Turkmenistan has been working on establishing SEIS through the implementation of the SEIS principles and three pillars - Content, Infrastructure and Cooperation - even though progress has arguably been slow. Turkmenistan participates in 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 to establish SEIS by 2021. The present document provides an overview of the state of SEIS implementation in Turkmenistan and offers recommendations on how to fully achieve the SEIS 2021 target.

KEY MESSAGES

Content
- Environmental information and indicators are not available online, it is therefore difficult to determine the number of environmental indicators produced in 2018.
- National reports are outdated (i.e. the latest SoER was produced in 2008)

Infrastructure
- Availability of data online is not developed, data is provided mainly upon request
- There is no unified platform for environmental data

Cooperation
- Cooperation on information engagement between data producers is based on national legislation and aimed at fulfilling the commitments under international conventions and UN programmes.
- The traditional methods (through direct request) of information exchange are applied
- The EU FLERMONECA project on environmental monitoring in Central Asia was successfully implemented

THE SEVEN SEIS PRINCIPLES\textsuperscript{2} AND STATE OF THEIR APPLICATION IN TURKMENISTAN\textsuperscript{3}

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

\begin{itemize}
  \item fully applied
  \item partially applied
  \item application is limited
\end{itemize}

\begin{itemize}
  \item \textsuperscript{1}The EU-funded project "Forest and Biodiversity Governance Including Environmental Monitoring" (FLERMONECA project)
  \item \textsuperscript{2}More information on SEIS principles is available at: https://www.eionet.europa.eu/seis/principles
  \item \textsuperscript{3}Evaluation is based on expert opinion; there is the possibility of changes or clarifications after discussions with Turkmenistan’s counterparts.
MANAGEMENT OF ENVIRONMENTAL INFORMATION – OVERVIEW

Organizations responsible for collecting, producing, managing and sharing environmental data and information
- The Committee on Environmental Protection and Land Resources
- The State Committee on Statistics
- The Hydrometeorological Service

Accessibility and availability of environmental information, data and indicators

WHERE?: On the Committee on Environmental Protection and Land Resources, the State Committee on Statistics websites (upon request only), websites of various Conventions
- In SoER, the Statistical Yearbook on the Environment and Use of Nature Resources (upon request only)
- In national implementation reports to MEAs (UNFCCC, UNCCD, UNCBD, BRS etc.)

IN WHAT FORMATS?: Reports (e.g. SoER), additional information provided (for some indicators), metadata provided (for some indicators)

IN WHICH LANGUAGES?: Turkmen, Russian

Environmental indicators in use
- UNECE environmental indicators (potential needs to be studied)
- SDGs (potential needs to be studied)
- OECD Green Growth indicators (potential needs to be studied)
- Reports to MEAs

CONTENT AND INFRASTRUCTURE FROM INDICATOR PRODUCTION TO USE

STATE OF PRODUCTION AND SHARING OF ENVIRONMENTAL INDICATORS
Some indicators, produced either nationally or locally by the State Committee on Statistics, are format-compatible with the UNECE set of indicators. The 2016 UNECE analysis assessed the following parameters of the indicators’ quality: availability in the internet, updates, methodology used, provided analysis and indication of sources (the results are presented in the table below). It is worth noting that environmental information and indicators are available only upon request internally in the country, as none of UNECE environmental indicators was found online (except for a map providing information on protected areas on the Committee’s website).

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

<table>
<thead>
<tr>
<th>Rating criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>I – Availability of data sets on the internet; U – Time of update; M – Conformity with methodological standards; A – Analysis provided; S – Indication of the source of an indicator.</td>
</tr>
</tbody>
</table>

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

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

**Extract: Data Flow - SO₂²**

*Any user feedback is not provided. Used for many purposes (information is provided upon request). Information was never improved for users’ convenience

*Use of the data produced by other producers. Data validation is in place. Mandatory revision of data is conducted. There is no data from other sources for comparison

*No regular dissemination. Deviation: 8 weeks. Timeliness: less than 1-2 years.*

*Reports (i.e. SoER). Data is not available online for users, and is only made available upon requests. SEIS template is used

*The procedures are applied to data quality management (methodological recommendations, standards, regulations). Metadata is available. Information on data quality, methodology, data sources, timeframe and geographical coverage, contacts are available in Russian and Turkmen

*Internationally agreed procedures are partly applied. Time series are not complete; data for some periods is lost

*Laws on the statistics, on nature protection, on atmospheric air protection. State Committee to fulfil commitments under the international conventions and UN programmes.*

*²Theme: A. Air pollution and ozone depletion / Indicator: A2. Ambient air quality in urban areas / Data flow: Annual average concentration of sulphur dioxide*

**Atmospheric air:** According to Turkmenistan’s self-assessment, data on PM₁₀, SO₂, NO₂ and O₃ is collected internally by the Committee on Environmental Protection and Land Resources and the Hydrometeorological Centre. Information is only accessible upon request. Data validation and a mandatory revision of the data are conducted. Information is presented in the SoER (although the report is considered as outdated as it was produced in 2008). The SEIS template is used for some data sets. Metadata is provided. Internationally agreed procedures are partly applied for data quality management. The information is published in Russian and Turkmen.

**Areas to improve:** Information is not made available to a broad public; user feedback is not collected. There is no regular dissemination of data, and deviation of data release could be up to 8 weeks. There is no mention of the last content update, and reports generally provide outdated information. No reference is made to measuring methods. Data is not presented in visual form.
Water: According to Turkmenistan’s self-assessment, data on annual averages of BOD₃ and the concentration of NH₃ is collected, but not publicly available to users. Data validation and a mandatory revision of the data are conducted. The SEIS template is used. Metadata is provided. Internationally agreed procedures are partly applied for data quality management. There is an indication of a legal basis – national laws and responsible commitments under the international conventions and UN programmes. The information is published in Russian and Turkmen.

Areas to improve: Information is not made available to a broad public; user feedback is not collected. There is no regular dissemination of data, and deviation of data release could be up to 8 weeks. The source, portal and date of last content update are not indicated. No reference is made to measuring methods. Data is not visually presented.

Biodiversity: According to Turkmenistan’s self-assessment, data on the total territory of protected areas (in the form of a map) is available on the Committee’s website, as well as in the report to the UNCBD. The SEIS template and EEA format for data flows are used. Metadata, Information on data quality, methodology, data sources, timeframe and geographical coverage, contacts are provided. Legal base is indicated. Areas to improve: User feedback is not collected. There is no regular dissemination of data; and deviation of data release could be up to 8 weeks. Reference is made to measuring methods, however it is not indicated whether the national categories of protected areas comply with the IUCN categories.

Summary of selected data flows quality
Regarding 7 data flows underpinning 3 UNECE indicators, Turkmenistan has reported on a long time series of continuous data monitoring (18 years), with some breaks. It is difficult to assess the information provided through the self-assessment tool (presented above), as information is not available online. Turkmenistan self-ranked its overall national performance as 48,57% - indicating a need for improvement.

USE OF ENVIRONMENTAL INDICATORS
Use of environmental indicators in environmental assessments, state of the environment reports and other thematic environmental reports or statistical bulletins
In 2008, the State Committee on Environmental Protection and Land Resources with support of UN Environment prepared a pilot SoER⁴ using some UNECE indicators, with support from the FLERMONECA project and the Regional Ecological Centre for Central Asia. The 2017 Statistical indicators only refer to two indicators from the list of UNECE environmental indicators on transport: passengers and freight transport⁵ demand. Overall, it is difficult to check whether the UNECE environmental indicators are used for the 2017 Statistical Yearbook, as the report is not available online.

![8 UNECE indicators in SoER](image)

* Abbreviations as used in the Guidelines for the Application of Environmental Indicators are accessible at [https://www.unece.org/env/indicators.html](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 for various reporting purposes under the MEAs. The UNECE environmental indicators are used for the national implementation reports under the UNFCCC⁶, UNCBD⁷, and UNCCD⁸ in different formats and to certain extents. To a smaller extent, the indicators could also potentially be used for the Basel Convention⁹.

---

⁵Main socio-economic indicators in 2017 ([in Russian](https://flermoneca.org/)).
⁷Third National Report of Turkmenistan to the Convention on Biological Diversity ([2006, in English](https://www.cbd.int/doc/edocs/meetings/cop10/29007-r3en.pdf)).
Use of environmental indicators for reporting on the Sustainable Development Goals (SDGs) and Green Growth

The Turkmen potential and capacity to use the UNECE environmental indicators to monitor SDGs and Green Growth indicators are properly assessed. An assessment on the potential to monitor SDGs is made below. Potential to use OECD Green Growth indicators should be better assessed in sight of the preparation of the green strategy.

---

Use of indicators in the Pan-European volume of GEO-6

The 6th Global Environmental Outlook (GEO-6), produced in 2016 by UNEP and UNECE, covers the Turkmen use of environmental indicators in the regional context.
Cooperation and interaction on information engagement among data producers are weak and require development. Cooperation is mainly based on national laws on statistics, on nature protection and other thematic laws. A special Committee checks if the country fulfils the commitments under international conventions and UN programmes. Overall, Turkmenistan has to develop and maintain the system of information exchange to make sure that data is produced, validated and published regularly.

Within the framework of activities of the Interstate Commission on Sustainable Development (ICSD) for Central Asia, the SIC ICSD branch operates in Turkmenistan, which participates in regional assessment activities under the supervision of UN Environment and Regional Ecological Centre for Central Asia.

Turkmenistan engages in cooperation and exchange of statistical and sectoral information within the framework of the Organization for Economic Cooperation (ECO) of Central Asia and the Middle East and Environmental Programme for the Caspian Sea.

The EU-funded project “Forest and Biodiversity Governance Including Environmental Monitoring” ([FLERMONECA project](#)) was successfully implemented in five Central Asia countries, including Turkmenistan. The project was implemented from 2013 to 2015 and was aimed at enhancing regional cooperation and partnerships with Europe in the fields of forest and biodiversity governance, including environmental monitoring through supporting the sustainable use and management of natural resources in Central Asia.
Environmental data and indicators of Turkmenistan are not made available to users online. There are no requirements and regulations for SoER production. Data could be provided upon request. Data quality control and data validation are in place. The cooperation among data holders should be improved.

Turkmenistan should collaborate more closely with UNECE on environmental indicators for data to be published on the websites of national environmental authorities, statistical agencies and open data portals, in compliance with the UNECE requirements; There is large room for improvements to achieve the 2021 target on UNECE indicators’ availability, as well as SEIS implementation.

Turkmenistan should study its potential to use UNECE environment indicators to monitor the progress under SDGs and Green Growth Indicators.

With support from the FLERMONECA project and Regional Ecological Centre, Turkmenistan has produced a pilot electronic SoER (the previous report was produced in 2008 with support from UN Environment). Existing reports do not always provide sufficient environmental information and data. Some reports should be complemented with analysis, assessments and concrete recommendations; reports should include relevant material, case studies and data should be illustrated. For the most part, reports are produced with international support while national capacities remain weak.

- Work on making all produced data and indicators available online, accessible and free of charge;
- Continue advancing the production and sharing of environmental data and indicators, including introducing data in electronic formats vs. paper formats;
- Maintain and enhance cooperation and interaction among environmental information producers in the country to achieve full SEIS implementation.

- Initiate and maintain advancing the production and sharing of environmental indicators in compliance with the recommendations of the UNECE WGEMA and the JTF on Environmental Statistics and Indicators;
- Continue methodological work on existing and new environmental indicators for all UNECE environmental indicators to be produced, available and accessible by 2021;
- Improve the quality and content of indicators according to the international standards.

- Assess in detail and/or promote the use of UNECE environmental indicators to monitor the SDGs and Green Growth progress;
- Increase the use of indicators for different purposes and monitoring of the progress made on achieving the SDGs and Green Economy.

- Improve the quality of nationally produced reports and capacity of national institutions to produce data and indicators;
- Improve the analytical and recommendation sections of the SoER/thematic reports, by using indicators (including a shift from the simple provision of environmental information, to a detailed environmental assessment with linkages between economic processes and the use of natural resources, including visual explanations);
- Prepare indicator-based reports in a reader-friendly manner;
- Improve the capacity of organizations working with environmental information.
One of the SEIS principles relates to the full availability of information to the public at the national level in the relevant national language(s). Turkmenistan has data in Turkmen and Russian. Turkmenistan would benefit from having a unified portal with all environmental indicators in Turkmen, Russian and English.

The use of environmental indicators for different purposes, including reporting under the MEAs, should be promoted and strengthened. The produced reports are available on the website of the Conventions. Awareness of the assessment is very low, and any feedback of users is not collected.

- Make sure all produced environmental information is gathered in one place and/or made available to a broader public in the national and English languages.

- Increase usage of the environmental indicators when preparing reports under the MEAs;
- Improve the quality of the reports under the MEAs (analytical and visual parts);
- Make sure all produced reports are available on nationally managed websites in the national language(s) and well presented to a broader public;
- Improve the communication with the users of environmental data and indicators, including for collection of the user feedback.
Abbreviations and Acronyms:
CIS - Commonwealth of Independent States
ECO - Organization for Economic Cooperation of Central Asia
EEA – European Environment Agency
EU – European Union
ICSD - Interstate Commission on Sustainable Development for Central Asia
ICWC – Interstate Commission for Water Coordination of Central Asia
IUCN – International Union for Conservation of Nature
MEA – Multilateral Environmental Agreement
OECD – Organization for Economic Cooperation and Development
SoER – State-of-environment report
SEIS – Shared Environmental Information System
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, the Caucasus and Central Asia have long traditions in the fields 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 to 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 a shared vision on how to select, calculate, present and use environmental indicators to reflect the trends and patterns in the overall state of the environment. The European Environment Agency is supporting SEIS development in the EU Neighbourhood region.

This activity, funded by the Russian Federation, aims to support the activities under the Environmental Monitoring and Assessment (EMA) Programme. It also aims at strengthening national capacities in Central Asia, the Caucasus and Eastern Europe in environmental monitoring and assessment, and at enhancing the understanding by ECE member States of environmental data sharing and the SEIS reporting application.

Acknowledgments:
The country profile on the status of SEIS implementation in Turkmenistan is prepared by Ms Lesya Nikolayeva, an international expert. Editorial work was carried out by Ksenia Nechunaeva, a 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, 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 (Turkmenistan’s self-assessment), February 2018; SEIS Central Asia scorecard. Turkmenistan (draft, 2017); Turkmenistan SDG datasheet (Statistical Yearbook for Asia and Pacific 2017); Committee on Environmental Protection and Land Resources of Turkmenistan, State Committee on Statistics of Turkmenistan.

Disclaimer:
The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers and boundaries.