



FCCC/WEB/IRI/2004/BLR

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BELARUS

REPORT OF THE INDIVIDUAL REVIEW OF THE GREENHOUSE GAS INVENTORY SUBMITTED IN THE YEAR 2004¹

I. OVERVIEW

A. Introduction

1. This report covers the centralized review of the 2004 greenhouse gas (GHG) inventory submission of Belarus, coordinated by the United Nations Framework Convention on Climate Change (UNFCCC) secretariat, in accordance with decision 19/CP.8 of the Conference of the Parties. The review took place from 18 to 22 October 2004 in Bonn, Germany, and was conducted by the following team of nominated experts from the roster of experts: Generalists – Mr. Newton Paciornik (Brazil) and Mr. Bernd Guele (European Community), Energy – Ms. Maria Lidén (Sweden), Ms. Tetyana Gordiyenko (Ukraine) and Ms. Karen Treanton (International Energy Agency, IEA), Industrial Processes – Ms. Ionela Draghici (Romania) and Mr. Teemu Oinonen (Finland), Agriculture – Ms. Lilian Portillo (Paraguay) and Mr. Len Brown (New Zealand), Land-use Change and Forestry (LUCF) – Ms. Kathryn Bickel (United States) and Mr. Michael Gytarsky (Russian Federation), Waste – Mr. Oscar Paz Rada (Bolivia) and Mr. Faouzi Ahmed Senhaji (Morocco). Mr. Newton Paciornik and Mr. Michael Gytarsky were the lead reviewers. The review was coordinated by Mr. Javier Hanna (UNFCCC secretariat).

2. In accordance with the “UNFCCC guidelines for the technical review of greenhouse gas inventories from Annex I Parties”, a draft version of this report was communicated to the Government of Belarus for comment prior to its publication.

B. Inventory submission and other sources of information

3. In its 2004 submission, Belarus has submitted common reporting format (CRF) tables for the year 2002, CRF table 10 for the years 1990–2002 and a national inventory report (NIR). Where needed the expert review team (ERT) also used previous years’ submissions, additional information provided during the review and other information. The full list of materials used during the review is provided in annex 1 to this report.

C. Emission profiles and trends

4. In the year 2002, the most important GHG in Belarus was carbon dioxide (CO₂), contributing 74.0 per cent to total² national GHG emissions expressed in CO₂ equivalent, followed by methane (CH₄) – 17.6 per cent, and nitrous oxide (N₂O) – 8.4 per cent. The Energy sector accounted for 76.3 per cent of total GHG emissions, followed by Agriculture (16.7 per cent), Waste (4.4 per cent), and Industrial Processes (2.6 per cent). Total GHG emissions in 2002 amounted to 69,879.35 Gg CO₂ equivalent and were 44.6 per cent below the 1990 level. Net GHG emissions amounted to 58,902.35 Gg CO₂ equivalent and decreased by 48.3 per cent from 1990 to 2002.

¹ In the symbol for this document, 2004 refers to the year in which the inventory was submitted, and not to the year of publication.

² In this report, the term total emissions refers to the aggregated national GHG emissions expressed in terms of CO₂ equivalent excluding LUCF, unless otherwise specified.

D. Key sources

5. Belarus has not reported a key source analysis as part of its 2004 submission. It indicated in its response to the 2004 previous review stages that it will include a key source analysis in its next submission. The key source analysis performed by the secretariat³ identified nine key sources. The largest is Stationary Combustion – Gas, accounting for 46.1 per cent of total GHG emissions.

E. Main findings

6. The ERT commends Belarus for continuing to provide its inventory submissions despite the limited human and financial resources, restructuring and other constraints that hinder the development of its annual GHG inventory. The ERT acknowledges the efforts undertaken by the Party to improve the completeness, consistency and transparency of the reporting in the NIR and the CRF compared with the previous years' submissions (in particular the provision of an increased number of CRF tables), as well as the progress it has made towards introducing the *Intergovernmental Panel on Climate Change (IPCC) Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* (hereinafter referred to as the IPCC good practice guidance) in preparation of the inventory, even though, as an economy in transition (EIT) Party, Belarus has an additional year to implement them (FCCC/SBSTA/2000/5, para. 40 (c)).

7. However, the national inventory submitted is not yet in conformity with the UNFCCC reporting guidelines. The main problems with regard to cross-cutting issues concern: (a) the completeness and transparency of the CRF and the NIR – lack of estimates of perfluorocarbon (PFC), hydrofluorocarbon (HFC) and sulphur hexafluoride (SF₆) emissions, lack of use of the notation keys, and lack of some important background data; (b) the lack of documentation of methods, activity data (AD) and emission factors (EFs) used in the NIR; (c) the absence of a key source analysis; and (d) the lack of quality assurance/quality control (QA/QC) procedures. However, it should be indicated that some of these recommendations are linked to the application of the IPCC good practice guidance, which is not yet compulsory for Belarus.

F. Cross-cutting topics

Completeness

8. The inventory covers the direct GHG emissions of CO₂, CH₄, and N₂O and includes several sources and sinks. CRF tables 1.A(b), 1.A(d), 1.B.1, 2(II), 2(II).C-E, 2(II).F, 3.A-D, 4.C, 4.E, 5.A, 5.B, 5.D, 6.A, 6.B, 6.C, and summary tables 3, 7, 8(a), 8(b), 9 and 11 have not been provided. Notation keys are not used. Emissions of HFCs, PFCs and SF₆ are not provided. Estimates of the indirect GHGs, carbon monoxide (CO), nitrogen oxide (NO_x), non-methane volatile organic compounds (NMVOCs) and sulphur oxide (SO_x) are available for 2001 and 2002 only; however, the NIR reports emissions of these gases for some other years. A split of energy-related sectoral emissions by source categories (1.A.1, 1.A.2, 1.A.3, 1.A.4) is available only for 2001 and 2002. Although sectoral tables are available for 2001 and 2002, information on subcategories is not always provided. The NIR includes some background information, but the structure outlined and most of the information required according to the UNFCCC reporting guidelines are not included, for example, descriptions, references and sources of information on the specific methodologies, assumptions, EFs and AD used; key source analysis; uncertainty estimation; information on recalculations; QA/QC procedures; and a description of institutional arrangements.

³ The secretariat had identified, for each individual Party, those source categories which are key sources in terms of their absolute level of emissions, applying the tier 1 level assessment as described in the IPCC good practice guidance. Key sources according to the tier 1 trend assessment were also identified for those Parties providing a full CRF for the year 1990. Where the Party has performed a key source analysis, the key sources presented in this report follow the Party's analysis. However, they are presented at the level of aggregation corresponding to a tier 1 key source assessment conducted by the secretariat.

Transparency

9. In general, the NIR and the CRF are not transparent because notation keys are not used and some important background data are missing in the NIR. For example, in the Waste sector, the CRF background data tables are not completely filled in, and the references used for the different default EFs have not been specified. No information related to waste incineration and waste-water treatment plants is reported in the NIR. In addition, the sources of AD for the inventory have not been provided and there are inconsistencies in the submission. To improve the transparency and consistency of the inventory, the ERT encourages Belarus to include more AD, detailed references and supporting documentation in its next submission.

Recalculations and time-series consistency

10. In its response to the 2004 previous review stages, Belarus mentioned that no recalculations have been done. However, comparison of CRF table 10 of the 2004 submission with CRF table 10 of the 2003 submission reveals a recalculation of N₂O from agricultural soils for the year 2001 (a difference of 5,462 Gg, or 88.4 per cent) and minor recalculations for CO₂. No explanation for the N₂O recalculation is provided.

Uncertainties

11. No quantitative information on uncertainty estimates has been provided in the 2004 submission, nor are qualitative uncertainty estimates provided in CRF table 7. However, Belarus did include a tier 1 uncertainty analysis in an annex to its 2003 submission. The sources of uncertainty estimates for AD and EFs are documented in the 2003 submission. However, the uncertainties seem to be very low. The overall uncertainty of the inventory (including LUCF) is estimated at +/-6.3 per cent, and trend uncertainty is estimated at +/-4.9 per cent. The LUCF sector provides the largest contribution to the level uncertainty. The ERT encourages Belarus to document the background information for the uncertainty estimates in the NIR and explain why they are relatively low compared to those indicated in the IPCC good practice guidance. The ERT further encourages the Party to use the results of uncertainty analysis to prioritize future improvements of the inventory (i.e., the use of higher-tier and/or country-specific methods).

Verification and quality assurance/quality control approaches

12. No information on QA/QC and verification is provided. The ERT encourages Belarus to establish QA/QC procedures in accordance with the IPCC good practice guidance.

Follow-up to previous reviews

13. This is the first time the Party has been reviewed, therefore no follow-up of previous reviews is possible. However, the ERT noted an increase in the number of CRF tables provided by Belarus since 2002.

G. Areas for further improvementIdentified by the Party

14. In its response to the 2004 previous review stages, Belarus mentioned that it will fill in all the CRF tables (including the reference approach) with data or notation keys and include a key source analysis in its next NIR, and improve time-series consistency.

Identified by the ERT

15. In addition to the issues identified by the Party itself, the ERT encourages Belarus to: (a) provide reference approach calculations for the Energy sector, as well as the estimates for subcategories in Energy Industries and Manufacturing Industries and Construction; (b) improve the completeness of the inventory, for example, by investigating whether HFC, PFC and SF₆ emissions occur in Belarus; (c) provide a complete time series with a detailed subcategory split in the CRF tables; (d) document the methods, AD and EFs used in the NIR and give explanations for trends; (e) reconsider the uncertainty estimates; (f) implement QA/QC procedures as required under the IPCC good practice guidance; (g) provide a description of institutional arrangements; (h) provide an improvement plan on the basis of key source

analysis and uncertainty analysis; (i) reconcile the inconsistencies in the submission; and (j) use the notation keys and follow the UNFCCC reporting guidelines outline for the NIR.

16. Recommended improvements relating to specific source/sink categories are presented in the relevant sector sections of this report.

II. ENERGY

A. Sector overview

17. In 2002, the Energy sector accounted for 76.3 per cent of the total GHG emissions of Belarus. Fuel combustion emissions contributed 72.6 per cent of total national GHG emissions and CO₂ emissions from fuel combustion contributed 97.3 per cent of the CO₂ emissions of Belarus (excluding LUCF). Energy Industries contributed 47.0 per cent of total national GHG emissions. In the period 1990–2002, total GHG emissions from the Energy sector decreased by 47.0 per cent. Emissions of CO₂ from the sector decreased by 50.0 per cent over the same period.

18. Belarus has provided a tier 1 sectoral approach estimation for all gases for the year 2002 at a fairly highly aggregated level of detail. For the subcategories Energy Industries and Manufacturing Industries and Construction, no emissions are reported. The reference approach has not been provided.

19. Calculation methods are not documented in the NIR. The NIR does not provide sufficient back-up information and the calculations are not replicable. Sources of AD and EFs are not given. To improve the transparency of its reporting on the Energy sector, the ERT encourages Belarus to document its methods, EFs and data in the NIR.

20. The Party noted in its response to the 2004 previous review stages that CO₂ implied emission factors (IEFs) reported in the CRF for liquid fuels from Civil Aviation, Aviation Bunkers and Road Transportation are based on national gross calorific values. However, in the CRF tables Belarus reports the use of net calorific values for the AD of all types of fuels. The ERT encourages Belarus to rectify this inconsistency in its next inventory submission.

B. Reference and sectoral approaches

Comparison of the reference approach with the sectoral approach and international statistics

21. The reference approach has not been provided. In its response to the 2004 previous review stages, Belarus indicated that it would provide a reference approach in its next submission.

International bunker fuels

22. Marine bunkers do not occur in Belarus. For aviation bunkers, no information is given in the NIR as to how the split between international and domestic bunkers was made. The ERT encourages Belarus to provide background data for the estimation of bunkers in its NIR.

Feedstocks and non-energy use of fuels

23. Table 1.A(d) on Feedstocks and Non-Energy Use of Fuels has not been provided in the CRF. The ERT encourages Belarus to report this information in the CRF and supporting background data in its NIR.

C. Key sources

Mobile combustion – road transportation: natural gas – CO₂

24. The IEF for CO₂ from natural gas (5.58 t/TJ) in Road Transportation is one-tenth of those for all other reporting Parties. The ERT encourages Belarus to verify the AD and EFs used to estimate the emissions from this source category.

Other: all fuels – CO₂

25. Between 2001 and 2002, the CO₂ emissions reported for 1.A.5 Other decreased by 55.9 per cent. The ERT encourages Belarus to verify the AD and EFs used to estimate emissions from this category. The ERT further encourages Belarus to document fuel consumption under this item in the NIR.

Fugitive emissions: oil and natural gas – CH₄, CO₂, N₂O

26. Emissions have not been provided for some subcategories of Oil and Natural Gas Operations. If disaggregation into subcategories cannot be done, the ERT encourages Belarus to provide documentation in CRF table 9 and the NIR.

27. Furthermore, the CH₄ EFs for Other Leakage of natural gas are lower than the IPCC default values. The ERT encourages Belarus to verify and document the EFs in the NIR.

D. Non-key sourcesNavigation: liquid fuels – CO₂, CH₄, N₂O

28. Domestic navigation is not reported in the CRF. However, some low figures for internal navigation are available in the IEA dataset. The ERT encourages Belarus to determine whether or not there is fuel consumption on inland waterways.

III. INDUSTRIAL PROCESSES AND SOLVENT USE**A. Sector overview**

29. In 2002, according to the inventory, the Industrial Processes sector accounted for 2.6 per cent of the total GHG emissions of Belarus. From 1990 to 2002, GHG emissions from this sector declined by 18.9 per cent. Emissions from the Solvent and Other Product Use sector have not been reported, except for NMVOCs. However, table 10 of the CRF reports a value (1 Gg CO₂ equivalent) for this sector. The ERT recommends Belarus to ensure that the CRF tables and the NIR are consistent in its future submissions.

30. The information provided in the NIR and the CRF, even together with the answers provided by Belarus to the issues raised in the 2004 previous review stages, were not enough to enable the ERT to assess the completeness of the estimates for the Industrial Processes sector. This also implies that the accuracy of the inventory could not be assessed and indicates a lack of transparency.

31. The AD and EFs for 1990–2001 are not provided in the NIR. The information given in the NIR and the CRF is not sufficient to allow the ERT to verify the 1990 emissions level. The 2004 previous review stages identified large fluctuations in the time series of emissions. The Party explained that this is due to changes in activity. Large year-to-year variations could arise, for instance, due to changing economic circumstances. However, this could also be an indication of a potential data quality issue. The reasons for and sources of variability in the NIR should therefore be explained and discussed.

B. Key sourcesCement manufacturing – CO₂

32. It is not clear from the NIR whether the AD used are clinker or cement production data. In response to the ERT's questions Belarus explained that the CO₂ emissions were calculated using clinker production statistics. The ERT encourages Belarus to document this fact, as well as the sources of data, in the NIR.

C. Non-key sourcesNitric acid production – N₂O

33. The ERT noted a large difference between the data reported by Belarus and the international statistics. Given the information available, the ERT was not able to judge which of the estimates is more

reliable. Since this is potentially a key source, Belarus should make efforts to provide more background information in the NIR and to explain the reasons for the difference, if possible.

Metal production – CH₄

34. In the case of metal production, CH₄ emissions are reported under Other – Electrosteel. The NIR contains some information on different sources within the industry but does not provide emission factors for the sources. The ERT encourages Belarus to outline the methodologies, EFs and sources of data used in the NIR.

Consumption of halocarbons and SF₆ – all gases

35. Belarus only reports emissions (which are negligible) from source category Refrigeration and Air Conditioning in the NIR of the 2004 submission. Emissions from other sources are not reported either in the CRF or in the NIR. The ERT encourages Belarus to investigate whether emissions from other sources occur in the country. The ERT further encourages Belarus to report all estimates and use the notation keys in the CRF tables to report on emission sources that are not estimated or do not occur.

IV. AGRICULTURE

A. Sector overview

36. In 2002, the Agriculture sector accounted for 53.2 per cent (312.0 Gg) of the total CH₄ emissions of Belarus (excluding LUCF). It was also the largest single source of N₂O, contributing 87.6 per cent (16.60 Gg) of total N₂O emissions (excluding LUCF). Total sectoral emissions in 2002 had decreased by 43.3 per cent since 1990. This decrease is attributed to changes in the political and economic situation in Belarus.

37. In the 2002 inventory, Belarus reports emissions from Enteric Fermentation, Manure Management, Field Burning of Agricultural Residues and Agricultural Soils. Emissions of carbon monoxide (CO) and nitrogen oxides (NO_x) are also reported for the Agriculture sector. No estimates of CO₂ emissions are provided. All the CRF tables are reported with the exception of 4.C and 4.F, where no notation keys are provided. For CRF tables 4.A and 4.B(a) only population size and IEFs are reported. In CRF table 4.F, only AD are reported, with no emissions. The ERT encourages Belarus to improve the transparency of its reporting for this sector, to provide all the necessary information in the CRF tables and the NIR, and to use the appropriate notation keys.

38. The sources of AD are not provided. The ERT noted inconsistencies in the submission. To improve the transparency and consistency of the inventory, the ERT encourages Belarus to include supporting AD, detailed references and additional documentation in its next submission.

39. The national inventory of Belarus for 2002 has been prepared in accordance with the *Revised 1996 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories* (hereinafter referred to as the IPCC Guidelines). A tier 1 approach has been implemented; however, the ERT noted that there are some differences from the IPCC default values. The ERT recommends Belarus to provide clear information on the methods and EFs used in the estimations in its future NIRs.

B. Key sources

Enteric fermentation – CH₄

40. The reported emissions of CH₄ from enteric fermentation show a significant decrease compared to the 1990 level (41.3 per cent). Belarus had responded to the 2004 previous review stages that the economic situation had influenced these changes, but this information is not included in the NIR. The ERT encourages Belarus to include additional background information in its NIR to increase the transparency of its reporting.

41. No AD, emissions or notation keys are provided for the categories Buffalo, Camels and Llamas, Mules and Asses, and Poultry. In its response to the 2004 previous review stages, the Party stated that these categories do not occur in Belarus. However, the ERT noted that asses are reported in the Food and Agriculture Organization of the United Nations (FAO) database. It also noted other differences in livestock numbers compared with the FAO database. Poultry are not reported in table 4.A but are in table 4B. The ERT encourages Belarus to use the appropriate notation keys for livestock that do not occur in Belarus, ensure that its reporting in the CRF is consistent with the information it reports to FAO and between the CRF tables, and provide supporting information on the sources of its livestock population data.

Direct emissions from agricultural soils – N₂O

42. In 2002, emissions of N₂O from agricultural soils had decreased by 45.9 per cent compared to the 1990 level. The ERT noted that the trend in emissions shows large fluctuations, namely a decrease by 51.1 per cent between 2001 and 2002 and an increase by 81.1 per cent between 2000 and 2001. The ERT encourages Belarus to include additional information in the NIR that explains the fluctuations.

43. The N₂O IEFs (0.0130 kg N₂O-N/kg N) for synthetic fertilizers and animal wastes applied to soils (direct soil emissions) in 2002 differ from the IPCC default values. The ERT encourages Belarus to explain the reasons for the differences.

C. Non-key sources

Manure management – CH₄

44. In 2002, emissions of CH₄ from manure management had decreased by 39.5 per cent compared to the 1990 level. Between 1991 and 1992 there was a decrease of 5.8 per cent and the reason for this change is not documented in the NIR. The ERT encourages Belarus to explain this fluctuation in its future NIRs.

Manure management – N₂O

45. In 2002, emissions of N₂O from manure management had decreased by 50 per cent compared to the 1990 level. The nitrogen excretion rates (Nex) for Dairy Cattle, Non-dairy Cattle and Swine differ from the IPCC default values but are comparable to those of other reporting Parties. However, the Nex values for Sheep and Poultry are significantly different from the IPCC default values. The value for Sheep is 1.7 kg nitrogen (N)/head/yr, compared to an IPCC default value of 16 kg N/head/yr, and the value for Poultry is 24.4 kg N/head/yr, compared to an IPCC default value of 0.6 kg N/head/yr.

46. The ERT also noted calculation errors in table 4.B(b). The total livestock population multiplied by the Nex values did not equal the total manure distributed across all manure management systems. The ERT encourages Belarus to provide additional documentation supporting the country-specific Nex values, to rectify the calculation and typographical errors in table 4.B(b), and to include information on the proportion of livestock in different animal waste management systems.

Field burning of agricultural residues – N₂O, CH₄, NO_x

47. The ERT noted that AD are reported for various crops but estimates of total CH₄ and N₂O emissions are not included in CRF table 4.F. Emissions of CH₄, NO_x and CO are reported in sectoral table 4.

V. LAND-USE CHANGE AND FORESTRY

A. Sector overview

48. In 2002, the LUCF sector was a net sink of 10,975.0 Gg CO₂ equivalent and removed 15.7 per cent of total GHG emissions. From 1990 to 2002, net removals decreased by 10.1 per cent. In the CRF, Belarus reports on CO₂ removals from 5.A Changes in Forest and Other Woody Biomass Stocks, CO₂ and non-CO₂ emissions from 5.B Forest and Grassland Conversion, CO₂ emissions from 5.C Abandonment of Managed Lands, 5.D CO₂ Emissions and Removals from Soil, and 5.E Other. CRF tables 5.A, 5.B and 5.D are not provided. The estimates in tables 5 and 5.C are inconsistent. To improve the transparency of its

reporting, the ERT encourages Belarus to provide the CRF sectoral background data tables in its future inventory submissions and to check that the data presented in the background and overview tables are consistent.

49. According to the NIR, Belarus has used country-specific growth and expansion rates and IPCC default conversion factors. However, neither the NIR nor the CRF includes descriptions of AD, emission and conversion factors, or the methods used to calculate emissions and removals for the sector. The ERT noted that the previous year's submission included an explanation of the method used to estimate CO₂ emissions and removals in forest woody biomass stocks and in peatland bogs, but no AD are provided. The IPCC worksheets are referred to in the NIR but are not provided, making it impossible to reconstruct the inventory and the emission trends. The IPCC worksheets were provided in response to the ERT's request, but the growth rates, expansion and conversion factors and other parameters were not documented, making it unclear how they had been derived and used in the calculations. To improve the consistency and transparency of its reporting, the ERT encourages Belarus to attach the IPCC worksheets used for calculations to the NIR. The ERT further encourages Belarus to provide AD and growth and expansion rates in its future inventory submissions to allow reconstruction of the sectoral inventory and emission trends, and to follow the outline for the NIR found in the UNFCCC reporting guidelines.

50. On the basis of Belarus' previous inventory submissions, the ERT concluded that the uncertainties reported for emissions and removals in the LUCF sector are low. To improve the transparency of the reporting, the ERT encourages Belarus to document the uncertainty values obtained in its next inventory submission.

B. Sink and source categories

Changes in forest and other woody biomass stocks – CO₂

51. In 2002, this category represented a net sink of 44.9 per cent of the total GHG emissions of Belarus. According to the NIR, the trend was relatively stable until 1995, but net removals increased by 8.8 per cent between 1995 and 2000 and then decreased in 2002 to lower than the 1990 level. The changes observed are not documented in the NIR or the CRF, making it impossible for the ERT to assess the correctness of the estimates. In its next inventory submission, Belarus is encouraged to provide data on increment and harvest in specific forest types as well as the annual growth and expansion rates used in the calculations.

Forest and grassland conversion – CO₂, CH₄, N₂O

52. In 2002, CO₂ equivalent emissions from this source were 7.8 per cent of the national total. Emissions of CO₂, CH₄ and N₂O had decreased by 36.7, 18.1 and 25.0 per cent, respectively, since 1990. The reasons for the changes in the trends are not explained in the NIR or the CRF. The ERT encourages Belarus to document the changes in the trend in its future inventory submissions.

Abandonment of managed lands – CO₂

53. In 2002, emissions from this source were 1.3 per cent of the national total and were 34.3 per cent lower than in the base year (1990). The change in trend is not explained in the NIR or the CRF. The ERT encourages Belarus to document the change in the trend in its future inventory submissions.

Emissions and removals from soils – CO₂

54. In 2002, emissions from this source were 2.4 per cent of the national total and were 32.4 per cent lower than in the base year (1990). The change in trend is not explained in the NIR or the CRF. The ERT encourages Belarus to document the change in the trend in its future inventory submissions.

Other – CO₂, CH₄, N₂O

55. In 2002, CO₂ equivalent emissions from this source were 17.6 per cent of the national total. On the basis of Belarus' previous submissions, the ERT concluded that this category includes emissions from

drained peatlands and peat extraction partly compensated by removals in natural peat bogs. However, according to the IPCC Guidelines only anthropogenic emissions and removals should be included in national inventories. The ERT encourages Belarus to check that it includes only anthropogenic emissions and removals under this subcategory in its next inventory submission.

VI. WASTE

A. Sector overview

56. In 2002, the Waste sector accounted for 4.4 per cent of the total GHG emissions of Belarus. Emissions of CH₄ from the Waste sector (23.2 per cent of total CH₄ emissions in 2002) increased by 21.7 per cent from 1990 to 2002 and by 4.1 per cent from 2001 to 2002. Only emissions of CH₄ from Solid Waste Disposal on Land and N₂O emissions from Human Sewage are reported. Emissions from Waste-water Handling and Waste Incineration are not reported.

57. Emissions of CH₄ from Solid Waste Disposal on Land and N₂O from Human Sewage are reported for the period 1990–2002. However, the level of emissions is constant between 1990 and 1992 in the case of CH₄, and between 1990 and 1991 and 2001 and 2002 in the case of N₂O. Total CO₂ equivalent emissions from the Waste sector also have the same value in 1990 and 1991 (2,586.50 Gg CO₂ equivalent). The ERT encourages Belarus to document the emission trends for the Waste sector in its next inventory submission.

B. Key sources

Solid waste disposal on land – CH₄

58. Emissions of CH₄ in this subsector increased by 21.7 per cent from 1990 to 2002, and by 4.1 per cent between 2001 and 2002. The Party does not specify the IPCC tier methodology used to estimate CH₄ emissions from solid waste disposed on land. Some factors used are reported in the NIR in terms of range (methane correction factor (MCF) and fraction of degradable organic carbon (DOC) in municipal solid waste); the others are not referenced.

C. Non-key sources

Waste-water handling

59. Emissions of N₂O from Human Sewage are reported in the NIR and in CRF tables 6 and 10, but are not included in the sectoral background data table 6.B. References for the data used are not provided. The ERT encourages Belarus to complete the CRF tables and document the emissions estimates in its next inventory submission.

60. Information related to domestic, commercial and industrial waste water is not reported.

61. The ERT recommends that waste-water handling be treated more comprehensively (waste-water and sludge treatment, percentage shares of aerobic and anaerobic systems, etc.)

Waste incineration – CO₂

62. Emissions from this subsector are not reported. No information related to the existence of waste incinerators is reported in the NIR.

ANNEX 1: MATERIALS USED DURING THE REVIEW

A. Support materials used during the review

- 2003 and 2004 Inventory submissions of Belarus. 2004 submission including a set of CRF tables for 1990–2002, and an NIR.
- UNFCCC secretariat. “2004 Status report for Belarus” (available on the secretariat web site <http://unfccc.int/files/national_reports/annex_i_ghg_inventories/inventory_review_reports/application/pdf/blr04.pdf>).
- UNFCCC secretariat. “Synthesis and assessment report of the greenhouse gas inventories submitted in 2004. Part I”: FCCC/WEB/SAI/2004 available on the secretariat web site <<http://unfccc.int/resource/webdocs/sai/2004.pdf>>) and Part II – the section on *Belarus* (unpublished).
- UNFCCC secretariat. Review findings for Belarus (unpublished).
- Belarus’ comments on the draft “Synthesis and assessment report of the greenhouse gas inventories submitted in 2004” (unpublished).
- UNFCCC secretariat. “Handbook for review of national GHG inventories”. Draft 2004 (unpublished).
- UNFCCC secretariat. “Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories”, “Part II: UNFCCC reporting guidelines on national communications” and “Guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention.” FCCC/CP/1999/7 (available on the secretariat web site <<http://www.unfccc.int/resource/docs/cop5/07.pdf>>).
- UNFCCC secretariat. “Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC Reporting guidelines on annual inventories” and “Guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention.” FCCC/CP/2002/8 (available on the secretariat web site <<http://unfccc.int/resource/docs/cop8/08.pdf>>).
- UNFCCC secretariat. Database search tool – *Locator* (unpublished).
- IPCC. *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, 2000* (available on the following web site: <<http://www.ipcc-nggip.iges.or.jp/public/gp/gpgaum.htm>>).
- IPCC/OECD/IEA. *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, volumes 1–3, 1997* (available on the following web site: <<http://www.ipcc-nggip.iges.or.jp/public/gl/invs1.htm>>).

B. Additional materials

Responses to questions during the review were received from Mr. Anatoly Senko (Belarusian Research Center ECOLOGY) including additional material on the methodology and assumptions used.
