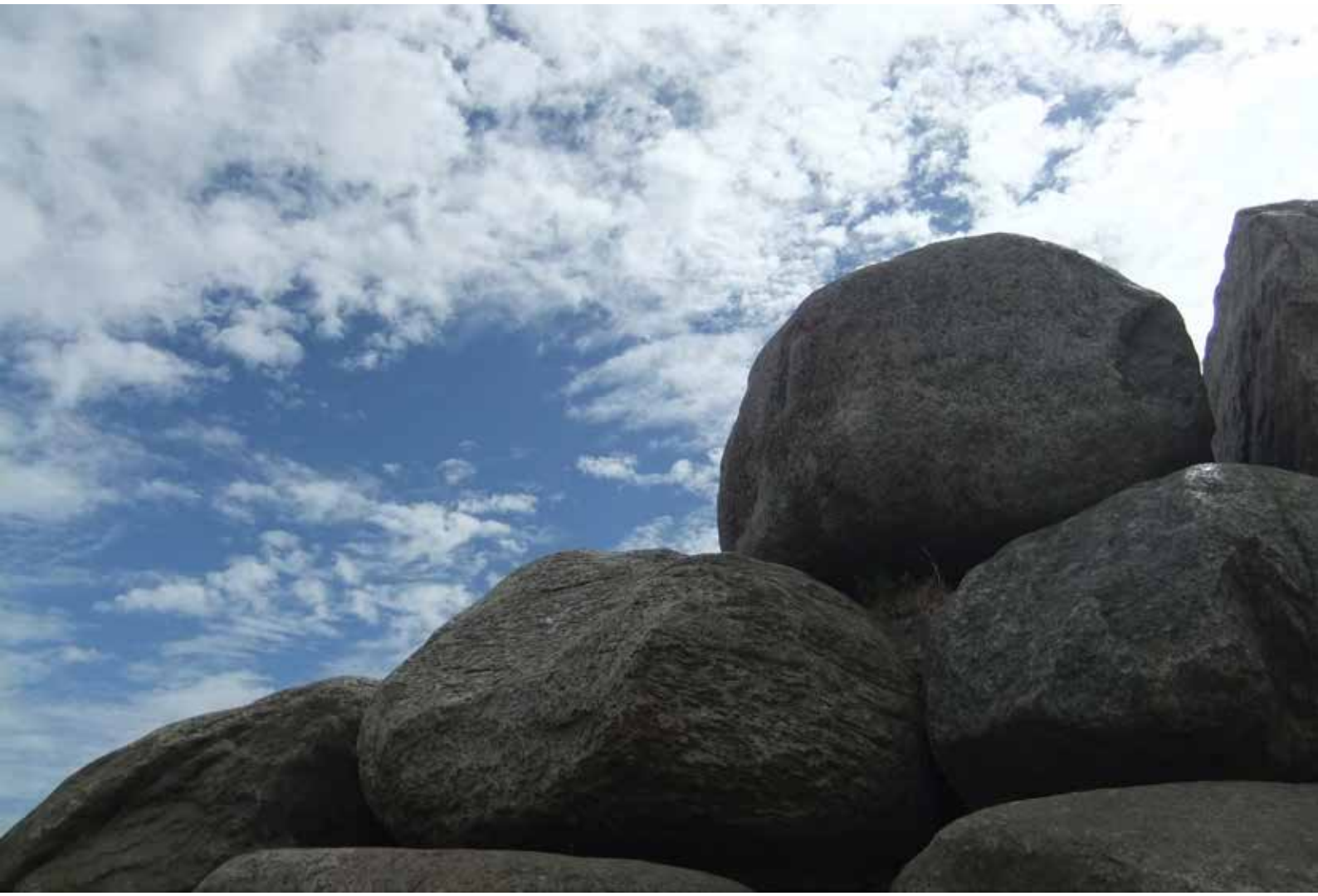
ENPI-SEIS East Region Synthesis Report

Building a Shared Environmental Information System with the Eastern Neighbourhood

Outcome of cooperation, 2010–2014



European Environment Agency

ENPI-SEIS East Region Synthesis Report

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Foreword

Pollution and climate change do not respect borders, their impact is felt by all of us. The European Union and its neighbours need to address such challenges jointly, through open dialogue and sustained cooperation. The exchange of environmental information and best practices is crucial for promoting good environmental governance, transparency, and sustainable development. It can also serve as a model for extending cooperation and responding to other common challenges.

Over the last four years the European Environmental Agency and the European Commission worked together in the framework of the ENPI-SEIS project: *'Towards a shared environmental information system (SEIS) in the European Neighbourhood'*. This project aimed at introducing European Union best practices in environmental governance in the Eastern Partnership. The current synthesis report – which was developed together with the six Eastern Partnership countries Armenia, Azerbaijan, Belarus, Georgia, Moldova, and Ukraine –, summarises the outcomes of this cooperation.

At the Eastern Partnership summit held in Vilnius in November 2013, the Heads of State and Government highlighted the need to continue the process of policy convergence in the field of environment and climate change, with SEIS as one of the areas for further cooperation and approximation. Better management and sharing of environmental information across the region and beyond will pave the way for a solid environmental knowledge community. The ENPI-SEIS project could further contribute to a longer-term European Union engagement with the partners in the Eastern Neighbourhood region and provide necessary tools to support the 'Environment for Europe' process.

The report is a unique repository of important advancements made in all countries throughout the implementation of the project. It demonstrates significant improvements in putting in place national coordination structures, mobilising capacities to produce environmental indicators and upgrading the information systems for better reporting and easier sharing of environmental data. The analysis also sheds light on the existing challenges and presents recommendations, which provide a basis for shaping further cooperation activities with the Eastern Partnership countries tailored to their needs.

It is important to underline that the outcomes presented in this synthesis report are the results of strong engagement, good-will and trust among all partners involved. The great work carried out by national authorities, especially the determination of national focal points in statistical and environmental institutions, must be duly acknowledged. Special thanks are also extended to all the individuals and organisations listed in the acknowledgements section, who participated in this project and provided valuable contributions and insights.

The European Commission and the European Environmental Agency will continue their support to the partner countries, and we are confident that the progress made under this project will be sustained and built on for the benefits of the environment and of people.

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Executive summary

Since 2010, the European Environment Agency (EEA) has been engaging countries of the Eastern European Neighbourhood Policy (ENP-East) (Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine) in a partnership: the aim to improve national capacities for managing and sharing environmental data and information. This cooperation was implemented under the framework of the European Union (EU)-funded project 'Towards a Shared Environmental Information System in the European Neighbourhood' (ENPI-SEIS).

The SEIS ([1]) is an EU initiative to modernise and simplify the collection, exchange and use of data and information required for designing and implementing environmental policy. The implementation of the project, and carried activities were underpinned by the three main SEIS pillars:

1) **cooperation:** building networks of providers and users of data and information;

2) **content:** generating policy-relevant and comparable information;

3) **infrastructure:** using shared and modern web-based information and communication technologies.

Identifying and generating environmental indicators and data flows suitable for the design and review of environmental policies has been a point of departure and priority area of the ENPI-SEIS project. The focus was developing and agreeing on common methodologies, in partnership with the United Nations Economic Commission for Europe (UNECE) Joint Task Force on Environmental Indicators (JTFEI). Related activities aimed to support national authorities in establishing partnerships key to regular information exchange. They also aimed to improve technical capacities in environmental data collection, management and sharing (both internally and for public use), so as to put in place national environmental information systems embodying SEIS principles. As part of consolidating the national State of the Environment (SoE) reporting base, the ENPI-SEIS project acted as a catalyst for promoting the adoption and use of environmental indicators. In a more general sense, the project also aimed at establishing stable governance structures to track and assess progress of regional environmental initiatives, with a view to future pan-European reporting.

The demonstrated willingness by national administrations to gradually build a SEIS should be considered across the different developmental stages of the existing environmental information systems: these affected countries' readiness to respond to, and meet, project objectives. Environmental and political governance in the EU's Eastern Neighbourhood has changed since the project was initially designed. Moldova, Georgia and Ukraine formalised their relationship with the EU by signing the Association Agreement (AA) ([2]) in June 2014. Gradually, these countries will work towards aligning their legal and institutional structures with those of the EU. Azerbaijan, Belarus and Armenia have expressed a clear interest in exploring the possibility of introducing EU best practices in environmental governance at technical level.

The analysis presented in this synthesis report has streamlined the information requirements of the six countries and their capacities to put solutions in place to meet these requirements. The report provides the state of play: it highlights achievements and offers recommendations on the way forward to cover some existing shortcomings. These recommendations summarise findings related to the region as a whole. They also form the basis for shaping further cooperation activities and providing support to the partner countries. In the part 2.1 describing country perspectives, the recommendations target countries' specificities and are presented from a forward-looking perspective.

Achievements

The institutional basis for cooperation in the field of environmental information has generally gained strength across the region. The complex and

([1]) See http://ec.europa.eu/environment/archives/seis/index.htm online.
([2]) See http://ec.europa.eu/enlargement/policy/glossary/terms/association-agreement_en.htm online.

multidisciplinary nature of the SEIS concept call for mobilisation of a wide network of national experts across a number of environmental thematic areas. The focus on SEIS as an overarching objective has enabled continued dialogue at national level, focused on the efficient management and handling of existing environmental data and information. This has, in turn, helped spotlight the unique character of the work of national SEIS coordinators (the ENPI-SEIS National Focal Points (NFPs)) and the wide range of interconnected steps needed to implement SEIS. Examples are addressing data availability, access and quality, developing clear national strategies and mandates for national authorities and coordination entities, and allocating financial and human resources to the process.

Cooperation with and regular dialogue among networks was established or reinforced. Such networks are those of experts in various thematic areas, the ENPI-SEIS working group on Information Technology and members of the different UNECE groups on environmental indicators and assessments. Several countries also opted to formalise cooperation by signing inter-institutional agreements (in particular between ministries and agencies for environmental protection and the national statistical offices) on data and information exchange.

Cooperation between partner countries and the EEA was also further formalised through the signing of letters of intent (i.e. joint statements) reaffirming commitments to share environmental information and build on expertise from the European Environment Information and Observation Network (Eionet). National delegations have visited the EEA to better understand the data-reporting mechanisms and tools applied within Eionet, in order to inspire and guide national progress. Furthermore, Moldova has opted to increase collaboration with the EEA, and to further implement SEIS through a parallel EU-funded project 'Increased collaboration with EEA and further implementation of SEIS in interested countries' (InSEIS([3])), running from 1 June 2014 to 31 July 2015.

Strategies for achieving SEIS objectives at national level are being embedded in, or linked to, existing frameworks such as the implementation plans for the Aarhus Convention([4]) to which all countries are a party, and the ongoing developments in e-governance. The existing Aarhus Centres have been instrumental in bringing together relevant stakeholders and coordinating activities in support of SEIS. The mandate of previously established Aarhus Centres is also commonly redefined to include and more accurately reflect SEIS objectives.

The UNECE JTFEI has been an important counterpart in developing a common approach for the use and production of indicators. The selection of the core set of eight environmental indicators at regional level for the priority areas within the ENPI-SEIS project (i.e. air, water and waste) has led to the gradual production and sharing (online) of these eight environmental indicators in all countries. The ENPI-SEIS project was instrumental in conducting a feasibility study to help develop regular data flows for the selected core set of indicators, and in organising several thematic workshops to advance this process. Online availability of the selected core set of indicators has increased significantly through the project. All countries have further improved their websites and online access to their indicators. Regional developments such as those agreed through the UNECE JTFEI help guide and prioritise national actions.

The inclusion of water indicators in the selected core set offered the opportunity to demonstrate in practice the concepts and mechanism applied within Eionet for the sharing of river and lake water-quality data (i.e. the Water Information System for Europe (WISE) SoE data flows). Four countries (Armenia, Belarus, Georgia and Moldova) took part in a pilot exercise and worked jointly with the European Topic Centre on Inland, Coastal and Marine waters (ETC/ICM) to evaluate, prepare and provide data as per the WISE SoE methodology.

The experiences gained from advancing SEIS at national and regional levels is also being applied and endorsed at more local scales. One such example is the Armenian development of SEIS for Lake Sevan. The overall aim of this ENPI-SEIS pilot project is to enhance decision-making capabilities for the management of Lake Sevan and its resources, by developing a sustainable and regular data-sharing mechanism among the main data producers and data holders. This activity supports the implementation of a related governmental resolution adopted in 2014.

([3]) See http://pbe.eionet.europa.eu/inseis/ online.
([4]) UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, Aarhus, Denmark, 25 June 1998.

Key messages

The analysis resulted in the following key messages, presented below as forward-looking recommendations.

On cooperation

While the institutional basis for cooperation in the field of environmental information has generally strengthened across the region, **additional support is crucial for establishing inter-institutional entities with clear mandates and responsibilities to oversee and coordinate national SEIS development**. This will ensure better planning around environmental issues, coordination between different actors and stronger synergies with other similar processes at all levels.

To ensure long-term engagement, the work carried out by nominated NFPs must be recognised, and further investment must be made in human capacities to sustain the national network. Sudden and frequent changes in national administrations have had an impact on the continuity of the established dialogue and on cooperation overall.

The ongoing development of e-governance at national level also constitutes a step towards enhancing coordination and reporting responsibilities among different data collectors and data holders. **It would be beneficial to embed the design and implementation of national SEIS roadmaps in long-term strategies on e-governance.**

On content

Building up a wider set of environmental indicators, and ensuring the sustainability of data flows in support of regular international and national reporting **are considered crucial** for the preparation of environmental assessments at different geographical scales; these **shall be regarded as continuous activities and be embedded in National Action Plans (NAPs).**

The use of indicators in environmental reports remains limited, and the produced state of the environment reports (SoERs) often follow a 'classical' narrative/descriptive style, rather than an analytical one. **The capacity of national administrations to produce regular, policy-relevant and indicator-based SoERs, in line with internationally agreed guidelines, should be strengthened.**

Additional efforts are required for the harmonisation of data formats and interoperability of methodologies — these are prerequisites for better comparison and sharing.

A mix of post-Soviet methodologies and EU practices is rather commonly applied in the region, rendering data comparison between countries difficult.

There is **a need to develop, adopt and implement a legislative and regulatory framework for the establishment of data-sharing and information-exchange mechanisms,** both with international organisations and partners, and between different stakeholders at national level.

The implementation of the Aarhus Convention, to which all ENP-East countries are a party, shall be better monitored; public authorities shall enforce compliance with obligations in access to information, justice in environmental matters and public participation in decision-making.

On infrastructure

The development and provision of technical specifications/guidance documents for **establishing national integrated environmental information systems in line with SEIS principles is to be prioritised.** The Internet is used as the principle tool for the exchange of data, both nationally and internationally, yet inter-agency intranet solutions and access to data derived from monitoring networks remains limited, inadequately regulated and technologically outdated.

The reporting of data is not systematic across all identified thematic areas. Waste and biodiversity are the areas most in need of attention due to the lack of a legal framework, regulated monitoring and carried measurements. To improve the situation, **solutions enabling the enhancement of the existing legal basis and sustaining monitoring infrastructure shall be adopted and endorsed by national authorities.**

National monitoring infrastructure needs technical improvements and more substantial financial allocations. The increase of automated observation stations, the expansion of existing monitoring networks, and the building of technical capacity to ensure efficient operation and maintenance of such infrastructure should be further addressed.

The existing Reportnet infrastructure (a suite of EEA-supported web-based tools that helps countries report environmental data and information using a formal reporting process) was not widely exploited by the ENP-East partner countries. **It is recommended that the advantages of using a unified and widely shared environmental information structure be further promoted.**

Introduction

In the last 10 years, the EU has stepped up efforts to establish closer ties with neighbouring countries, by sharing best practices in different thematic areas. One such instance is the improvement of environmental monitoring and data-sharing in Europe via the so-called SEIS ([5]), and its gradual extension beyond EU borders.

Since 2010, the EEA has been working on the EU-funded ENPI-SEIS project ([6]), with a view to supporting ENP-East countries (Armenia, Azerbaijan, Belarus ([7]), Georgia, Moldova and Ukraine) to build a SEIS at national and regional level, in line with European practices ([8]). More specifically, the project has supported the strengthening of capacities of relevant authorities dealing with environmental policy in the areas of inter-institutional cooperation, networking, monitoring, data management, environmental assessments and indicator-based reporting on the environment.

The relevance of the ENPI-SEIS project has been fully in line with the declared governmental priorities of the six ENP-East partner countries, and is reflected in the commitment to the 'Environment for Europe' (EfE) process. The seventh EfE Ministerial Conference held in Astana (Kazakhstan) in 2011 called on countries to keep the pan-European environment under review by establishing a regular process of environmental assessment, and to implement SEIS across the region. SEIS implementation has been also one of the activities that underpin the flagship initiative on Good Environmental Governance within the Eastern Partnership (EaP).

The current context for environmental governance in the EU's Eastern Neighbourhood, as for overall political governance, is very different to that of the project design and start-up period of a few years ago. The formalised relations with the EU by Moldova, Georgia and Ukraine, which signed the AA with the EU in June 2014, have influenced the institutional thinking and set-up in the region. Although

EEA and ENPI-SEIS project coverage

EEA member countries
EEA cooperating countries
ENP East
ENP South
Strategic partnership

The map does not imply any opinion from EEA concerning the legal status of any country or territory, its area of authority or the delination of its frontiers and boundaries.

*) Collaboration was suspended in 2013

The ENPI-SEIS project: geographical coverage
Source: EEA, Carsten Iversen

introducing such changes will take time, the gradual implementation of the environmental sections of the AAs will certainly move the countries' legal and institutional cultures and structures towards those of the EU. After the EaP Summit in Vilnius (Lithuania) in November 2013, environmental authorities in Azerbaijan, Belarus and Armenia expressed a clear interest in exploring areas for the possible introduction of EU best practices in environmental governance. Although the formalisation of the

([5]) See http://ec.europa.eu/environment/archives/seis/index.htm online.
([6]) Detailed information on the project, its objectives and approach is available in Part 1 of the current synthesis report. The project covers both eastern and southern European neighbours, but this report only deals with the East Neighbourhood component.
([7]) While there is no Action Plan, Belarus is eligible for ENPI funding including a national ENPI programme (see Part 1 and http://eeas.europa.eu/belarus/index_en.htm online).
([8]) Russia participated in the project as a strategic partner, but formally opted out in September 2013.

Eurasian (Economic) Union between Russia, Belarus and Kazakhstan is expected to increase the consolidation of the legal and institutional framework among signatories of the Eurasian Union ([9]), at technical level in the environmental field, countries are increasingly interested in building capacities based on EU approaches.

As to regional cooperation, the approaching deadline for implementing the Water Framework Directive ([10]) within EU borders also plays a certain catalytic role for transboundary cooperation, by improving the harmonisation and exchange of environmental information in water basins shared by EU and non-EU countries (e.g. the Prut, the Neman and the Western Buh rivers).

At pan-European level, it is notable that all countries of the ENP-East region maintain well-organised (albeit not always coordinated) regular reporting under numerous regional and global environmental agreements, and participate in major related global and regional processes. The forthcoming eighth Ministerial Conference of the EfE in 2016 will redirect attention to the need for a Europe-wide harmonised approach to environmental information and assessment.

At global level, the following processes related to environmental information and assessment have also played a role in mobilising ENP countries: preparation of the fifth edition of the United Nations Environmental Programme (UNEP) Global Environment Outlook launched in 2012; reporting on the UN's Millennium Development Goals by 2015; setting and assessing the implementation of the Aichi biodiversity targets by 2020; revisiting the global agreement on climate change including its reporting mechanism towards the Conference of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC) in 2015; and gradually introducing the principles of sustainable development and green economy, including the development of advanced indicators for monitoring resource flows and the environmental performance of national economies.

Accompanying the political context is a modern trend affecting environmental information in the EU 'neighbourhood': the continuously expanding use of electronic media, both in state administration (e-governance), and for interpersonal, social and commercial communication in social media. This trend is currently complementing traditional official sources of knowledge, data and information collection with crowd-sourcing and 'citizen science'.

Despite positive advancements, the crisis in Ukraine has put the EaP and the security of the EU's borders in the east to the test in 2014. Ahead of the EaP summit in 2015, where the heads of governments will revise and recalibrate the actions of the cooperation, the issues of national security and stability are a major concern for EU and its Eastern Neighbourhood partners, and will most probably dominate discussions. This new geopolitical reality impacts cooperation in the other fields, and calls for a tailored approach to accommodate partner countries' needs.

In addition to political unrest, in most countries, economic difficulties remain real and pertinent, hitting more vulnerable public sectors like environmental management in particular. Coupled with often obsolete institutional structures, this significantly limits opportunities for making practical progress in establishing a well-functioning SEIS. Thus cooperation with the EU, accompanied by both financial and technical support, is considered crucial for countries of the Eastern Neighbourhood to bring their environmental information in line with up-to-date standards.

The synthesis report is the result of analysis of project activities and achievements over the past four years. The EEA and major regional partners, where UNECE played a key role, tried to streamline the information requirements in the Eastern European Neighbourhood region. The selection of the core set of regional indicators, agreed at the UNECE JTFEI meeting in November 2012, served as benchmark for the harmonised production of indicators across the region (see Table I.1) ([11]). It was also used as a reference to improve national coordination capacities and to advance the use of indicators at national level.

This report summarises the results and a number of challenges that emerged during the implementation of activities and dialogue with the partner countries. In response to these identified issues, the synthesis report presents forward-looking recommendations so as to bridge some existing gaps.

The three SEIS pillars of cooperation, content and infrastructure underpin the structure of the report.

([9]) Armenia joined in January 2015

([10]) Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy

([11]) See http://www.unece.org/environmental-policy/areas-of-work/environmental-monitoring/areas-of-work/enveuropemonitoringiandr-en/revised-guidelines-on-the-application-of-environmental-indicators.html online.

The report comprises three parts, as explained below.

- The first part presents the regional context, the objectives and the approach of the project. It summarises the stepwise implementation of the project's activities.
- The second part outlines the national context and key developments in each of the six partner countries. It reviews national approaches and actions taken, in addressing the three SEIS pillars. Moreover, it captures associated challenges needing to be further addressed, and proposes ways forward in this process ([12]).
- The third part reflects on the need for better coherence between inputs from national and regional into global processes, aiming to establish regular assessments as key elements to support effective policymaking and decision-making.

Activities within the ENPI-SEIS project were in line with environmental priorities and trends of better sharing environmental information in the six ENP-East partner countries, as part of more fitting response to the commitments to international reporting. The developments at national and regional level described in the synthesis report are aimed at supporting the countries and relevant partners in shaping future cooperation activities in the environmental field.

The synthesis report was developed by the EEA with support from Zoï Environment Network, and in consultation with partner countries.

Table I.1 Selected indicators and chosen data sets

Indicator	Sub-indicator	Data set
Air		
1. Emissions of pollutants into the atmospheric air (UNECE indicator A1)	1.1. Emissions of sulphur dioxide per capita (1)	(1) Emissions of SO_2
	1.2. Emissions of sulphur dioxide per square kilometre (2)	
	1.3. Emissions of nitrogen oxides per capita (3)	(2) Emissions of NOx
	1.4. Emissions of nitrogen oxides per square kilometre (4)	
2. Ambient air quality in urban areas (UNECE indicator A2)	2.1. Annual mean concentration of nitrogen dioxide in the capital city (5)	(3) Mean concentration of NO_2
3. Consumption of ozone-depleting substances (ODS) (UNECE indicator A3)	3.1. Aggregated consumption of ODS (6)	(4) Consumption of ODS
Climate change		
4. Greenhouse gas (GHG) emissions (UNECE indicator B3)	4.1. Emissions of carbon dioxide per capita (7)	(5) GHG emissions
	4.2. Emissions of carbon dioxide per unit of GDP (8)	(5) GHG emissions
Water		
5. Biochemical oxygen demand (BOD) and concentration of ammonium in rivers (UNECE indicator C10)	5.1. BOD_5 in the major rivers (three sampling points: upstream, downstream, intermediate) (9)	(6) BOD_5 in rivers
	5.2. Ammonium concentration in the major rivers (three sampling points: upstream, downstream, intermediate) (10)	(7) Ammonium concentration in rivers (NH_4/N-NH_4)
6. Nutrients in freshwater (UNECE indicator C11)	6.1. Nitrates concentration in major waterbodies (lakes, reservoirs) (11)	(8) Nitrates concentration in major waterbodies
	6.2. Total phosphorus concentration in major waterbodies (lakes, reservoirs) (12)	(9) Total phosphorus concentration in major waterbodies
Biodiversity		
7. Protected areas (UNECE indicator D1)	7.1. Share of total protected areas in the country area (13)	(10) Areas under protection in total, and by protection regime
Waste		
8. Waste generation (UNECE indicator I1)	8.1. Annual generation of household waste per capita (14)	(11) Annual household waste generation

([12]) The country reports, prepared prior to the country visits, served as a basis for the recommendations and were prepared by the Framework Contractor for the ENP-East region, the ZOI Environmental Network, with the support of the project NFPs.

PART 1 EU policy context and project objectives

The European Neighbourhood Policy (ENP) and the Eastern Partnership (EaP)

The ENP was developed in 2004, with the objective of preventing new dividing lines between the enlarged EU and its neighbours, and instead strengthening their prosperity, stability and security. The ENP framework covers 16 of EU's closest neighbours: Algeria, Armenia, Azerbaijan, Belarus, Egypt, Georgia, Israel, Jordan, Lebanon, Libya, Moldova, Morocco, Palestine, Syria, Tunisia and Ukraine.

The ENP is a bilateral policy between the EU and each partner country, defined in the bilateral ENP NAPs, which set out an agenda of jointly agreed priorities for action. It is further enriched and complemented by regional and multilateral cooperation initiatives, such as the EaP for the six eastern European and Caucasian states, the Euro-Mediterranean Partnership (EUROMED) for Mediterranean countries (the former Barcelona Process), and the Black Sea Synergy.

Launched in 2009, the EaP aims to bring Eastern European Neighbourhood countries closer to the EU and to enable them to accelerate political association and advance economic integration. The partnership builds upon the ENP and is underpinned by a shared commitment to international law and fundamental values such as democracy, the rule of law and respect for human rights, together with the principles of market economy, sustainable development and good governance. The partnership's legal basis may be the new AA between the EU and those Eastern Neighbours who have made sufficient progress in respecting and adopting the principles and values mentioned above, coupled with expressed political willingness to establish closer ties with the EU. These agreements are replacing the Partnership and Cooperation Agreements concluded with partner countries in the late 1990s.

Five countries (Armenia, Azerbaijan, Georgia, Moldova and Ukraine) have been negotiating new AAs with the EU. The latest AA including Deep and Comprehensive Free Trade Areas (DCTFAs) have been signed with Georgia, Moldova and Ukraine at the European Council on 27 June 2014. As regards the other three partner countries — Armenia, Azerbaijan and Belarus — the principle of differentiation within the EaP is applied in their relations with the EU. Future EU–Armenia relations were considered at the heads of state and government Vilnius Summit in November 2013. Negotiations are ongoing with Azerbaijan on a Strategic Modernisation Partnership and on a future AA ([13]).

At the EU Foreign Affairs Council on 22 July 2014, participants reconfirmed the inclusive partnership for all six partner countries, and stressed that the results of reforms in the region as described in the Joint Vilnius Summit declaration will be reviewed at the 4th EaP Summit in Riga in May 2015. This summit will be a good opportunity to evaluate progress achieved in political association and economic integration, and to further develop the relationship between the EU and its Eastern Neighbours ([14]).

Environmental policy and the Shared Environmental Information System (SEIS)

Environmental protection and sustainable management of natural resources are key issues within the ENP. The countries share a legacy of environmental problems from the past as well as new pressures presenting as their economic growth accelerates. These include low energy efficiency, poor environmental infrastructure, unsustainable exploitation of natural resources, and air pollution. While environmental legislation is being updated, administrative capacity and public participation in dealing with environmental challenges need to be increased. Consequently, relevant ENP NAPs contain actions to enhance environmental governance, address specific environmental concerns and promote international, regional and cross-border cooperation on environmental issues ([15]).

Our environment is borderless and it impacts all continents. Today there is a growing demand for reliable, relevant, targeted and timely environmental information at all levels. The EU has a long tradition of cooperating with international partners and creating synergies with relevant initiatives and

([13]) Source of information: see http://www.eeas.europa.eu/enp/index_en.htm online.
([14]) 18-month programme of the Council (1 July 2014–31 December 2015), Council of the European Union, 10948/1/14 REV 1, p. 28.
([15]) See http://ec.europa.eu/environment/international_issues/eastneighbours_en.htm online.

Motto of the Eastern Partnership
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Ceremony of signature of the Association Agreements with Georgia, the Republic of Moldova and Ukraine, 27th June 2014
©European External Action Service

activities, in response to both pan-European and global needs. The ENP environmental policy is in line with the environmental priority-setting in the pan-European region, where environmental monitoring and information management was recognised as a key objective and area for action in the further development of environmental strategies at the fifth EfE Ministerial Conference in Kiev (Ukraine) in 2003. This was reconfirmed during the sixth Ministerial Conference in 2007 in Belgrade (Serbia) ([16]), and later, as a result of the seventh Ministerial Conference in 2011 in Astana, it was decided to establish a regular process of environmental assessment. In order to keep the pan-European environment under review, since the Rio+20 Summit in 2012, a new set-up for reporting on Sustainable Development Goals, merging with the Millennium Development Goals process, requires accurate global assessment and reporting of environmental information. The priority objectives of the EU 7th Environment Action Programme ([17]) are embedded in global agendas like the Rio+20 Conference, the UNFCCC and the Convention on Biological Diversity (CBD), which ensure EU contributions to global activities and processes.

In response to Europe's environmental information challenge, the European Commission proposed a solution in its 2008 Communication *Towards a Shared Environmental Information System (SEIS)* (also known as the SEIS Communication) ([18]). This communication sets out an approach to help modernise and simplify the collection, exchange and use of the data and information required for the design and implementation of environmental policy. SEIS is based on seven 'principles' (see Box 1.1), according to which the information should be managed, collected and supported by open software standards, remaining easily accessible and freely available. Following on from the 2008 SEIS Communication, the European Commission launched the SEIS Implementation Outlook in 2013. This outlook aims to identify current shortcomings in the quality and flow of environment data and information, and to generate further steps towards achieving efficient and fully functioning SEIS. The leading role of the EEA and Eionet in that process were recognised and stressed in the SEIS Communication and the Implementation Outlook.

In the framework of the ENP, a number of projects have been being carried out with a view to promoting an approximation of neighbouring countries' environmental legislation to the EU *acquis* and supporting its implementation on the ground. Financial assistance to these projects was provided in the period from 2007 to 2013 through the European Neighbourhood and Partnership Instrument (ENPI), designed to target sustainable development and support the agreed priorities in the ENP NAPs and/or the AA. It was replaced by the European Neighbourhood Instrument (ENI) ([19]) in January 2014.

Given its leading role in the development of SEIS at EU level, in 2010 the ENPI-SEIS project was assigned to the EEA with a view to improving environmental monitoring and data- and information-sharing, by gradually extending the SEIS principles to the European Neighbourhood. The project was designed to support countries (Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine) to develop capacities to manage environmental policy in

([16]) On the 'Environment for Europe' process, see http://www.unece.org/env/efe/welcome.html online.
([17]) See http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013D1386 online.
([18]) See http://ec.europa.eu/environment/archives/seis/index.htm online.
([19]) See http://old.eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2014:077:0077:0084:EN:PDF online.

Box 1.1 The seven SEIS principles

The seven principles underpinning SEIS:

1) information should be managed as close as possible to its source;

2) information should be collected once, and shared with others for many purposes;

3) information should be made readily available to public authorities and should enable them to easily fulfil their legal reporting obligations;

4) information should be readily accessible for end users, primarily public authorities at all levels, to enable them to assess the state of the environment and the effectiveness of their policies in a timely fashion, and to design new policy;

5) information should also be accessible to enable end users, both public authorities and citizens, to make comparisons at the appropriate geographical scale (e.g. countries, cities, catchments areas) and to participate meaningfully in the development and implementation of environmental policy;

6) information should be made fully available to the general public, after due consideration concerning the appropriate level of aggregation, and subject to appropriate confidentiality constraints, and also at national level in the relevant national language(s);

7) information-sharing and information-processing should be supported through common, free, open-source software tools.

areas of cooperation, networking, monitoring, data management, assessment and indicator-based reporting on the environment. Russia participated in the project until September 2013 ([20]), as part of the Strategic Partnership with EU.

Later, in 2011 at the EfE Conference in Astana, ministers agreed to encourage countries in the pan-European region to further continue implementation of SEIS principles and practices, and to develop SEIS across the region in order to keep the pan-European environment under review. According to ministers, SEIS should serve multiple policy processes, including the multilateral environmental agreements, and should include capacity-building for countries in Eastern Europe, the Caucasus, central Asia and south-eastern Europe, to monitor and assess their environment ([21]).

At the Vilnius Summit in November 2013, heads of state and government specifically reconfirmed SEIS as one of the flagship initiatives found within the EaP, and stressed the need to continue EU assistance with a view to establishing fully operational SEIS ([22]) in the region.

The ENPI-SEIS project: objectives and approach

Project objectives were to:

- identify and develop data and information flows and environmental indicators suitable for the design and review of environmental policies, supporting monitoring and compliance with various national, regional and international obligations and targets;

- improve capacities in the field of monitoring, collection, storage, assessment, and reporting of environmental data of the relevant environmental authorities, including the national statistical systems, in compliance with reporting obligations to international agreements and in coordination with relevant regional initiatives;

- set up national and regional environmental information systems in the countries of the ENP area that are in line with the EU SEIS;

([20]) The relationship between the EU and Russia is determined by the Strategic Partnership, signed in 1994 and based on four Common Spaces including environment. Russia is not part of the ENP: see http://www.eeas.europa.eu/russia/index_en.htm online.
([21]) ECE/ASTANA.CONF/2011/2/Add.1, para. 14 (see http://www.unece.org/fileadmin/DAM/env/documents/2011/ece/ece.astana.conf.2011.2.add.1.e.pdf online)
([22]) Joint Declaration of the EaP Summit, Vilnius, 28–29 November 2013, p. 11. para. 40.

- track progress of the regional environmental initiatives, including the EaP.

In meeting these objectives, activities focused on:

- establishing partnerships for regular information exchange;
- the exchange of data and information on current reporting obligations to national and international agreements and organisations, and strengthening the interaction of existing networks;
- sharing of best practice tools and methodologies;
- promoting the use and reuse of core environmental indicators, also as part of consolidating the national SoE reporting base;
- establishing stable governance structures to track, assess progress and coordinate future pan-European reporting;
- reviewing, reconnecting and integrating existing regional and global processes (i.e. pan-European, Rio+20 and UNEP Global Environment Outlook (GEO) processes).

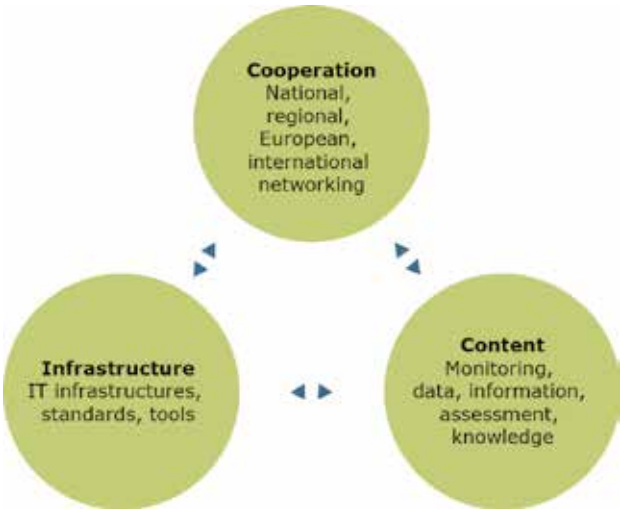
The definition of the SEIS concept includes three main pillars (see Figure 1.1) underpinning the approach and implementation of the ENPI-SEIS project in the identified thematic areas:

1. improving **cooperation** and building of (human) networks of providers and users of data and information;
2. generating policy-relevant and comparable information (common **content**);
3. applying modern web-based information and communication technologies (shared technical **infrastructure**).

Cooperation

The ENPI-SEIS project aimed to capitalise on the experience of the EEA and Eionet in supporting partner countries to build SEIS in the ENP region. The Eionet structure, with nominated NFPs and National Reference Centres (NRCs) for specific environmental areas, is a model for institutional cooperation and coordination. It provides timely and quality-assured data, information and expertise for assessing both the state of the environment and the pressures and driving forces acting upon it. The strategic partnership between the EEA and UNECE in preparing for the assessment for the EfE process has been a key driver in ENPI-SEIS cooperation.

Figure 1.1 The three SEIS pillars



The ENPI-SEIS project has been instrumental in establishing regular contact with two NFPs from each partner country. The project NFPs are usually high-level officials representing the **environment** and **statistical** organisations, and they are responsible for managing and developing environmental information and data in their countries. The added value of having two NFPs is central to the ENPI-SEIS initiative, because it aims first and foremost at strengthening institutional arrangements for environmental information management by encouraging the establishment of national environmental information networks.

Content

One of the priority areas for the ENPI-SEIS project was the production of common environmental indicators across the ENPI-East region, in line with the EEA core set of indicators and other relevant processes. Throughout the project, this process of indicator development and production was closely linked to the work undertaken within the UNECE JTFEI, operational since 2009 — and in parallel to the UNECE Working Group on Environmental Monitoring and Assessment (WGEMA). All ENP-East partner countries are actively engaged in UNECE JTFEI and WGEMA activities, supported by the ENPI-SEIS project over the past few years.

Initial efforts were geared at reviewing the UNECE Guidelines for the Application of Environmental

Indicators in Eastern Europe, Caucasus, Central Asia and South-Eastern Europe (Indicator guidelines) ([23]), in order to settle on common data structures and indicator definitions. From these guidelines, a selected set of eight regional indicators underpinned with 11 data sets in 5 thematic areas was selected in 2012, and was endorsed by the UNECE JTFEI in November 2012, to further target common actions around implementing SEIS principles in the east region. Consequently, work moved towards producing these indicators and ensuring a sustainable process at regional scale, with a view to producing future assessments.

Infrastructure

The development of SEIS includes the development of common/shared platforms for dialogue, exchange and information-sharing. This involves supporting the development of national environmental information systems, improving reporting and dissemination tools, and establishing up-to-date systems for collection of data flows and data-sharing.

Under the ENPI-SEIS project, an Information Technology (IT) Working Group was set up in early 2012 with the objective of identifying problems and challenges in data accessibility, assessing data availability in technical and institutional terms, and facilitating and making technically possible the regular reporting processes towards regular sharing of environmental information. This IT WG comprises two representatives from each partner country, one from the environment and one from statistical organisations.

Within Eionet, the Reportnet reporting infrastructure is a suite of web-based tools that helps countries report their environmental data and information using a formal reporting process. The system allows deliveries to various national, regional and international organisations in a transparent way, and includes modules covering the full reporting chain (i.e. keeping track of all reporting obligations, data specifications and quality assurance). Reportnet was made available to all ENPI-SEIS partner countries, as a mechanism to consolidate the national reporting base, and help clarify and formalise roles, responsibilities and ownership during the reporting procedure.

The aims and course of project activities from 2010 to 2014 are summarised as follows.

- Inception phase (2010). The focus was on securing the countries engagement, nominating of the project NFPs and organising of the first country visits. Initial state-of-play reports have been prepared to demonstrate the current situation in the countries as well as possible specific needs with regard to the main SEIS components. Three priority areas were selected to be addressed in cooperation with the east, identified by the partner countries themselves at the first ENPI-SEIS Steering Committee in November 2010:

  (1) freshwater in terms of quality and quantity, and marine water with the Black Sea as the closest regional sea of relevance to the region;

  (2) municipal/household waste;

  (3) air emissions, climate change and eventually, air quality.

- First round of country visits in 2011 and subsequent preparation of the Country Reports (2011–2012). The Country Reports were considered a key element in SEIS development in ENP countries, as they reflected on the national state-of-play and captured development needs for three SEIS components: inter-institutional cooperation, infrastructure and content. They also aimed at identifying priority needs and assessing the country's capacity for taking SEIS implementation forward.

- Selection of regional core set of indicators and initial work on the identified data sets, in collaboration with the UNECE JTFEI (2011–2013). This was carried out alongside the infrastructure component, which was addressed through a dedicated IT Working Group (set up in early 2012). The working group aimed at putting in place infrastructure for identified data flows (in terms of data specifications, indicators guidelines and a trial set-up of a reporting mechanism).

- The impetus to establish a sustainable process of SEIS environmental assessments and developments across the region was reconfirmed at the pan-European Ministerial Conference in Astana in September 2011. From the ENPI-SEIS project perspective, this was followed with a proposal to regularly collect environmental data through the EEA reporting tools and systems, i.e. to use Reportnet.

([23]) See http://www.unece.org/environmental-policy/areas-of-work/environmental-monitoring/areas-of-work/enveuropemonitoringiandr-en/revised-guidelines-on-the-application-of-environmental-indicators.html online.

- Some partner countries considered that reconfirming political commitment and process continuity was needed at national level, resulting in a new round of ENPI-SEIS national workshops in the ENP-East partner countries in 2013 and 2014. In preparation for these visits, new country papers were produced, documenting recommendations at national level to drive the process forward.

- Dedicated capacity-building activities in the three priority areas were held throughout the project: the focus was on developing common content and ensuring synergies with relevant partner projects and key institutions in the region.

Reaching a common understanding of what implementing the SEIS principles really means in practice is complicated, but the project has offered the opportunity to engage countries, relevant partners and the international community in focusing on the importance of sharing data and information.

PART 2 Results

This section takes stock of advancements made at national level throughout the ENPI-SEIS project, and sheds light on existing challenges.

The section is divided into three parts. A short introduction reviews the progress made in all countries, then countries' perspectives of implementing SEIS at national level are summarised, and finally, an overview is provided of the process of producing environmental indicators.

Regional trends

Throughout the project period, the institutional base for cooperation in the field of environmental information has strengthened in most, if not all, countries. The work of nominated NFPs has boosted inter-institutional dialogue, though cooperation between different institutions occurs informally rather than in officially sanctioned settings.

At international level, besides the ENPI-SEIS project and other relevant EU-funded initiatives, work has continued under the umbrella of UNECE, both on general issues of environmental monitoring, assessment and reporting, as well as on the further development of the commonly selected environmental indicators for the region. The overall drive towards harmonisation has certainly played a positive role in terms of building capacities, providing a common ground for inter-country comparisons, and improving data accessibility. The 'Friends of SEIS' group, set up in 2014 under the UNECE umbrella with the EEA's participation (alongside other international organisations) has boosted this trend. The group aims to respond to the need for a pan-European mechanism to better understand and coordinate SEIS development, and regularly measure progress in the process.

At country level, the project has supported progress in inter-institutional cooperation. The region's environmental administration inherited from the past a complex institutional structure and culture. Environmental monitoring, data collection and management are conducted by several governmental agencies/bodies with a limited degree of coordination. ENPI-SEIS country visits have been instrumental

Participants of the ENPI-SEIS project 5th Steering Committee meeting, September 2014
©Rolf Kuchling, EEA

in highlighting such challenges. Efforts to better streamline coordination are reflected in the various country proposals and actions to establish inter-institutional SEIS coordinating bodies or working groups. Belarus is well advanced in terms of inter-agency coordination of environmental information flows, through its National Environmental Monitoring System (NEMS), and Georgia has recently established a national legal entity under the MENRP with SEIS objectives, the Environmental Information and Education Centre (EIEC). Signing letters of intent between the EEA and some ENP countries (Armenia, Belarus, Georgia and Moldova) is also a step towards better defining the terms of cooperation and identifying the division of roles and responsibilities among different partners ([24]).

The reporting of collected and analysed information remains relatively weak in the region. Despite the adoption by many countries of the UNECE guidelines for environmental reporting, the production of national state-of-the-environment reports is not always sufficiently regular and often takes the form of narrative reporting rather than indicator-based analyses. There are few cases of the use of environmental indicators to add significant value to environmental information products, although several countries, including Belarus, Ukraine and Georgia are actively pursuing this track. Data and indicators are becoming increasingly accessible to outside users — and while this is certainly true for statistics, it is much less so for the results of hydrometeorological monitoring. Data holders for the latter still continue the practice of charging for data as a means to secure funds for their institutes, which largely depend on public funding.

All countries of the region follow global technological trends within the limits of the availability of funds, including from their budgets, often complemented through bilateral assistance projects. This relates to the automation of data collection/monitoring, the storage and processing of data (increasing technical capacities for data management, analytical and geographic information systems), and the infrastructure for inter-agency and public exchange of data and information, typically using the Internet. At the same time, the use of inter-agency intranet solutions is limited, and many agencies still keep their data in the corresponding 'corporate' electronic systems (or even in paper files), without providing easy or external access to them. Finally, the global growth of social media is reflected across the region; direct environmental reporting by citizens is starting to be explored through modern electronic platforms.

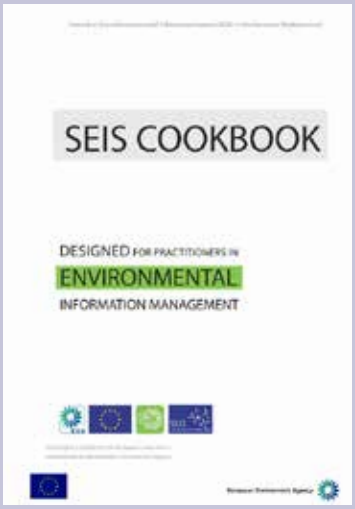
The EEA has offered guidance and made tools available (through documents and training) to support the establishment of a regular reporting cycle, by encouraging use of the Eionet infrastructure, Reportnet. While ENP partner countries have agreed on the advantages of using such existing infrastructure, its wider use has remained limited throughout the project.

Box 1.2 SEIS Cookbook

The SEIS cookbook: a tool for sharing environmental data and information

A 'SEIS cookbook' was developed under the ENPI-SEIS project to illustrate the principles of a SEIS and their applicability in practice. The bulk of the cookbook is devoted to case studies from the EEA members, and from cooperating and neighbourhood countries, and these discuss the national and international implementation of SEIS elements. These examples are used collectively to identify an emerging set of common trends, methods, tools and lessons learnt, which have been integrated into the 'SEIS checklist', to be used as a self-assessment tool to measure progress and identify areas needing further development.

In 2013, the cookbook was published in English, French and Russian, and is available on the ENPI-SEIS project website ([25]).



([24]) Graphics illustrating division of roles and responsibilities in data sharing among different partners in the six countries
([25]) See http://enpi-seis.ew.eea.europa.eu/ online.

2.1 Country perspectives

ARMENIA

Context and key developments

Cooperation and legal framework

The main organisations responsible for collecting, producing, managing and sharing environmental data and information in Armenia are the Ministry of Nature Protection (MoNP) and various supporting environmental organisations, and the National Statistical Service (NSS). Coordination of the ENPI-SEIS project at national level is carried out by two NFPs representing these institutions.

National coordination for ENPI-SEIS project implementation, as well as inter-institutional dialogue involving different data providers, is ensured under the framework of the Inter-agency Environmental Council where the NSS coordinates statistical data management.

Cooperation between the MoNP, the NSS of Armenia and the EEA was further formalised in June 2014, with the signing of a letter of intent on further SEIS implementation at national level.

Drafts of a framework law on ecological policy and eight sectorial laws introducing processes for environmental monitoring and data management were developed and submitted to government in spring 2014. The draft laws contain requirements for using environmental indicators, developed by the UNECE JTFEI and through the ENPI-SEIS project, and for the preparation of SoER.

In addition to the draft laws mentioned above, the Ministry of Environment in close cooperation with German partners is currently developing a framework Law on Environment. This law will provide a legal base that allows the development and implementation of a SEIS and Integrated Monitoring System in line with EU directives, conventions and other international processes.

Content and infrastructure

Following the selection of the core set of regional indicators endorsed by the UNECE JTFEI in 2012, and work undertaken at national level, the ENPI-SEIS January 2014 ([26]) analysis shows that all 11 data sets are now available in Armenia, with various levels of quality. The NSS is responsible for producing all eight indicators. It is expected that the NSS will become the main institution for the collection, management and sharing of environmental information in Armenia.

The NSS is developing and hosting a centralised system to disseminate all environmental statistics and indicators, known as ArmStatBank (see http://www.armstat.am/en/ online). This system now allows users to access selected UNECE indicators, and there are plans to expand the range of indicators and make this the primary indicator management system in the country. The interface is interactive, with results that are downloadable in a range of formats.

Armenia has officially appointed a 'data reporter' for the EEA (from the MoNP), something that is essential for data-sharing in Reportnet. In April 2014, Armenia

National SEIS workshop in 2011
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National SEIS workshop in 2014
©Zoi Environment Network

([26]) See http://enpi-seis.ew.eea.europa.eu/east/armenia/national-workshop-29-31-january-2014/seis-country-report-eng.pdf online.

The Debed river in Armenia
©Steve Warren, ENPI Info Center

Mountainous landscape in Armenia
©Yurik Poghosyan

started to populate Reportnet with selected data sets, such as ODS and GHG inventories. Discussions on sharing other data sets through Reportnet are in progress ([27]).

Within the ENPI-SEIS project, Armenia took part in a pilot exercise evaluating the concepts and mechanisms applied within Eionet for the sharing of water quality data for rivers and lakes, i.e. WISE SoE data flows. Data on nutrients (for 23 river-monitoring stations) that were prepared and shared in October 2014, show that, overall, Armenian data are complaint with WISE SoE methodologies. The next consideration is how to incorporate these data into Reportnet.

Following a request from Armenia expressed during the two country visits ([28]) in May 2014, it was agreed to develop a pilot project: SEIS Lake Sevan. This pilot project aims at developing and testing a model/ mechanism to allow the integration of data sets from a variety of sources, as a step towards regular data-sharing among key partners at national level.

Challenges

Cooperation and legal framework

The monitoring landscape remains fragmented, with many institutions involved in the process and limited information-sharing among them, due to the absence of regulations on sharing and exchange of environmental information across stakeholder organisations.

There are still gaps in sectorial legislative frameworks regulating the collection, management and sharing of environmental information management, due to slow adoption and implementation processes in the government.

Content and infrastructure

While all 11 data sets are available, the sharing of these data between national entities is hindered by inter-comparability issues of reporting formats, application of different mechanisms and tools for data collection, incompatible computer software for administrative data processing and lack of digitalised data.

Reporting is not systematic in all thematic areas. Biodiversity monitoring, being the most critical, requires regular monitoring and digitalisation of existing cadastres. Establishing a national waste monitoring network requires improvement in the legal framework and development of a national strategy on waste management. In the area of air, the monitoring coverage area needs to be extended. Furthermore, the systematic monitoring of air pollutants is hindered by outdated monitoring infrastructure and lack of appropriate equipment.

There is currently no national legal obligation to produce SoERs, although it is an obligation to do so under the Aarhus Convention, to which Armenia is a party. The last SoER of Armenia, produced in 2002 with the support of UNECE, was rather descriptive in nature. At the moment, Armenia lacks the capacity and experience needed to produce an indicator-based SoER.

([27]) Status in October 2014.
([28]) First country visit in 2011, followed by national workshop in 2014.

Amberd Fortress
©Yurik Poghosyan

Lake Sevan
©Yurik Poghosyan

Way forward

Cooperation and legal framework

Strengthening intergovernmental coordination
Recognition and provision of support for the established Intergovernmental Ecology Council (by formalising its mandate, role and responsibilities) are regarded crucial for successful coordination of SEIS-related activities at national level. The council could play a role in developing resolutions to amend existing laws for better streamlining and managing the process of data-sharing and -reporting. It could also ensure better planning of environmental issues and coordination among different actors.

Enforcement of legal framework
There is a need to adopt a legislative and regulatory framework for the establishment of data-sharing and information-exchange mechanisms with international organisations and among different stakeholders at national level. In addition, the capacities of public authorities to monitor and enforce implementation of environmental legislation need to be enhanced.

Terms of cooperation with the EEA regarding SEIS
Continued efforts to implement the objectives set out in the signed letter of intent and the activities agreed under the SEIS Lake Sevan pilot project are essential to ensure the continuity of work carried out so far.

Regional cooperation
Strengthening regional cooperation, particularly for transboundary water issues, has been recognised as beneficial, and should be reflected in concrete activities.

Content and infrastructure

Further development of environmental indicators
In line with national and international priorities, continuing work towards production of a wider range of environmental indicators and their use for international and national assessments must be further addressed.

Operationalisation of the environmental information system
Finalising the ArmStatBank according to international standards and applying SEIS principles are necessary for the creation of an operational and effective system of integrated environmental monitoring and information management.

Production of SoERs
Incentives are needed to produce a regular policy-relevant and indicator-based SoER by the application of internationally agreed guidelines. The production of SoERs calls for reinforcement of structures and procedures for making an environmental assessment.

E-governance and open access to environmental information
Further development of e-governance at national and local levels is seen as a step towards enhancing coordination and reporting responsibilities among different data collectors and holders. Experience exchange and capacity-building activities with other EU countries introducing e-governance tools are considered beneficial. Establishment of procedures and strategies regarding access to environmental information, including the implementation of the Aarhus Convention, are necessary for successful SEIS implementation.

AZERBAIJAN

Context and key developments

Cooperation and legal framework

Coordination of the ENPI-SEIS project is carried out by two NFPs representing the Ministry of Ecology and Natural Resources (MENR) and the State Statistical Committee (SSC) of Azerbaijan. The same two NFPs for Azerbaijan have been engaged in the ENPI-SEIS project since its beginning in 2010.

Environmental policy and legislation frameworks are being developed, and alignment with EU standards is increasing. Environmental issues are integrated into the development policy document Azerbaijan 2020 – Look into the future, adopted in December 2012. Of high relevance for SEIS objectives are the guiding policies: (a) on development of ICT and ensuring transition to an information society (e-services), and (b) environmental protection and ecological issues. Since the endorsement of this policy document, the MENR has elaborated the State Action Programme on Protection of the Environment and efficient use of Natural Resources 2014–2020 as a new environment policy.

Content and infrastructure

Following the selection of the core set of regional indicators endorsed by the UNECE JTFEI in 2012, and work undertaken at national level, analysis conducted under the ENPI-SEIS project in May 2014 ([29]) shows that all 11 data sets are produced at national level to form the basis for indicator production. The two main sources of data related to the selected indicators are the MENR and the SSC.

The Environmental Indicators System of the Republic of Azerbaijan, based on the UNECE indicator guidelines, was confirmed by Decree № 20/11s of the SSC on 27 May 2014 (see http://www.stat.gov.az/menu/7/indexen.php online). The environmental indicators are published online on the SSC website (see http://www.stat.gov.az/source/environment/index.php online).

Azerbaijan's first national digital water cadastre is under development, with plans for it to be publically available in 2015.

The MENR is shifting towards an indicator-based approach for the preparation of SoE reports. In 2013, the ministry published a two-volume report on the state of the environment. Volume 1, Environment and measures taken in the field of environmental protection in 2008–2013, shows the environmental assessment results of the last five years, and reports on measures taken as key priorities for national policy in the field of environment protection. Volume 2 describes programmes, legislation and infrastructure development for the period from 2008 to 2012.

Challenges

Cooperation and legal framework

The 2014 national consultation shows that although some progress on environmental policy has been made, there is a need to further develop the monitoring network and the terms for information exchange. A key challenge is the low level of enforcement of the new environmental legislation, and limited environmental mainstreaming, involving all ministries, in the economy and the country's development. While there is much interest in tackling data management and data-sharing problems within

National SEIS workshop in 2011
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National SEIS workshop in 2014
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([29]) See http://enpi-seis.ew.eea.europa.eu/east/azerbaijan/national-seis-workshop-may-2014/enpi-seis-country-report-azerbaijan-eng.pdf online.

The Sea of Baku
©Shain Abbasa, ENPI Information Centre

The Caspian Sea
©Shain Abbasa, ENPI Information Centre

relevant organisations, there is a lack of overall coordination for building stronger inter-institutional relationships towards a national environmental information system.

The Permanent Commission on Environment and Energy provides relevant legislation, but there is still no State Commission on Sustainable Development entrusted with strategic planning and high-level coordination of sustainable development efforts.

The fundamental function of environment monitoring and information-sharing for sustainable development is not yet strongly anchored enough to enable strategic decision-making at national level, but some national initiatives address this issue: in 2008, the State Programme on reducing poverty and sustainable development for 2008–2015 was adopted by the President. The programme identifies nine strategic areas including improvement of the state of the environment and supporting sustainable development.

Content and infrastructure

Human capacity remains a major challenge for SEIS-compliant environment management. Although technical capacities (laboratories, equipment, etc.) have significantly improved through governmental investments, cross-sectorial communication, information management and strategic cross-cutting environmental planning are still unsolved challenges. The fast technology transfer thanks to governmental investments is materialising much faster than the capacity-building process to manage these new infrastructures.

The waste sector is identified as a priority, as the country currently lacks an effective waste management system. Both the MENR and the SSC collect and manage waste-related data. The division of roles and responsibilities between these two entities, particularly in regard to quality assurance aspects, is noted as a standing issue.

Way forward

Cooperation and legal framework

Strengthening intergovernmental coordination

The promotion and support for enhanced networking of different ministries and other stakeholders dealing with the same environmental issue/resource is recognised as area needing further attention. This could be addressed with thematic platforms, joint planning sessions, mixed land use and development planning commissions in the regions, etc. Establishing an inter-agency SEIS coordinating body to draw up a strategic work plan to enhance inter-agency data-sharing and its mode of operation may be a practical solution.

Enforcement of legal framework

The EU acquis could be used as a basis for the elaboration of new legislative and regulatory frameworks for establishing data-sharing and information-exchange mechanisms with international organisations and among different stakeholders at national level. This is particularly relevant for high-priority areas of waste management and water. The development and adoption of a new Action Plan on Environment Protection is considered a valuable step in this direction. From a statistical point of view, improving conformity with EU standards on national classification systems is key to regional integration of environmental data and the building of SEIS across the region.

Waterfall in the Gakh region
©FLEG project, ENPI Information Centre

Forest in Azerbaijan Gabala region
©FLEG project, ENPI Information Centre

Formalising the terms of cooperation with the EEA regarding SEIS
The development and agreement of necessary measures to formalise the terms of cooperation with the EEA and the intake of working methods and tools for streamlining data-sharing and reporting applied within Eionet could provide a practical solution to strengthen SEIS-related activities at national level. This would include the nomination/confirmation of NFPs and data reporters with well-defined roles and responsibilities.

Regional cooperation
Strengthening regional cooperation is important, particularly on methodologies for preparation of the state-of-the-environment reports supported by integrated environmental information systems, and the process for producing sustainable development indicators at national level, linked to wider, global processes.

Content and infrastructure

Further development of environmental indicators
In line with national and international priorities, continuing work towards the regular production of a wider range of environmental indicators and their use for international and national assessments needs to be further addressed.

Operationalisation of a national environmental information system
Continued efforts are needed to develop online services to access environmental indicators, while considering solutions to allow further access to more detailed background information supporting the data, such as links with references to data sources and methodologies, data validation, policy targets, international agreements and general metadata.

Production of SoERs
There is a need to enhance capacity to create and understand the information value of SoERs in decision-making processes. The focus of such actions could help build the necessary base for regular SoER production, and reinforce the organisational structure and capacity to carry out environmental assessments.

BELARUS

Context and key developments

Cooperation and legal framework

Coordination of the ENPI-SEIS project is carried out by two NFPs representing the Ministry of Natural Resources and Environmental Protection (MNREP) and the National Statistical Committee (NSC) of Belarus.

The primary source of data on the state of the environment and the release of pollutants into the environment in Belarus is National Environmental Monitoring System (NEMS), whose activities are coordinated by the MNREP with various supporting environmental organisations. A decree was adopted in 2011 to provide a legal framework regulating NEMS operations and development for the period from 2011 to 2015. NEMS is currently an organisational structure that unites 11 independent types of monitoring: ambient air, surface water, groundwater, land (soil), forests, flora, fauna, the ozone layer, geophysical monitoring, radiation monitoring and local monitoring.

A directive from the President of Belarus, approved in December 2006, helps avoid duplications in national statistics, and unites all government-related databases into a central statistical indicators system.

As a result of a national SEIS workshop held in Minsk (Belarus) in February 2014, a joint statement between the MNREP, the NCS and the EEA was signed to define the terms of cooperation and reaffirm the commitment to share environmental data.

Content and infrastructure

One of the areas of NEMS implementation involves achieving compatibility with international information systems, and providing data to governmental agencies, entities, individuals and international organisations in accordance with international agreements. NEMS includes the Main Information and Analytical Centre (see http://www.nsmos.by online), managing the information system that ensures information exchange between all the monitoring types, and analyses and standardisation of information on the state of the environment. The centre publishes quarterly operational information and conducts annual analyses on the state of the environment, including trends and forecasts.

The Public Data Fund for the environment and environmental impacts was established as a step to advance the integration and sharing of environmental data ([30]). A main task of this fund is to identify and regulate the structure of environmental information for public access, the data holders and stakeholders responsible, the frequency of dissemination and the mode/methods of dissemination.

Following the selection of the core set of regional indicators, endorsed by the UNECE JTFEI decision in 2012 and work undertaken at national level, analysis under the ENPI-SEIS project in February 2014 ([31]) shows that the 11 data sets are produced at national level to form the basis for indicator production.

The system of key environmental indicators of Belarus is adopted in line with UNECE guidelines on the application of environmental indicators. Throughout

National SEIS workshop in 2011
©Gordon McInnes, EEA

National SEIS workshop in 2014
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([30]) Resolution. No. 734 of the Council of Ministers, 2008.
([31]) Country report: see http://enpi-seis.ew.eea.europa.eu/east/belarus/national-workshop-february-2014/seis-background-document-belarus-eng-final-version.pdf online.

Biogas facility in Agrofirma Lebedevo
AFP©ENPI Info Centre

Children posing with info leaflets in Kobrin, a framework for Environmental change
AFP©ENPI Info Centre

the duration of the ENPI-SEIS project, developments were made public on the NSC ([32]) website, making the eight selected priority indicators available. The online system includes links to further reading including details on methodology for the production of indicators, the data holder and the sources of data used.

Challenges

Cooperation and legal framework

Belarus possesses a significant legal, methodological, scientific and technical basis for SEIS implementation, particularly through principles and procedures for forming NEMS. However, it has been noted that over recent years, funding and the number of staff dedicated for the production of primary environmental data, the processing of various data sets, and the visualisation/presentation of environmental data (e.g. online tools/systems, regular publications) have been reduced significantly.

General terms of cooperation and the political commitment to share environmental data between Belarus and the EEA are in place (a joint statement was signed in 2014), although practical steps to operationalise the integration of Belarusian data with European data (i.e. using Eionet's Reportnet reporting infrastructure) remain to be set and implemented. The ENPI-SEIS project has witnessed a high turnover of nominated NFPs for the MNREP (five different persons, to date).

Content and infrastructure

Currently, the publically available Internet platform for accessing selected project environmental indicators is managed by the NSC. For these indicators, the platform does not provide direct links to other information systems, either in terms of access to data sets underpinning the indicators, or for recent analytical products using the indicators.

Although the legal base for the development of environmental information has been established to guide the administration of a range of databases, cadastres and statistics, public access to primary data underpinning the various analytical products remains limited.

The development and use of geo-information and tools to visualise and publically disseminate data as part of NEMS is limited, although some advancements have been made in depicting air quality data in near-real time mode, and in visualisation of protected areas. Similar approaches for water quality data in rivers and lakes have been considered, although no progress has been reported to date.

Belarus has a significant amount of historical data (dating back to the 1800s) that would need to be digitised and archived. This was recognised as an important and crucial task, as part of its heritage, and for research on climate change, for instance.

Way forward

Cooperation and legal framework

Strengthening intergovernmental coordination

It would be beneficial to have in place a mechanism to better link coordination under NEMS (for its 11 types of environmental monitoring) with the network of experts involved in, and responsible for, the

([32]) See http://www.belstat.gov.by/ online.

Park in the city of Minsk,
©Dezsö Gábor Mikus, EEA

Park in the city of Minsk,
©Dezsö Gábor Mikus, EEA

development of international reporting and data-sharing. A practical solution might be the set-up of an inter-agency SEIS coordinating body, to draw up a strategic work plan to enhance inter-agency data-sharing and its mode of operation.

Enforcement of legal framework
There is a need to review and align the objectives and the implementation plans of NEMS (monitoring, thematic and integrated information systems) and the Public Data Fund on the environment (public dissemination of information), so as to identify, coordinate and implement complementary actions along the full data-reporting chain. It has been noted that actions to improve data validation along the reporting chain are needed. The possible accession of Belarus to the Protocol of the Aarhus Convention on Pollutant Release and Transfer (PRTR) should be considered as an important step.

Terms of cooperation with the EEA regarding SEIS
Continuing efforts to implement the objectives set in the joint statement are important, as is working together to improve access to and availability of Belarus's data and environmental information at an international level.

Regional cooperation
Strengthening regional cooperation is key, particularly on the use of information and the process for producing green economy and sustainable development indicators at national level, linked to wider, global processes. It has also been regarded crucial to continue technical assistance in the process of reviewing and aligning databases and systems forming the NEMS to EU methodologies (e.g. for the management of waste-related data).

Content and infrastructure

Further development of environmental indicators
In line with national and international priorities, it is important to continue work towards the regular production of a wider range of environmental indicators and their use for international and national assessments.

Operationalisation of the environmental information system
The system of online indicators managed by the NSC could be further developed, considering better integration and linkages with other environmental information systems developed and maintained under NEMS. The integration of geo-information technologies, and formalising more detailed internal procedures and legislation around data validation have also been identified as important areas needing further attention.

GEORGIA

Context and key developments

Cooperation and legal framework

The main organisations responsible for collecting, producing, managing and sharing environmental data and information in Georgia are the Ministry of Environment and Natural Resources Protection (MENRP) ([33]) with various supporting environmental institutions, and the National Statistics Office (GeoStat). The coordination of the ENPI-SEIS project at national level is ensured by two NFPs representing the MENRP and GeoStat.

Following the second country visit in January 2014, with the objective of optimising environmental data collection and dissemination and improving inter-institutional cooperation, the MENRP and GeoStat signed a memorandum of understanding (MoU) ([34]). This MoU foresees the development of a data exchange calendar and the establishment of bilateral working group. The latter is mandated to put forward recommendations and proposals with respect to environmental policy needs.

By signing a letter of intent in January 2014, the MENRP reconfirmed the commitment of Georgia to provide and share environmental data and further cooperate with the EEA in implementing SEIS. Legal acts were prepared in compliance with EU thematic directives (such as the Air Quality Directive ([35]) and Water Framework Directive ([36]). The National Environmental Action Plan was developed and approved in January, 2012. MENRP has developed the Waste Management Code which has to be approved by the Government of Georgia and will be submitted to the Parliament of Georgia in 2014. The National Waste Management Strategy (15 years) and the Waste Management Action plan (5 years) are also being developed. The new draft law on Water Resources Management drafted in 2013 is still under consultation with relevant Ministries. The National Biodiversity Strategy and Action Plan, 2014-2020 (NBSAP) was approved by the Government of Georgia in May, 2014. Concrete steps were taken towards aligning national legislation with the INSPIRE Directive ([37]) and Eurostat ([38]) standards and guidelines. New recommendations were developed on the revision of the statistical law and work was pursued on the midterm strategy adopted in December 2011 for the development and improvement of national statistics.

Signed in June 2014, the AA requests that Georgia ensures approximation of national legislation to EU acts and international instruments, according to concrete provisions and timelines.

In 2014, Georgia became a member of the Global Observation System of Systems (GEOSS), underlining its willingness to adhere to standards of global activities for improving access and sharing of environmental information.

National workshop 2014
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National workshop 2011
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([33]) Since 2013, MENRP has been restructuring and broadening the thematic areas by taking back policy responsibilities such as the management of natural disasters, forest and land from other ministries.
([34]) The MoU is available at http://geostat.ge/index.php?action=news&npid=689&lang=eng online.
([35]) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe.
([36]) Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.
([37]) Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE). See http://inspire.ec.europa.eu/ online.
([38]) See http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/ online.

Content and infrastructure

Following the selection of the core set of regional indicators endorsed by the UNECE JTFEI in 2012 and work undertaken at national level, analysis conducted under the ENPI-SEIS project in December 2013 ([39]) shows that 9 of 11 data sets are available in Georgia for indicator production ([40]). Missing information includes data on municipal waste generation ([41]) (due to the lack of a legal framework), and on total phosphorus concentration in major water bodies (due to non-carried measurements) ([42]). Since 2013, environmental data are free of charge and available on request. Data owners (government bodies) have an obligation to ensure free access and public availability to their environmental information.

In May 2013, the Environmental Information and Education Centre (EIEC) was established, with the objective to facilitate access to environmental information, collect and share environmental information, administer the SEIS, promote environmental awareness-raising of the general public and support capacity-building activities.

Georgia has demonstrated concrete steps in aligning its national water-monitoring systems with the WISE SoE tools and methodologies, by participating in a 2014 pilot exercise to share water quality data for rivers and lakes. During the exercise, data were provided for 15 rivers stations and 1 lake station. Similar water quality data-sharing was initialised through the UNEPLive platform.

Challenges

Cooperation and legal framework

An intergovernmental working group for the coordination of SEIS at national level, as such, does not exist in Georgia. Different cooperation arrangements exist between institutions, without a leading authority appointed to coordinate efforts.

Adoption and implementation of legal acts, enabling the collection and sharing of environmental information, is slow. There is noted a lack of expertise in developing legislative acts; often, this relies on external donors and international projects.

Kura-Aragvi confluence Georgia
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Content and infrastructure

A coherent method of environmental data collection across the different ministries and public access to environmental information is not in place yet.

The production of the SoER, due in late 2014, relies on international provision of expertise and financial support. It is expected to be built on progress made in indicator production over past years. The previous SoER (2007–2009) published in 2011 was assisted by EU-funded project support and implemented by IBF International Consulting ([43]).

Way forward

Cooperation and legal framework

Strengthening intergovernmental coordination

The appointment of a leading authority or dedicated coordination structure to enable better mobilisation of national resources is regarded crucial for successful coordination of SEIS-related activities at national level. Endorsement of the MoU between the MENRP and GeoStat, as well as support for the work carried out by the NFPs, are seen as catalysers for improving links and information flow between the different partners involved. The EIEC's role as a potential national coordinating body needs to be enhanced.

([39]) See http://enpi-seis.ew.eea.europa.eu/east/georgia/national-seis-workshop-december-2013/seis-country-background-report-georgia-eng-final.pdf online.
([40]) Can be found http://moe.gov.ge/index.php?lang_id=ENG&sec_id=242&info_id=2864 and http://91.208.144.188/(X(1)S(eo5nqf45tcxchrypx5um4hel))/Menu.aspx?rxid=c8ca81e9-2824-4c5b-a46a-c80202913531&px_db=Database&px_type=PX&px_language=en&AspxAutoDetectCookieSupport=1 online.
([41]) The draft law on waste management was developed in 2014 under the framework of the twinning project 'Strengthening the Capacities of MENRP in Development and Improvement of Waste Management System in Georgia (2011–2014)'.
([42]) Measurement of the total phosphorus concentration in major waterbodies started in 2014.
([43]) The SoER (2007-2009) is available http://moe.gov.ge/index.php?lang_id=ENG&sec_id=32 online.

The Kura River running through Tbilisi
©Trans-boundary river management for the Kura River basin project, ENPI Info Centre

The Kura river in Tbililsi
©Steve Warren, ENPI Info centre

Enforcement of legal framework
There is a need to adopt a legislative and regulatory framework for the establishment of data-sharing and information-exchange mechanisms with international organisations and between different stakeholders at national level. This includes, among others, implementation of the National Environment Action Plan for 2012–2016; the law on waste management and the Aarhus Convention; and drafting a roadmap for ratification and implementation of the Espoo Convention ([44]).

Terms of cooperation with the EEA regarding SEIS
Continuing efforts to implement the objectives set in the signed letter of intent, and tackling them in line with the approximation policy, are essential to ensure the sustainability of the process.

Regional cooperation
Strengthening regional cooperation, particularly concerning integrated management of river basins, was recognised as beneficial, and needs to be reflected in the concrete activities plan.

Content and infrastructure

Further development of environmental indicators
Continuing work towards production of the missing indicators by elaborating methods of analysis and measuring new parameters needs to be supported. As a follow-up action, building up a wider range of environmental indicators and their use for international and national assessments needs to be further considered.

Production of SoERs
The production of SoERs requires the designation of competent authorities, reinforcement of structures, and national skilled experts in the field of environmental assessment. New mechanisms to produce a regular policy-relevant and indicator-based SoER by the adopting relevant international experience on this subject are needed.

Environmental information system and e-governance
The mandate given to the EIEC, in terms of ensuring access to environmental information and developing an integrated environmental monitoring and information management system, is for it to be further strengthened, and support provided to achieve concrete results.

Sharing of selected indicators and ensuring data flow, based on the water pilot exercise within the ENPI-SEIS project, is to be continued and initiated for other thematic areas.

Use of new web-based software for data management and reporting systems, digitalisation of information, harmonisation of data structures and interoperability of formats, quality and reliability control mechanisms are elements needed for a coherent and efficient system for management of environmental information across different actors.

Further development of e-governance at national level, in line with the EU approximation policy, is considered a step towards enhancement of coordination and reporting responsibilities among different data collectors and holders.

([44]) Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, Finland, 1991). See http://www.unece.org/env/eia/ online.

MOLDOVA

Context and key developments

Cooperation and legal framework

The main organisations responsible for collecting, producing, managing and sharing environmental data and information in Moldova are the Ministry of Environment (MoE) with various supporting environmental institutions and the National Bureau of Statistics (NBS). The coordination of the ENPI-SEIS project at national level is ensured by two NFPs representing these institutions. The relationship between both institutions is formalised through different regulations, but these do not explicitly include coordination aspects of SEIS-related activities. Good cooperation exists between the agency Apele Moldovei (Water Basin Management Department), the State Hydrometeorological Service and the Agency for Geology and Mineral Resources, who share responsibility for putting in place procedures for the development of the state water cadastre.

In view of the signing of the AA, the national Strategy on Environment for 2013–2023, together with the action plan for its implementation, was adopted in April 2014 ([45]). The secondary legislation for full endorsement of the 2011 water law came into force in October 2013, and engagement in the protection of the Danube River was reinforced. A national waste management strategy was approved in April 2014.

Signed in June 2014, the AA puts an obligation on Moldova to ensure approximation of national legislation to EU acts and international instruments, in line with concrete provisions and timelines.

To formalise cooperation for the endorsement of the SEIS principles between the EEA and the MoE, a letter of intent was signed in September 2014.

Moldova has expressed its interest in increased cooperation with the EEA, and has become a partner country of the InSEIS ([46]) project (June 2014–July 2015), which aims at building institutional capacities in identified priority areas via provision of technical assistance activities.

Content and infrastructure

Following the selection of the core set of regional indicators, endorsed by the UNECE JTFEI in 2012 and work undertaken at national level, analysis conducted under the ENPI-SEIS project in April 2014 ([47]) shows that all 11 data sets are available in Moldova with mixed quality, some limitations, specific access conditions and fragmentations in carried monitoring activities. The NBS has the responsibility for producing two of the eight indicators: air emissions and urban waste; the others are the responsibility of various environmental institutions.

In April 2012, the government of Moldova joined the Open Government Partnership initiative (e-governance) and committed to increase public access to information, promote transparency in governance and ensure citizen participation in governance by using advanced information technologies. The Government Open Data Portal (see http://www.date.gov.md online) is the government's open database, with data of public interest from all ministries and governmental agencies, and with current entries of 700 data sets.

National SEIS workshop in 2011
©Gordon McInnes, EEA

InSEIS feasibility study tour 2014
©Inese Podgaiska, EEA

([45]) Developed with the support of the UNDP.
([46]) Increased collaboration with the EEA and further implementation of SEIS: see http://pbe.eionet.europa.eu/inseis/ online.
([47]) See http://enpi-seis.ew.eea.europa.eu/east/moldova/national-seis-workshop-may-2014/country-paper-2014 online.

River Racovăţ
©Alecu Renita

Natural Fortress in Socola
©Alecu Renita

Moldova actively participated in the 2014 pilot exercise to examine in further detail the comparability of the WISE SoE reporting methodologies with its national system, in order to share water-related data. There was good interaction with the European Topic Centre on water (ETC/ICM), and data were submitted using the WISE SoE templates for rivers and lakes. Moldova is also preparing to report similar data under the Danube Convention.

Challenges

Cooperation and legal framework

An intergovernmental working group for the coordination of SEIS at national level does not exist in Moldova. The landscape of data providers remains fragmented, with poor coordination of data exchange at institutional level. Due to limited allocation of public funds, the MoE does not have the human and technical capacity to receive and process information from different institutions nor to fulfil the overall coordination role.

The reorganisation of the MoE is being considered, as prescribed in the national Strategy on Environment. A leading authority responsible for collecting, managing and sharing environmental information has not been established yet.

Some improvements are needed in the development and endorsement of legal acts (especially secondary legislation). Externally funded projects and the assistance of international experts would help.

Content and infrastructure

For the production of the core set of indicators, biodiversity monitoring remains fragmented and incomplete due to the lack of a consolidated monitoring system. In the area of the waste management, the data on collection of household waste cover only urban settlements; no records are kept for rural settlements. Concerning air, old standards are still in place, with a limited number of parameters being monitored, but additional parameters are gradually being introduced in line with international standards.

According to the 1993 Law on Environment, a SoER for Moldova is to be produced annually, but this has not been upheld in recent years, with the latest report for 2007 to 2010 produced by the MoE in 2011. The report does not make use of environmental indicators, and follows a more descriptive approach. The production of SoERs relies on donor support and external expert input.

There is no national environmental information system as such in the Republic of Moldova. Only a few institutions have electronic storage, dissemination and available information online. There is no networked relational database set up between the different institutions involved in information-sharing.

Way forward

Cooperation and legal framework

Strengthening intergovernmental coordination

The appointment of a leading authority or dedicated coordination structure to enable better mobilisation of national resources, avoiding overlapping functions and strengthening regular information exchange, is regarded crucial for successful coordination of SEIS-related activities at national level. The reorganisation of the MoE is seen as a natural step towards making the institutional structures of the central environmental authorities more effective.

The creation of an Environmental Protection Agency (EPA) will take place as an executive body for environmental monitoring, information exchange and

Beech land
©Alecu Renita

River Prut
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permitting under the MoE, in line with the provisions of the National Environmental Strategy. The exchange of experience for the establishment of the EPA is included as a priority area for enhanced cooperation with the EEA.

Enforcement of legal framework
Incentives need to be put in place to encourage compliance with the requirements of the EU approximation policy. These include, among others, the development of relevant legal acts and secondary legislation on strategic environmental assessment, air and water quality, waste management, industrial pollution and chemicals; the adoption of a national strategy and Action Plan for the Conservation of Biodiversity for 2014–2020; the adoption of national climate change adaptation strategy and a low emissions development strategy; and the development of an air protection strategy.

Terms of cooperation with the EEA regarding SEIS
Continuing efforts to implement the objectives set in the letter of intent and activities covered by the InSEIS project is essential to ensure sustainability and fulfil the requirements for the EU approximation process.

Regional cooperation
Regional cooperation should be further pursued, particularly concerning protection of the Danube River and identified areas for the enhanced cooperation with the EEA.

Content and infrastructure

Further development of environmental indicators
Continuing work towards improving the quality of produced indicators needs to be supported. As a next step, the following issues are to be addressed: alignment of national indicators with UNECE guidelines and their approval at national level; building up a wider range of environmental indicators and their use for international and national assessments.

Production of SoERs
The national environmental strategy foresees the SoER being produced every four years, as a policy-relevant and assessment-based document. The next report is to be prepared in 2016, to feed into the pan-European assessment. In the framework of enhanced cooperation, identified Eionet countries will build capacity and skills of local experts, producing an indicator-based report during the 2014-to-2015 period.

Environmental information system and e-governance
The integrated environmental monitoring and information management system is to be developed according to the principles laid down in the national strategy on the environment. Secondary legislation in the form of a national concept with an action plan on how to enable other institutions to improve their information system (digitalisation and automation of information) and develop the information system is included as priority area to be tackled in the framework of the InSEIS project.

The e-governance process is well anchored in Moldova. This process can facilitate data exchange and data-sharing among different institutions. The established e-governance centre is managed dynamically, and can provide both financial and capacity-building support for initiating data exchange with environmental institutions. The draft law on e-governance was submitted to the Parliament in autumn 2014. Strengthening cooperation between MoE and the e-governance centre is considered worthwhile.

UKRAINE

Context and key developments

Cooperation and legal framework

Coordination of the ENPI-SEIS project is carried out by two NFPs representing the Ministry of Ecology and Natural Resources (MENR) and the State Statistics Committee (SSC) of Ukraine. The Division for International Affairs of MENR coordinates activities related to international conventions and cooperation in terms of multilateral agreements, and simultaneously carries out international reporting to these.

A major step to empower inter-institutional dialogue and cooperation around SEIS was taken in February 2014 with the signing of a decree by the Minister of MENR to establish a national high-level, inter-agency SEIS coordinating body (SEIS Working Group). The objective of this group is to provide a high-level forum to draw up the implementation plan for executing the objectives of the ENPI-SEIS project, and the longer-term SEIS strategy.

The EU AA signed in June 2014 provides impetus for Ukraine to ensure approximation of national legislation to EU acts and international instruments, according to concrete provisions and timelines.

Ukraine's law on state statistics stipulates that neither aggregated nor primary environmental data are confidential, and are to be open for user access on the websites of the MENR and the SSC.

Content and infrastructure

Analysis conducted through the ENPI-SEIS project ([48]) and in conjunction with the UNECE JTFEI in 2014 indicates that all 11 data sets underpinning the 8 selected indicators are produced in Ukraine. For the area of air, Ukraine is already reporting data to meet obligations under the UNECE Convention on Long-range Transboundary Air Pollution (CLRTAP), the UNFCCC and the Montreal Protocol. For the area of water, Ukraine shares water quality data on a regional and bilateral basis for the Dniester River agreement, the Black Sea Convention, the UNECE water assessment and the pan-European environmental and health assessments. For the area of household/municipal waste, two separate data streams are maintained: standardised state statistics and measurements produced by the Ministry of Regional Development, Construction, Housing and Municipal Economy.

The SSC is developing its online national system of environmental indicators. The development of this system is included in the State Statistic Development Strategy for the period until 2017 and in the National Action Plan (NAP) for Environmental Protection till 2015.

Challenges

Cooperation and legal framework

It is assumed that due to the political unrest in Ukraine in 2013 and 2014 (annexation of Crimea and the war in eastern Ukraine), national policy priorities have changed and environmental policy has become a lower priority.

SEIS national workshop in 2011
©Galina Georgieva, EEA

SEIS national workshop in 2013
©Zoi Environment Network

([48]) See http://enpi-seis.ew.eea.europa.eu/east/ukraine/national-seis-workshop-november-2013/enpi-seis-ukraine-background-paper-eng.pdf online.

A stream in the Carpathian Mountains
©Iryna Tuz, ENPI Info Centre

The Carpathian Mountains
©Iryna Tuz, ENPI Info Centre

The MENR and other ministries and agencies underwent reorganisations and staff reductions in order to optimise government functions. The ENPI-SEIS project has experienced a high turnover of NFPs from MENR (five different persons), in addition to a high turnover of dedicated staff within the ministry. The director of the Aarhus Centre in Kiev acted as NFP during the 2013-2014 period, while awaiting the latest formal nomination from MENR in November 2014.

The established national high-level, inter-agency SEIS coordinating body (SEIS Working Group) for Ukraine did not convene as intended during the 2014 spring and summer period. The practical implementation of ENPI-SEIS activities is affected by this lack of internal coordination and appointment of roles and responsibilities. The frequent institutional changes have created an unclear overview of inter-agency responsibilities. Regulations for information exchange between the MENR and SSC are lacking, though an agreement for information-sharing exists, and it is noted that agreements between the MENR and other environmental data holders are outdated and need to be reviewed.

Unlike other ENPI-East countries, the general terms of cooperation around SEIS and the political commitment to share environmental data between Ukraine and the EEA have not yet been formalised through a joint statement (i.e. letter of intent, MoU or similar). A proposal was shared concerning practical steps to operationalise the integration of Ukrainian data with European data (i.e. using Eionet's Reportnet reporting infrastructure), which remains to be set and implemented.

Content and infrastructure

The SSC is developing its online services for access to environmental indicators. There are currently important limitations for access to more detailed background information supporting the data, such as links with references to data sources and methodologies, data validation, policy targets, international agreements and general metadata.

Plans for the implementation of a national environmental information system remain unclear. The division of roles needs to be clarified between the MENR, the SSC and other entities such as the Aarhus Centre for coordinating, streamlining and operationalising national/international data flows and data dissemination. The area of waste data depicts some of these challenges for Ukraine, with a lack of consistency in methodologies applied by different ministries, resulting in some different values (e.g. household waste data) produced and made available online.

The legal basis for adopting a core set of environmental indicators in Ukraine has been under development since 2011, but was never finalised due to administrative reforms. In 2013 and 2014, the MENR developed drafts of several laws, including the 'Concept of reform of the state environmental monitoring system', the 'Procedure of formation and maintenance of the register of stations for environmental monitoring and observations (posts, stations)', the 'Procedures for environmental monitoring conducted by enterprises, institutions and organisations, on activities of which can lead to environmental deterioration', the 'Provisions on information-analytical systems for conducting environmental monitoring and accessibility to environmental information', and the 'Adoption of a

Ros Basin evening
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The Dnieper River with the Percherska Lavra Monastary, Kyiv
©Iryna Tuz, ENPI Info Centre

list of environmental indicators and methodological recommendations for production and application'.

Governmental reforms and institutional changes, however, did not allow for implementation of these laws, and currently there are no adopted indicators in Ukraine; the process for the production of indicator-based SoER is not yet formalised.

Way forward

Cooperation and legal framework

Strengthening intergovernmental coordination
It would be beneficial to build on the established, national, high-level, inter-agency SEIS coordinating body (SEIS Working Group, 2014) to develop a strategy/action plan to better anchor the SEIS process in daily operations. This could help formalise the reporting base by defining and allocating responsibilities (coordinators, contact persons) for the production, processing and sharing of environmental data at national and international level. As part of the process, actions to reinforce the streamlining, reuse and accessibility of data and information reported to meet multilateral environment agreements should be considered.

Enforcement of legal framework
Signing the EU AA puts an obligation on Ukraine to align national legislation with the European legal acts, in line with the specific timetables and provisions in the annexes to the AA.

Formalising the terms of cooperation with the EEA regarding SEIS
The development and agreement of necessary measures to formalise the terms of cooperation with the EEA and the intake of working methods and tools for streamlining data-sharing and -reporting applied within Eionet could provide a practical solution that would strengthen SEIS-related activities at national level. This would include the nomination/confirmation of NFPs and data reporters with well-defined roles and responsibilities.

Regional cooperation
Pursuing regional cooperation is important, particularly in the area of infrastructure development, to modernise and automate processes for data digitalisation, management and presentation/visualisation.

Content and infrastructure

Further development of environmental indicators
Work must continue towards the finalisation and adoption of a concept defining a core set of national environmental indicators in Ukraine, consistent with international priorities and processes, and based on existing reporting obligations and commitments.

Environmental information system and e-governance
Concrete activities to streamline the development of web services and interlink environmental databases and data services should be embedded in the efforts of developing e-governance.

Production of SoERs
The process for the regular production of SoERs would need to be in place; the capacity to create and understand the information value of SoERs in decision-making processes must be enhanced. The focus of such actions could help build the necessary base for regular SoER production, and reinforce the organisational structure and capacity to carry out environmental assessments.

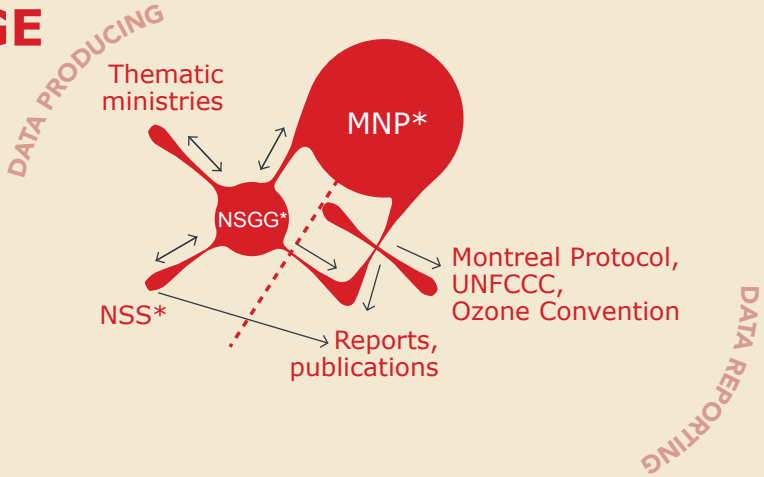
ARMENIA

- Not formalised inter-institutional coordination
- No systematic reporting and non-existing legal obligations for producing SoER
- Frontrunner in sharing environmental data

- challenges
- strengths

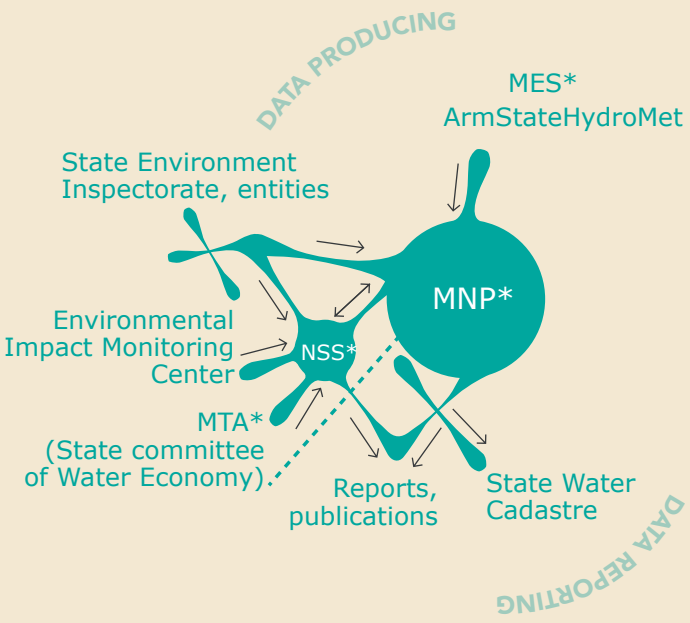
CLIMATE CHANGE

PROCESSES:
- SoER (latest in 2002, MNP*)
- National Communication under UNFCCC (latest in 2010, MPN*)
- GHG Inventories under UNFCCC (latest in 2006, MPN*)
- Reporting under Ozone convention (MPN*)



WATER

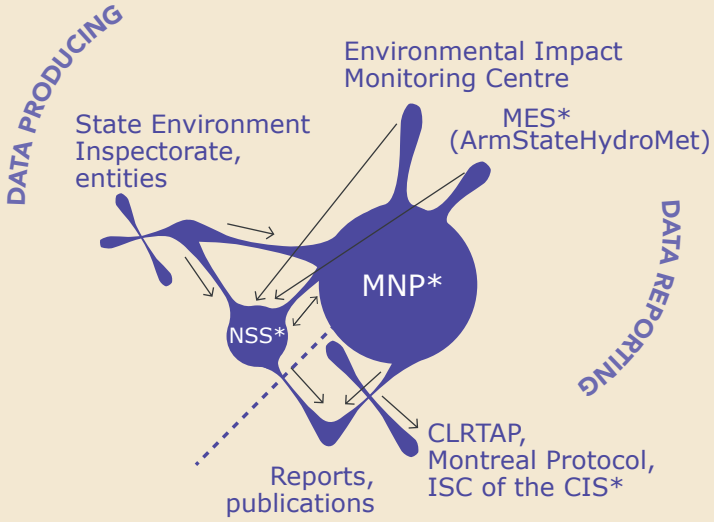
PROCESSES:
- Water quality bulletin (monthly, MNP*)
- SoER (latest in 2002, MNP*)
- National statistic report (annually, NSS*)
- Reporting by EIMC* (annually, EIMC*)
- Reporting under Armenian-Iranian joint monitoring programme (MNP*)

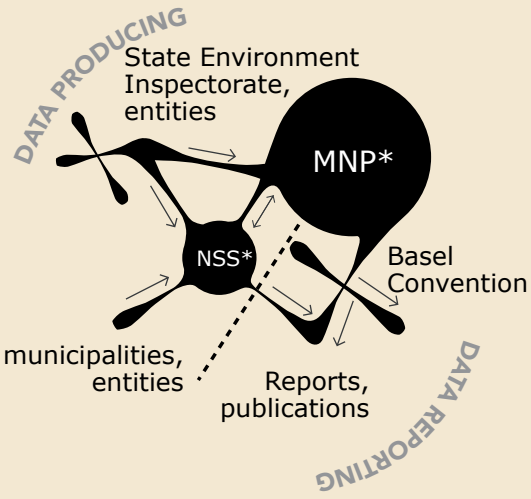


AIR

PROCESSES:

- Air quality bulletin (daily, weekly, monthly, MNP*)
- SoER (latest in 2002, MNP*)
- National statistic report (annually, NSS*)
- Statistical reporting to ISC of the CIS (annually, NSS*)
- Reporting under CLRTAP (annually, MPN*)

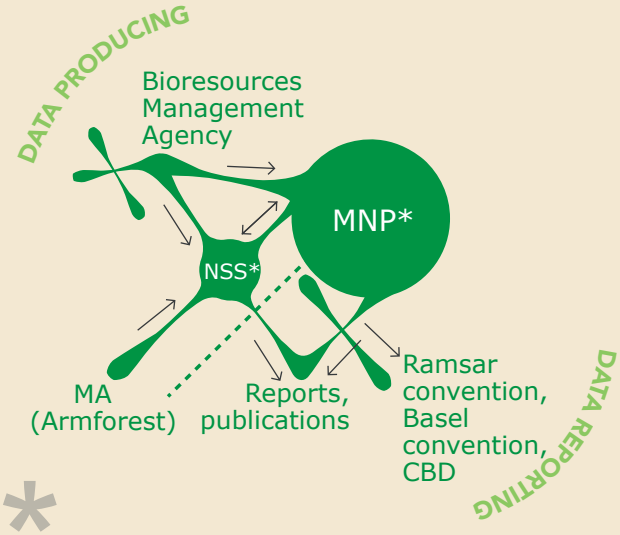




WASTE

PROCESSES:

- no data for rural territories
- summary info for urban territories
- data is available upon request



BIODIVERSITY

PROCESSES:

- SoER (latest in 2002, MNP*)
- National statistic report (annually, NSS*)
- Reporting under Ramsar and CBD conventions (latest in 2014, MPN*)

*

MNP – Ministry of Nature Protection
NSS - National Statistical Service
NSGG - National Cadastre of Greenhouse Gases
MES - Ministry of Emergency Situations
EIMC - Environmental Impact Monitoring Center

AZERBAIJAN

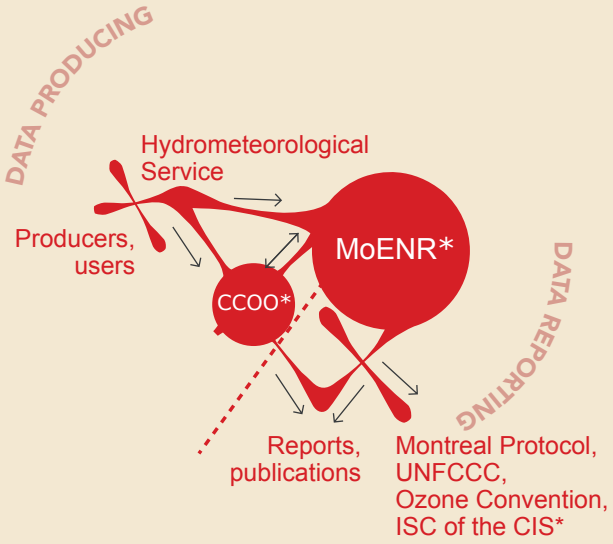
- The monitoring network and modalities on data exchange are not in place
- Strengthening human capacity
- Contributing to sustainable development and green economy with requisite financial resources

- challenges
- strengths

CLIMATE CHANGE

PROCESSES:

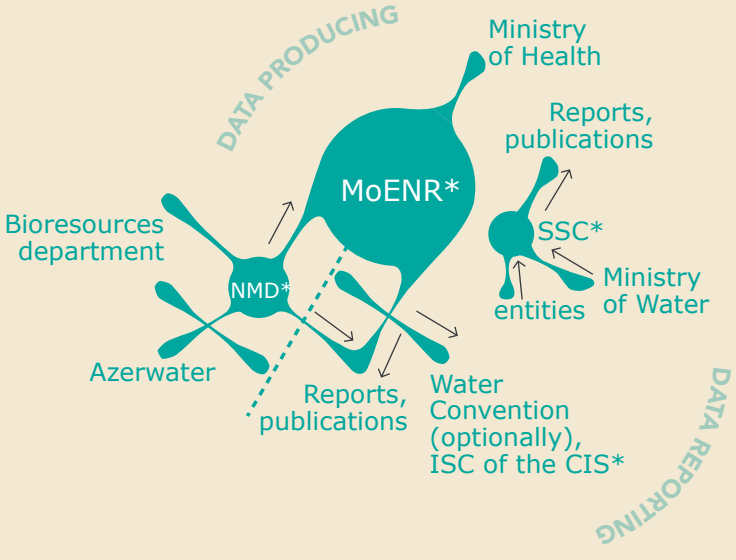
- Reporting under CCOO* (annually, CCOO*)
- SoER (latest in 1997, MoENR*)
- National Communication under UNFCCC (latest in 2011, MoENR*)
- GHG Inventories under UNFCCC (latest in 1994, MoENR*)
- Reporting under Ozone convention (annually, MoENR*)



WATER

PROCESSES:

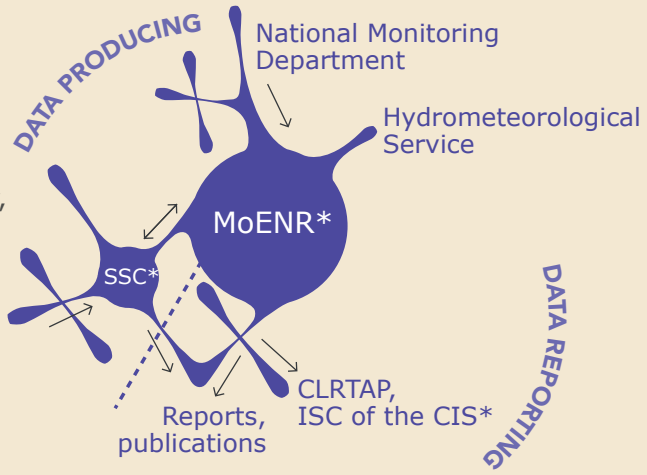
- Water quality bulletin (daily, monthly, yearly, MoENR*)
- SoER (latest in 1997, MoENR*)
- National statistical reporting (annually, SSC*)
- Statistical reporting to ISC of the CIS (annually, SSC*)

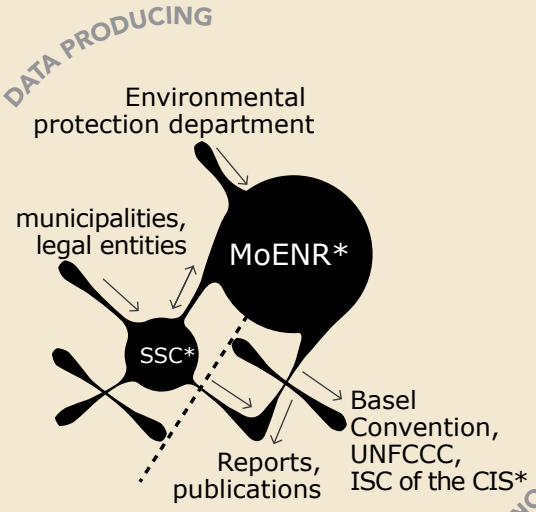


AIR

PROCESSES:

- Air quality bulletin (daily, weekly, monthly, MoENR*)
- SoER (latest in 1997, MoENR*)
- National statistical reporting (annually, SSC*)
- Regional statistical reporting (annually, SSC*)
- Statistical reporting to ISC of the CIS (annually, SSC*)
- Reporting under CLRTAP (annually, MoENR*)





WASTE

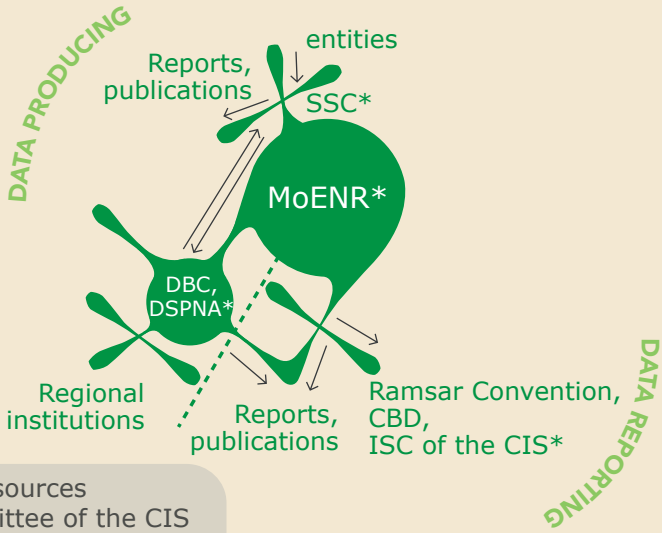
PROCESSES:

- No records and data for rural areas
- Statistical reporting to ISC of the CIS (annually, SSC*)
- Reporting under Basel convention (annually, MoENR*)

BIODIVERSITY

PROCESSES:

- SoER (under preparation, MoENR*)
- National statistical reporting (annually, SSC*)
- Reporting under Ramsar and CBD conventions (every 4 years, MoENR*)



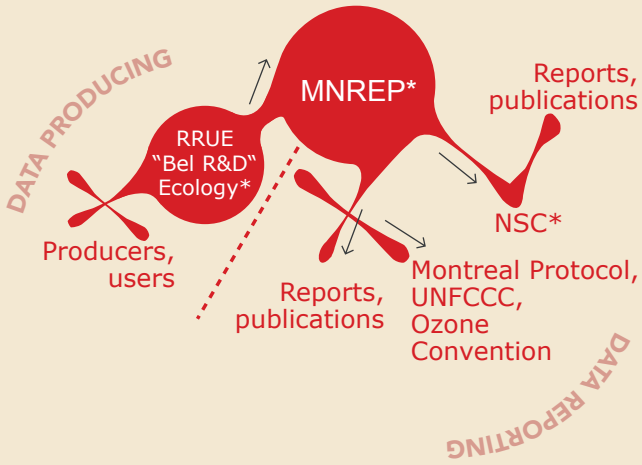
*

MoENR - Ministry of Ecology and Natural Resources
ISC of the CIS - Interstate Statistical Committee of the CIS
SSC - State Statistical Committee
NMD - National Monitoring Department
DBC and DSPNA - Department on Biodiversity Conservation and Development of Specially Protected Natural Areas
DBC - Department on Biodiversity Conservation
DSPNA - Development of Specially Protected Natural Areas
CCOO - Climate Change and Ozone Office

- Limitations to access environmental data
- Historical data need to be digitalised and archived
- Strong and formalised inter-institutional coordination

- challenges
- strengths

CLIMATE CHANGE



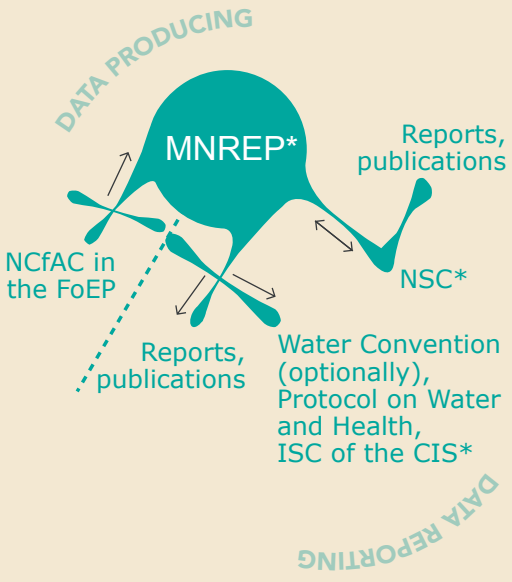
PROCESSES:

- SoER (every 4 years, MNREP*)
- National Communication under UNFCCC (latest in 2014, MNREP*)
- GHG Inventories under UNFCCC (latest in 2012, MNREP*)
- Reporting under Ozone convention (every 2 years, MNREP*)

WATER

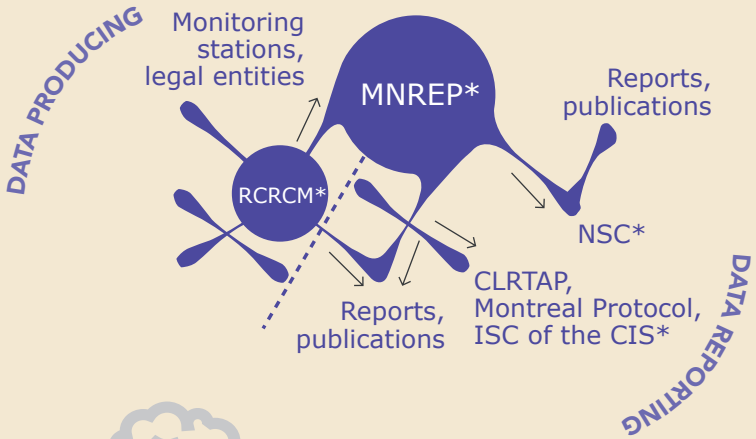
PROCESSES:

- Water quality bulletin (daily, monthly, yearly, MNREP*)
- Water cadastre (MNREP*)
- SoER (every 4 years, MNREP*)
- Statistical bulletin reporting (annually, NSC*)
- Statistical reporting to ISC of the CIS (annually, NSC*)
- Reporting under bilateral monitoring programmes with Ukraine, Lithuania, Russia (MNREP*)



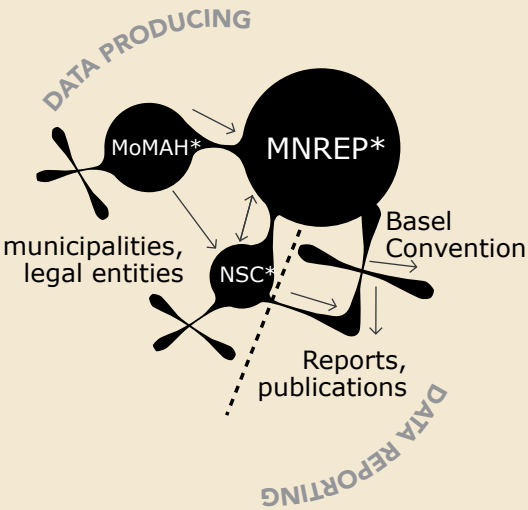
AIR

PROCESSES:
- Air quality bulletin (daily, weekly, monthly, MNREP*)
- SoER (every 4 years, MNREP*)
- Statistical bulletin reporting (annually, NSC*)
- Reporting under CLRTAP (annually, MNREP*)



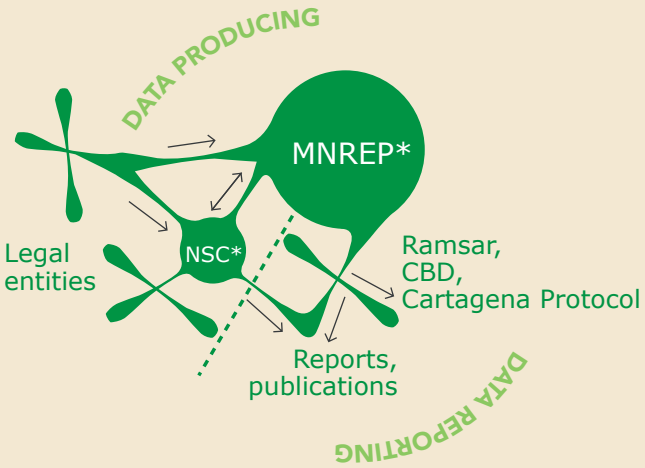
WASTE

PROCESSES:
- Data is partly available
- SoER (every 4 years, MNREP*)
- Statistical bulletin reporting (annually, NSC*)
- Reporting under Basel convention (annually, MNREP*)



BIODIVERSITY

PROCESSES:
- SoER (every 4 years, MNREP*)
- Statistical bulletin reporting (annually, NSC*)
- Reporting under Ramsar and CBD conventions (every 3 years, MNREP*)



*

MNREP - Ministry of Natural Resources and Environmental Protection
RCRCM - Republican Centre for Radiation Control and Environmental Monitoring
ISC of the CIS - Interstate Statistical Committee of the CIS
NSC - National Statistical Committee
MoMAH - Ministry of Municipal Affairs and Housing
RRUE "Bel R&D "Ecology" - Republican Research Unitary Enterprise "Bel R&D "Ecology"

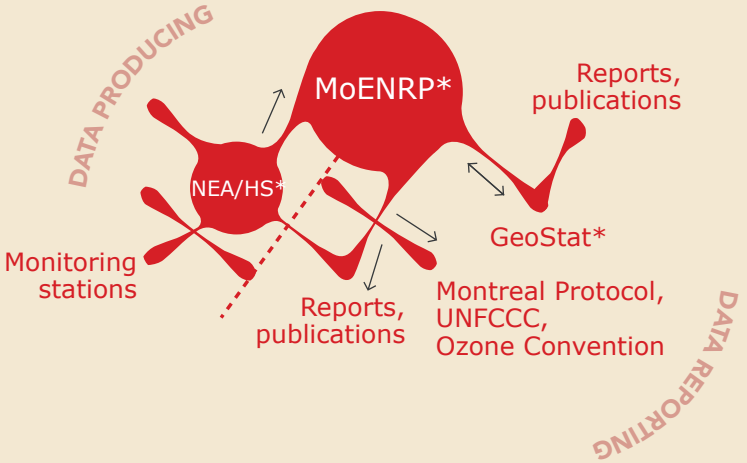
GEORGIA

- SoER production depends on international experience and financial support
- The EU-Georgia Association Agreement brings prospects for political and institutional developments

- challenges
- strengths

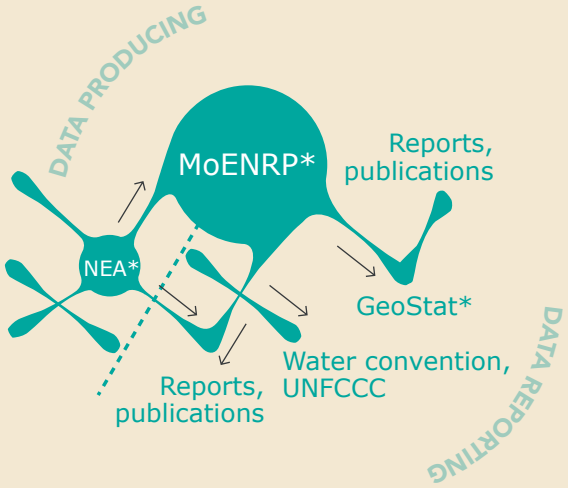
CLIMATE CHANGE

PROCESSES:
- SoER (once every three years, MoENRP*)
- National Communication under UNFCCC (latest in 2009, MoENRP*)
- GHG Inventories under UNFCCC (latest in 2006, MoENRP*)
- Reporting under Ozone convention (annually, MoENRP*)



WATER

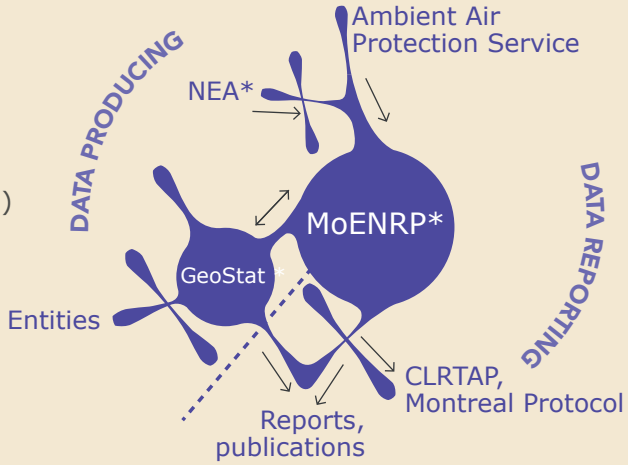
PROCESSES:
- Water quality bulletin (monthly, MoENRP*)
- SoER (once every three years, MoENRP*)
- National statistical reporting (annually, GeoStat*)



AIR

PROCESSES:

- Air quality bulletin (monthly, MoENRP*)
- SoER (once every three years, MoENRP*)
- National statistical reporting (annually, GeoStat*)
- Reporting under CLRTAP (annually, MoENRP*)



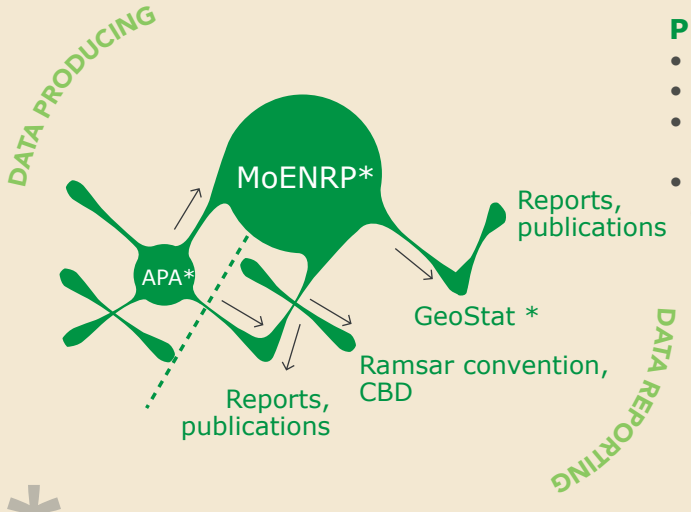
WASTE

Missing data on municipal waste generation due to the lack of a legal framework, but a draft law on waste management was developed in 2014 under the framework of the twinning project 'Strengthening the Capacities of MENRP in Development and Improvement of Waste Management System in Georgia (2011–2014).

BIODIVERSITY

PROCESSES:

- Reporting under APA* (annually, APA*)
- SoER (once every three years, MoENRP*)
- National statistical reporting (annually, GeoStat*)
- Reporting under Ramsar and CBD conventions (annually, MoENRP*)

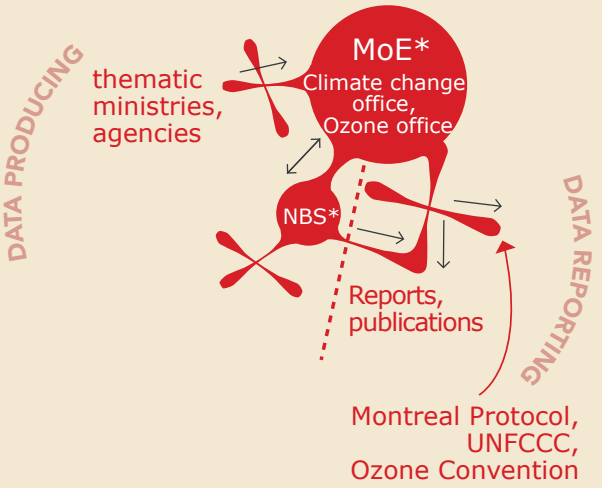


*

GeoStat – National Statistics Office
MoENRP – Ministry of Environment and Natural Resources Protection
NEA – National Environmental Agency
HS - Hydrometeorological Service
APA - Agency of Protected Areas

- Institutional cooperation in processing environmental data needs improvements
- Strong development of e-governance
- The The EU-Moldova Association Agreement brings prospects for political and institutional developments

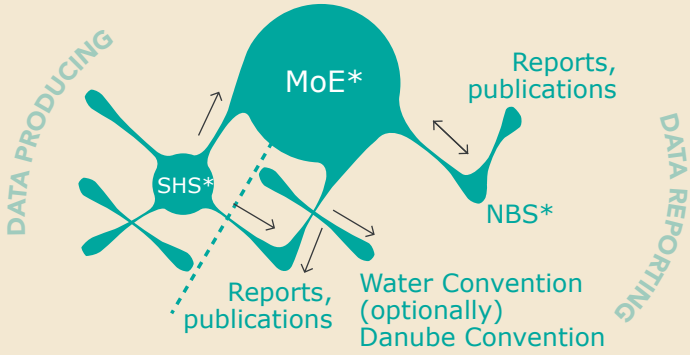
- challenges
- strengths



CLIMATE CHANGE

PROCESSES:

- SoER (every 4 years, MoE*)
- National Communication under UNFCCC (latest in 2014, MoE*)
- GHG Inventories under UNFCCC (latest in 2010, MoE*)
- Reporting under Ozone convention (annually, MoE*)



WATER

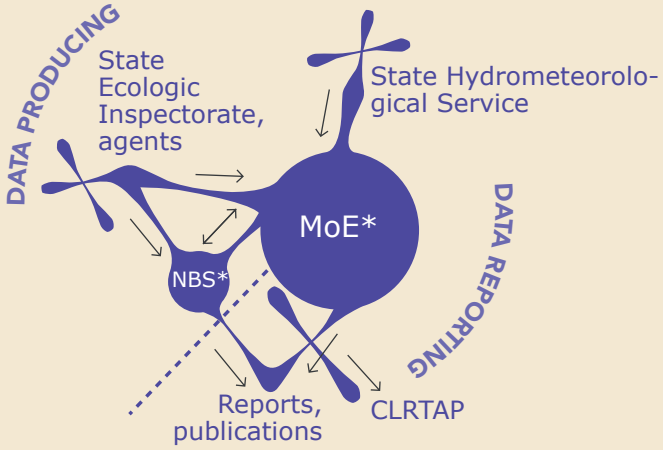
PROCESSES:

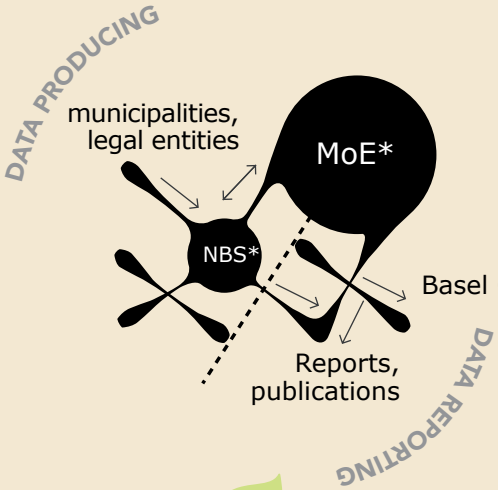
- Water quality bulletin (weekly, monthly, yearly, SHS*)
- Water cadastre (MoE*)
- SoER (every 4 years, MoE*)
- National statistical reporting (annually, NBS*)
- Reporting under Danube convention (annually, MoE*)
- Reporting under bilateral monitoring programmes with Romania and Ukraine (MoE*)

AIR

PROCESSES:

- Air quality bulletin (daily, weekly, monthly, SHS*)
- SoER (every 4 years, MoE*)
- National statistical reporting (annually, NBS*)
- Reporting under SEI* (annually, SEI*)
- Reporting under CLRTAP (annually, MoE*)





WASTE

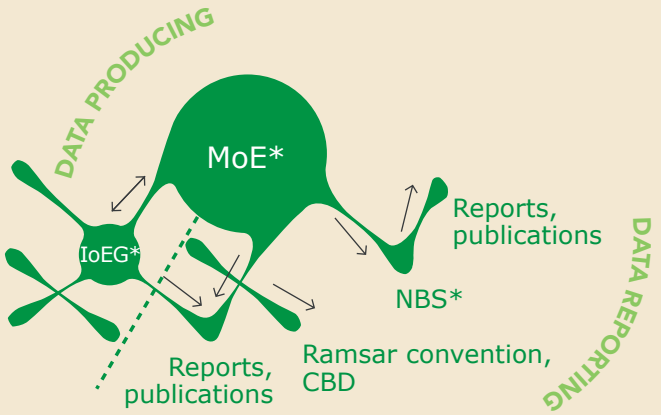
PROCESSES:

- Data is available upon request
- SoER (every 4 years, MoE*)
- National statistical reporting (annually, NBS*)
- Reporting under Basel convention (annually, MoE*)

BIODIVERSITY

PROCESSES:

- SoER (every 4 years, MoE*)
- National statistical reporting (annually, NBS*)
- State Cadastre of OC of the PNAS* (annually, MoE) Protected Natural Areas Stock
- Reporting under MDG* (annually, MoE*)
- Reporting under Ramsar and CBD conventions (every 4 years, MoE*)



*

MoE - Ministry of Environment
NBS - National Bureau of Statistics
SEI - State Ecologic Inspectorate
SHS - State Hydrometeorological Service
IoEG – Institute of Ecology and Geography
OC of the PNAS – Objects and Complexes of the Protected Natural Areas Stock
MDG – Millenium Development Goals

UKRAINE

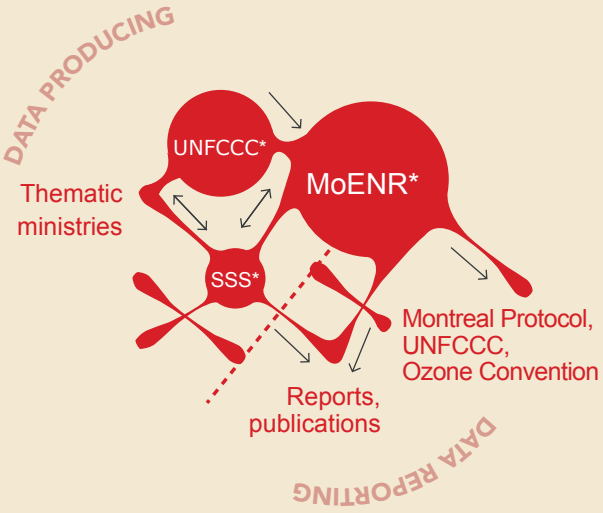
- Frequent reorganisations and high staff turnover
- Political unrest and financial constraints
- The EU-Ukraine Association Agreement brings prospects for political and institutional developments

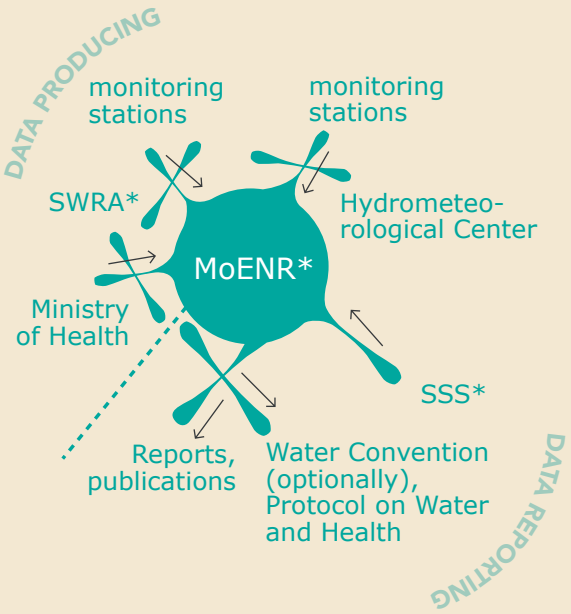
- challenges
- strengths

CLIMATE CHANGE

PROCESSES:

- SoER (every 5 years, MoENR*)
- National Communication under UNFCCC (latest in 2014, MoENR*)
- GHG Inventories under UNFCCC (latest in 2012, MoENR*)
- Reporting under Ozone convention (annually, MoENR*)





WATER

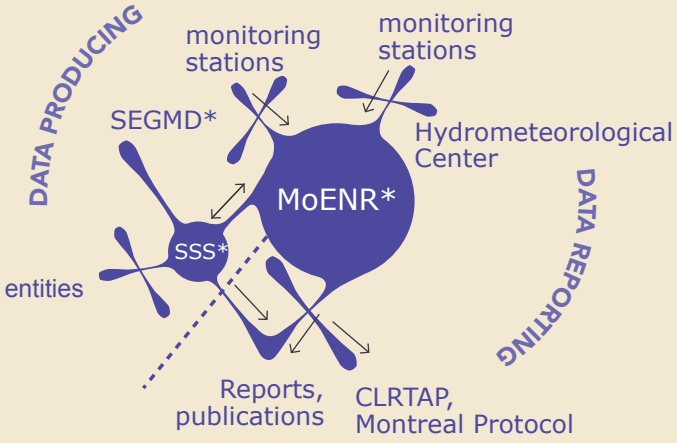
PROCESSES:

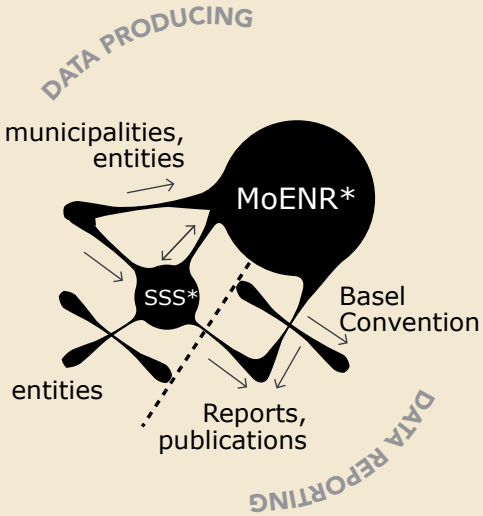
- Water quality bulletin (daily, monthly, yearly, MoENR*)
- Water cadastre (MoENR*)
- SoER (every 5 years, MoENR*)
- National statistical reporting (annually, NBS*)
- Reporting under bilateral monitoring programmes with Moldova, Russia, Romania, Belarus (MoENR*)

AIR

PROCESSES:

- Air quality bulletin (daily, weekly, monthly, MoENR*)
- SoER (every 5 years, MoENR*)
- National statistical reporting (annually, SSS*)
- Reporting under CLRTAP (annually, MoENR*)





WASTE

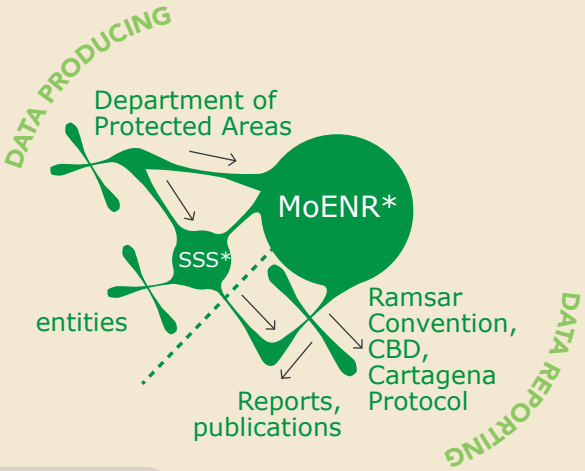
PROCESSES:

- Data is available upon request
- SoER (every 5 years, MoENR*)
- National statistical reporting (annually, SSS*)
- Reporting under Basel convention (annually, MoENR*)

BIODIVERSITY

PROCESSES:

- SoER (every 5 years, MoENR*)
- National statistical reporting (annually, SSS*)
- Reporting under DoPA* (annually, DoPA*)
- Reporting under Ramsar and CBD conventions (every 5 years, MoENR*)



*

MoENR – Ministry of Ecology and Natural Resources
SSS – State Statistics Service
SEGMD – State Ecological and Geological Monitoring Division
SWRA – State Water Resources Agency
UNFCCC – Responsible entity for UNFCCC
DoPA – Department of Protected Areas

2.2 Thematic perspective

This section presents an overview of ENPI-SEIS countries' production and online accessibility of the 8 selected indicators (11 data sets). To a large extent, the analysis is based on materials produced for meetings of the UNECE JTFEI and UNECE WGEMA, supported through the ENPI-SEIS project over the 2011 to 2014 period. A thorough analysis on the production and sharing of the selected UNECE indicators was carried out for the Eighth Session of the JTFEI (May 2014) ([49]), with subsequent recommendations for each country in preparation for its Ninth Session in November 2014 ([50]).

The purpose of this section is not to provide a detailed review of data production and sharing mechanisms and processes in each country, but rather to provide general reflections for each thematic area of relevance to the indicators. Countries are mentioned primarily to illustrate specific trends or deviations.

2.2.1. Overview of the production of the core set of indicators

The production of the core set of indicators is summarised in Table 2.1. The status of production is adapted from the review presented and discussed at the ninth Session of the UNECE JTFEI in November 2014.

Indicator: A1. Emissions of pollutants into the atmospheric air
Data sets: Emissions of SO_2 and emissions of NO_x
To produce this indicator, the calculation of total volume of pollutant emissions should include emission data from stationary and mobile sources for the two air pollutants in question. Both data sets, emissions of SO_2 and nitrogen oxides (expressed in nitrogen dioxide (NO_2)), are compiled in all ENPI-SEIS countries with time series exceeding 10 to 20 years. The approach to data collection is similar across countries. Some differences exist in how countries report this indicator and the underpinning data sets; while total emissions and emissions from stationary sources are universally reported, reporting per person and per area varies. Countries with more detailed data, such as Belarus, provide national and province-specific/city-specific emission data. In future, this indicator is expected to include additional subsets/parameters, such as non-methane volatile organic compounds ($NMVOC_s$), ammonia (NH_3), carbon monoxide (CO), hydrocarbons (CH) and particulate matter (PM_{10}, $PM_{2.5}$ and total suspended particulates (TSPs)), and heavy metals, as long as the relevant primary data are available. Earlier reporting on mobile emissions was incomplete or missing in some countries, but this is no longer an issue, and data integration between statistical (i.e. data reported from stationary emission sources) and environmental authorities (i.e. mobile emission sources data calculated and provided by environmental institutes) is generally well established.

Indicator: A2. Ambient air quality in urban areas
Data set: Mean concentration of NO_2
For this indicator, concentrations of NO_2 in urban areas are to be measured, with a minimal requirement for the average annual concentration of NO_2 in the capital city. Hydrometeorological networks and/or environmental monitoring agencies (depending on the country) conduct air-quality monitoring in cities and produce the corresponding data. All the countries produced this indicator as described by UNECE, but data for Ukraine are not available online and were not shared with the UNECE JTFEI. In future, measurements of SO_2, PM_{10} and ground ozone (O_3) are to be added to this indicator for cities where such monitoring takes place (the monitoring of PM_{10} and O_3 remain infrequent in the region).

Indicator: A3. Consumption of ODS
Data set: Consumption of ODS
The production of this indicator should include the amount of ODS consumed in the country, where consumption is defined as production of ODS, plus imports, minus exports of ODS. Data collection/calculation on the consumption of ODS is, for the most part, well established; all countries are Parties to the Vienna Convention for the Protection of the Ozone Layer and follow its reporting obligation and guidelines. Most countries use expert teams or specialised units for the compilation and calculations of data on the production, use and handling of ODS. Such teams rely on official statistical data, supplemented by other information such as customs data on the transborder movement of goods and materials.

Indicator: B3. GHG emissions
Data set: GHG emissions
This indicator should include data for carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and emissions/removals by sources and sinks through land use, land-use change and forestry (LULUCF) in the calculation of

([49]) See http://www.unece.org/stats/documents/2014.05.environ.html online.
([50]) See http://www.unece.org/stats/documents/2014.11.environ.html online.

Table 2.1 Summary status of the production of selected indicators in ENPI-SEIS countries, with available time series

Indicator (UNECE code)	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine
Emissions of pollutants in to the atmospheric air (A1)	1990; 1995; 2000–2013 ** NMVOCs, NH_3, CO, HC, PM, heavy metals (Pb, Hg, As, Ni)*	1995; 2000–2013 (**structure**) ** NMVOCs, NH_3, CO, HC*	2005–2013 ** NMVOCs, NH_3, CO, HC, POPs, PM, heavy metals (Pb, Cd, Hg, As)*	2000–2012 ** NMVOCs, NH_3, CO, HC, PM, POPs*	2001–2013 ** NMVOCs, NH_3, CO, HC, POPs, heavy metals (Pb, Cd, Hg, Ni, As)*	1990–2013 ** NMVOCs, NH_3, CO, POPs, PM heavy metals (Pb, Cd, Hg)*
Ambient air quality in urban areas (A2)	(3 cities) 1990; 1995; 2000–2013 ** SO_2, O_3*	(7 cities) 2003–2013 ** SO_2*	(12 cities) 2005–2013 ** SO_2*	(1 city) 1990; 1995; 2000; 2008–2012 ** SO_2, O_3*	(3 cities) 1995; 2000–2013 ** SO_2, O_3, PM_{10}*	
Consumption of ODS (A3)	1995; 2000–2013	2006–2013	2009–2013	1995; 2000–2012	1995; 2000–2013	
GHG emissions (B3)	1990; 1995; 2000–2010 (**format**)	2000–2013 (**format**)	2005–2012 (**format**)	1990; 1995; 2000–2011 (**structure**)	1990–2010	2004–2012 (**structure and format**)
BOD and concentration of ammonium in rivers (C10)	(8 rivers) 1990; 1995; 2000–2013	(2 rivers) 2000–2013	(10 rivers) 2005–2013	(1 river) 1990; 1995; 200–2012	(2 rivers) 1995; 2000–2013	
Nutrients in freshwater (C11)	(1 lake) 2000; 2002; 2004–2013 ** Phosphates in rivers, nitrates in rivers and groundwater*	(6 lakes) 2005–2013 ** Phosphates in rivers, nitrates in rivers and groundwater*	2005–2013 for total phosphorus (**structure**) ** Phosphates in rivers, nitrates in rivers and groundwater*	(1 river) 1990; 2000; 2001; 2005; 2007–2012 (for nitrates) ** Phosphates in rivers, nitrates in rivers*	(3 lakes) 1995; 2000–2013 ** Phosphates in rivers, nitrates in rivers and groundwater*	
Protected areas (D1)	1990; 1995; 2000–2013	1990; 1995; 2000–2013	2005–2013 (**structure**)	1995; 2000–2012	2012 (**structure**)	
Waste generation (I1)	2000–2013	2000–2013	2005–2013		2005–2013 (**structure and format**)	2011-2013

Source: adapted from UNECE analysis presented at 9th JTFEI, 4-5 Nov. 2014

Notes:
- Dark green: Indicator produced, fully meeting methodology according to UNECE guidelines.
- Light green: Indicator produced, but not yet fully in line with UNECE guidelines (recommendation for optimal level of **structure** or **formal** as per UNECE JTFEI).
- Yellow: Indicator produced at national level, but not available on national websites, and no data provided for UNECE JTFEI.
- Orange: Indicator not produced; problem of more substantial nature.
- *: Indications of data availability for additional parameters, as stipulated in cross-cutting recommendations to all countries at the Eighth Session of the UNECE JTFEI, May 2014.

A1 Gradually include data on NMVOCs, NH_3, CO, CH, PM_{10}, $PM_{2.5}$, TSP, POPs and heavy metals.
A2 Gradually include data on SO_2, O_3 and PM_{10}.
C11 Additional parameters for nutrients in rivers (phosphates and nitrates) and groundwater (nitrates).

SO_2: Sulphur dioxide
NMVOC: Non-methane volatile organic compound
NH_3: Ammonia
CO: Carbon monoxide
CH: Hydrocarbons
PM: Particulate matter
POP: Persistent organic pollutant
O_3: Ozone
Pb: Lead
Hg: Mercury
As: Arsenic
Ni: Nickel
Cd: Cadmium

total GHG emissions. The countries' approaches to data collection/calculation of GHG emissions vary depending on their status under the UNFCCC and, accordingly, the required level of detail for their official reporting. So far, all the countries have reported GHG emissions every four to five years as part of their national communications. In addition, UNFCCC Annex I countries (Belarus and Ukraine) have a duty of more frequent and detailed reporting, which is also subject to UNFCCC's additional quality control and review. Reporting requirements of non-Annex I countries (Azerbaijan, Armenia, Georgia and Moldova) are less stringent. However, following a recent UNFCCC decision, all countries are now requested to report GHG emission data biannually. In light of this, non-Annex I countries are also upgrading their monitoring, reporting and verification systems to meet these new requirements and prepare for the new global climate agreement expected at the 21st Session of the Conference of the Parties to the UNFCCC in 2015. It is envisaged that by 2015, GHG data from all ENPI-SEIS countries will be available for the period from 1990 till 2010 to 2012.

Indicator: C10. BOD and concentration of ammonium in rivers
Data sets: BOD_5 and concentration of ammonium
For this indicator, water samples for at least three sampling points (upstream and downstream) need to be taken and analysed for the values of BOD and the concentrations of ammonium. Within each of the countries, multiple agencies with diverse responsibilities collect and report data on water quality. As each agency has its own mandate, agenda and purpose, the different agencies often collect seemingly similar data, but for different locations and, at times, following different methodologies. The hydrometeorological and environmental monitoring services' data are primarily used for environmental reporting. Water-monitoring data generated by health authorities, water resources authorities and/or municipalities are often not included in official environmental reporting due to a lack of coordination, data exchange and data integration among these different entities. The coverage of the water quality monitoring networks and the frequency of data collection reflect the country situations (e.g. geography, technical capabilities, monitoring budget) and historical practices: for instance, rivers with known levels of high pollution are sampled more frequently, whereas in other areas, sampling is carried out on a monthly or a quarterly basis.

The automation of water quality monitoring remains infrequent, implying that most sampling and data entries are done manually, and then transferred into water quality databases. However, the ENPI-SEIS countries' technical capabilities and monitoring programmes meet the level of detail recommended by UNECE.

Indicator: C11. Nutrients in freshwater
Data sets: Nitrates and Phosphorus concentrations
When producing this indicator, water samples should be taken in major waterbodies (lakes and reservoirs) and concentrations of NO_2 and P_{total} provided. In order to calculate the average concentration, data of all measurements taken should be used. Progress in the production of data sets covering nutrients in freshwater is divergent and complicated. Measurements of phosphorus vary across countries, depending on the specific form of phosphorus being measured. In areas where it is monitored, commonly the mineral form of phosphorus is measured, rather than total phosphorus, as recommended by UNECE guidelines. All the ENPI-SEIS countries have gaps in their data reported to UNECE. Consistency in reported waterbodies is also an issue: data submitted and/or published are taken from different entities such as groundwater, rural wells, rivers, lakes and reservoirs. The selected data sets focus only on major waterbodies such as lakes or reservoirs, but data for rivers and groundwater is expected in future for this indicator.

Indicator: D1. Protected areas
Data set: Areas under protection
The total protected areas in square kilometres and as a percentage of the total country territory are necessary for the production of this indicator. Additionally, the indicator can be further broken down by category of natural territories with special World International Union for Conservation Union of Nature (IUCN) status, and for the national categories of protected areas to demonstrate their corresponding extent and share in the total area of the country. Such data are regularly (annually) collected through national reporting forms and statistics, and include counts of animals, rare flora and fauna and the type of protected areas. All countries are able to report this indicator and fulfil UNECE requirements, albeit with minor gaps in harmonised data presentation. As parties to the CBD, all ENPI-SEIS partner countries are also developing their national Aichi biodiversity targets ([51]) and strategies, including those on protected areas.

Indicator: I1. Waste generation
Data set: Municipal / household solid waste generation
This indicator calls for the calculation of amount of

([51]) See http://www.cbd.int/sp/targets/ online.

waste (in metric tonnes), generated as municipal waste per capita. The development of data sets on municipal/household waste is improving, although it remains a major challenge across the region. Differences in the methodology, scope, quality and geographic coverage of reporting undermine the comparability of data among countries, and there is not yet a firm solution in place for how to report in a consistent manner. Currently, countries produce the data sets using a wide range of procedures appropriate to their circumstances, typically by a national statistical agency and/or state or subnational authorities responsible for municipal affairs. One issue is population coverage with waste collection services, which varies significantly among the countries (approximately 33 % in Moldova, 75 % in Ukraine and 100 % in Belarus). In Georgia, selected large cities (e.g. Tbilisi) have conducted waste inventories or pilot studies, but no systematic data collection mechanism is yet in place. Moldova and Ukraine have recently introduced EU/OECD standards and definitions on waste, and are adjusting their data collection accordingly. All countries measure waste by volume. In general, there are very few weighing bridges or facilities in the countries, and thus the volumes of collected waste are based on the number of trucks and their capacity, with volumes often overestimated because the trucks are not filled with waste. It is possible to convert volume figures into weight in a reliable way, but the actual conversion rate used by countries differs, varying between 0.20 t per m^3 and 0.25 t per m^3. Variations in the definition of municipal waste cause comparability problems. Some municipalities collect 'household solid waste', a category that typically excludes waste from other sources such as small businesses, parks, streets, markets and other public places. Comparisons between household solid waste and municipal solid waste can be misleading when official lists of sources and waste types are not reported. It was agreed by the UNECE JTFEI that for more consistency among countries, this indicator should gradually and systematically move from 'municipal' to 'household' waste.

2.2.2. Overview of sharing/accessibility of the core set of indicators

This section provides an overview of accessibility for the individual selected indicators and their underlying data sets. The details are based on the analyses carried out in preparation, and as a result of the 2013–2014 national SEIS workshops; they reflect the most recent submissions of data and links provided for the ninth session of the UNECE JTFEI.

Indicator: A1. Emissions of pollutants into the atmospheric air
Data sets: Emissions of SO_2 and emissions of NO_2
Nationally, this indicator is reported in annual statistical/environmental bulletins in each country, in state-of-the-environment reports, every one to four years. Data on emissions of SO2 and nitrogen oxides are reported annually to the CLRTAP ([52]).

Indicator: A2. Ambient air quality in urban areas
Data set: Mean concentration of NO_2
While ambient air quality in urban areas, including NO2 concentrations, is not a part of mainstream international reporting, it is included in most national environmental reports. In each of the ENPI-SEIS partner countries, daily or weekly bulletins on current air quality are published for the main cities. In a few cases, as in Azerbaijan, some stations are automated and data are published online in (near) real time. Under the CLRTAP, some air monitoring stations working under its European Monitoring and Evaluation Programme (EMEP) are automated, with data reported to the Convention's European Data Centres, but these stations are often situated outside large urban areas. Air quality data are aggregated in state-of-the-environment reports and in annual statistical/environmental bulletins, which are publicly available. Traditionally, air quality data prepared for public use were expressed in limit-exceedance values or as aggregated indices of urban air pollution, but many recent publications also show the actual units of measurement. The majority of data remain available mainly in national languages, thus limiting their use.

Indicator: A3. Consumption of ODS
Data set: Consumption of ODS
Consistent and comparable data on ODS are available online and are already shared internationally via the Ozone Convention's Data Centre ([53]). National websites (statistics or environmental agencies) in most countries mirror the data reported under the Convention.

Indicator: B3. GHG emissions
Data set: GHG emissions
The UNFCCC Secretariat maintains a database of GHG emissions and national communications ([54]), and countries (especially non-Annex I parties) often tend to indicate this link rather than national sources for

([52]) See http://www.ceip.at/ online.
([53]) See http://ozone.unep.org/ online.
([54]) See http://unfccc.int/ online.

their GHG data. During the past 5 to 10 years, data on GHG emissions and climate change have become more prominently reflected in national state-of-the-environment reports, yet national communications remain the most comprehensive source of climate change information to date.

Indicator: C10. BOD_5 and concentration of ammonium in rivers
Data sets: BOD_5 and ammonium concentrations
Typically, water quality data remain in the countries or subregions (i.e. transboundary rivers, lakes and regional sea basins) and are not easily accessible internationally. At country level, interested users can find water quality data, but as with air quality, they are often expressed in terms of exceeding limit values and with no or few details on methodologies and sources, thus limiting their use for in-depth assessments. In such cases, users must specify their information requirements, and the responsible agency will normally charge for extra processing time (and may also require users to sign an agreement on data use and sharing). Nonetheless, in general, the countries have made notable progress in making data sets available for selected rivers and sampling points.

Indicator: C11. Nutrients in freshwater
Data sets: Nitrates and Phosphorus concentrations
The situation with the availability and sharing of data on nutrients in freshwater is similar to BOD_5 and the concentration of ammonium in rivers. As mentioned in the section on production of this indicator, there is currently no uniform consistency of reported waterbodies (groundwater, rural wells, rivers, lakes and reservoirs) nor in the forms of phosphorus measured.

Indicator: D1. Protected areas
Data set: Areas under protection
Data on protected areas are available and accessible in all countries. Countries submit periodic reports on biodiversity and protected areas to the relevant international conventions, primarily to the CBD ([55]). Typically, both national and international websites (i.e. CBD) provide access to up-to-date information.

Indicator: I1. Waste generation
Data set: Municipal / household solid waste generation
The publication of municipal/household solid waste data is not universal among the ENPI-SEIS countries. Data are made publicly available either in environment-related statistics or through state-of-the-environment reports, but there is no regional/international reporting obligation for such data (the Basel Convention on hazardous waste encourages parties to provide information and report on municipal waste, but this is not an obligation as such). Environmental reports or statistics usually include information on total waste generation, recycling and disposal practices, but municipal/household waste is not always reported in the UNECE-agreed format, and industrial waste tends to receive the most attention. Interested users may request more detailed information on municipal waste from the responsible national agencies. All ENPI-SEIS countries, except for Georgia, have published data for this indicator online (although methodological issues with the production of the indicator per se remain — see the first part of this section).

([55]) See http://www.cbd.int/ online.

Table 2.2 An overview of the web links to the national indicators provided by the countries

Country	Agency	Emissions of pollutants in to the atmospheric air (A1)	Ambient air quality in urban areas (A2)	Consumption of ODS (A3)	GHG emissions (B3)	BOD and concentration of ammonium in rivers (C10)	Nutrients in freshwater (C11)	Protected areas (D1)	Waste generation (I1)
Armenia	NSS	http://armstatbank.am/ (Environmental indicators)							
Azerbaijan	SSC	http://www.stat.gov.az (English: Environmental protection > Key indicators of shared ecological information system) http://www.stat.gov.az/source/environment/index.php							
Belarus	NSC	http://belstat.gov.by (English: Environment > SEIS) http://belstat.gov.by/en/ofitsialnaya-statistika/otrasli-statistiki/okruzhayuschaya-sreda/the-shared-environmental-information-system/							
Georgia	MoE and Natural Resources Protection	http://moe.gov.ge (English: Environmental protection > Environmental indicators) http://moe.gov.ge/index.php?lang_id=ENG&sec_id=242&info_id=2864							
Moldova	NBS	http://www.statistica.md/ (English: Statbank > Environment)						http://www.statistica.md/public/files/publicatii_electronice/Mediu/Resurse_naturale_2013.pdf	http://www.statistica.md/ (English: Statbank > Environment)
	Climate Change Office (CCO)				http://www.clima.md/doc.php?l=ro&idc=82&id=3471				
	Open Government Data Portal	http://date.gov.md/ckan/en/dataset/11449-volumul-de-emisii-a-poluantilor-in-aerul-atmosferic-de-la-sursele-stationare	http://date.gov.md/ckan/ro/dataset/11688-calitatea-aerului-atmosferic-in-localitatile-urbane	http://date.gov.md/ckan/ro/dataset/11693-consumul-de-substante-care-distrug-stratul-de-ozon		http://date.gov.md/ckan/ro/dataset/11686-consumul-biochimic-de-oxigen-la-5-zile	http://date.gov.md/ckan/ro/dataset/11684-date-privind-nutrientii-in-ape-dulci		
Ukraine	State Statistic Service	http://www.ukrstat.gov.ua (English: Environment)			http://www.ukrstat.gov.ua (English: Environment)				http://www.ukrstat.gov.ua (English: Environment)
	State Environmental Investment Agency				http://www.seia.gov.ua/seia/doccatalog/document?id=138881				http://www.seia.gov.ua
	Ministry of Regional Development, Building and Housing and Communal Services								http://minregion.gov.ua/zhkh/Blahoustriterytoriy/stansferipovodzhennja-zpobutovimividhodami-vukraini-za-2012-rik/

Box 1.3 The use of Reportnet for reporting to the Bern Convention

Under the Council of Europe's Bern Convention and the Emerald Network of Areas of Special Conservation Interest, contracting parties submit what is referred to as the 'Emerald' databases using Reportnet.

These comprise:

- their national reference databases on the presence of the species and habitats of European importance (from the lists of Res. 6 (1998) and Res. 4 (1996) of the Bern Convention) in their corresponding national territories, including an estimation of the total population (species) and total habitat area (habitats) at country level, and an indication of their presence within the European biogeographical regions ([56]);
- digital distribution maps submitted each year, for a selection of species and habitats from the Emerald lists. Progress for all countries is steady, with Armenia and Ukraine registering the highest scores for this exercise;
- the GIS boundary and the ecological data (according to the Emerald Standard Data Form (SDF)) for each proposed Emerald site. New proposed Emerald sites are selected throughout the year, and their SDFs are completed and included in the new database submitted at the end of the year in Reportnet.

These databases have been uploaded once per year since 2010 (usually at the end of each calendar year), and are completed and updated with every new delivery. This holds true for all ENPI-East countries.

([56]) See http://www.eea.europa.eu/data-and-maps/figures/biogeographical-regions-in-europe-1/ online.

PART 3 Forward-looking cooperation

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The step-wise implementation of SEIS over the last decade in the 39 member and cooperating countries of the EEA, further enlarged to the 15 ENP partner countries, has showed that much progress has been made regarding:

- the streamlining of environmental data and information;
- the development of related infrastructure;
- better inter-institutional cooperation at national level.

Building SEIS in the ENP East countries is fully in line with the commitment given at the seventh EfE Astana Ministerial Conference and the EaP Vilnius summit in November 2013, calling upon the establishment of a regular assessment process and SEIS across the pan-European region.

In October 2014, the 20th Session of the UNECE Committee of Environmental Policy (CEP) adopted the basis for further developing SEIS target and performance indicators. In addition, a list of international priority data flows for implementation in 2015 and ready for use for a pan-European assessment in 2016, was also adopted by CEP. A more extensive list of data flows has also been proposed for gradual implementation before 2021.

The SEIS concept has managed to attract the interest of many networks in the ENP East region. It is now embedded in the design and implementation of various regional thematic projects supporting environmental cooperation with the countries of the region. Nevertheless, further efforts and activities on SEIS should continue to address the steps needed to establish regular environmental assessments underpinned by common data and indicators as key elements of a shared knowledge base.

Countries in the ENP East region have varied aspirations towards the EU. Three of them, Georgia, Moldova and Ukraine signed EU AAs in June 2014. The other three countries, Azerbaijan, Armenia and Belarus, follow a more neutral path of technical cooperation in line with EU good practice. Therefore, future steps should:

- facilitate a wider and deeper implementation of international commitments/Multilateral Environmental Agreements (MEAs) related to environmental reporting ;
- encourage countries towards stronger internal coordination and strengthened networking of a thematic and cross-cutting nature, especially strengthening synergies between national statistical offices and environmental administrations;
- support the production of national and regional indicator-based assessments underpinned by regular reporting of environmental data and as input to global processes.;

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ENPI–SEIS Steering committee, 2012
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- select tailor-made activities aiming to strengthen the capacity of countries to deliver on the agreed goals.

For the future cooperation with the ENP East region, three separate but closely inter-related perspectives emerge if seen from a national, regional or pan-European/global angle:

- At a **national level**, discussions around sharing information and strengthening inter-institutional cooperation have to be kept visible as part of the policy agenda, long-term strategies and e-government activities developed in the ENP East countries. This should also be reflected when producing and using indicators as a measure of progress and their use in environment performance assessments. This work will have to be assisted and monitored until a regular assessment process is in place and effectively used in the policy process as adopted at the 20th Session of the UNECE CEP ([57]).

- In an **EaP regional perspective**, the ENPI-SEIS project brought various partners, networks and international organisations closer together through regular dialogue and joint activities. Learning from each other, building trust and finding common ground for dialogue and cooperation are achievements which can be further consolidated through regular information sharing and increased access to information. Regional activities and projects can assist this trend in placing emphasis on the importance of information exchange and information sharing in line with SEIS principles.

- At a **pan-European and global level**, the UNECE-driven EfE process has been a major catalyst for international and inter-agency dialogue and agreements. Since the last EfE Ministerial Conference in 2011, efforts have been consolidated on gradually putting in place a regular assessment and reporting process underpinned by SEIS principles. While this is a long-term commitment, it is also a key driver to design future activities building on SEIS, supported by a range of donors and international organisations. Cooperation on advancing SEIS objectives may be an appropriate vehicle to strengthen synergies between regional and global processes.

In the coming years a number of important milestones related to environmental assessments will take place, with an overlapping thematic focus. In the first half of 2015, the Latvian Presidency of the Council of the European Union will put cooperation with the European Neighbourhood high on the agenda. In 2016, the next EfE Ministerial Conference, together with the sixth Ministerial Conference under the European environment and health process will address air pollution and human health impacts as top priorities. This will be further taken up at a global level through UNEP's sixth Global Environment Outlook (GEO-6) planned for 2017. Good coherence between these various processes will rely on proper coordination among the implementing partners and the ability to practically ensure logical relations between data reporting and the various knowledge management platforms.

([57]) Paper available at http://www.unece.org/index.php?id=35032

List of abbreviations, acronyms and units

AA	Association Agreement
As	Arsenic
BOD	Biochemical oxygen demand
CBD	Convention on Biological Diversity
Cd	Cadmium
CH_4	Methane
CLRTAP	Convention on Long-Range Transboundary Pollution
CO	Carbon monoxide
CO_2	Carbon dioxide
DCTFA	Deep and Comprehensive Free Trade Areas
EaP	Eastern Partnership
EEA	European Environment Agency
EfE	Environment for Europe
EIEC	Environmental Information and Education Centre
EMEP	European Monitoring and Evaluation Programme
ENP	European Neighbourhood Policy
ENP-East	Eastern European Neighbourhood Policy
ENPI	European Neighbourhood and Partnership Instrument
EPA	Environmental Protection Agency
EU	European Union
GEO	Global Environment Outlook
GEOSS	Global Observation System of Systems
GHG	Greenhouse gas
HFCs	Hydrofluorocarbons
Hg	Mercury
IPCC	Intergovernmental Panel on Climate Change
IT	Information technology
IUCN	International Union for Conservation Union of Nature
JTFEI	(UNECE) Joint Task Force (on Environmental Indicators)
LULUCF	Land use, land-use change and forestry
MENR	Ministry of Ecology and Natural Resources
MENRP	Ministry of Environment and Nature Resources Protection
MNREP	Ministry of Natural Resources and Environmental Protection
MoE	Ministry of Environment
MoNP	Ministry of Nature Protection
MoU	Memorandum of understanding
N_2O	Nitrous oxide
NAP	National Action Plans
NBS	National Bureau of Statistics
NEA	National Environment Agency
NEMS	National Environmental Monitoring System
NFP	National Focal Point
NH_3	Ammonia
Ni	Nickel
NMVOC	Non-methane volatile organic compound
NO_2	Nitrogen dioxide
NRC	National Reference Centres
NSC	National Statistical Committee
NSS	National Statistical Service
O_3	Ozone
ODS	Ozone-depleting substances
Pb	Lead
PFC	perfluorocarbon
PFCs	Perfluorocarbons
PM	Particulate matter
PM_{10}	Coarse particulate matter (particles measuring 10 µm or less)
$PM_{2.5}$	Fine particulate matter (particles measuring 2.5 µm or less)
POPs	Persistent organic pollutant(s)
PRTR	Pollutant Release and Transfer
SDF	Standard Data Form
SEIS	Shared Environmental Information System
SF_6	Sulphur hexafluoride
SO_2	Sulphur dioxide
SoE	State of the environment
SoER	State of the environment report
SSC	State Statistical Committee
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
WGEMA	Working Group on Environmental Monitoring and Assessment
WISE	Water Information System for Europe

Annex

Cooperation with Russia

Formally opting out of the ENPI-SEIS project in September 2013 (and consequently not being covered in Section 2.1 of this report), Russia has actively continued developing its environmental information systems.

The 2011 amendments to the federal law on environment protection included provisions for streamlining environmental monitoring into a unified system. The Regulation on state environmental monitoring, adopted in 2013, sets out the legal basis for the organisation and functioning of the unified monitoring system, as well as the creation and operation of a state data fund. This is a federal information system for the collection, processing and analysis of data on the state of the environment.

Information systems continue to be developed and made operational at subnational and local scales. Well-developed municipally funded monitoring and data access systems in Moscow city and Saint Petersburg were complemented by an automated system of environmental monitoring in Sochi, established in preparation for the 2014 Winter Olympic Games.

Russia is an active partner in the UNECE work on environmental indicators. The Federal State Statistics Service (Rosstat) continues to improve its information system by extending the composition of the environmental indicators, harmonised with international standards and methodologies. Since 2011, indicators have been systematically introduced into national SoER (initially covering 15 of the 36 UNECE indicators, then greatly expanding the coverage). Gaps still remain in terms of definitions of some indicators as compared to international practices, their analytical assessment, and the accessibility of underlying data (time series), but progress is evident. According to a detailed UNECE review in 2014, three of eight core priority indicators (emission of pollutants into the air, GHG emissions, and BOD5 and ammonium nitrogen in rivers) have fully met the set requirements, while the rest are pending improvements.

The procedure for the production of the national SoER was amended in 2012, introducing a new generic structure as well as the requirement to use environmental indicators largely harmonised with UNECE guidelines. Since 2011, Russia's provinces and regions have been required to regularly produce annual reports on their ecological state and environmental protection.

In parallel, a national action plan is being implemented for the period until 2019 on harmonising legislation to prepare the country's accession to the UNECE Aarhus Convention.

Russia provides information to its citizens about the environment through relevant websites of ministries and agencies supporting the production of environmental indicators. These include Minpriroda, Rosstat, the Federal Service for Hydrometeorology and Environmental Monitoring (Roshydromet), the Federal Agency for Water Resources (RosVodResursy). In addition, a dedicated portal, 'The public oversight system for environmental protection', has been developed allowing for the collection of information directly from citizens about local environmental issues and risks (https://priroda-ok.ru/).

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