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INDICATORS OF INLAND AND SEA WATER NOT COVERED BY THE GUIDELINES

Informal note by the secretariat[1]

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I. Introduction

1. During the past decades various international and national organizations have been developing sets of indicators to measure and assess the water related issues from both quantitative and qualitative points of view with particular attention given to the environment and environmental health.

2. The European Environment Agency (EEA) has developed, as a part of the Core Set of Indicators (CSI) a set of 7 indicators for water sector that are updated regularly. The indicators describe the development of the sector and implications for the environment and water policy actions. Annex I lists these indicators. The EEA's indicator fact sheets on water sector constitute the basis for its environment reporting. The fact sheets are available from the website of the EEA, www.eea.europa.eu/data-and-maps/indicators.

3. The Organisation for Economic Co-operation and Development (OECD) in cooperation with Eurostat has been developing a set of water sector related indicators to better integrate environmental concerns into water policy (see annex II). The indicators are divided into two groups, one dealing with Inland waters (11 indicators) and the other one with coastal waters (7 indicators). Specific attention is given to the industrial pollution of waters.

4. The United ~~n~~Nations Statistics Division (UNSD) and UNEP have developed a set of 10 water related indicators (see Annex III). Questionnaires distributed by these organizations are being filled in regularly by many UN member countries including countries in Eastern Europe, Caucasus, Central Asia and South-Eastern Europe (EECCA).

5. The analysis of water related indicators used by OECD/EUROSTAT, UNSD/UNEP and EEA has shown that some of these indicators have already been included in the Guidelines for the Application of Environmental Indicators in Eastern Europe, Caucasus and Central Asia[2] (EECCA) prepared by the United Nations Economic Commission for Europe (UNECE). However, to harmonize further reporting on inland and see water indicators across the pan-European region a proposal has been made in the present document to add five indicators to the Guidelines. Some of these indicators could be produced using basic data collected for

[2] See United Nations publication, *Environmental Indicators and Indicators-based Assessment Reports: Eastern Europe, Caucasus and Central Asia*, Sales No. E 07.II.E.9. Available on-line at www.unece.org/env/documents/2007/ece/ece.belgrade.conf.2007.inf.6.e.pdf.

indicators already included in the Guidelines. For the others, additional data collection and/calculations will be required.

6. On the basis of the above-mentioned sets water indicators, the following 14 indicators can be recommended for use in the countries of Eastern Europe, Caucasus, Central Asia and South-Eastern Europe (target countries):

(a) Total water use (consumption): new proposed indicator;

(b) Renewable freshwater resources: indicator 7 from the Guidelines;

(c) Freshwater abstraction: indicator 8 from the Guidelines;

(d) Water supply industry: new proposed indicator;

(e) Water losses: indicator 10 from the Guidelines;

(f) Household water use per capita: indicator 9 from the Guidelines;

(g) Drinking water quality: indicator 12 from the Guidelines;

(h) Population connected to wastewater treatment: new proposed indicator;

(i) Wastewater treatment facilities: new proposed indicator;

(j) Polluted (non-treated) wastewaters: indicator 16 from the Guidelines;

(k) Reuse and recycling of freshwater; indicator 11 from the Guidelines;

(l) BOD and concentration of ammonium in rivers: indicator 13 from the Guidelines;

(m) Nutrients in freshwater: indicator 14 from the Guidelines;

(n) Concentration of pollutants in seawater and sediments (excepts nutrients): new proposed indicator;

(o) Nutrients in coastal seawaters: indicator 15 from the Guidelines.

8. A detailed description of the five new proposed indicators is given below.

II. PROPOSED ADDITIONAL INDICATORS[3]

A. Total water use (consumption)

General description

~~a) **Brief definition**: The quantity of water supplied for final need to cover all the needs in the country, in particular the needs of households, economic sectors (energy, industry, agriculture, services) and state/public sector. **of water supply industry (ISIC 36), agriculture (ISIC 1 – 3), cooling for electricity production (ISIC 35 without hydroelectricity) and other economic sectors.**~~

a) Brief definition: The water use (water consumption) - the use of water abstracted from various sources (including sea water) to meet the needs of households, industrial use, irrigation, agricultural water supply, etc. It does not include water losses during transportation, recycling and reuse of water. Evaluation of this indicator is carried out for the the whole country and by economic activities according to ISIC.

b) **Unit of measurement**: Million cubic meters per year (total, broken down by economic activity in accordance with ISIC).

Context – Relation to other indicators from the Guidelines

This indicator relates to indicators 8-Freshwater abstraction, 10-Water losses and 11-Reuse and recycling of freshwater.

Relevance for environmental policy

a) **Purpose**: The indicator provides a measure of the pressure on the environment in terms of ~~water abstraction from different sources (including recycling and re-use of water)~~ rational use of abstracted water.

b) **Issue**: Rational quantities of water for meeting basic human needs are a prerequisite for life, health and economic development. The indicator is one of major ones defining the level of development of water economy services and the degree of water accessibility to cover all need of population and society. This indicator helps to identify trends in rational water use in a particular country. Finally, this indicator differs from country to country depending not only on the size of population but also on the structure of national economy.

c) **International agreements and targets**:

[3] Useful comments have been sent by Armenia and the Russian Federation. However, country specific examples were not included.

Regional level: The UNECE Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes requires that the Parties introduce sustainable water management, including an ecosystem approach and the rational and fair use of trans-boundary waters.

Subregional level: The Environmental Strategy of countries of Eastern Europe, Caucasus and Central Asia 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 sustainable use based on long-term protection of available water resources and to ensure a balance between abstraction and recharge of water with the aim of achieving "good water status" by 2015.

Methodology and guidelines

~~a) **Data collection and calculations**: In general, total water use includes public supply, self supply, irrigation and other supply (e.g. reuse of water). Use of water for hydro power generation is excluded. Household and corporate water use can be determined based on the measured volume supplied mainly through the public water supply systems. Self use of water (direct abstraction of water from rivers, lakes, wells or springs) by entities (households, companies, institutions) not supplied by public water supply systems is to be estimated. Losses of water during the transport of water by water supply infrastructure should be taken into account where appropriate.~~

a) **Data collection and calculations**: Operators of water bodies and the recipients of water from water supply systems have data on water use. The indicator is calculated by summarizing the data on the use of fresh water through a system of centralized water supply and trough self-supply for drinking and service needs and for production purposes, as well as data on the use of water for irrigation and on agricultural water supply (including drinking and service needs of the rural population) for the country as a whole and by economic activity.

b) Internationally agreed methodologies and standards: The UNSD/UNEP Questionnaire on Environmental Statistics (Table W3). The Joint OECD/Eurostat Questionnaire on the State of the Environment (Inland Waters, Table 3.1). **International Recommendations for Water Statistics (IRWS), UNSD 2010.**

Data sources and reporting

~~Many EECCA countries have databases that provide fairly comprehensive time series regarding water use based on reporting in standard form by enterprises and other relevant organizations. These data are collected in water cadastres. Data on water use are published in annual environmental reports and/or in statistical yearbooks. Statistical agencies report data to the UNSD Environment Statistics Database.~~EECCA countries have databases that contain fairly comprehensive time series of data on water use (consumption), collected by national environmental authorities from enterprises using statistical reporting forms. These data are collected in water cadasters. Information on water use (consumption) are published in statistical yearbooks and / or national state-of-the-environment reports. National environmental authorities report data to the UNSD Environment Statistics Database.

References at the international level

- Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes (1992),
- International Standard Industrial Classification of all Economic Activities, United Nations, Series M, No 4, rev.3,
- Europe´s Environment, The 4th Assessment, EEA 2007,
- 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),
- Indicators of Sustainable Development: Guidelines and Methodologies, 3rd edition, United Nations 2007,
- IRWS: http://unstats.un.org/unsd/envaccounting/irws/irswebversion.pdf
- http://www.unece.org/env/water/pdf/waterconr.pdf,
- http://www.unece.org/env/documents/2000/wat/mp.wat.2000.1.r.pdf,
- www.wmo.ch,
- http://stats.oecd.org,
- http://unstats.un.org/unsd/environment/,
- http://www.fao.org/ag/agl/aglw/aquastat/water_res/waterres_tab.htm,
- http://www.euro.who.int/ehindicators/,
- http://europa.eu.int/comm/environment/water/water-framework/index_en.html,
- http://europa.eu.int/comm/eurostat,
- http://themes.eea.eu.int/IMS/CSI/.

B. Water supply industry

General description

a) **Brief definition**: Total water supply (total and broken down by public water supply, self-supply and other supply), and percentage of population connected to public water supply. Water supply industry includes a set of activities and facilities ensuring the abstraction, treatment, storage, supply and distribution of water for the population and economic activities.

b) Unit of measurement: Supply in million cubic meters per year (total and broken down by the types of supply), percentage of population served (%).

Context – Relation to other indicators from the Guidelines

This indicator relates to indicators 8-Freshwater abstraction, 9- Household water use per capita, 10-Water losses and 11-Reuse and recycling of freshwater.

Relevance for environmental policy

a) **Purpose**: The indicator provides measure of pressure on the environment and a measure of response. In addition, this indicator provides a measure of impact on human health and in a broader sense a measure of quality of life.

b) **Issue**: Rational quantities of water for meeting basic human needs are a prerequisite for life, health and economic development. The indicator is one of major ones defining the level of development of water economy services and the degree of water accessibility to cover all need of population and society. This indicator helps to identify trends in rational water use in a particular country. Finally, this indicator differs from country to country depending not only on the size of population but also on the structure of national economy. Appropriate quality of drinking water in water supply systems represents one of the basic preconditions for environmental health and prevention of water related diseases.

c) **International agreements and targets**:
Regional level: The UNECE Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes requires that the Parties introduce sustainable water management, including an ecosystem approach and the rational and fair use of trans-boundary waters. The Protocol on Water and Health requires that the Parties take all appropriate measures to ensure adequate supply of wholesome drinking water.

Sub-regional level: The Environmental Strategy of countries of Eastern Europe, Caucasus and Central Asia requires the preparation and implementation of programmes for integrated water management.
In the European Union, the Water Framework Directive (Directive 2000/60/EC obliges the Member States to promote sustainable use based on long-term protection of available water resources and to ensure a balance between abstraction and recharge of water with the aim of achieving "good water status" by 2015. Council Directive 98/83/EC on the quality of water intended for human consumption obliges the Member States take the measures necessary to ensure that water intended for human consumption is wholesome and clean and sets drinking water quality standards.

Methodology and guidelines

a) **Data collection and calculations**: Data can be obtained from the subjects operating public water supply systems. Self supply of water (direct abstraction of water from rivers, lakes, wells or springs – in accordance with respective water abstraction permits) by entities (households, companies, institutions) not supplied by public water supply systems and other water supply (e.g. desalinization of seawater) is to be estimated. Indicator is calculated by summarizing annual capacities of water supply systems in total and in particular categories. Data on percentage of population connected to public water supply can be obtained from subjects operating ~~waste~~ water ~~treatment~~ supply facilities ~~and~~ or from census and other

targeted surveys - eg., a survey of households. In addition, water losses during the distribution should be taken into account.

b) **Internationally agreed methodologies and standards**: The UNSD/UNEP Questionnaire on Environmental Statistics (Table W3). The UNCSD Methodology Sheets for Indicators of Sustainable Development (Proportion of population using improved water sources). The UNECE/WHO Guidelines on the Setting Targets, Evaluation of Progress and Reporting under the Protocol on Water and Health. International Recommendations for Water Statistics (IRWS), UNSD 2010.

Data sources and reporting

Data are collected based on statistical reporting by countries. In many EECCA countries databases and data at the water cadastre level of fairly comprehensive time series exist. EECCA countries report data in their inputs to the UNSD Environment Statistics Database.

References at the international level

- Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes (1992),
- The Protocol on Water and Health (1999),
- 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),
- Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption,
- The Protocol on Water and Health: Guidelines on the Setting Targets, Evaluation of Progress and Reporting, UNECE/WHO 2010,
- Indicators of Sustainable Development: Guidelines and Methodologies – Methodology Sheets, United Nations 2007,
- IRWS: http://unstats.un.org/unsd/envaccounting/irws/irswebversion.pdf
- http://www.unece.org/env/water/pdf/waterconr.pdf,
- http://www.unece.org/env/documents/2000/wat/mp.wat.2000.1.r.pdf,
- www.wmo.ch,
- http://unstats.un.org/unsd/environment/,
- http://www.unece.org/env/water/publications/documents/guidelines_target_setting.pdf http://www.un.org/esa/sustdev/natlinfo/indicators/methodology_sheets.pdf,
- http://www.fao.org/ag/agl/aglw/aquastat/water_res/waterres_tab.htm,
- http://www.euro.who.int/ehindicators/.
- http://europa.eu.int/comm/environment/water/water-framework/index_en.html,
- http://europa.eu.int/comm/eurostat,
- http://themes.eea.eu.int/IMS/CSI/.

C. Population connected to wastewater treatment

General description

a) Brief definition: The percentage of population connected to wastewater treatment facilities (total and broken down by the level of treatment: Mechanical (primary) treatment, biological (secondary) treatment, advanced (tertiary) treatment).

b) Unit of measurement: Percentage of total population connected to wastewater treatment facilities (%); total and broken down by the levels of waste water treatment.

Context – Relation to other indicators from the Guidelines

This indicator relates to indicator 16-Polluted (non-treated) waste waters.

Relevance for environmental policy

~~d)~~a) **Purpose**: The indicator provides a measure of pressure on the environment, especially water bodies, and a measure of response. In addition, this indicator provides a measure of impact on human health and in a broader sense of a measure of quality of life.

~~e)~~b) **Issue**: Wastewater treatment is a basic prerequisite for minimizing pressure on both surface and ground waters in terms of water pollution. As both ground waters and surface waters are abstracted for the production of drinking water or even for direct use, reduction of water pollution represents one of the basic preconditions for environmental health and prevention of water related diseases. Wastewater treatment should follow the water quality standards laid down by national legislations.

~~f)~~c) **International agreements and targets**:

Regional level: The UNECE Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes requires that the Parties introduce sustainable water management, including an ecosystem approach and the rational and fair use of trans-boundary waters. The Protocol on Water and Health requires that the Parties take all appropriate measures to ensure adequate sanitation.

Sub-regional level: The Environmental Strategy of EECCA countries requires the preparation and implementation of programmes for integrated water management.
In the European Union, the Water Framework Directive (Directive 2000/60/EC obliges the Member States to promote sustainable use based on long-term protection of available water resources and to ensure a balance between abstraction and recharge of water with the aim of achieving "good water status" by 2015. Directive 91/271/EEC concerning urban waste-water treatment obliges the Member States to ensure that all agglomerations above 2000 population equivalents are provided with collecting systems for urban waste water and that discharge be subject to secondary treatment or an equivalent treatment.

Methodology and guidelines

~~c)~~a) **Data collection and calculations**: Data can be obtained from subjects operating waste water treatment facilities and or from census and other targeted surveys – e.g., a survey of households. Indicator is calculated dividing the number of population connected to sewers,

which are connected to wastewater treatment facilities, by the total number of population. To avoid double-counting, water subjected to more than one treatment should be reported under the highest level of treatment.

~~d)~~b) **Internationally agreed methodologies and standards**: The UNSD/UNEP Questionnaire on Environmental Statistics (Table W4B). The Joint OECD/Eurostat Questionnaire on the State of the Environment (Inland Waters, Table 4). The UNCSD Methodology Sheets for Indicators of Sustainable Development (Proportion of Population using improved sanitation facilities). The UNECE/WHO Guidelines on the Setting Targets, Evaluation of Progress and Reporting under the Protocol on Water and Health. International Recommendations for Water Statistics (IRWS), UNSD 2010.

Data sources and reporting

Data are collected based on statistical reporting by countries. In many EECCA countries databases and data at the water cadastre level of fairly comprehensive time series exist. EECCA countries report data in their inputs to the UNSD Environment Statistics Database.

References at the international level

- Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes (1992),
- Protocol on Water and Health (1999),
- 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),
- Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment,
- Indicators of Sustainable Development: Guidelines and Methodologies – Methodology Sheets, United Nations 2007,
- Protocol on Water and Health: Guidelines on the Setting Targets, Evaluation of Progress and Reporting, UNECE/WHO 2010,
- IRWS: http://unstats.un.org/unsd/envaccounting/irws/irwswebversion.pdf
- http://www.unece.org/env/water/pdf/waterconr.pdf,
- http://www.unece.org/env/documents/2000/wat/mp.wat.2000.1.r.pdf,
- http://www.unece.org/env/water/publications/documents/guidelines_target_setting.pdf
- http://unstats.un.org/unsd/environment/,
- http://www.un.org/esa/sustdev/natlinfo/indicators/methodology_sheets.pdf,
- http://www.fao.org/ag/agl/aglw/aquastat/water_res/waterres_tab.htm,
- http://www.euro.who.int/ehindicators/,
- http://europa.eu.int/comm/environment/water/water-framework/index_en.html,
- http://europa.eu.int/comm/eurostat,
- http://themes.eea.eu.int/IMS/CSI/.

D. Wastewater treatment facilities

General description

~~e)~~a) **Brief definition**: Number ~~and total designed capacity~~ of wastewater treatment facilities; total and broken down by the level of treatment; designed capacity; total and broken down by the level of treatment (mechanical/primary, biological/secondary, advanced/tertiary) and/or by the type of operator (public, other operators, independent/septic tanks). If available, the data on real capacity and real efficiency of treatment facilities[4]. As complementary information: total national waterborne emissions and emissions removed by waste water treatment facilities.

~~f)~~b) **Unit of measurement**: Number and designed capacity in million cubic meters per year or in ~~t~~thousands of cubic meters per day (total and broken down). Emissions in thousand tons of BOD_5 and COD per year.

Context – Relation to other indicators from the Guidelines

This indicator relates to indicator 13-BOD and concentration of ammonium in rivers.

Relevance for environmental policy

~~g)~~a) **Purpose**: The indicator provides a measure of pressure on the environment and a measure of response.

~~h)~~b) **Issue**: Wastewater treatment is a basic prerequisite for minimizing pressure on both surface and ground waters in terms of water pollution. As both ground waters and surface waters are abstracted for the production of drinking water or even for direct use, reduction of water pollution represents one of the basic preconditions for environmental health and prevention of water related diseases.

~~i)~~c) **International agreements and targets**:

Regional level: The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (and its protocols) requires that the Parties introduce sustainable water management, including an ecosystem approach and the rational and fair use of transboundary waters. The Protocol on Water and Health requires that the Parties take all appropriate measures to ensure adequate sanitation.

Subregional level: The Environmental Strategy of EECCA countries requires the preparation and implementation of programmes for integrated water management.

In the European Union, the Water Framework Directive (Directive 2000/60/EC obliges the Member States to promote sustainable use based on long-term protection of available water resources and to ensure a balance between abstraction and recharge of water with the aim of achieving "good water status" by 2015. Directive 91/271/EEC concerning urban waste-water treatment obliges the Member States to ensure that all agglomerations above 2000

[4] There can be considerable difference between designed and real capacity of facilities in some cases. In addition, certain parts of -treatment facilities does not match the quality of treatment required by standards.

population equivalents are provided with collecting systems for urban waste water and that discharge ~~be~~ is subject to secondary treatment or an equivalent treatment.

Relevant requirements are included in sub-regional multilateral environmental agreements - MEAs (mainly the Baltic Sea, the Black Sea, the Caspian Sea, the Mediterranean Sea, the Danube River).

Methodology and guidelines

~~g)~~a) **Data collection and calculations**: Data can be obtained from the companies operating waste water treatment facilities. Indicator is calculated by summarizing annual capacities of treatment facilities in total and in particular categories (level of treatment, type of operator). Volume of water treated in independent treatment facilities should be estimated.

~~h)~~b) **Internationally agreed methodologies and standards**: The UNSD/UNEP Questionnaire on Environmental Statistics (Table W4C). The Joint OECD/Eurostat Questionnaire on the State of the Environment (Inland Waters, Table IV-5). The UNCSD Methodology Sheets for Indicators of Sustainable Development (Waste water treatment). The UNECE/WHO Guidelines on the Setting Targets, Evaluation of Progress and Reporting under the Protocol on Water and Health. International Recommendations for Water Statistics (IRWS), UNSD 2010.

Data sources and reporting

Data are collected based on statistical reporting by countries. In many EECCA countries databases and data at the water cadastre level of fairly comprehensive time series exist. EECCA countries report data in their inputs to the UNSD Environment Statistics Database.

References at the international level

- Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1992),
- Protocol on Water and Health (1999),
- 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),
- Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment,
- Indicators of Sustainable Development: Guidelines and Methodologies – Methodology Sheets, United Nations 2007,
- Protocol on Water and Health: Guidelines on the Setting Targets, Evaluation of Progress and Reporting, UNECE/WHO 2010,
- IRWS: http://unstats.un.org/unsd/envaccounting/irws/irwswebversion.pdf
- http://www.unece.org/env/water/pdf/waterconr.pdf,
- http://www.unece.org/env/documents/2000/wat/mp.wat.2000.1.r.pdf,
- http://unstats.un.org/unsd/environment/,

- http://www.unece.org/env/water/publications/documents/guidelines_target_setting.pdf
  http://www.un.org/esa/sustdev/natlinfo/indicators/methodology_sheets.pdf,
- http://www.fao.org/ag/agl/aglw/aquastat/water_res/waterres_tab.htm,
- http://www.euro.who.int/ehindicators/,
- http://europa.eu.int/comm/environment/water/water-framework/index_en.html,
- http://europa.eu.int/comm/eurostat,
- http://themes.eea.eu.int/IMS/CSI/.

E. Concentration of pollutants in coastal seawater and sediments (except nutrients)

General description

a) **Brief definition**: The presence of pollutants in coastal seawaters: easily oxidizible organic pollutants as BOD5, uneasily oxidizible organic pollutants as COD, ammoniac nitrogen, dissolved oxygen, petroleum products, phenols, synthetic surface-active compounds, heavy metals (Cd, Co, Cu, Cr, Fe, Hg, Mn, Ni, Pb, Zn), chlorinated pesticides and faecal coliform, and in sediments (heavy metals, chlorinated pesticides and oil hydrocarbons represents serious risk for both and ecological condition of coastal waters and indirectly for human health.
b) **Unit of measurement:** Concentrations of BOD5, COD and dissolved oxygen are expressed in milligrams O_2 /litre, ammoniac nitrogen in milligrams/litre, petroleum products, phenols, surface-active compounds, heavy metals and pesticides in micrograms /litre and those of faecal coliform in MPN (Most Probable Number) per 100 ml.

Context – Relation to other indicators from the Guidelines

This indicator relates to indicator 15-Nutrients in coastal seawaters

Relevance for environmental policy

a) **Purpose**: The indicator provides a measure of the state of coastal seawaters and sediments in terms of pollutant concentration.

~~k)~~b) **Issue**: The presence of pollutants in coastal seawaters and sediments represents serious risk for both ecological condition of coastal waters and indirectly for human health (via food chain). Large quantities of organic matter (microbes and decaying organic waste) can reduce the chemical and biological quality of water and result in impaired biodiversity of aquatic communities and microbiological contamination that can affect the quality of water. Sources of organic matter include discharges from wastewater treatment plants, industrial effluents and agricultural run-off. Organic pollution leads to higher rates of metabolic processes that demand high amounts of oxygen which could result in a lack of oxygen

(anaerobic conditions). Seawater and sediment pollution represents direct risk for human health in coastal zones used for recreation.

~~a)~~c) **International agreements and targets**: The Convention on the Protection of the Marine Environment of the Baltic Sea (Helsinki, 1974); the Convention on the Protection of the Mediterranean Sea against Pollution (Barcelona, 1976); the Convention on the Protection of the Black Sea against Pollution (Bucharest, 1992); the Framework Convention on the Protection of the Marine Environment of the Caspian Sea (Tehran, 2003).
The European Union has adopted the Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) which establishes a framework within which Member States shall take the necessary measures to achieve or maintain good environmental status in the marine environment by the year 2020 at the latest.

Methodology and guidelines

~~i)~~a) **Data collection and calculations**: A basic monitoring programme should specify pollutants and a core list of measured indicators. The number of sampling points and their spatial location should enable the collection of information on the content of pollutants throughout the gradient of loads – from background water landing sea areas to coastal seawater areas exposed to substantive anthropogenic loads. Time parameters should take into account the time mutability of the content of pollutants. Methodological and metrological uniformity of surveillance and data processing should be a goal; microbiological and chemical-analytical activities should be conducted by accredited laboratories with measurement quality control systems.

~~ii)~~b) **Internationally agreed methodologies and standards**: The UNSD/UNEP Questionnaire on Environmental Statistics (Table W8A). The method of determining BOD in EECCA countries is in compliance with ISO 5815-1:2003 and ISO 5815-2:2003. International Recommendations for Water Statistics (IRWS), UNSD 2010.

Data sources and reporting

EECCA countries have departmental and, in some cases, national databases of the level of pollution of coastal seawaters and sediments. Several coastal EECCA countries publish data on concentration of pollutants in seawater, including coastal waters and sediments, in annual reports on marine environment quality.

References at the international level

- GEMS/WATER Operational Guide, 3rd ed.(WHO, 1992),
- ISO Water Quality – determination of BOD after five days. ISO 5815. (1989),
- Standard Methods for the Examination of Water and Wastewater, 19th ed. (American Public Human Health Association, 1992),
- Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive),
- IRWS: http://unstats.un.org/unsd/envaccounting/irws/irwswebversion.pdf
- http://www.unep.org
- http://www.iso.org

- http://www.helcom.fi
- http://www.blacksea-commission.net
- http://www.grida.no/caspian
- http://themes.eea.eu.int/IMS/CSI
- Sanitary norms and rules for the protection of coastal zones http://www.stroyplan.ru/docs.php?showitem=2846.

III. Annexes

Annex I: EEA Indicators

- CSI 18: Use of Fresh Water Resources
- CSI 19: Oxygen Consuming Substances in Rivers
- CSI 20: Nutrients in Fresh Water
- CSI 21: Nutrients in Transitional, Coastal and Marine Waters
- CSI 22: Bathing Water Quality
- CSI 23: Chlorophyll in Transitional, Coastal and Marine Waters
- CSI 24: Urban Waste Water Treatment

Annex II: OECD/Eurostat Indicators

Inland Water

- IW-1: Freshwater resources
- IW-2.1: Annual Freshwater Abstraction by Source and by Sector
- IW-2.2: Other Sources of Water
- IW-3.1: Water Use by Supply Category
- IW-3.2: Water Use by Industrial Activities
- IW-4: National Population Connected to Wastewater Treatment Plants
- IW-5: Treatment Capacity of Wastewater Treatment Plants in terms of BOD5
- IW-6: Sewage Sludge Production and Disposal
- IW-7: Generation and Discharge of Wastewaters (in terms of volume, BOD, population eqvalents, Ntot, Ptot)
- IW-8: Water Quality of Selected Rivers at Mouth or Downstream Frontier
- IW-9: Water Quality of Selected Lakes

Coastal Waters

- 1: Pollution Originating from the Coast
- 2: Pollution Originating from Coastal Industries
- 3: Pollution from Rivers
- 4: Description of the Coastal Zones
- 5: Bacteriological Quality of Marine Waters
- 6: Concentration of Pollutants in Seawaters and Sediments
- 7: Concentration of pollutants in Living Matter

Annex III: UNSD/UNEP Indicators

- W1: Renewable Fresh Water Resources
- W2: Water Abstraction by Source
- W3: Water Use by Supply Category and Activities
- W4A: Waste Water Generation
- W4B: Waste Water Treatment
- W5: Selected Variables at City Level
- W6: Water Quality of Selected Rivers
- W7: Water Quality of Selected Lakes
- W8: Water Quality in Coastal Areas