

C-8: Reuse and recycling of freshwater

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1) General description

1.1) *Brief definition*

This indicator defines the amount of reused water as a total, as a percentage of total freshwater use, and broken down by economic activity according to the International Standard Industrial Classification of All Economic Activities (ISIC).

1.2) *Units of measurement*

The total volume of reused water and the volume by economic activity are measured in million cubic metres per year; the ratio between reused water and total freshwater use is presented as a percentage.

1.3) *Context*

Relation to other indicators from the Guidelines - This indicator relates to indicator "C-3: Total water use".

2) Relevance for environmental policy

2.1) *Purpose*

The indicator provides a measure of the response to national actions to improve the efficiency of water management systems in different economic sectors.

2.2) *Issue*

The sustainable management of water resources has become a major concern with regard to sustainable development as a whole. Reducing losses, using more efficient technologies, and recycling and reuse are means of making water use more efficient. This indicator is very important for public authorities and for the management of enterprises to develop production facilities in a manner that ensures efficient water use.

2.3) International agreements and targets

a) Regional level

The ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes obliges the Parties to prevent, control and reduce transboundary impact, use transboundary waters in a reasonable and equitable way and ensure their sustainable and ecologically sound management.

b) Subregional level

The Environmental Strategy for countries of Eastern Europe, Caucasus and Central Asia, adopted by the 2003 Ministerial Conference “Environment for Europe”, requires the preparation and implementation of programs for integrated water management. In the European Union, the Water Framework Directive (Directive 2000/60/EC) obliges the Member States to promote the sustainable use of available water resources based on long-term protection and to ensure a balance between abstraction and recharge of water with the aim of achieving a “good water status” by 2015.

3) Methodology and guidelines

3.1) Data collection and calculations

The data on water reuse – as a total and broken down by economic activity – are collected from the water supply industry, i.e. public or private bodies whose main functions are water collection, treatment and distribution activities for domestic and industrial needs, and from the recipients of water from water supply systems. This indicator defines the ratio of the amount of reused water to total water use. The total water use is subject to indicator C-3, and values for the total water use of a country may be adopted.

The indicator can be calculated using the following formula:

$$\% \text{ Water reused} = \left(\frac{\text{volume of reused water}}{\text{volume of total water use}} \right)$$

3.2) Internationally agreed methodologies and standards

The UNSD/UNEP Questionnaire on Environment Statistics (Table W-2); The Joint OECD/Eurostat Questionnaire on the State of the Environment 2012 (Inland Waters, Table 3); International Recommendations for Water Statistics (IRWS), UNSD 2010.

4) Data sources and reporting

Many countries of South-Eastern and Eastern Europe, Caucasus and Central Asia have databases and data at the cadastre level that provide fairly exhaustive time series on the reuse of water, collected by national environmental authorities from the water supply industry and other enterprises and users by using statistical reporting forms. Data on this indicator related to particular economic activities are published in statistical yearbooks (at the national and subnational levels) as well as in collections dealing with environmental issues. National environmental authorities provide data to the UNSD Environment Statistics Database.

5) References at the international level

- 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 (Water Framework Directive): http://ec.europa.eu/environment/water/water-framework/index_en.html
- ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1992): <http://www.unece.org/fileadmin/DAM/env/water/pdf/watercon.pdf>; amendment 2003: <http://www.unece.org/fileadmin/DAM/env/documents/2004/wat/ece.mp.wat.14.e.pdf>
- European Environment Agency (EEA): <http://www.eea.europa.eu/themes/water>
- Europe's Environment, The Fourth Assessment, EEA 2007
- Eurostat: <http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators>
- Global water information system of the Food and Agriculture Organization (AQUASTAT): http://www.fao.org/ag/agl/aglw/aquastat/water_res/waterres_tab.htm
- Indicators of Sustainable Development: Guidelines and Methodologies, third edition, United Nations 2007: http://www.un.org/esa/sustdev/natlinfo/indicators/methodology_sheets.pdf
- International Recommendations for Water Statistics (IRWS): <http://unstats.un.org/unsd/envaccounting/irws/irwswebversion.pdf>
- International Standard Industrial Classification of all Economic Activities, United Nations, Series M, No 4, rev.3

- Organization for Economic Co-operation and Development (OECD): <http://oecd.org/env/>
- Protocol on Water and Health to the ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes: <http://www.unece.org/fileadmin/DAM/env/documents/2000/wat/mp.wat.2000.1.e.pdf>
- The European Environment-State and Outlook 2010: Synthesis, EEA 2010
- Environmental Indicator Report 2012, EEA 2012
- United Nations Statistics Division (UNSD): <http://unstats.un.org/unsd/environment/>
- United Nations Statistics Division (UNSD)/United Nations Environment Programme (UNEP) Questionnaire on Environment Statistics (2013): <http://unstats.un.org/unsd/environment/questionnaire2013.html>
- World Health Organization (WHO): <http://www.euro.who.int/en/home>
- World Meteorological Organization (WMO): www.wmo.ch.