

**Confirmed by Decree of the
State Statistical Committee
of the Republic of Azerbaijan
dated 27 May 2014, № 20/11s**

**Environmental indicators system
of the Republic of Azerbaijan**

INTRODUCTION

“Environmental indicators system of the Republic of Azerbaijan” has been confirmed by Decree of the President dated 21 December 2012, № 2621 according to the “State Program on development of official statistics during 2013-2017” based on Guidelines on the Application of Environmental Indicators in the countries of Eastern Europe, Caucasus, Central Asia (EECCA) prepared by UN ECE Committee on Environmental Policy in collaboration of the European Environment Agency. All environmental indicators correspond with national and international requirements and cover below-mentioned groups:

- A. Air pollution and ozone layer depletion
- B. Climate changes
- C. Water resources
- D. Biodiversity
- E. Land resources
- F. Agriculture
- G. Energy
- H. Transport
- I. Wastes

The key environmental indicators are based on data of the official report forms and corresponding administrative bodies activities of which related with ecological monitoring, environmental management and protection.

Indicators system has been agreed with Ministry of Ecology and Natural Resources of the Republic of Azerbaijan.

Environmental indicators system of the Republic of Azerbaijan

№	Indicators	Measure ment unit	Methodology of indicators	Data source	Executor	Importance of figures from standpoint of ecological policy
A. Air pollution and ozone layer depletion						
1.	Air pollutant Emissions - sulphurdioxide (SO2) - nitrogenoxides (NOx) - ammonia (NH3) - particulate pollutants - carbon monoxide (CO) - volatile organic component - heavy metals per km ² of the country territory percapita	 t, kg kg/km ² kg	Air pollutant emissions are defined as total quantity of emissions into air from stationary and mobile sources. Emissions from stationary sources include total volume of all air pollutants from stationary and non-stationary sources. Air pollutant emissions are defined based on accounting documents in the field of environment protection and inventory documents on air pollution. Emissions of pollutants from mobile sources are calculated based on motor vehicle fleet in use and quantity of consumed fuels. calculated as the ratio of quantity of air pollutant emissions to area of the country calculated as ratio of quantity of air pollutant emissions to average annual population size of the country	Official statistical report form 2-TG (weather) on “Protection of atmospheric air and 2-TG (weather - transport) on “Emissions of pollutantsfrommobilesources”	SSC, MENR	The indicator provides a measure of existing and expected pressure on the environment in terms of emissions of harmful substances into the atmospheric air

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3.	Consumption of ozone-depleting substances	t	Data collection covers substances in annexes A–C and E of the Montreal Protocol, whether existing alone or in a mixture. “Consumption” is the sum of production plus imports minus exports of the ODS.	Instruction on conducting of records relating to ODS consumption	MENR	The indicator is a measure of the pressure on the environment of substances that deplete the ozone layer.
B. Climate change						
4.	Air temperature: average annual temperature of weather deviations from a long-term average in the country	°C +, -	Air temperature is observed over long periods of time by the network of hydro- meteorological stations collecting data. Temperature is measured eight times a day at the same time at all network stations with the accuracy of 0.2°C. Deviation from a long-term average during the fixed long-term period is defined as difference between observation quantity and average base value.	State Climate Cadaster	MENR	The indicator shows trends in the variation of annual average temperature and provides a measure of changes related both to cyclic natural changes in the climate and to anthropogenic impact on global warming.
5.	Atmospheric precipitation:		Precipitation is the total volume of water precipitated to a certain surface area for a given period of time in either liquid or solid state in the form of rain, drizzle, snow, sleet, snow pellets or small hail, hail or sleet.	State Climate Cadaster	MENR	The indicator provides a measure of the state of the climate system as well as the impact on the quantity of surface waters and ground waters, soil and biota. Analysis of the perennial sets of the main

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	average annual quantity of precipitations	mm	Observation of quantity of precipitations is carried out by hydrometeorological observation point. The quantity of precipitations is defined based on daily, monthly and annual precipitations quantity. Average monthly and average annual values are estimated.			climate formation characteristics, such as atmospheric precipitation, air temperature and air humidity, makes it possible to evaluate the precipitation structure change in a certain area and to assess the dynamics of future changes in precipitation volumes and related climate changes.
	deviation from long-term mean values	%	The quantity of precipitations during the certain period of time is determined by dividing into long-term norm during that period.			
6.	Greenhouse gas emissions: -carbon dioxide(CO ₂); - nitrous oxide (N ₂ O); - methane (CH ₄); -hydrofluorocarbons; - sulphur hexafluoride (SF ₆); - perfluorocarbons	mln t CO ₂ equiva-lent	The volume of greenhouse effect is defined by estimation methods. The methodological base of national cadaster of greenhouse effect makes instructions of interstate expert group on climate change. Emissions of the greenhouse gases (GHG) included in Annex A to the Kyoto Protocol to the UNFCCC: carbondioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), hydrofluorocarbons (HFCs),sulphur hexafluoride (SF ₆), perfluorocarbons (PFCs). In order to aggregate the emissions of different GHGs it is used CO ₂ equivalent based on the concept of its global warming potential (1995) according to Framework Convention of Conference of the Parties on	Estimated based on instructions of interstate expert group on climate change	MENR	The indicator provides a measure of the existing and future pressure on the environment in terms of emissions of GHG into the atmosphere. It shows the extent to which countries have achieved their specified goals and the response to country policies for achieving the emissions target.

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	per km ² of the countryterritory percapita	min t t	Climate Change. calculated as the ratio of quantity of greenhouse gas to the country territory calculated as ratio of quantity of greenhouse gas to average annual population size of the country			
C. Water						
7.	Renewable freshwater resources: river run-off and total annual volume of ground water	mln m ³	The total volume of river run-off and groundwater generated under natural conditions, exclusively by precipitation within the country, and the actual flow of rivers and groundwater coming from neighboring countries. Defined on the basis of long-term measurements of levels, flow rates and inflows/outflows carried out on rivers and lakes as well as groundwater horizons.	National monitoring system	MENR	The development of this indicator over time provides a measure of the state of renewable freshwater resources in a country.
8.	Freshwater abstraction: the annual volume of abstracted surface and ground freshwater	mln m ³	The volume of abstracted ground freshwater is calculated based on all ground waters and wells. Covers volume of freshwater abstracted from ground and surface water source and defined based on indicators of water meter and estimations carried out based on corresponding methodologies	Official statistical report form 2-TG (water industry) on water use	Melioration and Water Industry Open Stock Joint Company	The indicator provides, in relation to total resources available for abstraction, a measure of the pressure on the environment in terms of abstraction of freshwater resources. It can reflect the extent of water resource scarcity

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	water resources' consumption index	%	Water resources consumption index is calculated by dividing total annual volume of abstracted freshwater by average long-term volume of ground and surface freshwater.			and the distribution of abstracted water among different economic activities.
9.	Household water use per capita the quantity of water used covers the household and related utility needs of the population (including enterprise employees), calculated per capita	m ³	Households' water use per capita is calculated by dividing total water consumption in the community by the respective number of inhabitants.	Official statistical report form 1-water pipeline and sewerage	SSC	The indicator provides a measure of the efficiency of activities directed to improvement of water in industry system
10.	Water losses: the quantity of freshwater lost during transportation (owing to leakage and evaporation) between a point of abstraction and a point of use. share of freshwater lost during transport-	mln m ³ %	The quantity of freshwater lost during transportation (owing to leakage and evaporation) between a point of abstraction and a point of use is estimated by deduction of volume of abstracted water from volume of consumed water. The share of fresh water lost during transportation is estimated by dividing volume of freshwater lost during transportation into total volume of	Official statistical report form 2-TG (water industry) on water use	Melioration and Water Industry Open Stock Joint Company	The indicator provides a measure of response to the efficiency of the water management system in the country.

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	tation (owing to leakage and evaporation) between a point of abstraction and a point of use		abstracted freshwater.			
11.	Reuse and recycling of fresh waters: the share of reused or recycled water in the total volume of water used to cover production needs	%	The water use indicator is a ratio of the amount of recycled and reused water to the sum of the quantities of such water and water used to cover production needs. Recycling of fresh water doesn't cover water use in utility and industrial and heating systems.	Official statistical report form 2-TG (water industry) on water use	Melioration and Water Industry Open Stock Joint Company	The indicator provides a measure of the response to national measures to improve or rationalize water management systems in production sectors.
12.	Drinking water quality: share of samples failing drinking water quality standards in the total number of drinking water samples obtained from different sources	%	The indicator is estimated from the available data on the compliance of drinking water with the parameters that are directly linked to human health and defined as ratio of samples failing drinking water quality standards to total number of drinking water samples obtained from different sources	Official statistical report form № 18 on "Sanitation condition of the region (town)	Ministry of Health care	The indicator provides a measure of the risk of negative impacts of poor drinking water quality on human health and shows the extent to which the drinking water supply conforms to sanitary requirements and standards.

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13.	Biochemical oxygen demand and concentration of ammonium in rivers: average annual oxygen biological consumption concentration of ammonium	mq O₂/l mq (NH₄⁺)/l	The annual average quantity of BOD is defined based on data of samples of selected surveillance points and monitoring points of surface waters in the state networks after five or seven days' incubation The ammonium concentration in rivers is defined based on data of samples of selected surveillance points and monitoring points of surface waters in the state networks	National monitoring system	MENR	The indicator provides a measure of the state of rivers in terms of biodegradable organic load and ammonium.
14.	Nutrients in fresh water: - concentrations in rivers: of phosphates and nitrates - total phosphorus and nitrate in lakes	mqP (PO₄³⁻)/l mq(NO₃⁻)/l	The indicator is defined based on data of samples of every surveillance points and monitoring points of surface waters in the state networks	National monitoring system	MENR	The indicator provides a measure of the state of freshwater (rivers, lakes and groundwater) in terms of nutrient concentration.
15.	Polluted (non-treated) wastewaters: share of non-treated waste waters discharged into water	%	The indicator defines the share of non-treated wastewaters that were discharged into water bodies in the total volume of wastewaters generated in the country in a given year.	Official statistical report form 2-TG (water industry) on water use	Melioration and Water Industry Open Stock Joint Company	The indicator defines the level and nature of the pressure on natural water, makes it possible to obtain information necessary for developing

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	bodies during the year in the total volume of waste waters generated in the country					nature conservation arrangements, and helps assess measures taken to increase the efficiency of the wastewater management system.
16.	Capacity of treatment facilities	mln m ³	The capacity of treatment facilities covers maximal quantity of water discharged into water objects (which should be treated according to Project during the reporting year). The capacity of water supply treatment facilities as well as capacity of primary local treatment facilities is not considered.	Official statistical report form 1-water pipeline and sewerage	SSC	The indicator defines the efficiency of activity of existed treatment facilities.
D.Biodiversity						
17.	Protected areas: area of highly protected territories share in the total area of the country	thsd. ha %	Protected areas – areas of special ecological, scientific, and aesthetic importance which covers valuable natural complexes and objects in the territory of the republic Covers areas of state natural reserves, national parks and wildlife refuge. The share of protected areas in total territory of the country is estimated as ratio of area of reserves, national parks and wildlife refuge to total territory of the country.	Official statistical report form 1-reserve on “national parks, state natural reserves and wildlife refuge”	SSC, MENR	The indicator provides the extent to which areas important for conserving biodiversity, cultural heritage, scientific research (including baseline monitoring of processes in the ecosystems), recreation, natural resource maintenance and other environmental values are protected from incompatible uses.

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18.	Forests and other wooded land: forestland wooded land forest management	thsd. ha thsd. ha %	Forest land is defined as the land which is suitable for wood production and not used for other purposes and where tree cover is desirable in order to protect and forestry allied to agricultural management. Wooded land includes young natural stands, which have yet to reach a crown density of 0.4 or more and all other plantations established for forestry purposes which have yet to reach a crown density of 0.3 or more, which are expected to revert to forest and areas covered with bush. Calculated as ratio of forest area to total area of the country	Official statistical report form № 22 on “total land area of stakeholders and users by types and state of using of land”	State Land and Mapping Committee	The indicator provides a measure of the state of forest and other wooded lands in a country and shows the trends in use for environmental purposes.
19.	Threatened and protected species, included in Red Book of the Republic of Azerbaijan number of wild plants’ types number of animals’ types	unit unit	Lists of each group of threatened and protected species established in the country serve as a basis for data collection.	The Red Book of the Republic of Azerbaijan, Monitoring of plants monitoring of animals State cadaster of animals State cadaster of plants	Azerbaijan National Academy of Science, MENR	The indicator provides a measure of the state of biodiversity in terms of the number of threatened species and the relative effectiveness of national response measures to maintain national-level and global biodiversity.

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E. Land						
20.	Land resources: share in total territory of the country	km ² %	Land cover used by transport infrastructure, urban development and landfills, waste dumps, tailing pits and refuse heaps. Calculated as ratio of the various land-cover categories to land uptake as a percentage of the total territory	Official statistical report form № 22 on “Total land area of stakeholders and users by types and state of using of land”	State Land and Mapping Committee	The indicator provides a measure of the impact on the environment.
21.	Area affected by salinization and soil erosion: share in total area of the country	km ² %	Total land area and share of agricultural land affected by degradation through wind and water erosion. Calculated as ratio of agricultural land affected by salinization and erosion to total area of the country.	Survey	State Land and Mapping Committee	The indicator provides a measure of the state of land in terms of the degree to which it is affected by wind and water soil erosion.
F. Agriculture						
22.	Mineral and organic fertilizer consumption: cultivated land and perennial plants’ per unit use of: mineral fertilizer	sent/ha	Calculated as ratio of consumed quantity of mineral and organic fertilizer to area of agricultural plants, perennial plants, hayfields and pastures.	Survey form № 9-b-kt on “use of mineral and organic fertilizers in arable land”	SSC	The indicator makes it possible to assess the fertilizer pressure on the environment (the accu- mulation of nutrients in the soil, the resulting pollution of surface and ground-water, and the movement of nutrients through trophic chains

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	organic fertilizer	sent/ha	Quantity of mineral fertilizers used are converted into the three basic nutrient components (N, K ₂ O, P ₂ O ₅) and calculated separately and aggregated by 100%.			and other parts of the environment).
23.	Pesticide consumption: perunit of field per unit of agricultural land	kq/ha	Use of pesticides per unit of agricultural land. Data calculation is based on the amount of pesticide sales (sales volume).	“Uniform single report on turnover of pesticides, biological preparations and agrochemicals”	MA	The indicator provides a measure of the pressure on the environment in terms of intensity of pesticide consumption.
G. Energy						
24.	Total energy consumption: energy resources consumed annually in a country, total including: solid oil gas renewable sources share of energy received from different types of energy in gross	thsd. ton in oil equivalent %	It is calculated based on a formula taking into account production, exports, imports, storage bins and changes in fuel stocks. For each fuel type, consumption volume is calculated using the following formula: primary production + imports + exports+ bin+changes in stocks. Adding up all consumption values for each fuel type results in the total energy consumption (gross domestic energy consumption). Calculated as the ratio of energy consumption originating from different fuel types to the total gross inland energy	It is defined according to methodology on calculation of fuel-energy balance and GDP energy intensity	SSC	Total energy consumption, total and by fuel, is a driving forces indicator describing the development of the energy sector and the corresponding levels of energy consumption.

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	domestic energy consumption		consumption in calendar year			
25.	Final energy consumption: by major users (transport, industry, services, agriculture and households)	thsd. ton oil equivalent	Final energy consumption is calculated as the sum of final energy consumption from all sectors of the economy	It is defined according to methodology on calculation of fuel-energy balance and GDP energy intensity	SSC	Final energy consum- ption represents a driving forces indicator and shows trends in final energy consumption.
26.	GDP energy consumption	thsd. ton oil equivalent/ thsd. manats	Ratio between the final consumption of energy (or total energy consumption) and the GDP calculated for a calendar year at constant prices.	It is defined according to methodology on calculation of fuel-energy balance and GDP energy intensity	SSC	Energy intensity is one of the key indicators of sustainable development. Its dynamics characterize the level of efficiency of energy consumption in a country.
27.	Renewable energy consumption	%	The share of renewable energy consumption in total energy consumption during the year. Renewable energy is the energy obtained from renewable (i.e. non fossil) sources (wind, biomass energy).	It is defined based on principles of methodology of BEA, BBOEA.	SSC, ABOEM DA	Renewable energy consumption characterizes development of renewable energy sources in total national energy consumption

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H. Transport						
28.	Passenger turnover: passenger turnover in public transport the share of each mode in total passenger turnover	thsd. passenger/ km %	Passenger turnover in public transport is the volume of passenger carriage by transport. The number of kilometers travelled by passenger in a given year by all modes of public transport (buses, underground, railway, inland water transport, airplanes and taxis) and by private transport. Calculated as the share of each mode in total passenger turnover	Official statistical report forms: № 1 (railway) on “main indicators of railway activity; № 1-ND (transport corridor) on “Activity of Transport Corridors Europe-Caucasus -Central Asia”; № 5 (aviation) on “main indicators of activity of aviation”; № 5 (sea) on “main indicators of sea transport”; № 30 (underground) on “main indicators of underground	ADY QSC, AXDG QSC, BM QSC, SSC	Passenger turnover is a driving force indicator and of prime importance in regulating passenger turnover and developing various types of transport. Breaking down passenger transport demand by mode helps to assess the effectiveness of response measures.
29.	Freight transport turnover:		Freight transport turnover is the volume of freight turnover by transport.	Official statistical report forms: № 1 (railway) on	ADY QSC,	The indicator on distribution of cargo conveyance by transport

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	freight turnover in transport sector	thsd t-km	The freight turnover is calculated as the sum of volume of freight transported to the corresponding stage distance by each mode of freight transport	“main indicators of railway activity; № 1-ND (transport corridor) on “Activity of Transport Corridors Europe- Caucasus -Central Asia”;№ 2 (pipeline) on “activity of oil pipelines”; № 5 (aviation) on “main indicators of activity of aviation”; № 5 (sea) on “main indicators of sea transport”;№ 6 transport (gas) on ”gas transfer by trunk line carrier”.	AXDGQS C, SSC	modes reflects impact level of freight transports (consumption of fuel resources, pollution emissions, sound emission and etc.) on ecology.
	the share of each mode in total freight turnover	%	Calculated as the share of each mode in total freight turnover			
30.	Composition of the road motor vehicle fleet by fuel type	unit	Indicator defines the breakdown of the road motor vehicle fleet by fuel type.	Official statistical report form № 3 (State traffic police) on “number of motor vehicles,	SSC	Theindicatorexplainsobse rvedtrendsintransport’sim pact on the environment

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				motorcycles, lorries by types and technical status”		
31.	Average age of the road motor vehicle fleet	unit	The indicator defines the average age of the road motor vehicle fleet.	Official statistical report form № 3 (State traffic police) on “Number of motor vehicles, motorcycles, lorries by types and technical status”	SSC	The indicator on average age of the vehicle fleet shows the technical status of the fleet through its age.
J. Waste						
32.	Waste generation: industrial waste municipal solid waste hazardous waste	thsd. t m ³ thsd t	Volume of industrial waste includes waste generated primarily by mining and quarrying, by manufacturing industries and by energy production and construction. Volume of municipal solid waste covers transfer of waste from households and legal entities to processing objects Hazardous waste includes those of the above-mentioned categories which should be controlled according to the Basel Convention.	Official statistical report forms: № 14-recycle raw materials (waste) on “Generation and use of recycled raw materials (waste); № 2-TG (waste) on “Generation of hazardous waste and its movement”	SSC	The indicator provides a measure of the pressure on the environment of the total amount of generated waste and waste by category (hazardous, industrial and municipal solid waste).

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	Volume of municipal solid waste per capita	m ³ /nəfər	Per capita volume of municipal solid waste is calculated by dividing volume of transferred waste from households and legal entities to processing objects by population size			
33.	Waste reuse and recycling: industrial waste share of waste reused and recycling in total volume of generated industrial waste	thsd. t %	Waste reuse and recycling is defined as any reprocessing of waste material in a production process that diverts it from the waste stream, except reuse as fuel (energy recovery). Defined as ratio of volume of waste reused and recycling to total volume of generated waste.	Official statistical report forms: № 14-recycle rawmaterials (waste) on “Generation and use of recycledrawmater ials (waste); № 2-TG (waste) on “Generation of hazardouswaste and its movement”	SSC	The indicator provides a measure of level of the waste use and efficiency of activities against pollution of the environment.

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34.	Final waste disposal: The share of final industrial waste disposal in total volume of generated industrial waste	thsd. t %	The volume of final industrial waste disposal is waste landfilling and/or incineration of waste. Defined as ratio of volume of final industrial waste disposal to total volume of generated industrial waste	Official statistical report forms: № 14-recycle rawmaterials (waste) on “Generation and use of recycledrawmater ials (waste); № 2-TG (waste) on “Generation of hazardouswaste and its movement”	SSC	The indicator provides a measure of the pressure on the environment and the response to the efficiency of the waste management system.
35.	Transboundary movements of hazardous wastes: import, export	t	The amount of exported and imported hazardous waste is regulated through prior notification and consent with regard to each type of waste subject to transboundary movement.	Customs Declaration	SCC, MENR	The transboundary movement of hazardous waste represents a driving force indicator.