



# Economic and Social Council

Distr.: General  
9 August 2013

Original: English

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## Economic Commission for Europe

### Committee on Environmental Policy

#### Nineteenth session

Geneva, 22–25 October 2013

Item 6 (e) of the provisional agenda

#### **The “Environment for Europe” mid-term review of the Astana Conference main outcomes: environmental assessment and reporting**

### **A review of Shared Environment Information System-related developments with an impact on environmental assessment and reporting since the Seventh “Environment for Europe” Ministerial Conference**

#### **Report by the European Environmental Agency**

#### *Summary*

At the Seventh “Environment for Europe” (EfE) Ministerial Conference (Astana, 21–23 September 2011) Ministers decided to establish a regular process of environmental assessment and to develop a Shared Environmental Information System (SEIS) across the region in order to keep the pan-European environment under review. The SEIS should serve multiple policy processes, including the multilateral environmental agreements, and include building of capacity of countries in Eastern Europe, the Caucasus, Central Asia and South-Eastern Europe to monitor and assess their environment. Ministers invited the European Environment Agency (EEA) and its partners to develop an outline for how these actions could be performed and to present it to Committee on Environmental Policy (CEP) (ECE/ASTANA.CONF/2011/2/Add.1, para. 14).

EEA prepared the “Outline on the establishment of a regular assessment and reporting process underpinned by the gradual development of SEIS” as a response to the request of Ministers (ECE/CEP/2013/15). A first version of the document was presented as an informal paper to the eighteenth session of CEP, followed by a revised version to reflect comments received, which was circulated by e-mail to CEP in December 2012 (in English and Russian).

A compilation of inputs into SEIS development by the United Nations Economic Commission for Europe and by several other EfE partners is presented in a separate

document (ECE/CEP/2013/13).

Following a request by CEP (ECE/CEP/2012/2, para. 25 (g)), EEA, with input from its partners, prepared the present document to report on progress made in establishing a regular process of environmental assessment and reporting, including the development of SEIS. The document aims to facilitate the discussion by CEP during the mid-term review.

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## Introduction

1. The present report, produced by the European Environment Agency (EEA), responds to the request by ministers at the Seventh “Environment for Europe” Ministerial Conference (Astana, 21–23 September 2011) for EEA to report to the Committee on Environmental Policy (CEP) on progress on the establishment of a regular process of environmental assessment and the development of the Shared Environment Information System (SEIS) across the pan-European region (ECE/ASTANA.CONF/2011/2/Add.1, para. 14). It is further in line with ministers request to CEP to convene a mid-term review in 2013 to assess progress of the implementation of the Astana Conference outcomes (ibid., para 18).

2. The report is structured in four parts (A to D):

(a) Part A reviews the main achievements made to date in the area of regular reporting and development of SEIS across the pan-European region since the Astana Ministerial Conference in 2011. In doing so, input from various international organizations active in the region and from ECE conventions was used alongside the EEA and European Union (EU) initiatives related to regular reporting and SEIS development;

(b) Part B addresses some of the challenges faced in translating the Astana commitments into action, to serve as lessons learned for the future;

(c) Part C is a non-exhaustive overview of legal and policy developments and related initiatives under preparation or just launched related to SEIS and regular reporting. Their future implementation will positively impact the post-Astana process at various levels; however, better coordination among these initiatives will be needed;

(d) Part D proposes a number of questions to be considered by the countries and organizations attending the United Nations Economic Commission for Europe (ECE) CEP meeting in October 2013 to support the development of recommendations on ways forward.

## Part A Main achievements

3. The main achievements related to SEIS and regular reporting are organized and presented as follows:

(a) Section I: Developments in the policy and legal framework relevant for the pan-European region;

(b) Section II: SEIS-related projects and initiatives in the pan-European region;

(c) Section III: SEIS-related projects and initiatives in the EU and the European Environment Information and Observation Network (EIONET) countries relevant for the pan-European region;

(d) Section IV: Other SEIS-related projects and initiatives relevant for the pan-European region;

(e) Section V: Networking and capacity-building related to SEIS and regular reporting;

(f) Section VI: Progress on infrastructure development for sharing information.

Contributions received from other organizations and secretariats of various conventions are also included in the text.

## I. Developments in the policy and legal framework relevant for the pan-European region

4. With regard to developments in the policy and legal framework at the EU level relevant for the pan-European region:

(a) *EU Eastern Partnership (2009)*<sup>1</sup> — This flagship initiative to promote good environmental governance seeks, among others, to increase the availability of reliable information in partner countries by including them in the EU SEIS. A joint communication published in 2012 by the European Commission (EC), preparing for the Eastern Partnership 2013 Summit under the Lithuanian Presidency, builds on this.<sup>2</sup> Under the environmental and climate change component, the document highlights among the priority areas for future cooperation, green economy, biodiversity, *a shared environmental information system, and environmental assessments* (emphasis added). Furthermore, the document indicates that the overriding goal of this cooperation for 2013 onwards is to support regulatory approximation, strengthen administrative capacities and implementation and implement multilateral environmental agreements;

(b) *EU cooperation with the Russian Federation* — The Environmental Dialogue between the EU and the Russian Federation launched in 2006 was further refined in 2011 following the priorities listed under the “EU-Russia Partnership for Modernisation”. Among them is the development of a SEIS,<sup>3</sup> common standards for environmental impact assessment (EIA) for transboundary projects, improved industrial emission control, etc.;<sup>4</sup>

(c) *EU high-level cooperation with Central Asia* — Within the framework of this cooperation the Fourth EU-Central Asia High-Level Meeting on Environment and Water Cooperation was held in February 2013 in Kyrgyzstan. The Joint Communiqué<sup>5</sup> adopted on this occasion reaffirmed the need for a regular process of environmental assessment and for developing the SEIS approach across the region, in cooperation with EEA;

(d) *SEIS-relevant Communications from the European Commission* — The initial Communication on SEIS from 2008<sup>6</sup> was followed in 2012 by the Communication on “Improving the delivery of benefits from EU environment measures: building confidence through better knowledge and responsiveness”<sup>7</sup> and in 2013 by the “EU Shared Environmental Information System — Implementation Outlook”.<sup>8</sup> These developments are expected to facilitate the future development of a SEIS implementation plan, recognizing at

<sup>1</sup> See <http://www.easternpartnership.org/content/eastern-partnership-funds>.

<sup>2</sup> A Roadmap to the autumn 2013 Summit (JOIN(2012) 13 final), available from [http://ec.europa.eu/world/enp/documents\\_en.htm](http://ec.europa.eu/world/enp/documents_en.htm).

<sup>3</sup> EU-Russia Common Spaces, 2012 Progress report, p. 23. The report is available from [http://www.eeas.europa.eu/russia/common\\_spaces/](http://www.eeas.europa.eu/russia/common_spaces/).

<sup>4</sup> See EU-Russia Partnership for Modernisation Work Plan, sections 1.1.5 and 2.5. Available from [http://eeas.europa.eu/delegations/russia/eu\\_russia/tech\\_financial\\_cooperation/partnership\\_modernisation\\_facility/index\\_en.htm](http://eeas.europa.eu/delegations/russia/eu_russia/tech_financial_cooperation/partnership_modernisation_facility/index_en.htm).

<sup>5</sup> “Platform for Environment and Water Cooperation” Joint Communiqué, para. 4. Available from <http://www.wecoop-project.org/%D1%81ommuniqueeng>.

<sup>6</sup> Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions: Towards a Shared Environmental Information System (SEIS) (COM/2008/0046 final), available from <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52008DC0046:EN:NOT>.

<sup>7</sup> Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions (COM/2012/095 final), available from <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52012DC0095:EN:NOT>.

<sup>8</sup> Staff Working Document (SWD(2013) 18 final), available from <http://inspire.jrc.ec.europa.eu/index.cfm/newsid/10981>.

the same time the role of SEIS in supporting the implementation of EU policies and legislation;

(e) *The Environment Action Programme (EAP) of the EU to 2020 (Seventh EAP)*, entitled “Living well, within the limits of our planet”,<sup>9</sup> makes clear reference to SEIS principles applied in support of streamlining the reporting process. Here, among priorities for action it is underlined that:

Further implementation of the Shared Environmental Information System principle of ‘produce once, use often’ and the common approaches and standards on acquisition and collation of spatial information under the INSPIRE<sup>10</sup> Directive and GMES<sup>11</sup> systems will help avoid duplication of effort and eliminate unnecessary administrative burdens on public authorities, as will efforts to streamline reporting obligations under different pieces of legislation;

(f) *Regulation on establishing the European Earth Observation Programme Copernicus* (adopted in May 2013) — Already in the preamble of this new regulation it is mentioned that the new Copernicus programme “should also complement the ... SEIS and European Union activities in the field of emergency response”.<sup>12</sup> The international dimension of Copernicus is of particular relevance in the exchange of data and information, as well as in access to observation infrastructure;<sup>13</sup>

(g) *EU Arctic policy* — Currently under development, the Arctic policy identifies SEIS as one of the priority areas for better assessing the state of the Arctic environment and responding to the rapid changes occurring in the region. The EU (assisted by EEA) is committed to supporting the SEIS initiative, the Sustained Arctic Observing Network (SAON) and to putting in place a “network providing online access to environmental data” from the region.<sup>14</sup>

5. With regard to relevant developments in the policy and legal framework at the international and global levels — *The United Nations Conference on Sustainable Development (Rio+20 Conference) outcome document, “The Future We Want”*,<sup>15</sup> adopted in Rio de Janeiro in June 2012 contains several references relevant to SEIS (paras. 104 and 274).

<sup>9</sup> Proposal for a decision of the European Parliament and of the Council on a General Union Environment Action Programme to 2020 (COM(2012) 710 final) of 29 November 2012, in process of adoption and expected to be operational by January 2014. Available from [http://ec.europa.eu/prelex/detail\\_dossier\\_real.cfm?CL=en&DosId=202195](http://ec.europa.eu/prelex/detail_dossier_real.cfm?CL=en&DosId=202195).

<sup>10</sup> Directive 2007/2/EC on Infrastructure for Spatial Information in Europe (INSPIRE) of 25 April 2007.

<sup>11</sup> Regulation No. 911/2010/EU on the Global Monitoring for Environment and Security (GMES) of 20 October 2010.

<sup>12</sup> Regulation of the European Parliament and of the Council establishing the Copernicus Programme and repealing Regulation (EU) No. 911/2010 (COM(2013) 312 final).

<sup>13</sup> See <http://copernicus.eu/>.

<sup>14</sup> Developing a European Union Policy towards the Arctic Region: Progress since 2008 and next steps, Joint Communication from the European Commission and the External Action Service to the European Parliament and the Council (Join(2012) 19 final), available from [http://eeas.europa.eu/arctic\\_region/docs/join\\_2012\\_19.pdf](http://eeas.europa.eu/arctic_region/docs/join_2012_19.pdf)

<sup>15</sup> A/RES/66/288, annex. Available from <http://www.uncsd2012.org/thefuturewewant.html>.

## II. Shared Environment Information System-related projects and initiatives in the pan-European region

6. SEIS-related projects and initiatives in the pan-European region include:

(a) *European Neighbourhood and Partnership Instrument (ENPI)-SEIS project*<sup>16</sup> (*SEIS extension to EU neighbours and the Russian Federation*) 2010–2014 — Funded by the European Commission and run by EEA, this project covers six countries from the European Neighbourhood Policy (ENP) East, the Russian Federation and nine countries from ENP South. An important objective of the project is to encourage the establishment of regular data flows for a selection of regionally identified indicators in line with agreed thematic priorities. Furthermore, support is provided to country-specific activities in developing SEIS at the national, subregional and regional levels as input towards a regular assessment and reporting process;

(b) *The Forest and Biodiversity Governance including environmental monitoring (FLERMONECA) project, including also SEIS extension component for Central Asian countries (2013–2015)* — This project, funded by the EU, was officially launched in April 2013. It mirrors the SEIS-related activities in the ENP region for the five Central Asian countries. In order to ensure a consistent approach and implementation of the SEIS principles in the region, EEA is part of the project steering group. The final aim is to improve environmental monitoring, reporting and data sharing in the Central Asian countries and in the region as a whole, and to improve partnerships with relevant EU institutions;

(c) *AWARE project (2011–2013)* — Implemented by the Regional Environmental Centre for Central Asia (with EU financial support and EEA advice), this project enhances opportunities for EU-Central Asia cooperation on environmental governance by increasing awareness in the region of the most compatible and applicable practices, such as SEIS, through a series of workshops dedicated to SEIS and regular reporting. A network of national focal points for the project was also established and five SEIS country profiles were prepared as result of each individual dialogue;

(d) *Bilateral support to Central Asian countries for SEIS-oriented improvement of environmental governance (2012–2013)* — Implemented by the Regional Environmental Centre for Central Asia (with Swiss financial support) this project built on the recommendations and results of the AWARE project, linking more specifically the regular reporting processes, including the development of indicators in each Central Asian country following SEIS principles;

(e) *Development of Assessment of Assessments (AoA) methodology to new thematic areas* — Implemented by the Regional Environmental Centre for Central Asia and the Regional Environmental Centre for the Republic of Moldova (with Swiss financial support and ECE and EEA advice), this project aims to develop further and implement SEIS-compliant AoA methodology to new thematic areas in selected countries from Central Asia and the Republic of Moldova (2013). This continuation of the AoA work carried out for the 2011 Astana Ministerial Conference responds to the interest expressed by countries in continuing this exercise and making better use of available information and knowledge in the areas of biodiversity, climate change, air and waste. The project will cover Kazakhstan,

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<sup>16</sup> See <http://enpi-seis.ew.eea.europa.eu/>.

Kyrgyzstan, the Republic of Moldova<sup>17</sup> and, if other countries are interested, it could be extended to the whole pan-European region;

(f) *ECE Environmental Performance Reviews (EPRs) (2011–2013)* — In the recent EPR for Albania, as well as in the EPRs under preparation for the Republic of Moldova and Croatia, the development of SEIS at national level has or is expected to be recommended as a way forward for improving the harmonization of national monitoring with reporting activities;

(g) *Establishment of the Caspian Environmental Information Centre* — Implemented by the UNEP Global Resource Information Database centre in Arendal, Norway (GRID-Arendal), with financial support from British Petroleum in 2012 and from GRID-Arendal in 2013, this initiative supports the implementation of the Framework Convention for the Protection of the Marine Environment of the Caspian Sea (Teheran Convention) by improving regional cooperation and data exchange in partnership with other data collection and reporting systems in the region. Under this framework, the Caspian Information System was established and launched in December 2012. The gradual population of the system with data and information under the Teheran Convention is the next step in the process, with further assistance and capacity-building required;

(h) *“Greening economies in the Eastern Neighbourhood” (EaP GREEN) Programme: Draft programme of work 2013–2016*<sup>18</sup> activity on “establishment of country indicators and of a monitoring and reporting system” (under component 1.1). This activity will follow discussions with Governments from the ENP region and will be implemented by the Organization for Economic Cooperation and Development (OECD) in close consultation with ECE and EEA;<sup>19</sup>

(i) *ECE Convention on Long-range Transboundary Air Pollution (Air Convention)* — The dedicated network serving the ECE Air Convention has a long-standing tradition of cooperation and sharing information. There is a well-established procedure for the Parties (51 countries from the ECE region) to report data, a dedicated network and a platform for data sharing compliant with SEIS principles. The EEA Reportnet is already used as a tool for data sharing by the EEA countries that are Air Convention members, ensuring the streamlining of the reporting processes and the multiple use of the data reported. Most of the documents are available on the Convention website;<sup>20</sup>

(j) *ECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention) and the Protocol on Pollutant Release and Transfer Registers (Protocol on PRTRs)* — SEIS principles are gradually being taken into consideration in relation to the implementation (and consequently reporting) of these legal instruments. There are dedicated networks of national focal points for the Aarhus Convention and its Protocol on PRTRs, with regular contacts and clear communication channels in place. At the same time, closer links and networking between national organizations involved in the handling of environmental data and information is facilitated through the ENPI/SEIS activities. Meetings of the Convention’s bodies, including the Task Force on Access to Information, and the Protocol’s bodies support the implementation of the work programmes. On content, a

<sup>17</sup> It is expected that the results of this exercise will be available for the ECE Working Group on Environmental Monitoring and Assessment meeting in November 2013.

<sup>18</sup> Available from <http://www.oecd.org/env/outreach/eapgreen-first-steering-committee-meeting-april-2013.htm>.

<sup>19</sup> More info on OECD green economy activities are available in the document on Greening the economy in the pan-European region: progress and future prospects prepared for the nineteenth session of CEP (see ECE/CEP/2013/10).

<sup>20</sup> See <http://www.unece.org/env/lrtap/welcome.html>.

continuous review of implementation and compliance is conducted through reporting and compliance mechanisms. The national implementation reports for each reporting cycle are made publicly available in electronic form and in a standardized format. The fourth reporting cycle under the Convention and the first under the Protocol are expected in 2013. The synthesis reports on the status of the implementation of the Convention and of the Protocol are also available in electronic form. The Convention website and Aarhus Clearinghouse,<sup>21</sup> complemented by the PRTR.net<sup>22</sup> global web portal, provide relevant information about the implementation of the two instruments;

(k) *The World Health Organization (WHO)/European Environment and Health Information System (ENHIS)* provides a one-stop access point to information and data on priority issues in environment and health across the 53 member countries of the WHO European region. ENHIS<sup>23</sup> includes 23 indicators grouped according to Regional Priority Goals. Data for exposure and health indicators are acquired from existing international databases, such as WHO databases, the WHO-United Nations Children's Fund (UNICEF) Joint Monitoring Programme, EEA data on ambient air pollutants and noise, the EUROSTAT Survey of Income and Living Conditions and international surveys. New indicators are expected to be added, with a data collection activity planned for 2013–2015 as the basis for the new regular assessment cycle due in 2016. The exposure assessment and policy surveys will be produced at regular intervals (e.g., every five years) to evaluate temporal trends and assess the effectiveness of the policy actions.

### **III. Shared Environment Information System-related projects and initiatives in the European Union and Environment Information and Observation Network countries relevant for the pan-European region**

7. Relevant SEIS-related projects and initiatives in the EU and EIONET countries include the following:

(a) *The State of the Environment Reporting Information System (SERIS)*.<sup>24</sup> This is an inventory of national state-of-the-environment reports (SOERs). Developed by EEA in 1997, the database was revamped in 2013 using AoA methodology. The current geographical coverage includes EEA members and cooperating countries. The maintenance and regular update of the national information is undertaken by a dedicated network of experts in assessment and reporting working in partnership with EEA;

(b) *The Shared European National State of the Environment (SENSE) project*.<sup>25</sup> This is a project initiated by EEA in partnership with EIONET. It facilitates the sharing of environmental information across different aggregated levels of both thematic and cross-cutting state-of-the-environment assessments, in particular between European-level and national-level information. The current geographical coverage includes the EIONET members (EEA members and cooperating countries; 39 countries). To date, the project has been developed over two phases, with a third planned:

(i) SENSE Phase 1 (SENSE-1) (2009–2010) focused on enabling delivery of country contributions to the European State of the Environment Report 2010 (SOER 2010) online, using semantic web technology. As a result, 13 EIONET countries

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<sup>21</sup> Available from <http://aarhusclearinghouse.unece.org/>.

<sup>22</sup> See <http://www.prtr.net>.

<sup>23</sup> See [www.euro.who.int/enhis](http://www.euro.who.int/enhis).

<sup>24</sup> See <http://forum.eionet.europa.eu/nrc-state-environment/seris/>.

<sup>25</sup> See <http://taskman.eionet.europa.eu/projects/zope/wiki/SENSE>.



submitted their assessments using the delivery mechanism developed in SENSE-1; the remaining 26 countries used offline delivery mechanisms;<sup>26</sup>

(ii) SENSE Phase 2 (SENSE-2) (2012–2013) targets the broader application of semantic web technologies. While SENSE-1 was geared primarily to support a specific reporting exercise (SOER 2010), SENSE-2 focuses on a more generic platform to exchange core state-of-the-environment information — namely environmental indicators — from the national to the European level and vice versa. Based on the outcomes of SENSE-2 (and future SENSE phases), suggestions will be made for improved interactive elements to support the next EEA State of the Environment Report 2015 (SOER 2015) and for the shaping of a wider indicator exchange system;

(iii) SENSE Phase 3 (SENSE-3) (2013–2014) is being developed in the context of state-of-the-environment reporting, and in particular SOER 2015. This phase will build to a large degree on environmental indicators. It will aim to facilitate better access to state-of-the-environment indicators at different scales and allow European-level information to be supplemented by national-level information and vice versa. This will help streamline the delivery of environmental assessments for selected indicators, allowing greater comparability between environmental indicators at the European and national levels. In the future, some SENSE pilot projects could be implemented within the framework of an ENPI/SEIS project if interest is shown by the countries from the ENP region (e.g., Republic of Moldova and Morocco);

(c) *Knowledge base for EIONET Forward-looking Information and Services (FLIS)*<sup>27</sup> is a platform to support long-term decision-making. It was established by EEA in partnership with EIONET and aims to introduce forward-looking components and perspectives into the existing environmental information systems (as part of SEIS), and consequently to expand the knowledge base and its use. The FLIS platform currently consists of six main components: drivers and trends; indicators; scenarios; methods and tools; networking, capacity-building and governance; and use of forward-looking information. Additional components may be added, such as, for example, horizon scanning and early warning signalling. EEA is currently implementing a project on services for FLIS which aims to help the countries and EEA in the areas of management, sharing and collaboration by using web-based tools designed for this specific area. The vision is that forward-looking information will become part of the regular environmental reporting of EEA and EIONET, based on transparent, robust information, past evidence and a better understanding of system functionality, using up-to-date methodologies. The platform can be further expanded to other countries based on identified needs and following SEIS principles and similar workflow procedures;

(d) *State of the Environment (SOE) Online* is the infrastructure that supports the exchange and management of SOE information using web technologies. It provides online the underpinning content for environmental reporting. In particular, SOE Online constitutes the backend from which the information required for EEA products (such as the online and printed versions of the five-yearly SOERs) is extracted. To achieve this, SOE Online connects and integrates the diversity of knowledge sources used by EEA. These sources include data sets, indicators, visualizations and assessments. The added value of SOE Online is its ability to facilitate a regular and ongoing process of assessment reports in a sustainable manner;

<sup>26</sup> See [http://www.eea.europa.eu/soer/countries/folder\\_listing](http://www.eea.europa.eu/soer/countries/folder_listing).

<sup>27</sup> See <http://scenarios.ew.eea.europa.eu/> and also <http://www.eea.europa.eu/publications/knowledge-base-for-forward-looking>.

(e) *Reporting and exchanging air quality information through e-Reporting (implementing a modern reporting system for air quality — INSPIRE-compliant and following SEIS principles)* — The introduction of EC Implementing Decision 2011/850/EU of 12 December 2011, laying down rules for the Air Quality Directives<sup>28</sup> as regards the reciprocal exchange of information and reporting on ambient air quality, provides an opportunity to modernize data reporting, improve data quality, facilitate information sharing and reduce the administrative burden of reporting. EU member States' reporting authorities, their data providers and EEA operational services are working closely together to establish and test the new reporting process<sup>29</sup> to be operational from 1 January 2014.

#### IV. Other Shared Environment Information System-related projects and initiatives relevant for the pan-European region

8. Other relevant SEIS-related projects and initiatives include:

(a) *UNEP-Live*<sup>30</sup> is being developed to facilitate access to environmental information in order to keep the global environmental situation under review and support the development of environmental policy consensus. The “proof of concept” platform on UNEP-Live provides users with one-stop access to environmental information assets held by UNEP and its partners worldwide following SEIS principles. The seven components in the UNEP-Live prototype are: (1) An integrated search; (2) Reports; (3) Maps and graphics; (4) Data and indicators; (5) Emerging issues; (6) “My Country”; and (7) “SoE-Live”;

(b) *Arctic Council* — As the result of partnership with EEA, the Board of SAON<sup>31</sup> has recently approved the task of promoting SEIS in the whole circumpolar Arctic region, by setting up an Arctic observation and monitoring network and by developing a “PolarWatch”;

(c) *Bilateral cooperation* — In the framework of the ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) an agreement between the Republic of Moldova and Ukraine concerning collaboration on the protection and sustainable development of the Dniester River Basin was signed in November 2012. Relevant for SEIS and regular reporting is the inclusion in the agreement of specific obligations for the parties in terms of sharing information and public access to information (arts. 18 and 21 of the agreement);

(d) *ECE in partnership with the Organization for Security and Cooperation in Europe (OSCE) (under the Environment and Security Initiative (ENVSEC))*<sup>32</sup> provided support in the development of a draft bilateral agreement on the shared water resources of the Kura River Basin between Georgia and Azerbaijan. The draft agreement, based on the ECE Water Convention, provides a framework for future cooperation between the two countries on water pollution prevention and control, conservation of biodiversity, emergency situations, data and information sharing and public participation. The draft agreement also envisages the establishment of a joint commission for the protection and rational use of water resources of the Kura River Basin (during 2013).

<sup>28</sup> I.e., Directives 2004/107/EC and 2008/50/EC of the European Parliament and of the Council.

<sup>29</sup> See EEA Technical report No. 5/2012, available from <http://www.eea.europa.eu/publications/reporting-and-exchanging-air-quality>.

<sup>30</sup> See <http://www.uneplive.org>.

<sup>31</sup> The SAON Board was established under the auspices of the Arctic Council and the International Arctic Science Committee.

<sup>32</sup> For more information on the agreement see <http://www.unece.org/index.php?id=32826>.

## V. Networking and capacity-building related to the Shared Environment Information System and regular reporting

9. Apart from developing and implementing SEIS-related projects across the region, the period since the Astana Ministerial Conference also saw an expansion in the number of activities dedicated to promoting the benefits of SEIS for regular reporting for various networks, increasing awareness of and building capacities for the application of SEIS principles in future work. Among these initiatives are the following:

(a) UNEP GRID-Arendal (in partnership with EEA) conducted a capacity-building activity with the country representatives to the Teheran Convention on information sharing and exchange (“SEIS in action”) to support the Caspian Environmental Information project;

(b) Regional Environmental Centre for Central Asia-SEIS awareness-raising seminars organized for Central Asian countries under the AWARE project complemented EEA country visits in this region and assisted in the gradual establishment of SEIS Focal Points in each country;

(c) SEIS country visits were carried out across Europe over the period. The visits covered the EIONET members and cooperating countries as well as all the ENP East and South countries. The latter took place in the context of ENPI/SEIS projects and were carried out by EEA together with key regional partners such as ECE and UNEP/Mediterranean Action Plan. These visits provided an opportunity to meet with various institutional networks in each country and facilitated the dialogue and the information sharing between them;

(d) The SEIS Cookbook<sup>33</sup> summarizes SEIS experiences applied to various environmental domains across the pan-European region. The SEIS Cookbook is an electronic living document expected to develop continuously through the contribution of all environmental networks across the region and even beyond;

(e) ECE (with EEA support) addressed SEIS issues in the context of the following regular events organized for the pan-European region:

(i) Working Group on Environmental Monitoring and Assessment — dedicated a full session to reporting on SEIS by various organizations and ECE environmental convention secretariats in November 2012;

(ii) The Joint Task Force on Environmental Indicators continued its work through 2012.<sup>34</sup> Two meetings were held in July and October, when a revision was made of the set of indicators adopted in Belgrade in 2007;

(iii) Capacity-building in the field of assessment and reporting was provided by ECE (in partnership with EEA and EIONET) through the newly established network of experts on environment and assessment which all ECE countries are invited to take part in (the first Meeting on Environmental Assessments, which gathered together members of the network, took place in Geneva on 16–17 April 2013);<sup>35</sup>

<sup>33</sup> The current version is expected to be finalized and translated into Russian by early fall 2013. This activity is part of the ENPI/SEIS project, but also involves the EIONET members. Available from <http://www.seiscookbook.net/#>.

<sup>34</sup> See <http://www.unece.org/index.php?id=3214>.

<sup>35</sup> See <http://www.unece.org/index.php?id=32326>,

(f) The global relevance of SEIS was presented in a side event at the Rio+20 Conference (June 2012) as a collaboration between the EU, EEA, ECE, UNEP, the Regional Environmental Centre for Central Asia and EIONET partners.

## **VI. Progress on infrastructure development for sharing information**

10. Advances at the national, European and international levels in technology, increased use of the Internet, standardization, multilingualism, codification, spatial analysis, etc., are undoubtedly providing a serious boost also to the environmental domain, from collection and processing up to exchange and dissemination of data and information. Below some of these developments are briefly presented. Their impact on the future streamlining of the reporting and assessment process based on SEIS principles needs to be better understood, better exploited and enhanced through dialogue, sharing of experience and good practice and systematic capacity-building.

### **INSPIRE implementation**

11. INSPIRE, the legal framework to ensure spatial data interoperability in Europe, is following a stepwise implementation approach. The Directive was followed by a number of regulations dealing with its effective implementation. The large majority of environmentally related data specifications begin their implementation phase in the course of 2013.

12. For the infrastructure aspects of SEIS, the network services are the most crucial. These services are implemented by countries that build and operate their national spatial data infrastructures also serving as part of the European sharing infrastructure according to legal obligations.

13. Institutions need to invest in training and capacity-building to ensure the INSPIRE implementing rules (as part the complementing regulations) are well understood and laid out. Resources are needed to pursue these tasks which will take some time to show their benefits.

### **Spatial data standardization**

14. Spatial data infrastructures are the underpinning technical and governance measures for improved data access, handling and sharing. International standards emerging from standardization bodies like the International Organization for Standardization and the European Committee for Standardization, interoperability between environmental monitoring, data exchange and information services have been emerging or growing independent of legal obligations. Emerging geographic information system technologies follow a similar development dynamic and are key tools to handle, analyse and visualize environmental data and information. Standardization is seen as a way to improve interoperability by trying to avoid proprietary solutions and ones which that are too domain-specific.

### **Growth of web services**

15. Based on the above developments, the production of data-related services is becoming easier and cheaper. In particular, the SEIS infrastructures based on web mapping services (e.g., [www.discomap.eea.europa.eu](http://www.discomap.eea.europa.eu)) are allowing the establishment of geospatial data platforms that over the past three years have increased the usage of data and improved the quality of the provision of environmental information.

### **Crowd sourcing, citizen science and social media networking**

16. With the growth of the Internet and Internet culture, three trends have emerged in the past few years supporting SEIS implementation. While initially based on new infrastructures and tools, they ultimately enhance public participation and the quantity of information available and communication in general.

17. *Crowd sourcing* describes the involvement of various stakeholder groups in data and information collection. Citizens effectively become “sensors” which can complement official data collection processes. Examples include the environmental watches Noisewatch, Airwatch and Waterwatch. These watches can also facilitate the timely sharing of additional information by citizens at the point of observation, such as on health concerns related to air pollution, or allow them to express their opinion on the quality of bathing water or about the environment in general in their surroundings.

18. *Citizen science* opens new ways for data collection, complementing the classical monitoring approaches. EEA has launched applications to report, among other things, noise, invasive species and marine litter observation. Data validation and quality assurance are areas of work, but further developments have the potential to decrease the cost of environmental monitoring, without loss of reliability.

19. *Social media* (e.g., Facebook, Twitter) improve the building of and engagement with networks for more direct, fast and transparent participation processes, provided that a culture of sharing exists. They are increasingly used by EU institutions tasked with environmental information and communication across member States. On the other hand, this new culture of communication is challenging governmental bodies to make their data and information freely accessible.

### **Open and linked data**

20. National and international “Open Government” initiatives are getting stronger and more operational. New technologies evolving since early 2000 provide the grounds for improved data sharing. These technologies allow a much broader and domain-independent use of data compared to traditional ones. By exposing data in a machine-readable way the workload for data providers is minimized and the reuse of existing data is no longer dependent on additional work on their side. The high potential of open and linked data is recognized by political bodies at all levels (i.e., the EU, the Group of Eight (G8), etc.). Institutions are revising their data policies and making data freely and easily available. With the SENSE group of projects, EEA has implemented relevant content using this infrastructure. General examples are available online.<sup>36</sup> Data is been made available through the EU Commissions open data portal.<sup>37</sup>

### **International infrastructure activities**

21. The Group on Earth Observations<sup>38</sup> operates the GEO System of Systems (GEOSS), providing data to support decision-making, information and tools across eight thematic areas (societal benefit areas). EEA is a key contributor to the development of GEOSS based on SEIS principles.

22. Similarly, EEA is part of the United Nations Initiative on Global Geospatial Information Management.<sup>39</sup> This new initiative (2012/13) is currently focused on

<sup>36</sup> Available from at <http://eu-oupen-government.eu/oupen-government/>.

<sup>37</sup> See <http://open-data.europa.eu/>.

<sup>38</sup> See <http://www.earthobservations.org/index.shtml>.

<sup>39</sup> See <http://ggim.un.org/>.

governance and partnership building, but will rely on distributed geo-data provision as developed through a range of SEIS-empowered infrastructures.

## **Part B**

### **Challenges and lessons learned**

23. Understanding SEIS and its benefits in support of regular assessment and reporting, as well as for increasing the level of environmental awareness and education, continue to represent a top priority and a key challenge in this process. Regular communication, a pragmatic approach making use of concrete examples, information and good practice, remains essential for a good understanding of and gradual progress in SEIS development and for improving environmental reporting.

24. In spite of an increasing number of SEIS and regular reporting-related initiatives, the landscape remains fragmented and little coordination or dialogue is maintained between these activities. In the absence of a well-established, body, structure or process (to address this diversity, seek interlinkages, share experiences in implementation, encourage partnerships, etc.) it is difficult to have a clear view of the progress achieved and the priorities to be further considered.

25. Cooperation and dialogue between organizations and other institutional structures (such as secretariats of conventions) remains limited. There is limited information and data sharing both between international organizations as well as between the national networks involved in these activities. This situation leads to a duplication of work, an increased reporting burden and associated costs for the countries, affecting the reliability of the data and information reported.

26. At national level a gap remains between the high-level commitments taken in official settings and the effective actions to be taken and means in order to implement and translate these obligations into practice at the operational level.

27. The ratification and/or the effective implementation of the Aarhus Convention by all countries in the pan-European region is an important aspect in facilitating the translation of SEIS principles into action and effectively ensuring the sharing and exchange of environmental information. In this context, the remaining challenge is to assist all countries from the region in joining this process and, furthermore, in understanding the added value of facilitating access to environmental information.

28. Moreover, clear targets and realistic timetables are needed to extend SEIS in the region in a gradual, stepwise process. These targets and timetables need in turn to be integrated in the strategies and work programmes of participating organizations to ensure coherence in planning and consistency between targets. This will allow monitoring and evaluation of progress, and the identification of corrective measures needed to better coordinate efforts across all the actors involved.

29. At the same time, some existing obligations on sharing environmental data and information may not be fit for purpose any longer and may require revision. Information needs have evolved and the streamlining initiatives — which are been undertaken in many areas — have either not yet started or have not produced the anticipated effects. Furthermore, there is an emerging trend to make information exchange more timely, allowing the use of new data when it is published by the countries and updating it as it fits. Information provision tends to become a continuum and the SOE reporting will have to be dynamically updated as new data is available from the various contributors.

30. The next pan-European reporting cycle (2015–2016), comprising processes such as “Forest for Europe”, “Environment and Health” and “Environment for Europe”, should

serve as a model of partnership, cooperation and sharing so that the countries involved could use it as an inspiration to apply at the national and regional scales. Consequently, the reporting activities associated with these events needs to be better coordinated, streamlined and simplified so as to serve multiple purposes and build on each other. Moreover, the new reporting and assessment cycle will raise the challenge to demonstrate the validity of the Astana commitments by putting the SEIS principles into operation in servicing the forthcoming cycle and demonstrating its added value and corresponding benefits

## **Part C**

### **Next steps**

31. The challenges and lessons learned summarized above underline the importance of the steps described in the original outline document for developing the regular assessment process and for the extension of SEIS across the pan-European region. The steps listed below have as their objective the realization of these two interconnected outcomes, focusing in particular on:

- (a) The production of the next national SOERs based on SEIS elements;
- (b) The improvement and streamlining of various reporting obligations (including under multilateral environmental agreements (MEAs)) by using SEIS elements.

32. To reach these objectives, the following activities need to be organized by the countries with the support of relevant regional and international bodies:

- (a) Identifying available data and information needed to support pan-European indicators and assessments and ensuring their availability;
- (b) Creating or facilitating institutional partnerships at the national level to respond to various international obligations (including MEAs);
- (c) Supporting the development of common/shared platforms for dialogue and information sharing;
- (d) Training and capacity-building in the use of assessment tools and methodologies;
- (e) Developing building blocks for facilitating the regular state-of-the-environment reporting and the various reporting obligations (including under MEAs) through partnership with existing projects and initiatives;
- (f) Support to countries in the preparation of new SEIS-compliant project proposals and in filling in the monitoring and reporting.

33. The implementation of these activities means that a systematic effort is required by all partners to connect existing and planned initiatives across the region.

## **Part D**

### **Questions for discussion**

34. This current review raises a number of questions concerning the implementation and monitoring of the regular assessment process and extension of SEIS in the pan-European region. To support the debate in the CEP mid-term and beyond, EEA invites CEP members to consider the following questions:

- (a) Currently, the implementation of the Astana mandate related to SEIS development and regular reporting by countries lacks coordination and an operational

structure to guide the process, monitor progress and facilitate the dialogue and the sharing of good practice. **In this context, how the existing ECE bodies should address these deficiencies?;**

(b) In the absence of clear targets related to the development of SEIS and regular reporting at both the national and regional levels the following questions arise: **How can progress be monitored and evaluated? How can priorities for future action be established? To what areas should the limited resources available (or potentially available) be directed to achieve a maximum result and a shared benefit?;**

(c) Considering the next pan-European reporting and assessment cycle, due in 2015/16 (involving the three distinct but related pan-European processes on forests, environment and health and “Environment for Europe”): **What is the best way to respond to the expected forthcoming requests for pan-European assessments in each of these processes, coherent with the Astana commitment to developing a regular assessment process (e.g., by demonstrating in practice the benefits of implementing SEIS in support of streamlining reporting and assessment and better connecting these processes)? How can the MEAs jointly contribute to this challenge?;**

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