Informative Inventory Report (IIR) Azerbaijan 2017

Submitted under the Convention on Long-range Transboundary Air Pollution (LRTAP)

MARCH 2017

THE MINISTRY OF ECOLOGY AND NATURAL RESOURCES

INFORMATIVE INVENTORY REPORT AZERBAIJAN 2017

The Ministry of Ecology and Natural Resources
Telephone: +994 12 538-85-13 Telefax: +99412 492-59-07
Address: Baku, B.Aghayev 100A; Index: Az1073
Email: ecologiya.nazirliyi@eco.gov.az
www.eco.gov.az

ACRONYMS

MENR - Ministry of Ecology and Natural Resources

MH – Ministry of Health

MTCT - Ministry of Transport, Communications and Technology

MES – Ministry of Emergency Situations

SCPI – State Committee on Property Issues

MA – Ministry of Agriculture

AAWF JSC – Azerbaijan Amelioration and Water Farm Joint Stock Company

SOCAR – State Oil Company of Azerbaijan Republic

MEc – Ministry of Economics

ME – Ministry of Energy

EMEP - The European Monitoring and Evaluation Programme

EEA - European Economic Area

IPCC - Intergovernmental Panel on Climate Change

CLRTAP - Convention on Long-Range Transboundary Air Pollution

CO - Carbon monoxide

IIR - Informative Inventory Report

NFR - Nomenclature for reporting (IPCC code of categories)

NH3 - Ammonia

NMVOC - Non-methane volatile organic compounds

NOx - Nitrogen oxides

PAH - polycyclic aromatic hydrocarbons; comprises Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene and Indeno(1,2,3-cd)pyrene

PCDDs - Polychlorinated Dibenzo-p-dioxins

PCDFs - Dibenzofurans

PM10 - particulate matter; particles on the order of ~10 micrometers or less

PM2.5 - particulate matter; particles on the order of ~ 2.5 micrometers or less

POPs - persistent organic pollutants

QA/QC - Quality assurance/quality control:

SOx - Sulfur oxide

UNECE - United Nations Economic Commission for Europe

Content

Executive Summary 4
1 National circumstances 6
1.1 Geographical position and physical/geographical characteristics 6
1.2 Population ..... **Ошибка! Закладка не определена.**
1.3 Political profile ..... **Ошибка! Закладка не определена.**
1.4 Economic profile ..... **Ошибка! Закладка не определена.**
2. Inter-institutional cooperation..... **Ошибка! Закладка не определена.**
3. Air quality monitoring 9
4. National Inventory Background 10
5. Institutional Arrangements 11
6. Inventory preparation process..... 12
7. Methods and data sources..... 12
8. Key categories 12
Level assessment..... 13
Trend assessment..... 14
9. QA/QC and verification methods..... 16
10. General assessment of completeness..... 16
List of notation keys..... 16
Sources not estimated..... 17
Sources included elsewhere..... 19
11. Explanation of key trends..... 19
12. Energy (NFR sector 1) 22
ENERGY industries (1A1) 22
Manufacturing industries and construction (1A 2) 23
Small combustion (1A4) 24
Fugitive emissions from fuel (1B) 25
13. Industrial processes and product use sector 26
Mineral products (2.A) 26
Chemical industries (2.B) 26
Metal Production (2.C)..... 27
Other (2.D - 2.L) 28
14. Agriculture (NFR sector 3) 29
Manure management (3B) 29
15. Waste (NFR sector 5) 29
Waste incineration (5C) 29
16. Improvements..... 30
Planned improvements 30
17. IIR References..... 31

Executive Summary

The current report is the descriptive report that accompanies the Azerbaijan emission inventory of air pollutants submitted on 15 February 2017 under the Convention on Long-Range Transboundary Air Pollution (CLRTAP) of the United Nations Economic Commission for Europe (UNECE).

The IIR provides background information on institutional arrangements for inventory preparation, methodologies, data sources, emission factors used, QA/QC activities, key source analyses, trend analyses and improvement plans. Furthermore, for each sector, more detail information is given on the methodologies and assumptions made for calculations of emissions. The report has been prepared by the inventory group which consists of the experts from the MENR. The report includes emission data for 1990-2015 which cover national total emissions and NFR sector emissions.

The emission data presented in this report were compiled according to the recommendations of the Guidelines for Estimating and Reporting Emission Data under CLRTAP (ECE/EB.AIR/97) revised in 2014 (ECE/EB.AIR/125). For the reporting, the new NFR14 templates provided by the EMEP Centre on Emission Inventories and Projections were used. The submission of 15 February 2017 contains emissions from 1990-2015. The 2017 submission includes the main pollutants (NOx, SOx, NMVOC, NH3, CO), particulate matter (PM2,5, PM10 and TSP), heavy metals (Pb, Cd, Hg, As, Cr, Cu, Ni, Se, Zn) and persistent organic pollutants (POPs – PCDD/PCDF, PAHs, HCB, PCB) in the following sectors: Energy, Industrial processes and Product use, Agriculture and Waste. Azerbaijan reported also the black carbon emissions.

The emissions, distinguished on categories, show the following trends:

Figure 1.1 Trends of main pollutants

Figure 1.2 Trends of particulate matters

Figure 1.3 Trends of priority heavy metals

Figure 1.4 Trends of POPs

1 National circumstances

1.1 Geographical position and physical/geographical characteristics

The area of Azerbaijan extends nearly 400 kilometers to South, from West to East roughly 500 kilometers, lies between latitudes 38°25' - 41°55', and 44°50' - 50°51' East longitudes.
Azerbaijan is located at crossroads of Europe and Asia; having unique geopolitical and geographical position. Azerbaijan has been maintaining its importance and role at international economic and cultural relations since very ancient times up to our days.

The Republic of Azerbaijan has a total area of 86.6 thousand km2 and is situated in the Southern Caucasus, being the biggest country in the region. Mountains dominate the northern, southern, and western regions of Azerbaijan, covering roughly 43% of the country, and flatlands run throughout the center of the country, accounting for the other 57% of Azerbaijan's land area. Forests make up 11.8% of the total land area.
Climate: The geographical position, landscape, and the Caspian Sea have influence on the climate of Azerbaijan. There are semi-desert and dry steppe climate with cold winter and dry hot summer. 9 out of 11 existing climate zones (according to V.V. Keppen) are present in Azerbaijan.
Land cover: The relief and climate play an important role in the formation of land cover of Azerbaijan. Due to the influence of these factors, soil on the territory of the Republic of Azerbaijan is located in the vertical zones.

1.2 Population

The population of the Republic of Azerbaijan is 981, 0000, according to statistics for the beginning of 2017.
The densest population rate is in the Absheron peninsula and the sparsest population is in the middle mountainous areas and in the highlands. The birth rate has always been high since ancient times. The number is 40-50 persons per one thousand. However, this rate dropped up to eight persons per each thousand persons, due to the transitional period in the early times of independence.

1.3 Political profile

After the Azerbaijan Republic proclaimed its independence on the 18th October 1991, the presidential form of state governance has been established with the government divided into executive, legislative and judicial powers.
Azerbaijan was acknowledged by the world community as an independent state and joined the United Nations Organization and OSCE in 1992. It has been a member of the European Council since 2001.
The Constitution of the Republic of Azerbaijan was adopted through a referendum held on 12 November 1995 and amended on 24 August 2002 and 18 March 2009, and 26 September 2016 through a similar process. According to the Constitution, State power in Azerbaijan is divided into three branches: legislative, executive, and judicial.
Administratively, Azerbaijan contains one autonomous region – the Nakhchivan Autonomous Republic - and 66 districts. Azerbaijan has 78 cities, the largest of which is Baku, the capital, 13 district cities, 262 settlements and 4,255 rural settlements.

1.4 Economic profile

The years following the independence in 1991 were marked by a radical change in the country's politics, economy, and society. On top of the challenges of such transformation, Azerbaijan faced an aggression of Armenia, resulting in the occupation of about 20 percent of the country's territory and the displacement of more than 1 million people, or 13 percent of the population.
The territory of the Republic of Azerbaijan enjoys favorable climate conditions and rich natural resources. The economy of Azerbaijan is mainly comprised of oil and gas extraction and refining, chemical and petrochemical, metallurgical, mechanical engineering, textile and food industries and wheat, cotton, wine, fruit, tobacco, tea, vegetable growing, and cattle breeding.
Since 1995, Azerbaijan has started to implement market-oriented reform policies for the transition from planned to a free market economy.
Azerbaijan's economy showed clear signs of improvement as the result of petroleum exploration contracts with major international oil companies, known as the "Contract of the Century" and the adoption of economic reform packages by the State, implemented in partnership with national and international organizations. Subsequent years showed stable economic performance and, in 2005, the economic growth more than doubled compared to the previous year's performance.
The creation of the State Oil Fund of the Azerbaijan Republic (SOCAR) to manage its oil and gas revenues and serve as a tool for developing and strengthening the non-oil sector, the regions, and small and medium-sized enterprises (SMEs).
Agriculture is the strategic sector for Azerbaijan and a key component of its non-oil economy. Although 40% of the population of Azerbaijan lives in rural areas, agricultural production accounts only for 9% of total GDP, at the same time providing income and employment for

about 40% of the total workforce (employed and self-employed).
Agriculture is one of the traditional economic activities in Azerbaijan. Historically, vine growing, silkworm breeding, and fruit-growing activities have been widely spread in the country. As the most part of the country is mountainous areas, cattle breeding have an important role in income-generating activities of the local population.

2. Inter-institutional cooperation

Throughout the 26-years period of its independence, Azerbaijan has constantly been improving its environmental protection system, including institutional and legislative framework. With the adaptation of more than 40 environmental laws, the country has implemented a strategy of harmonization of the laws with international standards and approximation to relevant EU directives.
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 waste and water management. However, this situation has changed recently and the government pays particular attention to measures for improvement of air quality (e.g. introduction of modern technologies at production units with less emission, etc.).
Following structural reforms within the country, the State Committee on Hydrometeorology, the State Committee of Ecology and Control on the Use of Nature and the "Azermeshe" Production Union were merged and became part of the Ministry of Ecology and Natural Resources under the Decree of the President of Republic of Azerbaijan as of May 23, 2001. Environmental management, including monitoring of the quality of ambient air, precipitation, soil, surface and groundwater, biological resources, biodiversity, forests, radioactive pollution of the environment, as well as issues related to climate change, waste management, assessment and forecast of environmental processes under anthropogenic impact, creation of database on the state of the environment, as well as data flow is performed by the Ministry of Ecology and Natural Resources (MENR – www.eco.gov.az).
In addition to MENR, a number of other ministries and agencies in the country perform the environmental activity, having departments on environmental protection and coordinating their activity with MENR.
Other Government agencies play an important indirect role, including the Ministry of Agriculture, the Ministry of Economy and Industry, the Ministry of Education, the Ministry of Energy, the Ministry of Health, the Ministry of Justice, and the Ministry of Transport (table 1). Within the Cabinet of Ministers, a separate section on the environment has been recently established, whereas before there was the Section on Environment and Agriculture. Municipalities are responsible for water supply and sanitation activities and land use decisions within the geographical areas of their jurisdiction.

The institutional distribution of responsibilities is summarized in table 1:

Table 1: State ministries or agencies with environmental responsibilities

Sector	State ministries or agencies with environmental responsibilities
Air protection	MENR, MH, MTCT, MES
Biodiversity, Forestry, Fisheries	MENR
Land and Soils	MENR, SCPI, MA
Water	MES, MENR, Azersu Joint Stock Company, MH, AAWF JSC, MA
Oil pollution	SOCAR, MENR, MES
Hazardous waste	MES, MENR, MH
Waste	MEc ,MENR, Executive powers and municipalities
Mineral resources	MENR MEI
Climate change	MENR, MEI, ME

2. Air quality monitoring

Monitoring of pollution of ambient air in Azerbaijan is conducted by the National Environmental Monitoring Department 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 decision No.90 of the Cabinet of Ministers of the Republic of Azerbaijan of 1 July, 2004.

There are three categories of observation and control stations which determine the concentration of sulfur dioxide, carbon monoxide, nitrogen dioxide, dust, phenol, and other noxious substances. Observations on the pollution of ambient air are carried out at stationary and mobile stations. Stationary and mobile stations are to be established, taking into account the area, landscape, industrial development, mobile pollution sources, and a number of population of each city (settlement) as follows:

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, Nakhchivan, Ganja, Mingachevir, Shirvan, Lankaran, Sheki), covering basic polluting ingredients (dust, sulfur dioxide, nitrogen dioxide, and carbon monoxide), and specific harmful substances corresponding to the industrial profile of each city. The number of stations is compliant with the above-mentioned criteria, except for Baku city, where there are fewer stations than it would be necessary.

Information on atmospheric pollution and radiation is being published in daily bulletins placed on the website of the MENR, as well as distributed to various State organizations and mass media.

Main networks of air monitoring in Azerbaijan

3. National Inventory Background

The economy is driven mainly by oil and gas production, chemicals and petrochemicals, metallurgy, mechanical engineering, textiles and food industry. The agricultural sector consists mostly of wheat, cotton, wine, fruit, tobacco, tea, vegetables and cattle breeding. The chief exports are oil and oil products, electrical energy, cotton and silk fibers, and wine. Electrical energy has been significant in the development of the country's economy. The network is comprised of thermo- and hydroelectric stations. Thermal Electric Stations operate on fuel oil and gas. The main products of the chemical industry are sulfuric acids, superphosphate fertilizers, sodium hydroxide, chlorine, aluminum chloride, sulphanol, synthetic detergents, and bromide. As in other countries, environment protection and natural resources issues have come to the fore in recent years. With a view to enhancing environment protection, many important laws and regulations have been passed since 1997 in concert with European legislation. Progress on many domestic environmental challenges has been slow in the country's transition era. Therefore, priority has been given to the development of international, regional and intergovernmental bilateral cooperation.

The Republic of Azerbaijan has ratified the Convention on Long-Range Transboundary Air Pollution in 2002. According to Article 8 of the Convention, Contracting Parties, within the framework of the Executive Body referred to in article 10 and bilaterally, shall, in their common interests, exchange available information on data on emissions, air pollutants, changes in national policies and many others. Azerbaijan calculated emission inventories for air pollutants and source categories included in NFR tables (*full-time series of emissions* Annex I). The following pollutants and sectors are covered:

Table 2 Covered sectors and pollutants

Sector	Pollutant				
Energy	NOx	PM2.5	CO	As	Se
Industrial Processes and product use	NMVOC	PM10	Pb	Cr	Zn
Agriculture	NH3	TSP	Cd	Cu	PCDD/PCDF
Waste	Sox	BC	Hg	Ni	HCB
	Benzo (a) pyrene		Benzo(f)fluoranthene		PCBs
	Indeno(1,2,3cd) pyrene		Benzo(k)fluoranthene		

Starting from 2015 Azerbaijan submits national inventory data to UNECE and is planning to contribute in following years.

4. Institutional Arrangements

In Azerbaijan, the Ministry of Ecology and Natural Resources (MENR) is responsible for preparation and reporting of emission inventory data to UNECE.

The Working group carries out the emission calculations based on emission factors given from the EMEP/EEA Guidebook – 2016 and using data from the State Statistical Committee. Quality check/control is also carried out by the working group.

The responsibilities for preparing the inventory are shown in the following figure:

Figure: 1.5 Organizational chart

5. Inventory preparation process

As the first step of inventory preparation, MENR uses the web-database of the State Statistical Committee. Experts of MENR have used emission factors from the EMEP/EEA Guidebook – 2016 for calculation of air pollution emissions in all sectors.

Activity data and emission factors have been stored in Excel files.

6. Methods and data sources

Emissions were calculated using emission factors from the EMEP/EEA Guidebook - 2016 for all sectors. Tier 1 approach method was used for all NFR sectors. 2010-2015 years cover even more categories on emissions which mean more information available if compared with recent years and these years are more comparable for Azerbaijan. But due to lack of statistical data previous years cover less data than 2010-2015. It should be inappropriate compare previous years with 2010-2015 years, taking into account the above. In each submission, Azerbaijan intends to enhance reported data and cover as many sectors as possible, and tries through recalculations to improve data of previous years.

7. Key categories

According to EMEP/EEA emission inventory guidebook – 2016 a key category is one that is prioritized within the national inventory system because it is significantly important for one or a number of air pollutants in a country's national inventory of air pollutants in terms of the absolute level, the trend, or the uncertainty in emissions.

Key category analysis is good practice for each country to identify its national key categories in a systematic and objective manner. This can be achieved by a quantitative analysis of the relationship between the magnitude of emission in any one year (level) and the change in emission year to year (trend) of each category's emissions compared to the total national emissions. It is also good practice to focus the available resources for improvement in data and methods on categories identified as key.

Azerbaijan used approach 1 for analysing key categories for both level and trend assessment. Approach 1 identifies key categories in terms of their contribution to the absolute level of national emissions and to the trend of emissions. In Approach 1, key categories have been identified using a predetermined cumulative emissions threshold. Key categories are those which, when summed together in descending order of magnitude, cumulatively add up to 80 % of the total level.

Level assessment

The contribution of each source category to the total national inventory level is calculated according to equation (1):

Key category level assessment = source category estimate/ total contribution

$L_{x,t} = E_{x,t} / \sum E_t = (1)$

Where:

$L_{x,t}$ = level assessment for source x in latest inventory year (year t)

$E_{x,t}$= value of emission estimate of source category x in year t

$\sum E_t$= total contribution, which is the sum of the emissions in year t, calculated using the aggregation level chosen by the country for key category analysis

Table 3-1 Level assessment of key categories for NOx in 2015

A	B	C	D	E	F
NFR category code	NFR category	Pollutant	Last year estimate E_x t	Level Assessment L_x t	Cumulative total of column E
1A3biii	Road transport: Heavy duty vehicles and buses	NOx	24540.298	0.284	0.284
1A1a	Public electricity and heat production	NOx	21955.0141	0.254	0.538
1A3bi	Road transport: passenger cars	NOx	11537.897	0.134	0.672
1A4cii	Agriculture/Forestry/Fishing: Off-road vehicles and other machinery	NOx	9677.7407	0.112	0.784
1A4bi	Residential: Stationary	NOx	5689.5133	0.066	0.85

Table 3-2 Level assessment of key categories for NMVOC in 2015

A	B	C	D	E	F
NFR category code	NFR category	Pollutant	Last year estimate E_x t	Level Assessment L_x t	Cumulative total of column E
3B1a	Manure management – dairy cattle	NMVOC	15325.3632	0.150	0.150
1A3bi	Road transport: Passenger cars	NMVOC	13201.049	0.129	0.279
2D3a	Domestic solvent use including fungicides	NMVOC	11511.6	0.113	0.392
2H2	Food and beverages industry	NMVOC	10111.13789	0.099	0.491
3B4giv	Manure management: other poultry	NMVOC	9434.5059	0.093	0.584
1B2ai	Fugitive emissions oil: Exploration, production, transport	NMVOC	8325.66	0.082	0.666
5C1bi	Industrial waste incineration	NMVOC	5706.88	0.056	0.722
2D3g	Chemical products	NMVOC	3457	0.034	0.756
1A4cii	Agriculture/Forestry/Fishing: Off-road vehicles and other machinery	NMVOC	3304.9528	0.032	0.788
1A3bv	Road transport: Gasoline evaporation	NMVOC	3221.357797	0.032	0.82

Table 3-3 Level assessment of key categories for NH_3 in 2015

A	B	C	D	E	F
NFR category code	NFR category	Pollutant	Last year estimate E_x t	Level Assessment L_x t	Cumulative total of column E
3B1a	Manure management – dairy cattle	NH_3	40106.4	0.539	0.539
3B4giv	Manure management: other poultry	NH_3	17743.7955	0.238	0.777
3B2	Manure management – sheep	NH_3	11182.22	0.150	0.927

Table 3-4 Level assessment of key categories for CO in 2015

A	B	C	D	E	F
NFR category code	NFR category	Pollutant	Last year estimate E_x t	Level Assessment L_x t	Cumulative total of column E
1A3bi	Road transport: Passenger cars	CO	110618.2	0.634	0.634
1A4cii	Agriculture/Forestry/Fishing: Off-road vehicles and other machinery	CO	34638.1464	0.199	0.833
1A4bi	Residential: Stationary	CO	11080.6757	0.064	0.897
1A1a	Public electricity and heat production	CO	8832.36824	0.051	0.948

Trend assessment

The purpose of the trend assessment is to identify categories that may not be large enough to be identified by the level assessment, but whose trend is significantly different from the trend of the overall inventory, and should therefore receive particular attention.

The trend of a category refers to the change in the source category emissions over time; it is computed by subtracting the base year, or the starting year (year 0), estimate for source category x from the latest inventory year (year t) estimate and dividing by the value of the base year estimate. The total trend refers to the change in the total inventory emissions over time, computed by subtracting the year 0 estimate for the total inventory from the latest year (year t) estimate and dividing by the value of the year 0 estimate.

Table 3-5 Trend assessment of key categories for NOx in 2015

A	B	C	D	E	F	G	H
NFR category code	NFR category	Pollutant	Ex,0 (KT)*	Ex,t(KT)	Trend assessment Tx, t	% Contribution to trend	Cumulative total of column G
1A3biii	Road transport: Heavy duty vehicles and buses	NOx	14.969782	24.540298	0.081702526	0.333320878	0.333320878
1A1a	Public electricity and heat production	NOx	14.7097052	21.9550141	0.040855843	0.166679122	0.5
1A3bi	Road transport: passenger cars	NOx	9.175293	11.537897	0.013902529	0.056717991	0.556717991
1A4cii	Agriculture/Forestry/Fishing: Off-road vehicles and other machinery	NOx	9.9227844	9.6777407	0.066172004	0.269961181	0.826679172

1A4bi	Residential: Stationary	NOx	5.9798774	5.6895133	0.042483836	0.173320828	1

Table 3-6 Trend assessment of key categories for NMVOC in 2015

A	B	C	D	E	F	G	H
NFR category code	NFR category	Pollutant	$E_{x,0}$ (KT)	$E_{x,t}$(KT)	Trend assessment $T_{x,t}$	% Contribution to trend	Cumulative total of column G
3B1a	Manure management – dairy cattle	NMVOC	14.492576	15.3253632	0.0246406	0.0783946	0.0783946
1A3bi	Road transport: Passenger cars	NMVOC	10.947846	13.201049	0.0360873	0.1148122	0.1932067
2D3a	Domestic solvent use including fungicides	NMVOC	24.29352	11.5116	0.111233	0.3538895	0.5470962
2H2	Food and beverages industry	NMVOC	9.17583363	10.11113789	0.0199909	0.0636015	0.6106977
3B4giv	Manure management: other poultry	NMVOC	7.2076032	9.4345059	0.0317574	0.1010366	0.7117343
1B2ai	Fugitive emissions oil: Exploration, production, transport	NMVOC	10.16764	8.32566	0.0088162	0.028049	0.7397833
5C1bi	Industrial waste incineration	NMVOC	3.5224	5.70688	0.027314	0.086899	0.826682
2D3g	Chemical products	NMVOC	2.228	3.457	0.015633	0.049737	0.87642
1A4cii	Agriculture/Forestry/Fishing: Off-road vehicles and other machinery	NMVOC	3.4952243	3.3049528	0.001735	0.005519	0.881938
1A3bv	Road transport: Gasoline evaporation	NMVOC	7.4163334205	3.221357797	0.037109	0.118062	1

Table 4-7 Trend assessment of key categories for NH3 in 2015

A	B	C	D	E	F	G	H
NFR category code	NFR category	Pollutant	$E_{x,0}$ (KT)	$E_{x,t}$(KT)	Trend assessment $T_{x,t}$	% Contribution to trend	Cumulative total of column G
3B1a	Manure management - Dairy cattle	NH3	37.927	40.1064	0.030849942	0.352968488	0.352968488
3B4giv	Manure management - Other poultry	NH3	13.555584	17.7437955	0.043700702	0.5	0.852968488
3B2	Manure management – Sheep	NH3	10.81346	11.18222	0.012850761	0.147031512	1

Table 4-8 Trend assessment of key categories for CO in 2015

A	B	C	D	E	F	G	H
NFR category code	NFR category	Pollutant	$E_{x,0}$ (KT)	$E_{x,t}$(KT)	Trend assessment $T_{x,t}$	% Contribution to trend	Cumulative total of column G
1A3bi	Road transport: Passenger cars	CO	87.8339	110.6182	0.07342902	0.438166748	0.438166748
1A4cii	Agriculture/Forestry/Fishing: Off-road vehicles and other machinery	CO	35.7494941	34.6381464	0.041668551	0.248645198	0.686811946
1A4bi	Residential: Stationary	CO	15.107963	11.0806757	0.042122632	0.251354802	0.938166748
1A1a	Public electricity and heat production	CO	6.43939335	8.83236824	0.010362163	0.061833252	1

*- 2010 have been considered as a base year.

8. QA/QC and verification methods

Quality management system has been established in order to ensure completeness, exactness, and transparency of submitted data. Each calculation was checked and reviewed by the inventory group.

9. General assessment of completeness

List of notation keys

Notation keys are listed below (as defined in the UNFCCC reporting guidelines (ECE/EB.AIR/125):

(a) “NE” (not estimated), for activity data and/or emissions by sources of pollutants which have not been estimated but for which a corresponding activity may occur within a Party.
(b) “IE” (included elsewhere), for emissions by sources of pollutants estimated but included elsewhere in the inventory instead of under the expected source category.
(c) “C” (confidential information), for emissions by sources of pollutants of which the reporting could lead to the disclosure of confidential information. The source category where these emissions are included should be indicated;
(d) “NA” (not applicable), for activities under a given source category that do occur within the Party but do not result in emissions of a specific pollutant. If the cells for categories in the NFR tables for which NA is applicable are shaded, they do not need to be filled in;
(e) “NO” (not occurring), for categories or processes within a particular source category that do not occur within a Party;
(f) “NR” (not relevant). According to paragraph 37 in the Guidelines, emission inventory reporting for the main pollutants should cover all years from 1990 onwards if data are available. However, NR is introduced to ease the reporting where reporting of emissions is not strictly required by the different protocols, e.g., emissions for some Parties prior to agreed base years.

Sources not estimated

List of important sectors with “NE” and short justification why these sectors have not been estimated.

Table 4-1 Explanation of not estimated categories

NFR code	Pollutants	Reason for not estimated
1A1a	NH3, HCB, PCBs	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2016)
1A1b	All	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2016)
1A1c	All	Emission occur, but have not been estimated due to lack of statistic data
1A2a	NH3, HCB, PCBs	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2016)
1A2b	NH3, HCB, PCBs	
1A2c	NH3	
1A2d	NH3, HCB, PCBs	
1A2e	NH3	
1A2f	NH3, HCB, PCBs	
1A2gviii	NH3	
1A3ai(i)	All	Emission occur, but have not been estimated due to lack of statistic data
1A3aii(i)	All	
1A3bi	NH3	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2016)
1A3bii	NOx, NMVOC, Sox, NH3, PM2.5, CO, Pb, PAHs	Emission occur, but have not been estimated due to lack of statistic data
1A3biii	NH3	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2016)
1A3biv	NOx, NMVOC, Sox, NH3, PM2.5, CO, Pb, PAHs	Emission occur, but have not been estimated due to lack of statistic data
1A3bv	POPs	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2016)
1A3bvi	PM2.5, PM10, TSP, HCB	Emission occur, but have not been estimated due to lack of statistic data
1A3bvii	PM2.5, PM10, TSP, HCB	
1A3c	Sox, Pb, Hg, As, PCDD/PCDF, benzo(k) fluoranthene, indeno (1,2,3-cd) pyrene	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2013)
1A3di(ii)	NH3, BC, PAHs	
1A3dii	NH3, BC, PAHs	
1A4aii	NH3, Pb,Hg,As, PCDD/PCDF, benzo(k) fluoranthene, indeno (1,2,3-cd) pyrene, HCB, PCBs	
1A4bii	NH3, Pb,Hg,As, PCDD/PCDF, benzo(k) fluoranthene, indeno (1,2,3-cd) pyrene, HCB, PCBs	
1A4cii	NH3, Pb,Hg,As, PCDD/PCDF, benzo(k) fluoranthene, indeno (1,2,3-cd) pyrene, HCB, PCBs	
1A4ciii	All	Emission occur, but have not been estimated due to lack of statistic data
1A5b	All	

1B2ai	Sox, PCDD/PCDF	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2016)
1B2aiv	BC, PAHs, HCB, PCBs	
1B2av	Sox, PCDD/PCDF	
1B2b	Sox, PCDD/PCDF	
1B2c	All	Emission occur, but have not been estimated due to lack of statistic data
1B2d	All	
2A1	NOx, NMVOC, Sox, NH3, CO, Heavy metals, POPs	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2016)
2A2	NOx, NMVOC, Sox, CO, Pb, Cd, Hg,	
2A3	NOx, NMVOC, Sox, NH3, CO,POPs	
2A5b	NMVOC, PM2.5, PM10, TSP	Emission occur, but have not been estimated due to lack of statistic data
2A5c	PM2.5, PM10, TSP	
2B1	NOx, NMVOC, Sox, NH3, PM2.5, CO	
2B2	NOx, NH3, PM2.5	
2B3	NOx, PM2.5, CO	
2B5	NOx, NMVOC, Sox, PM2.5, PM10, TSP, CO, heavy metals, PCDD/PCDF, PAHs	
2B7	PM2.5, PM10	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2016)
2B10a	NOx, Sox, NH3, PM2.5, PM10, BC, CO, Heavy Metals, POPs	
2C1	NOx, Sox, NH3, CO, PAHs	
2C2	NOx, NMVOC, Sox, NH3, CO, heavy metals, POPs	
2C3	NMVOC, NH3, heavy metals, HCB	
2C5	All	Emission occur, but have not been estimated due to lack of statistic data
2C6	All	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2016)
2C7a	All	
2C7b	All	Emission occur, but have not been estimated due to lack of statistic data
2C7d	All	
2D3a	PM2.5	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2013)
2D3b	NOx,, Sox, CO, PCDD/PCDF/, PAHs, HCB	
2D3c	NOx, NMVOC, particulate matter, CO, Pb, Cd, Hg, PCDD/PCDF/ PAHs, HCB	Emission occur, but have not been estimated due to lack of statistic data
2D3d	NMVOC	
2D3e	NMVOC, PM2.5	
2D3f	NMVOC, PM2.5	
2D3g	PM2.5	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2016)
2D3h	NMVOC, PM2.5	Emission occur, but have not been estimated due to lack of statistic data
2D3i	All	Emission occur, but have not been estimated due to lack of statistic data
2G	NOx, Sox, NH3, particulate matter, CO, heavy metals, POPs	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2016)
2H1	NH3, PAHs, HCB	
2H2	PM2.5, PM10, TSP	
2I	NOx, NMVOC, Sox, NH3, PM2.5, PM10, As, Cu	
2J	NOx, NMVOC, Sox, NH3, PM2.5, PM10, TSP, HCB, PCBs	Emission occur, but have not been estimated due to lack of statistic data
2K	Heavy metals, HCB, PCBs	
3B4gii	NOx, NMVOC, NH3, PM2.5, PM10, TSP	
3Da1	TSP	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2016)

3De	NMVOC, NH3	Emission occur, but have not been estimated due to lack of statistic data
3Df	HCB	
3F	All	
5A	NMVOC, NH3, PM2.5, PM10, TSP, CO, Hg	
5B1	Main pollutants, particulate matter, CO	
5C1a	All	Emission occur, but have not been estimated due to lack of statistic data
5C1bi	NH3, Cr, Cu, Se, Zn, PAHs, PCBs	Emission occur, but have not been estimated due to lack of emission factors in methodology (EMEP-EEA air pollutant emission inventory guidebook – 2016)
5C1bii	NH3, Cr, Cu, Se, Zn, PAHs, PCBs	
5C1biii	NH3, PM2.5, PM10, Se, Zn, PAHs	
5C1biv	All	Emission occur, but have not been estimated due to lack of statistic data
5C2	All	
5D1	NMVOC, PM2.5, PM10, TSP, heavy metals	
5D2	NMVOC, PM2.5, PM10, TSP, heavy metals	
5E	All	
1A3ai(ii)	All	
1A3aii(ii)	All	
1A3di(i)	All	
11A	All	
11B	All	
11C	All	

Sources included elsewhere

List of important categories with “IE” and short explanation are provided below:

Table 1.7-2 categories with IE

NFR code	Pollutants	Where included
3B1b	NOx, NMVOC, NH3, PM2.5, PM10, TSP	3B1a
3B4gi	NOx, NMVOC, NH3, PM2.5, PM10, TSP	3B4giv
3B4gii	NOx, NMVOC, NH3, PM2.5, PM10, TSP	3B4giv

The 3B1b (non-dairy cattle) category was reported under 3B1a (dairy cattle) category, because of currently available statistical data, only is about the total number of cattle, separated information is not available. The categories 3B4gi and 3B4gii were reported under 3B4giv (other poultry). Currently available statistical data is only about the total number of birds (duck, hens, goose, and turkey) which also includes 3B4gi and 3B4gii categories.

10. Explanation of key trends

Azerbaijan is a country rich in natural resources and developed industry. Azerbaijan has found success in social and economic development in recent times. Ensuring sustainability in these achievements has been adopted by the state as a top priority. The environmental strategy of the country is aimed at the protection of natural resources at national, regional and international levels by strengthening coordination of actions, the application of scientifically-grounded development principles, and ensuring the sustainable use of resources to meet the needs of the present and future generations. Ensuring environmental sustainability of development requires

the elimination and restriction of serious problems arising from industrial activities. As socio-economic processes develop rapidly, new methodologies and principles are emerging in the environmental policy realm.

As most energy in Azerbaijan is generated from burning hydrocarbons, a reduction in emissions might be possible through gains in efficiency, energy saving, the transfer from liquid fuel to gas and the use of alternative energy sources. The country also depends on natural gas, fuel oil, and water resources. The amount of emissions from the production of lime, sodium, metal, steel and aluminum is still low. However, as a result of development in these areas, the level of carbon gas emissions will likely increase. Since the metallurgy, petrochemical, and chemical industries are still in crisis, no increase in their emissions is expected in the immediate future.

Around the world, the highest priority is given to alternative energy sources as a solution to energy insecurity, environment pollution, climate change and other problems. Cleaner production and burning processes can be employed to reduce emissions.

Wastes have always posed a critical environmental problem. On-going economic development, urbanization, and population growth have exacerbated the situation. According to estimates, the amount of wastes will reach 13 million tons in 2025. At present, there are 200 landfills in Azerbaijan. About 1.5 million tons of municipal waste is generated per annum, 50% of which comes from Baku and its environs. A number of waste management improvement projects are being implemented.

Figure 2-1 Sectoral relative trends of NOx in 2010-2015

	2010	2011	2012	2013	2014	2015
Waste	0.46512925	0.53029777	0.67817914	0.96353931	0.9988169	0.8546593
Industry	0.021561	0.0497934	0.0826373	0.0753674	0.0682383	0.017304
Energy	72.3403156	79.0425218	85.2034013	91.5957748	93.0182686	85.306738
Agriculture	1.068939192	0.649302926	0.78398744	0.848172718	0.946809546	0.234327104

Figure 2-2 Sectoral relative trends of NMVOC in 2010-2015

	2010	2011	2012	2013	2014	2015
Waste	3.95462125	4.50888293	5.76687726	5.00084662	4.5062963	7.2676107
Industry	36.99420063	38.62644627	38.60840274	39.64525927	40.73144834	27.31164559
Energy	40.52808174	42.00286998	43.97208747	45.69610758	40.75671688	39.1061829
Agriculture	26.60514849	26.96427859	27.41431841	28.16905433	28.48988074	28.29145125

Figure 2-3 Sectoral relative trends of NH3 in 2010-2015

	2010	2011	2012	2013	2014	2015
Waste	0	0	0	0.0010521	0.001314	0
Industry	0.0063945	0.0118692	0.00022815	0	0.0000018	0
Energy	1.16997906	1.30436691	1.41108716	1.48067883	1.72531614	1.62162058
Agriculture	68.861394	67.3755255	69.836705	71.605385	72.81808757	72.8091955

Figure 2-4 Sectoral relative trends of CO in 2010-2015

	2010	2011	2012	2013	2014	2015
Waste	0.037424625	0.042668081	0.054566542	0.061684733	0.06057957	0.06876619
Industry	0.1825305	1.17304495	6.5891535	6.5162715	6.1642815	0.1214235
Energy	152.5739476	166.2609366	176.2331257	181.5827918	184.275556	174.2444074
Agriculture	0	0	0	0	0	0

11. Energy (NFR sector 1)

Dynamics of fossil fuels extracted and consumed in a country rich in oil and gas resources, oil products and natural gas are the most commonly consumed fossil fuels. Coal was important in Azerbaijan until 1990, but its import ended with the fall of the Soviet Union.

Stationary sources fuel burning is a part of almost all sectors of the economy. This category is divided into 5 sub-categories, and the following codes and names are assigned to them: 1A1 Energy industries; 1A2 Manufacturing Industries and construction; 1A3 Transport; 1A4Small combustion (Commercial/institutional, residential, agriculture/forestry); 1A5 Mobile sources. The following sources are considered under the energy category: fuel used for the production of electric and heating energy, for oil and gas extraction and refining, etc. The transport category covers aviation, automobile transport, railways and shipping, the latter two of which are each divided into two parts: domestic and international aviation, national and international shipping.

ENERGY industries (1A1)

As an oil and gas country, Azerbaijan has been continuously extracting oil and gas for industrial purposes over 130 years. These fossil fuels are found both under the sea and on land. The production capacity of the oil refinery plants is 20 million tons per year. However, due to the obsolescence of the plants, the level of oil refining has declined.

Emissions on 1A1a category were estimated using annual total fuel (gasoline, diesel, low-sulfur black oil, high-sulfur black oil, and natural gas) use for electrical and thermal energy production. Calculations have been made using Tier 1 approach. Electronic database of State Statistical Committee was used in the estimation of emissions for the 1A1a category.

Following trends seems on main pollutants over 2010-2015 years:

Figure 3-1 Trends of main pollutants in 2010-2015 (1A1)

	2010	2011	2012	2013	2014	2015
Nox	15.3809432	17.0470993	19.1603719	19.7293469	20.8589251	21.9550141
NMVOC	0.4490763	0.49780017	0.55938651	0.57603191	0.60859074	0.61046124
CO	6.73353135	7.46485109	8.38707479	8.63700411	9.12076742	8.83236824

Manufacturing industries and construction (1A 2)

The main category of pollution in this subsector was food processing, beverages and tobacco industries in which annual liquid fuel, gaseous fuel, and biomass use were 336 TJ, 14 739 TJ, 4.2 TJ, respectively.

Emissions on 1A2 category were estimated using annual total fuel consumption in relevant fields as black metallurgy (1A2a), non-ferrous metals (1A2b), chemicals (1A2c), pulp, paper and print (1A2d), food processing, beverages and tobacco (1A2e) and non-metallic minerals (1A2f). Emissions have been estimated using Tier 1 approach. All data was taken from the electronic database of State Statistical Committee.

Following trends seems on main pollutants over 2010-2015 years:

Figure 3-2 Trends of main pollutants in 2010-2015 (1A2)

	2010	2011	2012	2013	2014	2015
Nox	2.1800777	2.2775285	2.7981148	2.8386946	2.9221324	3.0190345
NMVOC	0.5240066	0.6163825	0.7982097	0.8107998	0.8578831	0.8835737
CO	0.7006394	0.8011913	1.0269637	1.0444909	1.097335	1.129216

Transport (1A3)

This category includes aviation, automobile transport, railways and shipping, the most important of them is automobile transport.

Methodology

Emissions were calculated using the EMEP/EEA Guidebook – 2016.

Emissions on 1A3bi (passenger cars) category were estimated using annual total consumption of gasoline and LPG fuels for automobiles vehicles considering gasoline and LPG consumption only for passenger cars. Emissions on 1A3bii (heavy duty vehicles) category were estimated using diesel fuel consumption for automobile vehicles considering diesel fuel consumption only for heavy duty vehicles. Emissions on 1A1c (railway) category were estimated using annual total fuel (diesel, low-sulfur black oil, other fuels) use for the railway. Emissions on 1a3di (international inland waterways) and 1a3dii (national navigation) were estimated using annual total fuel consumption (diesel) for this categories.

Following trends seems on main pollutants over 2010-2015 years:

Figure 3-3 Trends of main pollutants in 2010-2015 (1A3)

	2010	2011	2012	2013	2014	2015
Nox	33.516035	38.587438	43.26214	49.127256	49.402362	42.282725
NMVOC	19.56423142	21.58674501	23.58612084	25.31977511	19.05300351	18.0729248
NH3	1.1333792	1.2639446	1.3702194	1.434103	1.5142836	1.432391
CO	92.130208	103.277616	112.125554	118.148536	124.19956	116.813132

Small combustion (1A4)

Emissions from these categories estimated using annual total fuel use on commercial/institutional, residential, agriculture/forestry according to the web-database of the State Statistical Committee. For emissions calculated under 1A4aii, 1Abii and 1Acii categories were used fuels as gasoline, diesel, and LPG and for emissions under 1A4ai, 1A4bi and 1A4ci categories were used other remaining fuels in the mentioned industries.

Following trends seems on main pollutants over 2010-2015 years:

Figure 3-4 Trends of main pollutants in 2010-2015 (1A4)

	2010	2011	2012	2013	2014	2015
Nox	19.7825557	19.609552	18.4939106	18.3233653	18.3233653	16.4936124
NMVOC	6.527445094	6.615152295	6.628810415	6.389690762	5.861169528	5.401793161
NH3	0.0298133	0.0334515	0.0340438	0.0393474	0.2036555	0.1820963
CO	52.4543048	54.1469392	54.1352092	53.1613438	48.2543176	46.8860592

Fugitive emissions from fuel (1B)

Fugitive emissions are generated in the energy sector in the course of natural fuel production, refining, storage, transportation, burning in chimney-stacks and other leakages. Coal is not produced in Azerbaijan. During Soviet times it was imported from Russia, Kazakhstan, and other republics, but today no longer.

Emissions on 1B2ai category (fugitive emissions oil: exploration, production transport) were estimated using the annual total production of cruel oil. Emissions on 1B2b category (Fugitive emissions from natural gas (exploration, production, processing, transmission, storage, distribution and other)) were estimated using the annual total production of natural gas. Emissions from 1B2aiv category (Fugitive emissions oil: Refining/storage) were estimated using annual total consumption of cruel oil in refineries. Emissions on 1B2av (Distribution of oil products) were estimated using annual total consumption of gasoline fuel.

Following trends seems on main pollutants over 2010-2015 years:

Figure 3-10 Trends of main pollutants in 2010-2015 (1B2)

	2010	2011	2012	2013	2014	2015
Nox	1.480704	1.520904	1.488864	1.577112	1.609536	1.556352
NMVOC	13.46332	12.68679	12.39956	12.59981	14.37607	14.13743
NH3	0.00678656	0.00697081	0.00682396	0.00722843	0.00737704	0.00713328
CO	0.555264	0.570339	0.558324	0.591417	0.603576	0.583632

12. Industrial processes and product use sector

Mineral products (2.A)

Source category description

The production of mineral materials in Azerbaijan is confined to the manufacture of those materials that are needed in the construction sector. The enterprises are plants producing cement, lime, sodium and glass. The main source of these emissions in the mineral materials production category is cement manufacturing. Production of other construction materials is relatively low. There are only small-sized lime operations today, wastes from which do not have warming potential.

Emissions from cement production and lime production were estimated using the annual total production of cement and lime. Emissions on 2A5a category (Quarrying and mining of minerals other than coal) were estimated using the annual total production of iron ore and copper for 2015.

Figure 4-1 Trends of particulate matters in 2010-2015 (2A)

	2010	2011	2012	2013	2014	2015
PM2.5	0.16735022	0.18825075	0.267625644	0.306691644	0.39480016	0.361585616
PM10	0.30539597	0.35243628	0.524109812	0.581721812	0.7444133	0.69501431
TSP	0.3464365	0.4130116	0.66985528	0.70746548	0.903227	0.866943958

Chemical industries (2.B)

Emissions on 2B210a category (other chemical industries) were estimated using the annual total production of ethylene, polyethylene, propylene and sulfuric acid for 2015.

Following trends seems on main pollutants over 2010-2014 years:

Figure 4-2 Trends of main pollutants in 2010-2015 (2B)

Metal Production (2.C)

Source category description

There is no primary metal production in Azerbaijan. There are ferroalloys and secondary iron/steel production as well as secondary lead and aluminum production.

Emissions from 2C1 category (iron and steel production) were estimated using the annual total production of steel and pig iron, for other years used the only production of steel.

Following trends seems on main pollutants over 2010-2015 years:

Figure 4-3 Trends of main pollutants in 2010-2015 (2C)

Other (2.D - 2.L)

Source category description

Alcoholic beverages, bread, and other bakery products, etc. have been included in this category as emitters of NMVOCs. This category covers pulp and paper, food and drink and wood processing. In Azerbaijan, there is secondary paper processing only. Food comprises bread production, sugar production, flour production, tea production, coffee processing, canned food, fish processing, meat processing. Under drink production, beer, wine, spirits, soft drinks, mineral water and dairy products have been included.

In the past large wood processing companies existed in Azerbaijan. Nowadays small plants remain which process logs and produce wooden boards etc.

Emissions on 2D3a (Domestic solvent use including fungicides) category were estimated using the annual total number of population in the country. Emissions on 2D3b (Road paving with asphalt) category were estimated using the annual total production of asphalt. Emissions on 2D3g (chemical products) category were estimated using the annual total production of chemicals for 2010-2014. Emissions on 2G (tobacco), 2H1 (Pulp and paper industry), 2H2 (Food and beverages industry) and 2I (wood processing) categories were estimated using the annual total production of fermented tobacco, paper materials, food and beverages and wooden Tara, relatively.

Following trends seems on main pollutants over 2010-2015 years:

Figure 4-5 Trends of main pollutants in 2010-2015 (2D-L)

	2010	2011	2012	2013	2014	2015
Nox	0.021561	0.0429769	0.0277467	0.022077	0.0178813	0.017304
NMVOC	35.76262563	36.86638127	37.12100274	38.04179927	38.59140774	25.13337309
CO	0.1185855	0.23637295	0	0.1214235	0.1214235	0.1214235

13. Agriculture (NFR sector 3)

Manure management (3B)

Emissions from these categories – dairy cattle, sheep, swine, buffalo, goats, horses, mules and asses, other poultry and camels were estimated using annual total data on heads of listed animals. Emissions from non-dairy cattle (3B1b) category were estimated under dairy cattle (3B1a) category because of available data were only for a total number of cattle. Lying hens (3B4gi) and turkeys (3B4gii) categories were estimated under other poultry (3B4giv) category which includes ducks, hens, goose, and turkeys.

Following trends seems on main pollutants over 2010-2015 years:

Figure 5-1 Trends of main pollutants in 2010-2015 (3B)

	2010	2011	2012	2013	2014	2015
Nox	0.210939192	0.213776926	0.21705744	0.222508718	0.225257546	0.234327104
NMVOC	25.24301685	25.58124035	25.99779435	26.72060105	27.10200328	28.29145125
NH3	66.188394	66.0186945	68.0705	69.656201	70.57017557	72.8091955

14. Waste (NFR sector 5)

This section concerns the inventory of emissions generated from solid waste landfills and wastewater treatment. It has been known since early 1980 that the methane component of gasses generated at solid waste landfills might pose a threat to the environment unless precautionary measures were taken.

Waste incineration (5C)

Emissions on 5C1bi (industrial waste incineration), 5C1bii (hazardous waste incineration) and 5C1biii (clinical waste incineration) were estimated using data on annual total decontamination of wastes for each category given from the web-database of the State Statistical Committee.

Following trends seems on main pollutants over 2010-2015 years:

Figure 6-1 Trends of main pollutants in 2010-2015 (5C)

	2010	2011	2012	2013	2014	2015
Nox	0.46512925	0.53029777	0.67817914	0.96353931	0.9988169	0.8546593
NMVOC	3.95462125	4.50888293	5.76687726	5.00084662	4.5062963	7.2676107
NH3	0	0	0	0.0010521	0.001314	0
CO	0.037424625	0.042668081	0.054566542	0.061684733	0.06057957	0.06876619

15. Improvements

Planned improvements

In the following years, Azerbaijan is planned to enhance emission data and covered categories. Make data more comparable and sustainable through recalculations. Improve and use tier 2 for key categories. Estimation of uncertainties is planned to realize in line with the EMEP guidelines.

Azerbaijan interested in submitting projections and gridded data but needs assistance for preparing them relevant to the guidelines. It might take a while but Azerbaijan is planning to develop the submitted data every year and become one of the examples of other Parties.

16. IIR References

1. EMEP/EEA, 2013. EMEP/EEA air pollutant emission inventory guidebook 2013, EEA Technical Report No 12/2013, European Environment Agency www.eea.europa.eu/publications/emep-eea-emission-inventory-guidebook-2013.

2. Mareckova, K.; Wankmüller, R.; Moosmann, L.; Pinterits, M.; Tista, M. Inventory Review 2014. Review of emission data reported under the LRTAP Convention and NEC Directive. Stage 1 and Review. Status of gridded and LPS data. Technical Report CEIP 2014/1. http://www.ceip.at/review_proces_intro/review_reports/.

3. UNECE, 2014. Guidelines for Reporting Emission Data under the Convention on Long-range Transboundary Air Pollution (ECE/EB.AIR/125)

4. Annexes to UNECE reporting guidelines (ECE/EB.AIR/125) http://www.ceip.at/fileadmin/inhalte/emep/2014_Guidelines/Annexes_revised_140417.zip

5. UNECE, 2013. Decision 2013/4 reporting of emissions and projections data under the Convention and its protocols in force (ECE/EB.AIR/122/Add.1.)

6. Statistic year book of State Statistical Committee of the Republic of Azerbaijan, “Environment, Forestry, Fishery and Hunting in Azerbaijan”, 2014
www.stat.gov.az

7. Second National Communication to the United Nations Framework Convention on Climate Change, report of Azerbaijan