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**NATIONAL REVIEW OF THE APPLICATION OF ENVIRONMENTAL INDICATORS**

Submitted by Bosnia and Herzegovina  
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EVALUATION OF FURTHER SIX 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
<b>BOD and concentration of ammonium in rivers</b>	Data source: European Environment Agency; Waterbase v.8; Agency for Statistics of BiH	Policy content: Framework Law on the Environment Protection Rs 53/02 art.22; F BiH 33/03 art.22.	EEA Waterbase Rivers: <a href="http://dataservice.eea.europa.eu/">http://dataservice.eea.europa.eu/</a>
<b>Nutrients in fresh water</b>	Data source: European Environment Agency; Waterbase v.8; Agency for Statistics of BiH	Policy content: Framework Law on the Environment Protection Rs 53/02 art.22; F BiH 33/03 art.22.	EEA Waterbase Rivers Lakes: <a href="http://dataservice.eea.europa.eu/">http://dataservice.eea.europa.eu/</a>
<b>Nutrients in coastal seawaters</b>	....	Bosnia and Herzegovina has a very modest coastline, covering a minor area when compared to the region. Therefore, the amount of information available about Bosnia and Herzegovina is relatively small: there are only three stations that monitor nitrate concentration but not phosphate.	....
<b>Area affected by soil erosion</b>	In BiH still do not have a system of monitoring soil erosion (although according to estimates more than 80% of BiH territory on slopes above 13% and erosion is certainly present, especially water erosion).	Missing official data/indicators: Reclamation of soil, Land affected by desertification, Land use change, Sensitivity of soil, Soil acidity, Gross soil nutrient balance, Balance of Nitrogen (e.g. kg of nitrogen per hectare of land) -	BiH plan through FAO to make application for a GEF project, whose acronym LADA, and it will respond to the numerous problems related to missing data on land in BiH and for the future monitoring system.
<b>Pesticide use</b>	Data source: Agency for Statistics of BiH (available sales data on the priority pesticides were submitted); European Soil Bureau "Land and Water condition in BiH"; GFA "Inventory of Agriculture Pesticide Use in the Danube River Basin Countries"	In the statistical pilot survey "Farm Structure Survey" carried out in 2009, first started idea to involve questions about agro-environmental indicators. However, questions about this topic are completely lacking in the final results. The current questionnaire is extensive, it means that it will be better that for future sample survey is a better strategy to collect relevant data on agro-environmental indicators.	<a href="http://www.bhas.ba">www.bhas.ba</a> <a href="http://eusols.jrc.ec.europa.eu/">http://eusols.jrc.ec.europa.eu/</a> <a href="http://www.undp-drp.org/pdf/Agriculture%20-%20Phase%201/Pesticides%20Inventory/Inventory%20of%20Agr%20PesticideUse_Annex_1-6_fin.pdf">http://www.undp-drp.org/pdf/Agriculture%20-%20Phase%201/Pesticides%20Inventory/Inventory%20of%20Agr%20PesticideUse_Annex_1-6_fin.pdf</a>
<b>Consumption of ozone-depleting substances</b>	Data source: Data between 1995 and 2007: national Ozone Unit, the Ministry of Foreign Trade and Economic Relations; data for 2008: UNEP Ozone Secretariat	....	<a href="http://ozone.unep.org/Data Reporting/">http://ozone.unep.org/Data Reporting/</a>

Question A.	
<p>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.</p>	
Question B.	
<p>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.</p>	
Question C.	
<p>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.</p>	
<p>The description of the indicators is available online at: <a href="http://www.unepce.org/env/documents/2007/ece/ece.belgrade.conf.2007.inf.6.e.pdf">www.unepce.org/env/documents/2007/ece/ece.belgrade.conf.2007.inf.6.e.pdf</a>.</p>	

**Time series data on the indicators for 1990-2010, Table 1. Biochemical oxygen demand (BOD<sub>5</sub>) and concentration of ammonium in rivers: *Bosnia and Herzegovina***

Name of river	Sava													
Distance to mouth or downstream frontier (km)	River name: Sava; Catchment Name: Sava; River Basin District: Savariver; Sea Region Name: Black Sea; length of river: 945km													
	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Sampling frequency - average	Per sampling period			12	12	12	12	12	12	12				
BOD <sub>5</sub>	Mg of O <sub>2</sub> /liter			3.583	2.75665	1.85	3.525	2.054165	1.25	1.658335				
Ammonium	µg of N/liter			0.0935	0.04885	0.07465	0.18315	0.085	0.0875	0.1733335				

Average values of concentrations for sampling period should be filled in. Please specify if the sampling period concerns the whole year or the seasonal period.

Countries are asked to report on at least three large rivers in order to have a balanced representation of water quality. Data for more rivers can be filled if the country decides to do so. Data should represent the main rivers draining the large watersheds. Please fill in one sheet for each selected river. For each river, at least three sampling points should be filled in: One for the first sampling point downstream the well or downstream or the frontier (if the river enters the country from neighboring country), the second for the first sampling point upstream the mouth or upstream the e frontier where the river leaves the territory of the country and the third sampling point in between. Data for more sampling points can be filled if the country decides to do so.

If available, the map showing the location of sampling points should be added.

Analytical method for determining of BOD5 should be compliant with ISO 5815-1: 2003 and ISO 5815-2:2003; if different method is used, specify, please. Analytical method for determining ammonia ion should be compliant with ISO 7150: 1984 and ISO 6778: 1984; if different method is used, specify, please.

Glossary:

BOD<sub>5</sub>: Biochemical oxygen demand – amount of dissolved oxygen required by organisms for the aerobic decomposition of organic matter present in water. This is measured at 20 degree Celsius for the period of five days.

Ammonium: Ion NH<sub>4</sub><sup>+</sup>.

**Time series data on the indicators for 1990-2010, Table 1. Biochemical oxygen demand (BOD<sub>5</sub>) and concentration of ammonium in rivers: *Bosnia and Herzegovina***

Name of river	Neretva													
Distance to mouth or downstream frontier (km)	River name: Neretva; Catchment Name: Neretva; River Basin District: Adriatic Sea; Sea Region Name: Mediterranean Sea; length of river: 225 km													
	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Sampling frequency - average	Per sampling period			12	12	12	12	12	12	12				
BOD <sub>5</sub>	Mg of O <sub>2</sub> /liter			1.173	1.494	1.7	1.46143	1.73167	1.4925	1.57				
Ammonium	µg of N/liter					0.005	0.00714286	0.005						

Average values of concentrations for sampling period should be filled in. Please specify if the sampling period concerns the whole year or the seasonal period.

Countries are asked to report on at least three large rivers in order to have a balanced representation of water quality. Data for more rivers can be filled if the country decides to do so. Data should represent the main rivers draining the large watersheds. Please fill in one sheet for each selected river. For each river, at least three sampling points should be filled in: One for the first sampling point downstream the well or downstream or the frontier (if the river enters the country from neighboring country), the second for the first sampling point upstream the mouth or upstream the e frontier where the river leaves the territory of the country and the third sampling point in between. Data for more sampling points can be filled if the country decides to do so.

If available, the map showing the location of sampling points should be added.

Analytical method for determining of BOD<sub>5</sub> should be compliant with ISO 5815-1: 2003 and ISO 5815-2:2003; if different method is used, specify, please. Analytical method for determining ammonia ion should be compliant with ISO 7150: 1984 and ISO 6778: 1984; if different method is used, specify, please.

**Glossary:**

BOD<sub>5</sub>: Biochemical oxygen demand – amount of dissolved oxygen required by organisms for the aerobic decomposition of organic matter present in water. This is measured at 20 degree Celsius for the period of five days.

Ammonium: Ion NH<sub>4</sub><sup>+</sup>.

**Time series data on the indicators for 1990-2010, Table 1. Biochemical oxygen demand (BOD<sub>5</sub>) and concentration of ammonium in rivers: *Bosnia and Herzegovina***

Name of river	Drina													
Distance to mouth or downstream frontier (km)	River name: Drina; Catchment Name: Sava/Danube; length of river: 346 km													
	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Sampling frequency - average	Per sampling period			12	12	12	12	12	12	12				
BOD <sub>5</sub>	Mg of O <sub>2</sub> /liter			2.1335	1.87335	0.975	1.7	1.5166665	1.0375	1.804165				
Ammonium	µg of N/liter			0.049	0.01335	0.05625	0.0219	0.045	0.01125	0.06833335				

Average values of concentrations for sampling period should be filled in. Please specify if the sampling period concerns the whole year or the seasonal period.

Countries are asked to report on at least three large rivers in order to have a balanced representation of water quality. Data for more rivers can be filled if the country decides to do so. Data should represent the main rivers draining the large watersheds. Please fill in one sheet for each selected river. For each river, at least three sampling points should be filled in: One for the first sampling point downstream the well or downstream or the frontier (if the river enters the country from neighboring country), the second for the first sampling point upstream the mouth or upstream the e frontier where the river leaves the territory of the country and the third sampling point in between. Data for more sampling points can be filled if the country decides to do so.

If available, the map showing the location of sampling points should be added.

Analytical method for determining of BOD<sub>5</sub> should be compliant with ISO 5815-1: 2003 and ISO 5815-2:2003; if different method is used, specify, please. Analytical method for determining ammonia ion should be compliant with ISO 7150: 1984 and ISO 6778: 1984; if different method is used, specify, please.

**Glossary:**

BOD<sub>5</sub>: Biochemical oxygen demand – amount of dissolved oxygen required by organisms for the aerobic decomposition of organic matter present in water. This is measured at 20 degree Celsius for the period of five days.

Ammonium: Ion NH<sub>4</sub><sup>+</sup>

**Time series data on the indicators for 1990-2010, Table 2a. Nutrients in freshwater - rivers: (Bosnia and Herzegovina)**

Name of river	Sava													
Distance to mouth or downstream frontier (km)	River name:Sava; CatchmentName:Sava; RiverBasinDistrict:Savariver; SeaRegionName:Black sea;													
	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Sampling frequency - average	Per sampling period			12	12	12	12	12	12	12				
Phosphates as P	µg/liter				0.0765	0.07325	0.09725	0.1095	0.0755	0.072125				
Nitrates (NO3)	µg/liter			0.7685	0.535	0.48	0.45	1.145	1.175	1.087085				

**Note:**  
Average values of concentrations for sampling period should be filled in. Please specify if the sampling period concerns the whole year or the seasonal period.  
Countries are asked to report on at least three large rivers in order to have a balanced representation of water quality. Data for more rivers can be filled if the country decides to do so. Data should represent the main rivers draining the large watersheds. Please fill in one sheet for each selected river. For each river, at least three sampling points should be filled in: One for the first sampling point downstream the well or downstream or the frontier (if the river enters the country from neighboring country), the second for the first sampling point upstream the mouth or upstream the e frontier where the river leaves the territory of the country and the third sampling point in between. Data for more sampling points can be filled if the country decides to do so.  
If available, the map showing the location of sampling points should be added.  
Methods of measurement should be specified. It is recommended that analytical method for determining nitrates is compliant with ISO 7890-3: 1988 and analytical method for determining phosphates is compliant with ISO 6878: 2004.

**Glossary:**  
Total phosphorus: Sum of phosphorus compounds measured in terms of phosphorus.

**Time series data on the indicators for 1990-2010, Table 2b. Nutrients in fresh water - lakes: Bosnia and Herzegovina**

Name of lake	Drenova													
Name of measuring station	BA_LK_D; River Basin District: Sava River													
Surface area (km <sup>2</sup> )	1.32													
Maximum depth (m)	5													
Mean depth (m)														
	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Sampling frequency - average	Per sampling period						12	12	12	12				
Total phosphorus as P	µg/liter						0.0697	0.030415						
Nitrates (NO3)	µg/liter						0.085	0.066295	0.41375	0.553854165				

**Note:**  
 Average values of concentrations for sampling period should be filled in. Please specify if the sampling period concerns the whole year or the seasonal period.  
 Countries are asked to report on at least two large lakes in order to have a balanced representation of water quality. Data for more lakes can be filled if the country decides to do so. Please fill in one sheet for each selected lake. For each lake, data from at least one sampling point should be filled in. Data for more sampling points can be filled if the country decides to do so.  
 Methods of measurement should be specified. It is recommended that analytical method for determining nitrates is compliant with ISO 7890-3: 1988 and analytical method for determining phosphates is compliant with ISO 6878: 2004.  
 If available, the map showing the location of sampling points should be added.

**Glossary:**  
 Total phosphorus: Sum of phosphorus compounds measured in terms of phosphorus.

**Time series data on the indicators for 1990-2010, Table 2c. Nutrients in fresh water - groundwater: (country name)**

Name of water object														
Type of measuring station (shallow well, deep well, spring)														
	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Sampling frequency - average	Per sampling period													
Nitrates (NO3)	µg/liter													

**Note:**  
 Note:  
 Average values of concentrations for sampling period should be filled in. Please specify if the sampling period concerns the whole year or the seasonal period.  
 Countries are asked to report on at least two aquifers in order to have a balanced representation of ground water quality. Data for more aquifers can be filled if the country decides to do so. Please fill in one sheet for each selected aquifer. For each aquifer, data from at least one measuring station should be filled in. Data for more measuring stations can be filled if the country decides to do so.  
 If available, the map showing the location of measuring stations should be added.  
 Type of measuring station should be presented in compliance with national legislation (including explanation)  
 Analytical method for determining nitrates should be compliant with ISO 7890-3: 1988; if different method is used, please specify.





Total phosphorus as P	µg/liter													
Nitrates (NO3)	µg/liter									0.135				

Note:  
Average values of concentrations for sampling period should be filled in. Please specify if the sampling period concerns the whole year or the seasonal period.  
Countries are asked to report on at least two large lakes in order to have a balanced representation of water quality. Data for more lakes can be filled if the country decides to do so. Please fill in one sheet for each selected lake. For each lake, data from at least one sampling point should be filled in. Data for more sampling points can be filled if the country decides to do so.  
Methods of measurement should be specified. It is recommended that analytical method for determining nitrates is compliant with ISO 7890-3: 1988 and analytical method for determining phosphates is compliant with ISO 6878: 2004.  
If available, the map showing the location of sampling points should be added.

Glossary:  
Total phosphorus: Sum of phosphorus compounds measured in terms of phosphorus.

**Time series data on the indicators for 1990-2010, Table 2c. Nutrients in fresh water - groundwater: (country name)**

Name of water object														
Type of measuring station (shallow well, deep well, spring)														
	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Sampling frequency - average	Per sampling period													
Nitrates (NO3)	µg/liter													

Note:  
Note:  
Average values of concentrations for sampling period should be filled in. Please specify if the sampling period concerns the whole year or the seasonal period.  
Countries are asked to report on at least two aquifers in order to have a balanced representation of ground water quality. Data for more aquifers can be filled if the country decides to do so. Please fill in one sheet for each selected aquifer. For each aquifer, data from at least one measuring station should be filled in. Data for more measuring stations can be filled if the country decides to do so.  
If available, the map showing the location of measuring stations should be added.  
Type of measuring station should be presented in compliance with national legislation (including explanation)  
Analytical method for determining nitrates should be compliant with ISO 7890-3: 1988; if different method is used, please specify.

**Time series data on the indicators for 1990-2010, Table 2a. Nutrients in freshwater - rivers: Bosnia and Herzegovina**

Name of river	Drina													
Distance to mouth or downstream frontier (km)	River name: Drina; Catchment Name: Sava/Danube													
	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Sampling frequency - average	Per sampling period			12	12	12	12	12	12	12				
Phosphates as P	µg/liter				0.006	0.0029	0.0035	0.005	0.0070625	0.007583335				
Nitrates (NO3)	µg/liter			0.29	0.215	0.1375	0.2825	0.255	0.34	0.32375				

**Note:**  
 Average values of concentrations for sampling period should be filled in. Please specify if the sampling period concerns the whole year or the seasonal period.  
 Countries are asked to report on at least three large rivers in order to have a balanced representation of water quality. Data for more rivers can be filled if the country decides to do so. Data should represent the main rivers draining the large watersheds. Please fill in one sheet for each selected river. For each river, at least three sampling points should be filled in: One for the first sampling point downstream the well or downstream or the frontier (if the river enters the country from neighboring country), the second for the first sampling point upstream the mouth or upstream the e frontier where the river leaves the territory of the country and the third sampling point in between. Data for more sampling points can be filled if the country decides to do so.  
 If available, the map showing the location of sampling points should be added.  
 Methods of measurement should be specified. It is recommended that analytical method for determining nitrates is compliant with ISO 7890-3: 1988 and analytical method for determining phosphates is compliant with ISO 6878: 2004.

**Glossary:**  
 Total phosphorus: Sum of phosphorus compounds measured in terms of phosphorus.

**Time series data on the indicators for 1990-2010, Table 2b. Nutrients in fresh water - lakes: (country name)**

Name of lake														
Name of measuring station														
Surface area (km <sup>2</sup> )														
Maximum depth (m)														
Mean depth (m)														
	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010

Sampling frequency - average	Per sampling period													
Total phosphorus as P	µg/liter													
Nitrates (NO3)	µg/liter													

**Note:**  
Average values of concentrations for sampling period should be filled in. Please specify if the sampling period concerns the whole year or the seasonal period.  
Countries are asked to report on at least two large lakes in order to have a balanced representation of water quality. Data for more lakes can be filled if the country decides to do so. Please fill in one sheet for each selected lake. For each lake, data from at least one sampling point should be filled in. Data for more sampling points can be filled if the country decides to do so.  
Methods of measurement should be specified. It is recommended that analytical method for determining nitrates is compliant with ISO 7890-3: 1988 and analytical method for determining phosphates is compliant with ISO 6878: 2004.  
If available, the map showing the location of sampling points should be added.

**Glossary:**  
Total phosphorus: Sum of phosphorus compounds measured in terms of phosphorus.

**Time series data on the indicators for 1990-2010, Table 2c. Nutrients in fresh water - groundwater: (country name)**

Name of water object														
Type of measuring station (shallow well, deep well, spring)														
	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Sampling frequency - average	Per sampling period													
Nitrates (NO3)	µg/liter													

**Note:**  
**Note:**  
Average values of concentrations for sampling period should be filled in. Please specify if the sampling period concerns the whole year or the seasonal period.  
Countries are asked to report on at least two aquifers in order to have a balanced representation of ground water quality. Data for more aquifers can be filled if the country decides to do so. Please fill in one sheet for each selected aquifer. For each aquifer, data from at least one measuring station should be filled in. Data for more measuring stations can be filled if the country decides to do so.  
If available, the map showing the location of measuring stations should be added.  
Type of measuring station should be presented in compliance with national legislation (including explanation)  
Analytical method for determining nitrates should be compliant with ISO 7890-3: 1988; if different method is used, please specify.

**Time series data on the indicators for 1990-2010, Table 3. Nutrients in coastal seawaters: (country name)**

Name of coastal zone	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of selected sampling points (from which average concentrations are calculated)														
Sampling frequency – mean	Per year													
Number of analyses - average	Per year													
Total phosphorus as P – Summer	µg/liter													
Total nitrogen as N - Summer	µg/liter													
Total phosphorus as P – Autumn	µg/liter													
Total nitrogen as N - Autumn	µg/liter													
Total phosphorus as P – Winter	µg/liter													
Total nitrogen as N - Winter	µg/liter													
Total phosphorus as P – Spring	µg/liter													
Total nitrogen as N - Spring	µg/liter													

**Notes:**

Average values of concentrations from all selected sampling points for summer, winter, autumn and spring period should be filled in. In the case of high number of sampling points on the coastal zone, the countries should select at least five representative points for the calculation of average concentrations to have a balanced representation of water quality. Data for more sampling points can be used for the calculation of average concentrations if the country decides to do so. Please fill in one sheet for each coastal zone. If available, the map showing the location of sampling points should be added. Methods of measurement should be specified. It is recommended that analytical method for determining nitrates should be compliant with ISO 7890-3: 1988 and analytical method for determining phosphates should be compliant with ISO 6878: 2004. Preferably, reference methods as agreed upon in the Joint monitoring program established within the framework of the OSPAR Convention (<http://www.ospar.org>).

Time series data on the indicators for 1990-2010, Table 4. Area affected by erosion: (country name)

Areas affected by water erosion														
	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total agricultural land	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
No affect (tolerable)	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Light affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Moderate affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Strong affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Extreme affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Areas affected by wind erosion														
	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total agricultural land	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
No affect (tolerable)	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Light affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Moderate affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Strong affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Extreme affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total areas affected by erosion (water and wind)														
	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total agricultural land	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
No affect (tolerable)	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Light affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Moderate affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Strong affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Extreme affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total affect	Km <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Share in total agricultural land	%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

**Glossary:**

Erosion: Water and wind erosion is measured as net loss of soil (in tons per hectare per year).

Erosion – Classification (the same for both water and wind erosion):

No affect (tolerable):	Net loss lower than 6 tons/hectare/year
Light affect:	Net loss 6.0 – 10.9 tons/hectare/year
Moderate affect:	Net loss 11.0 – 21.9 tons/hectare/year
Strong affect:	Net loss 22.0 – 32.9 tons/hectare/year
Extreme affect:	Net loss higher than 33 tons/hectare/year

Note: If your country applies classification for the severity of erosion different from that presented above, provide the data according to the national classification and give the detailed explanation of the national system. If data for 1990 or other year is not available, fill in "n.a."

More information:

Assessment and Reporting on Soil Erosion, Technical Report 94/2003, European Environment Agency 2003, [http://www.eea.europa.eu/publications/technical\\_report\\_2003\\_94](http://www.eea.europa.eu/publications/technical_report_2003_94)

Time series data on the indicators for 1990-2010, Table 5. Pesticide use: *Bosnia and Herzegovina*

Substance	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Insecticides – consumption	ton	n.a.	n.a.	20.2	16.9	19.9	8.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Herbicides and desiccants – consumption	ton		n.a.	122.3	105.9	100.6	109.3	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Fungicides and bactericides – consumption	ton		n.a.	23.1	19.2	20.0	12.8	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Plant regulators – consumption	ton		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Rodenticides – consumption	ton		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Others (e.g. mineral oils) – consumption	ton		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Total consumption (all pesticides)	ton		n.a.	165.6	142.0	140.5	130.1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Total arable and permanent cropland	1000 hectare		n.a.	2557	2557	2557	2557	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Pesticide use per unit of land	Kg/hectare		n.a.	0.06	0.05	0.05	0.05	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	

**Note:**

Data should relate to pesticide consumption in agriculture, forestry and gardening. Otherwise, kindly indicate if data refer to sales, distribution or imports for use in particular sectors. If data for 1990 or other year is not available, fill in "n.a."

Data should be expressed in active ingredients (A.I.). Therefore, calculate the volume of A.I. contained in individual products and then include it in the relevant group in table 3. Alternatively, the data may be reported by: consumption in commercial products; sales; distribution or imports for use in the agricultural sector.

<b>Glossary:</b>	
Insecticide:	Pesticide used against insects
Herbicide:	Pesticide against unwanted plants (weed)
Desiccant:	Hygroscopic substance that induces or sustains a state of dryness
Fungicide:	Pesticide for the control of fungi and oomycetes
Bactericide:	Pesticide for the control of bacteria
Plant regulator:	Pesticide that retards the growth of plants
Rodenticide:	Pesticide for the control of rodents
<p>Active Ingredients: A pesticide product has two main components: the Active Ingredient(s) and the inert (other) ingredient(s). The active ingredient is the specific compound designed to adversely effect a pest. Pesticide active ingredients are generally not applied in their pure form, but are usually included in formulations with inert ingredients that improve their storage, handling, application, effectiveness, or safety. Content of active ingredient is obviously presented either in pesticide product documentation or on the pesticide product packaging.</p>	

<b>More information:</b>	
Comprehensive information on pesticides can be found at the FAO page <a href="http://www.fao.org/agriculture/crops/core-themes/theme/pests/en">http://www.fao.org/agriculture/crops/core-themes/theme/pests/en</a> .	
The detailed list of pesticides including chemical substances and example of trade names of commercial products can be found at <a href="http://www.fao.org/economic/ess/ess-agri/ess-resource-meth/en">http://www.fao.org/economic/ess/ess-agri/ess-resource-meth/en</a> (Questionnaires, Pesticides, 2010, Annex I)	

**Time series data on the indicators for 1990-2010, Table 6a. Consumption of ozone-depleting substances (calculated levels in tons of substances):**  
(country name)

Substance	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
CFCs	ton													
Halons														
Other fully halogenated CFCs														
Carbon tetrachloride														
Methyl chloroform														
HCFCs														
HBFCs														
Bromochloromethane														
Methyl bromide														

**Note:**  
Calculated levels of consumption mean production plus imports minus export of controlled substances. However, any export of controlled substances to non-Parties (to the Montreal Protocol) is not to be subtracted in calculating the consumption level of the exporting Party. If data for 1990 or other year is not available, fill in "n.a.". Consumption is not to be multiplied by ODP.

**Glossary:**  
 CFCs: Chlorofluorocarbons (CFC-11, CFC-12, CFC-113, CFC-114 and CFC-115)  
 Halons: halon 1211, halon 1301 and halon 2402  
 Other fully halogenated CFCs: CFC-13, CFC-111, CFC-112, CFC-211, CFC-212, CFC-213, CFC-214, CFC-215, CFC-216, CFC-217  
 HCFCs: Hydrochlorofluorocarbons  
 HBFCs: Hydrobromofluorocarbons  
 ODP: Ozone depleting potential



**Time series data on the indicators for 1990-2010, Table 6b. Consumption of ozone-depleting substances (calculated levels in tons of ODP): *Bosnia and Herzegovina***

Substance	Unit	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
CFCs	Ton of ODP		3	177.9	203.4	247.2	233.6	190.3	50.8	32.6	22.13	8.8			
Halons			4.1	0	0	0	4.1	4.1	0	0	0	0			
Other fully halogenated CFCs			0	0	0	0	0	0	0	0	0	0			
Carbon tetrachloride			0	0	0	0	0	0	0	0	0	0			
Methyl chloroform			0	0	0	0	0	0	0	0	0	0			
HCFCs			0	0.9	0.9	0.2	0.1	0.1	10.1	4	5.54	7.6			
HBFCs			0	0	0	0	0	0	0	0	0	0			
Bromochloromethane			0	0	0	0	0	0	0	0	0	0			
Methyl bromide			2.4	6.2	10	11.8	9.8	7.6	0.8	0	0	0			
<b>Total</b>				<b>9.5</b>	<b>185</b>	<b>214.3</b>	<b>259.2</b>	<b>247.6</b>	<b>202.1</b>	<b>61.7</b>	<b>36.6</b>	<b>27.67</b>	<b>16.4</b>		

Note: Values presented in Table 6a should be multiplied by appropriate values of ODP, as presented in the next sheet.

### ODP Values of the Most Important ODS

Note: Only the ODP values of the most important ODS are listed below. Other ODS are rarely used and thus of little significance for reporting and assessing compliance. For a complete list of ODP values of controlled substances refer to the Annexes of the Montreal Protocol.

Group of substances	Substance	ODP
Annex A, Group I	CFC-11	1.0
	CFC-12	1.0
	CFC-113	0.8
	CFC-114	1.0
	CFC-115	0.6
Annex A, Group II	Halon-1211	3.0
	Halon-1301	10.juin
	Halon-2402	06.juin
Annex B, Group I	CFC-13	1.0
	CFC-111	1.0
	CFC-112	1.0
	CFC- 211 – CFC-217	1.0
Annex B, Group II	Carbon tetrachloride	01.janv
Annex B, Group III	Methyl chloroform	0.1
Annex C, Group I	HCFC-21	0.04
	HCFC-22	0.055
	HCFC-31	0.02
	HCFC-123	0.02
	HCFC-124	0.022
	HCFC-133	0.06
	HCFC-141b	0.11
	HCFC-142b	0.065
	HCFC-225	0.07
	HCFC-225ca	0.025
	HCFC-225cb	0.033
Annex E, Group I	Methyl bromide	0.6

Source: 1997 Update of the Handbook for the International Treaties for the Protection of the Ozone Layer, Montreal Protocol, Annexes A, B, C and E

More information:
Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer, Eighth edition, UNEP 2009 (in English), <a href="http://ozone.unep.org/Publications">http://ozone.unep.org/Publications</a>
Handbook on Data Reporting under the Montreal Protocol, UNEP 1999 (in English and Russian); <a href="http://ozone.unep.org/Data_Reporting/Data_Reporting_Tools">http://ozone.unep.org/Data_Reporting/Data_Reporting_Tools</a> .