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The Eighth Environment for Europe Ministerial Conference:
Developing the Shared Environmental Information System
and establishing a regular environmental assessment in the
pan-European region

First report on progress in establishing the Shared Environmental Information System in the pan-European region

Note by the Working Group on Environmental Monitoring and Assessment*

Summary

At the Seventh Environment for Europe Ministerial Conference in Astana (2011) ministers decided that the pan-European environment should be kept under review by establishing a regular process of environmental assessment and developing a Shared Environmental Information Systems (SEIS) across the region. To implement that decision, the Economic Commission for Europe (ECE) Committee on Environmental Policy mandated the Working Group on Environmental Monitoring and Assessment to review progress in the establishment of SEIS, based on SEIS targets and performance indicators that the Committee adopted. The Working Group was further mandated to prepare an evaluation report on progress made by the pan-European countries in establishing SEIS (see ECE/CEP/2014/2, paras. 76 and 98 (j) (ii) and (ff) (iii)).

A preliminary draft of the present progress report was prepared by the secretariat following a desk study. The Working Group subsequently elaborated its own report on that basis, also taking into account the discussions at its seventeenth session (Geneva, 7–8 September 2016) and subsequent inputs by countries (comments were invited until 3 October 2015).

The present report is being submitted to the Committee on Environmental Policy for consideration with a view to providing further guidance to the Working Group in finalizing the report for submission to ministers at the Eighth Environment for Europe Ministerial Conference in Batumi, Georgia, in 2016.

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* The report is a late submission owing to the need to gather information from countries.

I. Introduction

1.   The ministers of the environment from the pan-European region present at the Seventh Environment for Europe Ministerial Conference (Astana, 21–23 September 2011) recognized a number of challenges concerning access to the data and information necessary to generate environmental assessments and decided to address them. They committed to establishing a regular process of environmental assessment for the pan-European region[1] based on a Shared Environmental Information System (SEIS) — an approach that, with the support of modern technologies such as the Internet, will link all existing data and information flows relevant at the country and international levels in support of a regular environmental assessment process.

2.   The United Nations Economic Commission for Europe (ECE) Committee on Environmental Policy has been overseeing the efforts taken in the pan-European region to establish a regular environmental assessment process and to develop SEIS. At its twentieth session (Geneva, 28–31 October 2014), the Committee adopted targets and performance indicators for measuring the progress in establishing and operating SEIS (see ECE/CEP/2014/8). It also mandated the Working Group on Environmental Monitoring and Assessment to review progress in the establishment of SEIS, based on the adopted targets and performance indicators, with a view to preparing a report on progress made in developing SEIS in the pan-European region for the Eighth Environment for Europe Ministerial Conference (Batumi, Georgia, 8–10 June 2016). The Committee requested the Working Group to submit an initial version of that report to it for consideration at its twenty-first session (ECE/CEP/2014/2, paras. 76 and 98 (j) (ii) and (ff) (iii)).

3.   In order to prepare the progress report, the Working Group had first to define the content — i.e., specific data sets — for the pan-European SEIS and to provide countries with a reporting mechanism through which information, necessary to evaluate SEIS development in accordance with the SEIS targets and performance indicators, could be collected.

4.   At its sixteenth session (Istanbul, 16–17 April 2015), the Working Group agreed on the initial SEIS content consisting of 67 specific data sets. Of those, 25 refer to the theme of air pollution and ozone depletion; 4 to climate change; 20 to water; 4 to biodiversity; 2 to land and soil; 4 to energy; and 8 to waste. The Working Group further agreed that it would review the pan-European countries performance in establishing SEIS in 2015 by verifying the production and online sharing of the 67 agreed data sets.

5.   The Working Group also approved a concept for a reporting mechanism to review the effective production and online sharing of the data sets in accordance with the SEIS targets and performance indicators. The reporting mechanism requires that each SEIS data set be reviewed on five elements: online accessibility; update regularity; application of a standard production methodology; data interpretation availability; and information on the data source. That review is to be done by SEIS focal points in the ECE countries and examined by the European Environment Agency (EEA)[2] for its pan-European member States and by the ECE secretariat for member States from the Caucasus, Central Asia and Eastern and South-Eastern Europe, as well as other pan-European countries not covered by EEA.

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[1] The pan-European region under the Environment for Europe process covers the full membership of the United Nations Economic Commission for Europe, i.e., its 56 member States.

[2] EEA members are the ECE countries members of the European Union as well as Iceland, Liechtenstein, Norway, Switzerland and Turkey. The capacity for the review task should be examined for both EEA and ECE secretariat.

6.   The current report was prepared by the Working Group with support from the ECE secretariat. It shows the degree to which SEIS, as defined by the Working Group, has been established in the pan-European countries.

II.   Review of performance in developing the Shared Environmental Information System in the pan-European region

7.   The review of performance in developing SEIS was done as part of an exercise aimed at testing the SEIS reporting mechanism. During the testing, the availability and accessibility of the 67 SEIS data sets and related information were rated for 53 pan-European countries: Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Tajikistan, the former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America and Uzbekistan. The performance of Kosovo[3] was also rated. Each data set was rated on the five elements for review established by the SEIS reporting mechanism; however, only data sets published online, i.e., accessible online — the first element for review in the reporting mechanism— were assessed on the remaining four elements.

8.   The reporting mechanism was also designed to help countries identify performance gaps in data production and sharing in accordance with the SEIS targets and performance indicators and to assess progress over time in addressing those gaps. This function will be made available for country use once the reporting mechanism is fully implemented as a simple electronic application.

9.   For the test of the reporting mechanism, an Excel table was developed and pre-filled in by the secretariat[4] for each data set and each of the five rating elements. Due to time limitations, the secretariat completed the test and countries were simply invited to review and validate the results. At the time of preparation of the present document, 17 countries[5] have provided the secretariat with their review of the Excel tables and so validated their status of SEIS establishment related to the list of 67 data sets as of August 2015; a further 13[6] countries are reviewing the assessment, but have not sent their feedback to the secretariat.

10.   Each data set was reviewed first on its online accessibility and, if the set was accessible online, it was further assessed on the remaining four elements. The data sets that were not available online could not be assessed, as the secretariat had no access to the data and related information. It is important therefore to acknowledge that all EEA member countries report their SEIS-related data directly to EEA often without publishing them on

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[3]   All references to Kosovo in this report should be understood to be in the context of United Nations Security Council resolution 1244 (1999).

[4]   The United Nations Environment Programme provided support in filling in the tables.

[5]   Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Germany, Finland, France, Italy, Kyrgyzstan, Republic of Moldova, Romania, Russian Federation, Serbia, Switzerland, the former Yugoslav Republic of Macedonia and Ukraine.

[6]   Austria, Belgium, Czech Republic, Denmark, Georgia, Kazakhstan, Latvia, Luxembourg, Malta, Slovakia, Spain, Tajikistan and Uzbekistan.

their national websites. Such reporting was, however, not considered for the review on progress of the establishment of pan-European SEIS, as that approach is not in line with the approach approved by the Committee on Environmental Policy when it adopted the SEIS targets and performance indicators.

11.   In the SEIS assessment a value of 1 was assigned when the secretariat ascertained that the necessary information for a particular rating element was available online and a value of 0 when it was not. The table below provides the five elements the Working Group established as the basis of the assessment (i.e., the success criteria for deciding whether a value of 1 could be assigned).

Rating element	Success criteria
Online accessibility	The data set can be easily accessed by anybody at any time online.
Update regularity	The data set is updated with figures of the latest agreed production period.
Application of a standard production methodology	Anybody can access detailed information on the applied methodology and calculation methods for the production of the data set. The detailed information confirms that the applied methodology is the agreed methodology for the production of the particular data set.
Availability of data interpretation	The data set is supported by information about what it presents and how to understand the changes in figures over time also vis-à-vis possible policy targets. This information should be provided in the national language for the national public and in an international language — English and/or Russian — to be accessible to the international community.
Information on data source	The institution responsible for the production of the data set and its contact details are available.

12.   For the test, the assessment differed for certain elements from the success criteria agreed by the Working Group. In particular, for the application of a standard production methodology, there has been no verification so far whether the methodology applied by the country was in line with the internationally accepted methodology for a particular data set. The value of 1 was given if detailed information on the production methodology was made accessible. For the rating element of data interpretation, there has been no evaluation of the content, i.e., whether it included data assessment versus policy targets and whether such interpretation was available not only in local language but also in an international language (English or Russian). The rating criterion was rather simple, i.e., was the information provided or not.

13.   With regard to update regularity, a rating of 1 was provided when time series for several years were provided and the last series was not older than 2013 for data sets subject to annual update.

A. Overall performance

14.   Of the 67 agreed SEIS data sets and related information, on average, 44 per cent were found to be available for 53 pan-European countries and Kosovo as of September 2015.

15.   There are several countries for which nearly all or the majority of the 67 data sets and related information were found to be available and accessible online: this is true for Armenia, Canada, Ireland, Kazakhstan, the Republic of Moldova, the Russian Federation and Sweden. On the other side of the scale there are several countries for which none of or only a few data sets were available online. All of these countries, however, are still expected to validate the assessment and with it to confirm their SEIS performance status, which is anticipated to improve.

16.   The current review, when validated by countries, provides a SEIS establishment status that can serve as a baseline against which future progress can be assessed.

17.   Figure 1 below presents, as an example, the SEIS baseline for a few countries that validated the SEIS assessment done by the secretariat. Information on performance per data set is available for all the countries regardless of whether they have or have not validated the review on the web page for the Working Group's seventeenth session.[7]

Figure 1
SEIS baseline level, example for Azerbaijan, Italy, Kyrgyzstan,
Republic of Moldova, Serbia and Switzerland

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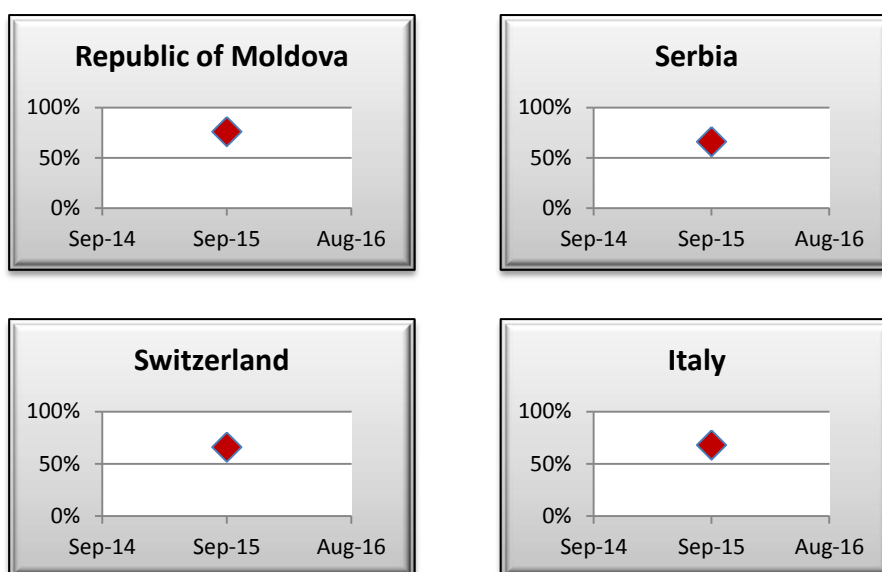
[7]   See document entitled "SEIS performance by data set by country (Table)", available from www.unece.org/index.php?id=39929.

Source: ECE.

B. Performance by thematic areas and data sets

18.   The availability and accessibility of the data sets and related information do vary per thematic areas. The average thematic area performance is above the overall average for biodiversity (11 percentage points above), climate change (11 percentage points above), energy (10 percentage points above) and air pollution and ozone depletion (3 percentage points above).

19.   Below the overall average are the thematic areas of waste (1 percentage point below), land and soil (8 percentage points below) and water (7 percentage points below).

20.   Looking at individual data sets and related information, emissions of nitrogen oxides and sulphur dioxide into the air and related information are the most broadly available and accessible of all the 67 data sets. On average, for 8 out of 10 countries (i.e., 82 per cent of countries for nitrogen oxides and 78 per cent for sulphur dioxide) these emissions data and related information are available and accessible online. They are followed by other air emission data (for carbon monoxide, ammonia and non-methane volatile organic compounds); biodiversity data (total areas under protection); greenhouse gas (GHG) emission data; air quality data (concentrations of nitrogen dioxide and sulphur dioxide); and waste data (total waste generation), which are available and accessible on average for more than 6 out of 10 countries (just over 60 per cent). Figure 2 below presents a list of 20 data sets with the highest performance scores.

21.   On the other side of the scale, with availability and accessibility of data and related information at the level of 1–2 out of 10 countries, are water data: population connected and not connected to water supply industry (14 per cent of countries); and water exploitation index (20 per cent of countries). These are followed by other water and waste data sets as well as air emission data on persistent organic pollutants (POPs), with availability and accessibility at the level of slightly above 2 out of 10 countries (22 to 25 per cent of countries). Figure 3 presents a list of 20 data sets with lowest performance scores.

C. Performance by rating elements

22.   When the data sets are published online, generally countries also provide information on the methodology used for their production and the data source, as well as data interpretation. On average, the interpretation of data and the information on the data source is provided for nearly every data set published and the link to applied methodology for nearly 9 out of 10 data sets published.

23.   For data interpretation, the lowest score for a data set is 88 per cent of countries providing this element, while for 35 data sets all the countries with data accessible online provided data interpretation, i.e., the score reached 100 per cent.

24.   The lowest score for countries providing the data source of a data set is 77 per cent. For 29 data sets the score reached 100 per cent.

25.   Similarly, regarding links to or information about the data production methodologies, the data set with the lowest number of countries providing such information had a score of 74 per cent. For five data sets a score of 100 per cent was reached.

26.   The rating with regard to the application of a standard data methodology may decline when it is assessed also against its fulfilment of internationally accepted standards. Similarly, for data interpretation, the rating may decrease if the aspects of interpretation availability in local and international languages or data assessment versus policy targets are taken into account.

27.   The regularity of data sets update seems to cause some problems. On average, for one out of four published data sets the time series provided are not up to date, i.e., time series more recent than 2012 have not been made available. For as many as 10 data sets, in more than 30 per cent of cases the data were not up to date. There is no single data set for which all the countries provided updated time series.

Figure 2
**SEIS data sets with the highest performance scores**
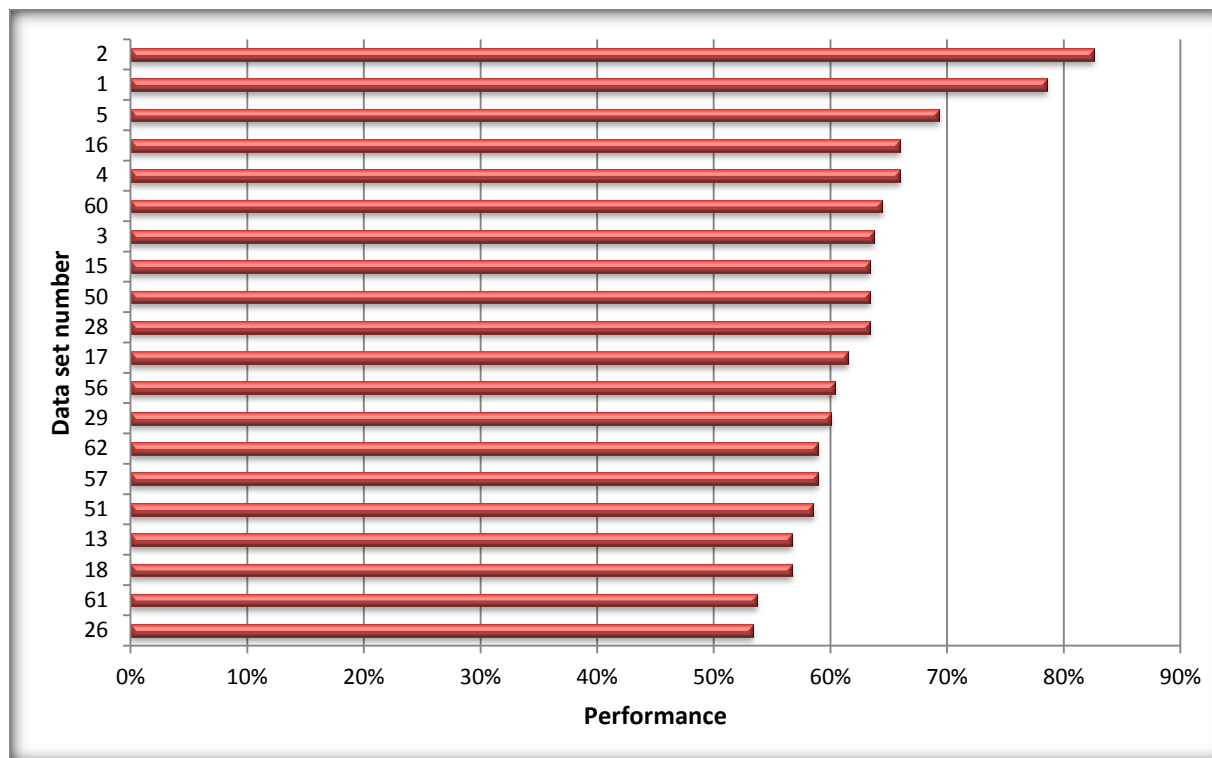
Source: ECE.

2-Emissions of nitrogen oxides expressed in nitrogen dioxide (total, stationary and mobile sources); 1-Emissions of sulphur expressed in sulphur dioxide (total, stationary and mobile sources); 5-Emissions of carbon monoxide (total, stationary and mobile sources); 16-Annual average concentration of nitrogen dioxide; 4-Emissions of ammonia (total, stationary and mobile sources); 60-Total waste generation; 3-Emissions of non-methane volatile organic compounds (NMVOCs) (total, stationary and mobile sources); 15-Annual average concentration of sulphur dioxide; 28-Aggregated GHG emissions including emissions/removals from LULUCF; 50-Total areas under protection (International Union for Conservation of Nature categories); 17-Annual average concentration of ground-level ozone; 56-Total final energy consumption; 29-Aggregated GHG emissions by energy, industrial processes, solvent and other product use, agriculture, land use and forestry, waste; 62-Hazardous waste generated; 57-Final energy consumption by category (industry, transport, households, commercial and public services, agriculture forestry and fishery, non-specified, non-energy use); 51-Total forest area (forest and other wooded land); 13-Emissions of PM_{10} (total, stationary and mobile sources); 18-Annual average concentration of PM; 61-Waste generation by source (agriculture forestry and fishery; mining and quarrying; manufacturing; electricity, gas, steam and air conditioning supply; construction; other economic activities; households); 26-Average annual deviation from the long-term average temperature.

Figure 3
SEIS data sets with the lowest performance score
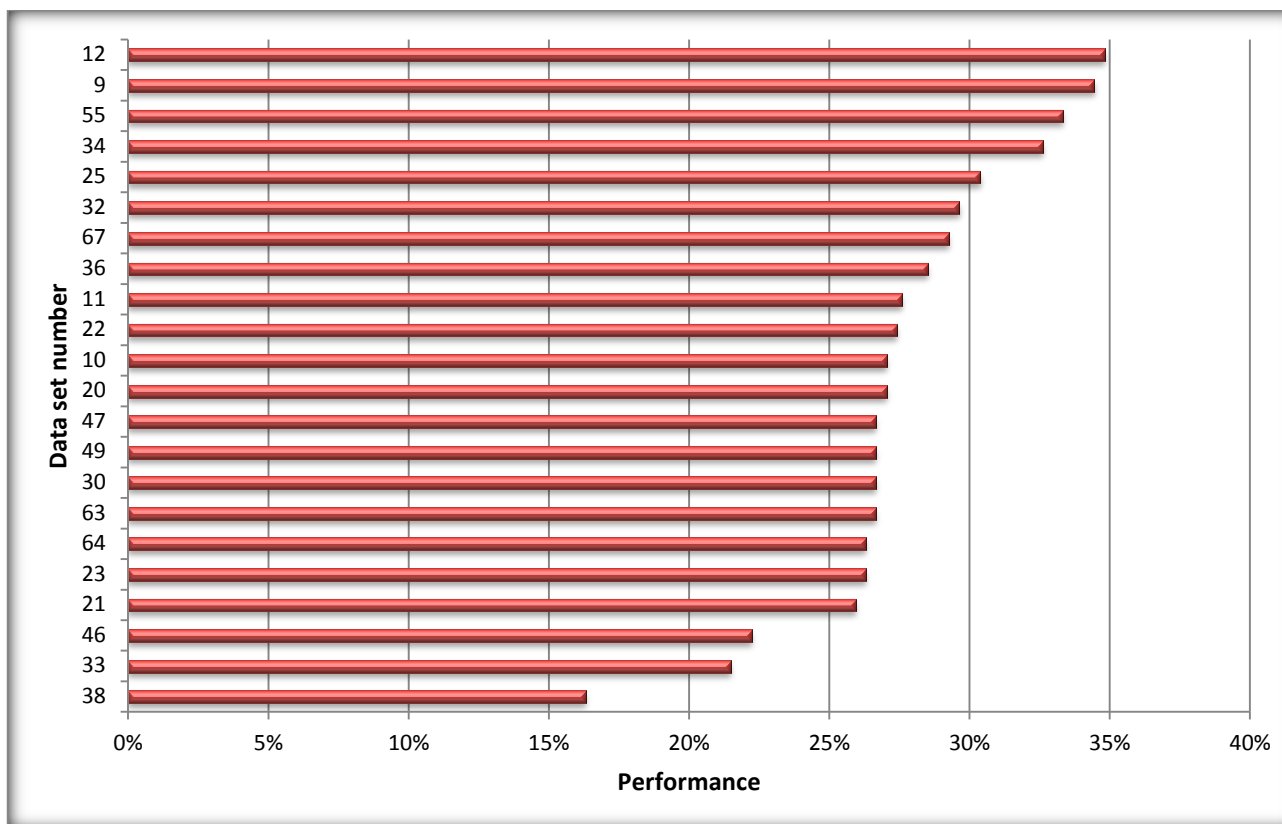
Source: ECE.

   12-Emissions of total suspended particles (TSP) (total, stationary and mobile sources); 9-Emissions of polycyclic aromatic hydrocarbon (PAH) (total, stationary and mobile sources); 55-Land uptake by mining and quarrying, construction, manufacturing, technical infrastructure, transport and storage infrastructure, residential including recreational, landfills waste dumps tailing pits; 34-Total freshwater available; 25-Total Ozone Depletion Potential (ODP) of methyl bromide; 32-Freshwater abstraction by water supply industry, households, agriculture forestry and fishing, manufacturing, electric industry, other economic activities; 67-Stock of hazardous waste; 36-Losses of water during transport; 11-Emissions of polychlorinated dibenzo-p-dioxin and polychlorinated dibenzofuran (PCDD/F) (total, stationary and mobile sources); 22-Total ODP of carbon tetrachloride; 10-Emissions of polychlorinated biphenyl (PCB) (total, stationary and mobile sources); 20-Total ODP of Halons; 30-Renewable freshwater resources; 49-Non-treated/not adequately treated wastewater; 47-Wastewater treated in urban wastewater treatment plants (primary, secondary, tertiary); 63-Hazardous waste imported; 64-Hazardous waste exported; 23-Total ODP of 1,1,1-trichloroethane; 21-Total ODP of other fully halogenated chlorofluorocarbon; 46-Population connected to a wastewater collecting system (with and without treatment facilities); 33-Water exploitation index; 38-Population connected and not-connected to water supply industry.

III. Conclusions and the way forward

28.   This report shows that 28 countries achieved a satisfactory SEIS performance (above 50 per cent of the data and related information were available online), while there are a few countries for which only a few or no data sets were published online.

29.   There are several data sets which are published by only a limited number of countries. Also, updating the data with the most recent time series can be considered as not fully satisfactory. On the other hand, providing links to data methodologies, data interpretation and the data source does not seem to present any difficulty for countries.

30.   At the same time, the current evaluation has not considered fulfilment of internationally accepted standards for data set production. Neither the type nor quality of data interpretation was evaluated (see para. 12). This needs to be rectified in the next evaluation round.

31.   The assessment of country performance was done as part of the testing of the SEIS reporting mechanism by the secretariat pre-filling records on the online availability and accessibility of SEIS data sets and related information. The pre-filling requires a validation by counties and with it their confirmation of their status on SEIS performance vis-à-vis the 67 SEIS data sets. Only 17 pan-European countries validated the information, while 38 countries as well as Kosovo still need to do it. It is expected that with the country validation the overall SEIS performance will improve.

32.   Once the validation is done by all the pan-European countries, the analysis will be updated to show the confirmed status of the pan-European countries performance in establishing SEIS. That status will then serve as a baseline to review countries' progress in establishing SEIS in the coming years. The baseline will also serve to review countries performance related to the effective operation of SEIS for all data sets made available and accessible online.

34.   Countries will always be reviewed against their past SEIS performance. For countries whose performance is not yet satisfactory, the goal should be to improve their performance from year to year; for countries that have already achieved a high performance level in terms of SEIS establishment, they should strive to maintain that level.

35.   Overall, the goal is that all pan-European countries should first achieve and then maintain a high SEIS performance level.

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