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1) General description

1.1) *Brief definition*

This indicator shows the volume of fresh water that is lost during transport between the point of abstraction and a point of use, as well as between points of use and reuse, expressed as a total volume and as a percentage of the total gross volume of water supplied by the water supply industry. The indicator differentiates reasons for the water loss (leakages, evaporation, burst mains and meter errors).

1.2) *Units of measurement*

The total volume of water losses and water losses broken down by reasons for the water loss are measured in millions of cubic metres. The ratio of water losses during transport in expressed as a percentage of the total gross volume of water supplied by the water supply industry.

1.3) *Context*

Relation to other indicators from the Guidelines - This indicator relates to indicators "C-2: Freshwater abstraction", "C-3: Total water use", "C-5: Water supply industry and population connected to water supply industry"

2) Relevance for environmental policy

2.1) *Purpose*

The indicator provides a measure of response to the efficiency of the water management system in a country.

2.2) *Issue*

Sustainable management of water resources has become a major concern in many countries. The efficiency of water use is of key importance in matching supply with demand. Reducing losses, using more efficient technologies and keeping water transportation systems in good

condition can contribute to efficient water use. The amount of water lost during transport to users is an indicator of the efficiency of a water management system, including technical conditions affecting water supply pipelines, water pricing and public awareness in a country.

2.3) International agreements and targets

a) Regional level

The ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes and its Protocol on Water and Health.

b) Subregional level

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

When working with this indicator, the most important issue is to have data on the quantities of freshwater not reaching users during transport by water supply industries (the companies collecting, purifying and distributing water through a permanent infrastructure). The indicator is estimated and defined as the absolute and relative difference between the gross amount of water supplied by the water supply industry i.e. public or private bodies whose main functions are water collection, treatment and distribution activities for domestic, industrial and other needs and the net amount delivered to users (households; agriculture, forestry and fishing; manufacturing; the electricity industry and other economic activities). Total losses can be broken down into losses by evaporation, losses by leakages, losses by burst mains and losses due to meter errors. The percentage of water loss can be calculated by the formula:

$$\text{Percentage of water loss} = \frac{\text{(volume of water losses during transport / gross volume of water supplied by the water supply industry)}}{100}$$

Losses resulting from illegal tapping or other illegal use of water are excluded. Reports submitted by enterprises are processed first at the regional and then at the country level.

3.2) Internationally agreed methodologies and standards

The UNSD/UNEP Questionnaire on Environment Statistics (Table W3); Joint OECD/Eurostat Questionnaire 2012: Inland Waters (Table 3); International Recommendations for Water Statistics (IRWS), UNSD 2010.

4) Data sources and reporting

Data are collected based on statistical reporting by countries of South-Eastern and Eastern Europe, Caucasus and Central Asia. In many of the countries databases and fairly exhaustive time series exist at level of water cadastres. Countries 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>
- Environmental Indicator Report 2012, EEA 2012
- European Environment Agency (EEA): <http://www.eea.europa.eu/themes/water>
- Europe's Environment, The 4th 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
- 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.