

A proposal for an initial selection of core indicators from the Guidelines on Environmental Indicators for ENPI East Countries and the Russian Federation

Informal note by the UNECE Secretariat¹

Introduction

Under the framework of the project implemented by the European Environment Agency (EEA) "Towards a Shared Environment Information System (SEIS) in the European Neighbourhood" supported through the European Neighbourhood and Partnership Instrument (ENPI), the Joint Task Force on Environmental Indicators is invited to consider a proposal for an initial selection of a core set of indicators across the Eastern Europe and the Caucasus countries and the Russian Federation from the UNECE Guidelines for the Application of Environmental Indicators in Eastern Europe, the Caucasus and Central Asia (the UNECE Guidelines) already reviewed by the Joint Task Force, with a view to establish a process for regular reporting on these indicators.

The selection of indicators bears in mind the agreed thematic priorities for the ENPI-SEIS project, i.e. air pollution and the depletion of the ozone layer, climate change, waste and water. The present proposal suggests adding biodiversity to the agreed thematic areas. Criteria for the selection of such indicators should include both high intersection between the EEA Core Set of Indicators (EEA CSI) and indicators from the UNECE Guidelines as well as a proven availability of data in the ENPI East countries and the Russian Federation.

The EEA CSI includes 6 indicators related to air pollution and the depletion of the ozone layer, 4 indicators related to climate change, 2 indicators related to waste, 6 indicators related to water and 3 indicators related to biodiversity. Applying the above stated criteria, the Secretariat identified indicators which are included both in the list of EEA CSI and in the UNECE Guidelines. For each of the EEA CSI indicators, a detailed assessment has been carried out, considering the presence in the UNECE Guidelines and the availability of data in the ENPI East countries and the Russian Federation. As a result, a list of 14 core indicators is proposed for consideration by the Joint Task Force. These are as follows:

Air pollution and the depletion of the ozone layer

- **Emissions of sulphur dioxide per capita,**
- **Emissions of sulphur dioxide per square kilometre,**
- **Emissions of nitrogen oxides per capita,**

¹ Prepared with the assistance of Mr. Vladislav Bizek and Alexander Shekhovtsov, consultants to the secretariat.

- Emissions of nitrogen oxides per square kilometre,
- Annual mean concentration of nitrogen dioxide in the capital city,
- Aggregated consumption of ODS,

Climate change

- Emissions of carbon dioxide per capita,
- Emissions of carbon dioxide per unit of GDP (international dollars PPP constant prices 2005).

Waste

- Municipal waste generation per capita,

Water

- BOD concentration in the major rivers (3 sampling points – upstream, downstream, intermediate),
- Ammoniacal nitrogen concentration in the major rivers (3 sampling points – upstream, downstream, intermediate),
- Nitrates concentration in major water bodies (lakes, reservoirs),
- Total phosphorus concentration in major water bodies (lakes, reservoirs).

Biodiversity

- Share of total protected areas in the country area.

The selection analysis of indicators is presented in the sections that follow.

I. THE ANALYSIS OF INDICATORS PROPOSED FOR THE CORE SET

A. Air pollution and the depletion of the ozone layer

CSI1: Emissions of acidifying substances

Relation to UNECE Guidelines: Indicator 1: **Emissions of pollutants into the atmospheric air.**

Indicators: Annual emissions of sulphur dioxide, nitrogen oxides and ammonium (for particular pollutants and aggregated).

Relative indicators: Emissions of sulphur dioxide and nitrogen oxides per capita and per square kilometre.

Proposed indicators for the core set:

- Emissions of sulphur dioxide per capita,
- Emissions of sulphur dioxide per square kilometre.

Note: Data on annual emissions of sulphur dioxide, nitrogen oxides and ammonium are available in all 7 countries (the only exception is emission inventory of ammonium in Azerbaijan). Development of two recommended indicators is feasible as the data on both country areas and population are available.

CSI2: Emissions of ozone precursors

Relation to UNECE Guidelines: Indicator 1: **Emissions of pollutants into the atmospheric air.**

Indicators: Annual emissions of nitrogen oxides and volatile organic compounds (NMVOC) (for particular pollutants and aggregated).

Relative indicators: Emissions of nitrogen oxides and NMVOCs per capita and per square kilometre.

Proposed indicators for the core set:

- **Emissions of nitrogen oxides per capita,**
- **Emissions of nitrogen oxides per square kilometre.**

Note: Data on annual emissions of nitrogen oxides and NMVOCs are available in all 7 countries (the only exception is emission inventory of NMVOCs Azerbaijan). Development of two recommended indicators is feasible as the data on both country areas and population are available.

CSI4: Exceedance of air quality limit values in urban areas

Relation to UNECE Guidelines: Indicator 2: **Ambient air quality in urban areas**

Indicators: Annual mean concentrations and maximum daily concentrations of sulphur dioxide and nitrogen dioxide.

Relative indicators: Comparison of indicator values with national and/or EU air quality standards.

Estimate of the number of population living in areas with exceeded limit values.

Proposed indicator for the core set:

- **Annual mean concentration of nitrogen dioxide in the capital city**

Note: Data on concentrations of nitrogen dioxide are available in all 7 countries. Nitrogen dioxide is the most characteristic primary pollutant for big cities.

CSI6: Consumption of ozone depleting substances (ODS)

Relation to UNECE Guidelines: Indicator 3: **Consumption of ozone-depleting substances.**

Indicators: Annual consumption of particular categories of ODS.

Relative indicator: Aggregated consumption of ODS

Proposed indicator for the core set:

- **Aggregated consumption of ODS.**

Note: All 7 countries have the data on aggregated consumption of ODS available and report them to the Secretariat of the Vienna Convention for the Protection of the Ozone Layer.

B. Climate change

CSI10: Greenhouse gas emissions (GHGs) and removals

Relation to UNECE Guidelines: Indicator 6: **Greenhouse gas emissions**

Indicators: Annual emissions of particular GHGs (in total and per economic sectors), annual removal of GHGs.

Relative indicators: Aggregated annual GHG emissions (in CO₂ equivalent); aggregated emissions per capita and per unit of GDP (international dollars PPP).

Proposed indicators for the core set:

- **Emissions of carbon dioxide per capita,**
- **Emissions of carbon dioxide per unit of GDP (international dollars PPP constant prices 2005).**

Note: Data on emissions are available in all 7 countries.

C. Waste

CSI16: Municipal waste generation

Relation to UNECE Guidelines: Indicator 33: **Waste generation**

Indicator: Annual generation of municipal waste.

Relative indicator: Municipal waste per capita.

Proposed indicator for the core set:

- **Municipal waste generation per capita.**

Note: Data on municipal waste generation are available in all 7 countries.

D. Water

CSI19: Oxygen-consuming substances in rivers

Relation to UNECE Guidelines: Indicator 13: **BOD a concentration of ammonium in rivers.**

Indicators: Concentration of BOD5 and ammonia nitrogen in selected main rivers.

Relative indicators: Not proposed.

Proposed indicators for the core set:

- **BOD concentration in the major rivers** (3 sampling points – upstream, downstream, intermediate),
- **Ammoniacal nitrogen concentration in the major rivers** (3 sampling points – upstream, downstream, intermediate).

Note: Data is either fully or partially available in all 7 countries.

CSI20: Nutrients in freshwater

Relation to UNECE Guidelines: Indicator 14: **Nutrients in freshwater**

Indicators: Concentration of nitrates and phosphates in rivers, total concentration of phosphorus and nitrogen in lakes, concentration of nitrates in ground waters.

Relative indicators: Not proposed.

Proposed indicators for the core set:

- **Nitrates concentration in major water bodies (lakes, reservoirs),**
- **Total phosphorus concentration in major water bodies (lakes, reservoirs).**

Note: Data is either fully or partially available in all 7 countries.

E. Biodiversity

CSI08: Designated areas

Relation to UNECE Guidelines: Indicator 17: **Protected areas**

Indicators: Areas under protection in total and broken down by regimes of protection.

Relative indicators: Share of protected areas in the country area (total protected areas and broken down by regimes of protection).

Proposed indicator for the core set:

- **Share of total protected areas in the country area.**

Note: Data on the share of protected areas in total country area is fully available in all 7 countries.

II. THE ASSESSMENT OF THE EEA CORE SET OF INDICATORS (CSI)

Air

- CSI1: Emissions of acidifying substances (recommended)
- CSI2: Emissions of ozone precursors (recommended)
- CSI3: Emissions of primary particulates and secondary particulate precursors (not recommended due to limited availability of data on PM10 emissions)
- CSI4: Exceedance of air quality limit values in urban areas (recommended)
- CSI5: Exposure of ecosystems to acidification, eutrophication and ozone (not recommended in the first phase)
- CSI6: Consumption of ozone depleting substances (recommended)

Climate change

- CSI10: Greenhouse gas emissions and removals (recommended)
- CSI11: Projections of greenhouse gas emissions and removals and policies and measures (not recommended in the first phase)
- CSI12: Global and European temperature (not recommended)
- CSI13: Atmospheric greenhouse gas concentrations (not recommended in the first phase)

Waste

- CSI16: Municipal waste generation (recommended)
- CSI17: Generation and recycling of packaging waste (not recommended due to the expected lack of data)

Water

- CSI18: Use of freshwater resources (not recommended due to the expected lack of data)
- CSI19: Oxygen-consuming substances in rivers (recommended)
- CSI20: Nutrients in freshwater (recommended)
- CSI21: Nutrients of transitional, coastal and marine waters (not recommended)
- CSI22: Bathing water quality (not recommended due to the expected lack of data)
- CSI23: Chlorophyll in transitional, coastal and marine waters (not recommended due to the expected lack of data)

Biodiversity

- CSI07: Threatened and protected species (not recommended)
- CSI08: Designated areas (recommended)
- CSI09: Species diversity (not recommended)