

# *THE REPUBLIC OF BELARUS*



## MINISTRY OF NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION OF THE REPUBLIC OF BELARUS

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Ministry of Natural Resources and Environmental Protection  
Republic of Belarus

### **Submission of information on the forest management reference level.**

Pursuant to the document FCCC/KP/AWG/2010/L.8/Add.2  
of the Ad Hoc Working Group on Further Commitments for Annex 1 Parties  
under the Kyoto Protocol

The Republic of Belarus provides updated information on the forest management reference level because recalculations were made in the course of preparing the 2008 National Greenhouse Gas Inventory Report of the Republic of Belarus, as well as for purposes of this submission. The recalculations were made for the entire 1990 - 2008 time period due to the application of national conversion coefficients in the assessment of carbon stocks in wood biomass, as well as due to the adjustment of data on the amounts of burned biomass in the assessment of carbon stock losses caused by forest fires. Assessments of CO<sub>2</sub> emissions from the drained land areas that are part of managed forests were also incorporated in the calculations of the forest management reference level.

### **1990 – 2009 data on forest management in the Republic of Belarus.**

An inventory of greenhouse gas emissions and absorptions covering the time period 1990 - 2009 has been carried out on the land areas that are part of the forest reserves of the Republic of Belarus. In compliance with the legislation of the Republic of Belarus, state supervision of forest condition,

use, conservation and protection is performed on the land areas that are part of forest reserves for the purposes of sustainable management and rational use of the forest. Data on forest management activities under Article 3.4 of the Kyoto Protocol by and large correlate with the data on managed forests submitted with the report on producing a greenhouse gas inventory of the Republic of Belarus within the framework of the United Nations Framework Convention on Climate Change (UNFCCC) in the category "Forest Land Remaining Forest Land."

Calculations of carbon stock changes in managed forests were carried out for the above-ground biomass and organic soils pools. The dead organic matter and mineral soils pools were not included in the calculations. In compliance with Level 1 Methodology of the Good Practice Guidance for Land Use, Land Use Change and Forestry (GPG - LULUCF), it was accepted that those pools remain stable as long as forest land remains forest land, and the net change equals zero.

To assess carbon stock changes in above-ground biomass on managed forest land areas over the years 1990 – 2009, the default method was applied in line with the Good Practice Guidance for the sector "Land Use, Land Use Change and Forestry" (GPG for LULUCF, 2003) that envisages the deduction of carbon losses caused by harvesting, as well as anthropogenic and natural disasters, from the biomass increment in the reporting period.

The assessment of carbon stock increase in above-ground biomass was performed with due regard of the main forest-forming species (coniferous, hardwood, softwood species) and age classes (young, middle-aged, ripening, ripe and overripe stock) using national conversion coefficients. The data on the area of forests, their composition in terms of species and age structure available in the documents of the State Forest Reserves (SFR) Inventory of the Republic of Belarus were used to make the calculations.

The assessment of carbon losses in above-ground biomass includes the calculation of carbon stock reduction in the biomass resulting from harvesting, forest fires and adverse weather conditions on the lands of the SFR.

To assess CO<sub>2</sub> emissions from drained organic soils, data on the area of drained forest land and the default emissions factor of 0.68 t C/ha/year for middle latitude forests were used (GPG for LULUCF, 2003).

Throughout the entire time period under consideration (1990 – 2009), the absorption of carbon by managed forests exceeded its losses, and forest management activities were characterized by a net carbon sink (see Table 1). In 1990, the sinks of greenhouse gases amounted to 30.0 Mg of CO<sub>2</sub> equivalent and in 2009 went up to 31.3 Mg of CO<sub>2</sub> equivalent - by 4.4% over the base year.

*Table 1: Dynamics of carbon stocks change in the managed forests of the Republic of Belarus in 1990 – 2009.*

Year	Above-ground biomass		Soils	Difference, in Gg C	Difference, in Gg of CO <sub>2</sub> equivalent
	Increase in carbon stocks, Gg C	Decrease in carbon stocks, Gg C	Emissions from drained forest soils, Gg C		
1990	-11170.35	2838.47	146.40	-8185.47	-30013.4
1991	-11177.83	2423.89	147.08	-8606.86	-31558.5
1992	-11185.32	2797.01	148.99	-8239.32	-30210.8
1993	-11192.81	2599.59	167.08	-8426.15	-30895.9
1994	-11291.94	2409.53	168.64	-8713.77	-31950.5
1995	-11391.07	2461.73	170.48	-8758.86	-32115.8
1996	-11490.20	2556.56	174.56	-8759.08	-32116.6
1997	-11589.33	3052.56	178.50	-8358.27	-30647
1998	-11688.46	2993.78	181.42	-8513.25	-31215.3
1999	-11787.59	2971.48	186.25	-8629.86	-31642.8
2000	-11886.72	2848.30	188.09	-8850.33	-32451.2
2001	-11778.51	3033.25	170.20	-8575.06	-31441.9
2002	-11589.86	3447.22	186.46	-7956.19	-29172.7
2003	-11582.75	3951.59	204.07	-7427.09	-27232.7
2004	-11652.76	4090.50	210.87	-7351.39	-26955.1
2005	-11702.43	3715.59	216.44	-7770.40	-28491.5
2006	-11733.90	3562.49	221.61	-7949.79	-29149.2
2007	-11913.34	3929.44	222.70	-7761.20	-28457.7
2008	-11827.66	3966.15	221.68	-7639.83	-28012.7
2009	-12263.96	3498.51	222.97	-8542.48	-31322.4

## **Projected forest management activities for the years 2010 – 2020.**

To make a projection of carbon sequestration in the managed forests of the Republic of Belarus, assessments were made of the statistical data available for the 1990 - 2009 time period. The assessment of carbon stock in the above-ground biomass of managed forests was performed for 3 groups of tree species (coniferous, hardwood, and softwood species) and age classes (young, middle-aged, ripening, ripe and overripe stock).

When making the projection, the specific productivity of age classes was assumed to be invariable over the entire 1990 – 2020 time period. The projected change in forest land areas is in agreement with the planned forest land target indicator of 39% of the country area by 2015 as set out in the Programme of Forestry Development for 2011 – 2015. Also, when making the projection an assumption was made that wood harvesting on a changing forest land area changes neither the composition of the forest in terms of its species nor its age structure, therefore the estimated yearly growth of the forest land area is distributed proportionately across all formations and age classes.

The projected estimates are based on the data on timber processing volumes planned for up to 2015 that are available in the documents on the timber exploitation volumes envisaged by the Programme of Forestry Development of the Republic of Belarus for 2007 – 2011 and 2011 – 2015. Data on the volumes of timber exploitation beyond 2015 were obtained using the extrapolation method. In line with the Programme of Forestry Development of the Republic of Belarus for 2011 – 2015, it is planned to increase the intensity of timber exploitation in 2015 to 16.3 mln. cubic meters (whereas in 2009 and 1990 it amounted to 13.3 and 10.8 mln. cubic meters, respectively).

The projection of carbon losses in above-ground biomass as a result of forest fires and other adverse phenomena is based on the average multiyear frequency of such phenomena in 1990 – 2009.

The resultant change in carbon stocks and its CO<sub>2</sub> equivalent over the 2010 – 2020 time period is presented in Table 1.

*Table 1: Projected carbon stocks change resulting from forest management activities in the Republic of Belarus in 2010 – 2020.*

Year	Above-ground biomass		Soils	Difference, Gg C	Difference, in Gg of CO <sub>2</sub> equivalent
	Increase in carbon stocks, Gg C	Decrease in carbon stocks, Gg C	Emissions from drained organic soils, Gg C		
2010	-12392.88	3550.96	200.16	-8641.76	-31686.4
2011	-12470.40	3627.52	201.36	-8641.52	-31685.6
2012	-12547.91	3769.78	202.56	-8575.57	-31443.8
2013	-12625.42	3961.87	203.76	-8459.79	-31019.2
2014	-12702.94	4151.38	204.96	-8346.60	-30604.2
2015	-12780.45	4333.47	206.16	-8240.82	-30216.3
2016	-12857.96	4392.09	207.35	-8258.52	-30281.3
2017	-12935.48	4450.70	208.55	-8276.23	-30346.2
2018	-13012.99	4509.31	209.75	-8293.93	-30411.1
2019	-13090.50	4567.92	210.95	-8311.63	-30476.0
2020	-13168.02	4626.54	212.15	-8329.33	-30540.9

### **Updated information on the forest management reference level**

Baseline: CO <sub>2</sub> emissions/absorption in 1990, Mg of CO <sub>2</sub> equivalent	Projection for the first commitment period (2008 – 2012), Mg of CO <sub>2</sub> equivalent	Projection for 2013 – 2020, Mg of CO <sub>2</sub> equivalent
-30.0	-30.8	-30.5