

MINISTRY OF ENVIRONMENTAL PROTECTION OF UKRAINE

**UKRAINE'S INITIAL REPORT
UNDER ARTICLE 7, PARAGRAPH 4,
OF THE KYOTO PROTOCOL**

CALCULATION OF ASSIGNED AMOUNT

Kiev 2006

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Introduction

The government of Ukraine submits this report in order to facilitate the calculation of Ukraine's assigned amount (hereinafter – the Report), as required under Article 7, paragraph 4, of the Kyoto Protocol, and in accordance with decision 13/CMP.1, paragraph 2, of the First Conference of Parties serving as the meeting of Parties to the Kyoto Protocol.

The Report consists of two parts and eight sections, which address the following issues as per paragraphs 7 and 8 of the Annex to decision 13/CMP.1:

Part one:

1. Complete inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol for all years from 1990, or another approved base year or period under Article 3, paragraph 5, to the most recent year available, prepared in accordance with Article 5, paragraph 2, and relevant decisions of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP), taking into account any relevant decisions of the Conference of the Parties (paragraph 7(a) of the Annex to decision 13/CMP.1);
2. Identification of Ukraine's selected base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride in accordance with Article 3, paragraph 8 (paragraph 7(b) of the Annex to decision 13/CMP.1);
3. The issue of agreement under Article 4 to fulfil commitments under Article 3 jointly with other Parties (paragraph 7(c) of the Annex to decision 13/CMP.1);
4. Calculation of Ukraine's assigned amount pursuant to Article 3, paragraphs 7 and 8, on the basis of its inventory of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol (paragraph 7(d) of the Annex to decision 13/CMP.1).

Part two:

5. Calculation of Ukraine's commitment period reserve in accordance with decision 11/CMP.1 (paragraph 8(a) of the Annex to decision 13/CMP.1);
6. Information on definitions, activities and accounting period for use in accounting for Ukraine's land use, land-use change and forestry activities under Article 3, paragraphs 3 and 4, including:
 - Identification of selection of single minimum values for tree crown cover, land area and tree height for use in accounting for activities under Article 3, paragraphs 3 and 4, together with a justification of the consistency of those values with the information that has been historically reported to the Food and Agriculture Organization of the United Nations or other international bodies, and in the case of difference, an explanation of why and how such values were chosen, in accordance with decision 16/CMP.1 (paragraph 8(b) of the Annex to decision 13/CMP.1);
 - Identification of election of activities under Article 3, paragraph 4, for inclusion in Ukraine's accounting for the first commitment period, together with information on how its national system under Article 5, paragraph 1, will identify land areas associated with the activities, in accordance with decision 16/CMP.1 (paragraph 8(c) of the Annex to decision 13/CMP.1);

- Identification of whether, for each activity under Article 3, paragraphs 3 and 4, Ukraine intends to account annually or for the entire commitment period (paragraph 8(d) of the Annex to decision 13/CMP.1);
7. A description of Ukraine's national system in accordance with Article 5, paragraph 1, reported in accordance with the guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol (paragraph 8(e) of the Annex to decision 13/CMP.1);
 8. A description of Ukraine's national registry, reported in accordance with the guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol (paragraph 8(f) of the Annex to decision 13/CMP.1).

PART 1

1. Inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases

Materials of this section are based on Ukraine's national inventory report for 1990-2004 submitted to the UNFCCC Secretariat in May 2006. The report provides inventory results for four direct greenhouse gases – carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and perfluorocarbons (PFC). In the 2006 inventory submission there were no estimates for hydrofluorocarbons (HFC) and sulphur hexafluoride (SF₆) because these gases are not produced in Ukraine and information on their use is lacking.

Total GHG emissions in Ukraine without account of Land-Use, Land-Use Change and Forestry (LULUCF) sector reduced in 2004 by factor of 2.2 (from 925.4 mtCO₂-e to 413.4 mtCO₂-e) compared to 1990, which is a base year for Ukraine. Carbon dioxide emissions reduced by 2.4 times, methane – by 2 times and nitrous oxide – by 2.45 times. Table 1 presents inventory results for the period 1990-2004.

Table 1. Ukraine's GHG inventory results for the period 1990-2004, mtCO₂-e.

Gas	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
CO ₂ emissions (excluding net CO ₂ from LULUCF)	719.4	620.2	535.1	480.5	431.0	393.5	357.9	344.6	308.2	309.3	296.5	298.9	301.3	320.5	316.9
CH ₄	151.2	138.3	131.3	118.6	107.3	94.4	86.9	80.0	76.6	75.5	76.9	76.5	75.8	74.5	74.1
N ₂ O	54.6	50.6	46.1	41.6	36.7	33.2	27.9	26.8	25.2	23.1	21.6	23.5	23.3	20.9	22.3
HFCs															
PFCs	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
SF ₆															
Total (excluding net CO ₂ from LULUCF)	925.4	809.2	712.6	640.8	575.2	521.2	472.8	451.5	410.1	408.1	395.1	399.0	400.5	416.0	413.4
Net CO ₂ from LULUCF	-33.8	-36.0	-31.9	-30.9	-39.3	-42.4	-48.4	-46.9	-52.5	-43.6	-38.0	-42.0	-37.3	-39.2	-32.1
CO ₂ emissions (including net CO ₂ from LULUCF)	685.5	584.2	503.3	449.5	391.7	351.1	309.4	297.7	255.7	265.7	258.5	256.9	264.0	281.3	284.8
Total (including net CO ₂ from LULUCF)	891.5	773.2	680.8	609.9	535.9	478.7	424.3	404.5	357.6	364.5	357.1	357.0	363.2	376.8	381.3

2. Base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride

Ukraine selects 1990 as a base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride.

3. Agreement under Article 4 of the Kyoto Protocol

The government of Ukraine has not entered into any agreements with other countries to jointly fulfil commitments under Article 3, possibility of which is foreseen by Article 4.

4. Calculation of Ukraine's assigned amount pursuant to Article 3, paragraphs 7 and 8

Base year for Ukraine is 1990 for all direct GHGs, including hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride. According to the results of the latest inventory submitted to the UNFCCC Secretariat on May 26, 2006, Ukraine's total emissions of direct GHGs for the five sectors of Annex A to the Kyoto Protocol (that is, without account of net GHG removal in LULUCF sector) in 1990 were equal to 925 362 174.39 tons of CO₂-e.

In accordance with Annex B to Kyoto Protocol, Ukraine's committed emission level is 100% of base year emissions.

With account of the above, Ukraine's assigned amount for the first commitment period is five times the base year emission level and equals

$$925\,362\,174.39 \times 5 = 4\,626\,810\,872 \text{ tCO}_2\text{-e.}$$

PART TWO

5. Calculation of commitment period reserve

As stated in paragraph 6 of the Annex to decision 11/CMP.1, “each Party included in Annex I shall maintain, in its national registry, a commitment period reserve which should not drop below 90 per cent of the Party’s assigned amount calculated pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol, or 100 per cent of five times its most recently reviewed inventory, whichever is lowest”.

The first value defined as 90 per cent of Ukraine’s assigned amount, in accordance with section 4 of this report is equal to

$$4\,626\,810\,872 \times 0.9 = 4\,164\,129\,785 \text{ tCO}_2\text{-e.}$$

As its “most recently reviewed inventory” Ukraine uses the inventory submitted to the UNFCCC Secretariat in May 2006, for which the “Annual Status Report of the Greenhouse Gas Inventory of Ukraine” was received from the Secretariat on June 21, 2006. In this inventory, total direct GHG emissions in 2004 were 413 411 237.691 tCO₂-e. Accordingly, the second value defined as 100 per cent of five times the most recently reviewed inventory is equal to

$$413\,411\,237.691 \times 5 = 2\,067\,056\,188 \text{ tCO}_2\text{-e.}$$

Ukraine’s commitment period reserve as a lower of these two values is therefore determined as

$$2\,067\,056\,188 \text{ tCO}_2\text{-e.}$$

6. Information on definitions, activities and accounting period for activities under Article 3, paragraphs 3 and 4

6.1. Definition of forest for activities under Article 3, paragraphs 3 and 4

Definition of forest in Ukraine is identified as follows, in accordance with decision 16/CMP.1 adopted by the First Conference of Parties serving as the meeting of Parties to the Kyoto Protocol.

- Minimum value for forest area: 0.1 ha;
- Minimum value for tree crown cover (or equivalent of stocking density): 30%;
- Minimum value for tree height: 5 m;
- Minimum value for forest width: 20 m.

Ukraine reported forest data to the FAO in accordance with the categories and definitions presented below (source: Global Forest Resources Assessment 2005, Ukraine Country Report, section 1.2.2 “Classification and definitions”).

Forest is the type of natural complex of predominating trees and/or shrubs with soils, ground vegetation, animals, micro-organisms and others natural components, biologically interrelated in their development, influence on each other and natural environment.

Forest fund of Ukraine consists of forest stands with minimum forest area of 0.1 ha, including linear protective forest stands. Forest fund of Ukraine does not include urban green plantings (parks, gardens, squares etc.), which are not forests; trees, groups of trees and shrubs on agricultural lands, fruit gardens, farmlands.

Forest lands are subdivided into the lands covered by forest vegetation and lands not covered by forest vegetation (Table 2).

Table 2. Land categories and their definitions

Category / Subcategory	Definition
Forest lands	Lands suitable and assigned for forest growing, also lands under forest roads, glades, firebreaks and forest drainage systems
Lands covered by forest vegetation	Lands covered by young forest stands with density of stocking from 0.4 and more, and forest stands of other age groups with density of stocking 0.3 and more.
Lands not covered by forest vegetation	Lands including open woodlands, sites of forest fires, dead forest stands, cutting areas, meadows and waste lands, also forest roads, glades, firebreaks and forest drainage systems, unstocked forest cultures, forest nurseries and plantations.

Definitions which were submitted to the FAO, for area and crown cover (equivalent to stocking density) are consistent and corresponding with forest definitions adopted for activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol.

The same definitions were used for Ukraine's national report submitted to the Ministerial Conference on Protection of Forests in Europe (MCPFE).

Tree height parameter for attributing land units to those covered by forests is defined by Ukrainian forest management and forest inventory regulations. According to established forest site class scale, minimum height of forest stands at maturity is 5 meters. Forest fund lands covered by vegetation that cannot reach 5 m height at maturity are attributed to "other wooded land" category.

6.2. Election of activities under Article 3, paragraph 4

6.2.1. Elected activities

Article 3, paragraph 4, of the Kyoto Protocol allows a Party flexibility to choose any of forest management, cropland management, grazing land management and revegetation activities for meeting its commitments.

For the purposes of Article 3, paragraph 4, of the Kyoto Protocol Ukraine elects forest management as one of additional human activities related to changes in greenhouse gas emissions by sources and removals by sinks in the land-use change and forestry categories.

6.2.2. Forest management definition

Forest management is defined as “a system of practices for stewardship and use of forest land aimed at fulfilling relevant ecological (including biological diversity), economic and social functions of the forest in a sustainable manner” (paragraph 1(f) of the Annex to decision 16/CMP.1).

In accordance with subsection 4.1.1 of Good Practice Guidance for LULUCF that is requested to use in accordance with the decision 16/CMP.1, paragraph 2, Ukraine interprets forest management using a “broad classification of land subject to a system of forest management practices, without the requirement that a specified forest management practice has occurred on each land”.

With that, forest management means implementation of appropriate forest practices including protection or conservation of forests, sustainable use and well-timed regeneration.

6.2.3. Identification of land areas associated with forest management

Identification of land areas associated with forest management activities can be performed based on forest management reporting materials, including mapping materials. Currently, establishment of geographic information system for forestry is underway, which will enable providing necessary information.

In the part relating to forestry, the national inventory system under Article 5.1 of the Kyoto Protocol is formed with support from the State Committee of Forestry, Ukrainian Research Institute of Forestry and Forestry Melioration, and the Forest Inventory Service. Information for identification of elected activity areas is available from reporting data of forestry enterprises, computerised National Forestry Database with detailed information on each forest sub-compartment, integrated with property boundary system digital maps, data of forest inventory service and field control. Geographical location of relevant land units is determined using the data of forest maps and complementary information of the National Forestry Database.

Ukraine selects Reporting Method 1 in accordance with the decision tree presented in Chapter 4 of Good Practice Guidance for LULUCF. Submitting the information under this method is connected with delineation of areas that include multiple land units subject to Article 3.3 and 3.4 activities by using legal, administrative, and ecosystem boundaries. Stratification is based on sampling methods and statistical data. The boundaries used are provided with geographic referencing.

Method for distinguishing the areas with different activities (deforestation, reforestation, afforestation, forest management) is based on the data for each forest sub-compartment from the National Forestry Database integrated with mapping information, annually updated forest management plans, as well as data from forestry enterprises.

6.3. Selection of accounting period for activities under Article 3, paragraphs 3 and 4

Ukraine selects accounting of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol for the entire commitment period. This is connected with periodic nature of field surveys of forests (forest inventory and monitoring) and difficulties in developing accurate annual estimates for afforestation. So, the most reliable data can be available for the end of commitment period.

7. National greenhouse gas inventory system

This section describes the national GHG inventory system of Ukraine that includes all institutional, legal and procedural arrangements adopted for estimating GHG emissions and removals, and for reporting inventory information in accordance with the guidelines established by decision 19/CMP.1. Description of the national inventory system is made in conformity with the guidelines for preparation of the information required under Article 7 of the Kyoto Protocol (decision 15/CMP.1).

7.1. National entity responsible for inventory

A national entity with overall responsibility for Ukraine's national inventory is the Ministry of Environmental Protection of Ukraine (MEP). Its designated representative for inventory related issues is the Head of Department on UNFCCC Implementation. Contact information is as follows:

Ministry of Environmental Protection of Ukraine
Kiev 03035
35 Uritskogo St.
Tel./Fax: +38 044 206 3308
E-mail: Kudin@menr.gov.ua

7.2. Institutional, legal and procedural arrangements of inventory

7.2.1. Institutional and legal aspects

Regulatory and institutional basis for GHG inventory in Ukraine is established by a presidential decree and several decrees of the Cabinet of Ministers of Ukraine (CMU). An Inter-agency Commission on Climate Change was created by CMU Decree of 14.04.1999 No.583 and, among other tasks, coordinates overall institutional and procedural framework of national GHG inventory and relevant regulations adopted for the purpose of its establishment.

Decree of the President of 12.09.2005 No.1239/2005 designated the MEP as a national focal point (coordinator) of activities needed for fulfilment of Ukraine's commitments under the UNFCCC and Kyoto Protocol. It also requested the CMU to determine the procedure for coordination of these activities.

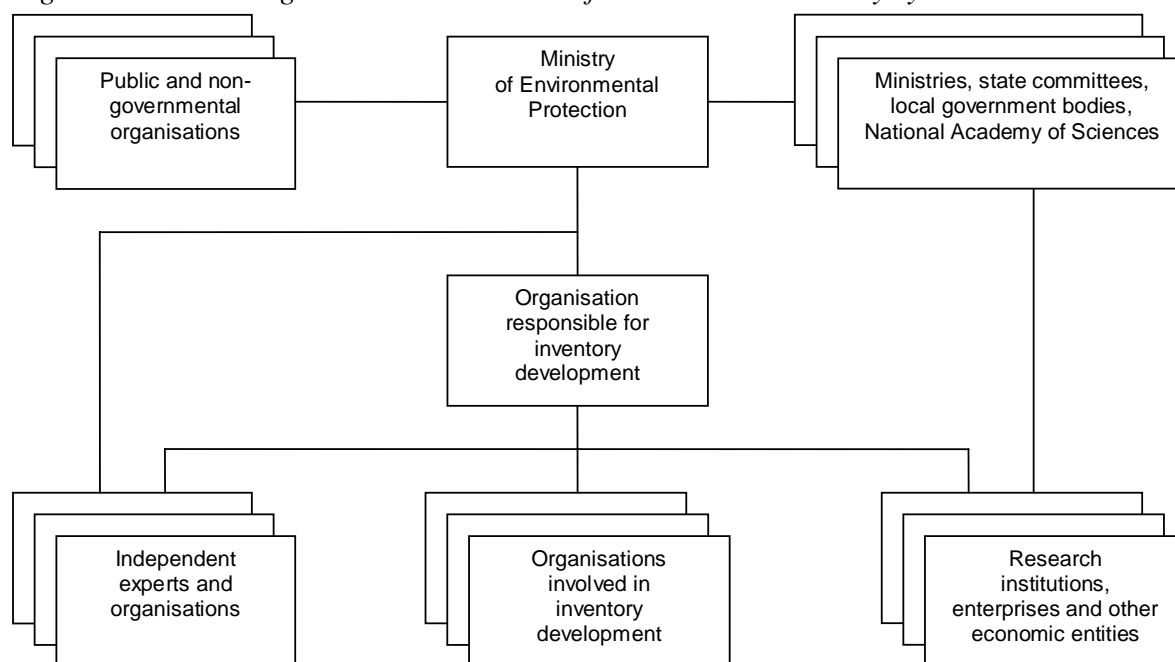
As a follow-up to this decree, two CMU decrees were adopted. The Decree of 21.04.2006 No.554 assigns to the MEP the responsibility for ensuring operation of the national inventory system, and annual submission of inventory reports to the UNFCCC Secretariat. Relevant tasks include: issuing requests for inventory initial data to ministries and other central and

local government bodies; conducting necessary studies to update emission factors; archiving of the information from national inventory and related materials; publishing annual inventory reports on MEP's web-site etc. Another decree (of 10.04.2006 No.468) makes ministries and other government bodies responsible for providing to the MEP necessary data and conducting studies related to climate change, and determines the source of financing for inventory activities (the State Fund for Environmental Protection).

7.2.2. Roles and responsibilities of various agencies in inventory process

Figure 1 presents inventory process stakeholders and informational relationships between them.

Figure 1. General organisational structure of the national inventory system



Organisation responsible for inventory development (inventory developer) conducts this work under a contract with the MEP. Development of the inventory to be submitted in 2007 is performed by the Centre on Climate Change established by the MEP's Order of 01.09.2005 No.313. Tasks of the organisation responsible for inventory development include:

- preparing the requests for initial data for GHG inventory;
- providing consultations for specialists of ministries, state committees and local government bodies who prepare initial data;
- collecting, processing and verifying statistical data from the State Committee on Statistics and industry-specific statistical reporting from ministries, state committees and local government bodies;
- determining inventory methodologies and developing inventory plan;
- performing calculations, including GHG emissions and removals estimates, uncertainty assessment, key source categories determination etc., with involvement (when necessary) of specialised organisations and experts;
- developing quality assurance and quality control (QA/QC) plan and carrying out relevant activities;

- performing recalculations for complete time series beginning from the base year;
- preparing the national inventory report and common reporting format tables and submitting them to the MEP;
- providing for expert review of inventory (including responding to requests from international experts) with account of existing national constraints related to confidential information;
- documenting and archiving all inventory initial data, assumptions, calculation algorithms and results;
- developing the terms of reference for research and development institutions concerning the studies on national emission factors for key source categories.

In addition to the MEP and organisation responsible for inventory development, stakeholders of the inventory process include:

- ministries, state committees, local government bodies (regional state administrations), National Academy of Sciences;
- research institutions and enterprises subordinated/related to the agencies indicated above;
- organisations involved in inventory development;
- independent experts and organisations;
- public and non-governmental organisations.

Major task of ministries, state committees, and local government bodies is to provide initial data for the inventory. The bulk of these data comes from the State Committee on Statistics. The MEP, Ministry of Fuel and Energy, Ministry of Industrial Policy, Ministry of Agrarian Policy, Ministry of Construction, Architecture and Housing and Communal Services, Ministry of Transport and Communication, State Committee on Forestry, State Committee on Land Resources, State Committee on Water Resources, and local government bodies provide agency-specific reporting data that are not reflected in state statistics. In addition to this, ministries, state committees, and local government bodies, together with sectoral and academic research institutions participate in QA activities.

For calculations of GHG emissions and removals inventory developer involves also experts from sectoral and academic research institutions, National Agrarian University, Council on Study of Productive Forces of Ukraine.

Figure 2 presents the scheme of national inventory preparation process.

Preparation of state statistics and agency-specific reporting information (steps 1-3 on the scheme) is described in section 7.3.

When the information is ready within relevant agencies, inventory developers provide lists of initial data to the MEP which sends information requests to ministries, state committees and local government bodies. Responses are usually received within a month. If necessary, finalisation of the data continues for some time after receipt of responses.

For about two months after initial data have been received, inventory developers calculate GHG emissions and removals. Experts from other organisations are also involved in making inventory estimates for key source categories. When processing initial data and making calculations, QC activities are performed.

As part of QA activities, calculation results are provided through the MEP to relevant ministries/agencies and then further on to academic and sectoral research institutions. Based on the comments received, calculations are finalised and draft national inventory report (NIR) prepared and submitted to the MEP together with common reporting format (CRF) tables.

Draft NIR and CRF tables are posted by the MEP on its web-site for public access and review, and also forwarded to leading experts in relevant inventory sectors. Comments and suggestions are being received during one month. After finalisation of inventory with account of the feedback received, final version of NIR and CRF tables is submitted to the MEP which, upon official consideration and approval, submits them to the UNFCCC Secretariat.

7.3. Process for collecting activity data, selecting emission factors and methods, and developing emission estimates

7.3.1. Activity data

Main source of activity data for GHG inventory is the national statistics. State statistical reports are developed by the State Committee on Statistics proceeding from reports of regional statistical bodies compiled based on reports (filled statistical forms) from enterprises and other economic entities. Schedule of statistical reporting is determined by a plan of state statistical observations, approved annually by a CMU decree.

Time for submitting the reports by enterprises and other economic entities is about one month after the end of year. Terms for preparing the reports by regional statistical bodies depend on the sector and are in the range of 1 to 3 months. For the State Committee on Statistics, these terms are from 1 to 4 months.

However, only national statistics is not sufficient for inventory purposes. Initial data are also taken from agency-specific statistical reporting produced by ministries, state committees and local government bodies based on activity reports from enterprises subordinated to them. Other information sources are also used as necessary, and they include publications and reports on scientific studies, reference books etc.

7.3.2. Emission factors

GHG emission factors are determined based on the data of national and agency-specific statistics, results of relevant studies, or are taken as default values recommended by the IPCC.

CMU Decree of 21.04.2006 No.554 requires conducting national emission factors studies on regular basis. During the preparation of the 2006 inventory submission such studies were conducted for the following key source categories:

- coal combustion;
- methane emissions during transportation and distribution of natural gas;
- cement production;
- ammonia production;
- iron and steel production;
- enteric fermentation of cattle;
- disposal, storage and usage of manure from cattle, swine and poultry;
- unmanaged landfills;
- domestic wastewater handling;
- forest lands.

7.3.3. Inventory methodologies and GHG emissions estimates

Estimation of direct and indirect GHG emissions is conducted in accordance with IPCC Good Practice Guidance (GPG) recommendations, mostly using Tier 2 and Tier 1 approaches.

For key source categories, Tier 2 is used primarily. For coalbed methane emissions, Tier 3 measurement-based approach is used. In preparing the inventory of GHG emissions from fuel combustion, both for stationary sources and transport, specially developed software is used.

For non-key emission source categories, GHG inventory is prepared mostly based on Tier 1 approaches.

7.3.4. Uncertainty assessment

Uncertainty assessment is based on IPCC Tier 1 method for all direct GHGs, all categories, sectors, and country as a whole. It implies separate uncertainty assessments of activity data and emission factors for individual emission source categories and their subsequent integrated estimation according to the methodology provided by the IPCC GPG.

7.4. Key emission sources

Key emission source categories are determined in accordance with IPCC GPG requirements. Tier 1 approach is used, including GHG emissions/removals level and trend analysis, with and without account of LULUCF sector.

7.5. Recalculation of previously submitted inventory data

Necessity to recalculate Ukrainian inventory results is conditioned by the following main reasons:

- improvement of activity data;
- improvement of emission factors (as a result of shifting to national emission factors);
- upgrading of emissions estimation methodologies (e.g., when shifting from Tier 1 to Tier 2 approaches);
- addition of missing emission categories.

Recalculations are made in accordance with IPCC GPG recommendations, for all years of inventory, using the same methodology and consistent emission factors.

7.6. Quality assurance and quality control

In accordance with IPCC GPG recommendations, for inventory preparation general QC procedures are used together with source category-specific QC procedures. General QC procedures (Tier 1) are used during data input, calculations, and preparing the reporting tables and inventory report. Relevant checks include:

- documenting of assumptions and criteria with respect to activity data and emission factors selection;
- accuracy of references and input data entry;
- correctness of emissions calculation;
- consistency of measurement units;
- integrity of input data and calculation files;
- consistency of data usage between different source categories;
- correctness of data transfer among processing steps ;
- correctness of estimates or calculations of uncertainty;
- completeness and adequacy of documentation;
- changes in methodologies and initial data leading to recalculations;
- completeness of source categories and years in time series starting from the base year;
- consistency with previous estimates.

Detailed source category-specific QC procedures (Tier 2) are applied as necessary and include, primarily, QC of emission factors, activity data and emissions estimates. Most attention is paid to key emission source categories.

For QA purposes, review of inventory results is performed by the experts who did not participate in the inventory development. Such review is made in two stages. At the first stage, as soon as preliminary estimates for individual categories are completed, they are forwarded to leading experts in relevant sectors. Besides, currently available emissions/removals estimates for individual categories and sectors are, to the extent possible, presented and discussed at sectoral workshops and conferences.

At the second stage, after finalising preliminary estimates with account of received comments, draft text of inventory report and reporting tables with emissions estimates are prepared. These documents are posted on the MEP web-site at the address: www.menr.gov.ua and leading experts and organisations are notified accordingly. In addition, direct distribution of inventory report by the MEP to relevant ministries, organisations and individual experts is carried out. Making the inventory publicly accessible through internet also provides an opportunity for public review of the inventory and receiving comments from all interested parties. These comments are forwarded to inventory developer for analysis and addressing. An important factor for development of the inventory submitted in 2006 was in-country review of the previous inventory by an expert review team of the UNFCCC Secretariat.

Practically all the comments of this expert team were addressed in the 2006 inventory submission.

In order to ensure continuity of approaches to inventory development and their permanent improvement, documenting of all initial data, methodologies and assumptions is performed. Such documenting also facilitates the process of conducting necessary external examination, including inventory reviews by experts of the UNFCCC Secretariat.

7.7. Official consideration and approval of the inventory

Official consideration and approval of the inventory is conducted according to general procedures for review of documents in central executive bodies, and an order for acceptance by the MEP of scientific and technical works financed from budgetary resources. It includes the following stages:

- official submission of the inventory by its developer and submission registration by the MEP;
- review of the inventory by MEP specialists and its discussion at a section meeting of the Scientific and Technical Council of the MEP;
- based on decision made by the Scientific and Technical Council's section, inventory is posted on the MEP web-site for review and submission of comments and improvement proposals during one month, and is also sent to other government bodies and GHG inventory experts to receive feedback from them;
- consideration of received expert reviews, comments and proposals by MEP specialists, and forwarding them to inventory developer for possible finalisation of the inventory;
- review of finalised inventory by MEP specialists and preparation of conclusion for the MEP management to approve the inventory;
- approval of the inventory by the MEP management.

8. Description of national registry

Description of national registry is presented in accordance with the guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol, in the part concerning the national registries (Annex II, section E, paragraph 32 of decision 15/CMP.1).

8.1. Contact information for registry administrator

Functions of a registry administrator are being realised by the MEP (Department on UNFCCC Implementation). Contact information is as follows:

Ministry of Environmental Protection of Ukraine
Kiev 03035
35 Uritskogo St.
Tel./Fax: +38 044 206 3308
E-mail: Veremiychyk@menr.gov.ua

8.2. Cooperation in maintaining consolidated system of national registries

Ukraine does not cooperate with any other countries in maintaining the national registries as a consolidated system.

8.3. Description of the database structure and capacity of the national registry

National GHG registry of Ukraine has been developed both for meeting the commitments under the Kyoto Protocol and providing the basis for potential operation of domestic emissions trading system. With respect to Kyoto Protocol requirements, the registry database supports all necessary units, accounts and transactions in accordance with decisions 19/CP.7, 24/CP.8, and others.

Registry database is implemented based on relational database management system Microsoft SQL Server 2005. Capacity of Microsoft SQL 2005 databases is not less than 4 Terabytes, which guarantees meeting operational needs of the national registry.

8.4. Conformity with technical standards for data exchange

National registry of Ukraine is developed in conformity with requirements to the technical standards for data exchange between registry systems, with the purpose of ensuring the accurate, transparent and efficient exchange of data between national registries, the clean development mechanism registry and the transaction log (ITL) as prescribed by decisions of the Conferences of Parties 19/CP.7 и 24/CP.8.

In order to achieve this purpose, formats of account numbers, serial numbers of AAUs, ERUs, RMUs and CERs are realised in the manner described in Annex F (Definition of Identifiers) to the Data Exchange Standards for Registry Systems Under the Kyoto Protocol - Technical specifications, Version 1.0 (the Data Exchange Standards). Besides, for the information transmitted electronically when transferring ERUs, CERs, AAUs, and RMUs to other registries and receipt of these units from other registries and registry for clean development mechanism, as well as for the information transmitted to the ITL during issuance, transfer, cancellation, and retirement of ERUs, CERs, AAUs, and RMUs it is foreseen to use XML files with messages, formats of which meet the requirements of the Data Exchange Standards.

It should be noted, however, that full conformity of XML files with required specifications can be established only in conditions of availability of working tools for data exchange with the ITL. Testing of the processes of information exchange with the ITL will be conducted as soon as it becomes possible after putting the ITL into operation.

8.5. Procedures for minimizing discrepancies

In order to minimize discrepancies in the issuance, transfer, acquisition, cancellation and retirement of ERUs, CERs, tCERs, ICERs, AAUs and/or RMUs, and replacement of tCERs and ICERs, the following main procedures are employed in the national registry:

- check of data being entered into the database for consistency with relevant formats;
- realising data exchange between the national registry and ITL by means of XML-messages, formats of which correspond to those required in the Data Exchange Standards;
- interlocking the units assigned for ongoing transaction (i.e., impossibility to use them for another transaction) until the moment of transaction completion;

- in case of not receiving acknowledgement of transaction from the ITL, termination of the transaction and roll-back of registry system into original state;
- logging of transaction information and possibility to use it for manual correction of discrepancies in case of an unforeseen failure in the process of data exchange with the ITL.

8.6. National registry security measures

The following main security measures are used in the national registry for preventing unauthorized manipulations and operator errors:

- access of registry administrator to the database is performed by means of dedicated line and employs procedures inaccessible through user interface;
- access to the registry (except for publicly accessible information) requires entry of usernames and relevant passwords;
- rights of user groups determine the sections of the system and their functions accessible for each user. User rights management sub-system is protected to high extent. Control is performed on all user actions during all the stages of work with the registry. If necessary, any transaction performed by a user can be terminated at any stage before its completion;
- user-entered information is checked for consistency, and acknowledgement of the entry is requested;
- in accordance with the Data Exchange Standards requirements, exchange of information with the ITL is performed by means of SSL (Secure Sockets Layer) protocol and hardware-based VPN (Virtual Private Network) using integrated VPN/firewall device CISCO PIX 506E;
- installation of up-to-date anti-virus software;
- at present, development of a complex information security system is being completed to meet the national requirements to registry security level, which are applied to state information resources.

8.7. Publicly accessible registry information

Currently, public access through internet interface is allowed only for the following database content components:

- international texts;
- answers to frequently asked questions;
- glossary of terminology;
- links to other information sources;
- conditions of registry system usage.

For enabling access to the information indicated in decision 19/CP.7, paragraphs 45-48, a special regulation of the MEP is required, which is possible to adopt shortly.

8.8. Internet address of registry interface

At present, the national registry is being deployed into its permanent location and therefore internet address of registry interface will be finalised soon.

8.9. Measures to safeguard and recover registry data and services

To provide for safeguarding, maintaining and recovering data in order to ensure the integrity of data storage and the recovery of registry services in the event of a disaster, the following main measures are envisioned:

- main database server and web-server of the registry are installed in a building being guarded 24 hours a day and provided with backup power supply from Diesel-generator to be used in case of grid power failures;
- back-up database server is installed in a separate building also guarded 24 hours a day;
- automatic replication and semi-automatic recovery of registry information by using in-built mechanisms and tools of Microsoft SQL 2005. Relevant instructions are provided in registry administrator manual;
- additional tools for safeguarding and recovery of registry data and services in case of unforeseen failures are included into the complex information security system being developed for the registry in accordance with national requirements.

8.10. Testing the performance, procedures and security measures of the registry

Testing of the performance, procedures and security measures of the national registry pursuant to the provisions of decisions 19/CP.7 and 24/CP.8 related to the technical standards for data exchange between registry systems has not been conducted as yet. Carrying out of such tests is prescribed by the terms of reference for development of the national registry as soon as it becomes possible after start of the ITL operation. Presently, preparation of necessary registry documentation for implementation of testing procedures with the ITL is beginning in accordance with requirements of Section 9 and Annex H of the Data Exchange Standards.

Besides, additional testing procedures are envisioned by the national requirements for acceptance of the complex information security system being developed for the registry.