WRITTEN SUBMISSION FROM BULGARIA

BOTSCHAFT DER REPUBLIK BULGARIEN
IN DER BUNDESREPUBLIK DEUTSCHLAND

Nr. Pv.-21-352/05.05.2010

Fax: (49-228) 815-1999

To
The UNFCCC secretariat
P.O. Box 260124

53153 Bonn

Berlin, 05.05.2010

Ref: Written submission by Bulgaria

DEAR MR. FENG GAO,

Pursuant to section X, paragraph 1 (b) of the annex to decision 27/CMP.1, and as indicated by the Republic of Bulgaria in a letter from April 7th 2010 that a written submission will be made on or before May 7th 2010,

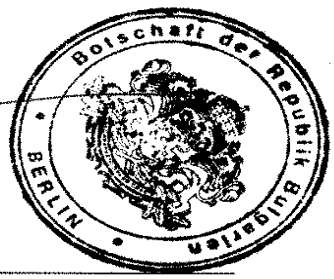
Please be informed that the written submission by the Republic of Bulgaria was send to the electronic mail account of the Compliance Committee:

compliance.committee@unfccc.int on May 5th 2010.

Please acknowledge receipt of the above mentioned documents to the Ministry of Environment and Water of the Republic of Bulgaria.

Sincerely Yours

Stefanka Igova
Chargé d'Affaires a.i.



REPUBLIC OF BULGARIA
MINISTRY OF ENVIRONMENT AND WATERS

EXECUTIVE ENVIRONMENT AGENCY

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Submission of Bulgaria

Response to

- **FCCC/ARR/2009/BGR**
- **CC-2010-1-2/Bulgaria/EB and**
- **CC 2010-1-4/Bulgaria/EB**

Date: 05/05/2010

CONTENT

SUMMARY

The in-country review of the 2009 annual submission of Bulgaria, coordinated by the UNFCCC Secretariat, in accordance with decision 22/CMP.1 took place from 28 September to 3 October 2009 in Sofia, Bulgaria.
Potential Problems and Further Questions from the ERT were formulated in the course of the 2009 in-country review of the greenhouse gas inventories of Bulgaria submitted in 2009 (3 October 2009). An official response concerning the National System of Bulgaria including work plan and outcomes were submitted to the UNFCCC on 16 November 2009.

During the review week, Bulgaria informed the ERT for a schedule of activities that intend to provide a platform for further development of the existing National Inventory System fully operated in accordance with requirements of provisions of Decision 19/CMP.1 Guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol and to improve the quality of the Bulgarian National GHG Inventory and the National Inventory Report according to the relevant requirements.

After the review in 2009 the new[1] Government established a new policy for promoting compliance with commitments under the Kyoto Protocol.

In order to implement the requirements of Decision 19/CMP.1 under Article 5, paragraph 1, of the Kyoto Protocol into the BGNIS, the existing legal, institutional and procedural arrangements within the country have been updated.

By the end of 2009 the MoEW approved four projects, whose defined objectives are to improve the Party's current estimation methodologies, the technical capacity[2] and competence of the staff within the national system, and the management and archiving of data. The four projects have already begun.

The report of the individual review of the annual submission of Bulgaria submitted in 2009 is issued on 9 March 2010 (FCCC/ARR/2009/BGR).

The following Questions of implementation have been set in the advanced ARR 2009 (Chapter X. Questions of implementation)[3]:
Para194. The ERT found that the Bulgarian national system did not operate fully in accordance with the general and specific functions required of national systems as set out in the "Guidelines for national systems for the estimation of emissions by sources and removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol" (decision 19/CMP.1). The ERT identified that the national system did not ensure that Bulgaria's 2009 annual submission was sufficiently transparent, consistent, comparable, complete and accurate, as required by the "Guidelines for national systems for the estimation of emissions by sources and removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol" (annex to decision 19/CMP.1), the UNFCCC reporting guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF. Further, the ERT found that Bulgaria's institutional arrangements and arrangements for technical competence of staff within the national system involved in the inventory development process, were insufficient, to enable the adequate planning, preparation and management of the Party's annual submission in accordance with the aforementioned guidelines.

[1] New Government which is elected on 27 July 2009
[2] SEE CC-2010-1-4/Bulgaria/EB – para5 (c) second bullet
[3] FCCC/ARR/2009/BGR: in the following ARR 2009

Para 195. In line with paragraph 106 of the annex to decision 22/CMP.1, the ERT requested Bulgaria to provide, within six weeks after the end of the review week, a work plan that outlined how the Party will address issues and improvements identified by the ERT in relation to its national system, before its next annual submission (see para. 67 above), with a focus on:

(a) Strengthening of the current institutional arrangements between the government agencies and other entities responsible for the performance of the national system, as defined in the aforementioned guidelines for national systems.

(b) Ensuring that its national system will perform the general and functions defined in these guidelines for national systems, including ensuring that its inventory submission is transparent, consistent, comparable, complete and accurate, and that QA/QC activities are implemented in accordance with the Party's QA/QC plan.

(c) Ensuring arrangements for technical competence of staff involved in preparing the inventory submission.

Para 196. Bulgaria, in response to the above request of the ERT, submitted to the ERT on 16 November 2009, a work plan that outlined the actions and activities the Party will undertake to address ERT identified issues mentioned in paragraph 195 above, including:
(a) Strengthening of the current institutional arrangements, and initiation of arrangements with entities that so far have not been involved in the inventory preparation process, to provide technical capacity within the national system to plan and prepare an inventory submission with a view to improving the technical competence of staff involved in the preparation of the inventory submission, and to improving the overall quality of the inventory submission (i.e. transparency, consistency, comparability, completeness and accuracy).
(b) Strengthening of the institutional arrangements with regard to formalizing QA/QC roles and responsibilities and implementation of the QA/QC plan.
(c) Launching four projects aimed at improving the overall quality of the inventory submission, and improving the technical competence of staff involved in the preparation of the inventory submission (see para 29 above).
Para 197. The ERT considered the response of the Party and identified that to a large extent the activities outlined in the work plan to address the aforementioned ERT identified issues would not be completed before submission of the 2010 annual submission. This conclusion was reflected by the ERT in the draft version of the annual review report.

Para 198. In response to the draft version of this annual review report, Bulgaria provided the ERT on 16 February 2010 new information regarding its institutional arrangements and an update on the status of the four projects mentioned in paragraphs 29 and 196 above. It also provided a copy of the new signed cooperation agreement between MoEW and NSI, and information that a corresponding cooperation agreement between MoEW and MAF was in its final stages of preparation. It further provided a confirmation that all four projects had commenced. In the period from 25 February 2010 up until the publication of this report Bulgaria continued to provide the ERT with updated information on the steps taken to address potential problems raised by the ERT, including: a copy of the cooperation agreement between MoEW and MAF; further details on the projects and training activities outlined in the work plan (see para. 196 above); and plans to involve an external consultant to review the 2010 annual submission.

199. While the Party has indicated good intentions to resolve issues outlined in paragraph 194 above with regard to the functions of its national system and the quality of its inventory submission, the ERT found that three of the four aforementioned projects will not be completed in time to be incorporated by Bulgaria in the planning and preparation of its next annual submission, due on 15 April 2010. This submission is also the first mandatory submission within the first commitment period of supplementary information required under

Article 7, paragraph 1, of the Kyoto Protocol, including information on KP-LULUCF. The ERT also found that the new cooperation agreement between the MoEW and NSI and between MoEW and MAF may not result in the required level of improvement in the quality of the inventory submission, as required by decision 15/CMP.1, before its next annual submission due on 15 April 2010.

200. The ERT concluded, based on its initial findings and its findings on additional information provided by the Party on 16 February 2010 up until publication of this annual review report (see para. 199 above), that the problems identified in paragraph 194 above with regard to the functions of its national system and the quality of its inventory submission, namely that Bulgaria's institutional arrangements and arrangements for technical competence of staff within the national system involved in the inventory development process were insufficient to enable the adequate planning, preparation and management of the Party's annual submission in accordance with the "Guidelines for national systems for the estimation of emissions by sources and removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol" (decision 19/CMP.1), remains an unresolved problem and lists it as a question of implementation.

In order to strengthen the institutional arrangements and to fulfil the required general and specific functions of BGNIS **a new official** agreement between MoEW and **National Statistical Institute** was signed (RD21-35/12.02.2010). A **new agreement** between MoEW and **Ministry of Agriculture and Food** and its bodies was signed (04-00-517/26.02.2010 and RD 50-47/15.03.2010). These agreements ensure the support from these organisations regarding the choice of the activity data and EFs and methods, in the compilation of emission estimates and QA/QC of these estimates.

In order **to support the ExEA staff** the MoEW signed a contract with Energy Institute for final preparation of GHGs inventory and National Inventory Report for 2010 submission. The main tasks and activities of the contract between MoEW and Energy Institute are to prepare a final version of the GHGs inventory for year 2008 and relevant NIR, to include in the final inventory and NIR the data for sector "LULUCF", obtained under a contract with an external organization, to assure the transparency, consistency, comparability, completeness and accuracy of the inventory and final NIR and to implement the requirements of National QA/QC System.

To ensure effective and timely functioning of existing BGNIS, to support the ExEA (designated as single national entity) and to assure the quality of information submitted to UNFCCC and UNECE/CLRTAP, the Minister of Environment and Water has issued **a new order № RD-218/05.03.2010**. The order regulates the names and responsibilities of the MoEW experts for implementation of the National QA/QC Plan in emissions inventory of sectors Energy, Industry, Solvents, Agriculture, LULUCF and Waste.

Bulgaria has successfully completed Project 1 – "Development of methodology for calculation of emissions and removals for LULUCF sector according to requirements of UNFCCC and Kyoto Protocol". **The results of this project have already been incorporated into the 2010 submission**. The methodology for calculation of emissions and removals for LULUCF sector according to requirements of UNFCCC and Kyoto Protocol has already been prepared under the contract between ExEA and University of Forest. The final report from successfully completed project is presented in ExEA for approval by the ExEA Expert Council. In the time of preparation of the methodology the experts from University of Forest have actively participated in the training program for LULUCF in the frame of Twinning project BG/07/IB/EN/07 with the Federal Environment Agency of Austria. Supported by Austrian expert the Bulgarian team (from ExEA and University of Forest) prepared CRF reporting tables as well as the respective chapters from NIR 2010. The complete set of CRF excel tables (from the base year up to year 2008) as well as KP-LULUCF excel table have already been submitted to UNFCCC on 15/04/2010.
The other three projects are in progress (see bellow in Technical capacity). A Medium/status reports for fulfillment of the projects are presented to the ExEA. The main outputs of the projects are presented in detail bellow. Bulgaria will use these projects to improve the capacity of the national system in planning, preparation and managing its annual submission, to improve the technical competence of the staff.

To increase the capacity in ExEA for adequate planning, preparation and management of emissions inventory for 2011 submission **a new Order № 110/30.04.2010** by the Executive Director of ExEA has been issued. The order regulates the name and responsibilities of experts from different departments within the ExEA, which are engaged to support preparation of National GHGs emission inventory. Thus the engaged departments in planning, preparation and management of emissions inventory are AMD and its EIU, LMBPAD, WD, IPPCD and ETPD (see bellow Figure 1: Organizational Chart of the Executive Environmental Agency). The responsibilities of different departments are presented below (Figure 2: Bulgarian National Inventory System – Responsibilities)

To raise the technical competence of the staff involved in the inventory planning, preparation and management, a **training programme for Bulgarian inventory experts** was updated within the Twinning project with the Federal Environment Agency of Austria. The program covered all inventory sectors in a series of workshops realised in the period December 2009 to June 2010 (see training program bellow). Additionally one study tour of the Bulgarian emission inventory co-ordinator and a second expert to Environment Agency of Austria is envisaged to be carried out. It is envisaged a Second Training to be carried out in September 2010. To increase the experience all sector experts are going to have an access to the Online training by the UNFCCC and GHG Management Institute.

In consequence of the above mentioned agreements, orders and activities, all legal, institutional and procedural options of Bulgarian's National Inventory System of greenhouse gas emissions are determined, ensuring the effective functioning in accordance with the requirements of Article 5.1 of the Kyoto Protocol and Decision 19/CMP.1, as well as the relevant requirements of EU.

PART 1

The information, written below presents the activities, which are implemented by the Government for promoting compliance with commitments under the Kyoto Protocol:

1. Commitments under Article 5, paragraphs 1 and 2, of the Protocol, prior to the beginning of the first commitment period; and
2. Commitments under Article 7, paragraphs 1, of the Protocol prior to the beginning of the first commitment period.

1 BULGARIAN National Inventory System

1.1 Requirements for national systems for greenhouse gas inventories as specified in the guidelines for Article 5.1 of the Kyoto Protocol

The Bulgarian National Inventory System (BGNIS) is developed following the requirements of the provisions of Decision 19/CMP.1 Guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol.

I APPLICABILITY
1. The provisions of these guidelines shall apply for each Party included in Annex I which is also a Party to the Kyoto Protocol. Parties' implementation of national system requirements may differ according to national circumstances, but shall include the elements described in these guidelines. Any differences in implementation shall not impair the performance of the functions described in these guidelines.

There are significant differences between Parties' approaches to the design of their national systems. The national circumstances, which are relevant to National Inventory System, can be described as follows:

- Country in transition
- provinces with "low competence"
- Hierarchic system in governmental agencies

1.1.1 History of GHGs inventory preparation

The Bulgarian National Inventory System changed over time two times because of decisions of the particular government. In the following table the national circumstances are outlined:

BGNIS until 2007 (submission 2007)	**Present BGNIS (submission 2008 -2010)**	**Prospected BGNIS (Submission 2011)**
←	Centralized inventory	→
Single institute	Single agency	→
Out-sourced inventory	In-sourced inventory	→
Private consultants	**Public/Governmental** (submission 2010 with cooperation of consultants)	**Public/Governmental** (with intensive cooperation for studies with other non-governmental institutions, universities and private consultants)
GHG and Air pollutant separate	GHG and Air pollutant separate but with direct contact / exchange of information	GHG and Air pollutant together in a single inventory
National Focal Point: Private consultants	National Focal Point: MoEW	National Focal Point: MoEW

Until 2007 the national emissions inventory as well as the relevant NIR under UNFCCC was prepared by an external company (Energy Institute) through an open tender procedure under the rules of the Public Procurement Law.

The eighteen national GHGs inventories have been prepared on annual contractual basis by the Energy Institute. The annual inventory and the NIR were presented by the Energy Institute to the ExEA Expert Council for approval.
The Council finally approved the Inventory and allowed its submission to the UNFCCC Secretariat.
Since 2008 the Executive Environment Agency (ExEA) is responsible for the whole process of inventory planning, preparation and management.

1.2 Definitions, Objectives and characteristics of a/the National Inventory System

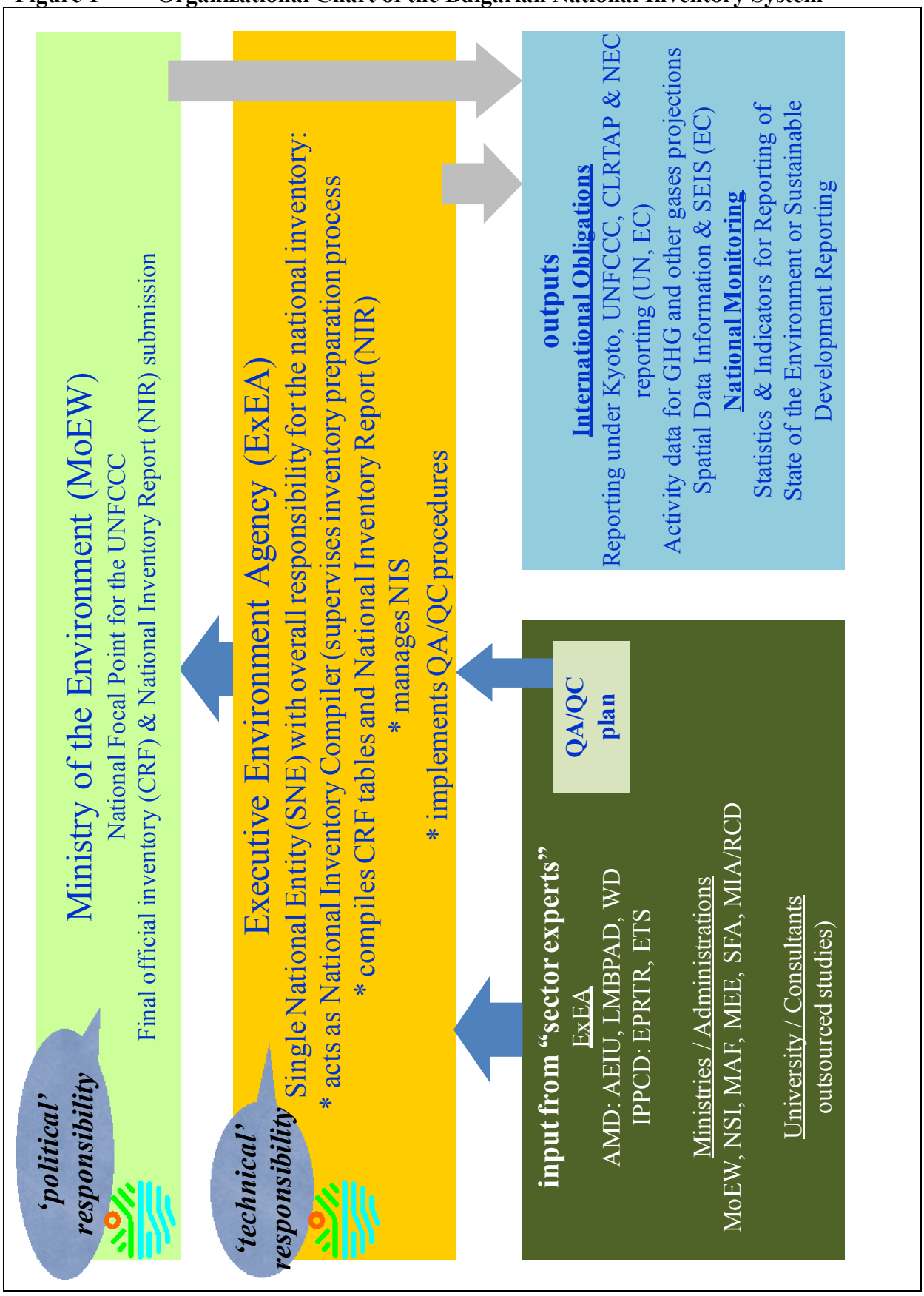
II. DEFINITIONS

A Definition of national system

2. A national system includes all institutional, legal and procedural arrangements made within a Party included in Annex I for estimating anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and for reporting and archiving inventory information.

The national system defines the "road map" in which Bulgaria prepares its inventory. This is outlined in the national inventory preparation cycle (see below part Fulfillment of paragraph 10(a) from Decision 19/CMP.1 Guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol).

Figure 1 Organizational Chart of the Bulgarian National Inventory System



As it is illustrated in 1 and outlined in the following chapters the preparation of the inventory has an institutional "home" that is ultimately responsible for managing the process and has a legal authority to collect data and submit it on behalf of the Bulgaria.
Bulgaria's reporting obligations to the UNFCCC, UNECE and EC are being administered by the MoEW. All activities on preparation of GHG inventory in Bulgaria are coordinated and managed on the state level by MoEW. The National Focal Point is Ms. Milya Dimitrova.
The Bulgarian Government by **MoEW (Climate Change Policy Directorate)** has the political responsibility for compliance with commitments under the UNFCCC and the Kyoto Protocol, including for functioning of BGNIS in accordance with the requirements of Decision 19/CMP.1 under Article 5, paragraph 1, of the Kyoto Protocol. In order to meet all challenges in this sphere, the Climate Change Policy Department has been transformed in a separate directorate and its staff has been increased with 6 experts. Now, it consists of 10 persons in total.
During the last 8 months the following strategic goals in climate change area were achieved by the Ministry of Environment and Water:
Approval of the National Allocation Plan for emission trading in the period 2008 – 2012 by the European Commission (April 2010)
The new team succeeded to redevelop the National Allocation Plan through significant change in the methodology for allocation of allowances to the Bulgarian companies falling under the EU Emission Trading Scheme. The process was coordinated with all interested parties as well as with the business trough Interministerial Working group created with an Order of the Minister. In result, the European Commission has accepted the Plan in accordance to the requirements and criteria for approval. In April 2010, 132 Bulgarian installations have received their allowances in the National Registry.
Approval of the legal framework for establishment of Bulgarian Green Investment Scheme (March 2010)
Draft amendment of the Environmental Protection Law was developed and approved by the Council of Ministers in March 2010 and now it is in the National Assembly for final adoption. The new legislation will create the main legal framework of the Bulgarian Green Investment Scheme and will allow Bulgarian government to participate in the International Emission Trading mechanism according to the article 17 of the Kyoto Protocol.
Approval of 6 JI projects
Six JI projects were approved according to the national JI Guidance and procedures. The projects are renewable energy projects – wind, hydro as well as cogeneration and gasification. The buyers of the Emission Reduction Units from those projects are Republic of Austria, The Netherlands and the Kingdom of Denmark. The implementation of those projects will generate approximately 1 962 738 tones CO2 equivalent reduction.
Approval of JI Guidance on Track 1 approach
In April 2010, the Minister of Environment and Water approved new JI Guidance on Track 1 approach. The Guidance was developed with the assistance of the Netherlands and Denmark in order to allow the early movers to go ahead. It is expected that the Bulgarian government will transfer now the early credits generated by the approved JI projects in Bulgaria before the establishment of the JI Supervisory Committee.
Development of the Third National Action Plan on Climate Change
Currently, the Ministry coordinates the development of the Third National Action Plan on Climate Change which is to be implemented in 2011-2012 and 2013-2020. The Plan is being developed under a project for international cooperation funded by the Norwegian program for cooperation and development "Holistic approach for the reduction of Greenhouse Gasses in Bulgaria".

The ExEA has been identified as the responsible organization for preparation of Bulgaria's National GHG Inventory under the UNFCCC and the Kyoto Protocol and designated as single national entity (see bellow Legal bases)**.**

The ExEA is represented and managed by an Executive Director. The Emission Inventory Unit ("Emission Inventory Sector") which is described in the following chapters is allocated in the Environmental Monitoring Directorate (see **Figure 2**).

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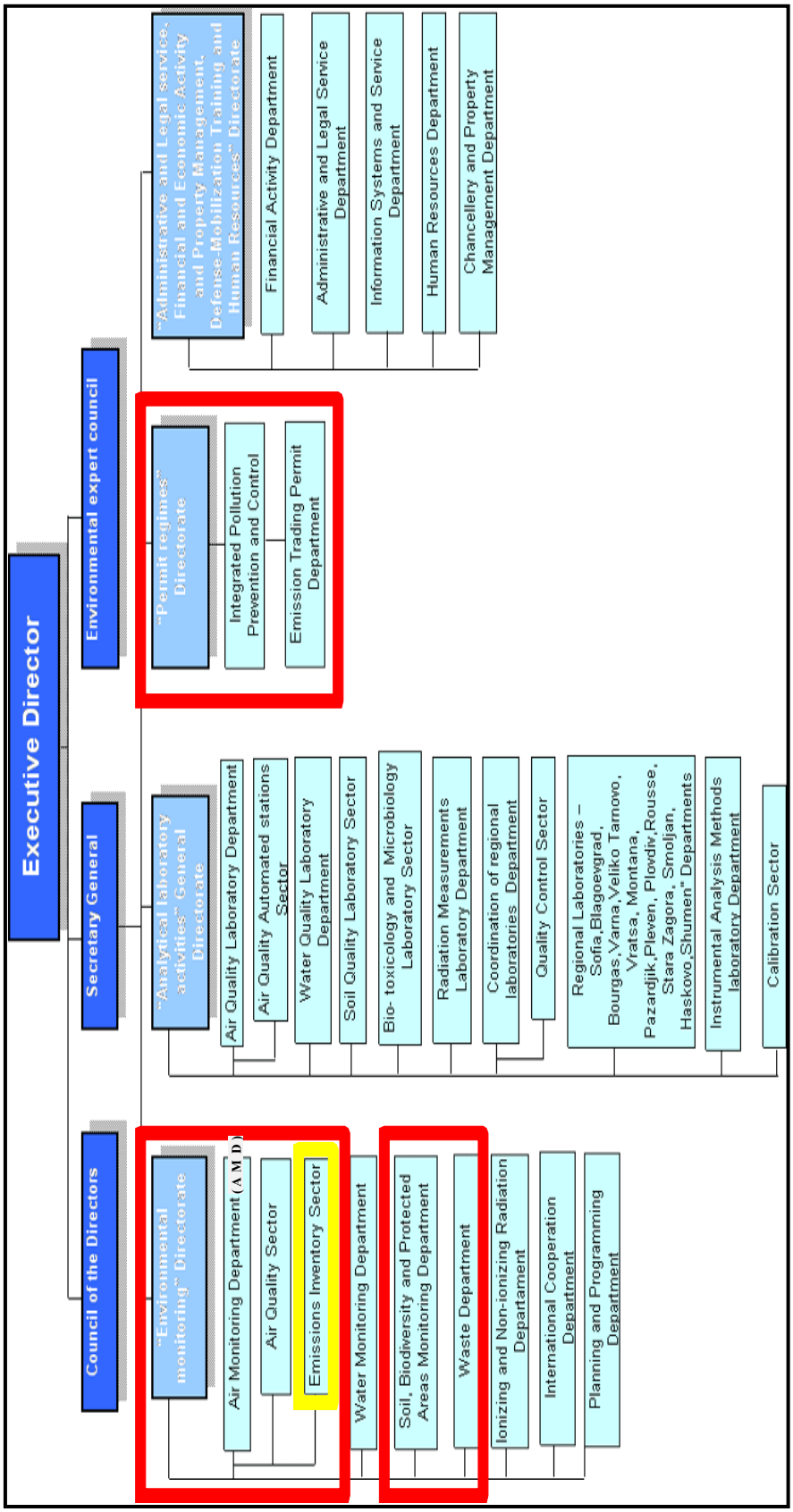
The ExEA's directorates and departments, which are directly involved in operation of the BGNIS are

- **Environmental Monitoring Directorate** with the Air Monitoring Department **(**AMD), Emission Inventory Unit **(**EIU), Land Monitoring Biodiversity and Protected Areas (LMBPAD), Waste Department (WD) and
- **Permit Regime Directorate with the** Integrated Pollution Prevention and Control Department **(**IPPCD) and Emission Trading Permit Department (ETPD).

Figure 2 Organizational Chart of the Executive Environmental Agency



The specific responsibilities of the different departments/units are presented below in part Legal arrangements of the Bulgarian National Inventory System (Figure 3 Bulgarian National Inventory System – Responsibilities).

B. Other definitions

3. The meaning of the following terms in these guidelines for national systems is the same as in the glossary of the Intergovernmental Panel on Climate Change (IPCC) good practice guidance, accepted by the IPCC at its sixteenth session:

(a) *Good practice* is a set of procedures intended to ensure that greenhouse gas inventories are accurate in the sense that they are systematically neither over - nor underestimated as far as can be judged, and that uncertainties are reduced as far as possible. Good practice covers choice of estimation methods appropriate to national circumstances, quality assurance and quality control at the national level, quantification of uncertainties, and data archiving and reporting to promote transparency;

(b) *Quality control (QC)* is a system of routine technical activities to measure and control the quality of the inventory as it is being developed. The QC system is designed to:

(i) Provide routine and consistent checks to ensure data integrity, correctness and completeness;

(ii) Identify and address errors and omissions;

(iii) Document and archive inventory material and record all QC activities.

QC activities include general methods such as accuracy checks on data acquisition and calculations and the use of approved standardized procedures for emission calculations, measurements, estimating uncertainties, archiving information and reporting. Higher tier QC activities also include technical reviews of source categories, activity and emission factor data and methods;

(c) *Quality assurance (QA)* activities include a planned system of review procedures conducted by personnel not directly involved in the inventory compilation development process, to verify that data quality objectives were met, ensure that the inventory represents the best possible estimate of emissions and sinks given the current state of scientific knowledge and data available, and support the effectiveness of the QC programme;

(d) *Key source category* is one that is prioritized within the national inventory because its estimate has a significant influence on a country's total inventory of direct greenhouse gases in terms of the absolute level of emissions, the trend in emissions, or both;

(e) *Decision tree* is a flow-chart describing the specific ordered steps which need to be followed to develop an inventory or an inventory component in accordance with the principles of good practice.

4. *Recalculation*, consistent with the UNFCCC reporting guidelines on annual inventories, is a procedure for re-estimating anthropogenic greenhouse gas (GHG) emissions by sources and removals by sinks of previously submitted inventories as a consequence of changes in methodologies, changes in the manner in which emission factors and activity data are obtained and used, or the inclusion of new source and sink categories.

These definitions, which are taken directly from the IPCC Good Practice Guidance, are incorporated in BGNIS which is outlined below.

III. OBJECTIVES

5. The objectives of national systems under Article 5, paragraph 1, for the estimation of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, referred to below as national systems, are:

(a) To enable Parties included in Annex I to estimate anthropogenic GHG emissions by sources and removals by sinks, as required by Article 5, and to report these emissions by sources and removals by sinks in accordance with Article 7, paragraph 1, and relevant decisions of the Conference of the Parties (COP) and/or the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP);

(b) To assist Parties included in Annex I in meeting their commitments under Article 3 and Article 7,

(c) To facilitate the review of the information submitted under Article 7 by Parties included in Annex I, as required by Article 8;

(d) To assist Parties included in Annex I to ensure and improve the quality of their inventories.

The overall objective of the BGNIS is annually to produce a high quality inventory (National CRF, Kyoto and SEF tables and NIR) for compliance with its Kyoto commitment and to submit it by the required deadline.

IV. CHARACTERISTICS

6. National system is designed and operated to ensure the transparency, consistency, comparability, completeness and accuracy (TCCCA) of inventories as defined in the guidelines for the preparation of inventories by Parties included in Annex I, in accordance with relevant decisions of the COP and/or COP/MOP.

7. National systems should be designed and operated to ensure the quality of the inventory through planning, preparation and management of inventory activities. Inventory activities include collecting activity data, selecting methods and emission factors appropriately, estimating anthropogenic GHG emissions by sources and removals by sinks, implementing uncertainty assessment and quality assurance/quality control (QA/QC) activities, and carrying out procedures for the verification of the inventory data at the national level, as described in these guidelines for national systems.

8. National systems should be designed and operated to support compliance with Kyoto Protocol commitments related to the estimation of anthropogenic GHG emissions by sources and removals by sinks

9. National systems should be designed and operated to enable Parties included in Annex I to consistently estimate anthropogenic emissions by all sources and removals by all sinks of all GHGs, as covered by the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, IPCC good practice guidance and Good Practice Guidance for Land Use, Land-Use Change and Forestry*, in accordance with relevant decisions of the COP and/or COP/MOP.

The objective of a BGNIS is annually to produce a high quality inventory, with "quality" being defined by the TCCCA criteria.

1.3 General Functions

V. General functions

10. In the implementation of its national system, each Party included in Annex I shall:

(a) Establish and maintain the institutional, legal and procedural arrangements necessary to perform the functions defined in these guidelines for national systems, as appropriate, between the government agencies and other entities responsible for the performance of all functions defined in these guidelines
(b) Ensure sufficient capacity for timely performance of the functions defined in these guidelines for national systems, including data collection for estimating anthropogenic GHG emissions by sources and removals by sinks and arrangements for technical competence of the staff involved in the inventory development process;
(c) Designate a single national entity with overall responsibility for the national inventory;
(d) Prepare national annual inventories and supplementary information in a timely manner in accordance with Article 5 and Article 7, paragraphs 1 and 2, and relevant decisions of the COP and/or COP/MOP.

1.3.1 Legal basis of the BGNIS

Fulfillment of paragraph 10(a)

The Republic of Bulgaria joined the UNFCCC in 1992 and the Parliament ratified it in March 1995. As an Annex I Party to the Convention, Bulgaria is committed to conduct annual inventories on greenhouse gas (GHG) emissions by sources and removals by sinks, using the GHG inventory methodology, approved by the UNFCCC. The inventories started with the country base year – 1988. The first inventories covered the period 1988-1994 as a part of the international project "Country Study to Address Climate Change".

Legal basis of the BGNIS

As it illustrated in Figure 1 and outlined shortly the

- Bulgaria's reporting obligations **to the UNFCCC, UNECE** and EC are being administered by the MoEW. All activities on preparation of GHG inventories in Bulgaria are coordinated and managed on the state level by MoEW. The Bulgarian Government by MoEW has the political responsibility for compliance with commitments under the Kyoto Protocol, including for functioning of BGNIS in accordance with the requirements of Decision 19/CMP.1 under Article 5, paragraph 1, of the Kyoto Protocol.
    - National Focal Point
    - Approval
    - Submission of CRF / NIR / Kyoto Tables / SEF
- The ExEA has been identified as the responsible organization for preparation of Bulgaria's National GHG Inventory under the UNFCCC and the Kyoto Protocol and designated as ***single national entity.*** ExEA has the technical responsibility for the national inventory:
    - acts as National Inventory Compiler (supervises inventory preparation process);
    - compiles CRF tables and NIR;
    - manages BGNIS;
    - implements QA/QC procedures.
    - National Inventory Focal Point

The basis for BGNIS is:

1. Environmental Protection Act (State Gazette No. 91/25.09.2002; Corrected, SG No. 96/2002; Last amendment SG No. 47/2009) (see Annex1);
2. Regulation on the organization and structure of ExEA (Decision of Council of ministers 25.04.2000, Corrected SG No. 94/2009) (see Annex 2);
3. Order № RD-54/25.01.2007 by the Minister of Environment and Water (see Annex 3);
4. Order № RD-377/08.06.2007 by the Minister of Environment and Water (see Annex 4);
5. Order № -78/26.08.2009 by the Executive Director of ExEA (see Annex 5), replaced with Order № 110/30.04.2010 (see Annex 6)
6. Order № RD-218/05.03.2010 by the Minister of Environment and Water (see Annex 7)

Add 1.

EPA (State Gazette No. 91/25.09.2002; Corrected, SG No. 96/2002; Last amendment SG No. 47/2009), which establishes the National Environmental Monitoring System, make clear the responsibility for preparation inventories under both conventions and lists of its tasks

Chapter One: GENERAL DISPOSITIONS

Article 11: The Minister of Environment and Water shall perform the following functions:

(2) direct the National Environmental Monitoring System through the **Executive Environment Agency**;

Article 13:

(1) The Executive Environment Agency with the Minister of Environment and Water shall direct the National Environmental Monitoring System.

(2) The Executive Environment Agency shall be a legal person.

(3) The Executive Environment Agency shall be managed and represented by an Executive Director.

(4) The operation, the structure, the organization of work and the staffing of the Executive Environment Agency shall be determined by Rules of Organization adopted by the Council of Ministers.

- Chapter Eight: NATIONAL ENVIRONMENTAL MONITORING SYSTEM

  Article 144 (1) The National Environmental Monitoring System shall comprehend:

  1. the national networks for:
  2. **a system for information on**, and control of, **air emissions** and the state of waste waters;

Add 2.

EPA establishes the national Executive Environment Agency (ExEA) according to **Regulation on the organization and structure of ExEA** (Decision of Council of ministers 25.04.2000, Corrected SG No. 94/2009), which regulate it's responsibilities for monitoring of environment as well as the responsibility for preparation of emission inventories.

The Air Monitoring Department of ExEA prepares and annually updates the air emissions inventories [according to article 14 (12) of the above Regulation].

Add 3.

To ensure the effective and timely functioning of NIS, as well as complete reporting under the UNFCCC and the UNECE/LRTAP Convention, the **Order № RD-54/25.01.2007**, issued by the Minister of Environment and Water, defines the organization of the activities concerning the preparation and presentation of the national emissions inventories and their supporting reports under the Secretariats of UNFCCC and UNECE/LRTAP Convention.

In conformity with the requirements of the UNFCCC and the UNECE/LRTAP Convention, the above mentioned **Order** defines the following:

- Procedures for inventory of air emissions, including the anthropogenic GHGs emissions in the atmosphere;
- Responsible institutions (MoEW, ExEA and NSI) and their obligations, including the main sources of input data – MIA, MEE, MAFS and SFA;
- QA/QC Procedures;
- Preparation of the national reports for the results of the inventories (NIR and IIR);
- The order and requirements for archiving of the information.

Add 4.
In additional, an **Order № RD-377/08.06.2007** by the Minister of Environment and Water determines the following:

- Procedures and requirements for reporting to the European Commission and the European Environment Agency
- Timely performance of all activities concerning the preparation of inventories and relevant national reports.

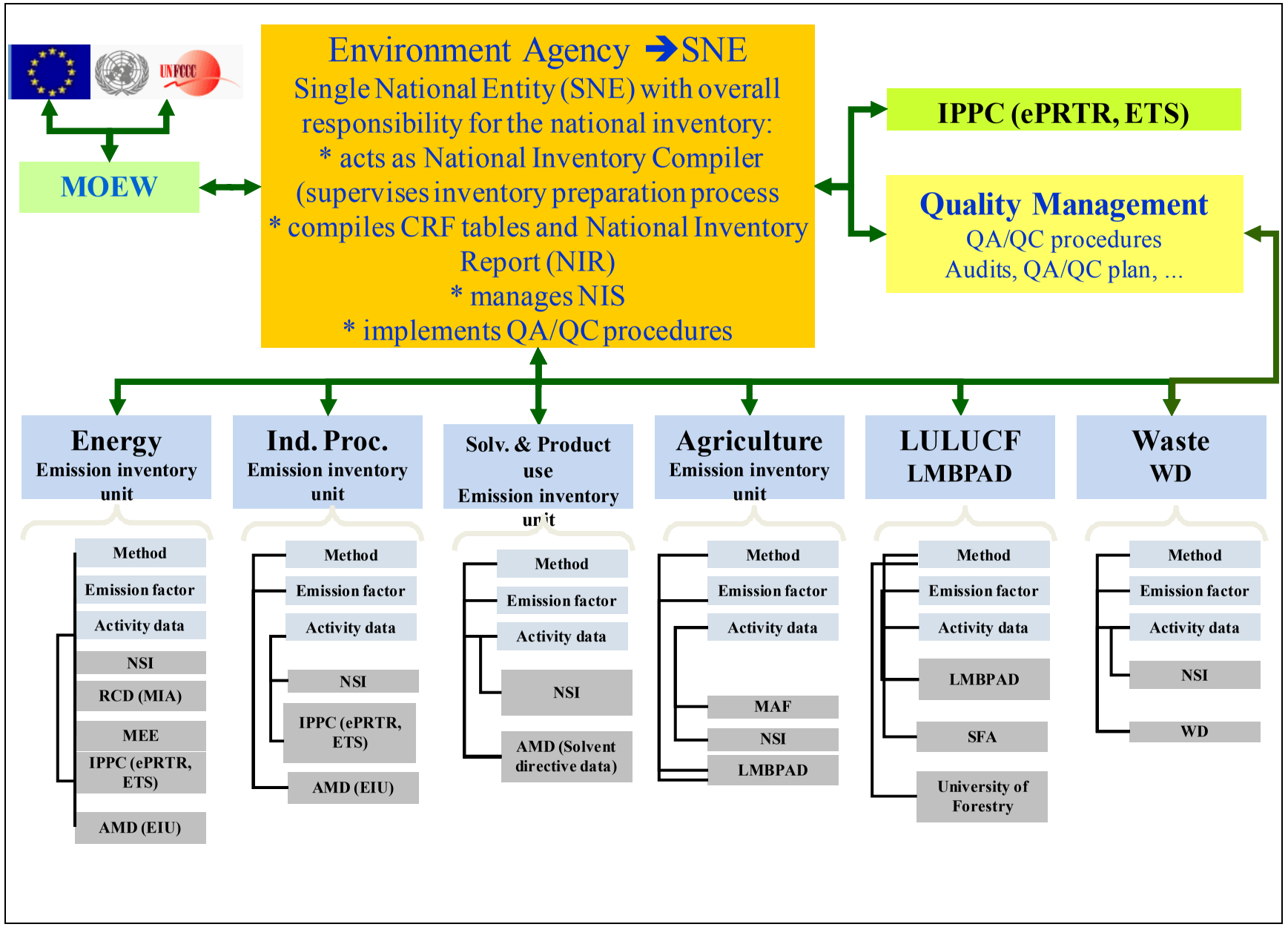
Add 5.
To increase the capacity in ExEA for adequate planning, preparation and management of emissions inventory **a new Order № RD- 110/30.04.2010** by the Executive Director of ExEA has been issued. The order regulates the name and responsibilities of experts from different departments within the ExEA, which are engaged to support preparation of National GHGs emission inventory. Thus the engaged departments in planning, preparation and management of emissions inventory are AMD and its EIU, LMBPAD, WD, IPPCD and ETPD (see bellow Figure 2: Organizational Chart of the Executive Environmental Agency). The responsibilities of different departments are presented below (Figure 3: Bulgarian National Inventory System – Responsibilities).

Add 6.
To assure the quality of information reported to UNFCCC and UNECE and to support the single national entity, the Minister of Environment and Water has issued a new **order № RD-218/05.03.2010**.The order regulates the names and responsibilities of the MoEW and ExEA experts for implementation of the requirements of National QA/QC Plan in emissions inventory of sectors Energy, Industry, Solvents, Agriculture, LULUCF and Waste.

1.3.2 Legal arrangements

In Figure the legal arrangements are described in detail.

Figure 3: Bulgarian National Inventory System – Responsibilities


Environment Agency ➔SNE
Single National Entity (SNE) with overall responsibility for the national inventory:
* acts as National Inventory Compiler (supervises inventory preparation process
* compiles CRF tables and National Inventory Report (NIR)
* manages NIS
* implements QA/QC procedures
MOEW
IPPC (ePRTR, ETS)
Quality Management
QA/QC procedures
Audits, QA/QC plan, ...
Energy
Emission inventory unit
Method
Emission factor
Activity data
NSI
RCD (MIA)
MEE
IPPC (ePRTR, ETS)
AMD (EIU)
Ind. Proc.
Emission inventory unit
Method
Emission factor
Activity data
NSI
IPPC (ePRTR, ETS)
AMD (EIU)
Solv. & Product use
Emission inventory unit
Method
Emission factor
Activity data
NSI
AMD (Solvent directive data)
Agriculture
Emission inventory unit
Method
Emission factor
Activity data
MAF
NSI
LMBPAD
LULUCF
LMBPAD
Method
Emission factor
Activity data
LMBPAD
SFA
University of Forestry
Waste
WD
Method
Emission factor
Activity data
NSI
WD

1.3.3 Institutional Arrangements

The ExEA as Single National Entity coordinates all activities, related to

(A) Collecting inventory data of GHG emissions by the following state authorities:

1. National Statistics Institute – **New official**[4] **agreement** (see Annex 8);
2. Statistics Department within Ministry of Agriculture and Food (MAF) and their relevant services - **New official agreement** (see Annex 9) ;
3. Ministry of Economy and Energy (MEE)– **official letter**[5];
4. Ministry of Environment and Water- – **official letter**;
5. State Forestry Agency (SFA) - **New official agreement**;
6. Road Control Department within the Ministry of Internal Affairs (RCD/MIA) – **official letter**;

1.3.4 Other arrangement of the Bulgarian National Inventory System

7. Large industrial plants – **official letter** (questionnaire);
8. Branch Business Associations – **official letter** (questionnaire)

and aggregates on a national level the data relevant for GHG emissions.

The official letters, mentioned above are presented in Annexes 10 – 20.

1.3.5 Data basis - Collection of activity data by ExEA:

- The information is collected on the annual basis.
- The ExEA sends every year letters with request for provision of the necessary activity data to every one of the information sources, including the deadline for response (see Annexes 10 - 20).
- For NSI, MAF, SFA the type of the necessary data, as well as the deadlines for submissions to ExEA are regulated by the official agreements mentioned above.

The annual national energy and material balances as well as the data related to the solid waste generation and the wastewater treatment are prepared by NSI. NSI uses up-to-date statistical methods and procedures for data collection, summarizing and structuring that are harmonized with EUROSTAT.
The GHG inventory use data, received directly from large point sources in the energy sector and the industry and this data is summarized by ExEA.

In consequence of the above mentioned agreements and orders, all institutional and procedural options of Bulgarian's National Inventory System of greenhouse gas emissions are determined, ensuring the effective functioning in accordance with the requirements of Article 5.1 of the Kyoto Protocol and Decision 19/CMP.1, as well as the relevant requirements of EU.

[4] Signed by both ministries
[5] Instruction of information exchange

Table 1: Sources of Activity Data for preparation of national GHGs emission inventory

Sectors	**Data Source of Activity Data**	**Data supplier**	
1. Energy			
1A Fuel Combustion	Energy balance	NSI	National statistical Institute
1.A.3 Transport	Energy balance	NSI	National statistical Institute
	Statistics vehicle fleet	MIA/RCD	Ministry of Internal Affairs/ Road Control Department
1.B Fugitive emissions	Energy balance	NSI	National statistical Institute
	National statistics	MEE	Ministry of Economy and Energy
2. Industrial processes	National production statistics	NSI	National statistical Institute
	National studies	MoEW	Ministry of Environment and Water
3. Solvents	National production statistics	NSI	National statistical Institute
4. Agriculture	National agriculture statistics	MAF	Ministry of Agriculture and Food Supply /Statistics Department
5. LULUCF	National Forest Inventory	SFA	State Forestry Agency
6. Waste	National statistics	NSI	National statistical Institute
	National studies	ExEA	Executive Environment Agency/ Waste Department

According to **National Statistics Act** the NSI has to prepare annually national material and energy balances. NSI has its **internal regulations**, which determine the responsibilities of its departments, including their responsibilities with regard to activity data provision and data quality control.

The NSI plays a special role in data collection system for the inventory.

Till the end of 2009 the collaboration between MoEW and NSI regarding the provision and exchange of the statistical and environmental information was regulated by an **official agreement RD21-25/30.01.2003.**

In order to strengthen the institutional arrangements and to fulfil the required general and specific functions of BGNIS a **new agreement** between MoEW and NSI was signed **RD21-35/12.02.2010** (see Annex 8).

NSI has a two level hierarchical structure - National office and Regional offices. The primary statistical questionnaires are collected at the regional statistical offices, examined for

consistency of data and processed. The National office receives the primary information and the processed information from the regional offices and develops the National totals and balances.
Ministry of Agriculture and Food (MAF) plays a special role in data collection system for the inventory. Till March 2010 the collaboration between MoEW and MAF regarding the provision and exchange of the necessary activity data was regulated by an official agreement RD50-130/02.06.2004.
In order to strengthen the institutional arrangements and to fulfill the required general and specific functions of BGNIS a new agreement between MoEW and MAF and its institutions was signed 04-00-517/26.02.2010 and RD 50-47/15.03.2010 (see Annex 9).
These agreements ensure the support from these organisations regarding the choice of the activity data and EFs and methods, in the compilation of emission estimates and QA/QC of these estimates.

1.3.6 Procedural arrangements

The GHG inventory represents a process, covering the following main activities:

- Collecting, processing and assessment of input data on used fuels, produced output, materials and other GHG emission sources;
- Selection and application of emission factors for estimating the emissions;
- Determination of the basic (key) Key Category Analysis and assessment of the results uncertainty

1.3.7 Expert capacity in ExEA

Fullfillment of paragraph 10(b) Ensure sufficient capacity for timely performance of the functions defined in these guidelines for national systems, including data collection for estimating anthropogenic GHG emissions by sources and removals by sinks and arrangements for technical competence of the staff involved in the inventory development process

1.3.7.1 Expert capacity in ExEA - Emission Inventory Unit

As it is written above EPA establishes the national ExEA according to **Regulation on the organization and structure of ExEA** (Decision of Council of ministers 25.04.2000, Corrected SG No. 94/2009), which regulate it's responsibilities for monitoring of environment as well as the responsibility for preparation of emission inventories (see Annex 3).
The Air Monitoring Department by its Emission Inventory Unit prepares and annually updates the air emissions inventories [according to article 14 (12) of the above Regulation].

The Head of EIU has the main role in BGNIS as National Inventory Compiler (supervises inventory preparation process, compiles CRF tables and NIR, manages BGNIS implements QA/QC procedures on a national level)

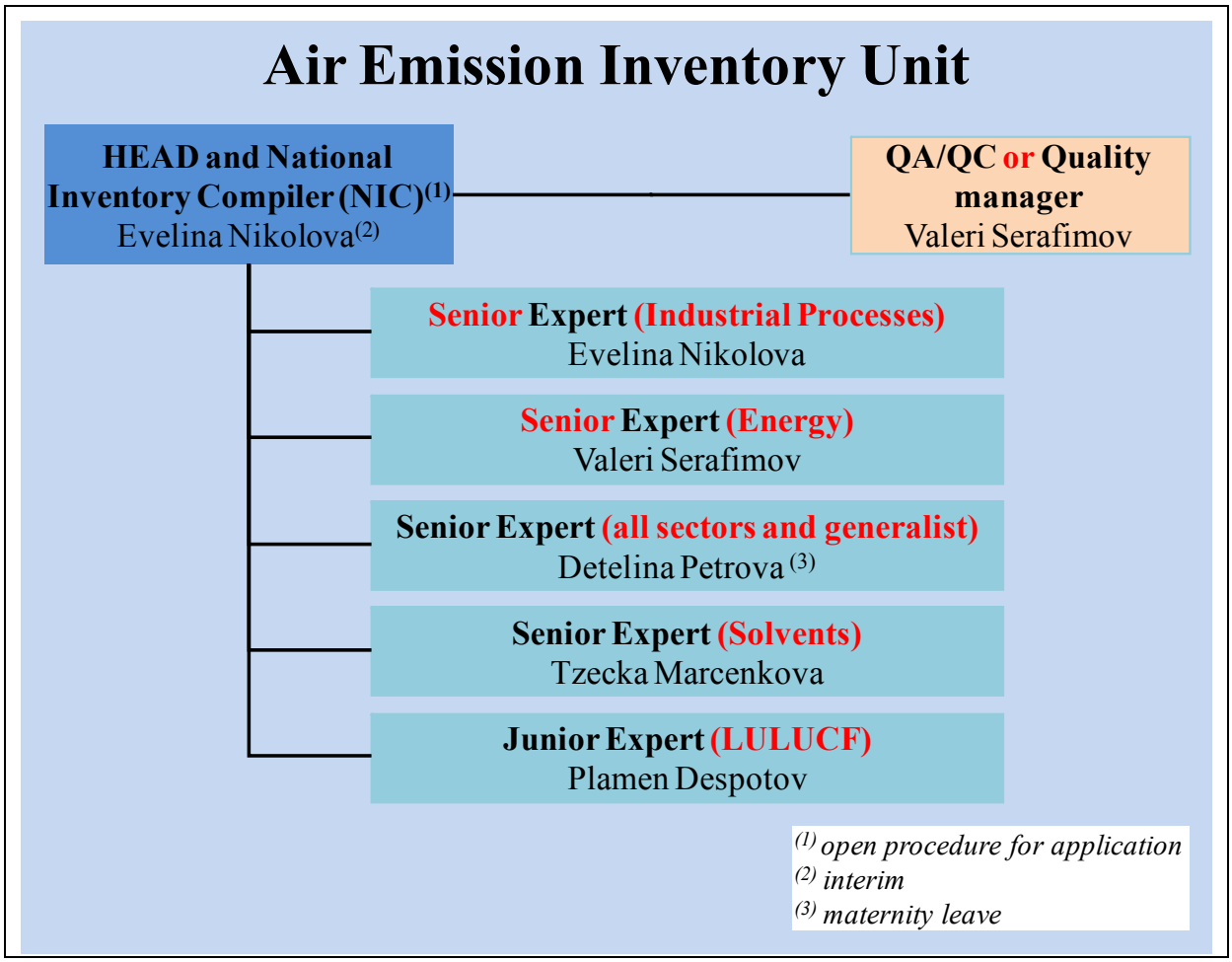
The responsibilities of the Sector experts

Within the inventory system specific responsibilities for the different emission source categories are defined ("sector experts"), as well as for all activities related to the preparation of the inventory, including QA/QC, data management and reporting.
The sector experts are in charge of specific responsibilities related to choice of methods, data collection, processing and archiving. Sector experts are also responsible for performing

Quality Control (QC) activities that are incorporated in the Quality Management System (QMS) (see below).

The next figure 4 presents the available staff/experts in Emission Inventory Unit of ExEA.

Figure 4: **ExEA capacity for ensuring the function of BGNIS**



Head of Emission Inventory Unit and National Inventory Compiler (NIC) **Sector Expert of the IPCC Sector Industrial Processes** **Evelina Nikolova, Masters of Chemistry, Inorganic and Analytical Chemistry (see Annex 21)**		
Air Monitoring Department		
	Head (interim) of Air Emission Inventory Unit in Air Monitoring Department • National Air Emission Inventory under the UNECE/CLRTAP and NEC directive, emissions data reporting to the European Environment Agency; • Preparation of UNECE/LRTAP Inventory and Informative Inventory report (IIR)	• National Reporting Contact (NRC) for Air Emissions to the EEA (UNECE and NEC directive) • National Inventory Focal Point (NIFP) / National coordinator for greenhouse gas inventory
	Head of Air Quality Unit in Air Monitoring Department •	
Training		
	Training in the Framework of the Twinning "Greenhouse Gas Emission Inventories	2007
	Training in the Framework of the Twinning "BG/07/IB/EN/07 Further Development of EEA's Calibration lab as a National Reference Laboratory and Optimisation of the National Quality Assurance and Quality Control System for Ambient Air Quality Measurements" • General workshop • Energy Workshop	2010
	TFEIP Task Force on Emission Inventories and Projections	Since 2002

Sector Expert of the IPCC Sector Energy and Quality Manager **Valeri Serafimov (see Annex 22)**		
Air Monitoring Department		
	• Head of Air Monitoring Department • Overall responsibility for the preparation of Bulgaria's emission inventory (greenhouse gases, air pollutants) and related reports.	• National Reporting Contact for Air Quality to the EEA
	•	
Training		
	Training in the Framework of the Twinning "Greenhouse Gas Emission Inventories	2007
	Training in the Framework of the Twinning "BG/07/IB/EN/07 Further Development of EEA's Calibration lab as a National Reference Laboratory and Optimisation of the National Quality Assurance and Quality Control System for Ambient Air Quality Measurements" • General workshop • Energy Workshop	2010

Sector Expert of all IPCC Sectors and Generalist **Detelina Petrova, (see Annex 23)**		
Air Monitoring Department		
	• General responsibility for the preparation of Bulgaria's emission inventory (greenhouse gases) and related reports.	• National Inventory Focal Point / National coordinator for greenhouse gas inventory (2008 - 2009)

Training		
	Training in the Framework of the Twinning "Greenhouse Gas Emission Inventories	2007
	Training in the Framework of the Twinning "BG/07/IB/EN/07 Further Development of EEA's Calibration lab as a National Reference Laboratory and Optimisation of the National Quality Assurance and Quality Control System for Ambient Air Quality Measurements"	2009

Sector Expert of the IPCC Sector Solvents **Tzecka Marcenkova (see Annex 24)**		
Air Monitoring Department,		
	• Responsibility for the preparation of Bulgaria's emission inventory – Sector Solvents - (greenhouse gases) and related reports.	
Training		
	Training in the Framework of the Twinning "BG/07/IB/EN/07 Further Development of EEA's Calibration lab as a National Reference Laboratory and Optimisation of the National Quality Assurance and Quality Control System for Ambient Air Quality Measurements" • General workshop • Solvent Workshop (scheduled)	2010

Plamen Despotov (see Annex 25) **Sector Expert of the IPCC Sector 4 Agriculture and Sector 5 LULUCF**		
Air Monitoring Department, ..		
	General responsibility[6] for the preparation of Bulgaria's emission inventory (greenhouse gases) and related reports. Responsibility for the preparation of Bulgaria's emission inventory – Sectors Agriculture and LULUCF - (greenhouse gases) and related reports.	
Training		
	Training in the Framework of the Twinning "BG/07/IB/EN/07 Further Development of EEA's Calibration lab as a National Reference Laboratory and Optimisation of the National Quality Assurance and Quality Control System for Ambient Air Quality Measurements" • General workshop • Energy Workshop • LULUCF Workshop	2010

[6] Interim

Job advertisement (open procedure for application) Head of EIU		
	Requirements	
	• University degree • Technical qualification • Experience in the field of Environment	• Application deadline: 26-04-2010
	• Advertisement in Newspaper "24 hour" from 16-04-2010	

It is envisaged additionally 1 sector expert for Energy to be employed in EIU.

"Open Job" Energy Expert		
	Requirements	
	• University degree • Technical qualification • Experience in the field of Energy	
	Bilateral discussion concerning a "new" employment of an Energy Expert in Emission Inventory Unit between Minister of Environment and Water and Executive Director of ExEA.	

The curriculum vitas of the Executive Director of ExEA and experts from ExEA's LMBPAD, WD, IPPCD and ETPD are presented in the folder CV to the Annexes. In the same folder are presented also some CV of the experts from Climate Change Policy Directorate, MoEW .

1.3.7.2Engaged departments within ExEA

In order to improve the capacity of the BGNIS in planning, preparation and managing its annual submissions the extension of the ExEA staff has been realised in the beginning of 2010. Additionally to the existing expert in Emissions Inventory Unit, presented above there are one sector expert for Waste (from WD), one sector expert for LULUCF (from LMBPAD) and two sector experts for sectors Energy and Industrial Processes (from IPPCD and ETPD) available in the ExEA (see Figure 1 and Figure 2).

As it is written above the distribution of responsibilities of different departments/units within the MoEW and ExEA for inventory preparation is according to:

- Order № RD-54/25.01.2007 by the Minister of Environment and Water;
- Order № RD-377/08.06.2007 by the Minister of Environment and Water;
- Order № 78/26.08.2009 by the Executive Director of ExEA;.
- Order № RD-218/05.03.2010 by the Minister of Environment and Water;
- Order № 110/30.04.2010 by the Executive Director of ExEA.

1.3.7.3Training of Bulgarian experts

Workshops and Training on the job

To raise the technical competence of staff involved in the inventory development process, a training programme for Bulgarian inventory experts was updated within the Twinning project

with the Federal Environment Agency of Austria[7]. The program covered all inventory sectors in a series of workshops realised in the period December 2009 to June 2010.

Table 2: Timetable for Activity 3.1 from Twinning project BG/07/IB/EN/07 with the Federal Environment Agency of Austria, Section Training on GHG emission inventory reporting

Sector	Missions	Duration	Date	STE	Suggested Participants
General Workshop	1 mission	2 days	25 - 26 February 2010	Traute Köther	All relevant "sector experts" directly involved in the inventory and interested stakeholders (e.g. data provider)
	1 mission	2 days	25 – 26 May 2010 (confirmed dates)		
Energy	1st mission	2 -3 days	16 – 19 March 2010	Stephan Poupa	ExEA Energy Expert Energy Expert NSI Energy Experts Energy Institute (Energy) Experts MoEW Experts from Ministry of Economy and Energy and Tourism Geophysical Institute in the Bulgarian Academy of Scientific
	2nd mission	2 -3 days	9 – 12 June 2010 (confirmed dates)		
Transport	1st mission	1 day	1 March 2010	Traute Köther	ExEA Transport Expert Experts (vehicle fleet) from MIA/RCD Energy Expert NSI (Energy/Transport) Experts MoEW
	2nd mission	2 -3 days	1 – 4 June 2010 (confirmed dates)	Marc Schuman	
Agriculture	1st mission	1 day	17 – 18 June 2010 (confirmed dates)	Michael Anderl	ExEA Agriculture experts Experts from Statistics Department within Ministry of Agriculture and Food Supply Experts MoEW Soil Resource Executive Agency within MAFS National Service for Plant Protection, Quarantine and Agro chemistry
	2nd mission	2 days	Envisaged dates: 1 – 30 September 2010		
Industrial Processes and Solvents	1 mission	2 -3 days	27 – 28 May 2010 (confirmed dates)	Traute Koether	ExEA Industrial Processes Experts Industrial Processes Experts (MoEW)
Waste	1 mission	2 -3 days	8 – 9 June 2010 (confirmed dates)	Katja Pazdernik	ExEA Waste Experts (Waste) Experts MoEW (Waste) Experts NSI
QA/QC audit	1 mission	2 days	End of June 2010 (to be specified)	Traute Koether	ExEA Experts Experts MoEW

[7] The Twinning Partner "Austrian Federal Environment Agency" has already experience as supporting role / expert in preparing GHG and air emission inventory and reporting (UNFCCC, UNECE/LRTAP and NEC); FCCC/ARR/2008/LUX para 8: "…. The ERT noted that three relevant studies have been outsourced to external experts and that the improvements are mainly the result of research activities and intensive cooperation with the Austrian Federal Environment Agency."

Sector	Missions	Duration	Date	STE	Suggested Participants
LULUCF[8]	4 missions	2 -3 days	3 – 16 November 2009 12 – 15 January 2010 14 – 17 February 2010 21 – 24 March 2010 7 – 9 April 2010 (training concluded)	Peter Weiss	ExEA LULUCF Experts Experts from the Forestry University Experts from the Soil Institute "Pushkarov" MoEW experts
LULUCF	1 mission	2 -3 days	upon demand from BC, i.e. eventually: September – October 2010	Peter Weiss	ExEA LULUCF Experts Experts from the Forestry University Experts from the Soil Institute "Pushkarov" MoEW experts

Study tour / Training abroad

Additionally to the training program, mentioned above one study tour of the Bulgarian emission inventory co-ordinator and a second expert to Environment Agency of Austria is envisaged to be carried out, according to the twinning work plan (see Annex 26)
During expert missions and one study tour of the Bulgarian experts to Vienna the Austrian expert team will dispose of all required first-hand background information from the last UNFCCC in-depth review of the Bulgarian GHG inventory.

1.3.8 Online training

To raise the technical competence of staff involved in the inventory development and review process, all sector experts are going to have an access to the Online training by the UNFCCC and GHG Management Institute (GHGMI)[9]

Basic Course[10]

This course covers technical aspects of the review of GHG inventories of Annex I Parties. It consists of seven modules: one general module, "Overview of UNFCCC Review Process and General IPCC Inventory Guidance" and individual modules on the review of individual IPCC sectors: Energy (Fuel Combustion and Fugitive Emissions), Industrial Processes, Agriculture, LULUCF and Waste. Each of the modules provides important background information and references for the sector, instruction on general procedures for review, exercises on key topics and specific emission categories, and practical case studies that simulate an actual review.

The courses are also available to trainees all year round, without instructor.
The NIFP will organize the nomination of the sector expert[11]

[8] Mission report from Peter Weiss; Austrian Federal Environment Agency
[9] http://ghginstitute.org/2010/03/03/the-unfccc-expert-reviewer-training-programme-is-ongoing
[10] http://unfccc.int/national_reports/annex_i_ghg_inventories/inventory_review_training/items/2763.php
http://unfccc.int/national_reports/annex_i_ghg_inventories/inventory_review_training/items/2764.php
[11] Contact : ghgtraining@unfccc.int

1.3.9 Technical capacity[12]

In 2009 the MoEW approved four projects, whose defined objectives are to improve the Party's current estimation methodologies, the technical competence of the staff within the national system, and the management and archiving of data. The four projects have already begun.
Bulgaria will use the above mentioned projects to improve the capacity of the national system in planning, preparation and managing its annual submission, to improve the technical competence of the staff.

Project 1 - LULUCF:

- Project 1 – "Development of methodology for calculation of emissions and removals for LULUCF sector according to requirements of UNFCCC and Kyoto Protocol". This project was contracted on 24 November 2009 and it was completed by 24 April 2010. **The results of this project have already been incorporated into the 2010 submission** (see Annex 27).
    - The methodology for calculation of emissions and removals for LULUCF sector according to requirements of UNFCCC and Kyoto Protocol has already been prepared under the contract between ExEA and University of Forest.
    - The final report from successfully completed project is presented in ExEA for approval by the ExEA Expert Council.
    - In the time of preparation of the methodology the experts from University of Forest have actively participated in the training program for LULUCF in the frame of Twinning project BG/07/IB/EN/07 with the Federal Environment Agency of Austria.
    - Supported by Austrian expert the Bulgarian team (from ExEA and University of Forest) prepared CRF reporting tables as well as the respective chapters from NIR 2010.
    - The complete set of CRF excel tables (from the base year up to year 2008) as well as KP-LULUCF excel table have already been submitted to UNFCCC on 15/04/2010.

Project 2 –Non GHG gases reporting obligation

- Project 2 – "Recalculations of previously submitted estimates of emissions under UNFCCC and the European Monitoring and Evaluation Programme/Convention on Long-range Transboundary Air Pollution (EMEP/CLRTAP) according to the new Common Methodology from the base year to all subsequent years, up to the year in which recalculations are made and cover all inventory data" [13]. This project is to commence on 1 December 2009 and will be completed by 1 February 2011. **The result of this project will be incorporated into the 2011 submission** (see Annex 28).

[12] SEE CC-2010-1-4/Bulgaria/EB – para5 (c) second bullet
[13] Concerning NON GHG / indirect greenhouse gas

The main outputs of the project will be as follows:

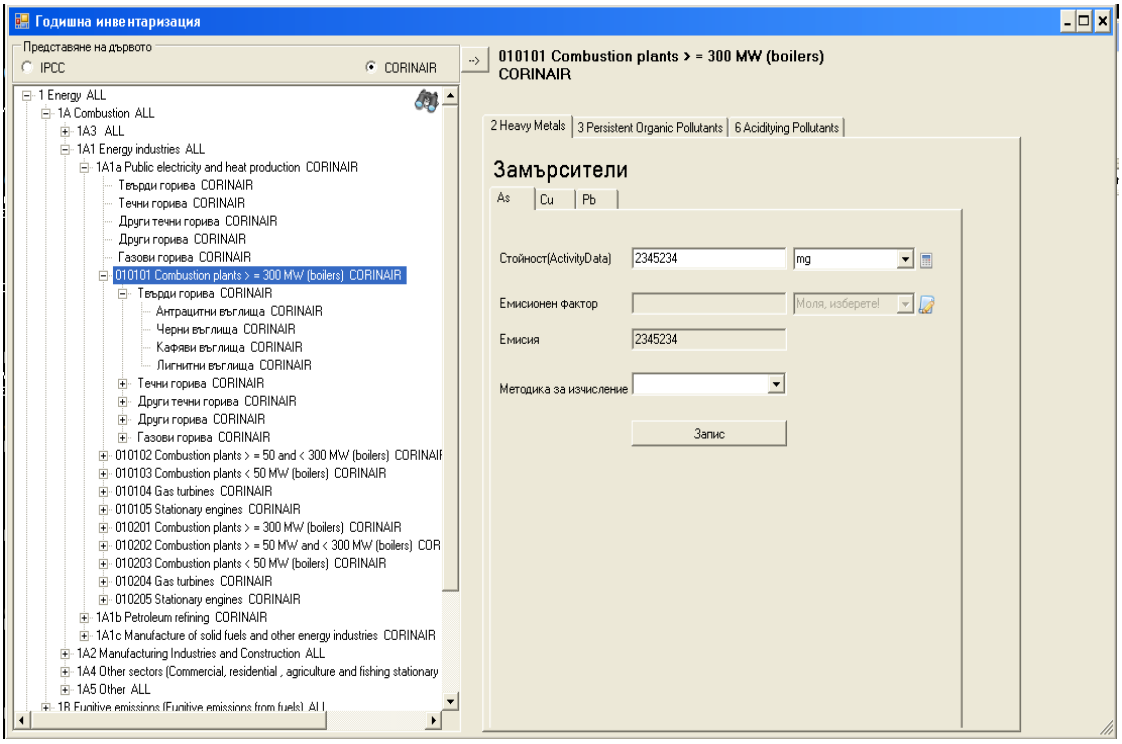
- To harmonise the data bases (activity data, emissions factors, method used) for **non GHGs pollutants** between both conventions UNFCCC and UNECE/CLRTAP (see above Applicability of BGNIS);
- To eliminate the differences in reported national totals for non GHGs pollutants between inventories under UNFCCC and UNECE/CLRTAP;
- To improve transparency, completeness, consistency, including recalculations and time-series and comparability of national emission inventory;
- To improve the technical competence of the staff within the BGNIS;
- To support the ExEA to fulfil the requirements for Recalculations of the previously submitted estimates of emissions under both conventions UNFCCC and UNECE/CLRTAP;
- A Medium/status report for fulfillment of the project is presented to ExEA

Project 3 – Software tool

- Project 3 – "Development of software tool and automatic preparation of national inventories under UNFCCC and EMEP/CLRTAP". This project was contracted on 28 December 2009 and will be completed by 28 December 2010. **The result of this project will be incorporated into the 2011 submission** (see Annex 29a).

  This software tool is dedicated to the National Inventory Compiler and the Sector experts to create and update the Bulgarian GHG and Air emissions inventory and to prepare appropriate emissions data and reports for reporting obligations under UNFCCC, UNECE and EC. The main outputs of the project will be as follows:

  - To improve the technical competence of the staff within the BGNIS;
  - To harmonise the existing two data bases for emission inventories under UNFCCC and UNECE/CLRTAP in one relational data base (see above Applicability of BGNIS);
  - To harmonise in one relational data base the data for emissions factors, method used and activity data for all pollutants under both conventions;
  - To improve transparency, completeness, consistency, including recalculations and time-series and comparability of national emission inventory;
  - The base tools of the software are already developed. A Medium/status report for fulfillment of the project is presented to ExEA;
  - Some print screens from the software is presented in Annexes (see Annex 29b)



Project 3 – Study on F-gases

- Project 4 – "National study for determine the quantity of actual fluorinated gases (F-gases) (HFCs, PFCs and SF_6) in Bulgaria and methods for their calculations". This project is to commence on 28 December 2009 and will be completed by 15 July 2010. **A part of the results of this project has been incorporated into the 2010 submission. The final result of successfully completed project will be incorporated into the 2011 submission** (see Annex 30).

  The main outputs of the project will be as follows:

  - To improve the technical competence of the staff within the BGNIS;
  - To improve transparency, completeness, consistency, including recalculations and time-series and comparability of national emission inventory – IPCC sector Industrial Processes F-gases
  - A Medium/status report for fulfillment of the project is presented to ExEA.

1.3.10 Collaboration with external Consultants

In order to support the ExEA staff the MoEW signed a contract with Energy Institute for final preparation of GHGs inventory and National Inventory Report for 2008 (see Annex 31).

The main tasks and activities of the contract between MoEW and Energy Institute are:

- To prepare a final version of the GHGs inventory for year 2008 and relevant NIR[14];
- To include in the final inventory and NIR the data for sector "LULUCF", obtained under a contract with an external organization;

[14] Is already a draft (version 2) available on 7th of May

- To assure the transparency, consistency, comparability, completeness and accuracy of the inventory and final NIR;
- To implement the requirements of National QA/QC System.

The curriculum vita of the Energy Institute is presented in the folder CV to the Annexes.

Fullfillment of 10(c)

See above and below

1.4 UNFCCC reporting guidelines and supplementary information

Fullfillment of 10(d);

- Updated UNFCCC reporting guidelines on annual inventories following incorporation of the provisions of decision 14/CP.11" (FCCC/SBSTA/2006/9) (http://unfccc.int/resource/docs/2006/sbsta/eng/09.pdf)
- Supplementary information required under Article 7, paragraph 1, of the Kyoto Protocol, with the inventory submission due under the Convention, in accordance with
  - Decision 15/CMP.1 Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol (FCCC/KP/CMP/2005/8/Add.2; http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf)
  - Decision 19/CMP.1 Guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol (FCCC/KP/CMP/2005/8/Add.3; http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf)
  - Decision 6/CMP.3 Good practice guidance for land use, land-use change and forestry activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol (FCCC/KP/CMP/2007/9/Add.2; http://unfccc.int/resource/docs/2007/cmp3/eng/09a02.pdf)

Fullfillment of 10(e)

See below

1.5 Specific functions

VI. SPECIFIC FUNCTIONS

11. In order to meet the objectives and perform the general functions described above, each Party included in Annex I shall undertake specific functions relating to inventory planning, preparation and management.[7]

See below

A. Inventory planning

12. As part of its inventory planning, each Party included in Annex I shall:

(a) Designate a single national entity with overall responsibility for the national inventory;

(b) Make available the postal and electronic addresses of the national entity responsible for the inventory;

(c) Define and allocate specific responsibilities in the inventory development process, including those relating to choice of methods, data collection, particularly activity data and emission factors from statistical services and other entities, processing and archiving, and QC and QA. This definition shall specify the roles of, and cooperation between, government agencies and other entities involved in the preparation of the inventory, as well as the institutional, legal and procedural arrangements made to prepare the inventory;

(d) Elaborate an inventory QA/QC plan which describes specific QC procedures to be implemented during the inventory development process, facilitate the overall QA procedures to be conducted, to the extent possible, on the entire inventory and establish quality objectives;

(e) Establish processes for the official consideration and approval of the inventory, including any recalculations, prior to its submission and to respond to any issues raised by the inventory review process under Article 8.

1.5.1 Single national entity

Fullfillment of 12(a) Designate a single national entity with overall responsibility for the national inventory

An overview of the general responsibilities in the inventory development and reporting process is given in Fulfilment of paragraph 10a.

- Bulgaria's reporting obligations **to the UNFCCC, UNECE** and EC are being administered by the Ministry of Environment and Water (MOEW). All activities on preparation of GHG inventories in Bulgaria are coordinated and managed on the state level by MOEW. The MoEW (Climate Change Policy Directorate) has the political responsibility for compliance with commitments under the Kyoto Protocol, including for functioning of BGNIS in accordance with the requirements of Decision 19/CMP.1 under Article 5, paragraph 1, of the Kyoto Protocol.
- The Executive Environment Agency (ExEA) has been identified as the responsible organization for preparation of Bulgaria's National GHG Inventory under the UNFCCC and the Kyoto Protocol and designated as ***single national entity.*** ExEA has the technical responsibility for the national inventory:
    - acts as National Inventory Compiler (supervises inventory preparation process);
    - compiles CRF tables and NIR;
    - manages BGNIS;
    - Implements QA/QC procedures.

Fullfillment of 12(b)

The postal and electronic addresses of the single national entity are:

Executive Environment Agency at the Ministry of Environment and Water

136 “Tzar Boris III” Blvd
Sofia 1618
P.O.Box 251
tel.:+359 2 9559011
fax: +359 2 9559015
E-Mail: vgrigorova@nfp-bg.eionet.eu.int
e-mail: ncesd@nfp-bg.eionet.eu.int
http://nfp-bg.eionet.eu.int/bul/index.html

Name of NFP: Milya Dimitrova
Head of Climate Change Policy Directorate
Organization: Ministry of Environment and Water
Address: 22 “Maria Luiza” blvd., 1202 Sofia, Bulgaria
e-mail: madimitrova@moew.government.bg
Tel.: +359 2 940 62 85

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Fullfillment of 12(c)

An overview of the general responsibilities in the inventory development and reporting process is given in Fulfillment of paragraph 10a. As mentioned before, the ExEA has the overall responsibility for the national inventory, comprising greenhouse gases as well as other air pollutants. Within the inventory system specific responsibilities for the different emission source categories are defined (“sector experts”), as well as for all activities related to the preparation of the inventory, including QA/QC, data management and reporting.
The sector experts are in charge of specific responsibilities related to choice of methods, data collection, processing and archiving. Sector experts are also responsible for performing Quality Control (QC) activities that are incorporated in the Quality Management System (QMS) (see below).

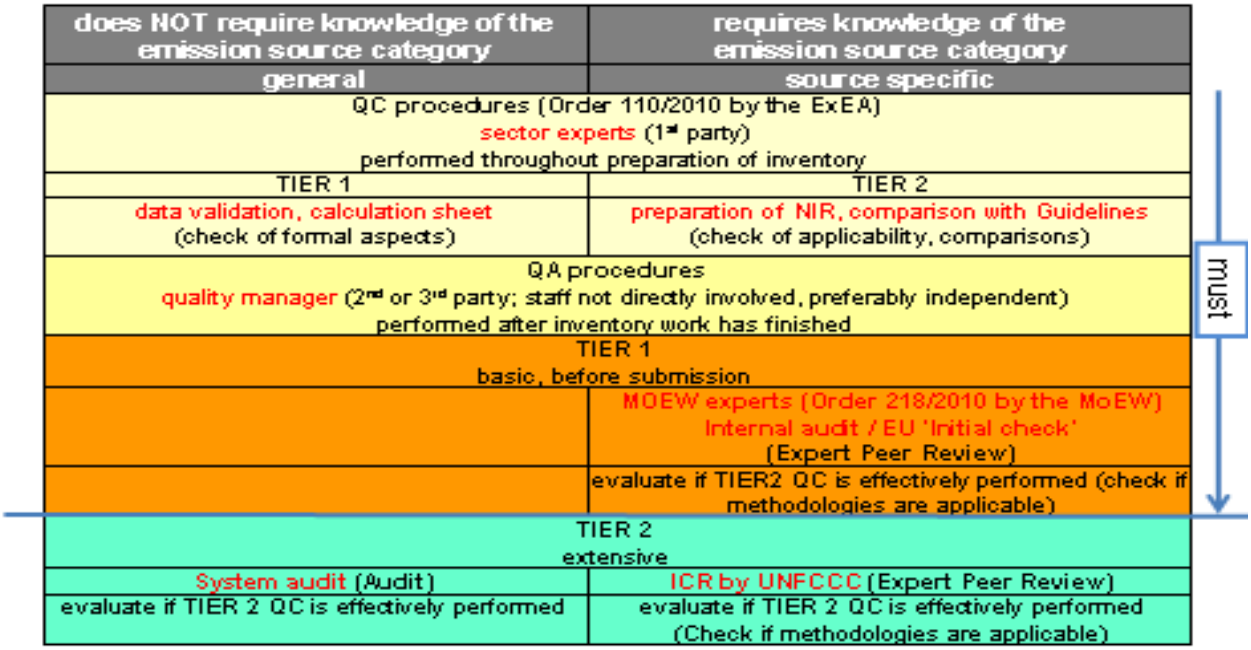
1.5.2 Quality management system

Fullfillment of 12(d)

As it is written above the Executive Environment Agency is responsible for the preparation of the National Emissions Inventories and the relevant National Inventory Reports under UNFCCC and UNECE/CLRTAP.

The ExEA is also responsible for coordinating QA/QC activities for the national inventory. A quality manger is in place.

Figure 5 National quality assurance and quality control program



To increase the capacity in ExEA for **adequate planning, preparation and management of emissions inventory for 2011 submission a new Order №110/30.04.2010** by the Executive Director of ExEA has been issued (see Annex 6). The order regulates the name and responsibilities of experts from different departments within the ExEA, which are engaged to support preparation of National GHGs emission inventory including implementation of the QA/QC procedures, set in the National QA/QC Plan. The responsibilities of different departments are presented in Figure 3: Bulgarian National Inventory System – Responsibilities.

To ensure effective and timely functioning of existing BGNIS, to support the ExEA and to assure the quality of information submitted to UNFCCC and UNECE/CLRTAP, the Minister of Environment and Water has issued **a new order № RD-218/05.03.2010**. The order regulates the names and responsibilities of the MoEW experts for implementation of the National QA/QC Plan in emissions inventory of sectors Energy, Industry, Solvents, Agriculture, LULUCF and Waste for 2010 submission (see Annex 7).

Information of the QA/QC plan

According to the GPG (2000) the QA/QC system, that should be implemented for GHG Inventories consists of an inventory agency responsible for coordinating QA/QC activities, a QA/QC plan, general QC procedures (Tier 1), source category-specific QC procedures (Tier 2), QA review procedures as well as procedures regarding reporting, documentation and archiving. The implementation of these elements in the Austrian QMS is described in the following pages.

The QA/QC plan is a basic element of the QA/QC system. The plan outlines QA/QC activities that are implemented and includes the scheduled time frame for inventory preparation from its initial development through the final reporting in any year. It contains an outline of the processes and schedule to review of all source categories.

The QA/QC plan is an internal document to organise, plan and implement QA/QC activities. Once developed for the next submission, it is referenced and used in subsequent inventory preparation, or modified as appropriate.

The official QA/QC Plan for National emissions inventories was approved by the Ministry of Environment and Water in 2009 (see Annexes 32 – 36). It was created on the basis of Quality Management System developed on the basis of a National Study of Bulgarian Academy of Science, Geophysical Institute.

The main parts of the National QA/QC Plan for emissions inventories are presented in the next table:

	IPCC GPG	**ISO 9001**
1. Scope	✓	✓
2. Definitions	✓	✓
3. Administrative requirements	✓	✓
4. Organisation and management	✓	✓
5. Quality system	✓	✓
6. Personnel	✓	✓
7. Facilities and equipment	✓	✓
8. Handling of inspection samples and items	✓	✓
9. Records	✓	✓
10. Reports	✓	✓
11. Sub-contracting	✓	✓

12. Complaints and appeals	✓	✓

1.5.2.1QA/QC activities of data provider

The QA/QC plan is provided for implementation to all institutions, which are engaged in the process of preparation of emissions inventories under UNFCCC and UNECE/CLRTAP as provision of the relevant activity data (see Annex 37)

Based on the National QA/QC Plan each of organisations has nominated experts, responsible for preparation of the required information as well as for implementation of QA/QC procedures (see Annex 38[15]).

National QA/QC Plan includes following elements:

- Responsible institutions;
- QA/QC Procedures;
- Timetable with the relevant deadlines.

The cycle of QA/QC activity for inventory consists of 6 steps:

Step 1. QA/QC Manager develops QA/QC Plan. Inventory Team Leader approves it. QA/QC Manager reviews the draft attendant file (AF) for the previous inventory and prepares preliminary AF for current inventory.

Step 2. According to QA/QC Plan the inventory (or part of inventory) is sent for check and review.

Step 3. QA/QC Manager obtains the results of check and review.

Step 4. QA/QC Manager registers findings in the checklist (CL) and AF, as well as processes this information and marks decision about corrective actions.

Step 5. The person who is responsible for corrective actions carries out this work and reports to QA/QC Manager for updating checklist attendant file.

Step 6. QA/QC Manager prepares the QA/QC chapter to the Inventory Report and a draft

Quality Control (QC) is a system of routine technical activities to assess and maintain the quality of the inventory as it is being compiled. It is performed by personnel compiling the inventory. The QC system is designed to:

- Provide routine and consistent checks to ensure data integrity, correctness, and completeness;
- Identify and address errors and omissions;
- Document and archive inventory material and record all QC activities.

General (QC) procedures that all source categories follow when gathering, maintaining, handling, documenting, checking and archiving the data, supporting documents, and files (both text documents and spreadsheets) are associated with the inventory.

General (QC) procedures are described in Checklists that is part of QA/QC Plan.

Quality Assurance (QA) is a planned system of review procedures conducted by personnel not directly involved in the inventory compilation/development process. The quality

[15] Answer of the relevant organizations with QA/QC experts (even if they are the data provider)

assurance process includes expert review was conducted in two stages: a review of the initial set of emission estimates and, a review of the estimates and text of the Inventory Report.

The **expert peer review** present opportunity to uncover technical issues related to the application of methodologies, selection of activity data, or the development and choice of emission factors. The comments received during these processes are reviewed and, as appropriate, incorporated into the Inventory Report or reflected in the inventory estimates.

Internal Quality Audits - an audit system will be developed to provide additional QA measures.

QA/QC Manager maintains and archives all documentation for every inventory produced. It includes all final and worksheet files that are created during the inventory preparation. The archived documents are stored on server and in inventory archive (paper).

The final and total evaluation of GHG Inventory is according to the requirements of Discrepancy Determination Methodology included in the Good Practices Guidelines;

The quality monitoring of the GHG Inventory and the National Inventory Report shall take place in conformity with the following order:

- The Directorates within the Ministry of Environment and Water – "Climate Change Policy Department", "Air Protection Directorate" and Directorate "Environment Monitoring" within the Environment Executive Agency – declare their expert positions, containing data evaluation from the processed inventory and/or the calculations made. When necessary, the above listed Directorates present proposals for supplementations and/or rectifications;
- The Inventory and/or the calculations made, shall be presented to the attention of at least two independent experts;

1.5.2.2Quality Management of the Sources of Initial Data

Each organization – data source, solves the quality management issues in accordance with its internal rules and provisions. With some of the sources as NSI, MAF, etc., those rules follow strictly the international practices. For example, quality assessment/quality control procedures with NSI have been harmonized with the relevant instructions and provisions of EUROSTAT. Strict rules on data processing and storage, harmonized with international organizations. Some of the large enterprises – GHG emission sources, have well arranged and effective quality management systems. Most of them have introduced quality management systems on the basis of ISO 9001:2000 standard.

To assure the quality of information reported to UNFCCC and UNECE and to support the single national entity, the Minister of Environment and Water has issued a new **order № RD-218/05.03.2010**.The order regulates the names and responsibilities of the MoEW and ExEA experts for implementation of the requirements of National QA/QC Plan in emissions inventory of sectors Energy, Industry, Solvents, Agriculture, LULUCF, Waste.

1.5.2.3 Official consideration and approval of the inventory

Fullfillment of 12(e) Establish processes for the official consideration and approval of the inventory, including any recalculations, prior to its submission and to respond to any issues raised by the inventory review process under Article 8.

Official consideration and approval of the inventory

Bulgaria's reporting obligations to the UNFCCC, UNECE and EC are being administered by the MoEW. All activities on preparation of GHG inventory in Bulgaria are coordinated and managed on the state level by MoEW. The ExEA is the responsible organization for preparation of Bulgaria's National GHG Inventory under the UNFCCC and the Kyoto Protocol and designated as single national entity (see Figure 1 Organizational Chart of the Bulgarian National Inventory System

To assure the quality of information reported to UNFCCC and UNECE and to support the single national entity, the Minister of Environment and Water has issued a new **order № RD-218/05.03.2010**. The order regulates the names and responsibilities of the MoEW and ExEA experts for implementation of the requirements of National QA/QC Plan in emissions inventory of sectors Energy, Industry, Solvents, Agriculture, LULUCF and Waste.

See above Figure 6 National quality assurance and quality control program.

1.5.2.4Quality improvement

Fullfillment of 13.
As part of its inventory planning, each Party included in Annex I should consider ways to improve the quality of activity data, emission factors, methods and other relevant technical elements of inventories. Information obtained from the implementation of the QA/QC programme, the review process under Article 8 and other reviews should be considered in the development and/or revision of the QA/QC plan and the quality objectives.

Quality improvement
As part of the QMS (Corrective and Preventive Actions) an efficient process is established to gain transparency when collecting and analyzing findings by UNFCCC reviews experts or any other discrepancies concerning the quality of activity data, emission factors, methods and other relevant technical elements of inventories.
Any findings and discrepancies are documented; responsibilities, resources and a time schedule are attributed to each of these in the improvement plan. See also Annex 40.

1.5.3 Inventory preparation

B. Inventory preparation

14. As part of its inventory preparation, each Party included in Annex I shall:

(a) Identify key source categories following the methods described in the IPCC good practice guidance (chapter 7, section 7.2);

(b) Prepare estimates in accordance with the methods described in the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, as elaborated by the IPCC good practice guidance, and ensure that appropriate methods are used to estimate emissions from key source categories;

(c) Collect sufficient activity data, process information and emission factors as are necessary to support the methods selected for estimating anthropogenic GHG emissions by sources and removals by sinks;

(d) Make a quantitative estimate of inventory uncertainty for each source category and for the inventory in total, following the IPCC good practice guidance;

(e) Ensure that any recalculations of previously submitted estimates of anthropogenic GHG emissions by sources and removals by sinks are prepared in accordance with the IPCC good practice guidance and relevant decisions of the COP and/or COP/MOP;

(f) Compile the national inventory in accordance with Article 7, paragraph 1, and relevant decisions of the COP and/or COP/MOP;

(g) Implement general inventory QC procedures (tier 1) in accordance with its QA/QC plan following the IPCC good practice guidance.

1.5.3.1 Key Category analysis

Fullfillment of para 14(a)

The method to identify key categories followed the Tier 1 method – quantitative approach described in the Good Practice Guidance [IPCC-GPG, 2000], Chapter 7 *Methodological Choice and Recalculation*.

Chapter from the NIR 2008

KEY CATEGORIES OF EMISSIONS AND REMOVALS	Gas	Criteria used for key source identification			Key category excluding LULUCF (1)	Key category including LULUCF (1)	Comments (1)
		L	T	Q			
Specify key categories according to the national level of disaggregation used:							
1 A 3 a. Civil Aviation - Liquid Fuels	CO2		x			x	
1 A 3 b. Road Transportation - Diseal Oil	CO2	x	x			x	
1 A 3 b. Road Transportation - Gasoline	CO2	x	x			x	
1 A 3 b. Road Transportation - LPG	CO2	x	x			x	
1 A 3 e. Other Transportation - Liquid Fuels	CO2	x	x			x	
1 A 4 a. Commercial/Institutional - Solid Fuels	CO2		x		x		
1 A 4 b. Residential - Liquid Fuels	CO2		x			x	
1 A 4 b. Residential - Soild Fuels	CO2	x	x			x	
1 A 4 c. Agriculture/Forestry/Fisheries - Liquid Fuels	CO2		x			x	
Ammonia production	CO2	x	x		x		
Cement production	CO2	x	x		x		
Cropland remaining Cropland	CO2		x			x	
Direct N2O emissions from Agricultural soils	N2O	x	x		x		
Enteric Fermentation - sheep	CH4		x			x	
F-gases	HFC, PFC, SF6	x	x		x		
Forest Land remaining Forest Land	CO2	x	x			x	
from Enteric Fermentation - cattle	CH4	x	x			x	
from Enteric Fermentation in Domestic Livestock - cattle, sheep	CH4	x	x			x	
from Manure Management	CH4	x	x			x	
from Manure Management	N2O	x	x			x	
Fugitive emissions: coal mining&handling	CH4	x				x	
Fugitive emissions: oil&gas operations	CH4	x			x		
Indirect N2O from Nitrogen used in Agriculture	N2O	x	x		x		
Iron and Steel Production	CO2	x				x	
Lime production	CO2	x	x		x		

Manufacture of Solid Fuels and Other Energy Industries - Gaseous Fuels	CO2	x	x			x	
Manufacture of Solid Fuels and Other Energy Industries - Liquid Fuels	CO2	x	x			x	
Manufacturing Industries and Construction - Gaseous Fuels	CO2	x	x		x		
Manufacturing Industries and Construction - Liquid Fuels	CO2	x	x		x		
Manufacturing Industries and Construction - Solid Fuels	CO2	x	x		x		
N2O from Nitric Acid production	N2O	x			x		
Pasture,Range and Paddock Manure	N2O	x	x		x		
Public Electricity and Heat Production	N2O	x			x		
Public Electricity and Heat Production - Liquid Fuels	CO2	x	x			x	
Public Electricity and Heat Production -Solid Fuels	CO2	x	x			x	
Solid Waste Disposal	CH4	x	x			x	
Wastewater handling	CH4	x	x			x	
Wetlands remaining Wetlands	CO2	x	x			x	

Note: L = Level assessment; T = Trend assessment; Q = Qualitative assessment.
(1) The term "key categories" refers to both the key source categories as addressed in the IPCC good practice guidance and the key categories as addressed in the IPCC good practice guidance for LULUCF.
(2) For estimating key categories Parties may chose the disaggregation level presented as an example in table 7.1 of the IPCC good practice guidance (page 7.6) and table 5.4.1 (page 5.31) of the IPCC good practice guidance for LULUCF, the level used in table Summary 1.A of the common reporting format or any other disaggregation level that the Party used to determine its key categories.

Documentation box:
Parties should provide the full information on methodologies used for identifying key categories and the quantitative results from the level and trend assessments (according to tables 7.1–7.3 of the IPCC good practice guidance and tables 5.4.1–5.4.3 of the IPCC good practice guidance for LULUCF) in Annex 1 to the NIR.

1.5.3.2National Inventory Methodology

Fulfilment of Para 14(b) (c) (e) (f)

The most recent greenhouse gas inventory for the period 1988 to 2008 (NIR 2008) was compiled according to the recommendations for inventories set out in the UNFCCC reporting guidelines according to Decision 18/CP.8, the Common Reporting Format (CRF)15 (version 1.01), Decision 13/CP.9, the new CRF for the Land Use Change and Forestry Sector, the IPCC 1996 Guidelines for National Greenhouse Gas Inventories, which specify the reporting obligations according to Articles 4 and 12 of the UNFCCC [IPCC Guidelines, 1997] as well as the IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories [IPCC GPG, 2000] and Kyoto Tables

The GHG inventory represents a process, covering the following main activities:
• Collecting, processing and assessment of input data on used fuels, produced output, materials and other GHG emission sources;
• Selection and application of emission factors for estimating the emissions;
• Determination of the basic (key) GHG emission sources and assessment of the results uncertainty.
Each year during inventory, some changes occur that affect directly the activities above enlisted. Important inventory stage is the process of data transformation into a form, suitable for CRF Tables format. During this process, aggregation of the fuels by type is made (solid, liquid and gaseous), and further data is added, regarding parameters and indices, specifying the systems for transportation and distribution of oil and natural gas, the systems for fertilizer processing, etc. These activities are just a part of additional data, filled in the CRF Tables.

National Inventory Methodology

"National Inventory Methodology (estimation)" as calculated by the new software according to the IPCC and CorinAir Guidlines[16]

According to Clean Air Act, article 25 (6) The Minister of Environment and Water in co-ordination with the interested ministers issues an order for the approval of a Methodology for the calculation, with balance methods, of the emissions of harmful substances (pollutants), emitted in the ambient air. The national Methodology (approved with Order RD 77 from 03.02.2006 of MEW) is harmonized with CORINAIR methodology for calculation of the emissions according to the CLRTAP (see Annex 41).

During 2007, MEW/ExEA had a project for development of Common methodology for emissions inventory under CLRTAR and UNFCCC, i.e. to update the present Methodology under article 25 (6) CAA. (Approved with Order RD 40 from 22.01.2008 of MEW) (see Annex 42).

The aim of the project was harmonization of the national Methodology with IPCC, including the three main greenhouse gases – CO2, CH4 and N2O (plus relevant ODS and SF6).

[16] Methodology: IPCC GPG

The Bulgarian national inventory and NIR are compiled according to requirements of the following documents:

- IPCC 1996 Revised Guidelines for National Greenhouse Gas Inventories, which specify the reporting obligations according to Articles 4 and 12 of the UNFCCC (IPCC Guidelines, 1997)
- IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC GPG, 2000)
- IPCC Good Practice Guidance for Land-Use, Land-Use Change and Forestry (IPCC GPG-LULUCF, 2003)

The emission factors are mainly from:

- IPCC Revised Guidelines
- IPCC Good Practice Guidelines
- CORINAIR methodology
- Country-specific

Chapter from the NIR 2008

SUMMARY 3 SUMMARY REPORT FOR METHODS AND EMISSION FACTORS USED

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2		CH4		N2O		HFCs		PFCs		SF6	
	Method applied	Emission factor	Method applied	Emission factor	Method applied	Emission factor	Method applied	Emission factor	Method applied	Emission factor	Method applied	Emission factor
1. Energy	**T1,T2**	**CS,D**	**T1,T2**	**CS,D**	**T1,T2**	**CS,D**						
A. Fuel Combustion	T1,T2	CS,D	T1,T2	CS,D	T1,T2	CS,D						
1. Energy Industries	T2	CS	T2	CS	T2	D						
2. Manufacturing Industries and Construction	T2	CS	T2	CS	T2	D						
3. Transport	T1,T2	CS,D	T1,T2	CS,D	T1,T2	CS,D						
4. Other Sectors	T2	CS	T2	CS	T2	D						
5. Other	NA	NA	T1	D	T1	D						
B. Fugitive Emissions from Fuels	NA	NA	T1	D	NA	NA						
1. Solid Fuels	NA	NA	T1	D	NA	NA						
2. Oil and Natural Gas	NA	NA	T1	D	NA	NA						
2. Industrial Processes	**D,T1,T2**	**CS,D**	**D**	**CR,D**	**D**	**D**	**NA**	**NA**	**NA**	**NA**	**D**	**D**
A. Mineral Products	D,T1,T2	D	NA	NA	NA	NA						
B. Chemical Industry	D,T2	CS,D	D	CR	D	D	NA	NA	NA	NA	NA	NA
C. Metal Production	D	CS	D	D	NA	NA	NA	NA	NA	NA	NA	NA
D. Other Production	NA	NA										
E. Production of Halocarbons and SF6							NA	NA	NA	NA	NA	NA
F. Consumption of Halocarbons and SF6							NA	NA	NA	NA	D	D
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**D**	**CS**			**D**	**CS**						
4. Agriculture			**D,T1,T2**	**CS,D**	**D**	**CS,D**						
A. Enteric Fermentation			T1	D								
B. Manure Management			T1,T2	CS,D	D	D						
C. Rice Cultivation			D	D								
D. Agricultural Soils			NA	NA	D	D						
E. Prescribed Burning of Savannas			NA	NA	NA	NA						
F. Field Burning of Agricultural Residues			D	CS,D	D	CS,D						
G. Other			NA	NA	NA	NA						

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2		CH4		N2O		HFCs		PFCs		SF6	
	Method applied	Emission factor	Method applied	Emission factor	Method applied	Emission factor	Method applied	Emission factor	Method applied	Emission factor	Method applied	Emission factor
5. Land Use, Land-Use Change and Forestry	**T1,T2**	**CS,D**	**T1**	**D**	**T1,T2**	**CS,D**						
A. Forest Land	T1,T2	CS,D	T1	D	T1	D						
B. Cropland	T1,T2	CS,D	NA	NA	T2	CS						
C. Grassland	T2	CS	NA	NA	NA	NA						
D. Wetlands	T1	CS	NA	NA	NA	NA						
E. Settlements	T1	CS	NA	NA	NA	NA						
F. Other Land	NA	NA	NA	NA	NA	NA						
G. Other	NA	NA	NA	NA	NA	NA						
6. Waste	**NA**	**NA**	**D,T2**	**CS,D**	**D**	**D**						
A. Solid Waste Disposal on Land	NA	NA	T2	CS,D								
B. Waste-water Handling			D	CS,D	D	D						
C. Waste Incineration	NA	NA	NA	NA	NA	NA						
D. Other	NA	NA	NA	NA	NA	NA						
7. Other (as specified in Summary 1.A)	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

1.5.3.3Uncertainty

Fulfilment of Para 14(d) Make a quantitative estimate of inventory uncertainty for each source category and for the inventory in total, following the IPCC good practice guidance

Uncertainty

As a whole, the uncertainty assessment of the GHG inventories follows the methodology of Good Practice Guidance.
The overall uncertainty is closely related to the GHG emission sources data uncertainty (fuels, activities, processes, etc.) and to the emission factor uncertainty.
The uncertainty of the GHG emission sources can be defined during data collection and processing and it is a part of procedures, applied by the statistical authorities, differences between the production, import, export and consumption of fuels, expert assessment, etc.
The uncertainty of emission factors depends on the origin of the factors applied. In case the emission factors result from direct periodical measurements, the uncertainty is determined by the relevant methodology, related to the measuring methods and apparatuses.
The overall uncertainty of the GHG inventory is determined by combining the emission sources uncertainty and the emission factors uncertainty.
Two rules are applied in this process:
Rule A - combination of the uncertainty by summing;
Rule B - combination of the uncertainty by multiplying.
Since the GHG inventories are sums of the products of emission sources, multiplied by emission factors, the two rules above can be used for determining the overall uncertainty of the inventory.
Rules A and B represent the foundation of the Tier 1 method, recommended in the Good Practice Guidance.
The uncertainties for all the emission sources (key and non-key) and emission factors are presented in the next table:

Uncertainty calculation and reporting, %

IPCC Source category	Gas	Activity data uncertainty	Emission factor uncertainty
Solvent and Other Product Use	CO_2	10	30
Solvent and Other Product Use	N_2O	100	0
Energy Industries	CH_4	5	50
Energy Industries	N_2O	5	200
Public Electricity and Heat Production - Gaseous fuels	CO_2	5	5
Public Electricity and Heat Production - Liquid fuels	CO_2	5	5
Public Electricity and Heat Production - Solid fuels	CO_2	5	7
Petroleum Refining - Gaseous fuels	CO_2	5	5
Petroleum Refining - Liquid fuels	CO_2	5	5
Manufacture of Solid Fuels and Other Energy Industries - Gaseous Fuels	CO_2	5	5
Manufacture of Solid Fuels and Other Energy Industries - Liquid Fuels	CO_2	5	5
Manufacture of Solid Fuels and Other Energy Industries - Solid Fuels	CO_2	5	7
Manufacturing Industries and Construction - Gaseous Fuels	CO_2	5	5
Manufacturing Industries and Construction - Liquid Fuels	CO_2	5	5
Manufacturing Industries and Construction - Solid Fuels	CO_2	5	7
Manufacturing Industries and Construction	CH_4	5	50
Manufacturing Industries and Construction	N_2O	5	200
Civil Aviation - Liquid Fuels	CO_2	5	5

Civil Aviation - Liquid Fuels	CH_4	3	40
Civil Aviation - Liquid Fuels	N_2O	3	40
Road Transportation - Diesel Oil	CO_2	3	5
Road Transportation - Gasoline	CO_2	3	5
Road Transportation - Liquid Fuels	CH_4	3	40
Road Transportation - Liquid Fuels	N_2O	3	40
Road Transportation - LPG	CO_2	3	5
Railways - liquid fuels	CO_2	5	5
Railways - liquid fuels	CH_4	5	100
Railways - liquid fuels	N_2O	5	150
Navigation - Liquid Fuels	CO_2	50	5
Navigation - Liquid Fuels	CH_4	50	50
Navigation - Liquid Fuels	N_2O	50	100
Other Transportation - Liquid Fuels	CO_2	5	5
Other Transportation - Liquid Fuels	CH_4	5	100
Other Transportation - Liquid Fuels	N_2O	5	150
Other sectors	CH_4	5	50
Other sectors	N_2O	5	200
Commercial/Institutional - Gaseous Fuels	CO_2	5	5
Commercial/Institutional - Liquid Fuels	CO_2	5	5
Commercial/Institutional - Solid Fuels	CO_2	5	7
Residential - Liquid Fuels	CO_2	5	5
Residential - Solid Fuels	CO_2	5	7
Residential - Gaseous Fuels	CO_2	5	5
Agriculture/Forestry/Fisheries - Gaseous Fuels	CO_2	5	5
Agriculture/Forestry/Fisheries - Liquid Fuels	CO_2	5	7
Agriculture/Forestry/Fisheries - Solid Fuels	CO_2	5	20
Stationary - Biomass	CH_4	5	20
Stationary - Biomass	N_2O	5	5
Stationary	CO_2	10	200
Fugitive Emissions from Fuels - Solid Fuels	CH_4	5	50
Fugitive Emissions from Fuels - Oil and Natural Gas	CH_4	3	30
Cement Production	CO_2	5	15
Lime Production	CO_2	5	15
Limestone and Dolomite Use	CO_2	5	20
Soda Ash Production and Use	CO_2	5	20
Other	CO_2	5	20
Ammonia Production	CO_2	10	200
Nitric Acid Production	N_2O	5	20
Calcium Carbide	CO_2	5	50
Other	CH_4	5	20
Metal Production	CH_4	3	10
Iron and Steel Production	CO_2	5	25
Ferroalloys Production	CO_2	10	50
ODS substitutes	HFCs	10	50
Electrical Equipment	SF_6	10	50
Other	CH_4	2	50
Buffalo	CH_4	2	50
Sheep	CH_4	2	50

Goats	CH_4	2	50
Horses	CH_4	2	50
Mules and Asses	CH_4	2	50
Swine	CH_4	2	50
Poultry	CH_4	2	50
Cattle	CH_4	2	300
N2O emission from Manure Management	N_2O	2	50
Buffalo	CH_4	2	50
Sheep	CH_4	2	50
Coats	CH_4	2	50
Horses	CH_4	2	50
Mules and Asses	CH_4	2	50
Swine	CH_4	2	50
Poultry	CH_4	2	50
Cattle	CH_4	25	80
Rice Cultivation	CH_4	3	250
Direct soil emissions	N_2O	3	250
Pasture, Range and Paddock Manure	N_2O	3	500
Indirect Emissions	N_2O	25	50
Field Burning	CH_4	25	200
Field Burning	N_2O	20	100
Solid Waste Disposal on Land	CH_4	30	80
Waste Water Handling	CH_4	30	100
Waste Water Handling	N_2O	10	30

See bellow Improvements

Fullfillment of para 15. As part of its inventory preparation, each Party included in Annex I should:
(a) Apply source-category-specific QC procedures (tier 2) for key source categories and for those individual source categories in which significant methodological and/or data revisions have occurred, in accordance with the IPCC good practice guidance;
(b) Provide for a basic review of the inventory by personnel that have not been involved in the inventory development, preferably an independent third party, before the submission of the inventory, in accordance with the planned QA procedures referred to in paragraph 12 (d) above;
(c) Provide for a more extensive review of the inventory for key source categories, as well as source categories where significant changes in methods or data have been made;
(d) Based on the reviews described in paragraph 15 (b) and (c) above and periodic internal evaluations of the inventory preparation process, re-evaluate the inventory planning process in order to meet the established quality objectives referred to in paragraph 12 (d).

1.5.3.4QC procedures

Fulfilment of Para 14(g) and 15(a)

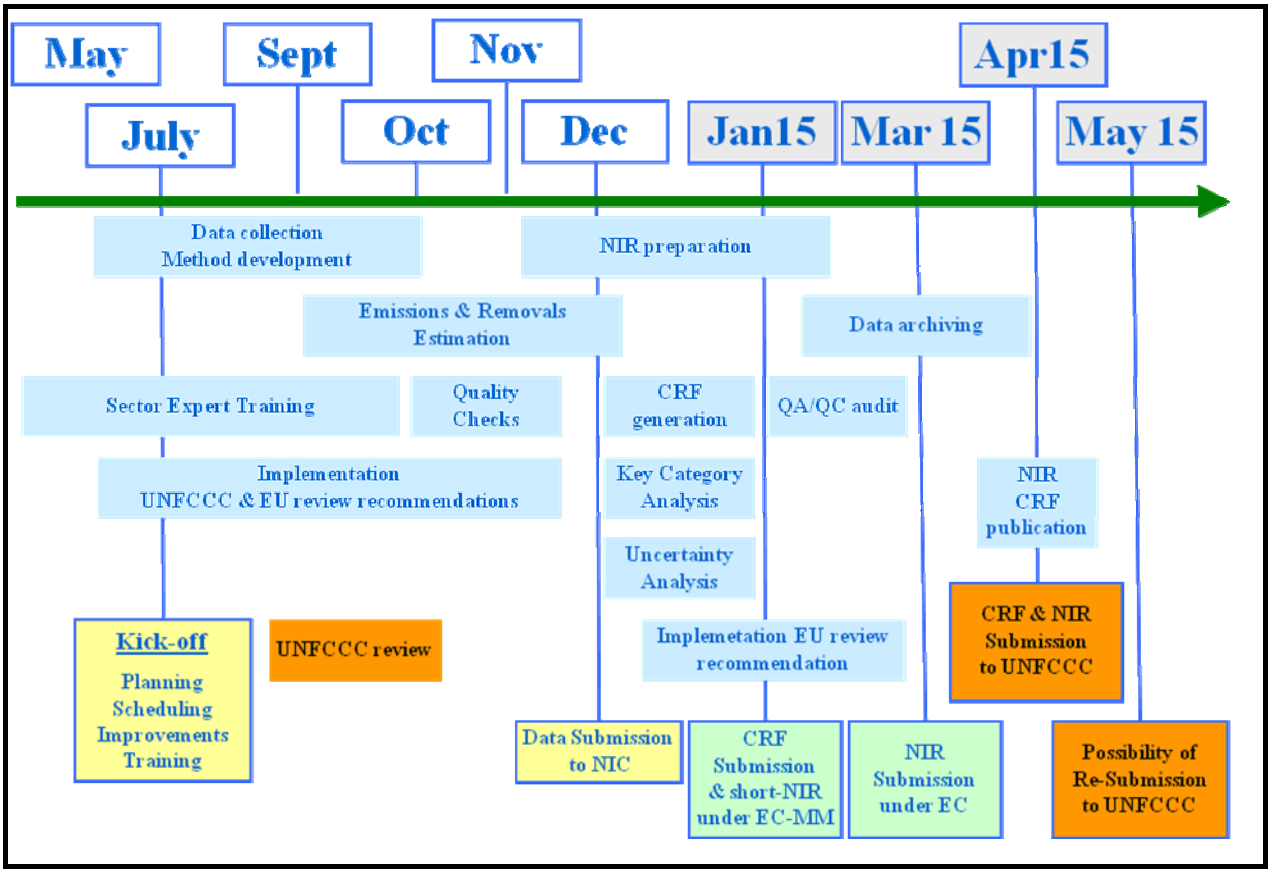
QC procedures
QC procedures follow the recommendations of IPCC-GPG chapter 8 on *Quality Assurance and Quality Control* and are part of the QMS. (see QMS Figure 6 National quality assurance and quality control program)

1.5.4 Work plan for submission 2011

Fulfilment of Para 16(a) (b) (c) and 17 Inventory management

To increase the capacity in ExEA for adequate planning, preparation and management of emissions inventory for 2011 submission **a new Order № 110/30.04.2010** by the Executive Director of ExEA has been issued. The order regulates the name and responsibilities of experts from different departments within the ExEA, which are engaged to support preparation of National GHGs emission inventory. Thus the engaged departments in planning, preparation and management of emissions inventory are AMD and its EIU, LMBPAD, WD, IPPCD and ETPD (see Figure 3: Organizational Chart of the Executive Environmental Agency). The responsibilities of different departments are presented in Figure 4: Bulgarian National Inventory System – Responsibilities.

Figure 6: National Inventory System Inventory Cycle, 2011 Submission



The Official Work plan for preparation and submission of National GHGs inventory in 2011 is presented in the next table.

Official Work plan for preparation and submission of National GHGs inventory in 2011

Action *	**Responsible organization**	**Initial Deadline**	Final **Deadline**	**Comment**
Sending of statistic questionnaire to all enterprises in the country	NSI with its regional inspectorates	31.03.10	15.06.10	NSI uses statistical methods and procedures for data collection, summarizing and structuring that are harmonized with EUROSTAT
Sending of letters to the responsible organizations for provision of necessary activity data: National Statistics Institute (NSI), Statistics Department within Ministry of Agriculture and Food (MAF), Ministry of Economy and Energy (MEE), Ministry of Environment and Water, State Forestry Agency (SFA), Road Control Department (RCD) within the Ministry of Internal Affairs	ExEA, Air monitoring department	31.03.10	15.06.10	
QA/QC Procedures - Implementation of the requirements of National QA/QC Plan	NSI MAF, MEE, MEW, SFA, RCD	15.06.10	30.09.10	Each organization has nominated QA/QC expert, responsible for implementation of all procedures laid down in the National QA/QC Plan
Provision of all collected activity data by questionnaires and other sources of information to ExEA	NSI MAF, MEE, MEW, SFA, RCD	30.09.10	30.10.10	
QA/QC Procedures - Implementation of the requirements of National QA/QC Plan	ExEA	30.10.10	15.11.10	QA/QC expert, responsible for implementation of all procedures laid down in the National QA/QC Plan
Provision of annual national energy and material balances to ExEA	NSI		30.11.10	
Preliminary estimation of emissions	ExEA, AMD, EIU, LMBPAD, WD, IPPCD and ETPD		15.12.10	
Provision of corrected activity data as a result of QA/QC procedures to ExEA	NSI MAF, MEE, MEW, SFA, RCD		20.12.10	
Recalculation of emissions, based on the corrected activity data	ExEA, AMD, EIU, LMBPAD, WD, IPPCD and ETPD		31.12.10	

Preparation of inventory in the required format for reporting	ExEA, AMD, EIU, LMBPAD, WD, IPPCD and ETPD		31.12.10	
Preparation of Preliminary national inventory report (NIR) to the UNFCCC and EU decisions.	ExEA, AMD, EIU, LMBPAD, WD, IPPCD and ETPD		10.01.11	
Submission of national GHG inventory under the UNFCCC with the draft NIR.	ExEA, EIU		15.01.11	Delivered to Eionet Central Data Repository
Submission of final national GHG inventory and NIR.	ExEA, EIU		15.03.11	Delivered to Eionet Central Data Repository
Submission of the final GHG inventory and NIR after the European Commission comments	MEW ExEA		15.04.11 15.04.11	Official submission to UNFCCC Delivered to Eionet Central Data Repository
Documentation and archiving of inventory. Preparation of inventory management report	ExEA, EIU		15.05.11	
Preparation of QA/QC plan for the next inventory.	ExEA, EIU		15.06.11	

** To raise the technical competence of staff involved in the inventory development process, a training programme for Bulgarian inventory experts was updated within the Twinning project with the Federal Environment Agency of Austria. The program covered all inventory sectors in a series of workshops realised in the period December 2009 to June 2010 (see above the training program).*

1.6 Commitments under Article 7, paragraphs 1, of the Protocol prior to the beginning of the first commitment period.

"Each Party included in Annex I shall incorporate in its annual inventory of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol, submitted in accordance with the relevant decisions of the Conference of the Parties, the necessary supplementary information for the purposes of ensuring compliance with Article 3, to be determined in accordance with paragraph 4 below"

In 2009 the MoEW approved four projects, whose defined objectives are to improve the Party's current estimation methodologies, the technical competence of the staff within the national system, and the management and archiving of data.
As it is written above one of the projects is focussed on fulfilment of the requirements of Article 7, paragraphs 1, of the Protocol. The title of the project is "Development of methodology for calculation of emissions and removals for LULUCF sector according to requirements of UNFCCC and Kyoto Protocol". This project was contracted on 24 November 2009 and it was completed by 24 April 2010. **The results of this project have already been incorporated into the 2010 submission**. The CRF tables and

NIR for year 2008, which were submitted to UNFCCC are completed with data for sector LULUCF in compliance with Commitments under Article 7, paragraphs 1, of the Protocol.

Bulgaria has successfully completed Project 1 – "Development of methodology for calculation of emissions and removals for LULUCF sector according to requirements of UNFCCC and Kyoto Protocol". **The results of this project have already been incorporated into the 2010 submission**. The methodology for calculation of emissions and removals for LULUCF sector according to requirements of UNFCCC and Kyoto Protocol has already been prepared under the contract between ExEA and University of Forest. The final report from successfully completed project is presented in ExEA for approval by the ExEA Expert Council. In the time of preparation of the methodology the experts from University of Forest have actively participated in the training program for LULUCF in the frame of Twinning project BG/07/IB/EN/07 with the Federal Environment Agency of Austria. Supported by Austrian expert the Bulgarian team (from ExEA and University of Forest) prepared CRF reporting tables as well as the respective chapters from NIR 2010. The complete set of CRF excel tables (from the base year up to year 2008) as well as KP-LULUCF excel table have already been submitted to UNFCCC on 15/04/2010 (See the respective chapters in NIR 2010 submission).

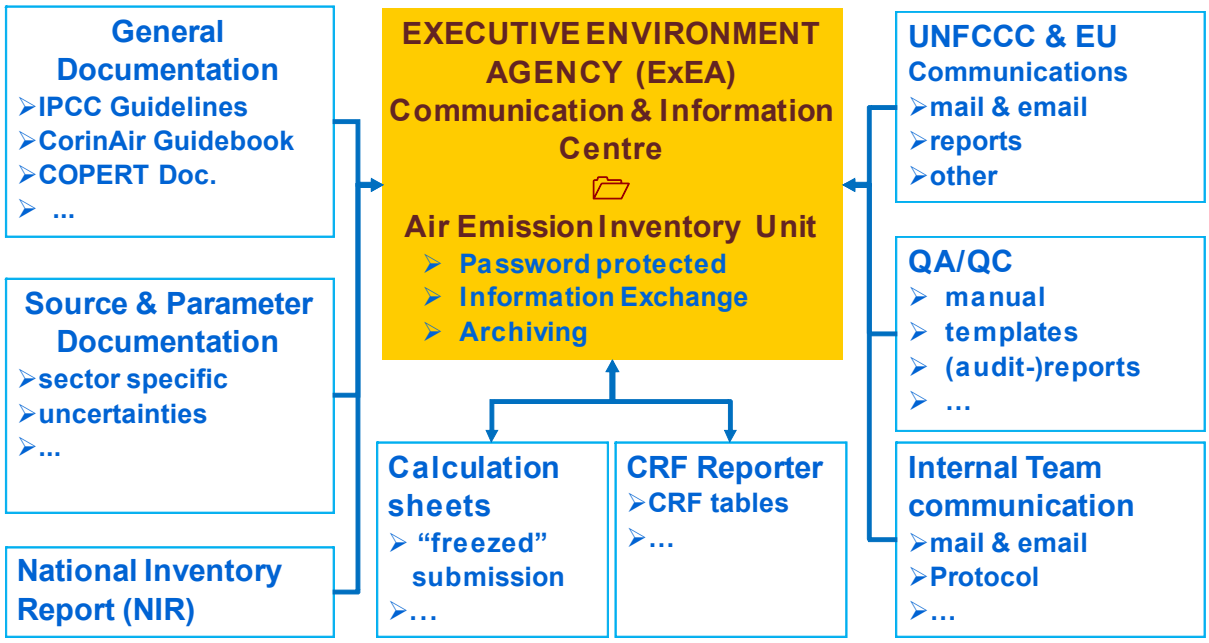
Part II

2 Future Improvement of emissions inventories - New Projects[17]

Bulgarian MoEW will continue to support future improvement of the functioning of BGNIS in the following areas, which are still not well developed:

Implementation of model COPERT into the National transport emissions inventory;
Improvement of uncertainty assessment;
Improvement of the relation with Branch Business Associations.
Further intensive cooperation for studies (verification of EFs) with other non-governmental institutions, universities and private consultants
Improvement of Data management in ExEA (Communication & Information Centre)

Figure 7 Improvement of Data management in ExEA (Communication & Information Centre)



[17] SEE CC-2010-1-4/Bulgaria/EB – para5 (c) third bullet

3 CONCLUSION

The improvement activities, which have already been implemented by the MoEW and ExEA will assure operation of BGNIS fully in accordance with the general and specific functions required of national systems as set out in the "Guidelines for national systems for the estimation of emissions by sources and removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol" (decision 19/CMP.1).

Bulgarian MoEW will continue to support future improvement of the functioning of BGNIS in the following areas, which are still not well developed:

Implementation of model COPERT into the National transport emissions inventory;

Improvement of uncertainty assessment;

Improvement of the relation with Branch Business Associations.

Further intensive cooperation for studies (verification of EFs) with other non-governmental institutions, universities and private consultants

Improvement of Data management in ExEA (Communication & Information Centre)

Part III

4 Acronyms and abbreviations

AMD – Air Monitoring Department
ARR - Annual review report
BGNIS – Bulgarian National Inventory System
CAA – Clean Air Act`
CRF – Common Reporting Format
EIU – Emission Inventory Unit
EPA – Environmental Protection Act
ETPD – Emission Trading Permit Department
ERT - Expert Review Team
ExEA – Executive Environment Agency
GHGs - Greenhouse gases
IIR – Informative Inventory Report
IPPCD – Integrated Pollution Prevention and Control Department
LMBPAD – Land Monitoring Biodiversity and Protected Areas
MAF – Ministry of Agriculture and Food
MEE – Ministry of Economy and Energy
MIA/RCD – Ministry of Internal Affairs/Road Control Department
MoEW – Ministry of Environment and Waters
NIR – National Inventory Report
NSI – National Statistical Institute
QA/QC – Quality Assurance and Quality Control
QMS – Quality Management System
SFA – State Forestry Agency
TCCCA – Transparency, Consistency, Comparability, Completeness, Accuracy
WD – Waste Department
UNFCCC - United Nations Framework Convention on Climate Change
UNECE/CLRTAP - Convention on Long-range Transboundary Air Pollution

5 List of Annexes

Annex 1 – EPA
Annex 2 - Regulation on the organization and structure of ExEA
- Annex2_ExEA_Regulation
- Annex2_ExEA_Structure

Annex 3 - Order № RD-54/25.01.2007 by the Minister of Environment and Water
Annex 4 - Order № RD-377/08.06.2007 by the Minister of Environment and Water
Annex 5 - Order № -78/26.08.2009 by the Executive Director of ExEA
Annex 6 - Order № 110/30.04.2010 by the Executive Director of ExEA
Annex 7 - Order № RD-218/05.03.2010 by the Minister of Environment and Water
Annex 8 - New official agreement with NSI
Annex 9 - New official agreement with MAF
Annex 10 – 20 – Official letters
Annex 21 – 25 – CV of AMD experts, engaged in preparation of emissions inventory
Annex 26 - Training on GHG emission inventory project BG/07/IB/EN/07 work plan
Annex 27 – Contract for project 1 (LULUCF)
Annex 28 - Contract for project 2 (Recalculations)
Annex 29a - Contract for project 3 (Software)
Annex 29b - Print screens from the software (project 3)
Annex 30 - Contract for project 4 (F-gases)
Annex 31 - Contract with Energy Institute
Annex 32 – 36 National QA/QC Plan
Annex 37 – Official letter no 91-00-4512 from 26th of august 2009
Annex 38 - Answer of the relevant organizations with QA/QC experts
Annex 39 – QA plan for 2008 inventory
Annex 40 – Quality Policy
Annex 41 – Order for approval of National CORINAIR methodology
Annex 42 – Order for approval of Common National methodology