendments to the legal acts in terms of strong definition of control functions of relevant government institutions on atmospheric air protection should be included.

Issue 5: Promoting environmental consideration to other areas of economic and social activities remains a much needed objective for guaranteeing not only sustainable development but also environmental security, public health and social well-being. However, effective inter-sectoral cooperation, in particular inter-ministerial cooperation, is a prerequisite for achieving this goal. While coordination through the Cabinet of Ministers is useful, especially through inputs in the formulation of policy and through exchanges and compilation of reports on implementation, it cannot adequately ensure that environmental and sustainable development considerations receive the required priority.

Recommendation 5:

The Cabinet of Ministers should:

- *Consider the establishment of a high-level State Commission on Sustainable Development.*

- *Appoint the members of this Commission in terms of their institutional affiliation, and not their personal capacity, to better ensure its smooth functioning in cases of reorganizations or changes of incumbency in existing ministries.*

3. EXISTING AIR QUALITY ASSESSMENT AND MANAGEMENT SYSTEM IN AZERBAIJAN

3.1. AIR QUALITY MONITORING

3.1.1. Institutions responsible for air quality measurements in Azerbaijan

Monitoring of pollution of ambient air in the territory of the country is conducted by the Department of National Environmental Monitoring in accordance with the statute "On the rules of implementation of state monitoring of the environment and natural resources" prepared by the Ministry of Ecology and Natural Resources, and approved by the resolution No.90 of the Cabinet of Ministers of the Republic of Azerbaijan dated 1 July, 2004.

There are 3 categories of observation and control stations in order to determine concentration of sulphur dioxide, carbon, nitrogen dioxide, dust, phenol, and other noxious substances. It is purposed for performing regular observations, taking air samples, and conducting meteorological observations via measuring instruments in areas requiring mobile stations. During the process of on-site observations, nitrogen dioxide, dust, soot, hydrogen sulphide, sulphuric dioxide, carbon monoxide, and furfural samples are taken from the ambient air through aspirator. Samples are taken at a height of 1.5 m above ground level within twenty minutes.

At present, samples are analyzed at the laboratory of monitoring of pollution of ambient air of the Center for Monitoring of Environmental Pollution, and results handed over to the National Monitoring Department for Environment. These monitoring data are collected in the database by the Division of Calculation of the Center for Computation (consisting of 12 staff members) within the Department.

Monitoring results and prognosis for pollution concentration are published in information bulletins, placed at the official web page of MENR(www.eco.gov.az), as well as delivered to relevant state organizations and to mass media. Prognosis on anticipated concentrations is based on monitoring data of previous day and hydrometereological prognosis for next day.

The daily bulletin on daily average concentration of ambient air and natural radiation condition is delivered to the following official persons and organizations according to the order No253 of MENR dated 28.11.2012:

- The President of Azerbaijan Republic;
- Prime Minister;
- State Councillors;
- First deputy Prime Minister;
- Senior State Security Service of Azerbaijan Republic;
- MENR (Minister, Deputy Minister, Division of Ecology and Natural Protection, Division of Ecological Propaganda, Division of Production Policy, Department of Environmental Protection, Department of National Hydrometerology, State Archive Fond on Environment and Natural Resources, Center on Emergency Action
- Ministry of Emergency Cases
- Civil Defence Office of Azerbaijan Republic
- Ministry of Health

All information is accessible for units dealing with air quality assessment and management. Generalized data on air quality assessment is accessible for public through internet portals and annual publications.

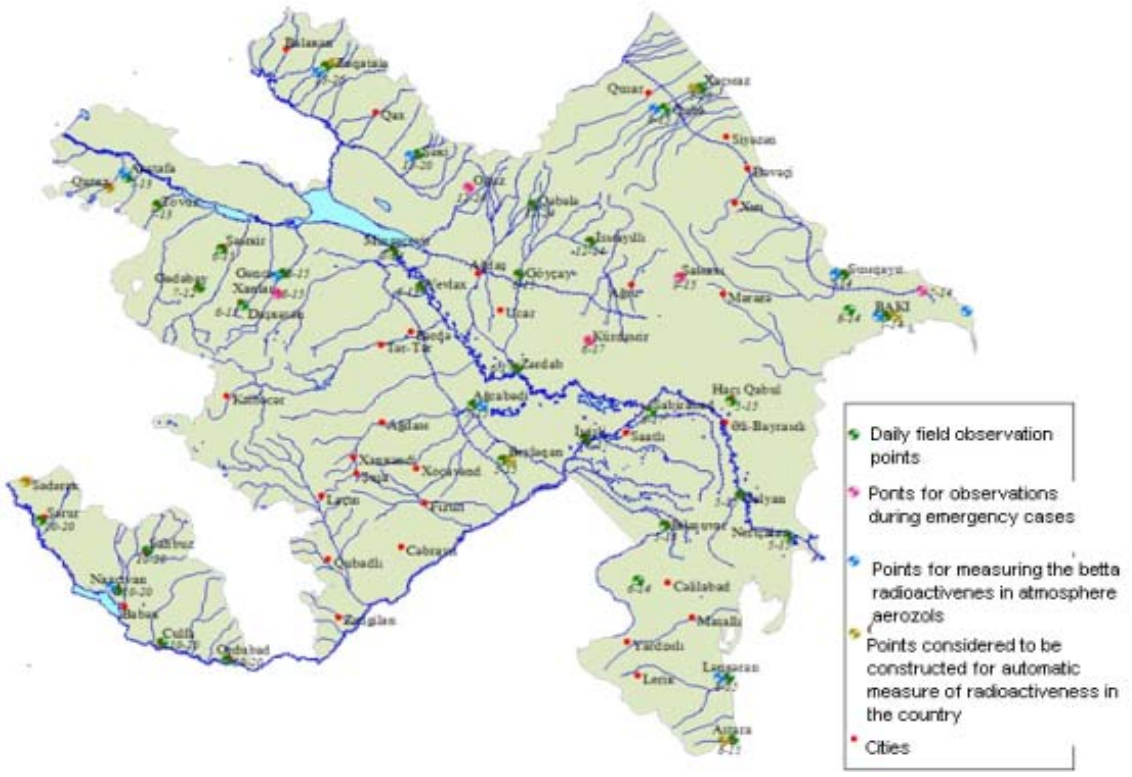
3.1.2. Overview of the air quality monitoring network

Observations on the pollution of ambient air are carried out at stationary and mobile stations. Stationary and mobile stations are established by taking into account the area, landscape, industrial development, mobile pollution sources, and number of population of each city (settlement) as follows:

- 50 000 inhabitants - 1 monitoring station;
- 50 000-100 000inhabitants - 2 monitoring stations;
- 200 000-500 000inhabitants, 2-3 monitoring stations and etc.

Monitoring and observation of pollution of ambient air is regularly conducted at 26 observation stations located in eight big industrial cities of the Republic of Azerbaijan (Baku, Sumgayit, Nakhichevan, Ganja, Mingachevir, Shirvan, Lankaran, Shaki) coveringbasic polluting ingredients (dust, sulphuric dioxide, nitrogen dioxideand carbon monoxide), and specific harmful substances corresponding to the industrial profile of each city. The number of stations is compliant with above-mentioned criteria. But, the number of stations is not enough for Baku city as according to official statistics of 2013, number of population is 2,150,000, but unofficial number exceeds 4 million.Samples in monitoring stations are taken every day at 7 am, 1 pm, and 7 pm.

Figure 3: Map of monitoring stations in Azerbaijan



All data obtained as a result of monitoring are collected in the database, and systematized by the Department of Calculation of the Center of Computation pursuant to the statute of the National Monitoring Department for Environment.

Based on the results of observations, daily bulletins concerning ambient air pollution are drawn up, forwarded to the relevant bodies, and posted on the website of the MENR.

Observations of meteorological parameters i.e. temperature, humidity, wind speed and direction along with the observation on the pollutants are conducted at the monitoring stations in order to assess and predict the level of ambient air pollution.

2 of monitoring stations provide data for calculations of pollution coming into Baku city from outside. These are the following stations:

1) Monitoring station #19 located at 9 micro-district, Mircalal street 127 for calculationofpollution levelcoming from Sumgayit city;

2) Monitoring station #39 located at West entrance of the city for calculation of pollution levelcoming from Garadag industrial complex.

Pollutants such as NO_2, hydrogen fluoride, solid fluoride, chlorine and formaldehyde are identified at those stations.

Results of monitoring and forecast (prognosis for the current day and the results of monitoring of the previous day) are placed at the web page of the MENR (www.eco.gov.az/en).Air pollution forecast information isbased on monitoring results froma previous day and hydrometeorologicalprognosis for a next day. Thus, such forecast isnot based on any specific modelling system.

It is used observation data on different harmful substances for big industrial cities, as well data on calculated concentration of various harmful substances in prognosis scheme. For this, it usedthe methodology inherited from Soviet times named “Guideline on control of air pollution РД52 04.186-89 developed by State Committee on Hydrometeorology of USSR (Госкомитет СССР погидрометеорологии).

Based on availabledata integral indicator of air pollution is calculated foracity for whole day or first and second half of aday. Such calculations are made for each harmful substance or for all substances together. For actual prognosis and when working on prognosis schemes meteorological conditions of pollution of ambient air is analysed and general indicatoris identified.**P**is parameter, which is close to normalized concentration of harmful substance for a city,and is used as prognosis indicator by applying the following formula:

$$\mathbf{P= m/n}$$

Here, n is total number of observations availableat existingstationery monitoring stations, and m is number of observations wheredaily average concentration of harmful substance is more than one and a half times higher ($q>1,5q\bar{m}$)than average seasonal concentration ($q\bar{m}$).

High levels of **P** parameter indicate unsuitable conditions of ambient air in the city.

Group No	P parameter gradations	Pollution characteristics of ambient air
I	>0,35	High
II	0,21-0,35	Relatively high/average
III	<0,20	Low

In order to acquire complete and qualitative information on air pollution, there is a need to place monitoring stations in residential areas, in central part of the city and in districts with high level of pollution with harmful substances. Otherwise, quality of monitoring data collected will not be so high and certain probabilities will emerge with regard to assessment and air pollution forecast. On the other hand, there are problems in this field such as:

-mostly obsolete devicesare usedat the observation points (stations), no automated monitoring system;

- lack of qualified staff and lack of capacity of current staff;

- insufficient number of observation points of monitoring of air quality;

- non-existence of modern vehicles allowing properly and timely transport samples from stations to laboratories (this problem could be solved by installing automated monitoring stations);

- in spite of the significant air pollution by complex composition of dust, heavy metals, asbestos, etc. it is still not switched to measureatmospheric particlesasPM_{10} and $PM_{2.5}$.

3.1.3. Measurement methods and quality criteria

Observations of concentrations of 18 harmful substances in the atmosphere (dust, sulphur dioxide, soluble sulphates, carbon monoxide, nitrogen dioxide, nitrogen oxide, hydrogen sulphide, soot, solid fluorides, hydrogen fluoride, chlorine, hydrogen chloride, mercury, ammonia, sulphuric acid, formaldehyde, phenols, furfural) are carried out, and their concentrations are determined.

Table 10: Monitored substances and concentration limits

N	Substances	Code	Chemical formula	MAC (µg/m$_3$)	
				Average daily	One time maximum
1	Dust	01	-	0,15	0,5
2	Sulphur dioxide	02	SO_2	0,05	0,5
3	Soluble sulphates	03	SO_4^{2-}	-	-
4	Carbon monoxide	04	CO	3	5
5	Nitrogen dioxide	05	NO_2	0,04	0,085
6	Nitrogen oxide	06	NO	0,06	0,4
7	Hydrogen sulphide	08	H_2S	-	0,008
8	Soot	11	C	0,05	0,15
9	Solid fluorides	12	F^-	0,03	0,2
10	Hydrogen fluoride	13	HF	0,005	0,02
11	Chlorine	14	Cl_2	0,03	0,1
12	Hydrogen chloride	15	HCl	0,2	0,2
13	Mercury	17	Hg	0,0003	-
14	Ammonia	19	NH_3	0,04	0,2
15	Sulphuric acid	20	H_2SO_4	0,1	0,3
16	Formaldehyde	22	CH_2O	0,003	0,035
17	Phenols	32	C_6H_5OH	0,003	0,01
18	Furfural	76	C_4H_3O-CHO	0,05	0,05

Samples of harmful substances such as dust, soluble sulphates, and sulphuric acid are taken with vacuum cleaner through filter, while other indicators with aspirator via sorption pipes and Richter absorbent receptacles within 20 minutes. Apart from these indicators meteorological parameters such as pressure (with barometer), temperature and relative humidity (with psychrometer), wind speed and direction (with anemometer) are measured in all stations.

In the monitoring stations It is used the following methods for determination of the emission level of different pollutants:

- Dust is determined with gravimetric method;
- Sulphur dioxide, nitrogen dioxide, nitrogen oxide, hydrogen sulphide, solid fluoride, hydrogen fluoride, chlorine, ammonia, formaldehyde, furfural are determined with colorimetric method;
- Soluble sulphates are determined with turbid metric method;
- Ambient air phenol is determined with photometric method;
- Carbon monoxide is determined with electrochemical method.

Above-mentioned methods are inherited from former Soviet times. According to decision #147 of Cabinet of Ministers approved in 1997, all norms and methods applied in former Soviet Union stay in force until approval of new norms and methods.

Samples are analyzed at the laboratory of monitoring of pollution of ambient air of the Center of Monitoring of Environmental Pollution, and results handed over to the National Monitoring Department for Environment.

In order to ensure quality of datacontrol analysis of monitoring datais conducted. Quality certificate for the data is provided only after ensuring quality of data according to analyses of multi-year monitoring data.

Quality check-up of devices, calculation of calibration coefficients and quality criteria are provided by State Committee on Standardisation, Meteorology and Patent.

3.1.4. Validation of the monitoring data

Monitoring of pollution of ambient air is regulated by several laws. These are “Law on ecological security (adopted on 08 June 1999), “Law on protection of ambient air” (adopted on 27 May 2001), “Law on protection of human health (adopted on 26 June 1997), “Law on hydrometeorology (adopted on 17 April 1998) and by regulation of Cabinet of Ministers on State Monitoring rules of environment and natural resources (adopted on 01 July 2004).

In order to verify monitoring data, it is provided iteration analysis, as well as provided additional comparative analysis of dynamics of multi-year monitoring data. Control analyses are also conducted in order to elaborate quality of analysis. Only after getting ensured according to multi-year monitoring data assessment, it is provided quality certificate for the data.

For validation of monitoring data generated from monitoring stations, it is provided routine checks during the initial data processing and generation of data including proper data file identification. Along with this, it is provided review of unusual events, field data sheets, and result reports. Quality check-up of devices and performance checks are provided by State Committee on Standardisation, Meteorology and Patent.

Department of National Environmental Monitoring regularly provides internal consistency tests to identify values in the data that appear atypical when compared to values of the entire data

set.This is done along with comparisons of current data with historical data to verify consistency over time.

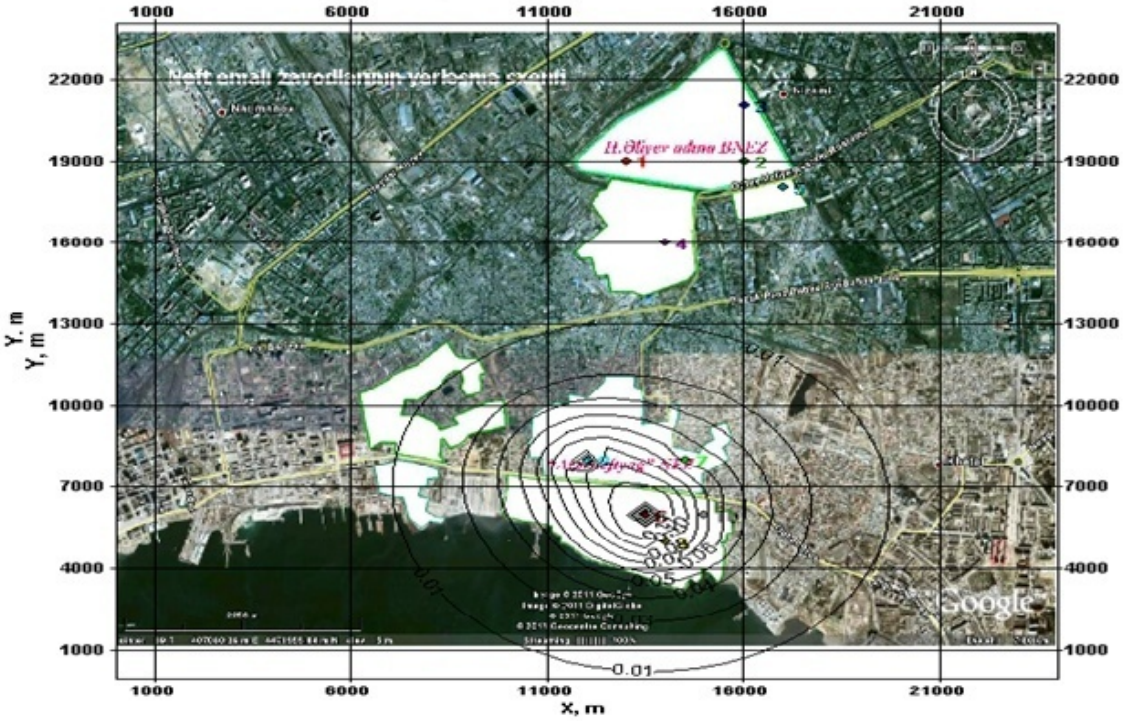
3.2. DISPERSION MODELLING

3.2.1. Requirements on modelling

Conduction of dispersion modelling is responsibility of Ecological Scientific & Technological Information and Methodology Center (Ecocenter) within MENR. There is no legal regulation or requirement on dispersion modelling.

At present, dispersion modelling is provided on case-to-case basis only at enterpriseslevel.For instance, SOCAR uses dispersion modelling for its enterprises (“Ecolog-2.25” program). There is not any modelling system used for modelling of biggerarea, for instance Baku city. Limit values for enterprises is calculated using methodology approved by MENR in 2009.

Figure 5: Sample of modelling developed for one enterprise



So far, there exist two different approaches for practical dispersion modellingon air pollution of industrial sources in Azerbaijan. The first approach is developed by Sutton (*OND-89. Qoskomhidromet. Methodology of calculation of concentration of harmful substances to ambient air from industrial entities, 1987*) and used for determining the concentration of the impurity from the source of the formulas obtained on the basis of static.

According to Sutton, the distribution of impurities near the point source in different directions is described by Gaussian law. The second approach, developed by Berland (*Source: Berland M.E, Current problems of atmospheric diffusion and pollution, 1975, page 448*) is based on the solution of the turbulent diffusion.

In Azerbaijan, for practical calculations of the impurity concentration field from a point source in the particular weather conditions it is advisable to use the "Method of calculating concentrations

in the air of harmful substances contained in the plant's emissions", with a unified program for calculation of air pollution UPCAP ECO (UPRZA "ECO" in Russian–Унифицированная программа расчета загрязнения атмосферы УПРЗА «Эколог»). Currently, this program is applied by separate enterprises.

Maximum one-time concentration is calculated for 30 min. Average annual concentration is also calculated. All meteorological parameters of the region are taken into account during calculations.

For the calculation following meteorological information and materials of inventory of industrial objects are used:

- coefficient depending on the temperature stratification of the atmosphere;
- dimensionless coefficient that takes into account the sedimentation rate of harmful substances in the air;
- coefficients that take into account the conditions of out-gas mixture from the emission source;
- dimensionless coefficient that takes into account the influence of the terrain;
- the difference between the temperature of the discharged gas mixture and the ambient air;
- the speed and direction of wind andbackground concentration of substances.

In Azerbaijan, main anthropogenic sources of air pollution are mobile sources (mostly vehicles), oil and gas extraction and refining, thermal power plants and boiler houses, chemical industry, mining, metallurgy and enterprises producing construction materials. Among these vehicles are the leaders. In future, emissions from mobile sources are planned to be calculated by the program «COPERT 4". Currently, it is provided negotiations on provision of such calculation by the relevant units of the Department of National Monitoring of Environment at the MENR.

During calculation of the maximum one-time concentrations in the atmosphere statistically significant maximum one-time concentration is accepted as the background concentration. The background concentration is determined from observations as a single value, which is not exceeded by more than 5% of the total number of observations.

The background concentration is a characteristic of air pollution, which is the total concentration produced by all emission sources. It is established for each pollutant according to the reports of monitoring stations by the Department of Monitoring of the Ministry of Ecology and Natural Resources of Azerbaijan.

Background concentration values should be reviewed at least once every five years, with a mandatory adjustment after entering, closing or remodelling major sources of air pollution. For background concentration, it is used methodology(developed by Dr. R. Rafiyev) approved by Leningrad (St.Petersburg) Head Geophysical Observatory in 1990. Unfortunately, last calculations on background concentration were made for the period of 1994-1998 (see table 11).

Table 11: Background concentration of harmful substances in ambient air in Baku city for 1994-1998 calculated on the basis of observation results

Baku city	Winds				
Background concentration	**No wind**	**North**	**East**	**South**	**West**
		Station 05			
Dust	0.184	0.464	0.719	0.503	0.834
Sulfur dioxide	0.224	0.226	0.220	0.241	0.241
Nitrogen dioxide	0.249	0.269	0.240	0.289	0.248
Nitrogen oxide	0.076	0.074	0.064	0.872	0.069
		Station 15			
Dust	0.190	0.427	0.3812	0.4286	0.4527
Nitrogen dioxide	0.218	0.2276	0.2392	0.1912	0.2322
Hydrogyne sulfide	0.012	0.01149	0.0115	0.0102	0.0122
Soot	0.530	0.0614	0.0682	0.0438	0.0630
Mercury	0.00019	0.00026	0.00023	0.00022	0.00027
Sulfuric acid	0.0307	0.0272	0.0326	0.0271	0.0346
Fulfaral	0.15647	0.13995	0.15425	0.13024	0.14603
		Station 17			
Nitrogen dioxide	0.2871	0.3021	0.2898	0.3042	0.315
Nitrogen oxide	0.088	0.094	0.086	0.094	0.0947
Solved sulfides	0.0478	0.0494	0.0482	0.0456	0.0526
Soot	0.1985	0.1407	0.2660	0.1970	0.1627
Mercury	0.00022	0.00025	0.00014	0.00031	0.00028
Sulfuric acid	0.0311	0.0444		0.0548	0.0383
Formaldehyde	0.0188			0.0075	
		Station 19			
Dust	0.1692	0.8044	0.1900	0.6295	0.3944
Nitrogen dioxide	0.2034	0.2194	0.2049	0.2300	0.2143
Soot	0.0338	0.0643	0.0328	0.0530	0.0419
Solide fluoride	0.0179	0.02408	0.0240	0.0234	0.01902
Hydrogen fluoride	0.00607	0.00716	0.0063	0.0069	0.00657
Chlorine	0.06886	0.13167	0.0308	0.11601	0.0579
Formaldehyde	0.01788	0.01909	0.0180	0.01893	0.01722
		Station 37			
Dust	0.12632	0.55134	0.3973	0.4964	0.42889
Sulfur dioxide	0.1996	0.2054	0.1868	0.2034	0.1958
Nitrogen dioxide	0.2234	0.2237	0.2521	0.2278	0.2258
Hydrogyne sulfide	0.01212690	0.0125	0.0130	0.0124	0.0111
		Station 38			
Dust	0.16783300	0.66562316	0.45051635	0.56416727	0.58445303
Sulfur dioxide	0.26100229	0.27722785	0.24641743	0.26749100	0.24181235
Carbon monoxide	4.10219137	4.42605565	4.10975291	4.08858931	3.74027974
Nitrogen dioxide	0.28262764	0.30351470	0.27532261	0.30035080	0.27160763
Hydrogyne sulfide	0.01327873	0.01507491	0.01561300	0.01489477	0.01291255
Ammonia	0.00466615	0.00603579	0.00457595	0.00626972	0.00436319
Fulfaral	0.19335549	0.20514243	0.18779496	0.18898456	0.17909359

Baku city	Winds				
Background concentration	No wind	North	East	South	West
		Station 39			
Dust	0.175	0.456	0.3099	0.458	0.339
Nitrogen dioxide	0.232	0.242	0.198	0.243	0.233
Hydrogyne sulfide	0.01390	0.0153	0.0144	0.0144	0.0164
Formaldehyde	0.0177	0.01791576	0.01518	0.01855	0.01457
		Station 40			
Dust	0.13656282	0.54939328	0.32585646	0.49438995	0.47284541
Carbon monoxide	3.96049920	4.03231240	3.42209395	3.99190827	3.51418222
Nitrogen dioxide	0.23972196	0.24101062	0.22298808	0.24629442	0.21019630
		Station 48			
Dust	0.18154788	0.61040530	0.58420312	0.50381080	0.57560145
Sulfur dioxide	0.25728720	0.26411008	0.24621840	0.28350159	0.26887600
Nitrogen dioxide	0.27626297	0.29060168	0.29772087	0.31018069	0.28953412
Soot	0.15540745	0.13518074	0.16480079	0.19606203	0.14312393
Formaldehyde	0.02015508	0.02082099	0.02263378	0.02081938	0.02029617

During assessment process, Environmental Monitoring Department provided information that they are planning to recalculate background concentration and review current indicators.

3.2.2. Input data for modelling

The main functions of Hydro meteorological Forecasting Bureau within National Hydro meteorological Department under MENR includes studying and forecasting of the hydro meteorological phenomena and processes, as well high-rise layers of atmosphere.

There is suitable meteorological input data for dispersion modelling in Azerbaijan. To control radioactivity in Azerbaijan, six automated stations were installed on the borders with the neighbouring countries. They were installed in meteorological stations that ensure constant control of a radioactivity level in the air.

Along with this, during last years it was installed 5 automated meteorological stations by the MENR in different regions of the country in order to identify speed and direction of winds, calculate temperature, humidity, temperature of the land surface, atmospheric pressure in a continuous regime. Collected information is automatically send to relevant units of National Hydro meteorological Department.

However, emission inventory data are not available, yet. One of the reasons for this could benon-existence of separate unit responsible for such inventory. All these reasonsdid not allowconducting dispersion modelling for whole Baku city. Along with this, there are no emission metadata or a digital map of the city indicating all emission sources.

3.3. NATIONAL EMISSION DATABASES

3.3.1. Emission data collection and handling

There areemission data for separate entities, for different production sectors and for different cities of the country. Information onsources of pollution is also provided inthe reports prepared by the entities. But, at present time, there is no geospatial metadata.

Information on emission sources of each entity isdescribed in followingdocuments:

- Ecological passport for the entities dealing with production activities and having pollution sources.Ecological passportsare prepared for each entity once per 3 years;
- Maximum allowable concentration limits are calculated for above mentioned enterprises by Ecological Scientific & Technological Information and Methodology Center (Ecocenter) within MENR, as well by relevant consulting companiesonce per5 years.

All thisinformation is stored at the entities in hard copy, as well at the Environmental Monitoring Department of the MENR.

In Azerbaijan, State Statistical Committee is responsible for collecting and handling data on air emission. Statistical information is collected corresponding to the Law of the Republic of Azerbaijan “On official statistics”. The law determines main principles of collecting, storing, analysis, summarizing, spreading and publishing of the information about situation in economic, demography and ecological spheres and its implementation is necessary for all governmental bodies, institutions, establishments, organizations, and also individuals regardless the type of ownership, conformation, location.

As it was indicated in above sections, the information on emitted into atmosphere harmful substances is collected in State Statistical Committee on the base of two official statistical report forms: these are #2-TG (air) “On protection of ambient air” and #2-TG (air-transport) “On emission of harmful substances into atmosphere from automobile transport” annual official statistical reports.

Besides this, information on GHG,emitted into atmosphere from stationary sources – carbon dioxide (CO_2), nitric oxide (I) (N_2O), methane (CH_4), hydrofluorocarbons (HFC), sulphur hexafluoride (SF_6), perfluorinatedcarbons (PFC)is collectedin the report.

All entities that hold aspecial permission and entities that do not require such permission, but are dealing with production activities, provide information on emissions on annual base submitting report on emissions to Statistical Committee after approval by local units of MENR. As a result, comprehensive information of atmospheric pollution are gathered and summarized by Statistical Committee. Generalized information on ambient air (report) is prepared by the Statistical Committee and placed in official web page –www.stat.gov.az/source/environment.

Climate Change and Ozone Center under MENR uses information from this report for inventory of GHG, provide analysis and develop reports.

It should be mentioned that reporting mechanism described above is related to relatively big entities, dealing with production activities. Small-size entities dealing with service activities are not covered by reporting requirements. Currently, work to improve reporting to cover such entities under those reports is in progress.

3.3.2. Pollution permits

According to the Law on the protection of ambient air of Azerbaijan Republic, it is permitted to emit harmful substances to ambient air only to enterprises holding a“Special Permission” issued by Ministry MENR. “Special Permission” is adocument providing permission toall individuals and legal persons (enterprises) for emission of harmful substances and physical pressure to ambient air. “Special Permission” is issuedfor 3 years period. If divide entities by type of activities and sectors, the following entities must obtain special permission:

Entities of I danger category: big entities of oil-gas extraction, production of construction materials, metallurgy, ore extraction, energy production, petrochemical industry;

Entities of II danger category: some entities of oil-gas extraction, production of construction materials, metallurgy, ore extraction, energy production, petrochemical industry, entities of big engineering, automobile production, ship production, ship repair, cotton cleaning and transportation;

Entities of III danger category: some entities of engineering, automobile production, ship production, ship repair, transportation, as well entities of light industry and food industry;

Entities of IV danger category: some entities of light industry, food industry and transportation, as well entities of service sector.

“Special permission”is not related to preparation of statistical report, negotiating report with relevant authorities and its submission. Entities dealing with **production activities** that do not need special permission (entities without regular and stationary emission sources) are providing information on emissions and submit statistical reports to relevant authorities.

Regards the entities dealing with **service activities**that do not need special permission (entities without regular and stationary emission sources), those entities do not provide registration of emission. Emission from such entities is not reflected in the summary report on emission. There is not any information on such emission at all.

If the entity emits harmful substances to ambient air not from stationery source, but from mobile sources according to production or service profile, it does not have to have “Special Permission”. These include emission from automobiles, welding aggregates and from other mobile devices. If there is no “Special Permission”, emission of harmful substances to ambient air is calculated based on the methodology on calculation of used materials (such as welding rods, paints) or used fuel (diesel, benzene, natural gases, black oil etc.).

3.3.3. Emission data retrieval and storage

At present, inventory of emissions from stationary sources in Azerbaijan is carried out by method of the "Rules of the inventory of hazardous air emissions and sources that have a physical effect," that was approved by the decision number 63 of Cabinet of Ministers of Azerbaijan Republic on April 15, 2002.

During the calculation of emission instrumental, instrumental-computational and computational methodsare used. It is used from methodological guidelines for the calculation of emissions from stationary sourcesdeveloped in Soviet times.For instance, for calculations of emission from oil processing sector it is used РД-17-86 methodology and for calculation of emission from boilers and thermal power stations it is used methodology of РД-34.02.305-90.

Current national legislation of Azerbaijan on air quality is not adapted to the requirements of EU Directives: there is no list of major industrial plants and their evaluation by industry in accordance with the application of the Directive 2010/75/EU on industrial pollution and the EMEP / EEA Inventory - Emissions 2009. Applied methodologies and emission factors for calculation of emission are not adapted to the EU standards and it is not provided any significant analysis on advantages of different methods for emission calculation from stationary or mobile sources.

Instrumental measurement devices are not used for calculation of emissions. Emissions are calculated based on amount of used fuel and other materials based on mentioned methodologies.

The data on emitted into ambient air harmful substances is reflected in website of the State Statistical Committee (www.stat.gov.az) and in published materials. All information is stored at State Statistical Committee and relevant units of MENR. Information on air quality and emissions is also placed at the official web page of MENR (www.eco.gov.az).

Monitoring results and prognosis for pollution concentration are included in information bulletins, placed at the official web page of MENR (www.eco.gov.az), as well delivered to relevant state organizations and to mass media. The daily bulletin on daily concentration of ambient air and natural radiation condition is delivered to respective official persons and organizations dealing with environmental issues.
All information is accessible for units dealing with air quality assessment and management. Generalized data on air quality assessment is accessible for public through internet portals and annual publications.
At present, the laboratories located in the country are trying to expand relations with international organizations. For this, the laboratories need necessary accreditation and certificates.

3.3.4. Data validation and verification

Inventoryof emission sources is done by the enterprises and according to the result of a draft inventory MAC limits are developed and statistical report prepared then submitted to Statistical Committee.

Official statistical report form,filled out by the enterprises,is verified by local units of the Ministry of Ecology and Natural Resources and after obtaining required consent (signature) is submitted to statistical bodies at district (city) level, where the enterprises are located, and then to higher body.

Information on air emission is collected on the base of two official statistical report forms: these are #2-TG (air) “On protection of ambient air” and #2-TG (air-transport) “On emission of harmful substances into atmosphere from automobile transport” annual official statistical reports. Annual official statistical report form #2-TG (air - transport) “On emitted into ambient air harmful substances from mobile sources” is developed and presented to the State Statistical Committee by the Ecological Scientific & Technological Information and Methodology Center (Ecocenter) within MENR.The report reflects the data on emitted into atmosphere harmful substances from mobile sources by country, and separately by Baki, Shirvan, Ganja, Mingecavir and Sumgayit cities.

When analysing the results of assessments conducted by project experts, it could be indicated that current system for calculation and analysis of data on emissions does not meet contemporary requirements and international standards, as well EU standards. Most important shortcoming is related to applied obsolete calculation methodologies, most of which is inherited from Soviet period. Out-dated measurement devices, non-existence of automated monitoring stations, lack of capacity of staff increases risks for uncertainty of national emission inventory. All these shortcomings, as well shortcomings related to emission inventory system will be reflected in formulation of objectives and specific actions when developing Draft Action Plan and National Strategy document.

3.3.5. Fugitive and mobile sources

At present, data from fugitive sources like households, quarries and landfills are not collected. The contribution of natural emission sources is not calculated. Fugitive emissions emitted to atmosphere are generated from the energy sector, natural gas production, storage, transportation, and burnings and from other sources. Pollutants such as CO_2, CH_4, N_2O, hydrocarbons, are included in fugitive emissions. Basically fugitive emissions is mostly generated at coal, oil and gas industry.

In Azerbaijan, fugitive emissions are mainly generated from various activities of oil and gas industry. As for fugitive emissions, mainly CH_4 and other hydrocarbons form the potential fugitive emissions. Fugitive emissions from oil fields constitute primarily methane gas (CH_4). Those gases are emitted to the atmosphere as associated gas. Besides, they are emitted to the atmosphere during processing of oil and gas and from storage reservoirs. According to the results of last inventory conducted in 2005 during preparation of Second National communication to UNFCCC annual volume of emission was 5.9 million tons CH_4.

According to the IPCC's inventory methodology uncertainty of methane gas emissions reaches 100%. The most uncertaintyis in the Energy sectors which includes tendentious of emissions. In energy sector the highestuncertainty is in oil and gas production sector. In oil industry methane gas is formed during oil extraction and storage process. There is not known exact amount of emitted methane from those sources. So as, in most cases there are not used any measurement devices for measurement, because producer companies do not see installing such devices as economically valuable. Methane gas formed during oil extraction from the oil wells is burned at the pipes without any calculation. Along with this, methane gas is formed during oil processing and storage at the oil reservoirs. Those methane emissions are not measured, as well. All these cases lead to uncertainty. Therefore, it is expedient to carry out additional investigations for the reduction of such uncertainty.

There is some uncertainty in methane emissions in residential sector, as well. But, during last years it has been established a lot of smart-type measurement devices in residential sector leading to reduce of leaks. Subsequently, it resulted in reduce of uncertainty in methane emission in residential sector.

At present, the State Statistical Committee defines emissions from motor vehicles in general form based on the annual fuel consumption. Data on emission from fuel consumption is prepared by Ecological Center within the Ministry of Ecology and Natural Resources. It is old approach inherited from Soviet times which does not allow providing proper calculations. The

following emission factors are used to calculate emission from the fuel consumption (see table 12):

Table 12: Coefficients for emission calculation from fuel consumption

#	Name, t/t	Gazoline	Diesel
1	Carbon oxide (CO)	0.27	0.036
2	Hydrocarbons (CmHn), t/ton	0.034	0.011
3	Nitrogen oxides (Nox)	0.028	0.051
4	Sulfur dioxide (SO_2)	0.002	0.02
4	Soot	0.0008	0.005

For inventory of emissions from mobile sources it is used methodology of former Soviet times of inventory of emissions from mobile sources in big cities. As for other cases, such choice is not regulated by any legal act and only based on choice of local experts. Coefficients on calculation of emission from gasoline, diesel, liquefied petroleum gas and compressed gas are provided in below tables:

Table 13: Emissions from combustion of 1 kg gasoline

Type of vehicle	Ecological type	Emission, g/kg				
		CO	VOC	NO_x	SO_2	CO_2
Automobiles	0 (Euro 0)	250,0	31,0	30,0	0,54	2670
	1 (Euro 1) and higher	21,5	2,4	5,8	0,54	3120
Trucks and buses with total weight till 3500 kg	0 (Euro 0)	250,0	31,0	30,0	0,54	2670
	1 (Euro 1) and higher	21,5	2,4	5,8	0,54	3120
Trucks and buses with total weight over 3500 kg	0 (Euro 0)	360,0	39,0	30,0	0,54	2500

Table 14: Emissions from combustion of 1 kg diesel

Type of vehicle	Ecological type	Emission, g/kg					
		CO	VOC	NO_x	PM	SO_2	CO_2
Automobiles	0 (Euro 0)	13,6	3,0	40,0	4,0	1,6	3070
	1 (Euro 1) and higher	7,5	1,4	30,0	1,1	1,6	3100
Trucks and buses with total weight till 3500 kg	0 (Euro 0)	30,0	10,0	50,0	4,0	1,6	3020
	1 (Euro 1) and higher	8,6	4,3	25,0	1,1	1,6	3090
Trucks and buses over 3500 kg	0 (Euro 0)	30,0	10,0	50,0	4,0	1,6	3020
	1 (Euro 1) and higher	8,6	4,3	25,0	1,4	1,6	3090

Table 15: Emissions from combustion of 1 kg liquefied petroleum gas

Type of vehicle	Ecological type	Emission, g/kg				
		CO	VOC	NO_x	SO_2	CO_2
Automobiles	0 (Euro 0)	250,0	31,0	30,0	0,12	2520
	1 (Euro 1) and higher	21,5	2,4	5,8	0,12	2970
Trucks and buses with total weight till 3500 kg	0 (Euro 0)	250,0	31,0	30,0	0,12	2520
	1 (Euro 1) and higher	21,5	2,4	5,8	0,12	2970
Trucks and buses with total weight over 3500 kg	0 (Euro 0)	360,0	39,0	30,0	0,12	2350

Table 16: Emissions from combustion of 1 kg compressed gas

Type of vehicle	Ecological type	Emission, g/kg				
		CO	VOC	NO_x	SO_2	CO_2
	1 (Euro 1) and higher	21,5	2,4	5,8	0,12	2970
Trucks and buses with total weight over 3500 kg	0 (Euro 0)	140,0	14,0	20,0	0,08	2500

According to this outdated approach is not possible to calculate/model transport in the city. In EU and in Russian Federation "COPERT 4" software is used for calculations of emissions from motor vehicles. In Russia "UPRZA Ecolog" program is used for calculation of one-time maximum concentrations. According to the results of the calculation major sources and the perpetrators (street, avenue and on) of the air pollution are determined. Based on the results of analysis the flow of vehicles is regulated in the city. It is expedient to apply such system in the country and further analysis on the issue will be provided during preparation of draft action plan

In some cases, emissions from mobile sources are also calculated using some coefficients of РД-17-86 methodology: Guidelines for the calculation of total emissions of harmful substances into the atmosphere for oil refining. This methodology is only used by entities having sufficient number of vehicles (for instance, taxi garages, transportation companies) for more exact calculation of emission using age coefficient of vehicles.

Registration of auto mobiles is provided by the State Road Police Office under the Ministry of Internal Affairs. Due to last statistical data, the total number of vehicles has increased by 135 per cent in 2011 (1037626 registered cars) in comparisonwith year 2000. 674552 of those cars are registered in Baku city. Notwithstanding the increasing number of new vehicles, the age structure of the vehicle fleet is not satisfactory and many obsolete highly polluting cars and lorries are still in operation. In 2011, 68% of emissions into the air from mobile sources were calculated in Baku city.

Table 17: Number of vehicles by type

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011
Lorries	79019	80918	90852	97395	110391	113088	117378	118460	122182
Busses	18781	20991	26735	27474	28092	29340	29985	29569	29189
Cars	386219	423696	458840	525348	589298	668587	725843	779658	832599
Motorcycles	7313	4993	3562	3408	2778	2330	1969	1643	1647
Others	4930	5197	5545	5897	6524	6090	7527	7126	4653

Unfortunately, there is not systematic information on amount of cars by date of production. The Ministry of Internal Affairs has data on age of all registered cars, but this information is not in systematic way. During assessment process, it was officially applied to the Ministry for provision of such information, but still such information has not been provided.

In the case of emissions from mobile sources, major measures were prepared and are being implemented, especially as regards improvement of transport infrastructure, management of transport in the Baku City or more efficient vehicle inspection measures.

State Committee for Standardization Metrology and Patent of the Republic of Azerbaijan has endorsed AZS 636-2012 standard (Standards on mobile vehicles: ecological classes) and implementation was launched from 01 August 2012. It should be mentioned decision of Cabinet of Ministers 06 March 2010 endorsing application of Euro-2 standards for vehicles and action plan for implementation of necessary measures. It is also planned application of Euro-3 standards in 2013, but there is a delay in the process. At present, guidelines for application of Euro-3 standards has been developed by the Committee on Standards, Meteorology and Patents and submitted to the Cabinet of Ministers for final approval.

Table 18: Compliance with ecological classification according to origin of production and year

Country of production	Year of production			
	Meeting technical requirements according to ecological classification			
	Euro 2	Euro 3	Euro 4	Euro 5
EU countries, **gasoline**	1997 – 2000	2001 – 2004	from 2005	from 01.10.2009
EU countries, **diesel**	1997 – 2001	2002 – 2004	from 2005	from 01.10.2009
USA	1996 – 2000	2001 – 2003	from 2004	—
Japan	1998 – 2004	2005 – 2010	from 2011	—
Canada	2001 – 2003	from 2004	—	—
India	2005 – 2009	from 2010	—	—
Malaysia	from 2003	—	—	—
China	2004 – 2007	from 2008	from 2011	—
Korea	2001 – 2002	2003 – 2005	from 2006	—
Ukraine, M category	from 2006	2010	—	—
Ukraine, N category	from 2007	from 2010	—	—
Belorussia	2006 – 2007	from 2008	—	—
Uzbekistan	2007 – 2009	from 2010	—	—
Kazakhstan	2006 – 2011	from 2012	—	—
Russia	2006 – 2007	from 2008	—	—
Turkey	—	—	from 2009	—
Iran	from 2009	—	—	—

Another important measure related to reduction of emissions from mobile sources represent the major issue is the implementation of the “The Intelligent Transport System for Baku city” launched by the Ministry of Transport in 2011 with the support of Korean companies, which was introduced recently and is to be fully operational in 2015. The system regulates car fleet in the city from the operational center and using big monitors placed in different places of the city. Drivers are informed on traffic conditions of roads using such monitors and information provided by radio. The system also provides automatic regulation of traffic lights during rush hours.

Regular information on conditions on the main and central roads is placed at the official web site – www.niim.az. The system also allows counting the number of cars and average speed on monthly base. For instance, during March month it was registered 1021739 cars at the H.Aliyev Avenue (main avenue connecting city center with main highway to airport) and average speed of cars was 69 km/hour. It is possible to obtain such data and use for AQ planning.

This scheme is expected to reduce transport-related emissions significantly by improving the flow of traffic and reducing traffic jams. In addition, other steps are being implemented in Baku such as extension of metro lines, extension of parking sites, and non-licensing of vehicles that failed to comply with at least the EURO 2 standard.

4. CONCLUSIONS

The comprehensive overview, information and analysis about the state policy related to ambient air protection, legal framework, analysis of the current legislation in view of European requirements, management mechanisms and distribution of institutional responsibilities presented in the previous chapters allows us to conclude that:

Legal and policy framework

- There is no national vision and strategy about how ambient air pollution should be reducedand prevented in Azerbaijan. This problem particularlyconcerns transport sector, which appears to be the major sourceof ambient air pollution in urban areas.
- Legal framework for ambient air quality management is only partially developed. Some issues of ambient air quality management, including such priority issues, as air pollution from motor vehicles, remain unregulated.
- The amendments made to the Law on Ambient Air Protection during past years were not directed to the improvement of air quality management system; in most cases they reflected institutional changes and reshuffles, which took place in Azerbaijan government. Frequent institutional changes and followingrelevant amendments to the laws do not promote the respect and enforcement of the requirements among society, polluters and state institutions.
- Local government bodies do not have a political will and are not able to develop and implement ambient air qualityplans.
- The Law of the Republic of Azerbaijan on Ambient Air Protection, which was adopted in 2001, was an attempt to harmonize the Azerbaijan legislation in the sphere of air quality management with that of the European Union. Actually, too little has been done for this purpose after adoption of the law. Respectively, there are numerous gaps in the legal framework related to ambient air protection in Azerbaijan, while numerous issues related to air quality management remain unregulated.
- Air quality standards are based on the modification of the former Soviet system (maximum allowable concentrations – MACs); these standards are laid down for 88 pollutants; standards for PM_{10} or $PM_{2.5}$ are not in place.

Permit issuing

- Existing legal provisions do not create a sufficient basis for permit issuing, especially the absence of technology-based emission limit values, but also the lack of guidance on BATs. The EIA's role in the permit issuing process is not fully defined and depends on decisions by the competent authority. Obviously, EIA is carried out after the decision on the location of newly built installation is taken.
- The approach of ecological passports could be retained to serve as a background for integrated permit issuing in the case of existing installations in accordance with the IPPC approach applied in the EU, as all environmental information is collected in one technical document.

International reporting

- Because of the lack of inventory of air pollutants due to the shortage of relevant technical capacity at the related agencies, problems appear on the preparation of data on the inventory of air pollutants to the Center on the Cadastres and

EMEP for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe.

- In Azerbaijan, there is only one station of background monitoring of atmospheric air defining transboundary pollutants in the ambient air within EMEP of the Convention on Long-range Transboundary Air Pollution.
- Weak institutional capacity in the reporting under Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol on Substances that Deplete the Ozone Layer is related to the lack of qualified specialists in the coordination organization for the reporting.

Emission data

- Main problem in emission data reporting is that data from residential stationery sources, as well from mobile sources still are not reflected in statistical reports.
- There is emission data for separate entities, for different production sectors and for different cities of the country, but, at present, there is no metadata for use in air pollution dispersion modeling.

Institutional set up

- Lack of development of mechanisms regulating air pollution from motor vehicles as well as absence of the institutions responsible for the control represents one of the major problems of ambient air protection system in Azerbaijan.

Dispersion modelling

- Conduction of dispersion modeling is responsibility of Ecological Scientific & Technological Information and Methodology Center (Ecocenter) within MENR.Although conduction of dispersion modeling is provided in the Statute of this Center, there is no any mandatory legislation base on types, covering periods and other specifications of the dispersion modeling.

National emission data bases

- Maximum allowable emissions, in fact emission ceilings at the level of particular installations expressed in mass units per unit of time, are calculated on an ad hoc basis from MACs, using a simple dispersion model. Technology-based emission limit values or general binding rules to reduce emissions are not applied.

Monitoring

- The air quality monitoring network is obsolete and underdeveloped, with a limited number of stations, no automated stations, and no measurements of PM_{10}, $PM_{2.5}$benzene and ground-level ozone. No advanced treatment of monitoring data (modelling) is in place. No separate strategic or policy document on air quality management has been developed.

5. RECOMMENDATIONS

Air Quality Policy

- It is essential to establish of a high-level State Commission on Sustainable Development and conduct appointment of the members of this Commission in terms of their institutional affiliation, and not their personal capacity, to better ensure its smooth functioning in cases of reorganizations or changes of incumbency in existing ministries.
- Development of a sustainable transport strategy addressing the air pollution due to traffic problems and congestions in major cities with the appropriate measures and fully incorporating environmental considerations is important. Continuing enforcement of EURO standards for mobile sources and set up adequate vehicle emission and technical control schemes to check compliance with these standards and to reduce emissions from private cars is one of the key priorities regarding to air quality governance.
- It is important to set up an effective vehicle inspection and maintenance programme in order to achieve emission reductions from the privately owned vehicle fleet. As part of this programme, service and repair facilities with good diagnostic equipment and qualified technicians should be established.
- It is essential to adopt reasonable compliance deadlines for these new or revised air quality standards taking into account technical and economic feasibility; differentiated approach to particular pollutants should be applied (mandatory limit values, conditional target values and long-term objectives); provide necessary training, equipment and financial resources to facilitate the transfer to these new standards.

Air Quality Legislation

- It is important to adopt and implement new air quality standards and emission standards for particular stationary sources. The air quality standards should be in line with EU and WHO air quality guidelines. The necessary training, equipment and financial resources should be made available to facilitate the transfer to these new standards.
- It is important to revise the air quality standards and harmonize them with those applied in the EU (at least for major pollutants – PM10 , PM2.5, sulphur dioxide, nitrogen dioxide and nitrogen oxides, carbon monoxide, lead, benzene and ground level ozone) and in later phase, introduce the EU standards for arsenic, cadmium, nickel and polycyclic aromatic hydrocarbons, EU standards, establishing quality objectives for ambient air, obtaining and disseminate information on air quality; EU standards drawing up common methods and criteria for assessing air quality;
- To reduce air pollution from motor vehicles, it is expedient to change the structure of excise tax on import so that to encourage import of newer motor cars and more economic vehicles, in terms of fuel consumption. At the next stage, it is necessary to define the norms of emissions from motor vehicles and to prohibit the import of such vehicles, which fail to meet these norms.

Institutional set up

- It is important to improve the operational and human resources management of the Department for Environment Protection of MENR, including staff training, and upgrade its technical capabilities; to streamline the instruments used to achieve compliance and

enforcement. A first step would be to identify particular groups of the regulated community and their impact on ambient environment conditions. Further priorities should then be set among the most problematic geographic areas and the most polluting installations, and enforcement tools selected that will affect the most appropriate enforcement response.

- It is necessary to form new structure within MENT dealing with emission inventory
- It is important to continue implementation by relevant governmental bodies of new fuel quality standards and set up adequate fuel quality control schemes.
- Introduce an integrated approach to air quality management and climate change mitigation. In this respect, the relevant governmental bodies should focus on preferential support to non-combustion renewable sources of energy (hydro, solar, wind) as well as to energy efficiency measures and energy savings.
- It is also important to define an institution, which will be responsible for regular technical inspection on controlling emissions from motor vehicles in the country.
- The practice of compulsory inspection of emissions from motor vehicles should be resumed.

Air quality Monitoring System

- It is essential to improve the existing set of indicators, which currently falls short of measuring both environmental improvements (e.g. pollution reduction amounts) and enforcement results (e.g. compliance rates and timeliness of compliance actions), so that the effectiveness of enforcement can be assessed more accurately.
- It is important to upgrade the air quality monitoring network, especially with automated monitoring stations in big cities in connection with new/revised air quality standards.

Dispersion Modelling

- Introduce advanced air quality assessment methods (e.g. modeling by advanced dispersion models, chemical transport models).
- Elaboration of legal normative base for dispersion modeling, in compliance with EU legislation.

National Emission Databases

- Introducing modernized methodology of emission inventories covering also small businesses, households and diffused sources of emissions and advanced methodology of assessment of emissions from mobile sources using the EMEP/EEA Air Pollutant Emission Inventory Guidebook.

ANNEXES

Annex 1: Ecological condition and ecological importance coefficient of ambient air in economic regions of Azerbaijan:

Economic regions	Coefficient of ecological condition, K1	Coefficient of ecological importance of ambient air, K2
1. District of Baku city:		
Xatai, Nizami, Narimanov, Sebayıl, Nasimi, Yasamal	5	1
Xazar, Binaqadi, Sabunchu, Suraxanı, Qaradag	3	1
2. Sumqayıtcity	5	1
3. Ganca city	3	1
4. Mingachevir city	3	1
5. Shirvancity	4	1
6. Districts of forest areas and recreation zones: Astara, Adder, Balaken, Cebrayıl, Dashkesen, Zaqatala, Zengilan, İsmayıllı, Gedebey, Kelbecer, Qaz, Qubadlı, Quba, Qusar, Qebele, Lachın, Lenkeran, Lerik, Masallı, Oguz, Samux, Xachmaz, Goygol, Xocavend, Xocalı, Shamaxı, SHusha, SHeki, Yardımlı	1	3
7. Other districts	1	1
8. Caspian Sea area	1	3

Annex 2: Norms of payments by emission of pollutants to ambient air

#	Name of pollutants	Norm of payment for 1 t pollutant (AZN)
1.	Nitric dioxide	328,8
2.	Nitric oxide	268,3
3.	Acrylonitrile	303,6
4.	Aluminum oxide	135
5.	Ammonia	37,1
6.	Ammonia saltpeter	27,2
7.	Maleic anhydride (steam, aerosol)	332,6
8.	Sulfuric anhydride (4-oxide of sulfur)	132
9.	Acetic anhydride	192
10.	Phytal anhydride (steam, aerosol)	235,2
11.	Acetone	17,8
12.	Acetaldehyde (acetic aldehyde)	332,8
13.	ZVK (protein-vitamin concentrate) of protein powder	7736,1
14.	Benzapiren-3, 4	101.10^5
15.	Benzol	105,2
16.	Butadein-1, 3	7,4
17.	Bromine	166,3
18.	Benzyl chloride	1487,2
19.	V-5-oxide	9800
20.	Vinyl acetate	60,7
21.	Vinyl chloride	10516,3
22.	Hydrogen bromide (HB)	277,1
23.	Hydrogen fluoride (HF)	7838,4
24.	Hydrogen chloride (HCL)	124
25.	Hydrogen cyanide (HCN)	2256
26.	Dioksan	281,1
27.	Dimethylamine	1051,6
28.	Dimetil-sulfid	117,6

#	Name of pollutants	Norm of payment for 1 t pollutant (AZN)
29.	Dimethylformamide	135,8
30.	Dioktilftalat	1176
31.	Dichlorethane	23,5
32.	Isoprene	59
33.	Isobutylene	74,4
34.	Caprolactam	96
35.	Nitric acid (nitric acid)	226,3
36.	Silicon-oxide	665,6
37.	Cobalt	13840
38.	Xylene (solvent)	23,5
39.	Ksilidin	1239,4
40.	Manganese and its compounds (manganese-4-per oxide)	5640
41.	Copper (copper oxides, copper score for)	8313,8
42.	Copper (copper sulfate and salts)	10733,1
43.	Inorganic Compounds	12648
44.	Metiletiketon	52,6
45.	Sodium hydroxides	5542,6
46.	Sodium carbonate	783,8
47.	Naphthalene	607,2
48.	V-naphthol	8586,5
49.	Nickel	43800
50.	Tin chloride (calculated according to the castle)	1175,8
51.	Propylene oxide	831,4
52.	Wood powder	157
53.	Lime and gypsum powder production	200
54.	Dust (linen, cotton), sulfanol powder	235,2
55.	4-oxide powders of silicon containing inorganic	235,2
56.	Glass fiber powder	480
57.	Glass, plastics, powder	480

#	Name of pollutants	Norm of payment for 1 t pollutant (AZN)
58.	Production of cement powder	360
59.	Mercury compounds (average for mercury)	179200
60.	Mercury	214663,5
61.	Soot	332
62.	Lead and its compounds, tetra-ethyl lead to another (on the lead)	172000
63.	Hydrogen sulfide	328,8
64.	Carbon-sulfur	1314,5
65.	Turpentine	8,6
66.	Butyl alcohol (butanol)	7,4
67.	Ethyl alcohol	2,4
68.	Styrene	1487,2
69.	Tetrahydrofuran,epixoloqidrin	33,3
70.	Tetrachlorethylene (perhoretilen)	96
71.	Toluon	1,36
72.	4 chlorine carbon	20
73.	Formaldehyde	1920
74.	Furfural	105,2
75.	Chlorine	715,2
76.	Cyclohexane	7
77.	Zinc-oxide	1960
78.	Ethyl chloride	23,5
79.	Cyclohexanone	117,6
80.	Ethylbenzol	525,8
81.	Ethylene oxide	429,3
82.	Ethylene glycol	105,2
83.	Carbon-2-oxide (carbon monoxide)	8
84.	Sulfuric acid	396
85.	Phenol	136

#	Name of pollutants	Norm of payment for 1 t pollutant (AZN)
86.	Acrylic acid	277,1
87.	Pyridine	235,2
88.	Dibutilflatato	1176
89.	Hydrocarbons	1,04

Note: *If name of pollutant is not indicated in the table, then norm of payment of the nearest homological pollutant is used*

Annex 3: Official statistical report form - (2-TG (air-transport)

OFFICIAL STATISTICAL REPORT

(confidentiality of initial information is guaranteed)

Reporting entity:

2-TG (air-transport) form

name _____

address_____

district (city) name and code

_____

village (street) name and code

Approved by decree of Statistical Committee of Azerbaijan Republic N26/5 dated 27 May 2005

Ministry of Ecology and Natural Resources should submit to Statistical Commitee not later than 25 February

Code of the form due to classification of office documentation	Identification code of the entity (statistical) code	TPIN

Comments and suggestions related to form could be send to Statistical Committee of Azerbaijan Republic to the below email:

hesabat@azstat.org

Web page: www.azstat.org

ON EMISSION FROM MOBILE SOURCES (TRANSPORT) TO AMBIENT AIR

for 20 ____year

	Code of the row	Emissions to ambient air from mobile sources, min ton				
		Total	Carbon dioxide	Hydrogen dioxide	Hydro carbones	Specific pollutants
A	B	1	2	3	4	5
By country, including:	01					
Baku	02					
Ganca	03					
Mingachevir	04					
Sumqayıt	05					
Shirvan	06					
Other city and districts	07					

_____ _____

Name of executor, surname, tel. no Name of administrator, signature

“ ___” _____ 20 ____

Explanation on how to fill-in 2-TG (air-transport) N form on “Atmospheric emission”

1. The form is submitted by Ministry of Ecology and Natural Resources to the State Statistical Committee.

2. Report is prepared in considered units of measurement. Emission from mobile source should be provided in thousand tons.

3. Report comprises from 1 chapter and provides information on emission from total country, as well from main cities and districts. Pollutants are calculated by the Ministry of Ecology and Natural Resoruces using specific methodology.

4. In the line 01 it is provided data on total emission in the country.

5. In the rows 02-06 it is provided data on emission in Baku, Ganca,,Mingachevir, Sumqayıt, Shirvan cities and in 07 row in other districts.

6. Sum of 02-07 rows should be equal to number indicated in 01 line.

Annex 4: Official statistical report form – protection of ambient air

OFFICIAL STATISTICAL REPORT

(confidentiality of initial information is guaranteed)

Approved by decree of Statistical Committee of Azerbaijan Republic N17/5 dated 28 June 2011

Reporting entity:

name _____

address_____

district (city) name and code

Code of the form due to classification of office documentation	**Identification code of the entity (statistical) code**	**TPIN**

Ministry of Ecology and Natural Resources should submit to Statistical Commitee not later than 25 February

Comments and suggestions related to form could be send to Statistical Committee of Azerbaijan Republic to the below email:

hesabat@azstat.org

Web page: www.azstat.org

On protection of ambient air

____ _____ 20_____

I chapter. Air pollution, reduction of emission

tons (by precision of one in thousand)

Row code	Code of pollutant	Pollutants	Not cleaned pollutants emission		Total amount of pollutants entered cleaning devices, total	Pollutants entered in cleaning devices have been cleaned		Total emissions, tons		norms of emission	
			Total	including organized pollution sources		Total	from them used	in reporting period	in previous year	maximum allowed limit of pollution	temporarily agreed limit of pollution
A	1	B	2	3	4	5	6	7	8	9	10
101	0001	Total (sum of 102 and 103 rows) including:								X	X
102	0002	solid parts								X	X
103	0004	gases and liquids (sum of 104-109 rows) inluding:								X	X
104	0330	sulfuric anhydride (SO_2)									
105	0337	carbon dioxide (CO)									

106	0301	nitrogen dioxide (NO_2)									
107	0401	hydrocarnones (witout volatile organic compounds)								X	X
108	0006	volatile organic compounds								X	X
109	0005	other gases and liquids								X	X

II chapter. GHG emission

Row code	Code of pollutants	Pollutants	Air pollutants emission		Norms of emission	
			in reporting year	in previous year	maximum allowed limit of pollution	temporarily agreed limit of pollution
A	1	B	2	3	4	5
201		Carbone (CO_2)				
202		Nitrogen 1 dioxide (N_2O)				
203		Methane (CH_4)				
204		HFK				
205		SF_6				

206		PFK				
207						

III Chapter. Other specific pollutants [x)]

Row code	Code of pollutants	Pollutants	Air pollutant emission		Norms of emission	
			in reporting year	in previous year	maximum allowed limit of pollution	temporarily agreed limit of pollution
A	1	B	2	3	4	5
301	0703	Benz(a)piren				
302	0322	Sulfuric acid (by H_2SO_4 molecules)				
303						
304						
305						
306						
307						

[x)] **Note:** all substances of air pollutants are provided in the table despite of sulfuric anhydride, carbone and hydrogen dioxide

Chapter IV. Sources of atmospheric emissions

Row code	Name of indigator	Number of sources of pollution, in numbers (by the end of the year)		Allowed pollution limit of the pollutant, tons	Actual emission of pollutant to the ambient air, tons
		Total	as well organized sources		
A	1	2	3	4	5
401	Total:				
402	including: allowed limit of pollution				
403	temporarily agreed limit of pollution				

Chapter V. # of gas and dust cleaning devices

Row code		#
A	B	1
501	Total	
502	as well put in use in reported period	

Chapter VI. Implementing measures for reduction of atmospheric pollutants

Row code	Name of industrial production and technology	Measures considered to be implemented in reporting period			Actual costs since implementation of the mesure, AZN	Total reduction in emission after implementation of the measure, ton x)	
		Name	Group	evaluation of performance (implemented – "1", not implemented-"0")		expected	actual
A	B	C	1	2	3	4	5
601							
602							
603							
604							
605							
607							
608							

x) Put **"-"** before numbers Time spent for preparation of the report: _____ man/hour

Agreed with local department of the Ministry of Ecology and Natural Resoruces

_____ _____

Surname, position, tel no of executor Surname of director, signature ı

___" _____ 20_____

Annex 5: Information on atmospheric emission from transport

İnformation on atmospheric emission from transport

Transportation means of the plant	Number, thousands	Total distance of drive, annual mln. km	Average annual emission per vechile g/km			Annual emissions, thousand t			
			CO	NO_x	Hydrocarbons	Total	including		
							CO	NO_x	Hydrocarbons
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Trucks and special trucks by internal combustion engine:			-	-	-				
gasoline			55,5	6,8	12,0				
diesel			15,0	8,5	6,4				
Buses:			-	-	-				
gasoline			51,5	6,4	9,6				
diesel			15,0	8,5	6,4				
Service light and special			16,5	2,19	1,6				
Others			16,5	2,19	1,6				
Total:			-	-	-				