Implementation of the Shared Environmental Information System principles and practices in the Eastern Partnership countries
**(ENI SEIS II East)**

# Environment in Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova and Ukraine

*Facts and figures*

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European Environment Agency

ENI SEIS II EAST Project

MINISTRY OF ENVIRONMENT OF THE SLOVAK REPUBLIC

SLOVAK ENVIRONMENT AGENCY

# CONTENT

# INTRODUCTION

This brochure, which provides an overview of the basic environmental trends in the individual Eastern Partnership countries —Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova and Ukraine — builds upon the Slovak Environment Agency's long-term experience of assessing the state and development of the environment in its country.

Based on this experience and derived from the drivers-pressures-state-impacts-response (DPSIR) framework, the selected trends describe the interactions between society and the environment for a number of topics. The selection of these topics is based on the Slovak State of the environment report and then refined, taking account of their relevance for the Eastern Partnership countries and data availability. Together the selected trends give an overview of the environmental trends in the Eastern Partnership countries.

As we are aware that the six countries are not comparable in terms of land area, population and other factors, as well as in the ways they monitor and process environmental data, the goal of this publication is not to compare specific values between countries but to show environmental trends and assess the state and development of each country's environment, based on the chosen indicators where possible.

The EU-funded project 'Implementation of the Shared Environmental Information System principles and practices in the European neighbourhood regions' (ENI SEIS II East), led by the European Environment Agency (EEA), addresses the challenge of organising the vast array of environmental statistics, data and information necessary for regular environmental reporting, based on the SEIS principles and practices. It aims to improve national capacities for the environmental monitoring (e.g. harmonisation of methodologies for producing comparable environmental indicators) that underpins the science-policy interface for decision-makers and the public. It also aims to strengthen the capacities of the countries to report at the national or international level in accordance with multilateral environmental agreements, policy commitments (such as the United Nations 2030 Agenda for Sustainable Development) and other priority areas.

This is in line with international commitments related to the capacity-building, technology and systemic issue targets of Sustainable Development Goal (SDG) 17, 'Strengthen the means of implementation and revitalize the global partnership for sustainable development'.

Comprehensive environmental assessments enable policymakers to take targeted actions and show systemic links to policy interventions. Strengthening this capacity helps to produce streamlined environmental reports that are relevant and knowledge based and contribute to regional and global reactions to environmental issues.

The basis for the integrated environmental assessment, used to assess the state of the environment in many countries, is the chain of causal indicator links according to the DPSIR model. It is a methodological tool for integrated assessment of the environment and the causes of its state and for predicting its future development. This report is structured in line with this analytical approach.

This brochure was compiled under the EEA ENI SEIS II East project by the Slovak Environment Agency and made available on the national websites of the participating countries and on the ENI SEIS II East project website.

# BASIC INFORMATION ABOUT THE COUNTRIES

## ARMENIA

| | |
|---|---|
| **Official name** | Republic of Armenia |
| **Capital** | Yerevan |
| **Area (km²)** | 29 743 |
| **Total population (thousands, 2018)** | 2 973 |
| **Population density (per km²)** | 100 |
| **National currency** | Armenian dram (AMD) |
| **National Ministry of the Environment** | Ministry of Environment, Republic of Armenia |
| **National statistical office** | Statistical Committee of the Republic of Armenia |

## AZERBAIJAN

| | |
|---|---|
| **Official name** | Republic of Azerbaijan |
| **Capital** | Baku |
| **Area (km²)** | 86 600 |
| **Total population (thousands, 2018)** | 9 898 |
| **Population density (per km²)** | 114 |
| **National currency** | Azerbaijan manat (AZN) |
| **National Ministry of the Environment** | The Ministry of Ecology and Natural Resources of Republic of Azerbaijan |
| **National statistical office** | The State Statistical Committee of the Republic of Azerbaijan |

## BELARUS

| | |
|---|---|
| **Official name** | Republic of Belarus |
| **Capital** | Minsk |
| **Area (km²)** | 207 600 |
| **Total population (thousands, 2018)** | 9 475 |
| **Population density (per km²)** | 46 |
| **National currency** | Belarussian ruble (BYN) |
| **National Ministry of the Environment** | Ministry of Natural Resources and Environmental Protection of the Republic of Belarus |
| **National statistical office** | National Statistical Committee of the Republic of Belarus |

## GEORGIA

| | |
|---|---|
| **Official name** | Georgia |
| **Capital** | Tbilisi |
| **Area (km²)** | 69 700 |
| **Total population (thousands, 2018)** | 3 724 |
| **Population density (per km²)** | 53 |
| **National currency** | Georgian lari (GEL) |
| **National Ministry of the Environment** | Ministry of Environmental Protection and Agriculture of Georgia |
| **National statistical office** | National Statistics Office of Georgia |

## MOLDOVA

| | |
|---|---|
| **Official name** | Republic of Moldova |
| **Capital** | Chisinau |
| **Area (km²)** | 30 445 |
| **Total population (thousands, 2018)** | 2 706 |
| **Population density (per km²)** | 89 |
| **National currency** | Moldovan leu (MDL) |
| **National Ministry of the Environment** | Ministry of Agriculture, Regional Development and Environment of the Republic of Moldova |
| **National statistical office** | National Bureau of Statistics of the Republic of Moldova |

## UKRAINE

| | |
|---|---|
| **Official name** | Ukraine |
| **Capital** | Kyiv |
| **Area (km²)** | 603 549 |
| **Total population (thousands, 2018)** | 41 984 |
| **Population density (per km²)** | 70 |
| **National currency** | Ukrainian hryvnia (UAH) |
| **National Ministry of the Environment** | Ministry of Ecology and Natural Resources of Ukraine |
| **National statistical office** | State Statistics Service of Ukraine |

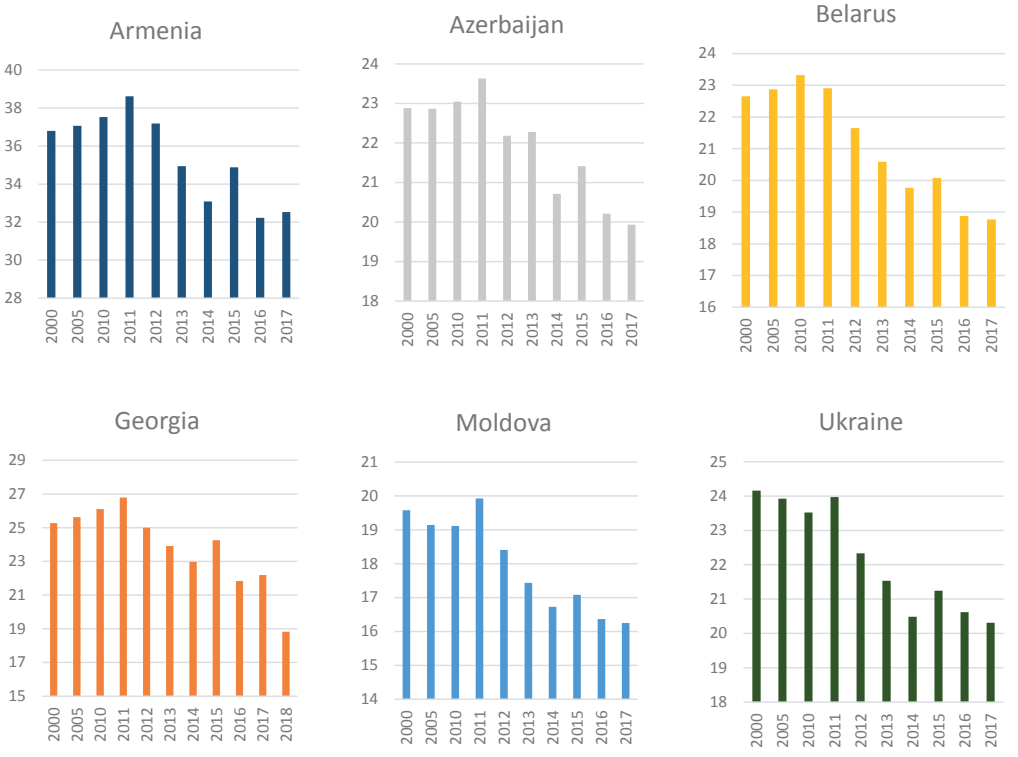
# THE STATE OF AND TRENDS IN THE ENVIRONMENT

## AIR

### *Population-weighted exposure to ambient $PM_{2.5}$ pollution*

Population-weighted exposure to ambient $PM_{2.5}$ pollution is defined as the average level of exposure of a nation's population to concentrations of suspended particulate matter measuring less than 2.5 microns in aerodynamic diameter, which are capable of penetrating deep into the respiratory tract and causing severe damage to health. Pollutant concentrations are sensitive to local conditions, and even monitoring sites in the same city may register different levels. Direct monitoring of $PM_{2.5}$ is still rare in most parts of the world, and measurement protocols and standards are not the same for all countries. These data should be considered only a general indication of air quality, intended to inform cross-country comparisons of the health risks due to particulate matter pollution.

***Exposure calculated by weighting mean annual concentrations of $PM_{2.5}$ by population in both urban and rural areas (μg/m³)***




*Sources: World Bank Databank, NEA; Processed by: SEA*

Population-weighted exposure to ambient $PM_{2.5}$ pollution (µg/m³)

| | 2000 | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Armenia | 36.8 | 37.1 | 37.5 | 38.6 | 37.2 | 34.9 | 33.1 | 34.9 | 32.2 | 32.5 | : |
| Azerbaijan | 22.9 | 22.9 | 23.0 | 23.6 | 22.2 | 22.3 | 20.7 | 21.4 | 20.2 | 19.9 | : |
| Belarus | 22.7 | 22.9 | 23.3 | 22.9 | 21.6 | 20.6 | 19.8 | 20.1 | 18.9 | 18.8 | : |
| Georgia (1) | 25.3 | 25.6 | 26.1 | 26.8 | 25.0 | 23.9 | 23.0 | 24.3 | 21.8 | 22.2 | 18.8 |
| Moldova | 19.6 | 19.1 | 19.1 | 19.9 | 18.4 | 17.4 | 16.7 | 17.1 | 16.4 | 16.3 | : |
| Ukraine | 24.2 | 23.9 | 23.5 | 24.0 | 22.3 | 21.5 | 20.5 | 21.2 | 20.6 | 20.3 | : |

*Notes: World Bank Databank data on exposure to ambient air pollution are derived from estimates of annual concentrations of very fine particulates produced by the Global Burden of Disease study, an international scientific effort led by the Institute for Health Metrics and Evaluation at the University of Washington. Estimates of annual concentrations are generated by combining data from atmospheric chemistry transport models, satellite observations of aerosols in the atmosphere and ground-level monitoring of particulates. Exposure to concentrations of $PM_{2.5}$ in both urban and rural areas is weighted by population and is aggregated at the national level.*

*Sources: World Bank Databank, (1) NEA*

Between 2000 and 2017, mean annual exposure to $PM_{2.5}$ showed a decreasing trend in all countries.

*Information sources:*

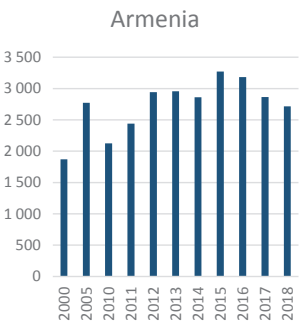
https://databank.worldbank.org/source/environment-social-and-governance-(esg)-data#
http://nea.gov.ge/ge/service/haeris-monitoringi/14/haeris-dabindzurebis-yoveldgiuri-biuletini/
https://eni-seis.eionet.europa.eu/east/countries

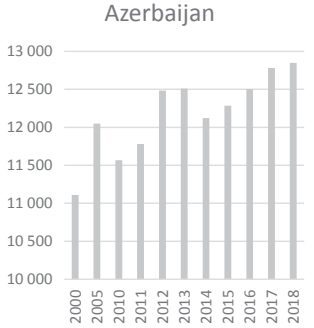
## WATER

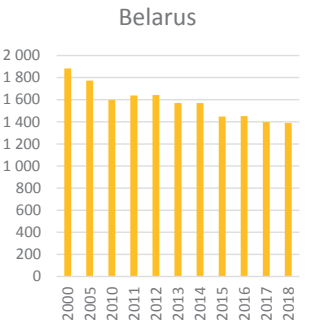
### Freshwater abstraction

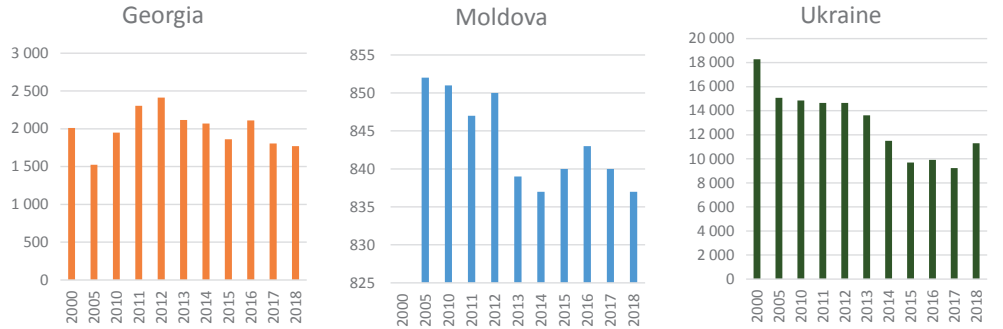
Freshwater resources are of major environmental and economic importance. Pressures on freshwater resources are exerted by overexploitation and environmental degradation. As water quality is closely linked to water quantity, the relation between freshwater abstraction and the renewal of stocks is a central issue in ensuring sustainable freshwater resource management.

***Total water abstraction from natural water resources (million m³)***






*Sources: ARMSTATBANK, AZSTAT, BELSTAT, GEOSTAT, MOLDSTAT, UKRSTAT; Processed by: SEA*

Total water abstraction from natural water resources (million m³)

| | 2000 | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Armenia (1) | 1 871 | 2 771 | 2 126 | 2 438 | 2 941 | 2 955 | 2 860 | 3 272 | 3 182 | 2 865 | 2 714 |
| Azerbaijan (2) | 11 110 | 12 050 | 11 566 | 11 779 | 12 484 | 12 509 | 12 123 | 12 285 | 12 504 | 12 781 | 12 847 |
| Belarus (3) | 1 882 | 1 773 | 1 598 | 1 638 | 1 642 | 1 571 | 1 571 | 1 448 | 1 451 | 1 397 | 1 390 |
| Georgia (4) | 2 010 | 1 523 | 1 950 | 2 304 | 2 412 | 2 117 | 2 070 | 1 863 | 2 110 | 1 805 | 1 771 |
| Moldova (5) | : | 852 | 851 | 847 | 850 | 839 | 837 | 840 | 843 | 840 | 837 |
| Ukraine (6) | 18 282 | 15 083 | 14 846 | 14 651 | 14 651 | 13 625 | 11 505 | 9 699 | 9 907 | 9 224 | 11 296 |

*Notes: **The Republic of Moldova** — data include information from left part of River Nistru and municipality of Bender. **Ukraine** — data for 2014-2018 do not include the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and part of temporarily occupied territories in the Donetsk and Luhansk regions.*

*Sources: (1) ARMSTATBANK, (2) AZSTAT, (3) BELSTAT, (4) GEOSTAT, (5) MOLDSTAT, (6) UKRSTAT*

Comparing the years 2000 and 2018, total water consumption from natural water resources has increased in Armenia and Azerbaijan. However there is a decreasing trend in Belarus, Georgia, the Republic of Moldova and Ukraine.

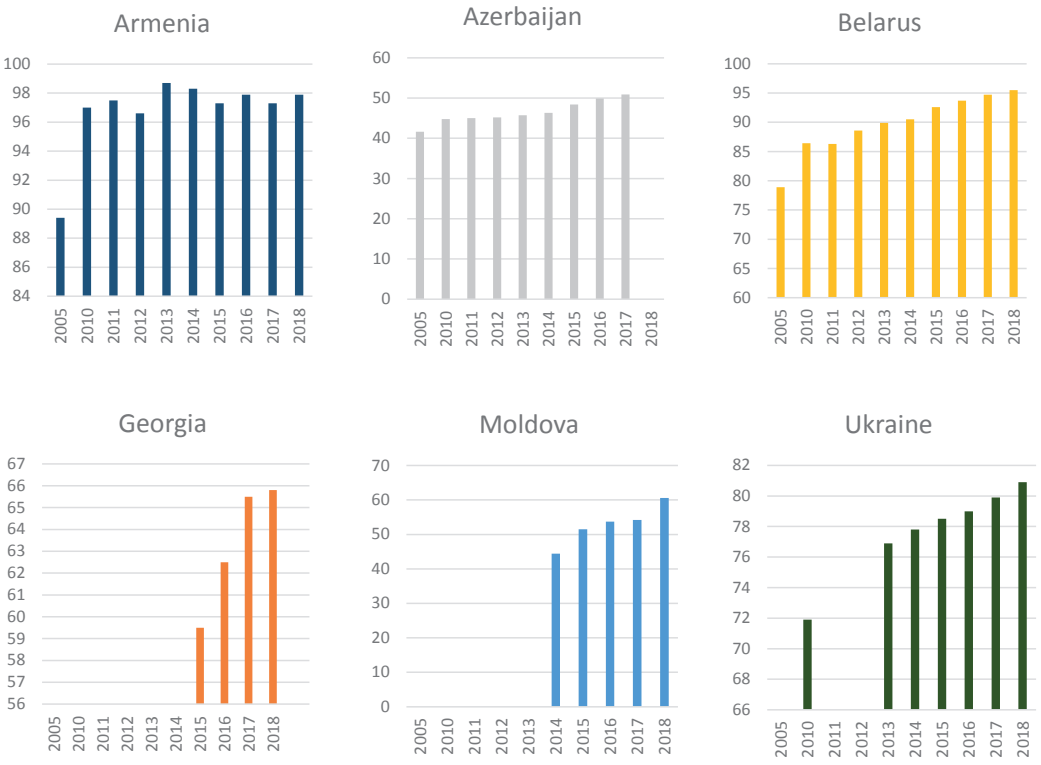
*Information sources:*

http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Indicators/C-2-en-final.pdf
https://armstatbank.am/pxweb/en/ArmStatBank/ArmStatBank__8%20Environment__(C)%20Water%20resources/EE-c2-1.px
https://www.stat.gov.az/source/environment/?lang=en
https://www.belstat.gov.by/en/ofitsialnaya-statistika/macroeconomy-and-environment/okruzhayuschaya-sreda/
https://www.geostat.ge/media/28027/saqartvelos_bunebrivi_resursebi_da_garemos_dacva_2018.pdf
https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774
http://ukrstat.gov.ua/operativ/operativ2006/ns_rik/ns_e/opvvr_rik_e2005.htm

### *Population connected to public water supply*

The availability of water for meeting basic human needs is a prerequisite for life, health and economic development. This indicator is important for defining the level of development of a country's water economy services and the degree to which water accessibility meets the needs of the population.

***Percentage of population or households connected to water supply industry (%)***




*Sources: ARMSTATBANK, AZSTAT, BELSTAT, GEOSTAT, MOLDSTAT, UKRSTAT; Processed by: SEA*

Percentage of population or households connected to water supply industry (%)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|
| Armenia [1] | 89.4 | 97.0 | 97.5 | 96.6 | 98.7 | 98.3 | 97.3 | 97.9 | 97.3 | 97.9 |
| Azerbaijan [2] | 41.6 | 44.8 | 45.0 | 45.2 | 45.7 | 46.3 | 48.4 | 49.9 | 50.9 | : |
| Belarus [3] | 78.9 | 86.4 | 86.3 | 88.6 | 89.9 | 90.5 | 92.6 | 93.7 | 94.7 | 95.5 |
| Georgia [4] | : | : | : | : | : | | 59.5 | 62.5 | 65.5 | 65.8 |
| Moldova [5] | : | : | : | : | : | 44.4 | 51.5 | 53.7 | 54.2 | 60.6 |
| Ukraine [6] | : | 71.9 | : | : | 76.9 | 77.8 | 78.5 | 79.0 | 79.9 | 80.9 |

*Notes: **Armenia** — % of population. **Azerbaijan** — % of population. **Georgia** — % of population **the Republic of Moldova** — % of population; data excluding information from left part of River Nistru and municipality of Bender. **Belarus** — % of households. **Ukraine** — % of households; data for 2014-2018 do not include the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and a part of temporarily occupied territories in the Donetsk and Luhansk regions.*

*Sources: [1] ARMSTATBANK, [2] AZSTAT, [3] BELSTAT, [4] GEOSTAT, [5] MOLDSTAT, [6] UKRSTAT*

The percentage of population or households connected to the water supply industry has seen an increasing trend in all countries over the period evaluated.

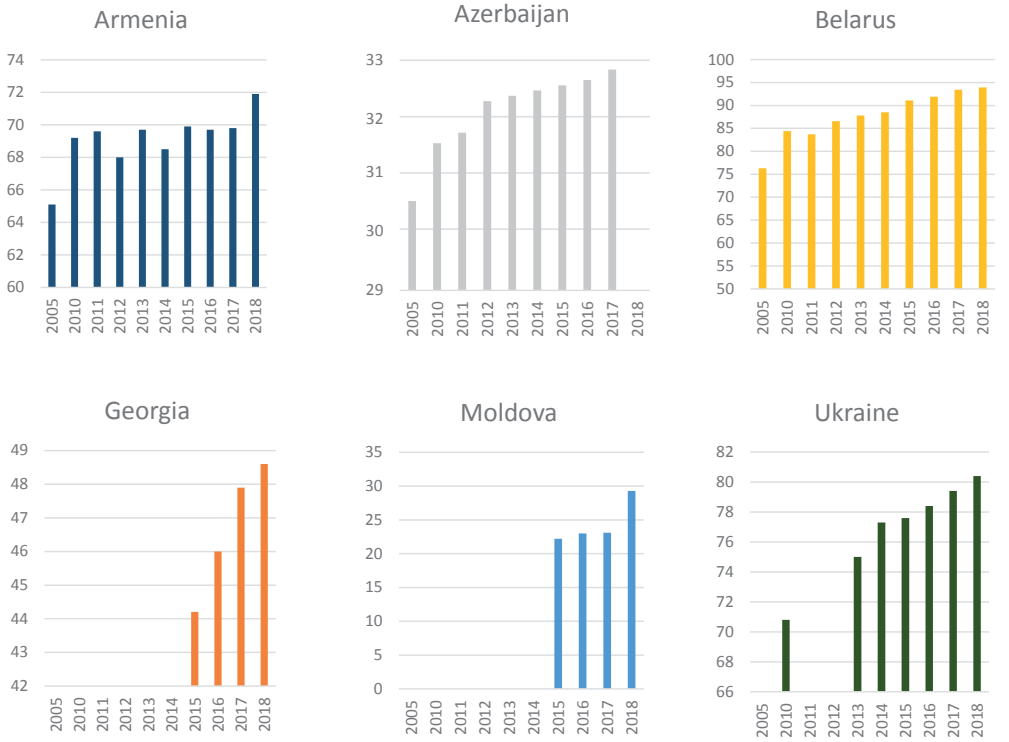
*Information sources:*

http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Indicators/C-5-en-final.pdf
https://armstatbank.am/pxweb/en/ArmStatBank/ArmStatBank__8%20Environment__(C)%20Water%20resources/EE-c6.px
https://www.belstat.gov.by/en/ofitsialnaya-statistika/macroeconomy-and-environment/okruzhayuschaya-sreda/
https://statbank.statistica.md/pxweb/pxweb/ro/30%20Statistica%20sociala/30%20Statistica%20sociala__06%20LOC__LOC020/LOC020100reg.px/?rxid=4698e2e7-3abb-43e8-9457-e3c56022ce55
https://www.geostat.ge/en/modules/categories/565/environmental-indicators
http://ukrstat.gov.ua/druk/publicat/kat_u/2019/zb/11/Zb_dovk_2018.pdf

### *Population connected to wastewater treatment*

A waste water collecting system (sewerage network) may deliver waste water to treatment plants or may discharge it without treatment to the environment. Waste water treatment is a basic prerequisite for minimising pressure on both surface and groundwaters arising from water pollution. Waste water treatment should follow the water quality standards laid down by national legislation.

***Percentage of population or households connected to a wastewater collecting system (%)***




*Sources: ARMSTATBANK, AZSTAT, BELSTAT, GEOSTAT, MOLDSTAT, UKRSTAT; Processed by: SEA*

Percentage of population or households connected to a wastewater collecting system (%)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|
| Armenia [1] | 65.1 | 69.2 | 69.6 | 68.0 | 69.7 | 68.5 | 69.9 | 69.7 | 69.8 | 71.9 |
| Azerbaijan [2] | 30.2 | 31.3 | 31.5 | 32.1 | 32.2 | 32.3 | 32.4 | 32.5 | 32.7 | : |
| Belarus [3] | 76.3 | 84.4 | 83.7 | 86.6 | 87.8 | 88.5 | 91.1 | 91.9 | 93.4 | 93.9 |
| Georgia [4] | : | : | : | : | : | : | 44.2 | 46.0 | 47.9 | 48.6 |
| Moldova [5] | : | : | : | : | : | : | 22.2 | 23.0 | 23.1 | 29.3 |
| Ukraine [6] | : | 70.8 | : | : | 75.0 | 77.3 | 77.6 | 78.4 | 79.4 | 80.4 |

*Notes: **Armenia** — % of population. **Azerbaijan** — % of population. **Georgia** — % of population. **The Republic of Moldova** — % of population; data excluding information from left part of River Nistru and municipality of Bender. **Belarus** — % of households. **Ukraine** — % of households; data for 2014-2018 do not include the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and a part of temporarily occupied territories in the Donetsk and Luhansk regions.*

*Sources: [1] ARMSTATBANK, [2] AZSTAT, [3] BELSTAT, [4] GEOSTAT, [5] MOLDSTAT, [6] UKRSTAT*

The percentage of population or households connected to a waste water collecting system has increased since 2005 in Armenia, Azerbaijan and Belarus, since 2010 in Ukraine, and since 2015 in Georgia and the Republic of Moldova.

*Information sources:*

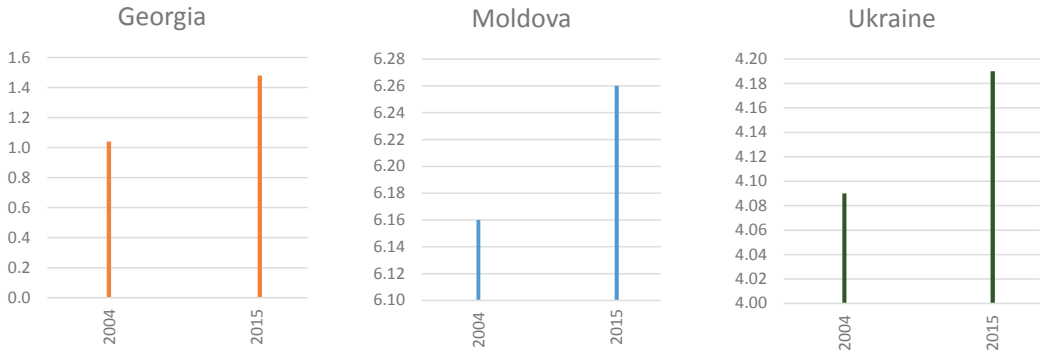
http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Indicators/C-14-en-final.pdf
https://armstatbank.am/pxweb/en/ArmStatBank/ArmStatBank__8%20Environment__(C)%20Water%20resources/EE-c14.px
https://www.stat.gov.az/source/environment/?lang=en025.xls
https://www.belstat.gov.by/en/ofitsialnaya-statistika/macroeconomy-and-environment/okruzhayuschaya-sreda/
https://www.geostat.ge/en/modules/categories/565/environmental-indicators
https://statbank.statistica.md/pxweb/pxweb/ro/?rxid=5640908c-5f38-4dca-a4d6-1cb25f8b0a54
http://ukrstat.gov.ua/druk/publicat/kat_u/2019/zb/11/Zb_dovk_2018.pdf

## SOIL

### *Land uptake*

Land uptake for transport infrastructure, urban and industrial development and other purposes has a high impact on the environment because it seals the soil. Soil sealing — the covering of the ground by an impermeable material — is one of the main causes of soil degradation and often reduces the area of fertile agricultural land, puts biodiversity at risk, increases the risk of flooding and water scarcity and contributes to global warming.

***Area of artificial surfaces as a share of the country's total country area (%)***




*Sources: OECD, BELSTAT; Processed by: SEA*

Area of artificial surfaces as a share of the country's total country area (%)

| | 2004 | 2015 |
|---|---|---|
| Armenia [1] | 1.65 | 2.23 |
| Azerbaijan [1] | 0.37 | 0.79 |
| Belarus [2] | 7.1 | 6.7 |
| Georgia [1] | 1.04 | 1.48 |
| Moldova [1] | 6.16 | 6.26 |
| Ukraine [1] | 4.09 | 4.19 |

*Sources: [1] OECD, [2] BELSTAT*

Over the period evaluated, the area of artificial surfaces increased in almost all countries evaluated, except Belarus where there was a decrease in the share of artificial surfaces.

*Information sources:*

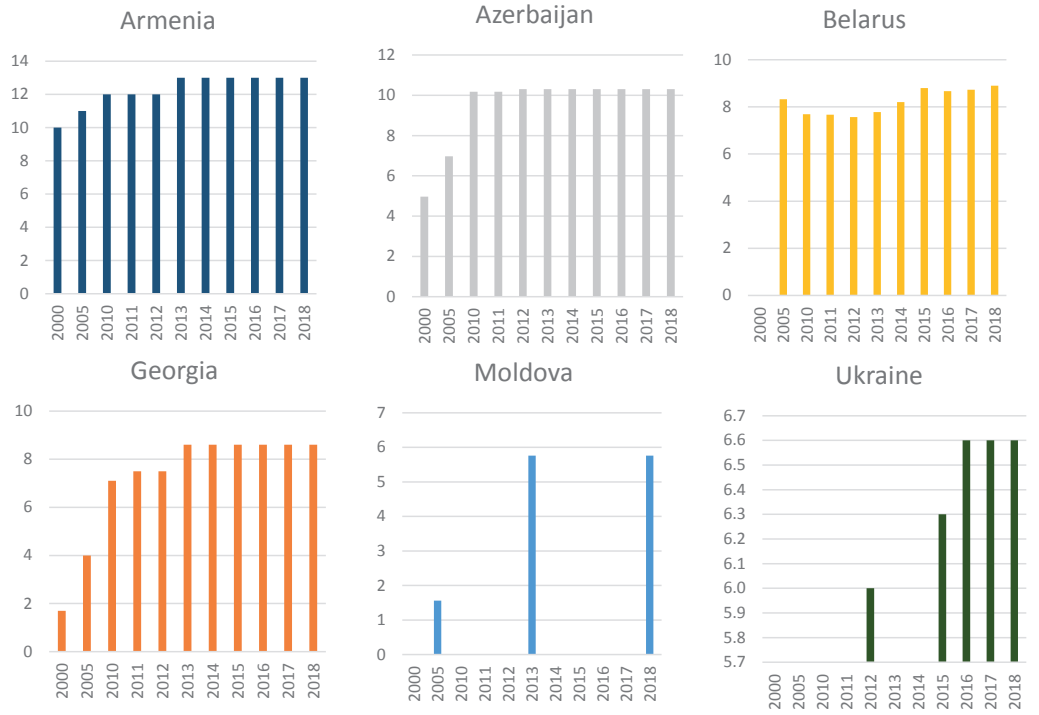
http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Indicators/E-1-en-final.pdf
https://stats.oecd.org/Index.aspx?DataSetCode=GREEN_GROWTH
https://www.belstat.gov.by/upload-belstat/upload-belstat-excel/Oficial_statistika/2019/E-1-en.xlsx

## BIODIVERSITY

### *Protected areas*

Sustainable development depends on a sound environment, which in turn depends on ecosystem diversity. Protected areas, especially those including the full range of protected area categories, are essential for conserving biodiversity and contributing to sustainable development.

***Protected areas as a share of total country area (%)***




*Sources: ARMSTATBANK, AZSTAT, BELSTAT, GEOSTAT, MOLDSTAT, UKRSTAT; Processed by: SEA*

Protected areas as a share of total country area (%)

| | 2000 | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Armenia [1] | 10.0 | 11.0 | 12.0 | 12.0 | 12.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 |
| Azerbaijan [2] | 5.0 | 7.0 | 10.2 | 10.2 | 10.3 | 10.3 | 10.3 | 10.3 | 10.3 | 10.3 | 10.3 |
| Belarus [3] | : | 8.3 | 7.7 | 7.7 | 7.6 | 7.8 | 8.2 | 8.8 | 8.7 | 8.7 | 8.9 |
| Georgia [4] | 1.7 | 4.0 | 7.1 | 7.5 | 7.5 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 |
| Moldova [5] | : | 1.6 | : | : | : | 5.8 | : | : | : | : | 5.8 |
| Ukraine [6] | : | : | : | : | 6.0 | : | : | 6.3 | 6.6 | 6.6 | 6.6 |

*Sources: [1] ARMSTATBANK, [2] AZSTAT, [3] BELSTAT, [4] GEOSTAT, [5] MOLDSTAT, [6] UKRSTAT*

Protected areas as a share of total area have increased in Armenia, Azerbaijan and Georgia since 2000, in Belarus and the Republic of Moldova since 2005, and in Ukraine since 2012.

*Information sources:*

http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Indicators/D-1-en-final.pdf
https://armstatbank.am/pxweb/en/ArmStatBank/ArmStatBank_8%20Environment_(D)%20%20Biodiversity/EE-d1.px
https://www.stat.gov.az/source/environment/?lang=en
https://www.belstat.gov.by/en/ofitsialnaya-statistika/macroeconomy-and-environment/okruzhayuschaya-sreda/
https://www.geostat.ge/en/single-categories/109/environment
https://statbank.statistica.md/pxweb/pxweb/en/?rxid=5640908c-5f38-4dca-a4d6-1cb25f8b0a54
http://ukrstat.gov.ua/druk/publicat/kat_u/2019/zb/11/Zb_dovk_2018.pdf

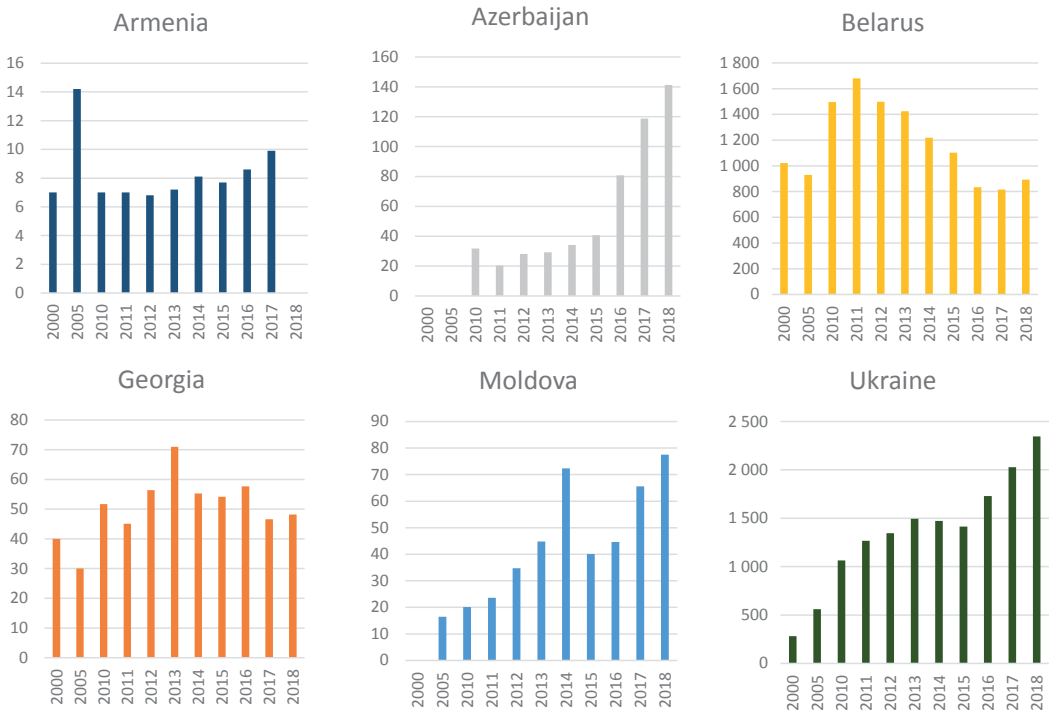
# ENVIRONMENTAL PRESSURES AND SECTORS

## AGRICULTURE

### Fertiliser consumption

The use of mineral and organic fertilisers in agriculture to increase the efficiency of cropping increases environmental hazards, such as water and soil pollution, and has negative effects on other environmental components by interfering with the natural balance of soil microflora.

***Amount of total mineral fertilisers — nitrogen (N), phosphorus (as $P_2O_5$) and potassium (as $K_2O$) used on agricultural land (thousand tonnes of nutrients)***




*Sources: IFASTAT, AZSTAT, BELSTAT, GEOSTAT, MOLDSTAT, UKRSTAT; Processed by: SEA*

Amount of total mineral fertilisers (N, $P_2O_5$, $K_2O$) used on agricultural land (thousand tons of nutrients)

| | 2000 | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Armenia (1) | 7 | 14.2 | 7 | 7 | 6.8 | 7.2 | 8.1 | 7.7 | 8.6 | 9.9 | : |
| Azerbaijan (2) | : | : | 31.7 | 20.4 | 28.1 | 29.3 | 34.1 | 40.6 | 80.7 | 118.7 | 141.3 |
| Belarus (3) | 1 021.7 | 929.4 | 1 497 | 1 680.1 | 1 498.6 | 1 425.2 | 1 218.6 | 1 102.5 | 833.4 | 815.8 | 892.1 |
| Georgia (4) | 40 | 30 | 51.7 | 45.1 | 56.4 | 71 | 55.3 | 54.2 | 57.7 | 46.6 | 48.2 |
| Moldova (5) | : | 16.5 | 20.1 | 23.6 | 34.7 | 44.8 | 72.4 | 40.1 | 44.6 | 65.6 | 77.5 |
| Ukraine (6) | 281.9 | 560.5 | 1 064.2 | 1 266.9 | 1 346.6 | 1 493.8 | 1 471.7 | 1 415 | 1 728.9 | 2 028.1 | 2 346.3 |

*Note: **Azerbaijan** – application of mineral fertilisers in agriculture, on the basis of 100 % active substance.*
*Sources: (1) ARMSTATBANK, (2) AZSTAT, (3) BELSTAT, (4) GEOSTAT, (5) MOLDSTAT, (6) UKRSTAT*

The use of mineral fertilisers has increased over the years in all countries except Belarus, where fertiliser consumption has decreased.

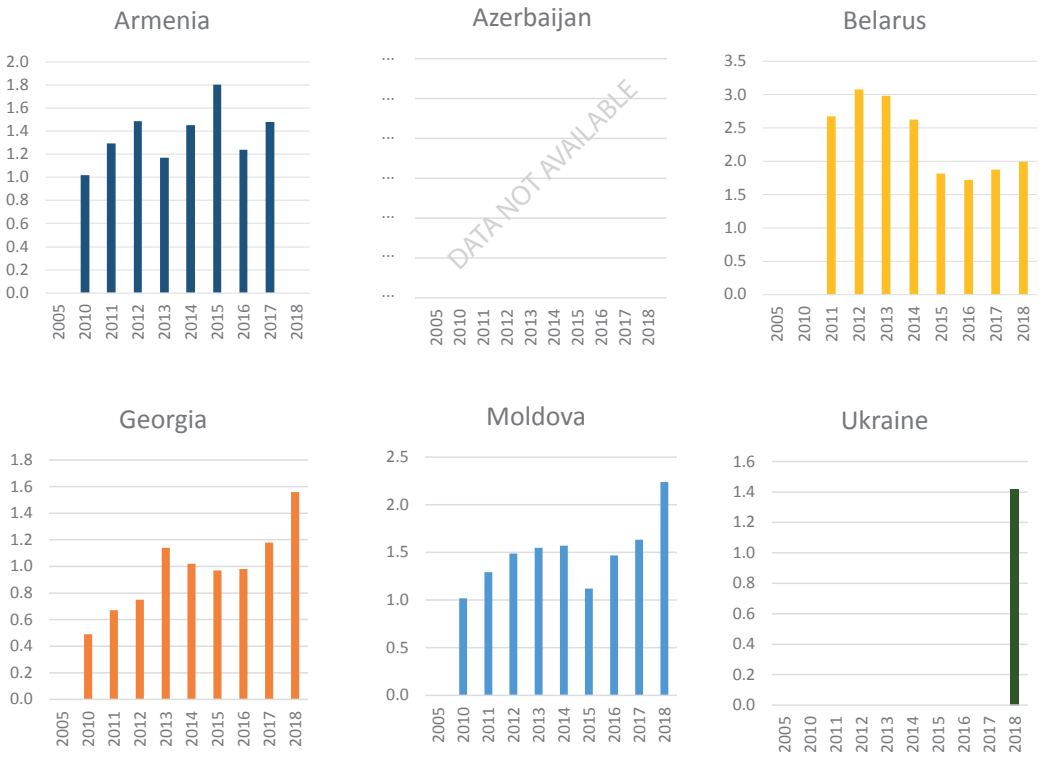
*Information sources:*

http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Indicators/F-2-en-final.pdf
https://www.ifastat.org/databases/plant-nutrition
https://www.stat.gov.az/source/agriculture/?lang=en
https://www.belstat.gov.by/upload-belstat/upload-belstat-excel/Ekolog_sistema/F_2_en_2019.xlsx
https://geostat.ge/media/25019/F-2.-Fertilizer-consumption_ENG.xlsx
https://statbank.statistica.md/pxweb/pxweb/ro/?rxid=5640908c-5f38-4dca-a4d6-1cb25f8b0a54
http://www.ukrstat.gov.ua/operativ/operativ2018/sg/vmod/vmod1990-2018_u.xls

### *Pesticide consumption*

The use of pesticides (insecticides, herbicides, fungicides, plant growth regulators, rodenticides and others) mainly for crop protection increases environmental hazards (soil pollution and negative effects on other parts of the environment). Pesticides can be persistent, mobile and toxic in soil, water and air. They can affect humans and wildlife either directly when applied to crops or indirectly through the food chain.

***Total consumption of pesticides per unit of land (kg/hectare)***




*Sources: ARMSTATBANK, BELSTAT, GEOSTAT, MOLDSTAT, UKRSTAT; Processed by: SEA*

Consumption of pesticides (kg/hectare)

| | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|
| Armenia [1] | : | 1.02 | 1.29 | 1.48 | 1.17 | 1.45 | 1.80 | 1.24 | 1.48 | : |
| Belarus [2] | : | : | 2.67 | 3.08 | 2.98 | 2.63 | 1.82 | 1.72 | 1.88 | 1.99 |
| Georgia [3] | : | 0.49 | 0.67 | 0.75 | 1.14 | 1.02 | 0.97 | 0.98 | 1.18 | 1.56 |
| Moldova [4] | : | 1.02 | 1.29 | 1.49 | 1.55 | 1.57 | 1.12 | 1.47 | 1.63 | 2.24 |
| Ukraine [5] | : | : | : | : | : | : | : | : | : | 1.42 |

*Notes:* ***Armenia*** *— kg pesticides/hectare of land.* ***Belarus*** *— kg pesticides/hectare of arable land.* ***Georgia, the Republic of Moldova, Ukraine*** *— kg pesticides/hectare of agricultural land.* ***Azerbaijan*** *— data not available.*

*Sources: [1] ARMSTATBANK, [2] BELSTAT, [3] GEOSTAT, [4] MOLDSTAT, [5] UKRSTAT*

Total pesticide consumption per hectare of land saw an increasing trend in most of the countries, with the exception of Belarus, where consumption decreased. For Ukraine, data are only available for the last year considered (2018).

*Information sources:*

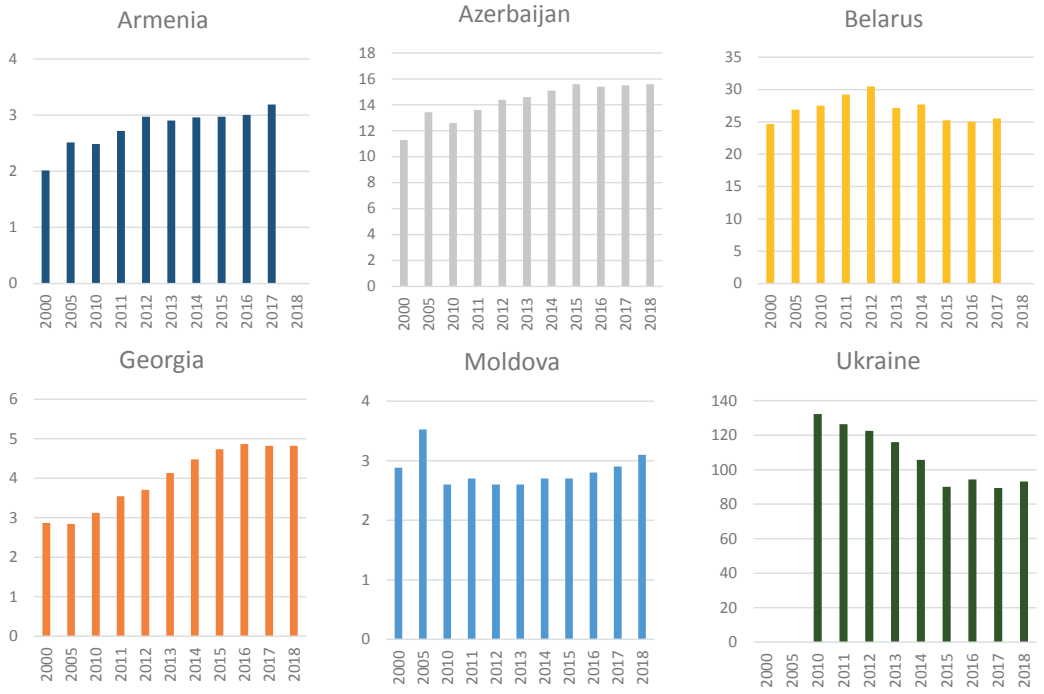
http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Indicators/F-4-en-final.pdf
https://armstatbank.am/pxweb/en/ArmStatBank/ArmStatBank__8%20Environment__(E,F)%20Land%20and%20Agriculture/EE-f4.px
https://www.belstat.gov.by/upload/iblock/13d/13db9330bb25d88542a51c46765b3419.pdf
https://www.geostat.ge/en/modules/categories/565/environmental-indicators
https://statistica.gov.md/public/files/publicatii_electronice/Anuar_Statistic/2019/16_AS.pdf
http://www.ukrstat.gov.ua/operativ/operativ2018/sg/vmod/vmodsg2018.xls

## ENERGY

### *Total primary energy supply*

Energy is a key factor in industrial development. However, current energy production and consumption practices have considerable negative impacts on the environment. There is a need for long-term objectives in this area, in particular for the development and dissemination of alternative energy technologies to increase the share of renewable energies in the energy mix, for improving energy efficiency and for greater reliance on advanced energy technologies, including cleaner fossil fuel technologies.

***Total primary energy supply comprises production + imports – exports - international marine bunkers - international aviation bunkers ± stock changes (millions tonnes of oil equivalent)***




*Sources: OECD, AZSTAT, BELSTAT, GEOSTAT, MOLDSTAT, UKRSTAT; Processed by: SEA*

Total primary energy supply (millions tonnes of oil equivalent)

| | 2000 | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Armenia [1] | 2.0 | 2.5 | 2.5 | 2.7 | 3.0 | 2.9 | 3.0 | 3.0 | 3.0 | 3.2 | : |
| Azerbaijan [2] | 11.3 | 13.4 | 12.6 | 13.6 | 14.4 | 14.6 | 15.1 | 15.6 | 15.4 | 15.5 | 15.6 |
| Belarus [3] | 24.7 | 26.9 | 27.5 | 29.2 | 30.5 | 27.2 | 27.7 | 25.2 | 25.0 | 25.5 | : |
| Georgia [4] | 2.9 | 2.8 | 3.1 | 3.5 | 3.7 | 4.1 | 4.5 | 4.7 | 4.9 | 4.8 | 4.8 |
| Moldova [5] | 2.9 | 3.5 | 2.6 | 2.7 | 2.6 | 2.6 | 2.7 | 2.7 | 2.8 | 2.9 | 3.1 |
| Ukraine [6] | : | : | 132.3 | 126.4 | 122.5 | 115.9 | 105.7 | 90.1 | 94.4 | 89.5 | 93.2 |

*Sources: [1] ARMSTATBANK, [2] AZSTAT, [3] BELSTAT, [4] GEOSTAT, [5] MOLDSTAT, [6] UKRSTAT*

Between 2000 and 2017 (or 2018), there was an increasing trend in total primary energy supply in all countries except Ukraine, where it has decreased since 2010.

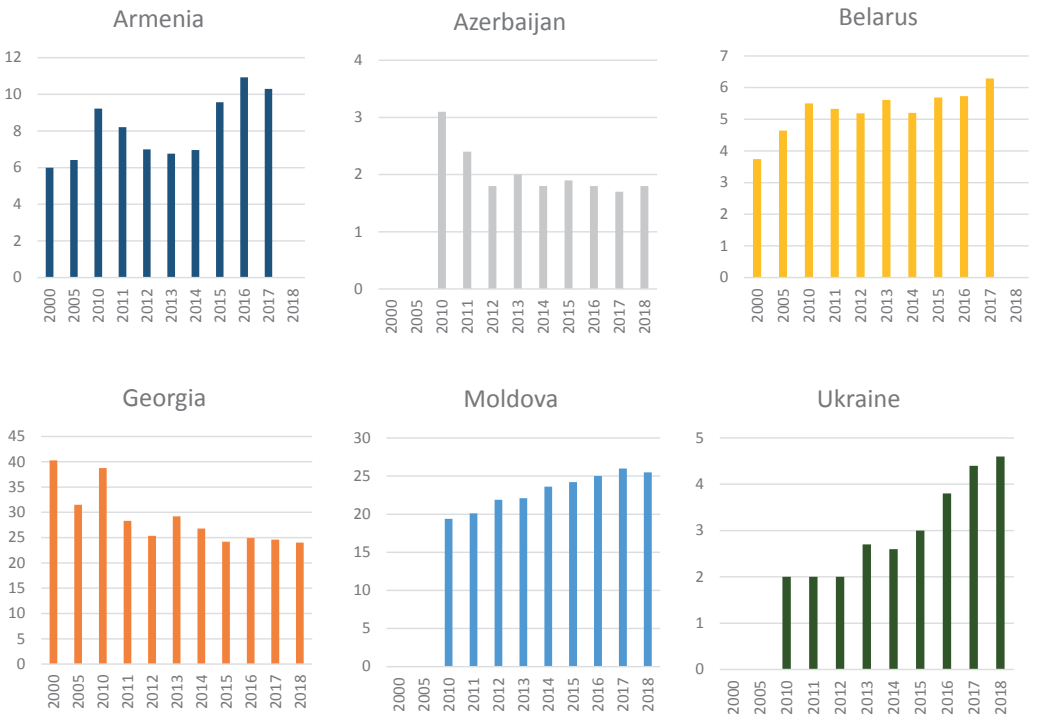
*Information sources:*

http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Indicators/G-2-en-final.pdf
https://stats.oecd.org/Index.aspx?DataSetCode=GREEN_GROWTH
https://www.stat.gov.az/source/environment/?lang=en018.xls
https://www.belstat.gov.by/upload-belstat/upload-belstat-excel/Ekolog_sistema/G-2-en.xlsx
https://geostat.ge/media/29114/G-2.-Total-primary-energy-supply_ENG.xls
https://statbank.statistica.md/pxweb/pxweb/ro/40%20Statistica%20economica/40%20Statistica%20economica__15%20ENE__serii%20anuale/ENE020100.px/table/tableViewLayout1/?rxid=db24c138-6d14-471d-a9a3-6343eb856cf6
http://www.ukrstat.gov.ua/operativ/operativ2016/sg/ekolog/engl/zp_pen_e.htm

### *Renewable energy consumption*

The economy's dependence on non-renewable energy resources (fossil fuels) cannot be sustainable in the end, as natural fossil fuel resources are limited, whereas renewable resources can ensure a continuous energy supply. Sources of renewable energy are considered the best option for reducing the negative environmental impacts of energy production and consumption.

***Share of energy from renewable sources in gross final energy supply (%)***




*Sources: OECD, AZSTAT, BELSTAT, GEOSTAT, MOLDSTAT, UKRSTAT; Processed by: SEA*

Share of renewable sources in gross final energy supply (%)

| | 2000 | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Armenia [1] | 6.0 | 6.4 | 9.2 | 8.2 | 7.0 | 6.8 | 7.0 | 9.6 | 10.9 | 10.3 | : |
| Azerbaijan [2] | : | : | 3.1 | 2.4 | 1.8 | 2.0 | 1.8 | 1.9 | 1.8 | 1.7 | 1.8 |
| Belarus [3] | 3.7 | 4.6 | 5.5 | 5.3 | 5.2 | 5.6 | 5.2 | 5.7 | 5.7 | 6.3 | : |
| Georgia [4] | 40.3 | 31.5 | 38.7 | 28.3 | 25.3 | 29.2 | 26.8 | 24.2 | 24.9 | 24.6 | 24.0 |
| Moldova [5] | : | : | 19.4 | 20.1 | 21.9 | 22.1 | 23.6 | 24.2 | 25.0 | 26.0 | 25.5 |
| Ukraine [6] | : | : | 2.0 | 2.0 | 2.0 | 2.7 | 2.6 | 3.0 | 3.8 | 4.4 | 4.6 |

*Note:* ***Azerbaijan*** *— share of total renewable energy supply in total energy consumption.*
*Sources: [1] ARMSTATBANK, [2] AZSTAT, [3] BELSTAT, [4] GEOSTAT, [5] MOLDSTAT, [6] UKRSTAT*

Between 2000 and 2017 (or 2018), the share of energy from renewable sources in gross final energy supply saw an increasing trend in Armenia, Belarus, the Republic of Moldova and Ukraine, but not Georgia, where it decreased over this period. In Azerbaijan, since 2010 the share of total renewable energy supply in total energy consumption has decreased.

*Information sources:*

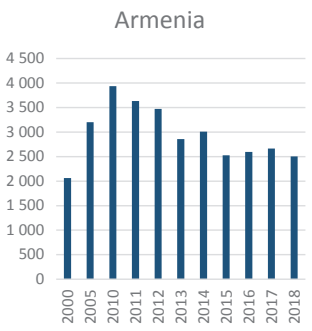
http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Indicators/G-4-en-final.pdf
https://stats.oecd.org/Index.aspx?DataSetCode=GREEN_GROWTH
https://www.stat.gov.az/source/balance_fuel/?lang=en
https://www.belstat.gov.by/upload-belstat/upload-belstat-excel/Ekolog_sistema/G-4-en.xlsx
https://geostat.ge/media/28965/G-4.-Renewable-energy-supply_ENG.xls
https://statbank.statistica.md/Energy balance indicators/Biofuels and waste
http://www.ukrstat.gov.ua/operativ/operativ2016/sg/ekolog/engl/esp_vg_e.htm

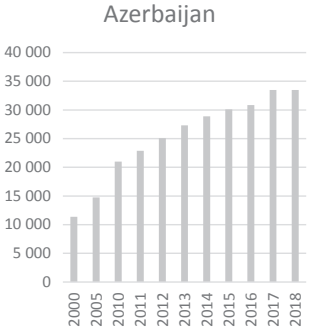
## TRANSPORT

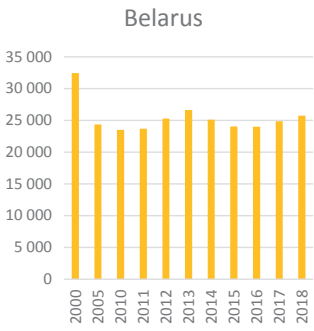
### *Passenger transport demand*

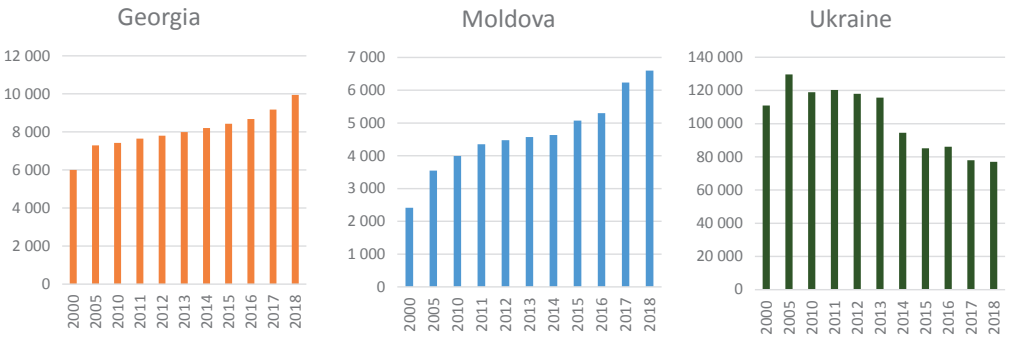
Travel is an essential part of the economic and social life of a country. However, continuous growth in demand for transport, especially road transport, raises concern regarding its long-term sustainability. This problem is aggravated by the considerable age and energy intensity, as well as the poor environmental standards of the vehicle fleets, and the poor state of the road infrastructure. Maintaining current trends in the transport sectors would lead to sharp increases in environmental and health problems related to air pollution, noise pollution and extensive land uptake.

***Total passenger transport demand (million passenger km)***






*Sources: ARMSTATBANK, AZSTAT, BELSTAT, GEOSTAT, MOLDSTAT, UKRSTAT; Processed by: SEA*

Total passenger transport demand (million passenger km)

| | 2000 | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Armenia (1) | 2 063 | 3 199 | 3 938 | 3 631 | 3 471 | 2 858 | 3 009 | 2 525 | 2 598 | 2 666 | 2 504 |
| Azerbaijan (2) | 11 367 | 14 747 | 20 997 | 22 881 | 25 083 | 27 307 | 28 905 | 30 111 | 30 835 | 33 487 | 33 497 |
| Belarus (3) | 32 449 | 24 354 | 23 498 | 23 671 | 25 295 | 26 619 | 25 092 | 24 051 | 24 018 | 24 850 | 25 757 |
| Georgia (4) | 6 002 | 7 294 | 7 419 | 7 652 | 7 807 | 7 992 | 8 207 | 8 429 | 8 684 | 9 173 | 9 947 |
| Moldova (5) | 2 415 | 3 549 | 3 993 | 4 350 | 4 472 | 4 574 | 4 632 | 5 072 | 5 302 | 6 232 | 6 597 |
| Ukraine (6) | 110 869 | 129 627 | 118 974 | 120 355 | 117 952 | 115 713 | 94 545 | 85 214 | 86 044 | 78 003 | 77 077 |

*Note: **The Republic of Moldova** — data excluding information from left part of River Nistru and municipality of Bender.*
*Sources: (1) ARMSTATBANK, (2) AZSTAT, (3) BELSTAT, (4) GEOSTAT, (5) MOLDSTAT, (6) UKRSTAT*

Between 2000 and 2018, total passenger transport demand saw an increasing trend in Armenia, Azerbaijan, Georgia and the Republic of Moldova. During the same period, the there was a decreasing trend in Belarus and Ukraine.

*Information sources:*

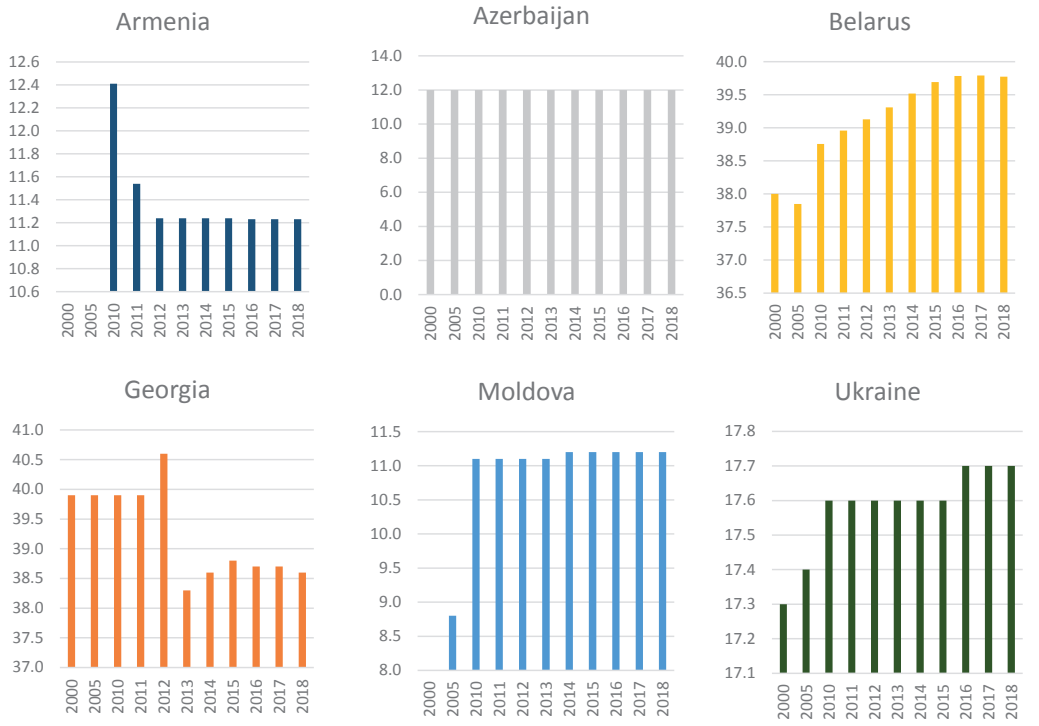
http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Indicators/H-1-en-final.pdf
https://armstatbank.am/pxweb/en/ArmStatBank/ArmStatBank__8%20Environment__(H)%20Transport/EE-h1.px
https://www.stat.gov.az/source/environment/?lang=en
https://www.belstat.gov.by/upload-belstat/upload-belstat-excel/Ekolog_sistema/H-1-en-1911.xlsx
https://www.geostat.ge/en/modules/categories/565/environmental-indicators
https://statbank.statistica.md/pxweb/Transport/passenger turnover
http://www.ukrstat.gov.ua/operativ/operativ2015/sg/ekolog/engl/pt_e.xlsx

## FORESTRY

### *Forests and other wooded land*

Forests are among the most diverse and widespread ecosystems on earth and have many functions. They provide timber and other products deliver recreation benefits and ecosystem services, including regulation of soil and water regimes, they are reservoirs of biodiversity, and they act as carbon dioxide sinks. Overexploitation, fragmentation, environmental degradation and conversion into other types of land use threaten many forest resources.

***Forests and other wooded land as a share of the country's total area (%)***




*Sources: ARMSTATBANK, AZSTAT, BELSTAT, GEOSTAT, MOLDSTAT, UKRSTAT; Processed by: SEA*

Forests and other wooded land as a share of the country's total area (%)

| | 2000 | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Armenia [1] | : | : | 12.4 | 11.5 | 11.2 | 11.2 | 11.2 | 11.2 | 11.2 | 11.2 | 11.2 |
| Azerbaijan [2] | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Belarus [3] | 38.0 | 37.8 | 38.8 | 39.0 | 39.1 | 39.3 | 39.5 | 39.7 | 39.8 | 39.8 | 39.8 |
| Georgia [4] | 39.9 | 39.9 | 39.9 | 39.9 | 40.6 | 38.3 | 38.6 | 38.8 | 38.7 | 38.7 | 38.6 |
| Moldova [5] | : | 8.8 | 11.1 | 11.1 | 11.1 | 11.1 | 11.2 | 11.2 | 11.2 | 11.2 | 11.2 |
| Ukraine [6] | 17.3 | 17.4 | 17.6 | 17.6 | 17.6 | 17.6 | 17.6 | 17.6 | 17.7 | 17.7 | 17.7 |

*Sources: [1] ARMSTATBANK, [2] AZSTAT, [3] BELSTAT, [4] GEOSTAT, [5] MOLDSTAT, [6] UKRSTAT*

The share of forests and other wooded land in the total area of the country achieved a balanced trend in Azerbaijan. The share has fallen in Armenia since 2010 and in Georgia since 2000. In contrast, the share of wooded land increased in Belarus, the Republic of Moldova and Ukraine.

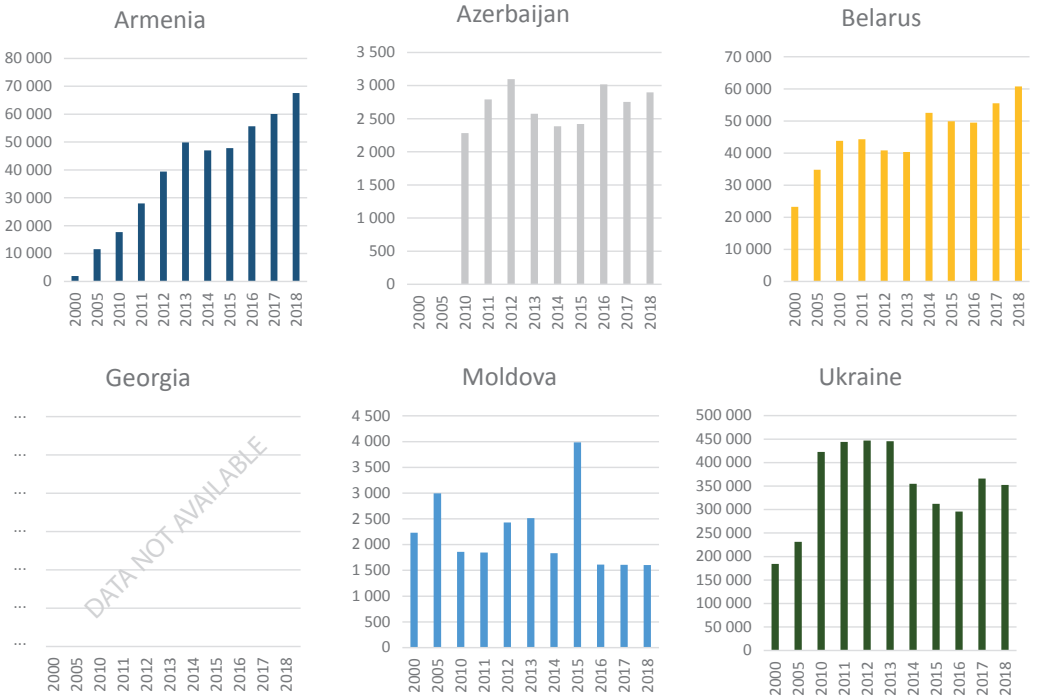
*Information sources:*

http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Indicators/D-3-en-final.pdf
https://armstatbank.am/pxweb/en/ArmStatBank/ArmStatBank__8%20Environment__(D)%20%20Biodiversity/EE-d3.px/
https://www.stat.gov.az/source/environment/en/en029.xls
https://www.belstat.gov.by/en/ofitsialnaya-statistika/macroeconomy-and-environment/okruzhayuschaya-sreda/
https://www.geostat.ge/media/28027/saqartvelos_bunebrivi_resursebi_da_garemos_dacva_2018.pdf
https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774
http://ukrstat.gov.ua/druk/publicat/kat_u/2019/zb/11/Zb_dovk_2018.pdf

## Waste generation

Sound and efficient use of natural resources is an important part of sustainable development. Waste represents a significant loss of resources in the form of materials and energy. Waste generation is closely linked to the level of economic activity in the country and reflects society's production and consumption patterns.

***Amount of total generated waste (thousand tonnes)***




*Sources: ARMSTATBANK, AZSTAT, BELSTAT, MOLDSTAT, UKRSTAT; Processed by: SEA*

Amount of total generated waste (thousand tonnes)

| | 2000 | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Armenia [1] | 1 921 | 11 584 | 17 724 | 27 990 | 39 437 | 49 841 | 47 030 | 47 831 | 55 661 | 60 116 | 67 616 |
| Azerbaijan [2] | : | : | 2 282 | 2 790 | 3 097 | 2 576 | 2 386 | 2 421 | 3 020 | 2 755 | 2 896 |
| Belarus [3] | 23 260 | 34 782 | 43 775 | 44 308 | 40 847 | 40 305 | 52 529 | 49 865 | 49 448 | 55 506 | 60 723 |
| Moldova [4] | 2 229 | 2 996 | 1 861 | 1 846 | 2 430 | 2 512 | 1 832 | 3 985 | 1 612 | 1 607 | 1 602 |
| Ukraine [5] | 184 192 | 231 190 | 422 550 | 443 796 | 446 717 | 445 262 | 355 000 | 312 268 | 295 870 | 366 054 | 352 334 |

*Notes: **Azerbaijan** — waste from production and consumption. **Belarus** — industrial waste. **The Republic of Moldova** — waste in enterprises; data excluding information from left part of River Nistru and municipality of Bender. **Ukraine** — waste from economic activities and households; data for the years 2010-2013 do not include the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and for the years 2014-2018 data also do not include part of the temporarily occupied areas in the Donetsk and Luhansk regions. **Georgia** — data not available.*

*Sources: [1] ARMSTATBANK, [2] AZSTAT, [3] BELSTAT, [4] MOLDSTAT, [5] UKRSTAT*

Between 2000 and 2018, the amount of total waste generated in Armenia (total waste), in Belarus (total industrial waste) and in Ukraine (waste from economic activities and households) increased, as it did in Azerbaijan (total waste from production and consumption) from 2010. The exception is the Republic of Moldova (waste in enterprises), where the total amount decreased between 2000 and 2018.

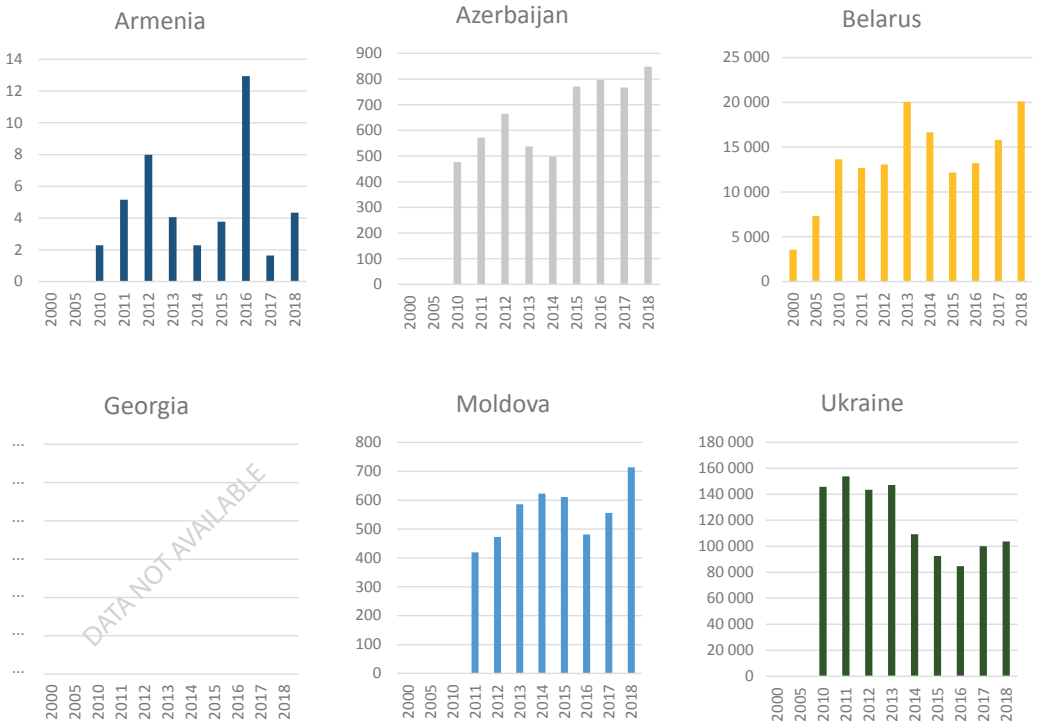
*Information sources:*

http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Indicators/I-1-en-final.pdf
https://armstatbank.am/pxweb/en/ArmStatBank/ArmStatBank__8%20Environment__(I)%20Waste/EE-i1-1.px
https://www.stat.gov.az/source/environment/?lang=en
https://www.belstat.gov.by/en/ofitsialnaya-statistika/macroeconomy-and-environment/okruzhayuschaya-sreda/
https://www.geostat.ge/en/modules/categories/565/environmental-indicators
https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774
http://www.ukrstat.gov.ua/operativ/operativ2015/sg/ekolog/engl/pt_e.xlsx

## *Waste reuse and recycling*

Waste reuse and recycling is an important component of sustainable use of resources in general and sustainable waste management in particular. When waste reuse and recycling are implemented, landfill capacity is conserved and waste management expenditure is reduced.

***Amount of waste reused (thousand tonnes)***




*Sources: ARMSTATBANK, AZSTAT, BELSTAT, MOLDSTAT, UKRSTAT; Processed by: SEA*

Amount of waste reused (thousand tonnes)

| | 2000 | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Armenia [1] | : | : | 2.3 | 5.2 | 8.0 | 4.1 | 2.3 | 3.8 | 12.9 | 1.6 | 4.3 |
| Azerbaijan [2] | : | : | 476 | 572 | 665 | 537 | 497 | 771 | 797 | 767 | 848 |
| Belarus [3] | 3 569 | 7 325 | 13 647 | 12 671 | 13 066 | 20 059 | 16 654 | 12 164 | 13 213 | 15 798 | 20 106 |
| Moldova [4] | : | : | : | 419 | 473 | 586 | 623 | 611 | 481 | 556 | 714 |
| Ukraine [5] | : | : | 145 711 | 153 687 | 143 454 | 147 178 | 109 280 | 92 464 | 84 630 | 100 056 | 103 658 |

*Notes: **Armenia** — the amount of hazardous waste reused (without municipal waste). **Azerbaijan** — the amount of used and disposed waste from production and consumption. **Belarus** — the amount of waste recovered from total industrial waste generated. **The Republic of Moldova** — the amount of waste reused from total generated waste in enterprises, excluding information from left part of River Nistru and municipality of Bender. **Ukraine** — the amount of waste used from total waste generated from economic activities and households (data for 2010-2013 includes the amount of waste that has been prepared for use as well); data for the years 2014-2018 do not include the temporarily occupied territories of the Autonomous Republic of Crimea, the city of Sevastopol and a part of temporarily occupied territories in the Donetsk and Luhansk regions. **Georgia** — data not available.*

*Sources: [1] ARMSTATBANK, [2] AZSTAT, [3] BELSTAT, [4] MOLDSTAT, [5] UKRSTAT*

Between 2010 and 2018, the amount of waste reuse in Armenia (hazardous waste without municipal waste), in Azerbaijan (used and disposed waste from production and consumption) and in Belarus (recovered waste from total industrial waste) increased, as it did in the Republic of Moldova from 2011 (waste reused from total generated waste in enterprises). From 2010 to 2018, the amount of waste used from the total waste generated from economic activities and households decreased in Ukraine.

*Information sources:*

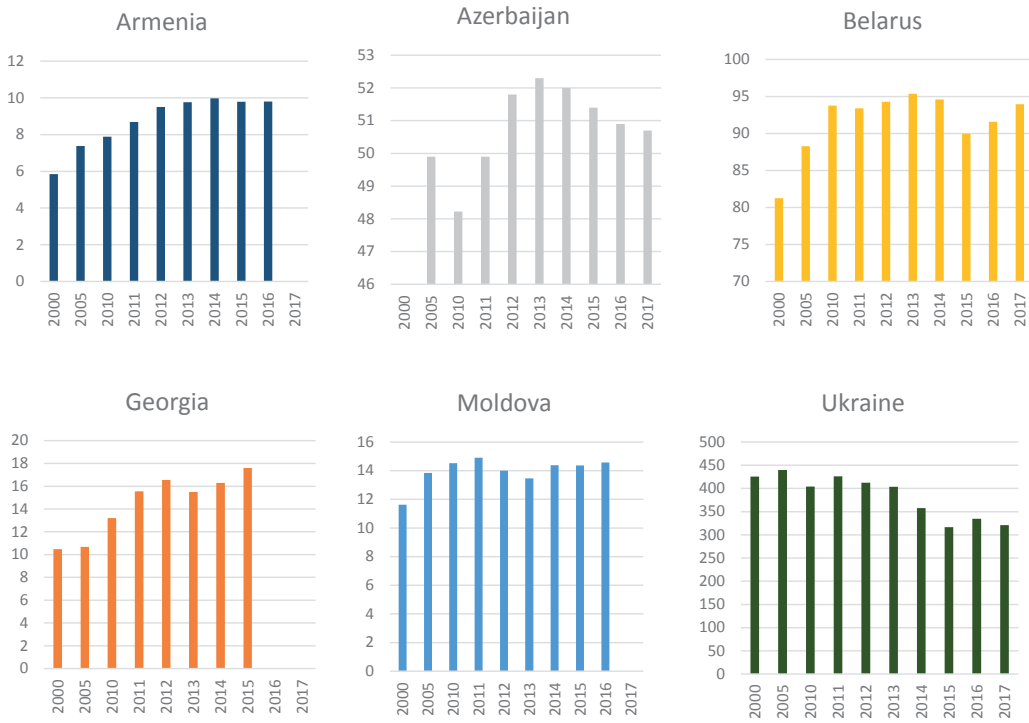
http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Indicators/I-3-en-final.pdf
https://armstatbank.am/pxweb/en/ArmStatBank/ArmStatBank__8%20Environment__(I)%20Waste/EE-i2.px
https://www.stat.gov.az/source/environment/?lang=en
https://www.belstat.gov.by/en/ofitsialnaya-statistika/macroeconomy-and-environment/okruzhayuschaya-sreda/
https://www.geostat.ge/en/modules/categories/565/environmental-indicators
https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774
http://ukrstat.gov.ua/druk/publicat/kat_u/2019/zb/11/Zb_dovk_2018.pdf
http://www.ukrstat.gov.ua/operativ/operativ2006/ns_rik/ns_e/opap_rik_e2005.htm

# CLIMATE CHANGE

## Greenhouse gas emissions

This indicator provides a measure of the existing and future anthropogenic impact on the Earth's climate due to emissions of greenhouse gases (GHGs) into the atmosphere. Increasing GHG concentrations can affect the Earth's climate and have potential consequences for ecosystems, human settlements, agriculture and other socio-economic activities.

***Total anthropogenic emissions of GHGs included in Annex A to the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC): carbon dioxide ($CO_2$), nitrous oxide ($N_2O$), methane ($CH_4$), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride ($SF_6$) in million tonnes of $CO_2$ equivalent (Mt $CO_2$ equivalent)***




*Notes:* ***Armenia, Belarus, Georgia, the Republic of Moldova, Ukraine*** *— total GHG emissions without land use, land use change and forestry.* ***Azerbaijan*** *— GHG emissions ($CO_2$ + $N_2O$ + $CH_4$ + fluorinated gases) without land use, land use change and forestry.*

*Sources: ARMSTATBANK, AZSTAT, BELSTAT, UNFCCC, http://www.clima.md, https://menr.gov.ua; Processed by: SEA*

Total GHG emissions (Mt $CO_2$ equivalent)

| | 2000 | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Armenia [1] | 5.9 | 7.4 | 7.9 | 8.7 | 9.5 | 9.8 | 10.0 | 9.8 | 9.8 | : |
| Azerbaijan [2] | : | 49.9 | 48.2 | 49.9 | 51.8 | 52.3 | 52.0 | 51.4 | 50.9 | 50.7 |
| Belarus [3] | 81.2 | 88.3 | 93.8 | 93.4 | 94.3 | 95.4 | 94.6 | 90.0 | 91.6 | 94.0 |
| Georgia [4] | 10.5 | 10.7 | 13.2 | 15.6 | 16.6 | 15.5 | 16.3 | 17.6 | : | : |
| Moldova [5] | 11.6 | 13.9 | 14.5 | 14.9 | 14.0 | 13.5 | 14.4 | 14.4 | 14.6 | : |
| Ukraine [6] | 425.8 | 439.6 | 404.1 | 426.1 | 412.6 | 403.5 | 357.5 | 316.5 | 334.8 | 320.9 |

*Notes:* ***Armenia, Belarus, Georgia, the Republic of Moldova, Ukraine*** *— total GHG emissions without land use, land use change and forestry.* ***Azerbaijan*** *— GHG emissions ($CO_2$ + $N_2O$ + $CH_4$ + fluorinated gases) without land use, land use change and forestry.*

*Sources: [1] ARMSTATBANK, [2] AZSTAT, [3] BELSTAT, [4] UNFCCC, [5] http://www.clima.md, [6] https://menr.gov.ua*

Total GHG emissions increased over the period evaluated in all countries except Ukraine, where the total GHG emissions, without counting those from land use, land use change and forestry, decreased over the period.

*Information sources:*

http://www.unece.org/fileadmin/DAM/env/europe/monitoring/Indicators/B-3-en-final.pdf
https://armstatbank.am/pxweb/en/ArmStatBank/ArmStatBank__8%20Environment__(B)%20Climate%20change__(B3)%20Greenhouse%20gas%20emissions/EE-b3-1.px
https://www.stat.gov.az/source/environment/?lang=en
https://www.belstat.gov.by/upload-belstat/upload-belstat-excel/Ekolog_sistema/B-3-en_2019.xlsx
https://www.ge.undp.org/content/dam/georgia/docs/publications/ENV/UNDP GE_EE_GHG%20national%20inventory%20report%201990-2015%20ENG.pdf
http://www.clima.md/lib.php?l=en&idc=82&
https://menr.gov.ua/files/docs/Zmina_klimaty/kadastr2017/Ukraine_NIR_2019_draft.pdf

# ENVIRONMENTAL FINANCING

## *Expenditure on environmental protection*

Environmental protection expenditure shows the efforts being made to prevent, reduce and eliminate pollution resulting from the production or consumption of goods and services.

***Total environmental protection expenditure is the amount of environmental protection expenditure on and investment in environmental protection and rational use of natural resources (in national currencies)***


*Note: **Belarus** – in BYR billion (until 2016) / BYN million (2016 – 2018)*

*Sources: ARMSTATBANK, AZSTAT, BELSTAT, EIEC, MADRM, UKRSTAT; Processed by: SEA*

Total environmental protection expenditure (in national currencies)

| | 2000 | 2005 | 2010 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|
| Armenia [1] (million AMD) | 904.8 | 3 414.9 | 8 778.7 | 8 473.1 | 8 775.5 | 9 818.7 | 12 121.7 |
| Azerbaijan [2] (thousand AZN) | 18 188.4 | 30 905.7 | 260 673.8 | 136 208.3 | 155 817.2 | 189 044.1 | 319 256.1 |
| Belarus [3] (billion BYR / *million BYN) | 158.0 | 967.0 | 2 002.0 | 8 877.1 | 1 012.2* | 1 047.3* | 820.1* |
| Georgia [4] (thousand GEL) | : | : | : | 37 607.9 | 41 655.9 | 38 970.0 | 34 609.0 |
| Moldova [5] (MDL) | : | : | : | 420 781 991.8 | 434 800 516.0 | 49 161 560.0 | 382 783 710.0 |
| Ukraine [6] (million UAH) | : | : | 13 128.0 | 24 591.1 | 32 488.7 | 31 492.0 | 34 392.3 |

*Notes:* ***Armenia*** *— current expenditure for nature protection and fixed assets in million drams.* ***Azerbaijan*** *— the amount of environmental protection expenditure on and fixed capital investment in environmental protection and rational use of natural resources in thousand manat.* ***Belarus*** *— the amount of environmental protection expenditure on and fixed capital investment in environmental protection and rational use of natural resources in billion Belarusian ruble (BYR, until 2016) million Belarusian ruble (BYN, 2016-2018) (without denomination 1 BYN = 10 000 BYR), in 2018 excluding value added tax.* ***Georgia*** *— actual execution of the State budget of environmental programmes in thousand lari.* ***The Republic of Moldova*** *— the amount approved annually by the National Ecological Fund for financing the activities in the environmental field in Moldovan lei.* ***Ukraine*** *— the amount of environmental protection expenditure on and fixed capital investment in environmental protection in million hryvnia; data for 2015-2018 do not include the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and a part of temporarily occupied territories in the Donetsk and Luhansk regions.*

*Sources: [1] ARMSTATBANK, [2] AZSTAT, [3] BELSTAT, [4] EIEC, [5] MADRM, [6] UKRSTAT*

In particular, an increasing trend in expenditure on environmental protection was observed in all countries under review.

*Information sources:*

https://armstatbank.am/pxweb/en/ArmStatBank/ArmStatBank__8%20Environment__(J)%20Environmental%20financing/EE-j-1.px
https://www.stat.gov.az/source/environment/?lang=013¬_4en.xls
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# LIST OF ACRONYMS

| | |
|---|---|
| **ARMSTATBANK** | Statistical Committee of the Republic of Armenia |
| **AZSTAT** | The State Statistical Committee of the Republic of Azerbaijan |
| **BELSTAT** | National Statistical Committee of the Republic of Belarus |
| **EEA** | European Environment Agency |
| **EIEC** | Environmental Information and Education Centre of Georgia |
| **GEOSTAT** | National Statistics Office of Georgia |
| **GHG** | Greenhouse gas |
| **IFASTAT** | International Fertilizer Association |
| **MADRM** | Ministry of Agriculture, Regional Development and Environment of the Republic of Moldova |
| **MEPA** | Ministry of Environmental Protection and Agriculture of Georgia |
| **n.a.** | Not available |
| **NEA** | National Environmental Agency of Georgia |
| **OECD** | Organisation for Economic Co-operation and Development |
| **$PM_{2.5}$** | Particulate Matter to 2.5 micrometers in size |
| **SEA** | Slovak Environment Agency |
| **MOLDSTAT** | National Bureau of Statistics of the Republic of Moldova |
| **UKRSTAT** | State Statistics Service of Ukraine |

# Environment in Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova and Ukraine – Facts and figures


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