

State of SEIS implementation 2018

Country Factsheet

ARMENIA

Armenia has been making significant progress in establishing SEIS, through the implementation of the SEIS principles and the three pillars: Content, Infrastructure and Cooperation. Armenia participates actively in the work of the United Nations Economic Commission for Europe (UNECE) Working Group on Environmental Monitoring and Assessment (WGEMA), and the UNECE Joint Task Force (JTF) on Environmental Statistics and Indicators, which support countries in Europe and Central Asia towards establishing SEIS by 2021. The present document provides an overview of the state of implementation of SEIS in Armenia and offers recommendations on how to fully achieve the SEIS 2021 target.

KEY MESSAGES

Content

- Armenia has been making considerable progress in making UNECE environmental indicators publicly available and accessible
- 42 out of 49 (including 7 placeholders) UNECE environmental indicators are available in 2018

Infrastructure

- A common national platform was established to facilitate accessibility to environmental information
- A dedicated section on SDGs indicators is available on the website of the Statistical Committee
- A pilot project on SEIS establishment for Lake Sevan was initiated: Water Resources Indicators are implemented within the frame of the ENPI-SEIS project¹

Cooperation

- Armenia shows a good level of cooperation between national stakeholders
- Armenia participates actively in the UNECE indicator-related processes and the SEIS projects supported by the European Union (EU) and the European Environment Agency (EEA)
- A letter of Intent on political commitments to environmental information between the EEA, the Statistical Committee (SC) and the Ministry of Nature Protection (MNP) was signed under the scope of the ENI-SEIS EAST II project²

THE SEVEN SEIS PRINCIPLES³ AND THEIR STATE OF APPLICATION IN ARMENIA⁴

According to the SEIS principles, information should be:

Managed as close as possible to its source

Collected once and shared with others for many purposes

Readily available to easily fulfill reporting obligations

Easily accessible to all users

Accessible to enable comparisons at the appropriate geographical scale and citizen participation

Fully available to the general public at the national level in the relevant national language(s)

Supported through common free open software standards

● fully applied

● partially applied

● application is limited



¹ The ENPI-SEIS project – Projects “Towards a Shared Environmental Information System in the European Neighborhood”.

² The ENI-SEIS - Project “Implementation of the principles and practices of the shared environmental information system (SEIS) in the Eastern Partnership countries”.

³ More information on SEIS principles is available at: <https://www.eionet.europa.eu/seis/principles>.

⁴ Evaluation is based on experts’ opinion; possible changes or clarifications may be made after discussions with Armenia’s counterparts.

MANAGEMENT OF ENVIRONMENTAL INFORMATION – OVERVIEW



Organizations responsible for collecting, producing, managing and sharing environmental data and information

The Ministry of Nature Protection



The Statistical Committee



The Ministry of Emergency Situations, State Hydrometeorological and Monitoring Service



The Ministry of Agriculture, Land Use and Melioration Department



The Ministry of energy infrastructures and natural resources of the Republic of Armenia, Water Committee



The Ministry of Energy Infrastructures and Natural Resources, Renewable Energy Department



The Ministry of Health, National Centre of Disease Control and Prevention



The Ministry of Urban Development, Urban Development Policy and Spatial Planning Department



Academia, NGOs



Accessibility and availability of environmental information, data and indicators

WHERE?: On the [Statistical Committee](#) and [Ministry of Nature Protection](#) websites, websites of Conventions

In [SoER](#), the Statistical Yearbook ([environment](#)) and monthly bulletins, [thematic reports](#)

In implementation reports to MEAs ([UNFCCC](#), [UNCCD](#), [UNCBD](#), [BRS](#), [Minamata](#) etc.)

IN WHAT FORMATS?: Reports (e.g. SoER), additional information provided, metadata provided, visuals (tables, graphs, maps, diagrams)

IN WHICH LANGUAGES?: Armenian, English



Environmental indicators in use

UNECE environmental indicators (42 indicators)

SDGs (there is a potential to use)

OECD Green Growth indicators (there is a potential to use)

Reports to MEAs



air



water



climate change



waste



biodiversity



land cover



soil



env. statistics



public relations



information dissemination

CONTENT AND INFRASTRUCTURE

FROM INDICATOR PRODUCTION TO USE

STATE OF PRODUCTION AND SHARING OF ENVIRONMENTAL INDICATORS

Out of the 49 UNECE environmental indicators, 23 were selected for detailed assessment as part of a 2017-2018 UNECE study on the state of production, sharing and use of UNECE environmental indicators in the EU Eastern Partnership countries⁵. Other 26 indicators were covered in less detail and with less rigorous assessment criteria.

23 assessed UNECE environmental indicators in Armenia (2018):

- 16 indicators indicated the responsible authority for indicator production;
- 21 indicators included the time of update;
- 6 indicators contained reference to their conformity with international standards;
- 21 indicators included visual representations.

⁵ The EU-funded project supports production and regular update of the regional set of indicators and strengthening environmental statistics and accounting in the six Eastern Partnership countries under the ENI SEIS East II project.

Indicators (number of data sets underpinning them)	A	R	T	M	V
A. Air pollution and ozone depletion					
A1: Emissions of pollutants into the atmospheric air (14)	7	0	2	0	1
A2: Ambient air quality in urban areas (4)	3	1	2	0	1
A3: Consumption of ozone-depleting substances (7)	4	1	2	0	1
B. Climate change					
B1: Air temperature (1)	1	1	2	0	1
B2: Atmospheric precipitation (1)	1	1	2	0	1
B3: Greenhouse gas emissions (2)	2	1	1	2	1
C. Water					
C1: Renewable freshwater resources (1)	1	0	2	0	0
C2: Freshwater abstraction (3)	3	1	2	2	1
C3: Total water use (4)	3	1	2	2	1
C5: Water supply industry and population connected (1)	0	0	0	0	0
C10: BOD and concentration of ammonium in rivers (2)	2	1	2	2	1
C11: Nutrients in freshwater (5)	5	1	2	2	1
C14: Population connected to wastewater treatment (1)	1	0	2	0	1
C15: Wastewater treatment facilities (1)	1	0	2	0	1
C16: Polluted (non-treated) wastewater (2)	2	1	2	0	1
D. Biodiversity					
D1: Protected areas (1)	1	1	2	2	1
D3: Forests and other wooded land (1)	1	1	2	0	1
D4: Threatened and protected species (2)	2	1	0	1	1
E. Land and soil					
E1: Land uptake (2)	1	1	2	0	1
G. Energy					
G1: Final energy consumption (2)	2	0	2	0	1
G2: Total primary energy supply (2)	1	0	2	0	1
I. Waste					
I1: Waste generation (2)	2	1	2	2	1
I2: Management of hazardous waste (6)	2	1	2	0	1

less than 33%
 33 to 67%
 over 67% of the maximum possible number

Rating criteria:

A - Accessibility of data sets⁶: the number of accessible data sets. The indicator “Emissions of pollutants into the atmospheric air” is an exception. This indicator includes the appraisal of emissions of sulphur dioxide (SO₂), nitrogen oxides (NO_x), non-methane volatile organic compounds (NMVOCs), ammonia (NH₃), carbon monoxide (CO), particulate matter PM₁₀ and PM_{2.5} from both stationary and mobile sources. If this requirement is met, the rating is 1, if the emissions from only one source type are demonstrated – 0.5. Emissions of any other substances are subdivided into emissions from neither stationary nor mobile sources (according to the indicator description) so that the score for each accessible data set is 1.

R - Indication of the responsible authority for the production of an indicator⁷: 2 – the responsible organization and the responsible official are indicated; 1 – only the responsible organization is indicated; 0 – none is indicated.

T - Time of update⁸: 2 – in or after 2016 and within 1 year from the date of the latest data point in the series; 1 – the same but before 2016; 0 – the time of the update is not indicated.

M - Conformity with methodological standards⁹: 2 – conform with international standards; 1 – conform with national standards; 0 – conformity with standards not specified.

V - Availability of graphs, diagrams, maps¹⁰: 1 – available, 0 – not available.

QUALITY OF SEVEN DATA FLOWS BASED ON ARMENIA’S SELF-ASSESSMENT (2018)

Armenia has conducted a self-assessment of 7 data flows underpinning the 3 UNECE indicators selected for the SEIS mid-term review. The mid-term review was based on the SEIS Assessment Framework and a questionnaire including 25 questions on quality, in accordance with the quality criteria used by the UNECE Statistical Division and the EEA, and the three SEIS pillars.

⁶ It relates to the Accessibility criterion of the revised SEIS Assessment Framework

⁷ It relates to the Clarity criterion of the revised SEIS Assessment Framework

⁸ It relates to the Timeliness and the Punctuality criteria of the revised SEIS Assessment Framework

⁹ It relates to the Clarity and the Comparability criteria of the revised SEIS Assessment Framework

¹⁰ It relates to the Clarity criterion of the revised SEIS Assessment Framework

Extract: Data Flow - SO₂^a



User feedback is actively collected. Used for many purposes. Environmental monitoring and Information Centre is a responsible entity for monitoring of air quality. Quality assurance/quality control is applied, internal analytical control, third-party audit



Use the data produced by themselves. Data validation is in place. Occasional revision of data (due to methodological change, new data, errors) is conducted. There are no data from other sources to compare with



Monthly dissemination. Latest release: April 2018. Deviation less than 4 days. Timeliness less than 1 year



Reports/SoER, additional information provided, metadata provided, visuals. Data is available at: www.armmonitoring.am, www.armstat.am



Quality assurance/quality control procedures are applied to data quality management. Information on methodology, data sources, temporal and geographic coverages, contacts



Internationally agreed procedures are applied. Time series from 1977 up to date



Air protection Code. Concept on the development of the environmental monitoring. Annual plan of air monitoring; Aarhus

^a **Theme:** A. Air pollution and ozone depletion / **Indicator:** A2. Ambient air quality in urban areas / **Data flow:** Annual average concentration of sulphur dioxide

Atmospheric air: The concentrations of SO₂ and NO₂ were regularly measured in 3 cities (Yerevan, Vanadzor, Alaverdi: 3 locations in each city); the concentration of ground-level ozone was measured only in Yerevan. Graphs and diagrams visually represent the degree of air pollution in these cities.

Areas to improve: No data on PM₁₀ concentration is available. There is no reference to measurement methods and their conformity with international standards.

Water: Data characterizes the annual average, the maximum and minimum BOD₅ (biochemical oxygen demand) and the concentration of NH₄ in five rivers. The full series of observation – 1990, 1995, 2000–2016 – exists for two rivers (the Debed and the Razdan). For other rivers, the timeframes were different, although regular measurements started in 2006 for each basin. The data is presented in graphs and diagrams, demonstrating the change of the annual average, the maximum and minimum values of BOD₅ and NH₄ concentration in each river and at each sampling location.

Areas to improve: There is information on some samples taken within a year and sampling locations, but no information relating to the hydrological periods and sampling dates. There is no reference to measurement methodology not its conformity with international standards.

Biodiversity: The data sets for 1990, 1995 and 2000–2016 include data on the total territory of protected areas, their share in the total country area, as well as information on areas of different IUCN categories (wilderness, national parks, national monuments, special reserves). Data is presented in graphs and diagrams, showing the total and per-category area change.

The information published on the website is available in both Armenian and English. The website refers to the organization responsible for generating the information – the Statistical Committee of the Republic of Armenia. It also indicates the latest update of the content – 06.09.2017.

Summary of self-assessment

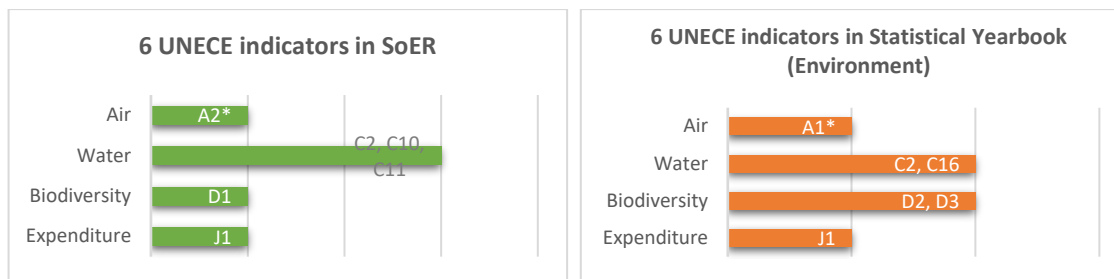
Concerning the 7 self-ranked data flows underpinning 3 environmental indicators, Armenia has reported on long-time series of continuous monitoring: since 1977 up to present time, with interruptions in 1990–1999 due to the lack of funding. Except for protected areas, the Ministry receives primary data for the underpinning data sets from the organizations responsible for their production. The country reported the availability of metadata for the collected data sets, including information relating to data sources, temporal and spatial coverage. With the exception of protected areas, data is released on a monthly basis. User feedback is used to assess data quality and its dissemination.

Armenia ranked its performances at **96.43%** - a very good performance. (Considering the fact that dust rather than PM₁₀ is measured in urban air and that there is no data available online for 2017, this score appears to be overestimated).

USE OF ENVIRONMENTAL INDICATORS

Use of environmental indicators in environmental assessments, state of environmental reports and other thematic environmental reports or statistical bulletins

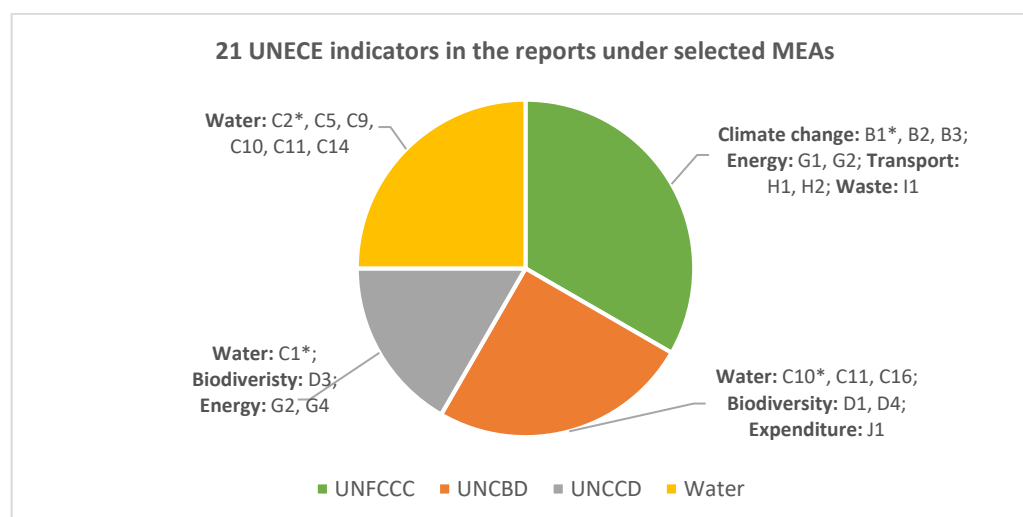
Armenia does not produce any indicator-based environmental report. At the same time, the UNECE environmental indicators are progressively used in visual materials (time-series graphics, tables, maps) in national documents such as the 2011 Armenia Ministerial Report¹¹, the 2017 National Statistical Yearbook on National Resources and Environment¹², the 2016 Environmental statistics of Armenia for 2016 and the time-series of indicators for 2012-2016, and other thematic reports.



*Abbreviations as used in the Guidelines for the Application of Environmental Indicators are accessible at <https://www.unece.org/env/indicators.html>.

Use of environmental indicators for reporting on international obligations under MEAs

One of the SEIS principles stipulates that environmental information and indicators should be readily available to easily fulfil reporting obligations, including under MEAs. UNECE environmental indicators are used for country reports under UNFCCC¹³, UNCBD¹⁴, UNCCD¹⁵ and the Protocol on Water and Health under the Water Convention¹⁶ in different formats and to various extents. The indicators are also, to a smaller extent, used for reporting on three BRS Conventions¹⁷ and the Minamata Convention.¹⁸



* Abbreviations as used in the Guidelines for the Application of Environmental Indicators are accessible at <https://www.unece.org/env/indicators.html>.

Use of environmental indicators for reporting on the Sustainable Development Goals (SDGs) and Green Growth

Armenia undertakes specific activities for the analysis and selection of national indicators. It also produces indicators for each of the SDGs and publishes selected indicators on the website of the Statistical Committee – [Armenia SDG indicators](#) (with [data annex](#)). Several indicators correspond to the OECD Green Growth indicators.

¹¹ Armenia Ministerial Report (2011, [in English](#) and [in Armenian](#)) for 2007-2011. For an overview of overall user perspectives on SoER, its role and impact on the country's environmental policy, see the 2017 report "Effectiveness and relevance of recent environmental assessments for policy-making and public information in the Republic of Armenia" ([in English](#) and [in Armenian](#)). Thematic reports produced in Armenia (<http://www.mnp.am/en/pages/148>) (reports on [air](#), [climate change](#), [water](#), [biodiversity](#), [sustainable development](#)) cover a number of UNECE environmental indicators.

¹² 2017 National Statistical Yearbook on [National Resources and Environment](#) provides data that correspond to UNECE environmental indicators. Another important statistical report is the – [Environmental statistics of Armenia for 2016 and time-series of indicators for 2012-2016](#).

¹³ [Third National Communication of the Republic of Armenia to the United Nations Framework Convention on Climate Change](#) (2015, in Armenian and [English](#)).

¹⁴ [Fifth National Report of the Republic of Armenia to the Convention on Biological Diversity](#) (2014, in English).

¹⁵ [Third National Report on implementation of the United Nations Convention to Combat Desertification in Armenia](#) (2006, in English). Indicators are mainly linked to the Aichi biodiversity targets.

¹⁶ The Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention).

¹⁷ Armenia submitted an [Electronic Reporting System of the Basel convention \(2016\); information](#) about strictly controlled chemicals and import responses under the Rotterdam and two online rounds of reporting in [2007](#) and [2010](#) under the Stockholm conventions.

¹⁸ International [projects](#) under the Minamata convention in Armenia.

The potential use of UNECE indicators for SDGs monitoring in Armenia



Water: C10*, C11, C16, C2 (full); C3, C5, C7 (partial); C4, C9 (limited)
Air: A1 (partial)

Energy: G2 (full); G4 (partial); G3 (limited)

Air: A1, A2 (partial); **Land:** E1 (partial); E2 (limited); **Waste:** I3, I4 (limited)

Air: A3 (partial); **Water:** C2 (full), C3 (partial); **Biodiversity:** D3 (full);
Agriculture: F2, F4 (full); **Waste:** I1 (full); I2 (partial); I3, I4 (limited)

Climate change: B1, B2, B3 (full)

Water: C16 (full)

Biodiversity: D1, D3, D4 (full); D5 (partial); **Land:** E2 (limited)

Linking of 15 UNECE indicators to the OECD Green Growth indicators in Armenia

1. CO₂ productivity (1.1)**
2. Energy productivity (2.1, 2.2, 2.3)
3. Material productivity (non-energy) (3.3, 3.4)
4. Water productivity
7. Freshwater resources
8. Forest resources
11. Land resources:
13. Wildlife resources
14. Environmentally induced health problems

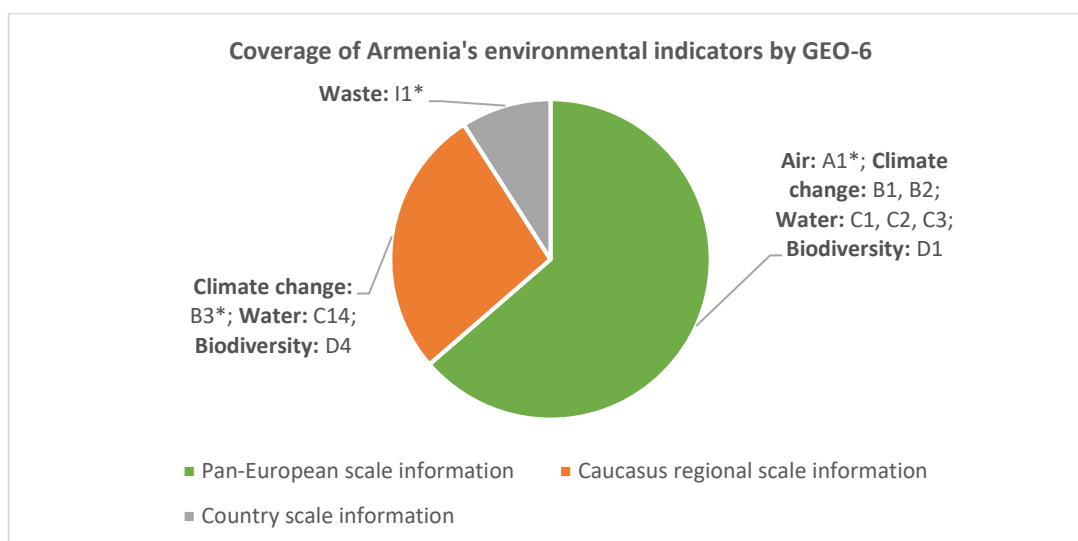
Climate change: B3*
Energy: G1, G2, G4
Agriculture: F2
Waste: I1
Water: C3, C7
Water: C1, C2
Biodiversity: D3
Land: E1
Agriculture: F2
Biodiversity: D4
Air: A2

* Abbreviations as used in the Guidelines for the Application of Environmental Indicators are accessible at <https://www.unece.org/env/indicators.html>.

** Abbreviation as used in the list of [OECD Green Growth indicators](#).

Use of indicators in the pan-European volume of GEO-6¹⁹

The 6th Global Environmental Outlook (GEO-6), produced in 2016 by UNEP and UNECE, covers Armenia's use of environmental indicators in the regional context.



* Abbreviations as used in the Guidelines for the Application of Environmental Indicators accessible at <https://www.unece.org/env/indicators.html>.

Institutional cooperation within the country is well developed and is based on bilateral agreements between crucial organizations that deal with environmental information. The Statistical Committee that collects and disseminates information has good experience in cooperating with all stakeholders. The collection, processing and dissemination of information are conducted within procedures and practices under national legislation.

The ENPI-SEIS project (2010-2015)²⁰, implemented by the EEA and funded by the EU, was aimed at enhancing the engagement of the countries of the European Neighborhood (including Armenia) towards regional cooperation. It was supposed to improve national capacities to manage and share environmental data and information. The ENPI-SEIS project addressed the three SEIS pillars through enhanced networking with the national capacities on environmental information. A pilot project on SEIS building for Lake Sevan in Armenia: Water Resources and Climate Change indicators (www.seis-sevan.am in Armenian and English) initiated in 2014 also emphasized the importance of national and local cooperation between data holders.

Building on achievements of the above-mentioned project, a four-year EU-funded ENI SEIS II EAST project (2016-2020) aims to support the promotion of environmental protection by strengthening environmental governance. As of 2018, [the project implementation](#) in Armenia is underway. The National Focal Point (NFP) from the Statistical Committee is appointed, and the NFP from the Ministry of Nature Protection has already been nominated. A letter of intent on political commitments to environmental information was signed between the EEA, Statistical Committee and Ministry of Nature Protection, however a National Implementation Team is not yet in place. The recruitment of a national SEIS assistant is ongoing.

²⁰ The main achievements and outcomes can be found in the East Region Synthesis report '[Building SEIS with the Eastern Neighborhood](#)'.

Armenia has been making significant progress in enhancing the accessibility of UNECE environmental indicators. These are increasingly being published on the websites of national environmental authorities, statistical agencies and open data portals in compliance with UNECE requirements.

Armenia has the potential to achieve the 2021 target on UNECE indicators' availability, as well as on SEIS implementation.

- ✓ Continue advancing the production and sharing of environmental indicators in compliance with recommendations of the UNECE WGEMA and the JTF on Environmental Statistics and Indicators;
- ✓ Continue methodological work on existing and new environmental indicators to ensure that all UNECE environmental indicators are produced, available and accessible by 2021;
- ✓ Maintain cooperation and interaction between environmental information producers in Armenia to achieve full SEIS implementation;
- ✓ Maintain one common national platform.

Armenia has potential to use the UNECE environment indicators to monitor the progress under the SDGs. Some UNECE environmental indicators have linkages to the OECD Green Growth indicators.

- ✓ Assess in detail and/or promote the use of UNECE environmental indicators to monitor SDGs progress;
- ✓ Increase the use of indicators for different purposes and monitoring capacity of the progress on achievement of SDGs and Green Economy

There are no indicator-based reports, though SoER, Statistical Yearbook (environment) and thematic reports provide sufficient environmental information and data. The reports should be complemented with analysis and assessments. Documents should include relevant material and case studies and they should be well visualized.

- ✓ Strengthen communication and the role of the environmental assessments (especially SoER) in policy development and decision-making;
- ✓ Improve the analytical parts of the SoER/thematic reports by using indicators (shift from providing environmental information to environmental assessment, visual explanations);
- ✓ Prepare indicator-based reports.

The produced reports are not always available on the website of the Ministry of Nature Resources. Some reports to the MEAs are available on the conventions' website.

- ✓ Make sure all produced reports are available on nationally managed websites in the national language and well presented to a broad public.

Reporting under the MEAs remains one of Armenia's main tasks. The use of environmental indicators for different purposes, including reporting under the MEAs, should be promoted and strengthened.

- ✓ Increase usage of the environmental indicators for preparation of the reports under the MEAs.

Abbreviations and Acronyms:

BRS – Basel, Rotterdam and Stockholm Conventions (on waste, chemicals and POPs): Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal; Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade; Stockholm Convention on Persistent Organic Pollutants

EEA – European Environment Agency

ENI - European Neighborhood Instrument

ENI-SEIS II EAST project – Project “Implementation of the principles and practices of the shared environmental information system (SEIS) in the Eastern Partnership countries”

ENPI-SEIS project – Projects “Towards a Shared Environmental Information System in the European Neighborhood”

EU – European Union

IUCN – International Union for Conservation of Nature

MEA – Multilateral environmental agreement

Minamata – Minamata Convention on Mercury

MNP – Ministry of Nature Protection

NFP – National Focal Point

SEIS – Shared Environmental Information System

SC – Statistical Committee

SoER – State-of-environment report

OECD – Organization for Economic Cooperation and Development

UNFCCC – United Nations Framework Convention on Climate Change

UNCCD – United Nations Convention to Combat Desertification

UNCBD - United Nations Convention on Biological Diversity

About the activity:

Countries of Eastern Europe, Caucasus and Central Asia have long traditions in the field of environmental information, assessment and reporting. At the Seventh Environment for Europe Ministerial Conference (Astana, 2011) the participating ministers decided to establish a regular process of environmental assessment and develop SEIS across the region to keep the pan-European environment under review. The UNECE Working Group on Environmental Monitoring and Assessment and the Joint Task Force on Environmental Statistics and Indicators created a platform for the countries to gradually consolidate the shared vision of how to select, calculate, present and use environmental indicators to communicate the state of the environment, factors and trends. The European Environment Agency is supporting the development of the SEIS in the EU Neighbourhood region.

This activity, funded by the Russian Federation, aims to support the actions under the Environmental Monitoring and Assessment (EMA) Programme, to strengthen national capacities in environmental monitoring and assessment across the region and to enhance the understanding of ECE member States of environmental data sharing and SEIS establishment.

Acknowledgments:

The country profile on the state of SEIS implementation in Armenia for 2018 was prepared by Ms Lesya Nikolayeva, international expert. Editorial work was carried out by Ksenia Nechunaeva, UNECE consultant, and Lavinia Giulia Pomarico, UNECE intern. The UNECE Secretariat provided coordination and overall guidance during the preparation of the country profile. The document was shared with the national counterparts, and presented and discussed during the Twentieth session of the Working Group on Environmental Monitoring and Assessment, 3-4 September 2018 in Geneva, Switzerland.

Sources:

Reporting on Progress in Establishing SEIS in the pan-European Region for the mid-term review and for piloting the SEIS Assessment Framework (Armenia’s self-assessment), February 2018; The current status of production, sharing and use of UNECE environmental indicators in the EU Eastern Partnership countries, June 2018; Effectiveness and relevance of recent environmental assessments for policy making and public information in the Republic of Armenia, October 2017; Building a SEIS for Lake Sevan, Armenia (water resources indicators), May 2015; Ministry of Nature Protection of the Republic of Armenia and National Statistical Service of the Republic of Armenia.

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