



UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

**COMMITTEE ON ENVIRONMENTAL POLICY
CONFERENCE OF EUROPEAN STATISTICIANS**

Joint Intersectoral Task Force on Environmental Indicators

THIRD NATIONAL REVIEW OF THE APPLICATION OF ENVIRONMENTAL INDICATORS

Submitted by Montenegro¹

I. EVALUATION OF FURTHER FIVE INDICATORS FROM THE *UNECE INDICATOR GUIDELINES*²

Please respond to the following questions on each of the five indicators by filling in Table A hereunder.

¹ Prepared by Natasa Vučković, Statistical Office of Montenegro (MONSTAT) and Milena Bataković, Environmental Protection Agency of Montenegro.

² These indicators were selected by the Joint Task Force, at its meeting held in Geneva on 3-4 May 2010, for the discussion at its next meeting to be held on 1-2 September 2010 in Geneva. The description of the indicators is available online at: www.unece.org/env/documents/2007/ece/ece.belgrade.conf.2007.inf.6.e.pdf.

Table A. EVALUATION OF FURTHER FIVE INDICATORS FROM THE *UNECE INDICATOR GUIDELINES*

Indicator	A. Effective inter-agency cooperation mechanisms to produce the indicator	B. Data quality assurance and control procedures for the production of the indicator	C. Publication of the indicator in statistical compendiums and state-of-the-environment reports
Reuse and recycling of freshwater	<p>Statistical Office of Montenegro (MONSTAT) collects statistics on Reuse and recycling of freshwater , but, as it is seen from the table, it is not adjusted to the needs of this indicator. Management of water resources in Montenegro is within the jurisdiction of the Ministry of Agriculture, Forestry and Directorate For Water Management. Database is not defined by these institutions. After development of National list of indicators, the jurisdiction will be clearly defined for all institutions for the establishment and dissemination of data necessary to calculate this indicator.</p>	<p>Statistical Office of Montenegro (MONSTAT) guarantees for the data published in the Statistical Yearbook as well as those submitted to other institutions. (www.monstat.org) Data quality analysis that MONSTAT collected from the statistical point of view have been done through logical and computational control. Adequate methodology for monitoring the quality of data will be established by making a national list of indicators.</p>	<p>Montenegro have not yet made and issued publications on the state of the environment based on indicators. After making a list of national indicators, regular publication of annually reports will be established based on indicators.</p>

Indicator	A. Effective inter-agency cooperation mechanisms to produce the indicator	B. Data quality assurance and control procedures for the production of the indicator	C. Publication of the indicator in statistical compendiums and state-of-the-environment reports
Polluted (non-treated) wastewaters	<p>Statistical Office of Montenegro (MONSTAT) collects statistics on Polluted (non-treated) wastewaters, but, as it is seen from the table, it is not adjusted to the needs of this indicator.</p>	<p>Statistical Office of Montenegro (MONSTAT) guarantees for the data published in the Statistical Yearbook as well as those submitted to other institutions. (www.monstat.org) Data quality analysis that MONSTAT collected from the statistical point of view have been done through logical and computational control. Adequate methodology for monitoring the quality of data will be established by making a national list of indicators.</p>	
Forest and other wooded land	<p>The Ministry of Agriculture, Forestry and Directorate For Water Management collects statistics regarding forests, but, as it is seen from the table, it is done periodically every 3 years. After development of National list of indicators, data will be collected for every year.</p>		

Indicator	A. Effective inter-agency cooperation mechanisms to produce the indicator	B. Data quality assurance and control procedures for the production of the indicator	C. Publication of the indicator in statistical compendiums and state-of-the-environment reports
Energy intensity	Statistical Office of Montenegro (MONSTAT) doesn't collect statistics for this indicator.		
Composition of road motor vehicle fleet by fuel type	Statistical Office of Montenegro (MONSTAT) collects statistics on indicators for transport but as it is seen from the table, it is not adjusted to the needs of this indicator. After development of National list of indicators, the jurisdiction will be clearly defined for all institutions for the establishment and dissemination of data necessary to calculate this indicator.		

Notes:

Question A. Effective inter-agency cooperation mechanisms to produce the indicator

Please describe cooperation arrangements, if any, which have been established in your country to collect the necessary data for the indicator. These may involve statistical agencies, ministries of water management, agriculture, transport, interior, environment, economic development and energy, hydro-meteorological services and agencies on geology, as appropriate. The description should cover problems met, solutions found and possible further steps envisaged or needed.

Question B. Data quality assurance and control procedures for the production of the indicator

Please describe data quality assurance and control procedures for the production of the indicator. The description should cover problems met, solutions found and possible further steps envisaged or needed. References should be made to any international methodologies and guidelines that are followed to ensure data quality and control.

Question C. Publication of the indicator in statistical compendiums and state-of-the-environment reports

Please present the evidence of the indicator publication in statistical compendiums and state-of-the-environment reports (titles, names of the publishing houses, cities and years of the publications, languages, number of copies published, Internet addresses, and whether time-series data was published on the indicator.

II. TIME SERIES DATA ON THE INDICATORS FOR 2003-2009

Please fill in the tables below with the data on each of the five indicators.

Table1. Reuse and recycling of freshwater: Montenegro

Line	Category	Unit	2003	2004	2005	2006	2007	2008	2009
1	Freshwater use, total (including 2)	mio m ³ /y	3243	4681	4099	3468	2504	2890	
2	Reused or recycled water, total	mio m ³ /y	5.7	9.2	7.1	7.8	5.2	5.6	
3	Share of reused or recycled water in the total volume of water used (2/1x100)	%	0.17	0.2	0.17	0.2	0.2	0.19	
	<i>Share of reused or recycled water in the total volume of water used by:</i>								
4	Households	%							
5	Agriculture, forestry and fishing (ISIC 01-03)	%							
6	<i>of which</i> for irrigation in agriculture	%							
7	Manufacturing (ISIC 10-33)	%							
8	Electricity industry (ISIC 351)	%							
9	Other economic activities	%							

Table 2. Polluted (non-treated) wastewaters: Montenegro

Line	Category	Unit	2003	2004	2005	2006	2007	2008	2009
1	Wastewater, total volume	mio m ³ /y	44.029	30.841	64.535	29.475	36.884	74.181	
2	Non-treated wastewater, total volume discharged into water bodies	mio m ³ /y	35.189	29.302	**52.916	27.982	35.801	**58.864	
3	Share of non-treated wastewater in the total volume of wastewater generated (2/1x100)	%	79.92	95.00	**81.99	94.93	97.06	**79.95	
	<i>Share of non-treated wastewater in the total volume of wastewater generated by:</i>								
4	Households	%							
5	Agriculture, forestry and fishing (ISIC 01-03)	%							
6	Manufacturing (ISIC 10-33)	%							
7	Electricity industry (ISIC 351)	%							
8	Other economic activities	%							

Note: Wastewater treatment is the process of removing contaminants or organic material from wastewater and household sewage (including water from swimming pools etc.) by means of physical, chemical and biological processes like dilution, screening, filtering, sedimentation etc.

. Note:

- Data for 2009 is not published yet.
- In line 2, reused (recycled) of water in Montenegro is a case only for manufacturing purposes, mining and quarrying.
- In 2005 and 2008 years are included amount of water consumed in the localities.

Table 3. Forest and other wooded land: Montenegro

Line	Category	Unit	2000	2005	2009
1	Forest	km ² or 1'000 ha		467	
1a	of which protected	%		10,893	
2	Other wooded land	km ² or 1'000 ha		277	
2a	of which protected	%		14,44	
3	Total forest and other wooded land (1+2)	km ² or 1'000 ha		744	
4	Share of forest and other wooded land in total land area	%		53.87	
5	Growing stock composition of forest			72600	
5a	o Coniferous	1000 m ³		31600	
5b	o Broadleaved	1000 m ³		41000	
5c	o Growing stock of the 10 most common species				
	1 st <i>Scientific and common name</i>	1000 m ³		Na	
	2 nd <i>Scientific and common name</i>	1000 m ³		Na	
	3 rd <i>Scientific and common name</i>	1000 m ³		Na	
	...			Na	
	10 th <i>Scientific and common name</i>	1000 m ³		Na	
	Remaining	1000 m ³		Na	
6	Protective forests	km ² or 1'000 ha		90,870	
7	Share of protective forests in total forest and other land (% of 3)	%		12,214	
8	Share of forest and other wooded land under a management plan or equivalent (% of 3)	%			
9	Area of regeneration	km ² or 1'000 ha		0,51	
10	<i>Naturalness of forest and other wooded land</i>				
10a	o Undisturbed by humans	km ² or 1'000 ha		Na	

Line	Category	Unit	2000	2005	2009
10b	○ Semi-natural	km ² or 1'000 ha		0,14	
10c	○ Plantation	km ² or 1'000 ha		0	

Note: For separate categories, please see:

SOEF 2011 - NATIONAL DATA REPORTING FORMS ON PAN-EUROPEAN INDICATORS FOR SUSTAINABLE FOREST MANAGEMENT, United Nations, Geneva, 2010

http://timber.unece.org/fileadmin/DAM/publications/Enquiry_Quantitative_indicators_2011_final.doc

FRA 2010 - GLOBAL FOREST RESOURCES ASSESSMENT 2010, SPECIFICATION OF NATIONAL REPORTING TABLES FOR FRA 2010, Working paper 135, Rome 2007

<http://www.fao.org/forestry/51315/en/>

Information about national correspondents to FAO Forest Resources Assessment can be found on: <http://www.fao.org/forestry/42756/en/>

DEFINITIONS

Forest

Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

1. Explanatory notes

- *Forest is determined both by the presence of trees and the absence of other predominant land uses. The trees should be able to reach a minimum height of 5 meters in situ.*
- *Includes areas with young trees that have not yet reached but which are expected to reach a canopy cover of 10 percent and tree height of 5 meters. It also includes areas that are temporarily unstocked due to clearcutting as part of a forest management practice or natural disasters, and which are expected to be regenerated within 5 years. Local conditions may, in exceptional cases, justify that a longer time frame is used.*
- *Includes forest roads, firebreaks and other small open areas; forest in national parks, nature reserves and other protected areas such as those of specific environmental, scientific, historical, cultural or spiritual interest.*
- *Includes windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 hectares and width of more than 20 meters.*

- *Includes abandoned shifting cultivation land with a regeneration of trees that have, or is expected to reach, a canopy cover of 10 percent and tree height of 5 meters.*
- *Includes areas with mangroves in tidal zones, regardless whether this area is classified as land area or not.*
- *Includes rubber-wood, cork oak and Christmas tree plantations.*
- *Includes areas with bamboo and palms provided that land use, height and canopy cover criteria are met.*
- *Excludes tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations and agroforestry systems when crops are grown under tree cover. Note: Some agroforestry systems such as the “Taungya” system where crops are grown only during the first years of the forest rotation should be classified as forest.*

Source: FRA2010

Other wooded land

Land not classified as “Forest”, spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds in situ; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.

Explanatory notes

The definition above has two options:

- *The canopy cover of trees is between 5 and 10 percent; trees should be higher than 5 meters or able to reach 5 meters in situ.*
- or*
- *The canopy cover of trees is less than 5 percent but the combined cover of shrubs, bushes and trees is more than 10 percent. Includes areas of shrubs and bushes where no trees are present.*

Includes areas with trees that will not reach a height of 5 meters in situ and with a canopy cover of 10 percent or more, e.g. some alpine tree vegetation types, arid zone mangroves, etc.

Includes areas with bamboo and palms provided that land use, height and canopy cover criteria are met.

Source: FRA2010

Protected forest or other wooded land

Forest or other wooded land area within formally established protected areas independently of the purpose for which the protected areas were established.

Explanatory notes

- *Includes IUCN Categories I – IV*
- *Excludes IUCN Categories V-VI*

Source: FRA2010

Growing stock composition of forest

Growing stock

Volume over bark of all living trees more than X cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level or stump height up to a top diameter of Y cm, and may also include branches to a minimum diameter of W cm.

Explanatory notes

- *Countries must indicate the three thresholds (X, Y, W in cm) and the parts of the tree that are not included in the volume. They must also indicate whether the reported figures refer to volume above ground or above stump. These specifications should be applied consistently through the time series.*
- *Includes windfallen living trees.*
- *Excludes smaller branches, twigs, foliage, flowers, seeds, and roots.*

Source: FRA2010

Broadleaved

All trees classified botanically as *Angiospermae*. They are sometimes referred to as “non-coniferous” or “hardwoods”

Source: SoEF2011

Coniferous

All trees classified botanically as *Gymnospermae*. They are sometimes referred to as “softwoods”

Source: SoEF2011

Forest composition

In this table, countries are requested to report the Growing stock of the ten most common species plus remaining species. Note that the figures in this table only apply to land classified as Forest.

Source: FRA2010

Protective functions

The function of forest/other wooded land in providing protection of soil against erosion by water or wind, prevention of desertification, the reduction of risk of avalanches and rock or mud slides; and in conserving, protecting and regulating the quantity and quality of water supply, including the prevention of flooding.

Includes: Protection against air and noise pollution.

Source: TBFRA2000

Regeneration (Reforestation)

Re-establishment of forest through planting and/or deliberate seeding on land classified as forest.

Explanatory notes

- *Implies no change of land use.*
- *Includes planting/seeding of temporarily unstocked forest areas as well as planting/seeding of areas with forest cover.*
- *Includes coppice from trees that were originally planted or seeded.*
- *Excludes natural regeneration of forest.*

Source: FRA2010

Naturalness of forest and other wooded land

Naturalness is specified in the following classes:

Undisturbed by man (forest/other wooded land)

Forest/other wooded land which shows natural forest dynamics, such as natural tree composition, occurrence of deadwood, natural age structure and natural regeneration processes, the area of which is large enough to maintain its natural characteristics and where there has been no known significant human intervention or where the last significant human intervention was long enough ago to have allowed the natural species composition and processes to have become re-established.

Semi-natural forest/other wooded land

Forest/other wooded land which is neither “forest/other wooded land undisturbed by man” nor “plantation” as defined separately.

Plantation

Forest stands established by planting or/and seeding in the process of afforestation or reforestation. They are either:

of introduced species (all planted stands), or

intensively managed stands of indigenous species which meet all the following criteria: one or two species at plantation, even age class, regular spacing.

Excludes: Stands which were established as plantations but which have been without intensive management for a significant period of time. These should be considered semi-natural.

Source: SoEF2011

Note:

* The data in this table refer to the quantity of waste water from industry (running waters excluded as for HE power stations, etc).

** In 2005 and 2008 years are included waste water quantities from localities (In this date atmospheric waters not included).

Table 4. Energy intensity: Montenegro

Line	Category	Unit	2003	2004	2005	2006	2007	2008	2009
	<i>Inland consumption of energy by category:</i>								
1	solid fuels	1000 tonnes of oil equivalent (ktoe)							
2	oil	ktoe							
3	gas	ktoe							
4d	nuclear	ktoe							
5e	renewables	ktoe							
6	<i>Gross Inland consumption (1+2+3+4+5)</i>	ktoe							
	<i>Gross domestic product (GDP):</i>								
7	at 2000 market prices in the national currency	mIn-national currency	1510.1	1669.8	1815	2148.9	2807.9	3085.6	1510.1
8	at 2000 market prices in USD	mIn USD							
9	in USD in PPP	mIn USD							
	<i>Energy intensity</i>								
10	at 2000 market prices in the national currency (6/7)	ktoe/1'000 units of national currency							
11	at 2000 market prices in USD (6/8)	ktoe/1'000 USD							
12	in USD in PPP (6/9)	ktoe/1'000 USD							

Note: For individual categories see, for instance, *Energy Statistics Manual*, OECD/IEA/Eurostat, 2007 (http://www.iea.org/textbase/nppdf/free/2005/statistics_manual.pdf)

Table 5. Composition of road motor vehicle fleet by fuel type: Montenegro

Line	Category	Unit	2003	2004	2005	2006	2007	2008	2009
	Passenger cars								
1	Total (1a(i)+1b(i)+1c(i)+1d(i)+1e(i)+1f(i))	Million vehicle kilometres							
1a	Petrol								
1a(i)	Number	Million vehicle kilometres							
1a(ii)	Share of 1	%							
1b	Diesel								
1b(i)	Number	Million vehicle kilometres							
1b(ii)	Share of 1	%							
1c	Gas								
1c(i)	Number	Million vehicle kilometres							
1c(ii)	Share of 1	%							
1d	Electricity								
d(i)	Number	Million vehicle kilometres							
1d(ii)	Share of 1	%							
1e	Biofuel								
1e(i)	Number	Million vehicle kilometres							
1e(ii)	Share of 1	%							
1f	Other fuel								
1f(i)	Number	Million vehicle kilometres							
1f(ii)	Share of 1	%							
	Buses and motor coaches		220	215	210	336	321	356	
2	Total (2a(i)+2b(i)+2c(i)+2d(i)+2e(i)+2f(i))	Million vehicle kilometres							
2a	Petrol								

Line	Category	Unit	2003	2004	2005	2006	2007	2008	2009
2a(i)	Number	Million vehicle kilometres							
2a(ii)	Share of 2	%							
2b	Diesel								
2b(i)	Number	Million vehicle kilometres							
2b(ii)	Share of 2	%							
2c	Gas								
2c(i)	Number	Million vehicle kilometres							
2c(ii)	Share of 2	%							
2d	Electricity								
2d(i)	Number	Million vehicle kilometres							
2d(ii)	Share of 2	%							
2e	Biofuel								
e(i)	Number	Million vehicle kilometres							
2e(ii)	Share of 2	%							
2f	Other fuel								
2f(i)	Number	Million vehicle kilometres							
2f(ii)	Share of 2	%							
	Trolleybuses								
3	Total	Million vehicle kilometres							
	Motorcycles and mopeds								
4	Total	Million vehicle kilometres							
	Goods vehicles		224	203	196	251	238	230	
5	Total (5a(i)+5b(i)+5c(i)+5d(i)+5e(i)+5f(i))	Million vehicle kilometres							
5a	Petrol								

Line	Category	Unit	2003	2004	2005	2006	2007	2008	2009
5a(i)	Number	Million vehicle kilometres							
5a(ii)	Share of 5	%							
5b	Diesel								
5b(i)	Number	Million vehicle kilometres							
5b(ii)	Share of 5	%							
5c	Gas								
5c(i)	Number	Million vehicle kilometres							
5c(ii)	Share of 5	%							
5d	Electricity								
5d(i)	Number	Million vehicle kilometres							
5d(ii)	Share of 5	%							
5e	Biofuel								
5e(i)	Number	Million vehicle kilometres							
5e(ii)	Share of 5	%							
5f	Other fuel								
5f(i)	Number	Million vehicle kilometres							
5f(ii)	Share of 5	%							
	Other motorised vehicles								
6	Total (6a(i)+6b(i)+6c(i)+6d(i)+6e(i)+6f(i))	Million vehicle kilometres							
6a	Petrol								
6a(i)	Number	Million vehicle kilometres							
6a(ii)	Share of 6	%							
6b	Diesel								

Line	Category	Unit	2003	2004	2005	2006	2007	2008	2009
6b(i)	Number	Million vehicle kilometres							
(ii)	Share of 6	%							
6c	Gas								
6c(i)	Number	Million vehicle kilometres							
6c(ii)	Share of 6	%							
6d	Electricity								
6d(i)	Number	Million vehicle kilometres							
6d(ii)	Share of 6	%							
6e	Biofuel								
6e(i)	Number	Million vehicle kilometres							
6e(ii)	Share of 6	%							
6f	Other fuel								
6f(i)	Number	Million vehicle kilometres							
6f(ii)	Share of 6	%							
	Bicycles								
7	Total	Million vehicle kilometres							