Report on National Greenhouse Gas Inventory System in the Republic of Moldova

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Report on National Greenhouse Gas Inventory System in the Republic of Moldova

Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

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CONTENTS

INTRODUCTION

The Report on National Inventory System in the Republic of Moldova" was developed over the second semester of 2015 drawing on six templates worked out by the Environmental Protection Agency of the United States of America (US EPA)[1].

The Report provides complete documentation of every major component related to the inventory management process in the Republic of Moldova on anthropogenic emissions of greenhouse gases by sources and removals by sinks, which are not regulated by the Montreal Protocol.

The advantages of using the predefined templates (adapted to national conditions of the Republic of Moldova) are as follows:

- They standardize the tasks to be achieved, which allows a comparative analysis of national inventory systems and a comparison and review of data from different countries;
- They ensure understanding of roles and responsibilities;
- They are adapted to different levels of national capacity;
- They provides an objective and effective system for identifying priorities for future improvements;
- They serve as guideline and starting point for the national team in the development of future national GHG inventories;
- They help the national team to apply the Good Practice Guidebook and management of uncertainties in emission inventories of national greenhouse gas emissions (IPCC, 2000), Good Practice Guidebook for Land Use, Land-Use Change and Forestry Sector (IPCC, 2003), 2006 IPCC Guidelines for National Emission Inventories of GHG emissions (IPCC, 2006) and other guidance of the UNFCCC on development of national GHG inventories;
- They ensure transparency in matters relating to the operation of the National Inventory System in the Republic of Moldova; and
- They facilitate the improvement of the inventory over time.

The six predefined templates for the development of the National Inventory System are as follows:

1. **Institutional Arrangements for the National Inventory System (IA)** – assist the national inventory team to assess and document strengths and weaknesses of existing institutional arrangements in developing the national inventory of anthropogenic emissions of greenhouse gas by sources and removals by sinks, ensure its continuity and integrity, promote the inventory institutionalization process and facilitate the prioritization of future improvements.

2. **Methods and Data Documentation (MDD)** – assist national inventory team in documentation and communication of the origin of the methodology used, of activity data sets and emission factors used to estimate future GHG emissions or removals; the future national teams inventory will be able to refer to the template completed for each source and sink category to determine what information was collected, how the data were obtained and what calculation methods were used, and to reproduce estimates of GHG emissions.

[1] www.epa.gov/climatechange/emissions/ghginventorycapacitybuilding

3. **Description of Quality Assurance / Quality Control (QA/QC)** – guides the national entity responsible for managing the national inventory system in creating a Plan for quality assurance and quality control in a cost-effective manner to improve transparency, consistency, comparability, completeness and accuracy of the national inventory of anthropogenic emissions of greenhouse gases from sources and sinks not controlled by the Montreal Protocol; the template includes checklists with recommended QA / QC procedures that are suitable for staff with management responsibility, such as the Inventory Coordinator, QA/QC Coordinator, as well as sectorial coordinators.

4. **Description of the Archiving System (AS)** – an archiving system is a relatively inexpensive component, but particularly important for a sustainable national inventory system; the archiving system allows for easy reproduction of estimates, ensures avoiding loss of data and information and facilitates further development of inventories by staff involved in the inventory process.

5. **Key Category Analysis (KCA)** – identifies sources or sinks that contributing the most to the total national emissions and therefore it constitutes a priority objective for improvement efforts. KCA tools and template are consistent with IPCC Guidelines.

6. **National Inventory Improvement Plan (NIIP)** – is a summary of conclusions on capacity building needs and it describe specific priorities for future activities based on the capacity needs identified following completion of the first five templates; the plan facilitates continual inventory improvements.

Chapter 1: Institutional Arrangements

1: Institutional Arrangements

2: Methods and Data Documentation

3: Description of QA/QC Procedures

4: Description of Archiving System

5: Key Category Analysis

6: National Inventory Improvement Plan

Contact data of the Coordinator of the National Greenhous Gas Inventory

Country	Republic of Moldova	**Postal address:**	156A Mitropolit Dosoftei str., room 37, MD-2004, Chisinau, Republic of Moldova
Name:	Taranu Marius	**Telephone/Fax:**	+373 22 23 22 47
Position:	Coordinator of the National Greenhouse Gas Inventory	**E-mail:**	marius.taranu@clima.md
Organization:	Climate Change Office, Ministry of Environment	**URL:**	http://www.clima.md

1. Institutional Arrangements

1.1. Overview of Current Inventory Management Team

Table 1.1: Designated Inventory Agency

Designated National GHG Inventory Preparation Agency/Organization	UNFCCC focal point	Describe the arrangements or relationship between Inventory Agency/Organization and UNFCCC Focal Point Agency
Climate Change Office, Ministry of Environment of the Republic of Moldova	The Ministry of Environment (MoEN) of the Republic of Moldova is the state authority responsible for the development and promotion of state policies and strategies in environmental protection, rational use of natural resources and biodiversity conservation. On behalf of the Government of the Republic of Moldova, the Ministry of Environment is responsible for implementing international environmental treaties to which the Republic of Moldova is a party (including the United Nations Framework Convention on Climate Change). The Minister of Environment holds position of UNFCCC focal point.	Climate Change Office of the Ministry of Environment has been designated as GHG Inventory Preparation Agency by Order No. 21 of 11.02.2004 of the Minister of Ecology, Constructions and Territory Development of the Republic of Moldova (reorganized in 2005 into Ministry of Ecology and Natural Resources and in 2009 into Ministry of Environment). In Annex 1 of the Order No. 21 of 11.02.2004, Chapter II, paragraph 7 (b) (v), it is stated that Climate Change Office (CCO) is responsible for „facilitating creation of databases and of informational and monitoring systems for greenhouse gases and periodic estimates of GHG emissions, including preparation of national inventory reports". The role of CCO is also specified within the Government Decision No. 141 dated 24.02.2014 on creating the energy statistical system. Thus, Chapter 2.1, Paragraph 3(h) notes that the Climate Change Office of the Ministry of Environment is responsible for developing national inventories of direct (CO_2, CH_4, N_2O, HFC, PFC and SF_6) and indirect greenhouse gases (NO_x, CO, NMVOC and SO_2), originated from six sectors (Energy, Industrial Processes, Solvents and Other Products Use, Agriculture, LULUCF and Waste).

Table 1.2: National Inventory Management Team

Role	Name	Organization	Contact data
Inventory Coordinator	Marius Taranu, MSc in Biology	Climate Change Office, Ministry of Environment	156A Mitropolit Dosoftei str., room 37, MD-2004, Chisinau, Republic of Moldova Tel/Fax: +373 22 23 22 47, E-mail: marius.taranu@clima.md
Energy Sector Lead	Elena Bicova, PhD in Power Engineering	Institute of Power Engineering of the Academy of Sciences of Moldova	5 Academiei str., room 443, MD-2028, Chisinau, Republic of Moldova Tel.: +373 22 73 74 94, E-mail: elena-bicova@mail.ru
Industrial Processes Sector Lead	Vladimir Brega, PhD in Chemistry	Institute of Ecology and Geography of the Academy of Sciences of Moldova	1 Academiei str., room 405, MD-2028, Chisinau, Republic of Moldova Tel.: +373 22 73 19 18, E-mail: bregaradu@rocketmail.com
Solvents and Use of Other Products Sector Lead	Anatol Tarita, PhD in Biology	Institute of Ecology and Geography of the Academy of Sciences of Moldova	3 Academiei str., room 437, MD-2028, Chisinau, Republic of Moldova Tel.: +373 22 71 89 38, +373 22 72 17 74 , E-mail: ozonmd@mail.ru
Agriculture Sector Lead	Sergiu Cosman, PhD in Agriculture	Scientific-Practical Institute for Biotechnology in Animal Breeding and Veterinary Medicine	Maximovca village, Anenii-Noi district, MD-6525, Republic of Moldova Tel.: +373 22 35 93 57; +373 22 35 92 95, E-mail: sergiu_cosman@mail.ru
Land Use, Land-Use Change and Forestry Sector Lead	Ion Talmaci, MSc in Biology	Forestry Research and Management Institute, Moldsilva Agency, Ministry of Environment	69 Calea Iesilor Str., MD-2069, Chisinau, Republic of Moldova Tel: +373 22 92 89 59, E-mail: iontalmaci@mail.ru
Waste Sector Lead	Tatiana Tugui, PhD in Chemistry	Office Prevention of Environmental Pollution, Ministry of Environment	9 Cosmonautilor str., room 736, MD-2005, Chisinau, Republic of Moldova Tel./Fax: +373 22 22 25 42, E-mail: tuguitatiana@ymail.com

Role	Name	Organization	Contact data
Archive Manager	Marius Taranu, MSc in Biology	Climate Change Office, Ministry of Environment	156A Mitropolit Dosoftei str., room 37, MD-2004, Chisinau, Republic of Moldova Tel/Fax: +373 22 23 22 47, E-mail: marius.taranu@clima.md
QA/QC Coordinator	Marius Taranu, MSc in Biology	Climate Change Office, Ministry of Environment	156A Mitropolit Dosoftei str., room 37, MD-2004, Chisinau, Republic of Moldova Tel/Fax: +373 22 23 22 47, E-mail: marius.taranu@clima.md
Uncertainties Analysis Coordinator	Marius Taranu, MSc in Biology	Climate Change Office, Ministry of Environment	156A Mitropolit Dosoftei str., room 37, MD-2004, Chisinau, Republic of Moldova Tel/Fax: +373 22 23 22 47, E-mail: marius.taranu@clima.md

1.2. Sectoral Roles and Arrangements

Table 1.3: Energy Sector Institutional Arrangements

Role	Organization	Contact person [Name]	Contact data [E-mail, telephone, etc.]	Participation in meetings on GHG inventory development? [Yes/No]	Comments [Institutional arrangements]
Energy Sector Lead, responsible also for categories: 1A3 Transport, 1A5 Other, International aviation and CO_2 emissions from biomass	Institute of Power Engineering of the ASM	Elena Bicova, PhD in Power Engineering	5 Academiei Str., room 443, MD-2028, Chisinau, Republic of Moldova Tel.: +373-22-73-74-94 E-mail: elena-bicova@mail.ru	Yes	Personal contract for provision of consultancy services
Consultant compiling estimates from category 1A1 Energy Industries	Institute of Power Engineering of the ASM	Vitalii Postolati, PhD in Power Engineering, Acad.	5 Academiei Str., room 408, MD-2028, Chisinau, Republic of Moldova Tel.: +373-22-73-53-88 E-mail: vpostolati@rambler.ru	Yes	Personal contract for provision of consultancy services
Consultant compiling estimates from category 1A2 Manufacturing industries and constructions	Institute of Power Engineering of the ASM	Larisa Mortar	5 Academiei Str., room 421, MD-2028, Chisinau, Republic of Moldova Tel.: +373-22-72-80-62 E-mail: moraru-larisa@mail.ru	Yes	Personal contract for provision of consultancy services
Consultant compiling estimates from category 1A4 Other sectors	Institute of Power Engineering of the ASM	Tatiana Kirillova	5 Academiei Str., room 439, MD-2028, Chisinau, Republic of Moldova Tel.: +373-22-73-74-94 E-mail: kirillova_tanea@mail.ru	Yes	Personal contract for provision of consultancy services
Consultant compiling estimates from category 1B2 Fugitive emissions from oil and natural gas	"Termoelectrica" JSC	Serghei Burtev	5 Academiei Str., room 443, MD-2028, Chisinau, Republic of Moldova, Tel.: +373-22-73-74-94 E-mail: sb2212@mail.ru	Yes	Personal contract for provision of consultancy services
Data provider (Energy Balance of the Republic of Moldova)	National Bureau for Statistics, Division for statistics of industry, energy and construction	Bulgac Svetlana, Head of division	106 Grenoble str., MD-2019, Chisinau, Republic of Moldova Tel.: +373-22-40-30-55 or +373-22-73-15-13, E-mail: svetlana.bulgac@statistica.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of the National Bureau for Statistics (NBS). The legal basis for such request and provision of information is Law No. 412 of 09.12.2004 on official statistics and Law No. 982 of 11.05.2000 on access to information.

Role	Organization	Contact person [Name]	Contact data [E-mail, telephone, etc.]	Participation in meetings on GHG inventory development? [Yes/No]	Comments [Institutional arrangements]
Data provider (fuel use and amount of produced power and heat)	"Termoelectrica" JSC ("CHP-2" unit)	Vitalie Mita, Engineer	3 Mesterul Manole Str., MD-2023, Chisinau, Republic of Moldova Tel.:+373-32-38-52-19 E-mail: mita_vitalie@yahoo.com	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of "Termoelectrica" JSC. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (fuel use, amount of produced power and heat and the CHP-2 technical specifications)	"Termoelectrica" JSC ("CHP-2" unit)	Oxana Contedailova, Engineer	3 Mesterul Manole Str., MD-2023, Chisinau, Republic of Moldova Tel.: +373-22-38-53-54	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of "Termoelectrica" JSC. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (fuel use, amount of produced power and heat and the CHP-1 technical specifications)	"Termoelectrica" JSC ("CHP-1" unit)	Tatiana Comarova, Engineer	5 Vadu lui Voda Str., MD-2023, Chisinau, Republic of Moldova Tel.: +373-22-40-33-19	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of "Termoelectrica" JSC. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (fuel use, amount of heat produced and technical specifications of HPs)	"Termoelectrica" JSC ("Termoservice" unit)	Oleg Sarateanu, Engineer	6 T. Vladimirescu Str., MD-2024, Chisinau, Republic of Moldova Tel.: +373-22-83-93-12	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of "Termoelectrica" JSC, „Termoservice" unit. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (fuel use, amount of produced power and heat)	"CHP-North" JSC	Serghei Macarov, Engineer	168 Stefan cel Mare Str., MD-3100, Balți, Republic of Moldova Tel.: +373-231-53-365 E-mail: macarov_s@mail.ru	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of "CHP-North". The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (information included in the State Registry of Vehicles, including number of vehicles by type of classes, age, fuel use)	State Company "Centre of State Informational Resources „Registru", Department for project management and services	Stefan Caraus	42 Puskin Str., MD-2012, Chisinau, Republic of Moldova Tel.: +373-22-50-47-11 E-mail: caraus_s@registru.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of State Company "Centre of State Informational Resources „Registru". The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information. A service provision agreement has been concluded between parties for data provision.
Data provider (diesel oil consumption for naval transportation)	Ministry of Transportation and Road Infrastructure of the Republic of Moldova	Ion Savitchi, Head of Division for policy analysis, monitoring and evaluation	162 Stefan cel Mare Ave., MD-2004, Chisinau, Republic of Moldova, Tel.: +373-22-82-07-19 Fax: +373-22-54-65-64 E-mail: ion.savitchi@mtid.gov.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Minister of Transportation and Road Infrastructure. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (fuel use and number of engines, wagons and trains)	State Company "Railways of Moldova"	Tatiana Bureac	48 Vlaicu Parcalab Str., MD-2012, Chisinau, Republic of Moldova Tel.: 373-22-83-41-55 Fax: +373-22-22-13-80 E-mail: bureac@railway.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of State Company "Railways of Moldova". The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.

Role	Organization	Contact person [Name]	Contact data [E-mail, telephone, etc.]	Participation in meetings on GHG inventory development? [Yes/No]	Comments [Institutional arrangements]
Data provider (use of fuels and lubricants in the National Army of the Republic of Moldova)	Ministry of Defence, Service for Ecology and Environmental Protection	Col. Mariana Grama, Head of Service	84 Hancesti Highway, MD-2021, Chisinau, Republic of Moldova, Tel.: +373-22-25-24-07 E-mail: mariana.grama@army.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Minister of Defence. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (fuel use for domestic and international aviation, number of airplanes used and number of flights)	Civil Aeronautical Authority of the Republic of Moldova	Vladimir Gorea, Head of Division Economics and Analysis	80/2 Dacia Ave., MD-2026, Chisinau, Republic of Moldova, Tel.: +373-22-52-91-52 Fax: +373-22-52-91-18 E-mail: vladimir.gorea@caa.gov.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of Civil Aeronautical Authority. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (import, use, transit and technology loss of natural gas, specifications of natural gas distribution networks and main pipelines)	"Moldovagaz" JSC	Victor Pasecinic	38 Albisoara Str., MD-2005, Chisinau, Republic of Moldova, Tel.: +373-22-57-87-07 or +373-22-57-80-02 Fax: +373-22-22-00-02 E-mail: victor.pasecinic@moldovagaz.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the President of the Board of Directors of "Moldovagaz" JSC. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (fuel import and export)	Customs Service of the Republic of Moldova	Sergiu Bureacov, Informational Technology Division	30 Columna Str., MD-2001, Chisinau, Republic of Moldova, Tel.: +373-22-57-42-66, Fax: +373-22-27-30-61 E-mail: sergiu.bureacov@customs.gov.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the General Director of the Customs Service. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Consultant responsible for verification and quality control (QC)	Institute of Power Engineering of the ASM	Elena Bicova, PhD in Power Engineering	5 Academiei Str., room 443, MD-2028, Chisinau, Republic of Moldova Tel.: +373-22-73-74-94 E-mail: elena-bicova@mail.ru	Yes	Personal contract for provision of consultancy services
Consultant responsible for quality assurance (QA)	Institute of Power Engineering of the ASM	Mihai Tirsu, PhD in Power Engineering	5 Academiei Str., room 400, MD-2028, Chisinau, Republic of Moldova Tel.: +373-22-73-53-84, Fax: +373-22-73-53-82 E-mail: tirsu.mihai@gmail.com	No	Personal contract for provision of consultancy services
Consultant responsible for uncertainty analysis	Institute of Power Engineering of the ASM	Elena Bicova, PhD in Power Engineering	5 Academiei Str., room 443, MD-2028, Chisinau, Republic of Moldova Tel.: +373-22-73-74-94 E-mail: elena-bicova@mail.ru	Yes	Personal contract for provision of consultancy services

Table 1.4: Industrial Processes Sector Institutional Arrangements

Role	Organization	Contact [Name]	Contact data [E-mail, telephone, etc.]	Participation in meetings on GHG inventory development ? [Yes/No]	Comments [Institutional arrangements]
Industrial Processes Lead, responsible also for categories: 2A Mineral products, 2B Chemical industry, 2C Metal production and 2D Other production	Institute for Ecology and Geography of the Academy of Sciences of Moldova	Vladimir Brega, PhD in Chemistry	1 Academiei Str., room 405, MD-2028, Chisinau, Republic of Moldova Tel.: +373-22-71-94-48 , +373-22-73-19-18 E-mail: bregaradu@rocketmail.com	Yes	Personal contract for provision of consultancy services
Consultant responsible for compiling estimates from category 2F Use of halocarbons and SF_6	Institute for Ecology and Geography of the Academy of Sciences of Moldova	Anatol Tarita, PhD in Biology	3 Academiei Str., room 437, MD-2028, Chisinau, Republic of Moldova Tel.: +373-22-71-89-38, +373-22-72-17-74 E-mail: ozonmd@mail.ru	Yes	Personal contract for provision of consultancy services
Data provider (Statistical Reports PRODMOLD – A "Production in natural expression in the industry of the Republic of Moldova)"	National Bureau for Statistics, Division for Statistics of Industry, Energy and Construction	Bulgac Svetlana, Head of Division	106 Grenoble Str., MD-2019 Chisinau, Republic of Moldova Tel.: +373-22-40-30-55, +373-22-73-15-13, E-mail: svetlana.bulgac@statistica.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of the National Bureau for Statistics (NBS). The legal basis for such request and provision of information is Law No. 412 of 09.12.2004 on official statistics and Law No. 982 of 11.05.2000 on access to information.
Data provider (Statistical Report No.1-ozon „Trade regime and regulating use of halogenated hydrocarbons which destroy the ozone layer")	NBS, Division for Statistics of Agriculture and Environment, Environment Statistics Service	Ludmila Lungu	106 Grenoble Str., MD-2019, Chisinau, Republic of Moldova Tel.: +373-22-40-30-23 +373-22-73-75-42 E-mail: ludmila.lungu@statistica.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of the National Bureau for Statistics (NBS). The legal basis for such request and provision of information is Law No. 412 of 09.12.2004 on official statistics and Law No. 982 of 11.05.2000 on access to information.
Data provider (data on annual production of cement and clinker, use of raw materials and additional material resources)	Lafarge Cement (Moldova) JSC	Oxana Ersov	1 Viitorului Str., MD-5400, Rezina, Republic of Moldova, Tel.: +373-254-55-500 Fax: +373-254-55-549 E-mail: oxana.ersov@lafargeholcim.com	No	The information is requested by official letter of the Manager of the Climate Change Office to the General Director of Lafarge Ciment JSC (Moldova). The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (data on annual production of bricks and expanded clay and use of raw materials)	Building Materials Company "MACON" JSC	Maxim Vasiliev	104 Uzinelor Str., MD-2023, Chisinau, Republic of Moldova, Tel.: +373-22-40-58-88, +373-22-40-58-54 Fax: +373-22-47-43-21, +373-22-47-43-63 E-mail: maconag@yandex.ru	No	The information is requested by official letter of the Manager of the Climate Change Office to the General Director of the Building Materials Company "MACON" JSC. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (data on annual production of glass and raw material use)	"Chisinau Glass Factory" JSC	V. Zubovici, Engineer	20 Transnistria Str., MD-2023, Chisinau, Republic of Moldova, Tel.: +373-22-47-39-26/34, Fax: +373-22-47-38-70, +373-22-47-39-46 E-mail: office@glass.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the General Director of the Glass Factory No.1 in Chisinau. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (data on annual production of glass and raw material use)	Joint Venture „Glass Container Company" JSC	Oleg Baban, General Director	201 Uzinelor Str., MD-2023, Chisinau, Republic of Moldova, Tel.: +373-22-89-58-04, +373-22-47-24-64 Fax: +373-22-89-58-01 E-mail: gcc@gcc.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the General Director of the Joint Venture „Glass Container Company" JSC. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.

Role	Organization	Contact [Name]	Contact data [E-mail, telephone, etc.]	Participation in meetings on GHG inventory development ? [Yes/No]	Comments [Institutional arrangements]
Data provider (data on extracted non-metal calcareous minerals to be used as raw materials in industrial processes which involve limestone oven combustion)	Agency for Geology and Mineral Resources	Adriana Curcubet, Senior Specialist, Geology Division	156 Mitropolit Dosoftei Str., MD-2004, Chisinau, Republic of Moldova Tel.: +373-22-75-14-38; Fax: +373-22-73-08-63, E-mail: agrm@agrm.gov.md or adriana.curcubet@agrm.gov.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of the Agency for Geology and Mineral Resources. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (data on production of bitumen based asphalt mixtures (asphalt concrete) for works on roads and bridges)	Ministry of Transportation and Road Infrastructure of the Republic of Moldova	Ion Savitchi, Head of Division for Policy Analysis, Monitoring and evaluation	162 Stefan cel Mare Ave., MD-2004, Chisinau, Republic of Moldova, Tel.: +373-22-82-07-19; Fax: +373-22-54-65-64 E-mail: ion.savitchi@mtid.gov.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Minister of Transportation and Road Infrastructure. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (import and export of industrial products, including cooling equipment and freons)	Customs Service of the Republic of Moldova	Angela Timuta	30 Columna Str., MD-2001, Chisinau, Republic of Moldova, Tel.: +373-22-57-42-61; Fax: +373-22-27-30-61; E-mail: angela.timuta@customs.gov.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the General Director of the Customs Service. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (data on share of different refrigeration agents incorporated in refrigeration equipment and air conditioning devices imported in Moldova)	Non-governmental association of refrigeration technicians of the Republic of Moldova	Vasile Cartofeanu, Director	9/6 Studentilor Str., room 204, MD-2045, Chisinau, Republic of Moldova, Tel.: +373-22-32-17-16, +373-22- 50-99-30 Fax: +373-22-50-99-40 E-mail: vcartofeanu@mail.utm.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of Non-governmental association of refrigeration technicians. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (import of refrigeration equipment and freons)	Trade Company ECOLUX Ltd	Mihai Zagorodnîi, Director	79/1 , 31 August 1989 Str., ap.29, MD-2012, Chisinau, Republic of Moldova, Tel.: +373-22-50-03-99 or +373-22-50-09-63, +373-22-50-09-64 www.ecolux.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of Trade Company ECOLUX Ltd. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (import of refrigeration equipment and freons)	Trade Company FRIGOIND Ltd	Teodor Anghel, Director	4/1 Romana Str., ap.56, Chisinau, Republic of Moldova, Tel.: +373-22-92-85-17, +373-22-47-37-16, +373-22-47-04-30, E-mail: frigoind@mtc.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of the Trade Company FRIGOIND Ltd. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (import of refrigeration equipment and freons)	Trade Company FRIO-DINS Ltd	Arcadie Cojocari, Director	1 Florilor Str., MD-2068, Chisinau, Republic of Moldova, Tel./Fax: +373-22-49-01-32, E-mail: dcojocar@mtc.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of Trade Company FRIO-DINS Ltd. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (import of refrigeration equipment and freons)	Trade Company DINA COCIUG Ltd	Cociug Mihail, Director	Bd. Dacia, 38/7 MD-2062, Chisinau, Republic of Moldova Tel/Fax: +373 (22) 66 40 00 E-mail: cociug@dina.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of Trade Company DINA COCIUG Ltd. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (import of refrigeration equipment and freons)	Trade Company YORK REFRIGERENT Ltd	Sergiu Baltaga, Director	22. M. Kogalniceanu Str., room 9 MD-2001, Chisinau, Republic of Moldova Tel/Fax: +373-22-22-60-16; Tel: 373-22-27-39-43; E-mail: yorkref@mtc.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of Trade Company YORK REFRIGERENT Ltd. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.

Role	Organization	Contact [Name]	Contact data [E-mail, telephone, etc.]	Participation in meetings on GHG inventory development ? [Yes/No]	Comments [Institutional arrangements]
Data provider (data on number and capacity of electrical equipment – high voltage powered installations, using sulphur hexafluoride and perfluorocarbons as insulating gas)	Foreign Capital Company RED UNION FENOSA JSC	Lilian Cenolevckii, Quality and Environment Department	4 A. Doga Str., MD-2024, Chisinau, Republic of Moldova Tel. +373-22-431-360 E-mail: LCernolevckii@UFMoldova.com	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of Foreign Capital Company RED UNION FENOSA JSC. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (data on number and capacity of electrical equipment – high voltage powered installations, using sulphur hexafluoride and perfluorocarbons as insulating gas)	State Company "Moldelectrica"	N. Melnicenco	78 Vasile Alexandri Str., MD-2012, Chisinau, Republic of Moldova Tel. +373-22-22-22-70, +373-22-25-33-96 Fax: +373-22-25-31-42 E-mail: melnicenco@moldelectrica.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of State Company "Moldelectrica". The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (data on import of pressurized aerosols with inhalation dosing, propulsion substance based on HFCs)	Ministry of Health	V. Carp	2 Vasile Alexandri Str., MD-2009, Chisinau, Republic of Moldova Tel. +373 22 729 907, +373 22 268 806 +373 22 268 818; Fax.: +373 22 738 781; E-mail: office@ms.gov.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Minister of Health. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (information on produced beer volume)	J.V. "Efes Vitanta Moldova Brewery" JSC	Liudmila Mazur	167 Uzinelor Str., MD-2023, Chisinau, Republic of Moldova Tel. +373-22-88-52-52, Fax: +373-22-42-82-00 E-mail: liudmila.mazur@md.anadoluefes.com	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of J.V. "Efes Vitanta Moldova Brewery" JSC. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Data provider (information on number of vehicles registered in the Republic of Moldova, according to data of the State Registry of Vehicles)	SC State Centre for Informational Resources „Registru", Department for project management and services	Stefan Caraus	42 Puskin Str., MD-2012, Chisinau, Republic of Moldova Tel.: +373-22-50-47-11 E-mail: caraus_s@registru.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Minister of Informational Technology and Communication. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Consultant responsible for verification and quality control (QC)	Institute for Ecology and Geography of the Academy of Sciences of Moldova	Vladimir Brega, PhD in Chemistry	1 Academiei Str., room 405, MD-2028, Chisinau, Republic of Moldova Tel.: +373-22-71-94-48 or +373-22-73-19-18 E-mail: bregaradu@rocketmail.com	Yes	Personal contract for provision of consultancy services
Consultant responsible for quality assurance (QA)	Technical University of Moldova	Natalia Beglet, PhD in Power Engineering	78, 31 August 1989 Str., Building No.2, MD-2004, Chisinau, Republic of Moldova, Tel: +373-22-237-282 E-mail: natalia.beglet@gmail.com	No	Personal contract for provision of consultancy services
Consultant responsible for uncertainty analysis	Institute for Ecology and Geography of the Academy of Sciences of Moldova	Vladimir Brega, PhD in Chemistry	1 Academiei Str., Room 405, MD-2028, Chisinau, Republic of Moldova Tel.: +373-22-71-94-48 or +373-22-73-19-18 E-mail: bregaradu@rocketmail.com	Yes	Personal contract for provision of consultancy services

Table 1.5: Solvents and Other Products Use Sector Institutional Arrangements

Role	Organization	Contact person [Name]	Contact data [E-mail, telephone, etc.]	Participation in meetings on development of GHG inventory? [Yes/No]	Comments [Institutional arrangements]
SOPU Sector Lead, responsible also for categories: 3A Paints Application, 3B Degreasing and Dry Cleaning, 3C Chemical Products, Manufacturing and Processing of and 3D Other	Institute for Ecology and Geography of the Academy of Sciences of Moldova	Anatol Tarita, PhD in Biology	3 Academiei Str., room 437, MD-2028, Chisinau, Republic of Moldova Tel.: +373-22-71-89-38, +373-22-72-17-74 E-mail: ozonmd@mail.ru	Yes	Personal contract for provision of consultancy services
Data provider (Statistical Reports PRODMOLD - A "Production in natural expression in the industry of the Republic of Moldova")	National Bureau for Statistics, Division for Statistics in Industry, Power and Construction	Bulgac Svetlana, Head of Division	106 Grenoble Str., MD-2019, Chisinau, Republic of Moldova Tel.: +373-22-40-30-55, +373-22-73-15-13, E-mail: svetlana.bulgac@statistica.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of the National Bureau for Statistics (NBS). The legal basis for such request and provision of information is Law No. 412 of 09.12.2004 on official statistics and Law No. 982 of 11.05.2000 on access to information.
Data provider (import and export of solvents)	Customs Service of the Republic of Moldova	Angela Timuta	30 Columna Str., MD-2001, Chisinau, Republic of Moldova, Tel.: +373-22-57-42-61; Fax: +373-22-27-30-61 E-mail: angela.timuta@customs.gov.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the general Director of the Customs Service. The legal basis for such request and provision of information is Law No. 982 of 11.05.2000 on access to information.
Consultant responsible for verification and quality control (QC)	Institute for Ecology and Geography of the Academy of Sciences of Moldova	Anatol Tarita, PhD in Biology	3 Academiei Str., room 437, MD-2028, Chisinau, Republic of Moldova Tel.: +373-22-71-89-38, +373-22-72-17-74 E-mail: ozonmd@mail.ru	Yes	Personal contract for provision of consultancy services
Consultant responsible for quality assurance (QA)	Technical University of Moldova, Department for Quality Management	Andrei Chiciuc, Prof., PhD, Engineer, head of department	78, 31 August 1989 Str., Building No. 2, MD-2004, Chisinau, Republic of Moldova, Tel: +373-22-237-619 E-mail: 4chiciuc@gmail.com	No	Personal contract for provision of consultancy services
Consultant responsible for uncertainty analysis	Institute for Ecology and Geography of the Academy of Sciences of Moldova	Anatol Tarita, PhD in Biology	3 Academiei Str., room 437, MD-2028, Chisinau, Republic of Moldova Tel.: +373-22-71-89-38, +373-22-72-17-74 E-mail: ozonmd@mail.ru	Yes	Personal contract for provision of consultancy services

Table 1.6: Agriculture Sector Institutional Arrangements

Role	Organization	Contact person [Name]	Contact data [E-mail, telephone, etc.]	Participation in meetings on development of GHG inventory? [Yes/No]	Comments [Institutional arrangements]
Agriculture Sector Lead, responsible also for categories: 4A Enteric Fermentation and 4B Manure Management	Scientific-Practical Institute for Biotechnology in Animal Breeding and Veterinary Medicine	Sergiu Cosman, Hab. PhD in Agriculture	Maximovca village, Anenii-Noi district, MD-6525, Republic of Moldova Tel.: +373 22 35 93 57; +373 22 35 92 95, E-mail: sergiu_cosman@mail.ru	Yes	Personal contract for provision of consultancy services

Role	Organization	Contact person [Name]	Contact data [E-mail, telephone, etc.]	Participation in meetings on development of GHG inventory? [Yes/No]	Comments [Institutional arrangements]
Consultant responsible for compiling estimates for category 4D Agricultural Soils	Agrarian State University of Moldova	Ion Bacean, Prof, PhD in Agriculture	44 Mircesti Str., MD-2049, Chisinau, Republic of Moldova Tel.: +373-22-432-198 E-mail: i.bacean@mail.uasm.md	Yes	Personal contract for provision of consultancy services
Data provider (Statistical Reports No. 9-AGR „Use of plant protection products and introduction of artificial and natural fertilizer", No. 29-AGR „Production obtained from crops harvested from all seeded area")	National Bureau for Statistics, Statistics in Agriculture and Environment Division, Section for Agricultural Statistics	Maria Chiperi	106 Grenoble Str., MD-2019, Chisinau, Republic of Moldova Tel.: +373-22-40-30-23, +373-22-72-77-32 E-mail: maria.chiperi@statistica.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of the National Bureau for Statistics (NBS). The legal basis for such request and provision of information is Law No. 412 of 09.12.2004 on official statistics and Law No. 982 of 11.05.2000 on access to information.
Data provider (Statistical Reports No. 6 "Number of cattle and poultry in households", No. 15-AGR "Number of livestock", No. 24-AGR „Condition of the livestock sector")	NBS, Division for Statistics in Agriculture and Environment, Section for Agricultural Statistics	Rodica Boinstean	106 Grenoble Str., MD-2019, Chisinau, Republic of Moldova Tel.: +373-22-40-30-23, +373-22-72-77-32 E-mail: rodica.boistean@statistica.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of the National Bureau for Statistics (NBS). The legal basis for such request and provision of information is Law No. 412 of 09.12.2004 on official statistics and Law No. 982 of 11.05.2000 on access to information.
Consultant responsible for verification and quality control (QC)	Scientific-Practical Institute for Biotechnology in Animal Breeding and Veterinary Medicine	Sergiu Cosman, Hab. PhD in Agriculture	Maximovca village, Anenii-Noi district, MD-6525, Republic of Moldova Tel.: +373 22 35 93 57; +373 22 35 92 95, E-mail: sergiu_cosman@mail.ru	Yes	Personal contract for provision of consultancy services
Consultant responsible for quality assurance (QA) (Category 4D Agricultural Soils)	Institute for Pedology, Agrochemistry and Soil Protection "Nicolae Dimo"	Tamara Leah, Prof., PhD Agriculture, Researcher	100 Ialoveni Str., 1st floor, MD-2070, Chisinau, Republic of Moldova Tel: +373 22 28 48 43, 28 48 62, Fax: +373 22 28 48 55 E-mail: tamaraleah09@gmail.com	No	Personal contract for provision of consultancy services
Consultant responsible for quality assurance (QA) (Categories 4A Enteric Fermentation and 4B Manure Management)	Technical University of Moldova	Nicolae Bucataru, Prof., Hab PhD Agriculture	8/1Mircești Str., ap.71, Chisinau, Republic of Moldova Tel: +373-22-43-21-50 E-mail: bucataru_n@yahoo.com	No	Personal contract for provision of consultancy services
Consultant responsible for uncertainty analysis	Scientific-Practical Institute for Biotechnology in Animal Breeding and Veterinary Medicine	Sergiu Cosman, Hab. PhD in Agriculture	Maximovca village, Anenii-Noi district, MD-6525, Republic of Moldova Tel.: +373 22 35 93 57; +373 22 35 92 95, E-mail: sergiu_cosman@mail.ru	Yes	Personal contract for provision of consultancy services

Table 1.7: Land Use, Land-Use Change and Forestry Sector Institutional Arrangements

Role	Organization	Contact person [Name]	Contact data [E-mail, telephone, etc.]	Participation in meetings on development of GHG inventory? [Yes/No]	Comments [Institutional arrangements]
LULUCF Sector Lead, responsible also for categories: 5A Forest Land, 5F Other Land and 5E Settlements	Forestry Research and Management Institute, "Moldsilva" Agency	Ion Talmaci, Technical Vice Director	69 Calea Iesilor Str., MD-2069, Chisinau, Republic of Moldova Tel: +373-22-92-89-59 Fax: +373-22-59-33-51 E-mail: iontalmaci@mail.ru	Yes	Personal contract for provision of consultancy services
Consultant responsible for compiling estimates for category 5B Cropland, subcategories 5B1.1 Cropland covered with woody vegetation 5B2 Land converted to cropland	State Agricultural University of Moldova, Forestry and Public Gardens Chair	Victor Sfecla, Senior Lector	42 Mircesti Str., MD-2049, Chisinau, Republic of Moldova Tel.: +373-22-43-28-09 Fax: +373-22-31-23-01 Email: v.svecla@mail.ru, v.sfecla@uasm.md	Yes	Personal contract for provision of consultancy services
Consultant responsible for compiling estimates for category 5B Cropland, subcategory 5B1.2 Annual changes in carbon stocks in mineral soils	Institute for Pedology, Agrochemistry and Soil Protection "Nicolae Dimo"	Valerian Cerbari, Prof., PhD Agriculture, Hab PhD Agriculture, Head of Laboratory	100 Ialoveni Str., 1st floor, MD-2070, Chisinau, Republic of Moldova Tel: +373-22-28-48-43, +373-22-28-48-62, Fax: +373-22-28-48-55 E-mail: vcerbari@gmail.com, cerbari@bk.ru	Yes	Personal contract for provision of consultancy services
Consultant responsible for compiling estimates for category 5B Cropland, subcategory 5B1.2 Annual changes in carbon stocks in mineral soils	Institute for Pedology, Agrochemistry and Soil Protection "Nicolae Dimo"	Tamara Leah, PhD in Agriculture, Vice Director	100 Ialoveni Str., 1st floor, MD-2070, Chisinau, Republic of Moldova, Tel: +373 22 28 48 43, +373 22 28 48 62, Fax: +373 22 28 48 55 E-mail: tamaraleah09@gmail.com	Yes	Personal contract for provision of consultancy services
Consultant responsible for compiling estimates for categories 5C Grassland and 5D Wetlands	Forestry Research and Management Institute, "Moldsilva" Agency	Aliona Miron, PhD in Biology, Scientific Secretary	Str. Calea Iesilor 69, MD-2069, Chisinau, Republic of Moldova Tel.: +373-22-93-12-02 Fax: +373-22-59-33-51 E-mail: aliona_miron@yahoo.com	Yes	Personal contract for provision of consultancy services
Data provider (Statistical Report No. 2-LIV-VII "Establishing and deforestation of multiannual plantations, production of seeding material")	NBS, Division for Statistics in Agriculture and Environment, Environmental Statistics Service	Ludmila Lungu, Head of Service	106 Grenoble Str., MD-2019, Chisinau, Republic of Moldova Tel.: +373-22-40-30-23, +373-22-73-75-42 E-mail: ludmila.lungu@statistica.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of the National Bureau for Statistics (NBS). The legal basis for such request and provision of information is Law No. 412 of 09.12.2004 on official statistics and Law No. 982 of 11.05.2000 on access to information.

Role	Organization	Contact person [Name]	Contact data [E-mail, telephone, etc.]	Participation in meetings on development of GHG inventory? [Yes/No]	Comments [Institutional arrangements]
Data provider (Statistical Report on Forest Cultivation Works (Form 1 G.S.); Statistical Report on Condition of Forests (Form 2 GS); Statistical Report on Release of Wood mass, forest care works and associated uses (Form 3GS); Statistical Report on Cases of Forestry Fires (Form 4 GS); Forest Balance of Land Managed by "Moldsilva" Agency (Form 22); Report on deforested areas and transferred to another land use category; Report on forest guarding; State accounting of forestry fund; Forestry improvement (Part III: Accounting of forest improvement); Report on forest areas and other forest land categories in which N based fertilizer was applied; Report on forest areas and other forest land categories which were improved by application of limestone and dolomite)	"Moldsilva" Agency, Division for Forestry Fund, Protected Areas, Guarding and Protection	Petru Rotaru, Head of Division	124 Stefan cel Mare si Sfant Ave., Chisinau, Republic of Moldova Tel: +373-22-27-23-06, +373-22-272-425; Fax: +373-22-27-73-45 E-mail: petru.rotaru@moldsilva.gov.md	No	Information is requested by the Forestry Research and Management Institute
Data provider (Land Cadastre, as of 1st January of the reporting year, Explanatory Note)	Agency for Land Relations and Cadastre, Division Cadastre of Real Estate	Octavian Mocreac, Leading Consultant	47 Puskin Str., Chisinau, Republic of Moldova Tel: +373-22-88-12-55; +373-22-88-12-63 Fax: +373-22-22-63-73 E-mail: octavian.mocreac@arfc.gov.md, omocreac@mail.ru	No	Information is requested by the Forestry Research and Management Institute
Data provider (Report on area of forests and other categories of forest vegetation affected by fires (for land which is not managed by "Moldsilva" Agency); Report on illegal deforestation in forests and other types of forest vegetation; Report on wood mass approved for harvesting)	Ecological State Inspectorate, Division for Flora and Fauna Inspection	Daniel Zugravu, Head of Division	9 Cosmonautilor Str., MD-2005, Chisinau, Republic of Moldova Tel.: +373-22-22-69-41 Fax: +373-22-22-69-15 E-mail: ies@mediu.gov.md	No	Information is requested by the Forestry Research and Management Institute
Consultant responsible for verification and quality control (QC)	Forestry Research and Management Institute, "Moldsilva" Agency	Ion Talmaci, Technical Vice Director	69 Calea Iesilor Str., MD-2069, Chisinau, Republic of Moldova Tel: +373-22-92-89-59 Fax: +373-22-59-33-51 E-mail: iontalmaci@mail.ru	Yes	Personal contract for provision of consultancy services
Consultant responsible for quality assurance (QA)	"Moldsilva" Agency, Forestry Research and Management Institute, Service for Prognoses, Monitoring, Programs and Strategies	Liliana Spitoc, Head of Service	69 Calea Iesilor Str., MD-2069, Chisinau, Republic of Moldova Tel.: +373-22-92-89-56 E-mail: icaspiu@starnet.md, liliana.spitoc@yahoo.com	No	Personal contract for provision of consultancy services
Consultant responsible for uncertainty analysis	Forestry Research and Management Institute, "Moldsilva" Agency	Ion Talmaci, Technical Vice Director	69 Calea Iesilor Str., MD-2069, Chisinau, Republic of Moldova Tel: +373-22-92-89-59 Fax: +373-22-59-33-51 E-mail: iontalmaci@mail.ru	Yes	Personal contract for provision of consultancy services

Table 1.8: Waste Sector Institutional Arrangements

Role	Organization	Contact person [Name]	Contact data [E-mail, telephone, etc.]	Participation in meetings related to GHG Inventory development? [Yes/No]	Comments [Institutional arrangements]
Waste Sector Lead, responsible for compiling estimates for category 6A Solid Waste Disposal on Land	Environmental Pollution Prevention Office, Ministry of Environment	Tatiana Tugui, PhD in Chemistry, Manager	9 Cosmonautilor Str., room 736, MD-2005, Chisinau, Republic of Moldova Tel/Fax: +373-22-22-25-42 E-mail: tuguitatiana@ymail.com	Yes	Personal contract for provision of consultancy services
Consultant responsible for compiling estimates for category 6B Wastewater Handling	GIZ Project "Modernizing local public services in the Republic of Moldova", GOPA Company "Regional Planning and Programmes"	Tamara Guvir, Manager of "Solid Waste Management" Sector	31A Bulgara Str., MD 2001, Chisinau, Republic of Moldova Tel.: +373-22-226-543 Fax: +373-22-226-543 E-mail: tamara.guvir@gopa.de, tamara.guvir@gmail.com	Yes	Personal contract for provision of consultancy services
Data provider (Statistical Report No. 1 – "Toxic waste: generation, use and neutralization of toxic waste", Statistical Report No.2 „Generation, use of waste")	NBS, Division for Statistics in Agriculture and Environment, Environmental Statistics Service	Ludmila Lungu, Head of Service	106 Grenoble Str., MD-2019, Chisinau, Republic of Moldova Tel.: +373-22-40-30-23, +373-22-73-75-42 E-mail: ludmila.lungu@statistica.md	No	The information is requested by official letter of the Manager of the Climate Change Office to the Director of the National Bureau for Statistics (NBS). The legal basis for such request and provision of information is Law No. 412 of 09.12.2004 on official statistics and Law No. 982 of 11.05.2000 on access to information.
Consultant responsible for verification and quality control (QC)	Environmental Pollution Prevention Office, Ministry of Environment	Tatiana Tugui, PhD in Chemistry, Manager	9 Cosmonautilor Str., room 736, MD-2005, Chisinau, Republic of Moldova Tel/Fax: +373-22-22-25-42 E-mail: tuguitatiana@ymail.com	Yes	Personal contract for provision of consultancy services
Consultant responsible for quality assurance (QA)	Independent Consultant	Ludmila Gofman	Mobile: +373 6906 2339 E-mail: ludmila.gofman@gmail.com	No	Personal contract for provision of consultancy services
Consultant responsible for uncertainty analysis	Environmental Pollution Prevention Office, Ministry of Environment	Tatiana Tugui, PhD in Chemistry, Manager	9 Cosmonautilor Str., room 736, MD-2005, Chisinau, Republic of Moldova Tel/Fax: +373-22-22-25-42 E-mail: tuguitatiana@ymail.com	Yes	Personal contract for provision of consultancy services

1.3. Potential Improvements

Table 1.9: Potential Improvements in the Management Structure

Sector	Strengths in management structure of National Inventory System (NIS)	Potential improvements in management structure of the NIS
General	The key strengths in the management structure of the National Inventory System are as follows: • The existence of legal provisions that establish the obligation to submit data related to the inventory process of GHG emissions towards specific deadlines to the competent authority designated with responsibility for national inventory preparation; • Existence of a group of qualified experts specializing in areas related to the process of GHG emissions inventory with rich experience gained over the years 1997-2015, starting from the first cycle of GHG emissions inventory conducted during preparation of the First National Communication of the Republic of Moldova to the UNFCCC (1997-2000) and ending with the last inventory cycle conducted during preparation of the First Biannual Report of the Republic of Moldova to UNFCCC (2014-2015); • Possibilities for elucidation of quantitative and qualitative aspects related to the inventory process from sectorial, national and international statistical reports and publications; • The existence of national studies in various sectorial areas, which allowed for the possibility in the near future to start using calculation methodologies of higher tiers within the national inventory; • The existence of a database of activity data related to the inventory process of GHG emissions, which is updated within each inventory cycle and is maintained institutionally starting from the first cycle of GHG emissions inventory. • Experience gained in implementing quality verification, quality control and quality assurance measures for the national inventory of GHG emissions.	It is anticipated that by the end of 2016 year, a National Reporting System to UNFCCC (NRS-UNFCCC) has to be established through a Governmental Decision. It will be created for the implementation and achievement of UNFCCC provisions (the Parliament Decision no. 404-XIII of March 16, 1995 "On Ratification of the UNFCCC", Official Gazette of the Republic of Moldova on April 27, 1995 no. 23), the Kyoto Protocol to the UNFCCC (Law no. 29 of 13.02.2003 for Republic of Moldova adhering to the Kyoto Protocol to the UNFCCC, Official Gazette of Republic of Moldova no. 48 of 18 March 2003, art. 193); and to implement and achieve the implementation of the Environment Protection Strategy for the 2014-2023 years and the Environment Protection Action Plan (Government Decision No. 301 of 24 April 2014, Official Gazette of Republic of Moldova of May 6, 2014, No. 104-109, Art. 328) (particularly Specific Objective 1 "Ensuring the conditions of good governance and efficiency of the institutional and managerial potential in environmental protection in order to achieve environmental objectives ", Line of Action 3, "Ensuring institutional reform in the environment sector ", Action 27 "Institutionalization of protective functions of forests, soil, air and climate change within the environmental protection system "). NRS-UNFCCC is to regulate all aspects of the institutional and procedural arrangements for estimating emissions of anthropogenic greenhouse gas emissions by sources and removals by sequestering of carbon dioxide covered by the Kyoto Protocol to the UNFCCC and the subsequent decisions, to report, archive and store information comprised in the national inventory of greenhouse gas emissions.
Energy	The Working Group for Energy sector was established along with the launch of the first inventory cycle of emissions / removals of greenhouse gases in the Republic of Moldova (1997-2000) by involving specialists from the Institute Power Engineering of the Academy of Sciences, a research and development organization with profile "Electrical Engineering and Technologies" within the ASM. The statistical indicators needed for assessing GHG emissions from the energy sector are to be found in a number of specialized central authorities, but they originate from some state owned enterprises and joint stock companies under the central government and from companies with state participation. Thus, for example, the Energy Balances of the Republic of Moldova are generated by the National Bureau of Statistics, consistently since 1993, and are made available regularly to estimate the anthropogenic emissions of greenhouse gas emissions. The Civil Aeronautical Authority, a public certification, control and surveillance authority of civil aviation, provides information on fuel use for domestic and international aviation, number of aircrafts used and the number of flights. Relevant information is provided directly from source also by "Termoelectrica" JSC with subdivisions (CHP-1, CHP-2 and Termoservicii), "CHP-North" JSC Balti, "Moldovagaz" JSC, "Railways of Moldova" SC, "Air Moldova" SC and SC "State Information Resources Centre "Registru ". The main strengths in the management structure of the National Inventory System for the energy sector are as follows: • The existence of legal provisions that establish the obligation to submit data for the inventory process of GHG emissions from the energy sector to the competent authority designated with responsibility for national inventory compilation; • The existence of an electronic database containing activity data for the energy sector, which is updated regularly; • The existence of a group of qualified experts specializing in areas related to the process of inventory of GHG emissions from the energy sector;	Within NRS-UNFCCC, the NBS, the Ministry of Transportation and Roads Infrastructure, the Ministry of Economy, the Ministry of Defense, the Civil Aeronautical Authority, "Termoelectrica" JSC Chisinau with its subdivisions (CHP-1, CHP-2 and Termoservicii), "CHP-North" JSC, Balti, "Moldovagaz" JSC, SC "Railway of Moldova", SC "Air Moldova" and SC "Centre for State Information Resources "Registru" will be designated as main providers of AD and EFs needed to estimate emissions of GHG from the energy sector. The entities will be given specifics on the information to be submitted and deadline for its presentation to the competent authority designated with responsibility for compiling the national inventory of greenhouse gas emissions. The Institute of Power Engineering of the ASM will continue to hold responsibility for compilation and review of inventory data for the energy sector and will develop their human and institutional capacities needed to ensure quality and timeliness for compilation and review process in respect to inventory data for the energy sector. In this context, strengthening of technical capacities of the working group members will continue, including in issues related to processing of primary data on fuel use in the national economy and / or sectorial level, taking particular account of structural changes in energy use (e.g., the emergence of new types of fuels in primary energy use, increase of the share of renewables in primary energy use, etc.); studying the trends in use of fuels and energy (electricity and heat) at national and sectorial level; as well as aspects of documenting and archiving the information collected; study of opportunities to start using higher tier methodologies for source categories such as 1A1 "Energy industry", 1A3 "Transport", 1B2 "Fugitive Emissions from Oil and Natural Gas".

Sector	Strengths in management structure of National Inventory System (NIS)	Potential improvements in management structure of the NIS
	• Possibilities for elucidation of quantitative and qualitative aspects related to the process of inventory in Energy Balances of the Republic of Moldova; • Existence of national research studies in the field of energy, including assessments that comprise the use trends in the energy resources of the Republic of Moldova; assessments of the structural changes of the energy balances of the Republic of Moldova and the impact on the efficiency of energy statistics systems; evaluation of assessment methodologies for calculating emissions of various pollutants from fossil fuel combustion in the energy sector of the Republic of Moldova; comparison of different emission factors available in the existing methodological guides; identification of new primary data sources for assessing GHG emissions from the energy sector. All of the above makes it possible to start using higher tier calculation methodologies in near future.	Simultaneously, in October-November 2015, an external peer review was carried out for Chapter 3 "Energy" of the "National Inventory Report: 1990-2013. Sources and Sinks of GHG emissions in the Republic of Moldova "(peer review was conducted by Ms Veronika Ginzburg, an international expert from the Russian Federation). Upon finalization of this peer review, weaknesses in the GHG inventory of energy sector are to be identified and recommendations will be provided to improve the quality of national inventory for this sector. In the same context, on November 23-25, a thematic training was carried out for national consultants involved in the process, being delivered by respective international consultant.
Industrial Processes	A Working Group was established in industrial processes sector along with the launch of the first inventory cycle of emissions / removals of greenhouse gases in the Republic of Moldova (1997-2000) involving experts from the National Institute of Ecology (reorganized through merger with the Institute of Geography in 2005 resulting in the Institute of Ecology and Geography of the Academy of Sciences of Moldova), a research - development entity with the following main research areas: integrated environmental monitoring and ecological rehabilitation; dynamics and evolution of natural and anthropogenic ecosystems in local, regional and transboundary context, development of a geo-information system for environment and natural resources, etc. The statistical indicators needed to evaluate GHG emissions from industrial processes sector are to be found in several specialized central public authorities. Thus, for example, the statistical reports PRODMOLD-A "Statistical survey of industrial products" is generated by the National Bureau of Statistics, and are made available electronically since 2005 to estimate the anthropogenic emissions of greenhouse gases from the industrial processes sector. The Agency for Geology and Mineral Resources, a specialized entity of the central public administration responsible for research, accounting, regulation and control of the use of mineral resources, aimed at implementing the state policy in geological research, rational use and protection of subsoil, provides information on the amount of extracted non-metallic minerals containing limestone for use as raw material in industrial processes in which burning of limestone in the oven is used. Relevant information is also provided by the Ministry of Transportation and Roads Infrastructure of the Republic of Moldova, Ministry of Health of the Republic of Moldova, Customs Service of the Republic of Moldova, SC "State Information Resource Centre "Registru", State Company "MOLDELECTRICA", RED UNION FENOSA JSC with foreign capital, state company "Chisinau Glass Factory No.1", JV "Glass Container Company" JSC, "Lafarge Cement (Moldova)" JSC, Combination of building materials in Chisinau Macon JSC, JV Efes Vitanta Moldova Brewery, Public Association of the Refrigerating Technicians of the Republic of Moldova, SC "ECOLUX" Ltd, SC "FRIGOIND" Ltd, SC "FRIO-DINS" Ltd. The main strengths in the management structure of the National Inventory System for industrial processes sector are as follows: • The existence of legal provisions that establish the obligation to submit data for the inventory process of GHG emissions from industrial processes sector to the competent authority designated with responsibility for national inventory compilation; • The existence of a group of qualified experts specializing in areas related to the process of inventory of GHG emissions from the industrial process; • Possibilities for elucidation of quantitative and qualitative aspects related to the inventory process in statistical reports PRODMOLD-A, "Statistical survey of industrial products"; • Existence of some national studies on industry, which makes it possible to use higher tier calculation methodologies in the sector of industrial processes.	Within NRS-UNFCCC, the National Bureau of Statistics, the Ministry of Transportation and Roads Infrastructure of the Republic of Moldova, the Ministry of Health of the Republic of Moldova, the Customs Service of the Republic of Moldova, SC "State Information Resource Centre "Registru", State Company "MOLDELECTRICA", RED UNION FENOSA JSC with foreign capital, State Company "Chisinau Glass Factory No.1", JV "Glass Container Company" JSC, "Lafarge Cement (Moldova)" JSC, Combination of building materials from Chisinau Macon JSC, JV Efes Vitanta Moldova Brewery JSC, Public Association of refrigeration technicians of the Republic of Moldova, SC "ECOLUX" Ltd, SC „FRIGOIND" Ltd, SC "FRIO-DINS" Ltd. will be designated as the main suppliers of activity data and emission factors needed to estimate emissions of greenhouse gases for the industrial processes, specifying the information to be submitted and the deadline for data presentation to the competent authority designated with responsibility for compiling national inventories of greenhouse gas emissions. The specialists of the Institute of Ecology and Geography (IEG) of the ASM will continue to hold responsibility for compilation and review of inventory data for industrial processes sector. Within the IEG of the ASM, the opportunity will be assessed to develop the human and institutional capacities needed to ensure continued high quality of the compilation process and review of inventory data for industrial processes sector.

Sector	Strengths in management structure of National Inventory System (NIS)	Potential improvements in management structure of the NIS
Solvents and Other Product Use	The Working Group for Solvents and Other Product Use (SOPU) Sector was established along with launching of the first inventory cycle of emissions / removals of greenhouse gases in the Republic of Moldova (1997-2000) by involving specialists of the State Ecological Inspectorate responding to the Ministry of Environment and the National Institute of Ecology (which was reorganized through merger with the Institute of Geography in 2005 and became the Institute of Ecology and Geography of the Academy of Sciences of Moldova). This is a research -development organisation, which operates along the following main research directions: integrated environmental monitoring and ecological rehabilitation, dynamics and evolution of natural and anthropogenic geo- and ecosystems in the local, regional and transboundary context, development of a geo-information system for environment and natural resources, etc. The statistical indicators needed to evaluate GHG emissions from the SOPU Sector are mainly found in two specialized central public authorities. Thus, the statistical reports PRODMOLD-A, "Statistical survey of industrial products", are generated by the National Bureau of Statistics and are made available electronically since 2005 to estimate the anthropogenic emissions of greenhouse gases from the SOPU Sector. At the same time, the Customs Service, a specialized public authority responsible for insuring economic security of the country and efficient collection of taxes and dues, combating customs fraud, facilitation of international trade and uniform and impartial application of customs law, provides data on import and export of solvents. The key strengths of the management structure of the national inventory system for SOPU Sector are as follows: • The existence of legal provisions that establish the obligation to submit data for the inventory process of GHG emissions from the SOPU Sector to the competent authority designated with responsibility for national inventory compilation; • The presence of a group of qualified experts specializing in areas related to the process of inventory of GHG emissions from the SOPU Sector; • Possibilities for elucidation of quantitative and qualitative aspects related to the inventory process from statistical reports PRODMOLD-A, "Statistical survey of industrial products", as well as from information received from the Customs Service of the Republic of Moldova; • Existence of international studies that made it possible to use higher tier calculation methodologies of emissions from SOPU Sector.	Within the NRS-UNFCCC, NBS and the Customs Service will be designated as main suppliers of AD and EFs needed to estimate GHG emissions from SOPU Sector, specifying the information to be presented and the deadline for its submission to the competent authority designated with responsibility for compiling national GHG inventories. The experts of the Institute of Ecology and Geography (IEG) of the ASM will continue to hold responsibility for compilation and review of inventory data for the SOPU Sector. Within the IEG of the ASM opportunities for developing human and institutional capacities needed to ensure continued high quality of the compilation process and review of inventory data for the SOPU Sector use will be studied.
Agriculture	A Working Group for Agriculture Sector was established along with the launching of the first inventory cycle of emissions / removals of greenhouse gases in the Republic of Moldova (1997-2000) by involving specialists from the Institute of Soil Science, Agrochemistry and Soil Protection "Nicolae Dimo". The main directions and priorities of its activity refer in general to soil, water and agrochemical, water studies (combating soil erosion, stabilization of landslides, draining soils with excess moisture) and land improvements in order to increase soil fertility. Since 2006 within the working group for Agriculture Sector experts from State Agrarian University of Moldova (SAUM) are involved. The SAUM is an entity of the university education system under the Ministry of Agriculture and Food Industry (MAFI); since 2010 experts from the Scientific-Practical Institute for Biotechnology in Animal Breeding and Veterinary Medicine are involved. The research - development profile of the Institute comprises "technology in livestock husbandry and veterinary medicine" (it carries out research in the basic branches of the livestock sector: cattle, swine, sheep, rabbits, poultry, beekeeping and fish farming). The statistical indicators needed to evaluate GHG emissions from the Agriculture Sector are to be found mainly in the NBS. Thus, for example, Statistical Reports (SR) No. 6 "The number of livestock and poultry in households", SR No. 9 AGR "The use of plant protection products and the introduction of artificial and natural fertilizers", SR No. 15-AGR "Livestock", SR No. 24-AGR "Condition of livestock sector", SR No. 29-AGR "The output from the harvested crops throughout the sewn area" are generated by the NBS and are available in electronic format since 2005 to estimate the anthropogenic emissions of greenhouse gases from the agriculture sector.	Within the NRS-UNFCCC, the National Bureau of Statistics will be designated as the main data provider of activity data and emission factors needed to estimate greenhouse gas emissions for the agriculture sector, specifying the information to be presented, and the deadline for presentation to the competent authority designated with responsibility for compiling national inventories of greenhouse gas emissions. The experts of the Scientific-Practical Institute for Biotechnology in Animal Breeding and Veterinary Medicine, the State Agrarian University of Moldova and the Institute of Soil Science, Agrochemistry and Soil Protection "Nicolae Dimo" will continue to hold responsibility for compilation and review of inventory data for the Agriculture sector. Within these organizations, the opportunities to develop human and institutional capacities needed to ensure continued high quality of the compilation process and review of inventory data for Agriculture Sector will be assessed.

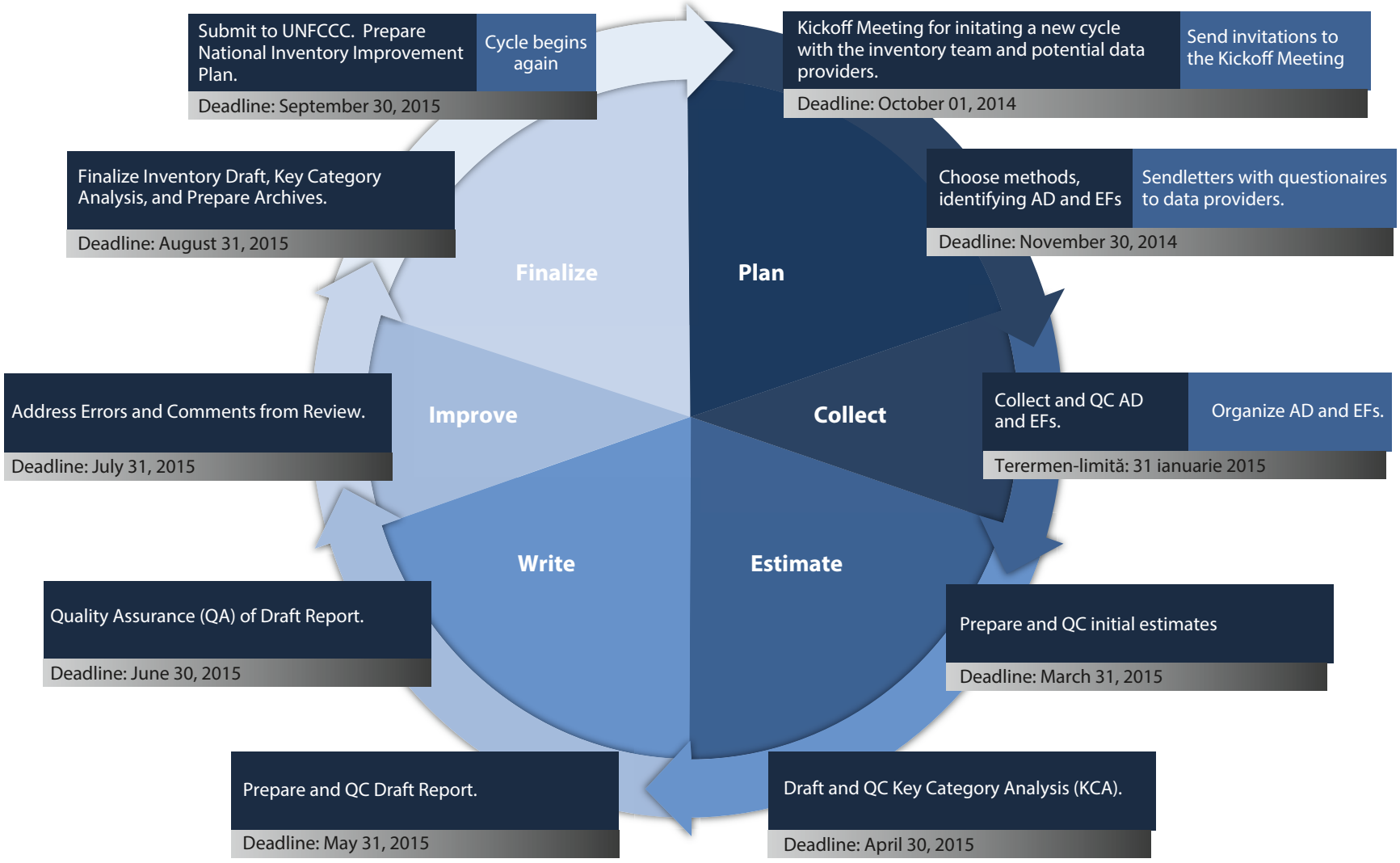
Sector	Strengths in management structure of National Inventory System (NIS)	Potential improvements in management structure of the NIS
	The main strengths of the management structure of the National Inventory System for Agriculture Sector are as follows: • The existence of legal provisions that establish the obligation to submit data for the inventory process of GHG emissions from the Agriculture Sector to the competent authority designated with responsibility for national inventory compilation; • The existence of a group of qualified experts specialized in areas related to the estimation of GHG emissions from Agriculture Sector; • Possibilities for elucidation of quantitative and qualitative aspects related to inventory process from SR No. 6 "The number of livestock and poultry in households", SR No. 9 AGR "The use of plant protection products and the introduction of artificial and natural fertilizer", SR No. 15-AGR "Livestock", SR No. 24-AGR "Condition of livestock sector", SR No. 29-AGR "The output from harvested crops throughout the area sown"; • Existence of national studies, which made it possible the transition to use higher tier calculation methodologies for emissions from the Agriculture Sector.	
Land Use, Land-Use Change and Forestry	The Working Group for LULUCF Sector was established along with the launching of the first inventory cycle for emissions / removals of greenhouse gases in the Republic of Moldova (1997-2000) by involving experts from the Forestry Research and Management Institute (FRMI). FRMI is a plenipotentiary structure in forest improvement, organizing detection and combating forest diseases and pests, as well as in scientific research of forests and designing of forests. It responds to "Moldsilva" Agency of the Ministry of Environment, a specialized body of central public administration responsible for implementing state policies in the area of forestry and hunting. It has joined international trends on socio-economic development, sustainable development of forestry and hunting, protection, guarding of forests and fauna, preservation and conservation of biodiversity, professional training and access to ecological and forest related education. The indicators and statistical parameters necessary for evaluation of emissions / removals of GHG in the LULUCF sector are generated by a number of specialized central public authorities, while most of the data related to the forestry sector are concentrated in "Moldsilva" Agency. Within the central office of the Agency, the Division for Forestry Fund, Protected Areas, Guarding and Protection (DFFPAGP) is responsible for developing and / or standardizing national and sectorial statistical reports related to harvesting timber (authorized and illegal), cultivating of forests etc.; the aspects related to forest management and management of other types of forest vegetation owned by local authorities (municipalities) are concentrated in the State Ecological Inspectorate (SEI), which is subordinated to the Ministry of Environment (MoEN). SEI performs state control in the forestry area, provides licences for tree logging for wood. The cadastre data related to cadastre aspects (area covered with forests, forest vegetation outside the forest (windbreaks, planting trees and shrubs, green spaces, etc.), meadows, perennial plantations, arable land, land of settlements, other land etc. ; changing of land use category from one year to another etc.) are concentrated in the Agency for Land Relations and Cadastre (ALRC). The key strengths in the management structure of the national inventory system for LULUCF Sector are as follows: • The existence of legal provisions that establish the obligation to submit data for the inventory process of GHG emissions/ removals from LULUCF Sector to the competent authority designated with responsibility for national inventory compilation; • The existence of a group of qualified experts specializing in areas related to the process of inventorying GHG emissions/ removals from LULUCF Sector; • Possibilities for elucidation of quantitative aspects related inventory process in General State Land Cadastre; • Possibilities for elucidation of quantitative and qualitative aspects of forest improvement and state records on forests; • The existence of a set of reports related to harvesting of timber, forest cultivation, forests affected by pests and diseases, etc. • The existence of studies on the condition of forest vegetation outside the forests (forest belts, green spaces, etc.); • The existence of studies on grassland productivity depending on the initial growth conditions (relief, soil, etc.).	Within NRS-UNFCCC, Agency "Moldsilva", Agency for Land Relations and Cadastre, the State Ecological Inspectorate and the National Bureau of Statistics will be designated as main suppliers of activity data and emission factors needed to estimate GHG emissions / removals in LULUCF sector, specifying the information to be submitted and the deadline for its submission to the competent authority designated with responsibility for compiling national inventories of greenhouse gas emissions. It is anticipated that the Forestry Research and Management Institute will be officially charged with the responsibility of compiling and reviewing the inventory data on LULUCF sector. In the FRMI a LULUCF Sector Working Group will be set up and a coordinator and consultants responsible for specific categories / sections will be appointed. This process will also involve experts of the Institute of Soil Science, Agrochemistry and Soil Protection "N. Dimo ", which are responsible for evaluating GHG emissions / removals from the subcategory 5B1.2 Annual changes in carbon stocks in mineral soils. FRMI will continue to develop human and institutional capacities needed to ensure high quality and timeliness of compilation and review of inventory data in LULUCF Sector. Additionally, during October-November 2015 an external peer review of Chapter 7 "LULUCF Sector" of the "National Inventory Report: 1990-2013. Sources and Sinks GHG emissions in the Republic of Moldova" was carried out (the peer review was carried out by Mr Viorel Blujdea, Romania, international consultant in LULUCF/AFOLU). Following this peer review results, gaps / weaknesses were identified in the LULUCF inventory. A list of recommendations has been drawn up to improve the quality of the national inventory developed for this sector. In the same context, during the period November 25 to 27, 2015 a thematic training for national consultants involved in that process was organized, delivered by the same international consultant.

Sector	Strengths in management structure of National Inventory System (NIS)	Potential improvements in management structure of the NIS
Waste	The Working group for the Waste Sector was established along with the launching of the first inventory cycle of emissions / removals of greenhouse gases in the Republic of Moldova (1997-2000) by involving experts of the Ministry of Environment, Division for pollution prevention and waste management, Management of waste and chemicals unit. Since 2009, the national consultants involved in inventorying GHG emissions from the Waste Sector are working within the for Environmental Pollution Prevention Office of the Ministry of Environment, respectively within GIZ Project "Modernization of local public services in the Republic of Moldova". The statistical indicators needed to assess the GHG emissions from the Waste Sector are to be found in the National Bureau of Statistics, which generates and provides SR No.1 on toxic waste "Formation, use and disposal of toxic waste" and SR Nr.2- on waste, "Formation, use of waste ". The main strengths of the management structure of the National Inventory System for the Waste Sector are as follows: • The existence of legal provisions that establish the obligation to submit data for the inventory process of GHG emissions from the Waste Sector to the competent authority designated with responsibility for national inventory compilation; • The existence of a group of qualified experts specializing in areas related to the estimation of GHG emissions from Waste Sector; • Possibilities for elucidation of quantitative and qualitative aspects related to inventory process in SR No.1 on toxic waste, "Formation, use and disposal of toxic waste" and SR No.2 on waste, "Formation, use of waste"; • The existence of national and international studies, which made it possible to use higher tier calculation methodologies for emissions from the Waste Sector.	The experts working within the Environmental Pollution Prevention Office of the Ministry of Environment will continue to bear responsibility for inventory data compilation and review for the Waste Sector. Within the NRS-UNFCCC, the NBS will be designated as the main data provider of activity data and emission factors needed to estimate GHG emissions from the Waste Sector, specifying the information to be submitted, and the deadline for its submission to the competent authority designated with responsibility for compiling national inventories of greenhouse gas emissions. The experts working in the Environmental Pollution Prevention Office of the Ministry of Environment will continue to hold responsibility for compilation and review of inventory data for the waste sector. The Environmental Pollution Prevention Office of the Ministry of Environment will evaluate the opportunity to develop human capacities needed to ensure continued high quality of the compilation process and review of inventory data for the Waste Sector.

1.4. National Greenhouse Gas Emissions Inventory Cycle

The duration of the inventory cycle depends on national circumstances and reporting requirements. The diagram of the GHG inventory cycle is shown in Figure 1.1. In the Republic of Moldova, a biannual reporting cycle is applied. The side boxes show the calendar periods for completion of each stage of the last inventory cycle. The GHG inventory cycle presents important information that is believed to reflect the institutional arrangements in the scheme of development of the national inventory. Within the process, the cycle allows communicating where and when institutional coordination is needed. Data providers may have different deadlines for submission of relevant information, depending on the complexity and the time of publication of different statistical reports. Thus, for sector-specific data, collection periods are scheduled as adjusted to deadlines for generating information and inventory team needs.

Figure 1.1: The most recent inventory cycle in the Republic of Moldova



Chapter 2: Methods and Data Documentation

1: Institutional Arrangements

2: Methods and Data Documentation

3: Description of QA/QC Procedures

4: Description of Archiving System

5: Key Category Analysis

6: National Inventory Improvement Plan

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2. Methods and Data Documentation

2.1. Category Information

2.1.1. Energy Sector

Tables 2.1.1.I – 2.1.1.VIII below comprise relevant information on categories comprised within the inventory, including description of each category allocated to Energy Sector.

Table 2.1.1.I: Information on Category 1A1 "Energy Industries"

Sector	Energy
Category	1A1 Energy Industries
Key Category?	Yes
Category Description/ Definition	Category 1A1 Energy industries include emissions from fuel combustion, fossil fuel extraction or from the energy industry. Source 1A1a "Electricity and heat production" includes the amount of emissions from the production of electricity from combined electricity and thermal power plants with district heating, and thermal power plants. Public utilities are companies whose primary activity is the provision of electricity and heat to users. They may be publicly or privately owned. Emissions from fuel used for own needs are also to be considered. Emissions from own generation (from enterprises that generate electricity and heat, in whole or in part for its own needs, as an activity that supports its own industrial production) are to be monitored in the sector where they are generated, not in the category 1A1a. Businesses that produce energy for their own needs can be publicly or privately owned. Source 1A1a i "Public electricity generation" covers emissions from burning fossil fuels for electricity generation in thermal power plants (the source does not contain emissions from power plants with combined cycle). Source 1A1a ii "Generating electricity and heat by public power plants with combined cycle" includes emissions from production of electricity and heat from a single power item to be delivered to the population. Source 1A1a III "Central heating plants" includes emissions from production of heat to be supplied to the population through a network of pipes. Source 1A1b "Oil refining" includes emissions from refining (processing) of oil products. This does not include fugitive emissions originating from evaporation, which is assigned to 1A3bi or 1B2 categories. Source 1A1c "Production of solid fuels and other energy industries" includes emissions from fuel used in production of secondary and tertiary solid fuels including charcoal production. This includes emissions from fuel use on-site. Source 1A1c i "Production of solid fuels" includes emissions resulting from fuel combustion in production of coke, fuel briquettes and lignite briquettes. Source 1A1c ii "Other energy industries" covers emissions from burning fossil fuels at the production site for own use in sectors other than those mentioned above. For example, emissions from fuel use in the extraction of coal or natural gas can be included. It shall be noted that the emissions from the combustion of natural gas for transportation by pipeline shall be reported to source 1A3e.
Country Detail	In 2013, the source category 1A1 "Energy industries" had a share of about 25.8% of total national GHG emissions (without LULUCF). Over the period 1990-2013, the GHG emissions from 1A1 "Energy industries" showed a downward trend, decreasing by approximately 82.9%, from 19,393.29 Gg CO_2 eq in 1990, to 3,313.92 Gg CO_2 eq in 2013.

Table 2.1.1.II: Information on Category 1A2 "Manufacturing Industries and Constructions"

Sector	Energy
Category	1A2 Manufacturing Industries and Constructions
Key Category?	Yes
Category Description / Definition	Category 1A2 "Manufacturing Industries and Constructions" comprises emissions from fuel combustion in industry, including the production of electricity and heat. Emissions from own generation shall be allocated to the sector where they are generated and it is recommended to separate emissions from own generation from those associated with the production process. Emissions from fuel combustion in coke ovens in the steel industry shall be reported in 1A1c and not in 1A2. Emissions from the industrial sector should be specified in accordance with the International Standard for Industrial Classification of All Economic Activities (ISIC). The energy used by transport industry shall be accounted for in transport category 1A3. Emissions from land transport, industrial and mobile industry are to be considered in a separate subcategory. Each country shall take into account emissions from the largest industrial fuel consuming categories (ISIC), and from all significant sources of environmental pollution. The proposed list is as follows: 1A2a iron and steel; 1A2b nonferrous metals; 1A2c chemical industry; 1A2d pulp, paper and printing; 1A2e production of food, beverages and tobacco; 1A2f other (the remaining emissions from fuel combustion in industry will be assigned to this source). This category includes also emissions from the construction sector. If possible, reporting shall be carried out in accordance with ISIC categories. Attention shall be paid to avoiding duplication of records in respect to emissions from the construction sector, with those included in 1A3eii and / or in 1A5.
Country Detail	In 2013, the 1A2 "Manufacturing Industries and Constructions" had a share of about 4.8% of total national GHG emissions (without LULUCF). Over the period 1990-2013, the GHG emissions from 1A2 'Manufacturing Industries and Constructions" has shown a downward trend, decreasing by approximately 72.2%, from 2,195.89 Gg CO_2 eq in 1990 to 609.76 Gg CO_2 eq in 2013.

Table 2.1.1.III: Information on Category 1A3 "Transport"

Sector	Energy
Category	1A3 Transport
Key category?	Yes
Category description / Category definition	Category 1A3 "Transport" shall include emissions from the combustion and evaporation of fuel from transport operations, regardless of sector, specifying them by sub-sectors as follows. "International aviation" (international bunkers) includes emissions from fuel combustion for international civil aviation. These emissions are excluded from the national totals and carried separately. 1A3 a ii "Domestic aviation" includes emissions from domestic aviation (commercial, private, agricultural, etc.), including taking off / landing cycles. Within 1A3a emissions from fuel combustion by land transport airport vehicles are not included (they shall be reported in 1A3 e "Other transport"); any emissions from stationary fuel combustion in airports shall not be included (they will be considered in the category 1A4). 1A3 b "Motor vehicle transport" includes emissions from combustion and evaporation of fuels from land vehicles, including road transport on national and international agricultural motorways. 1A3 b i "Motor vehicles" cover emissions from units designed for passenger transport with a capacity of 12 people or less. Gross weight of vehicle is about 3900 kg or less. 1A3 B ii "light trucks" cover emissions from vehicles with a gross weight of 3900 kg or less intended for transporting lightweight goods; these vehicles can be equipped with special accessories, such as transport with wheel drive for irregular terrain. 1A3 b iii "Heavy trucks and buses" includes emissions from vehicles with gross weight over 3900 kg, intended for transportation of goods and / or more than 12 people. 1A3 b iv "Motorcycle" includes emissions from any vehicle with not more than three wheels in contact with the ground and weighing less than 680 kg. 1A3 b v "Evaporative emissions from transport" includes evaporative emissions from vehicles. 1A3 c "Railway transport" includes emissions from freight and passenger railway vehicles. 1A3 d i "International water transport" (international bunkers) includes emissions from the transport of goods and passengers by sea transport units on international routes (these emissions are not included in the national totals and are carried separately). 1A3 d ii "Inland shipping" includes emissions from transportation of goods and passengers by transport units of domestic (internal) river routes. Here emissions from fuel combustion by fishing vessels are not included, these emissions are reported to 1A4 c iii. 1A3 e "Other transport" (1A3 e i "Pipeline Transport" and 1A3 e ii "Land transport") includes emissions from fuel combustion from other transport activities, including transport by pipeline, land transport on the territory of airports and naval ports and seaports, land transport other than emissions reported in 1A4c to 1A2 "Manufacturing industries and constructions". To note that emissions from military transport shall be carried in category 1A5.
Country Detail	In 2013 the 1A3 "Transport" had a share of about 14.6% of total national GHG emissions (without LULUCF), being an important source of GHG emissions. It is noteworthy that category 1A3 "Transport" was also a source of nitrous oxide emissions, accounting for 2.1% of total N_2O emissions registered at national level. Over the period 1990-2013, the GHG emissions from category 1A3 "Transport" has shown a downward trend, decreasing by approximately 53.7%, from 4,055.61 Gg CO_2 eq in 1990 to 1,877.18 Gg CO_2 eq in 2013.

Table 2.1.1.IV: Information on Category 1A4 "Other Sectors"

Sector	Energy
Category	1A4 Other Sectors
Key Category?	Yes
Category Description / Definition	Within category 1A4 Other Sectors emissions from burning fossil fuels in other sectors are covered, including from 1A4a "Commercial and Institutional" (administrative and commercial buildings); source 1A4b "Residential" (households) and source 1A4 c "Agriculture, forestry and fisheries' (includes traction means, pumps, drying grain facilities, horticulture greenhouses and other facilities in the sector of agriculture, forestry and fisheries) . This source does not cover emissions from agricultural transport on national and international motorways. Within 1A4c three subcategories are included: 1A4 ci "Stationary sources"; 1A4 c ii "Mobile sources: land transport and other mobile equipment" and 1A4 c iii "Fishing vessels".
Country Detail	In 2013, category 1A4 "Other sectors" had a share of about 16.0% of total national GHG emissions (without LULUCF), being an important source of direct GHG emissions. It is noteworthy that that category was also a source of methane and nitrous oxide emissions, accounting for approximately 3.3% and 1.0% of total CH_4 and N_2O emissions registered at national level. Over the period 1990-2013, the GHG emissions from category 1A4 "Other Sectors" registered a downward trend, decreasing by approximately 74.5%, from 8,037.78 to 1990 Gg CO_2 eq to 2,050.54 Gg CO_2 eq in 2013.

Table 2.1.1.V: Information on Category 1A5 "Other"

Sector	Energy
Category	1A5 Other
Key Category?	No

Category Description / Definition	Category 1A5 "Other" includes emissions from burning fuels, which are not specified in other categories. Here emissions from military transport are also included. Within this category the following sources are considered: 1A5 a "Stationary sources", 1A5 b "Mobile sources" - vehicles and other mobile equipment, air and sea transport - transport equipment and other machinery, sea and aviation equipment (other than the ones included in source 1A4 c ii or any other category).
Country Detail	In 2013, the category 1A5 "Other" had a share of about 0.2% of total national GHG emissions (without LULUCF). Over period 1990-2013, the evolution of GHG emissions from category 1A5 "Other" has shown a decreasing trend and has decreased by about 80.4%: from 154.81 Gg CO_2 eq registered in 1990 to 30.42 Gg CO_2 eq in 2013.

Table 2.1.1.VI: Information on Category 1B2 "Fugitive Emissions from Oil and Natural Gas"

Sector	Energy
Category	1B2 Fugitive Emissions From Oil and Natural Gas
Key Category?	Yes
Category Description / Definition	Category 1B2 "Fugitive emissions from oil and natural gas" includes fugitive emissions from oil and gas operations. Fugitive emissions may occur in exhaust gases of equipment (non-combustion), leakages, subsidence and damage at any point of the technological process, from production to end use. Note that emissions from torch burning are also included (torch burning is considered a non-productive activity). Within this category, subcategory 1B2 a "Oil" includes the following sources: 1B2 a i "Oil exploration"; 1B2 a ii "Oil production"; 1B2 a iii "Oil transport" (includes fugitive emissions as a result of the loading and unloading of crude oil to / from oil tankers); 1B2 a iv "Oil refining / preservation" (fugitive emissions from oil refining and keeping oil in tanks); 1B2 a v "Distributing petroleum products" (including NMVOC emissions from transportation and handling of oil products); 1B2 a vi "Other". Subcategory 1B2 b "Natural gas" covers the following sources: 1B2 b i "Production and processing of natural gas (emissions are included from natural gas production, gas collection systems and gas separation plants); 1B2 b ii "Transportation and distribution of natural gas" (includes fugitive emissions from long-distance transportation by pipeline and local distribution networks, compression stations and other maintenance facilities); 1B2 b iii "Other natural gas leakages" (gas leak at the points of end use, including in industrial, commercial, residential users and in power generation); 1B2 c "Venting and torch burning" (leakage and / or torch burning of excess gas in installations for the production of oil and gas, as well as in natural gas processing). This source is divided into several subcategories: 1B2 c I "Crude oil"; 1B2 c ii "Natural gas"; 1B2 c iii "Combined" (in cases where oil and gas cannot be separated).
Country Detail	In 2013, the category 1B2 "Fugitive emissions from oil and natural gas" had a share of about 4.1% of total national GHG emissions (without LULUCF). Over the period 1990-2013, the evolution of GHG emissions from category 1B2 "Fugitive emissions from oil and natural gas" has shown a decreasing trend and have decreased by about 23.4%: from 682.93 Gg CO_2 equivalent registered in 1990, to 522.81 Gg CO_2 equivalent in 2013.

Table 2.1.1.VII: Information on Category "Memo Items: International Bunkers – International Aviation"

Sector	Energy
Category	Memo Items: International bunkers - International Aviation
Key Category?	No
Category Description / Definition	This category includes emissions from fuel combustion in international civil aviation. These emissions are excluded from the national totals and are reported separately in Memo Items.
Country Detail	Over the period 1990-2013, the direct GHG emissions from category "International Aviation" showed a downward trend, decreasing by about 47.1%: from about 220.43 Gg CO_2 eq in 1990, to about 116.68 Gg CO_2 eq in 2013.

Table 2.1.1.VIII: Information on Category "CO_2 Emissions from Biomass"

Sector	Energy
Category	CO_2 emissions from biomass
Key Category?	Yes
Category Description / Definition	This category includes CO_2 emissions from biomass combustion (solid: firewood, charcoal, agricultural residues, liquid: bio-alcohol, black liquor; gas: biogas from methane recovery from solid waste landfills or wastewater treatment and sludge from wastewater treatment, biogas from methane fermenters for livestock and poultry manure, biogas from methane fermenters for plant mass of agricultural origin, etc.). These emissions are excluded from the national totals.
Country Detail	Over the period 1990-2013 CO_2 emissions from category "CO_2 emissions from biomass " had registered an upward trend, increasing by about 6 times, from 210.83 Gg in 1990 to 1,246.23 Gg in 2013.

2.1.2. Industrial Processes Sector

Tables 2.1.2.I – 2.1.2.V below include relevant information on categories comprised by the inventory, including description of each category allocated to Industrial Processes Sector.

Table 2.1.2.I: Information on Category 2A "Mineral Products"

Sector	Industrial Processes
Category	2A Mineral Products
Key Category?	Yes
Category Description / Definition	Category 2A "Mineral products" includes GHG emissions from the following sources: 2A1 "Cement production", 2A2 "Lime production", 2A3 "Limestone and dolomite use", 2A4 "Soda ash use", 2A5 "Asphalt roofing", 2A6 "Asphalt for road paving" and 2A7 "Other" (production of glass, mineral wool, ceramics, bricks and expanded clay).
Country Detail	Over 1990-2013, the direct GHG emissions from category 2A "Mineral Products" were reduced by about 71.2%. As compared to the emissions recorded in 2012, GHG emissions recorded in 2013 increased by approximately 7.3%. The same trends were observed for indirect greenhouse gas emissions (NOx, CO, NMVOC) and SO_2 from that category. Overall, over the period 1990-2013, NOx emissions were reduced by about 50.8%, CO emissions - by approximately 97.2%, NMVOC emissions by 80.4%, while SO_2 emissions decreased by approximately 60.4%.

Table 2.1.2.II: Information on Category 2B "Chemical Industry"

Sector	Industrial Processes
Category	2B Chemical Industry
Key category?	No
Category Description / Definition	Category 2B "Chemical industry" summarizes the following emission sources: 2B1 "Production of ammonia", 2B2 "Nitric acid production", 2B3 "Adipic acid production", 2B4 "Production of carbide" and 2B5 "Other". During 1990-2013 in the Republic of Moldova no emissions have been registered under categories 2B1-2B4. In the category 2B5 "Other" NMVOC emissions were estimated from the following sources: polyethylene production, production of ABS (acrylonitrile butadiene styrene) resins and the production of detergents.
Country Detail	Over the period 1990-2013, NMVOC emissions from category 2B "Chemical industry" were reduced by about 89%, from about 0.37 Gg in 1990 to 0.04 Gg in 2013. Simultaneously, in 2013 the NMVOC emissions from category 2B5 "Other" increased by about 7.3% as compared to emissions recorded in 2012.

Table 2.1.2.III: Information on Category 2C "Metal Production"

Sector	Industrial Processes
Category	2C Metal Production
Key Category?	No
Category Description / Definition	Within category 2C "Metal production" GHG emissions are monitored from the following sources: 2C1 "Iron and steel production", 2C2 Production of ferroalloys", 2C3 "Aluminium production", 2C4 "SF_6 used to produce aluminium and magnesium" and 2C5 "Other". In the Republic of Moldova only GHG emissions from category 2C1 "Iron and steel" were registered.
Country Detail	Over the period 1990-2013, GHG emissions from category 2C "Metal production" were reduced by approximately 73%. Simultaneously, in 2013 GHG emissions were reduced by 40% as compared to the emissions recorded in 2012.

Table 2.1.2.IV: Information on Category 2D "Other Production"

Sector	Industrial Processes
Category	2D Other Production
Key Category?	No

Category Description / Definition	Category 2D "Other production" addresses GHG emissions from the following sources: 2D1 "Pulp and paper production" and 2D2 "Production of bread, other food products and alcoholic beverages." Since the Republic of Moldova does not produce cellulose, no GHG emissions from 2D1 "Production of pulp and paper" are registered. They are accounted for as "NO" (Not Occurring). For the 2D2 "Production of bread and other food products and alcoholic beverages" only NMVOC emissions were monitored (in spite of available methodologies for calculating CO_2 emissions from the production of alcoholic beverages, they are not included in the inventory, since it is considered that these emissions may be of biogenic nature, only non-biogenic origin CO_2 emissions are to be assessed).
Country Detail	NMVOC emissions from 2D2 „Production of bread, food and alcoholic beverages" in the Republic of Moldova has decreased over the reporting period by about 51%, from about 9.52 Gg in 1990 to 4.75 Gg in 2013. At the same time, as compared to emissions of 2012, in 2013 NMVOC emissions from category 2D2 "Production of bread, other foods and alcoholic beverages" have increased by about 28%. In 1990 about 89.1% of total NMVOC emissions from the respective category were coming from subcategory 2D2a "Production of bread and other foods". By 2013 their share in total NMVOC emissions from category 2D2 has decreased down to about 49.4%.

Table 2.1.2.V: Information on Category 2F "Consumption of Halocarbons and SF_6"

Sector	Industrial Processes
Category	2F Consumption of Halocarbons and SF_6
Key Category?	Yes
Category Description / Definition	The group halocarbons includes hydrofluorocarbons (HFC-23, HFC-32, HFC-41, HFC-43-10 mee, HFC-125, HFC-134, HFC-134a, HFC-143, HFC-143a, HFC-152a, HFC- 227ea, HFC-236fa, HFC-245c) and per-fluorocarbons (perfluoromethane - CF_4, perfluoroethane - C_2F_6, pefluoropropane - C_3F_8, perfluorobutane - C_4F_{10}, perfluorocyclobutane - c-C_4F_8, perfluoropentane - C_5F_{12}, perfluorohexane – C_6F_{14}). In the category 2F "Consumption of halocarbons and SF_6", GHG emissions from the following sources are monitored: 2F1"Refrigeration and air conditioning equipment" 2F2 "Foam blowing", 2F3 "Fire extinguishers", 2F4 "Aerosols", 2F5 "Solvents", 2F6 "Other applications using ODS", 2F7 "Semiconductor manufacturing", 2F8 "Electrical equipment" and 2F9 "Other". Within the last inventory cycle, it was possible to monitor emissions from consumption of halocarbons and SF_6 within the 2F1, 2F2, 2F4 and 2F8. No estimates were made ("NE" - "Not Estimated") of emissions from 2F5, 2F6 and 2F9, especially due to lack of activity data. No emissions exist from the 2F3 and 2F7 ("NO" - "Not Occurring"), due to lack of respective activities (e.g., 2F7 "Semiconductor manufacturing") and / or because the products used in the country do not contain halocarbons (e.g., 2F3 "Fire extinguishers").
Country Detail	The total potential GHG emissions from category 2F "Consumption of halocarbons and SF_6" has increased over 1995-2013 by about 45 times, from 41.30 Gg of CO_2 equivalent in1995 (base year for F-gases) to 1,849.57 Gg of CO_2 equivalent in 2013. Simultaneously, the total actual GHG emissions from category 2F "Consumption of halocarbons and SF_6" has increased during 1995-2013 by about 75 times, from 1.90 Gg CO_2 eq in 1995 to 142.90 Gg of CO_2 eq in 2013. SF_6 and PFCs share in total GHG emissions from category 2F "Consumption of halocarbons and SF_6" is insignificant; these emissions were recorded only since 2003 and, respectively, since 2006.

2.1.3. Solvents and Other Products Use Sector

Tables 2.1.3.I – 2.1.3.IV below include relevant information on categories comprised in the inventory, including description of each category allocated to Solvents and Other Products Use Sector.

Table 2.1.3.I: Information on Category 3A "Paint Application"

Sector	Solvents and Other Products Use
Category	3A Paint Application
Key Category?	No
Category Description / Definition	Within 3A Paint Application category NMVOC emissions are included which originate from 3A1 'Decorative Coating Application', in particular in constructions (SNAP 060103) and domestic paint application (SNAP 060104); 3A2 'Industrial Coating Application', in particular for manufacture of automobiles (SNAP 060101), car repairing (SNAP 060102), coil coating (SNAP 060105), painting ships and boats (SNAP 060106), wood treatment and painting (SNAP 060107), other industrial application (painting aircrafts, carriages, steel bridges, military vehicles, engines, pumps, tanks, office equipment, plastic articles, toys etc.) (SNAP 060108); and from 3A3 'Other Non-industrial Paint Application' (paint or varnish application to protect large metal construction from corrosion, for road marking, etc.) (SNAP 060109). In the Republic of Moldova it was not possible to disaggregate activity data on use of paints and varnishes in different sectors of the national economy. Thus, emissions were reported only in the source category 3A1 'Decorative Coating Application'. Emissions from source categories 3A2 'Industrial Coating Application's" and 3A3 'Other Non-industrial Paint Application' are reported as being included elsewhere (IE - Included Elsewhere) (in 3.A.1).

Country Detail	Over the period 1990-2013, CO_2 emissions from 3A1 'Decorative Coating Application' were reduced by about 50.8% from 41.59 Gg in 1990 to 20.46 Gg in 2013. The share of subcategory 3A1i 'Conventional Solvent Paints Application' over the period 1990-2013 ranged from a minimum of 95.0% (in 2003) to a maximum of 99.0% (1996) of the total. Since 2006 there is a tendency of increasing the share of subcategory 3A1ii 'Waterborne Paints Application' in total national CO_2 emissions from category 3A1 'Decorative Coating Application'. Compared with emissions recorded in 2005, the CO_2 emissions produced during 2006-2013 have registered lower values. The same trends were observed for NMVOC emissions from that category, which have decreased over the period 1990-2013 by about 50.9%, from 14.20 Gg in 1990 to 6.98 Gg 2013.

Table 2.1.3.II: Information on Category 3B "Degreasing and Dry Cleaning"

Sector	Solvents and Other Products Use
Category	3B Degreasing and Dry Cleaning
Key Category?	No
Category Description / Definition	Within 3B Degreasing and Dry Cleaning category GHG emissions are monitored from 3B1 'Chemical Degreasing' category (solvent use in industry, especially for metal degreasing - SNAP 060201; electronic components manufacturing - SNAP 060203, as well as other industrial cleaning - SNAP 060204), respectively from 3B2 'Dry Cleaning' category (dry cleaning of clothes and other textiles from animal grease, oils, wax, resin, etc. - SNAP 060202). Typically, the solvents used for degreasing are obtained by distillation of fossil fuels, representing substances such as chlorinated hydrocarbons, ketones and quinones, alcohols and phenols, etc. Thus, for example, chlorinated solvents, including trichloroethylene, tetrachloroethylene and dichloromethane are widely used in the industrial sector for cleaning metal and plastic surfaces, including for degreasing in vaporized solvents. Hydrocarbons and oxygenated solvents are used as cleaning solvents. Dry cleaning involves, for example, the use of tetrachloroethylene to clean clothes and other textiles. In general, solvents used are recovered and recycled; in particular, if new equipment is used, however, fugitive NMVOC emissions occur especially in old, open-circuit machines when the final drying implies venting of drying air to atmosphere.
Country Detail	Over the period 1990-2013, CO_2 emissions from category 3B Degreasing and Dry Cleaning category were reduced by about 52.2%, from 62.77Gg in 1990 to 30.00 Gg in 2013. As compared to emissions recorded in 2012, in 2013 they were reduced by about 9.0%. The same trends were observed for NMVOC emissions from the category, which have decreased over the period 1990-2013 by about 52% from 20.98 Gg in 1990 to 10.03 Gg in 2013.

Table 2.1.3.III: Information on category 3C "Chemical Products, Manufacture and Processing"

Sector	Solvents and Other Products Use
Category	3C Chemical Products, Manufacture and Processing
Key Category?	No
Category Description / Definition	Under the 3C 'Chemical Products, Manufacture and Processing' category there were reported GHG emissions from polyester processing (SNAP 060301); polyurethane foam processing (SNAP 060303) and polystyrene foam processing (SNAP 060304); rubber processing (SNAP 060305); pharmaceutical products manufacturing (SNAP 060306); paints manufacturing (SNAP 060307); inks manufacturing (SNAP 060308); glues and adhesive products manufacturing (SNAP 060309); asphalt blowing (SNAP 060310); adhesive, magnetic tapes, films and photographs (SNAP 060311); textile finishing (SNAP 060313); leather tanning (SNAP 060314).
Country Detail	Over the period 1990-2013, CO_2 emissions from 3C 'Chemical Products, Manufacture and Processing' category were reduced by about 39.8% from 7.73 Gg in 1990 to 4.65 Gg in 2013. Simultaneously, compared with emissions recorded in 2012, CO_2 emissions in 2013 have increased by approximately 23.9%. The same trends were observed for NMVOC emissions from that category, which have decreased over the period 1990-2013 by 40% from 2.58 Gg in 1990 to 1.55 Gg in 2013.

Table 2.1.3.IV: Information on Category 3D "Other"

Sector	Solvents and Other Products Use
Category	3D Other
Key Category?	No
Category Description / Definition	Under the 3D 'Other Solvent Use' source category there were reported non-CO2 emissions (in particular NMVOC, but also NO_x and CO), as well as direct GHG emissions (in particular CO_2, but also N_2O) from the following sources: 3D1 'Printing' (SNAP 060403) (use of solvents in printing process); 3D2 'Domestic Solvent Use' (SNAP 060408) (other than paints application; e.g. cosmetics and perfumes; car care products (antifreeze, car waxes and polishes, engine degreasers, etc.; households products like aerosols; glass and furniture cleaning, air freshener, disinfectants, waxes and polishes etc.); 3D3 'Other Product Use' (SNAP 060402 – use of hexane in seed oil extraction; SNAP 060405 – industrial application of glues and adhesives in industries like: construction, shoes manufacture, adhesive substances and furniture manufacture; SNAP 060406 – preservation of wood; SNAP 060407 – under seal treatment and conservation of vehicles; SNAP 060409 – vehicle dewaxing; SNAP 060411 – domestic use of pharmaceutical products, SNAP 060412 – preservation of seeds; SNAP 060508 – N_2O use in anaesthesia; SNAP 060602 – tobacco combustion, SNAP 060603 – use of shoes, etc.).

Country Detail	Over 1990-2013, the direct GHG emissions from 3D "Other" category were reduced by about 18.1% from 14.03 Gg in 1990 to 11.49 Gg in 2013. Simultaneously, as compared to the emissions recorded in 2012, the CO_2 emissions in 2013 were reduced by about 3.1%. The same trends were observed for the NMVOC emissions from the category, which have decreased over the period 1990-2013 by about 18%, from 5.20 Gg in 1990 to 4.19 Gg in 2013.

2.1.4. Agriculture Sector

Tables 2.1.4.I – 2.1.4.III below provide relevant information on inventory categories, including description of each category allocated to Agriculture Sector.

Table 2.1.4.I: Information on Category 4A "Enteric Fermentation"

Sector	Agriculture
Category	4A Enteric Fermentation
Key Category?	Yes
Category Description / Definition	In the 4A category "Enteric fermentation" CH_4 emissions are monitored. Ruminant livestock, due to the symbiosis between macro-and microorganisms that inhabit the stomach consisting of four chambers (rumen, reticulum, omasum, abomasum) can be regarded as a complex biological factory, which converts feedstock into high quality food products, creating daily a protein mass of up to 2.5 kg. Also in the process, due to the fermentation of nutrients, significant quantities of gases are generated, containing up to 30-40% CH_4 and 60-70% CO_2. Notably, CH_4 is generated both by ruminant animals (cattle, sheep and goats) and by the non-ruminants (pigs, horses and asses). However, the ruminants have a higher share in total CH_4 emissions from 4A "Enteric fermentation". The capacity for generating these emissions depends on a number of factors including species, age, body weight, quantity and quality of food consumed, etc.
Country Detail	Over the period 1990-2013 CH_4 emissions from enteric fermentation were reduced in the Republic of Moldova by about 70.6%, from 87.63 Gg in 1990 to 25.77 Gg in 2013, mainly due to the reduction of livestock numbers, and due to change of main productivity indicators in the livestock sector of Republic of Moldova.

Table 2.1.4.II: Information on Category 4B "Manure Management"

Sector	Agriculture
Category	4B Manure Management
Key Category?	Yes
Category Description / Definition	Both methane and nitrous oxide emissions are produced from 4B "Manure Management". During decomposition of manure under anaerobic conditions, methanogen bacteria produce methane. The main factors affecting CH_4 production from manure are the amount produced and the rate (or percentage) of their decomposition under anaerobic conditions. The first category of these factors depends on the pace of manure production during a calendar year, as well as on livestock numbers, while the second group of factors – depends on way of manure collection, storage and use. The share of manure that decomposes anaerobically depends on how it is managed. When manure is stored or managed in liquid form (discharged into pits, ponds, etc.), it tends to decompose anaerobically and produce a significant amount of methane, while when it is kept or managed in solid form (stored in garbage piles) excreted in the pasture or farmland or applied as organic fertilizer, it tends to decompose aerobically and produces insignificant amounts of methane. In other words, the emissions depend on the quantity, type and properties of the systems used for manure management. Respectively, the manure management systems which are poorly aerated, generate large quantities of CH_4 and smaller quantities of N_2O; while aerated systems generate less CH_4 and more N_2O emissions, which may be direct or indirect. Thus, during storage or treatment of animal waste (manure and urine) prior to their introduction into the soil, direct emissions of N_2O are produced through nitrification and denitrification of nitrogen (nitrification is the oxidation under aerobic conditions of ammonium (NH_4^+) to nitrates (NO_3^-), while denitrification is the reduction under anaerobic conditions of nitrates to nitrogen oxides or molecular nitrogen), which is contained in said organic matter. Direct N_2O emissions vary depending on the carbon and nitrogen content in the excreted manure, duration of storage and type of treatment in the manure management systems. In other words, the production of N_2O emissions from manure nitrites or nitrates requires the presence of anaerobic conditions preceded by aerobic conditions necessary for the formation of oxidized nitrogen compounds. It also requires conditions such as pH and low humidity that would prevent the reduction of nitrous oxide (N_2O) to molecular nitrogen (N_2). Indirect emissions of N_2O originate from volatile nitrogen losses that occur as ammonia (NH_3) and nitrogen oxides (NO_x). The fraction of excreted organic nitrogen, mineralized in ammonium nitrogen during collection and storage of manure, depends to a great extent on the duration of storage and less - on temperature conditions. Simpler compounds of organic nitrogen, such as urea in cattle and uric acid in poultry is rapidly mineralized to ammonia, which is a highly volatile product rapidly diffusing into the atmosphere. The losses of nitrogen start along with manure excretion in farms and continue throughout the management processes of manure stored or treated under different management systems. Also, soil nitrogen is lost through leaching and runoff processes.

Country Detail	Over the period 1990-2013 CH_4 emissions from manure management decreased in the Republic of Moldova by about 82.4% from 14.70 Gg in 1990 to 2.59 Gg in 2013, while total emissions of $N_2O_{TOTAL(mm)}$ from manure management decreased over the same period by about 71.4%, from 4.46 Gg in 1990 to 1.28 Gg in 2013, while direct emissions of $N_2O_{D(mm)}$ were reduced by 70.6% from 3.60 Gg in 1990 to 1.06 Gg in 2013 and indirect emissions $N_2O_{IND(mm)}$ have decreased by approximately 74.8%, from 0.86 Gg in 1990 to 0.22 Gg in 2013. This development is mainly caused by the fact that during the period a significant reduction in livestock numbers has occurred in the Republic of Moldova, along with a negative trend of the main productivity indicators in the entire livestock sector and a dramatic change of livestock management practices and in the share of different systems of manure management.

Table 2.1.4.III: Information on Category 4D "Agricultural Soils"

Sector	Agriculture
Category	4D Agricultural Soils
Key Category?	Yes
Category Description / Definition	Within source category 4D "Agricultural Soils" N_2O emissions are monitored arising both from direct and indirect sources. The direct sources of N_2O emissions from agricultural soils are those which result from nitrogen incorporated into the soil along with chemical and organic fertilizers containing nitrogen, from the accumulation in soil of nitrogen from urine and manure excreted during domestic animals grazing, incorporation of agricultural residues into the soil and mineralization of nitrogen in relation to soil carbon losses due to changes in agricultural land use and soil management practices. N_2O emissions from indirect sources come: from nitrogen deposition in soil and water from precipitation in the form of ammonia (NH_3), nitrogen oxides (NO_x) and the products of these gases (NH_4^+ and NO_x^-); from nitrogen volatilized from application of chemical fertilizers with nitrogen and the natural organic manure and urine embedded into soil during pasturing and from leaching and runoff of nitrogen incorporated into the soil by applying chemical fertilizers with nitrogen and organic fertilizer, manure and urine incorporated in the soil during grazing, as well as return to soil of crop residues and nitrogen mineralization associated with mineral soil carbon losses due to changes in agricultural land use and soil management practices.
Country Detail	During 1990-2013, total N_2O_{TOTAL} emissions from category 4D "Agricultural Soils" were reduced by about 25.9% from 4.95 Gg in 1990 to 3.66 Gg in 2013, specifically direct emissions N_2O_{DIR} decreased by 22.3%, from 3.77 Gg in 1990 to 2.93 Gg in 2013 and N_2O_{IND} indirect emissions decreased by about 37.7% from 1.18 Gg in 1990 to 0.73 Gg in 2013.

2.1.5. Land Use, Land-Use Change and Forestry Sector

Most categories of sources and removals contained in Sector 5 "LULUCF" include both types of processes specific to GHG inventory (carbon emissions and sinks). According to the results obtained over the period 1990-2013, the net removals recorded in Sector 5 "LULUCF" show a decreasing trend. This process was influenced by the changes in the state of forests and other vegetation types (increase in the volume of harvested timber, shrinking of perennial plantations etc.), and by the social, political and economic changes that took place during the period in the Republic of Moldova. The Tables 2.1.5.I - 2.1.5.VI include relevant information about the categories comprised in the inventory, including a description of each category assigned to Sector 5 "Land Use, Land-Use Change and Forestry".

Table 2.1.5.I: Information on Category 5A "Forest Land"

Sector	Land Use, Land-Use Change and Forestry
Category	5A Forest Land
Key Category?	Yes
Category Description / Definition	Within the category 5A "Forest Land" CO_2 sequestration is monitored from land with scrub forest, as well as non-CO_2 (CH_4, CO, N_2O and NO_x) emissions from forest fires. The category includes land covered with scrub forest with an area of over 0.25 ha. The minimum size for trees and shrub scrub of forest land should constitute an operational level of 30%. That consistency is established only for trees and shrubs that have the natural potential to reach a height of 5 m at maturity.
Country Detail on Category	During the reporting period CO_2 sequestration from category 5A "Forest Land" showed a downward trend, decreasing by about 14.1%, from -2,197.58 Gg in 1990 to -1,887.62 Gg in 2013. As compared 1990, the 2013 non-CO_2 emissions from forest areas annually covered by fires of category 5A "Forest Land" have increased about 3.9 times in Moldova.

Table 2.1.5.II: Information on Category 5B "Cropland"

Sector	Land Use, Land-Use Change and Forestry
Category	5B Cropland
Key Category?	Yes
Category Description / Definition	Within the current inventory cycle, in 5B "Croplands" CO_2 emissions / removals were monitored from two sources: 5B.1.1 "Cropland Covered with Woody Vegetation" and 5B1.2 "Annual changes in carbon stocks in mineral soils" as well as non-CO_2 emissions from burning agricultural residue in the field (stubble burning). The first category includes perennial plantations (vineyards, orchards, plantations / nurseries, etc.) and woody vegetation that does not meet the criteria for the category "Forest Land" (forest belts, green spaces and recreational areas of settlements, plantations of trees and bushes etc.). The second category includes mineral soils (as classified by FAO, mineral soils are considered to be soils with moderate amounts of organic matter to be distinguished from organic soils which contain between 12-20% of organic matter in total mass, in the Republic of Moldova there are no such soil types). In this context it should be noted that changing the agricultural land use and soil management practices can significantly influence organic carbon reserves of mineral soils. Thus, for example, the conversion of natural grasslands and forests into agricultural land can contribute to loss of soil carbon stocks in the amount of up to 20-40% (IPCC Guidelines 2006). Soil organic carbon reserves may change under the influence of tillage, especially if there is a misbalance between inputs (ex.: organic fertilizer, agricultural residues, etc.) and soil carbon outputs (ex.: carbon loss due to mineralization of soil organic substances). The carbon stocks depend on the intensity of humification process, which is directly influenced by climatic conditions, especially moisture and temperature regimes.
Country Detail	Over the period 1990-2013, CO_2 sequestration from 5B1.1 "Cropland Covered with Woody Vegetation" has decreased by approximately 33.3%, from -483.47 Gg to -725.23Gg. This decrease is primarily due to the decrease of fruit plantations areas (orchards) by 41.8% and decrease of vine plantations by 32.6%. Simultaneously, during the same period, CO_2 emissions from the source 5B.1.2 "Annual changes in carbon stocks in mineral soils" have increased by 350% from -1,490.81 Gg in 1990 to 3,728.96 Gg in 2013 (i.e. cropland emitted by 2013 an amount of CO_2, which is about 2.5 times higher than the one sequestered in 1990). As compared to 1990, the non-CO_2 emissions from the burning of stubble have decreased by about 97.3% by 2013.

Table 2.1.5.III: Information on Category 5C "Grassland"

Sector	Land Use, Land-Use Change and Forestry
Category	5C Grassland
Key Category?	Yes
Category Description / Definition	Within category 5C "Grasslands" CO_2 removals / emissions were assessed from two sources: 5C1 "Grassland remaining grassland" and 5C2 "Land converted to grassland". Grassland are areas of land covered with perennial herbaceous vegetation used for livestock feed by grazing or mowing (pastures and hayfields), which are not considered cropland. However, this category may include systems with woody vegetation (trees and shrubs) that do not meet the criteria for "Forest Land" category in the national GHG inventory. In 5C1 "Grassland remaining grassland" CO_2 removals was assessed which originated from terrestrial biomass growth on lands included in "Pastures" and "Hayfields" and on lands included in "Wetlands" and "Landslides", the latter also being covered with herbaceous perennial vegetation, while in the source 5C2 "Land converted to grassland" CO_2 removals was assessed that originates from restoring natural vegetation on land excluded from agricultural circuit and transformed into grassland, as well as from land formerly covered by forest and converted to grassland.
Country Detail	Within 1990-2013, CO_2 removals from 5C1 "Grassland remaining grassland" decreased by 0.6%, from -1,469.86 Gg to -1,461.39 Gg. It is notable that sequestration volume during 1990-2003 in the 5C1 "Grassland remaining grassland" had an increasing trend (the maximum was -1,598.52 Gg in 2003), but towards the end of the 2004-2013 period due to degraded grasslands being allocated for afforestation activities, sequestration level had returned to 1990 level. Regarding CO_2 emissions / removals from 5C2 "Land converted to grassland"', it is noted that although over the period 1991-1996, CO_2 emissions increased substantially (reaching a maximum level of 299.82 Gg in 1993), mainly as a result of the problems recorded in the management of forests and other types of forest vegetation managed by municipalities and agricultural enterprises, resulting, among others, in deforestation of substantial areas, starting with 2000 the situation returns to normal and a trend towards progressive reduction of the respective emissions is registered, with only 4.17 Gg in 2013.

Table 2.1.5.IV: Information on Category 5D "Wetlands"

Sector	Land Use, Land-Use Change and Forestry
Category	5D Wetlands
Key Category?	No
Category Description / Definition	It includes land covered with water throughout the year or part thereof (e.g. swamps), which are not classified in the category of forest land, cropland, grassland and land of settlements. This includes water storage tanks (including ponds) as managed objects and natural rivers and lakes as unmanaged objects.
Country Detail	In the Republic of Moldova emissions / removals from category 5D "Wetlands" have not been estimated, however some wetlands (marshes) were considered in category 5C Grassland.

Table 2.1.5.V: Information on Category 5E "Settlements"

Sector	Land Use, Land-Use Change and Forestry
Category	5E Settlements
Key Category?	No
Category Description / Definition	It includes all landscaped grounds (buildings, courtyards, streets etc.), including transport infrastructure and communities of all sizes, if they are not classified in other categories of use.
Country Detail	In the Republic of Moldova emissions / removals from category 5E "Settlements" were not estimated. Depending on the type of vegetation that covered a part of the land of the settlements, they were included in categories 5A "Forest Lands" (urban forests), 5B "Cropland" (parks, squares, green spaces) and 5C "Grassland".

Table 2.1.5.VI: Information on Category 5F "Other Land"

Sector	Land Use, Land-Use Change and Forestry
Category	5F Other Land
Key Category?	No
Category Description / Definition	It includes land without vegetation (ravines, basins, rocks, etc.) and all land not classified in categories 5A-5E (e.g., land subject to landslides etc.). If data on changes in carbon stocks are available, it is recommended that they be placed in the respective land use categories but designated as unmanaged (for example, unmanaged grasslands). In the Republic of Moldova it is found that a certain amount of herbaceous vegetation grows on the landslides, which contributes to total carbon balance.
Country Detail	In the Republic of Moldova the estimated emissions / removals from category 5F Other Land were not estimated. However, a part of these lands falling under this category (landslides) was included in category 5C Grassland.

2.1.6. Waste Sector

Tables 2.1.6.I – 2.1.6.III below provide relevant information on inventory categories, including description of each category allocated to Waste Sector.

Table 2.1.6.I: Information on Category 6A "Solid Waste Disposal on Land"

Sector	Waste
Category	6A Solid Waste Disposal on Land
Key Category?	Yes
Category Description / Definition	Within the category 6A "Solid Waste Disposal on Land" is monitored CH_4 emissions from solid waste disposal in landfills. The methane generating potential depends on the morphological composition of the MSW and on the disposal practices and type of landfills (managed or unmanaged).
Country Detail	During 1990-2013, methane emissions from 6A "Solid Waste Disposal on Land" were reduced by about 13% from about 73.5 Gg in 1990 to about 64.0 Gg in 2013. According to the "Yearbook of the State Ecological Inspectorate 2013, The Environmental Protection in the Republic of Moldova", the area of managed MSW landfills in urban areas was 1,100 ha, of them about 169.5 ha is the area of managed landfills, other 930 ha are occupied by unmanaged waste disposal sites, or so-called "dumps". Over the period 2000-2013, the sanitation services of urban areas have transported between 1.144 and 2.647 million m^3 of MSW annually. The statistical survey of historic volumes of accumulated waste is not carried out; only visual estimates are made by ecological inspectors, who assess the total volume of accumulated MSW to be about 30-35 million tonnes. In most district centres the landfills are overloaded, in some places the thickness of the waste layer is 7-8 m (e.g., Ungheni, Cahul, Ocnita, etc.), while some dumps reach 10-15 m in thickness (e.g., Briceni, Balti, Ialoveni, etc.) or even up to 25-30 m (e.g., Cretoaia and Orhei). About 3/4 of such dumps have been in operation for about 25-35 years, with a utilization degree of over 80%.

Table 2.1.4.II: Information on Category 6B "Wastewater Handling"

Sector	Waste
Category	6B Wastewater Handling
Key Category?	Yes
Category Description/ Definition	Within the category 6B "Wastewater Handling" CH_4 emissions were assessed which originate from sources 6B1 "Industrial wastewater" and 6B2 "Domestic wastewater" along with N_2O emissions from 6B2 'Domestic Wastewater' (Nitrous Oxide from Human Sewage). In the Republic of Moldova, the industrial wastewater treatment is done by household wastewater treatment plants, thus it is treated together with household wastewater. After generation, the industrial wastewater is discharged into sewage systems for household wastewater and is treated together with domestic wastewater by wastewater treatment plants. From among all industries, manufacture contributes the most to generation of wastewater with a high content of biodegradable organic substances. In the Republic of Moldova, the wastewater (a mixture of domestic and industrial wastewater) is subject to classical (mechanical and biological) treatment under aerobic conditions. However, due to incorrect exploitation of existing treatment plants, a part of the wastewater (around 20% of total) is treated under anaerobic conditions. Within this sector, another relevant source of CH_4 generation is sludge from the wastewater treatment process, which undergoes treatment under aerobic and anaerobic conditions, the sludge being deposited on fields. Domestic wastewater is the product of water use by the population for household needs. Methane is generated during treatment of wastewater and sludge at wastewater treatment plants. The amount of CH_4 generated in this sector depends on the wastewater management practices in the Republic of Moldova and the level of population coverage with centralized sewerage, but also on whether the wastewater is being treated at all.
Country Detail	Over the period 1990-2013, the direct emissions of greenhouse gases, expressed in CO_2 equivalent and originating from 6B "Wastewater Handling", have decreased by 30.9%, from 321.22 Gg CO_2 eq in 1990 to 221.20 Gg CO_2 eq in 2013. The share of methane emissions has decreased over the period, from 67.1% of the total in 1990 to 61.5% in 2013, while the emissions of nitrous oxide have increased respectively from 32.9% of the total in 1990 to 38.5% in 2013. Over the period 1990-2013, CH_4 emissions from sources category 6B "Wastewater Handling" have decreased by 36.7%, from 10.2667 Gg in 1990 to 6.4993 in Gg 2013, while N_2O emissions from source 6B2 'Domestic Wastewater' (Nitrous Oxide from Human Sewage) have decreased by 19.1%, from 0.3407 Gg in 1990 to 0.2755 in 2013 Gg.

Table 2.1.4.III: Information on Category 6C "Waste Incineration"

Sector	Waste
Category	6C Waste Incineration
Key Category?	No
Category Description/ Definition	Within category 6C Waste Incineration GHG emissions are monitored from waste incineration but they do not include emissions from waste incineration for energy production (they are monitored in the Sector 1 "Energy"), as well as emissions from incineration of agricultural residues in the field (emissions from burning of stubble are monitored in category 5B Cropland). In this category non-CO_2 emissions are monitored from incineration of waste and CO_2 emissions from non-biological waste.
Country Detail	During 1990-2013 the Republic of Moldova had no incinerators for waste and thus, GHG emissions from this source category were not monitored.

2.2. Method Choice and Description

2.2.1. Energy Sector

Tables 2.2.1.I -2.2.1.IV below describe the methodology used for calculation of GHG emissions from different categories in the Energy Sector, including the equation applied, references to it and grounds for its selection.

Table 2.2.1.I: Methodology used to calculate GHG emissions from stationary combustion of fossil fuels

Equation	$Emissions_{GHG,\,fuel} = Fuel\ use_{fuel} \bullet Emission\ factor_{GHG,\,fuel}$ **(Equation 2.1)*** Where: $Emissions_{GHG,\,fuel}$ – emission of a certain type of greenhouse gases originating from combustion of a certain type of fossil fuel (kg GHG). $Fuel\ use_{fuel}$ – amount of consumed fuel (TJ). $Emission\ factor_{GHG,\,fuel}$ – value of emission factor used by default for a certain type of greenhouse gases originating from combusting of a certain type of fossil fuel (kg gas/TJ). For CO_2 emissions, this also includes the carbon oxidation factor, assumed to be 1. $Emissions_{GHG} = \Sigma\ Emissions_{GHG,\,fuel}$ **(Equation 2.2)*** $Emissions\ non\text{-}CO_2 = \Sigma\ [Fuel_{abc} \bullet EF_{abc}]$ **(Equation 2.3)**** Where: a - fuel type b - sector c - technology type.
Reference	*2006 IPCC Guidelines, Vol. 2, Chapter 2, p. 2.11-2.12. ** IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000), Chapter 2, p. 2.37.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which were available in the most recent IPCC guidelines (IPCC GPG 2000; 2006 IPCC guidelines).

Table 2.2.1.II: Methodology used to calculate GHG emissions from mobile combustion of fossil fuels

Equation	$Emissions\ CO_2 = \Sigma\ [Fuels_a \bullet EF_a]$ **(Equation 3.2.1)** Where: Emissions - CO_2 emissions (kg). $Fuels_a$ – fuel use (TJ). EF_a - value of emission factor used (kg/TJ). It equals the product of carbon contents in fuels and 44/12 (stoichiometric ratio between the carbon contents in the carbon dioxide molecule). a - fuel type (diesel, gasoline, natural gas, compressed natural gas, liquefied natural gas, etc.). $Emissions\ non\text{-}CO_2 = \Sigma\ [Fuels_a \bullet EF_a]$ **(Equation 3.2.3)** Where: Emissions - non-CO_2 gas emissions (kg). $Fuels_a$ –fuel use (TJ). EF_a - value of emission factor used (kg/TJ). a - fuel type (diesel, gasoline, natural gas, compressed natural gas, liquefied natural gas, etc.).
Reference	2006 IPCC Guidelines, Vol. 2, Chapter 3, p. 3.12-3.13.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the most recent 2006 IPCC guidelines.

Table 2.2.1.III: Methodology used to calculate GHG emissions from mobile combustion of fossil fuels in international aviation

Equation	Emissions = Fuel use • Emission factor (**Equation 3.6.1** for Tier 1 methodology approach) Total emissions = Emissions from take-off / landing cycle + Emissions from cruise cycle (**Equation 3.6.2** for Tier 2 methodology approach) Where: Emissions from take-off / landing cycle = Number of take-offs / landings • Emission factor for take-off / landing cycle (**Equation 3.6.3** for Tier 2 methodology approach) Fuel use for take-off / landing cycle = Number of take-offs / landings • Fuel use for take-off / landing cycle (**Equation 3.6.4** for Tier 2 methodology approach) Emissions from cruise cycle = (Total fuel use – Fuel use for take-off / landing cycle) • Emission factor for cruise cycle (**Equation 3.6.5** for Tier 2 methodology approach)
Reference	2006 IPCC Guidelines, Vol. 2, Chapter 3, p. 3.59.

Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the most recent 2006 IPCC guidelines.

Table 2.2.1.IV: Methodology used to calculate GHG emissions from fugitive emissions from oil and natural gas

Equation	$Emissions_{GHG,\ industry\ sector} = A_{industry\ sector} \cdot EF_{GHG,\ industry\ sector}$ **(Equation 4.2.1)** $Total\ emissions_{GHG} = \Sigma E_{GHG,\ industry\ sector}$ **(Equation 4.2.2)** Where: $Emissions_{GHG,\ industry\ sector}$ – annual emissions (Gg). $A_{industry\ sector}$ – activity data for the industry sector. $EF_{GES,\ industry\ sector}$ – emission factor (Gg / activity unit).
Reference	2006 IPCC Guidelines, Vol. 2, Chapter 4, p. 4.41.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the most recent 2006 IPCC guidelines.

2.2.2. Industrial Processes Sector

The Tables 2.2.2.I-2.2.2.XIX below show the methodology used for calculating GHG emissions originating from different categories in the Industrial Processes Sector, including used equation, references for it and justification of its choice.

Table 2.2.2.I: Methodology used to calculate GHG emissions originating from Category 2A1 "Cement Production"

Equation	$Emissions\ CO_2 = FE_{clincher} \cdot$ clinker production • Cement Kiln Dust (CKD) correction factor **(Equation 3.1)**
Reference	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000), Chapter 3, page 3.10.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000).

Table 2.2.2.II: Methodology used to calculate GHG emissions originating from Category 2A2 "Lime Production"

Equation	$Total\ emissions\ CO_{2\ lime} = (Production\ of_{lime,\ i} \cdot FE_{lime}) / 10^3$ **(Equation 3.4)** Where: Total emissions $CO_{2\ lime}$ - CO_2 emissions from lime production of type i (lime with high contents of calcium and/or dolomite) (Gg/year); $Production\ of_{lime,\ i}$ – production of i type lime (tonnes/year). FE_{lime} – emission factor for CO_2 for i type lime (tonnes CO_2/tonnes lime). $FE_{lime\ with\ increased\ calcium\ contents} =$ stoichiometric ratio (CO_2/CaO) • fraction CaO **(Equation 3.5A)** $FE_{dolomite\ lime} =$ stoichiometric ratio (CO_2/CaO•MgO) • fraction (CaO•MgO) **(Equation 3.5B)**
Reference	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000), Chapter 3, p. 3.20.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000).

Table 2.2.2.III: Methodology used to calculate GHG emissions from Category 2A3 "Limestone and Dolomite Use"

Equation	Total emissions $CO_{2\ ld} = \{(A_{ls} \bullet EF_{ls}) + (A_d \bullet EF_d)\}/10^6 = \{(440 \bullet f \bullet A_{ls}) + (477 \bullet f \bullet A_d)\} / 10^6$ Where: Total emissions $CO_{2\ ld}$ - CO_2 emissions from limestone and dolomite use (Gg/year); A_{ls} – is limestone use (tonnes/year); it is assumed that use equals the amount of extracted limestone plus import minus export. From this amount the limestone is deducted which is used for cement and lime production, in agriculture, as well as in processes which do not generate CO_2 emissions. A_d - is dolomite use (tonnes/year); it is assumed that use equals the amount of extracted dolomite plus import minus export. From this amount the dolomite is deducted which is used for lime production, as well as in processes which do not generate CO_2 emissions. $EF_{ls} = f \bullet [44.01\ g/mol\ CO_2] / [(100.09\ g/mol\ CaCO_3)] = (440 \bullet f)\ kg\ CO_2 / t\ limestone$ Where: f – fraction of limestone purity, in $CaCO_3$ per tonne of raw material; the implicitly used value is 1. $EF_d = f \bullet [2 \bullet 44.01\ g/mol\ CO_2] / [(184.41\ g/mol\ CaCO_3 \bullet MgCO_3)] = (477 \bullet f)\ kg\ CO_2 / t\ dolomite$ Where: f – fraction of dolomite purity, in $CaCO_3 \bullet MgCO_3$ per tonne of raw material; the implicitly used value is 1.
Reference	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Chapter 2, p. 2.10.
Describe How and Why this Method was Chosen	Approaches available in Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, because in the most recent guidelines developed by the IPCC (IPCC GPG 2000 and 2006 IPCC Guidelines) these methodologies are not available.

Table 2.2.2.IV: Methodology used to calculate GHG emissions from Category 2A4 "Soda Ash Use"

Equation	Total emissions $CO_{2\ SAU} = A_{SAU} \bullet EF_{SAU} / 10^6$ Where: Total CO_2 emissions $_{SAU}$ - CO_2 emissions from soda ash use (Gg/year). A_{SAU} – soda ash use (tonnes/year); EF_{SAU} - emission factor used implicitly for CO_2 emissions from soda ash use (kg CO_2 / tonnes of soda ash). EF_{SAU} = 44.01 g/mol CO_2 / 105.99 g/mol Na_2CO_3 = 415 kg CO_2 / tonnes Na_2CO_3
References	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Chapter 2, p. 2.13.
Describe How and Why this Method was Chosen	Approaches available in Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, because in the most recent guidelines developed by the IPCC (IPCC GPG 2000 and 2006 IPCC Guidelines) these methodologies are not available.

Table 2.2.2.V: Methodology used to calculate GHG emissions from Category 2A5 "Asphalt Roofing Production"

Equation	Total emissions $NMVOC_{asr} = (A_{asr} \bullet EF_{asr}) / 10^6$ Where: Total NMVOC emissions $_{asr}$ – NMVOC emissions from asphalt roofing production (Gg/year); A_{asr} – annual asphalt roofing production (tonnes/year); EF_{asr} – implicitly used emission factor (with no mitigation measures) for NMVOC emissions from production of oxidized asphalt by blowout method, with value 2.4 kg NMVOC/tonne product.
Reference	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 2, Chapter 2, p. 2-9.
Describe How and Why this Method was Chosen	Approaches available in Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, because in the most recent guidelines developed by the IPCC (IPCC GPG 2000 and 2006 IPCC Guidelines) these methodologies are not available.

Table 2.2.2.VI: Methodology used to calculate GHG emissions from Category 2A6 "Road Paving with Asphalt"

Equation	Total emissions $GHG_{rpa} = (A_{rpa} \cdot EF_{rpa,i}) / 10^6$ Where: Total emissions GHG_{rpa} – emissions of NMVOC, CO, NO_x and SO_2 (Gg/year); A_{rpa} – annual production of road paving asphalt (tonnes/year); EF_{rpa} – emission factor used by default for type i of GHG emissions (NMVOC, CO, NO_x and SO_2), in kg GHG/tonne of product.
Reference	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Table 2-4, p. 2.14.
Describe How and Why this Method was Chosen	Approaches available in Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, because in the most recent guidelines developed by the IPCC (IPCC GPG 2000 and 2006 IPCC Guidelines) these methodologies are not available.

Table 2.2.2.VII: Methodology used to calculate GHG emissions from Category 2A7 "Other Mineral Products" (Glass Production)

Equation	Total emissions $GES_{gp} = (A_{gp} \cdot EF_{gp,i}) / 10^6$ Where: Total emissions GHG_{gp} - emissions of NMVOC, NO_x and SO_2 (Gg/year); A_{gp} – annual glass production (tonnes/year); EF_{gp} – emission factor used by default for GHG emission of i type (*NMVOC, **NO_x and **SO_2), in kg GHG/tonne of product.
Reference	* Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Chapter 2.7.3 "Production of other mineral produces", page 2.14. ** EMEP CORINAIR Atmospheric Emissions Inventory Guidebook, 3rd Edition, June 2005, B3314-20-23 for flat glass production and B3314-24-27 for production of glass for receptacles, ic030314, Glass Production.
Describe How and Why this Method was Chosen	Approaches available in Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories were used, because in the most recent guidelines developed by the IPCC (IPCC GPG 2000 and 2006 IPCC Guidelines) these methodologies are not available. Additionally, EMEP CORINAIR Atmospheric Emissions Inventory Guidebook (2005) was used, as it also provides calculation methodologies and emission factors.

Table 2.2.2.VIII: Methodology used to calculate GHG emissions from Category 2A7 "Other Mineral Products" (Mineral Wool Production)

Equation	Total emissions $GES_{mwp} = (A_{mwp} \cdot EF_{mwp,i}) / 10^6$ Where: Total emissions GHG_{mwp} - emissions of CO_2, CO and SO_2 (Gg/year); A_{mwp} – annual production of mineral wool (tonnes/year); EF_{mwp} – emission factor used by default for GHG emissions of type i (CO_2, CO and SO_2), in kg GES/tonne of product.
Reference	EMEP CORINAIR Atmospheric Emissions Inventory Guidebook, 3rd issue, June 2005, B3318-7, ic030318, Mineral wool.
Describe How and Why this Method was Chosen	EMEP CORINAIR Atmospheric Emissions Inventory Guidebook (2005) was used, as it provides calculation methodologies and emission factors.

Table 2.2.2.IX: Methodology used to calculate GHG emissions from Category 2A7 "Other Mineral Products" (Bricks and Expanded Clay Production)

Equation	*Total emissions $CO_2 = (M_c \cdot FE_c) / 10^6$ **(Equation 2.15)** Where: Total emissions CO_2 - CO_2 emissions (Gg/year); M_c – the mass of carbonates used for production of bricks and expanded clay (tonnes of clay); FE_c – specific emission factor (kg CO_2 / t clay); FE – stoichiometric ratio (CO_2/CaO) • CaO fraction in clay + stoichiometric ratio (CO_2/MgO) • MgO fraction in clay.

	**Total emissions SO_2 = $(A_{bp} \cdot EF_{bp}) / 10^6$ Where: Total emissions SO_2 - emissions SO_2 (Gg/year); A_{bp} – annual bricks production (tonnes/year); EF_{bp} – emission factor used by default for SO_2 emissions from bricks production (kg/tonne).
Reference	*IPCC Guideline 2006, Vol. 3, Chapter 2, p. 2.34. ** EMEP CORINAIR Atmospheric Emissions Inventory Guidebook, 3rd issue, February 15, 1996, B3319-5, ic030319, Bricks.
Describe How and Why this Method was Chosen	For CO_2 emissions, the approaches available in the 2006 IPCC Guide were used. For SO_2 emissions the approaches available in the EMEP CORINAIR Atmospheric Emissions Inventory Guidebook were used, as it provides calculation methodologies and emission factors.

Table 2.2.2.X: Methodology used to calculate GHG emissions from Category 2B5 "Other" (Polyethylene Production)

Equation	Total NMVOC emissions = $(A_{PP} \cdot EF_{PP}) / 10^6$ Where: Total NMVOC emissions - NMVOC emissions(Gg/year); A_{pp} - annual polyethylene production (tonnes/year); EF_{pp} - emission factor used by default for NMVOC emissions from polyethylene production (kg/tonne).
Reference	EMEP CORINAIR Atmospheric Emissions Inventory Guidebook, 3rd issue, February 15, 1996, B456-1 up to B456-3, pr040506, Polyethylene production.
Describe How and Why this Method was Chosen	The approaches available in the EMEP CORINAIR Atmospheric Emissions Inventory Guidebook were used, as it provides calculation methodologies and emission factors.

Table 2.2.2.XI: Methodology used to calculate GHG emissions from Category 2B5 "Other" (ABS Synthetic Resins Production)

Equation	Total NMVOC emissions = $(A_{ABS} \cdot EF_{ABS}) / 10^6$ Where: Total NMVOC emissions - NMVOC emissions(Gg/year); A_{ABS} - annual production of synthetic resins ABS (tonnes/year); EF_{ABS} - emission factor used by default for NMVOC emissions from production of synthetic resins ABS (kg/tonne).
References	EMEP CORINAIR Atmospheric Emissions Inventory Guidebook, 3rd issue, February 15, 1996, B4515, pr040515, Production of synthetic resins.
Describe How and Why this Method was Chosen	The approaches available in the EMEP CORINAIR Atmospheric Emissions Inventory Guidebook were used, as it provides calculation methodologies and emission factors.

Table 2.2.2.XII: Methodology used to calculate GHG emissions from Category 2B5 "Other" (Detergents Production)

Equation	Total NMVOC emissions = $(A_{DP} \cdot EF_{DP}) / 10^6$ Where: Total NMVOC emissions - NMVOC emissions(Gg/year); A_{DP} - annual production of detergents (tonnes/year); EF_{DP} - emission factor used by default for NMVOC emissions from production of detergents (kg/tonne).
Reference	EPA-450/4-90-003, APM, S.U.A., Research Triangle Park, NC, March 1990; Emission Test Report, Procter and Gamble, Augusta, GA Georgia Department of Natural Resources, Atlanta, GA, July 1988; A.J. Buonicore and W.T. Davis, Eds., Air Pollution Engineering Manual, Van Nostrand Reinhold, New York, NY, 1992.
Describe How and Why this Method was Chosen	The approaches available in the US EPA Air Pollution Manuals were used, as they provide calculation methodologies and emission factors.

Table 2.2.2.XIII: Methodology used to calculate GHG emissions from Category 2C1 "Iron and Steel Production"

Equation	* Emissions of $CO_{2\ pigt\ iron}$ = (EF reducing agent • Mass of reducing agent) + (Mass of carbon in ore – Mass of carbon in crude iron) • 44/12 (Equation 3.6A) * Emissions of $CO_{2\ steel}$ = (Mass of carbon in crude iron used for crude steel production – Mass of carbon in crude steel) • 44/12 + EF electric arc furnace • Mass of steel produced in electric arc furnace **(Equation 3.6B)** * Total emissions CO_2 = Emissions $CO_{2\ pig\ iron}$ + Emissions $CO_{2\ steel}$ **(Equation 3.7)** ** Total emissions non-CO_2 = $(A_{SP} \cdot EF_{SP}) / 10^9$ Where: Total non-CO_2 emissions – non-CO_2 emissions (Gg/year); A_{DP} - annual production of steel and rolling mills (tonnes/year); EF_{DP} - default emission factors for non-CO_2 emissions (NO_x, CO, NMVOC and SO_2) from production of steel and rolling mills (grams GHG/tonne of product).
Reference	* IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000), Chapter 3, p. 3.25-3.26. ** EMEP/EEA Atmospheric Emissions Inventory Guidebook (2013), 2.C.1 Steel Production, 040207 – Steel Production in EAF; 2.C.1 Steel Production, 040208 – Rolling Mills Production in EAF.
Describe How and Why this Method was Chosen	For CO_2 emissions, the approaches available in the 2006 IPCC Guide were used. For Non-CO_2 emissions the approaches available in the EMEP CORINAIR Atmospheric Emissions Inventory Guidebook were used, as they provide calculation methodologies and emission factors.

Table 2.2.2.XIV: Methodology used to calculate GHG emissions from Category 2D2 "Other" (Food and Drink)

Equation	Total NMVOC emissions = $(A_{FD} \cdot EF_{FD}) / 10^6$ Where: Total – total NMVOC emissions (Gg/year); A_{FD} – annual production of food products and alcoholic beverages (tonnes/year and/or hl/year); EF_{FD} – default emission factors for NMVOC emissions from production of food products and alcoholic beverages (kg/tonne and/or kg/hl).
Reference	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Chapter 2, Tables 2-24 and 2-25, p. 2.41 and 2.42. EMEP CORINAIR Atmospheric Emissions Inventory Guidebook, 3rd edition, February, 15, 1996, B465-5, pr040605, Bread Making and Other Food; B466-5, pr040606, Alcoholic beverages.
Describe How and Why this Method was Chosen	The approaches of the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories and in the EMEP CORINAIR Atmospheric Emissions Inventory Guidebook were used, as they provide calculation methodologies and emission factors.

Table 2.2.2.XV: Methodology used to calculate GHG emissions from Category 2F "Consumption of Halocarbons and SF_6"

Equation	**Potential Emissions** = Production + Imports (Bulk Chemicals + Chemical Contained in Products) – Exports (Bulk Chemicals + Chemical Contained in Products) – Destruction **(Tier 1b methodology approach)*** **Actual Emissions** = Assembly Emissions + Operation Emissions + Disposal Emissions **(Equation 3.33) (Tier 2a methodology approach)**** Where: Assembly Emissions include the emissions associated with product manufacturing, even if the products are eventually exported; Operation Emissions include annual leakage from equipment stock in use as well as servicing emissions; this calculation should include all equipment units in the country, regardless of where they were manufactured; Disposal Emissions include the amount of refrigerant released from scrapped systems; as with operation emissions, they should include all equipment units in the country where they were scraped, regardless of where they were manufactured. Assembly Emissions = (Total HFC and PFC Charged in year t) • (k /100) Where: k - Emission factor that represents the percentage of initial charge that is released during assembly. Operation Emissions = (Amount of HFC and PFC Stock in year t) • (x /100) Where: x - Emission factor that represents the annual leak rate as a percentage of total charge; since different types of refrigeration equipment will leak at different rates, data were disaggregate into homogeneous classes in order to develop values of x specific to different types of equipment.

	Disposal Emissions = (HFC and PFC Charged in year) • (y /100) • (100 – z /100) – (Amount of Intentional Destruction) Where: y - Percentage of the initial charge remaining in the equipment at the time of disposal; z - Recovery efficiency at the time of disposal.
Reference	* Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Chapter 2, p. 2.48. ** IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000), Chapter 3, p. 3.81.
Describe How and Why this Method was Chosen	Approaches available in the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories for potential emissions, respectively approaches available in IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000) for actual emissions were applied.

Table 2.2.2.XVI: Methodology used to calculate GHG emissions from Category 2F1 'Refrigeration and Air Conditioning Equipment'

Equation	Emissions = Assembly Emissions + Operation Emissions + Disposal Emissions **(Equation 3.33)** (Tier 2a methodology approach) Where: Assembly Emissions include the emissions associated with product manufacturing, even if the products are eventually exported; Operation Emissions include annual leakage from equipment stock in use as well as servicing emissions; this calculation should include all equipment units in the country, regardless of where they were manufactured; Disposal Emissions include the amount of refrigerant released from scrapped systems; as with operation emissions, they should include all equipment units in the country where they were scraped, regardless of where they were manufactured.
Reference	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000), Chapter 3, p. 3.81.
Describe How and Why this Method was Chosen	Approaches available in IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000) were applied.

Table 2.2.2.XVII: Methodology used to calculate GHG emissions from Category 2F2 'Foam Blowing'

Equation	Emissions from Open-cell Foam = annual amount of HFC/PFC used for producing open-cell foams (Equation 3.37) Emissions from Closed-cell Foam = [(Total HFCs and PFCs Used in Manufacturing New Closed-cell Foam in year t) • (first-year Loss emission Factor)] + [(Original HFC or PFC Charge Blown into Closed-cell Foam Manufacturing between year t and year t-n) • (Annual Loss Emission Factor)] + [(Decommissioning losses in year n) – (HFC or PFC Destroyed)] **(Equation 3.38)** Where: n – Product lifetime of closed-cell foam; Decommissioning losses – the remaining chemical at the end of service life that occurs when the losses equipment is scrapped.
References	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000), Chapter 3, p. 3.93.
Describe How and Why this Method was Chosen	Approaches available in IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000) were applied.

Table 2.2.2.XVIII: Methodology used to calculate GHG emissions from Category 2F4 'Aerosols' (Metered Dose Aerosols)

Equation	HFC Emissions = 50% of HFC Quantity Contained in Aerosol Products Sold in year t + 50% HFC Quantity Contained in Aerosol Products Sold in year t-1 **(Equation 3.35)**
Reference	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000), Chapter 3, p. 3.85.
Describe How and Why this Method was Chosen	Approaches available in IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000) were applied.

Table 2.2.2.XIX: Methodology used to calculate GHG emissions from Category 2F8 'Electrical Equipment'

Equation	Emissions of SF_6 in year t = (2% of the Total Charge of SF_6 Contained in the Existing Stock of Equipment of Operation in year t) + (95% of the Nameplate Capacity of SF_6 in Retiring Equipment) **(Equation 3.17)** (Tier 2b methodology approach)
Reference	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000), Chapter 3, p. 3.57.
Describe How and Why this Method was Chosen	Approaches available in IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000) were applied.

2.2.3. Solvents and Other Products Use Sector

Tables 2.2.3.I -2.2.3.X below describe the methodology used to calculate GHG emissions from different categories in the Solvents and Other Products Use Sector, including the equations used, references to them and justification of their choice.

Table 2.2.3.I: Methodology used to calculate GHG emissions from Category 3A "Paint Application"

Equation	* E pollutant = (AR product • EF pollutant technology) / 10^6 Where: E pollutant – the emission of the specified pollutant, Gg/yr; AR product – the activity rate for the paint application (consumption of paint), Gg/yr; EF pollutant technology – the emission factor for this technology and this pollutant, kg/t
	** CO_2 emissions = NMVOC • CC • 44/12 Where: CO_2 emissions – carbon dioxide emissions resulting from application of paints, Gg/year; NMVOC – total NMVOC emissions from the category, Gg/year; CC – fraction of carbon content in NMVOC; 44/12 – stoichiometric ratio between carbon contents in carbon dioxide and non-metallic volatile organic compounds.
Reference	* EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.d 'Paint Application' (according to the nomenclature NFR), Tables 3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11, 3-12, 3-13, 3-14, 3-15 and 3-16, p. 17-25. ** National Inventory Report for 1985-2009, Hungary, Annex A3.3, Table A3-2, page A39.
Describe How and Why this Method was Chosen	Methodology approaches from EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013 and in the National Inventory Report of Hungary for 1985-2009 were used.

Table 2.2.3.II: Methodology used to calculate GHG emissions from Category 3B "Degreasing and Dry Cleaning"

Equation	*E pollutant = (AR product • EF pollutant technology) / 10^6 Where: E pollutant – pollutant gas emissions (NMVOC) from application of solvents for degreasing and dry cleaning, Gg/year; AR product – activity rate for application of solvents for degreasing and dry cleaning (use), t/year; EF pollutant – pollutant pas emission factor (kg / tonne) (fraction of solvent content in the materials used, 100% default). ** CO_2 emissions = NMVOC • CC • 44/12 Where: CO_2 emissions – carbon dioxide emissions resulting from the application of solvents for degreasing and dry cleaning, Gg/year; NMVOC – total NMVOC emissions from the category, Gg/year; CC – carbon content fraction in NMVOC; 44/12 – stoichiometric ratio between the carbon contents in carbon dioxide and in non-methane volatile organic compounds.

Reference	* EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.e „Degreasing" (according to the nomenclature NFR), Tables 3-1, 3-2, 3-3 and 3-5, pages 8, 10 and 12. Source Category 2.D.3.f „Dry Cleaning" (according to the nomenclature NFR), Tables 3-1 and 3-2, pages 6 and 8. ** National Inventory Report of Hungary for period 1985-2009, Annex A3.3, Table A3-2, p. A39.
Describe How and Why this Method was Chosen	Methodology approaches from EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013 and in the National Inventory Report of Hungary for 1985-2009 were used.

Table 2.2.3.III: Methodology used to calculate GHG emissions from Category 3C "Chemical Products, Manufacture and Processing"

Equation	*E pollutant = (AR product • EF pollutant technology) / 10^6 Where: E pollutant – pollutant gas emissions from solvents use for the manufacture and processing of chemical products, Gg/year; AR product – activity rate for manufacture and processing of chemical products, t/year; EF pollutant – emission factor for pollutant gas (kg/tonne). ** CO_2 emissions = NMVOC • CC • 44/12 Where: CO_2 emissions – emissions of carbon dioxide resulting from application of solvents in production and processing of chemical products, Gg/year; NMVOC – total NMVOC emissions from the category, Gg/year; CC – carbon fraction content in NMVOC; 44/12 – stoichiometric ratio between carbon contents in carbon dioxide and the non-methane volatile organic compounds.
Reference	* EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.g 'Chemical Products, Manufacture and Processing' (according to the nomenclature NFR), Tables 3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11, 3-12 and 3-13, pages 15-22. ** National Inventory Report of Hungary for period 1985-2009, Annex A3.3, Table A3-2, p. A39.
Describe How and Why this Method was Chosen	Methodology approaches from EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013 and in the National Inventory Report of Hungary for 1985-2009 were used.

Table 2.2.3.IV: Methodology used to calculate GHG emissions from Category 3D1 "Printing"

Equation	*E pollutant = (AR product • EF pollutant technology) / 10^6 Where: E pollutant – pollutant gas emissions from inks used in printing, Gg/year; AR product – activity rate for inks used in printing, t/year; EF pollutant – emission factor for pollutant gas (kg/tonne). ** CO_2 emissions = NMVOC • CC • 44/12 Where: CO_2 emissions – emissions de carbon dioxide resulting from ink use in paper printing, Gg/year; NMVOC – total NMVOC emissions from the category, Gg/year; CC – fraction of carbon content in NMVOC; 44/12 – stoichiometric ratio between carbon contents in carbon dioxide and the non-methane volatile organic compounds.
Reference	* EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.h 'Printing' (according to the nomenclature NFR), Table 3-1, p. 11. ** National Inventory Report of Hungary for period 1985-2009, Annex A3.3, Table A3-2, p. A39.
Describe How and Why this Method was Chosen	Methodology approaches from EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013 and in the National Inventory Report of Hungary for 1985-2009 were used.

Table 2.2.3.V: Methodology used to calculate GHG emissions from Category 3D2 "Domestic Solvent Use"

Equation	*E pollutant = (P • EF pollutant technology) / 10^6 Where: E pollutant – emissions of pollutant gas (NMVOC) resulting from domestic solvent use, Gg/year; P – population number, thousand people/year; EF pollutant – emission factor for pollutant gas (kg/person/year). ** CO_2 emissions = NMVOC • CC • 44/12 Where: CO_2 emissions – emissions of carbon dioxide resulting from domestic use of solvents, Gg/year; NMVOC – total NMVOC emissions from the category, Gg/year; CC – fraction of carbon content in NMVOC; 44/12 – stoichiometric ratio between carbon contents in carbon dioxide and the non-methane volatile organic compounds.
Reference	* EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.a 'Domestic Solvents Use' Sub-Chapter 3.24, page 9. ** National Inventory Report of Hungary for period 1985-2009, Annex A3.3, Table A3-2, p. A39.
Describe How and Why this Method was Chosen	Methodology approaches from EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013 and in the National Inventory Report of Hungary for 1985-2009 were used.

Table 2.2.3.VI: Methodology used to calculate GHG emissions from Category 3D3 "Other Product Use" (Seed Oil Extraction)

Equation	*E pollutant = (AR product • EF pollutant technology) / 10^6 Where: E pollutant – pollutant gas emissions from solvents use in seed oil extraction, Gg/year; AR product – activity rate for solvents consumption in seed oil extraction, t/year; EF pollutant – pollutant gas emission factor (kg/tonne). ** CO_2 emissions = NMVOC • CC • 44/12 Where: CO_2 emissions – emissions of carbon dioxide resulting from use of solvents for vegetable seed oil extraction, Gg/year; NMVOC – total NMVOC emissions from the category, Gg/year; CC – fraction of carbon content in NMVOC; 44/12 – stoichiometric ratio between carbon contents in carbon dioxide and the non-methane volatile organic compounds.
Reference	* EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.i 'Other Product Use' (according to the nomenclature NFR), SNAP 060404, Table 3-4, page 15. ** National Inventory Report of Hungary for period 1985-2009, Annex A3.3, Table A3-2, p. A39.
Describe How and Why this Method was Chosen	Methodology approaches from EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013 and in the National Inventory Report of Hungary for 1985-2009 were used.

Table 2.2.3.VII: Methodology used to calculate GHG emissions from Category 3D3 "Other Product Use" (Use of Glues and Other Adhesives)

Equation	*E pollutant = (AR product • EF pollutant technology) / 10^6 Where: E pollutant – pollutant gas emissions (NMVOC) resulting from use of glues and other adhesives, Gg/year; AR product –activity rate for use of solvents from use of glues and other adhesives, t/year; EF pollutant – emission factor for pollutant gas (kg/tonne). ** CO_2 emissions = NMVOC • CC • 44/12 Where: CO_2 emissions – emissions of carbon dioxide resulting from use of glues and other adhesives, Gg/year; NMVOC – total NMVOC emissions from the category, Gg/year; CC – fraction of carbon content in NMVOC; 44/12 – stoichiometric ratio between carbon contents in carbon dioxide and in non-methane volatile organic compounds.

Reference	* EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.i 'Other Product Use' (according to the nomenclature NFR), SNAP 060405, Table 3-11, page 19. ** National Inventory Report of Hungary for period 1985-2009, Annex A3.3, Table A3-2, p. A39.
Describe How and Why this Method was Chosen	Methodology approaches from EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013 and in the National Inventory Report of Hungary for 1985-2009 were used.

Table 2.2.3.VIII: Methodology used to calculate GHG emissions from Category 3D3 "Other Product Use" (Vehicles Dewaxing)

Equation	*E pollutant = (AR product • EF pollutant technology) / 10^6 Where: E pollutant – emissions of pollutant gas (NMVOC) resulting from vehicles dewaxing, Gg/year; AR product – activity rate for solvents use in vehicles dewaxing, t/year; EF pollutant – emission factor for pollutant gas (kg/tonne). ** CO_2 emissions = NMVOC • CC • 44/12 Where: CO_2 emissions – emissions of carbon dioxide resulting from vehicles dewaxing, Gg/year; NMVOC – total NMVOC emissions from the category, Gg/year; CC – fraction of carbon content in NMVOC; 44/12 – stoichiometric ratio between carbon contents in carbon dioxide and in non-methane volatile organic compounds.
Reference	* EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.i 'Other Product Use' (according to the nomenclature NFR), SNAP 060409, Table 3-9, page 18. ** National Inventory Report of Hungary for period 1985-2009, Annex A3.3, Table A3-2, p. A39.
Describe How and Why this Method was Chosen	Methodology approaches from EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013 and in the National Inventory Report of Hungary for 1985-2009 were used.

Table 2.2.3.IX: Methodology used to calculate GHG emissions from Category 3D3 "Other Product Use" (Tobacco Combustion)

Equation	*E pollutant = (AR product • EF pollutant technology) / 10^6 Where: E pollutant – emissions of pollutant gas (NOx, CO and NMVOC) resulting from tobacco consumption, Gg/year; AR product – activity rate for tobacco combustion, t/year; EF pollutant – emission factors for pollutant gases (kg/tonne). ** CO_2 emissions = NMVOC • CC • 44/12 Where: CO_2 emissions – emissions of carbon dioxide resulting from tobacco consumption, Gg/year; NMVOC – total NMVOC emissions from the category, Gg/year; CC – fraction of carbon content in NMVOC; 44/12 – stoichiometric ratio between carbon contents in carbon dioxide and in non-methane volatile organic compounds.
Reference	* EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.i 'Other Product Use' (according to the nomenclature NFR), SNAP 060602, Table 3-14, page 21. ** National Inventory Report of Hungary for period 1985-2009, Annex A3.3, Table A3-2, p. A39.
Describe How and Why this Method was Chosen	Methodology approaches from EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013 and in the National Inventory Report of Hungary for 1985-2009 were used.

Table 2.2.3.X: Methodology used to calculate GHG emissions from Category 3D3 "Other Product Use" (Use of N_2O in Anaesthesia)

Equation	E pollutant = (AR product • EF pollutant technology) / 10^6 Where: E pollutant – pollutant gas emissions (N_2O) resulting from use of N_2O in anaesthesia, Gg/year; AR product – activity rate for use of N_2O in anaesthesia, t/an; EF pollutant –pollutant gas emission factor (kg/tonne) (by default, 100% of the N_2O quantity used in anaesthesia is believed to be released in the atmosphere).
Reference	EMEP/EEA Atmospheric Emissions Inventory Guidebook (2013), Source category 2.D.3.i "Other use of solvents" (according to NFR Classificatory), SNAP 0605 (<http://www.eea.europa.eu//publications/emep-eea-guidebook-2013>).
Describe How and Why this Method was Chosen	Methodology approaches from EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013 were used.

2.2.4. Agriculture Sector

Tables 2.2.4.I -2.2.4.VII below describe the methodology used to calculate GHG emissions from different categories in the Agriculture Sector, including the equations used, references to them and justification of their choice.

Table 2.2.4.I: Methodology used to calculate CH_4 emissions from Category 4A "Enteric Fermentation"

Equation	Total emissions of $CH_4 = \sum_i E_i [EF_{(T)} \cdot (N_{(T)} / 10^6)]$ **(Equations 10.19 and 10.20)** Where: Total emissions of CH_4 – methane emissions from enteric fermentation, Gg CH_4 / year; E_i – methane emissions from livestock categories (i). $EF_{(T)}$ – emission factors for the respective livestock category, kg CH_4 / head / year; $N_{(T)}$ – number of livestock heads of category T; T – species of livestock categories.
Reference	2006 IPCC Guidelines, Vol. 4, Chapter 10, p. 10.28.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the most recent 2006 IPCC guidelines.

Table 2.2.4.II: Methodology used to calculate CH_4 emissions from Category 4B "Manure Management"

Equation	CH_4 emissions = $\sum_{(T)} [(EF_{(T)} \cdot N_{(T)}) / 10^6]$ **(Equation 10.22)** Where: CH_4 emissions – methane emissions from manure management, Gg CH_4/year; $EF_{(T)}$ – FE respective livestock population, kg CH_4 /head /year; $N_{(T)}$ – livestock number of category T; T – livestock species or category.
Reference	2006 IPCC Guidelines, Vol. 4, Chapter 10, p. 10.37.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the most recent 2006 IPCC guidelines.

Table 2.2.4.III: Methodology used to calculate N_2O direct emissions from Category 4B "Manure Management "

Equation	$N_2O_{D(mm)} = [\sum_{(S)} [\sum_{(T)} (N_{(T)} \cdot N_{ex(T)} \cdot MS_{(T,S)})] \cdot FE_{3(S)}] \cdot 44/28$ **(Equation 10.25)** Where: $N_2O_{D(mm)}$ – direct N_2O emissions from manure management (kg N_2O/year); $N_{(T)}$ – – livestock number of category T; $N_{ex(T)}$ – annual average excretion of N per livestock head (kg N/head/year); $MS_{(T,S)}$ – fraction of total annual excretion for each category T, managed within system S for manure management; $FE_{3(S)}$ – emission factor for N_2O in manure management system S (kg N_2O-N/kg of N from manure management system S); S – manure management system; T – livestock category; 44/28 – conversion of $(N_2O\text{-}N)_{(mm)}$ emissions in $N_2O_{(mm)}$ emissions. $N_{ex(T)} = N_{rate(T)} \cdot (TAM/1000) \cdot 365$ **(Equation 10.30)** Where: $N_{ex(T)}$ – annual average N excretion per livestock head (kg N/head/year); $N_{rate(T)}$ – default nitrogen excretion rate, kg N/1000 kg of animal's mass / year; $TAM_{(T)}$ – typical weight of an animal of category T, kg / animal.
Reference	2006 IPCC Guidelines, Vol. 4, Chapter 10, pages 10.54 and 10.57.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the most recent 2006 IPCC guidelines.

Table 2.2.4.IV: Methodology used to calculate indirect N_2O emissions (from nitrogen volatilization) from Category 4B "Manure Management "

Equation	$N_2O_{G(mm)} = [\sum_{(S)} [\sum_{(T)} (N_{(T)} \cdot N_{ex(T)} \cdot MS_{(T,S)}) \cdot (Frac_{Gas\ MS}/100)_{(T,S)}] \cdot FE_4 \cdot 44/28$ **(Equations 10.26 and 10.27)** Where: $N_2O_{G(mm)}$ – indirect N_2O emissions from nitrogen volatilisation (kg N_2O/year); $N_{(T)}$ – livestock number of category T; $N_{ex(T)}$ – annual average N excretion per livestock head (kg N/head/year); $MS_{(T,S)}$ – fraction of total annual excretion for each category T, managed within manure management system S; $Frac_{Gas\ MS}$ – nitrogen percentage of livestock manure in livestock category T, lost through soil leaching and runoff, throughout the storage of livestock manure in solid and liquid state (losses vary within 1-20% range); FE_5 – emission factor for N_2O emissions from nitrogen leaching/runoff, the default value used is 0.0075 kg N_2O-N/kg NH_3-N+NO_x-N leached/runoff; S – manure management system; T – livestock category; 44/28 – conversion of $(N_2O\text{-}N)_{(mm)}$ emissions in $N_2O_{(mm)}$ emissions.
Reference	2006 IPCC Guidelines, Vol. 4, Chapter 10, pages 10.54 and 10.56.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the most recent 2006 IPCC guidelines.

Table 2.2.4.V: Methodology used to calculate indirect N_2O emissions (from nitrogen leaching and runoff) from Category 4B "Manure Management"

Equation	$N_2O_{L(mm)} = [\sum_{(S)} [\sum_{(T)} (N_{(T)} \cdot N_{ex(T)} \cdot MS_{(T,S)}) \cdot (Frac_{Leach\ MS}/100)_{(T,S)}] \cdot FE_5 \cdot 44/28$ **(Equations 10.28 and 10.29)** Where: $N_2O_{L(mm)}$ - indirect N_2O emissions from nitrogen leaching and runoff (kg N_2O/year); $N_{(T)}$ – livestock number of category T; $N_{ex(T)}$ - annual average N excretion per livestock head (kg N/head/year); $MS_{(T,S)}$ - fraction of total annual excretion for each category T, managed within manure management system S; $Frac_{Leach\ MS}$ - N percent of livestock manure, which volatilizes in form of NH_3 and NO_x within manure management system S, %; FE_4 – FE for N_2O from atmospheric N deposition in soil and surface water, the default value used is 0.01 kg N_2O-N/kg NH_3-N+NO_x-N volatilised; S – livestock manure management system; T – livestock category; 44/28 - ratio used for conversion of $(N_2O\text{-}N)_{(mm)}$ emissions into $N_2O_{(mm)}$ emissions.
Reference	2006 IPCC Guidelines, Vol. 4, Chapter 10, pages 10.56 and 10.57.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the most recent 2006 IPCC guidelines.

Table 2.2.4.VI: Methodology used to calculate direct emissions of N_2O from Category 4D "Agricultural Soils"

Equation	Direct $N_2O = N_2O_{SN} + N_2O_{ON} + N_2O_{PRP} + N_2O_{CR} + N_2O_{SOM}$ **(Equation 11.1)*** Where: N_2O_{SN} - N_2O emissions from application of nitrogenous chemical fertilizer in soil; N_2O_{ON} - N_2O emissions from application of organic fertilizer in soil; N_2O_{PRP} - N_2O emissions from accumulation of livestock manure during livestock pasturing; N_2O_{CR} - N_2O emissions from returning agricultural crop residue into the soil; N_2O_{SOM} - N_2O emissions from N mineralization due to soil C loss resulting from change of soil management practices (dehumification). $N_2O_{SN} = F_{SN} \cdot EF_1 \cdot 44/28$ **(Equation 11.1)*** Where: F_{SN} – total nitrogen incorporated in soil with nitrogenous chemical fertilizer (kg N/year); EF1 – emission factor, 0.01 kg N2O-N/kg N applied, margin: 0.003-0.03 kg N_2O-N/kg N; [44/28] - stoichiometric ratio between nitrogen contents in N_2O-N and N_2O. $N_2O_{ON} = F_{ON} \cdot EF_1 \cdot 44/28$ **(Equation 11.1)*** Where: F_{ON} - total nitrogen incorporated in soil with organic fertilizer (kg N/year); $F_{ON} = (F_{AM} + F_{SEW} + F_{COMP} + F_{OOA})$ **(Equation 11.3)*** Where: F_{AM} - nitrogen incorporated in soil with livestock manure (kg N/an); F_{SEW} - nitrogen incorporated in soil with mud from treatment of domestic waste (kg N/ year); F_{COMP} - nitrogen incorporated in soil with compost from livestock farms (kg N/ year); F_{OOA} - nitrogen incorporated in soil with other organic waste (kg N/ year); EF_1 – emission factor, 0.01 kg N_2O-N/kg N applied (margin: 0.003-0.03 kg N_2O-N/kg N); [44/28] - stoichiometric ratio between nitrogen contents in N_2O-N and N_2O. $N_2O_{PRP} = F_{PRP} \cdot EF_{3(PRP)} \cdot 44/28$ **(Equation 11.1)*** Where: F_{PRP} - total nitrogen from livestock urine and manure incorporated in soil during livestock pasturing (kg N/year),

	$F_{PRP} = \sum_{(s)} [(N_{(T)} \cdot N_{ex(T)}) \cdot MS_{(T, PRP)}]$ **(Equation 11.5)*** Where: $N_{(T)}$ – livestock number of type T; $N_{ex(T)}$ - N excreted with urine and manure by livestock of type T (kg N /animal /year); $MS_{(T, PRP)}$ – fraction of nitrogen excreted with urine and manure by livestock category (T) during pasturing ; $EF_{3(PRP)}$ – values of default emission factor are 0.02 kg N_2O-N/kg N for cattle, swine and poultry; 0.01 kg N_2O-N/kg N for other livestock categories; [44/28] - stoichiometric ratio between nitrogen contents in N_2O-N and N_2O. $N_2O_{CR} = F_{CR} \cdot EF_1 \cdot 44/28$ **(Equation 11.1)*** Where: F_{CR} - nitrogen content of crop residue which is returned to soil annually, t N/year; EF_1 - default emission factor is 0.01 kg N_2O-N/kg N; [44/28] - stoichiometric ratio between nitrogen contents in N_2O-N and N_2O. $F_{CR} = (Crop_{(T)} \cdot R_{AG(T)} \cdot (1\text{-}Frac_{Remove(T)}) + Crop_{(T)} \cdot R_{BG(T)}) \cdot (P_{CR}/10^2) \cdot (k_6/10^2)$ **(Equation 11.6)*** Where: $Crop_{(T)}$ - annual production of crop T in tonnes of dry matter (d.m.) per hectare, t d.m./ha; $Crop_{(T)} = Yield\ Fresh_{(T)} \times DRY$ **(Equation 11.7)*** $Yield\ Fresh_{(T)}$ - basic yield of crop T, t/ha; DRY - fraction of dry matter (d.m.) in basic yield obtained from crop T, t.d.m./t yield; $R_{AG(T)}$ - ratio between above ground agricultural residues and basic crop yield of crop T, t.d.m.$_{AG}$ /t.d.m); $R_{BG(T)}$ - ratio between below ground agricultural residues and basic crop yield of crop T, t.d.m. $_{BG}$/t.d.m.; $Frac_{Remove(T)}$ - fraction of agricultural residue removed from the field and used for other purposes; P_{CR} - nitrogen content in agricultural plant residues (% d.m.)**; k_6 - factor of using nitrogen from agricultural plant residues**. $N_2O_{SOM} = F_{SOM} \cdot EF_1 \cdot 44/28$ **(Equation 11.1)*** Where: F_{SOM} – total N mineralised due to C losses from mineral soils, upon change of land use and soil management practices (t N/year); EF_1 – emission factor, 0.01 kg N_2O-N/kg N applied (margin: 0.003-0.03 kg N_2O-N/kg N); [44/28] - stoichiometric ratio between nitrogen contents in N_2O-N and N_2O. $F_{SOM} = \sum [(\Delta C_{mineral} \cdot 1/R)]$ **(Equation 11.8)*** Where: R – ratio between carbon and nitrogen in organic matter (humus) of soil (R = C : N), the default value is 10 (margin: 8-15); according to national reference related to soils of the country, the ratio between carbon and nitrogen in humus is 10.7 (margin: 10.1-11.3)**; ΔC mineral – annual loss of carbon from mineral soils (t C/year).
Reference	* 2006 IPCC Guidelines, Vol. 4, Chapter 11, pages 11.7 and 11.10. ** Banaru, A. (2000), Methodology to calculate CO_2 Emissions from Agriculture Soils (in Romanian). Collection of articles 'Climate change: Researches, studies, solutions', Ministry of the Environment / UNDP Moldova. „Bons Offices", Chisinau, 2000. p. 115-123.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the most recent 2006 IPCC guidelines. Additionally, there were used some elements of the "Methodology to calculate CO_2 Emissions from Agriculture Soils" (Banaru, 2000), which is equivalent to a Tier 3 calculation methodology (the method is focused on determining the carbon balance in the worked cropland of the Republic of Moldova).

Table 2.2.4.VII: Methodology used to calculate indirect N_2O emissions from Category 4D "Agricultural Soils"

Equation	$N_2O_{(ATD)} = \{(F_{SN} \bullet Frac_{GASF}) + ((F_{ON} + F_{PRP}) \bullet Frac_{GASM})\} \bullet EF_4 \bullet 44/28$ **(Equation 11.9)** Where: $N_2O_{(ATD)}$ - indirect N_2O emissions from nitrogen volatilisation (t N_2O/year); F_{SN} – quantity of nitrogen incorporated in soil with nitrogenous chemical fertilizer (t N/year); $Frac_{GASF}$ – nitrogen fraction of nitrogenous chemical fertilizer which is volatilized into NH_3 and NO_x (the default value is 0.1 t NH_3-N + NO_x-N/t N from applied nitrogenous chemical fertilizer) (margin: 0.03-0.3 t NH_3-N + NO_x-N/t N of applied nitrogenous chemical fertilizer); F_{ON} - nitrogen incorporated in soil with organic fertilizer (t N/year); F_{PRP} - nitrogen incorporated in soil with livestock urine and manure during livestock grazing (t N/year); $Frac_{GASM}$ - nitrogen fraction of livestock manure which is volatilized into NH_3 and NO_x (the default value is 0.2 t NH_3-N + NO_x-N/t N of livestock manure), (margin: 0.05-0.5 t NH_3-N + NO_x-N/t N of livestock manure); EF_4 - N_2O emission factor from atmospheric depositions of nitrogen in soil and water systems (the default value is - 0.01 t N_2O-N/t per t NH_4-N şi NO_x-N released), (margin 0.002-0.05 t N_2O-N/t per t NH_4-N şi NO_x-N released); [44/28] - stoichiometric ratio between nitrogen contents in N_2O-N and N_2O.
Equation	$N_2O_{(L)} = \{(F_{SN} + F_{ON} + F_{PRP} + F_{CR} + F_{SOM}) \bullet Frac_{LEACH-(H)}\} \bullet EF_5 \bullet 44/28$ **(Equation 11.10)** Where: $N_2O_{(L)}$ - indirect N_2O emissions from nitrogen leaching and runoff (t N_2O/year); F_{SN} – nitrogen incorporated into soil with nitrogenous chemical fertilizer (t N/year); F_{ON} - nitrogen incorporated in soil with organic fertilizer (t N/year); F_{PRP} - nitrogen incorporated in soil with livestock urine and manure during livestock grazing (t N/year); F_{CR} – total nitrogen returned to soil with agricultural residues (t N/year); F_{SOM} - total nitrogen mineralized due to carbon loss from agricultural soils (t N/year); $Frac_{LEACH}$ – nitrogen fraction of soil, which is lost due to leaching and runoff (the default value is 0.3 kg N / kg N applied (margin: 0.1-0.8 t N/t N applied with nitrogenous chemical fertilizer and organic fertilizer); EF_5 - N_2O emission factor for soil nitrogen subjected to leaching and runoff (the default value used is 0.0075 t N_2O-N/t N), (margin: 0.0005-0.025 t N_2O-N/t N of soil subjected to leaching and runoff). [44/28] - stoichiometric ratio between nitrogen contents in N_2O-N and N_2O.
Reference	2006 IPCC Guidelines, Vol. 4, Chapter 11, pages 11.21-11.22.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the most recent 2006 IPCC guidelines

2.2.5. Land Use, Land-Use Change and Forestry Sector

The assessment of emissions/removals from LULUCF Sector from each category is done using methodologies described in IPCC GPG for LULUCF (IPCC, 2003) and in 2006 IPCC Guidelines (IPCC, 2006), as well as in other available methodological materials:

- Standards / technical regulations related to management of forests and other types of forest vegetation;
- Specialized reports and studies which are either published or / and close to completion.

Tables 2.2.5.I -2.2.5.V describe the methodologies used to calculate GHG emissions/removals from different categories within LULUCF Sector, including equations used, references to them and justification of their choice.

Table 2.2.5.I: Methodology used to calculate GHG emissions/sequestration from Category 5A "Forest Land"

Equation	$\Delta_{CFFG} = A \cdot G_{total} \cdot CF$ **(Equation 2.1)***

Where:

Δ_{CFFG} - annual increases in carbon sinks of forests (in the stem, branches, foliage, roots);
A - area of forest remaining forests;
G_{total} - annual increases in aboveground and underground biomass (t constant mass (CM) / year / ha);

$$G_{total} = G_w \cdot (1+R) \quad \textbf{(Equation 2.2)*}$$

Where:

R - root-to-shoot ratio appropriate to increments, dimensionless;
G_w - average annual aboveground biomass increment (t CM/year/ha);

$$G_w = I_v \cdot D \cdot BEF_I \quad \textbf{(Equation 2.3)*}$$

Where:

I_v – average annual net increment in volume suitable for industrial processing, m3/ha/yr;
D – basic wood density, t.d.m./m^3;
BEF_I – biomass expansion factor for conversion of annual net increment to aboveground tree biomass increment, dimensionless;
CF – carbon fraction of dry matter

$$\Delta C_{FFL} = L_{fellings} + L_{fuel\ wood} + L_{other\ losses} \quad \textbf{(Equation 2.4)*}$$

Where:

ΔC_{FFL} - annual decrease in sinks volume as a result of biomass loss (through authorized and illegal forest logging);
$L_{fellings}$ - annual loss of biomass due to work timber harvesting;
$L_{fuelwood}$ - annual biomass loss due to firewood harvesting;
$L_{other\ losses}$ - other biomass loss (pests and diseases, natural disasters, drying, etc.);

$$L_{fellings} = H \cdot D \cdot BEF_{II} \cdot (1-f_{BL}) \cdot CF \quad \textbf{(Equation 2.5)*}$$

Where:

H – annually extracted volume, round wood, m^3;
D – basic wood density, t.d.m./m^3;
BEF_{II} – biomass expansion factor for converting volumes of extracted round wood to total aboveground biomass, dimensionless;
f_{BL} – fraction of biomass left to decay in forest (transferred to dead organic matter);

$$L_{fuel\ wood} = FG \cdot D \cdot BEF_{II} \cdot CF \quad \textbf{(Equation 2.6)*}$$

Where:

FG – annual volume of fuel wood gathering, m^3;

$$P = L \cdot (X / 100) \quad \textbf{(Equation 2.7)**}$$

Where:

P – loss from current increment volume;
X – extent of the canopy damage;
L – empirical coefficient calculated by phonological group;

$$L_{fire} = A \cdot MB \cdot C_f \cdot G_{ef} \cdot 10^{-3} \quad \textbf{(Equation 2.27)***}$$

Where:

L_{fire} – amount of non-CO_2 greenhouse gas emissions from fire, t GHG/yr;
A – area burnt, ha/yr;
MB – mass of fuel available for combustion (biomass, ground litter and dead wood), t/ha;
C_f – combustion factor; IPCC default value is 0.45 (IPCC, 2006, vol. 4, Ch. 2, Tab. 2.6, p. 2.48);
$MB \cdot C_f$ – amount of fuel actually burnt; IPCC default for 'Other temperate forests' under wildfire is 19.8 t.d.m./ha (IPCC, 2006, vol. 4, Ch. 2, Tab. 2.4, p. 2.45-2.46);
G_{ef} – default EF (kg/t.d.m.) (IPCC, 2006, vol. 4, Ch. 2, Tab. 2.4, p. 2.45-2.46).

Reference	* Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC, 2003), Vol. 3, Chapter 2, pages 3.23-3.28. ** Annex 4 to the Order of the Federal Forestry Agency dated 29.12.2007 No. 523, "Technical guidance on localization and liquidations of pest outbreaks" (in Russian). *** 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 2, pages 2.16-2.20 and 2.51.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the most recent Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC, 2003) and 2006 IPCC Guidelines for National Greenhouse Gas Inventories (IPCC, 2006).

Table 2.2.5.II: Methodology used to calculate GHG emissions/removals from 5B "Cropland" (5B1.1 Cropland Covered with Woody Vegetation)

Equation	$\Delta C_{CC_{LB}} = A \bullet (G + L)$ Where: A – worked cropland area covered with multiannual tree biomass; G - annual increase in biomass of perennial tree plantations (tC/year/ha); L - annual volume of harvested biomass (tC / year / ha).
Reference	* Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC, 2003), Vol. 3, Chapter 3, pages 3.77-3.80. ** 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 2.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the most recent Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC, 2003) and 2006 IPCC Guidelines for National Greenhouse Gas Inventories (IPCC, 2006).

Table 2.2.5.III: Methodology used to calculate GHG emissions/removals from 5B "Cropland" (5B1.1 Annual Change in Carbon Stocks in Mineral Soils)

Equation	CO_2 soils $= \pm B_C \bullet 44/12$ * Where: CO_2 soils - CO_2 emissions from mineral soil carbon losses due to changes in agricultural land use and soil management practices (Gg / year); $\pm B_C$ - carbon balance in arable soils (thousand tons C / year); [44/12] - stoichiometric ratio between carbon contents in CO_2 and C. $L_{fire} = A \bullet MB \bullet C_f \bullet G_{ef} \bullet 10^{-3}$ **(Equation 2.27)**** Where: L_{fire} – amount of non-CO_2 greenhouse gas emissions from vegetation fires (field burning of crop residues or stubble fields burning), t/yr; A – area burnt, ha/yr; MB – mass of fuel available for combustion, t/ha; C_f – combustion factor; IPCC default value is 0.90 (IPCC, 2006, vol. 4, Ch. 2, Tab. 2.6, p. 2.49); $MB \bullet C_f$ – amount of fuel actually burnt; default for 'Crop Residues" (post-harvest field burning), in particular, for wheat and barley residues, which are more frequently burned in the Republic of Moldova, is 4 t.d.m./ha (IPCC, 2006, vol. 4, Ch. 2, Tab. 2.4, p. 2.46); G_{ef} – default EF (kg/t.d.m.)
Reference	* Banaru, A. (2000), Methodology to calculate CO_2 Emissions from Agriculture Soils (in Romanian). Collection of articles 'Climate change: Researches, studies, solutions', Ministry of the Environment / UNDP Moldova. „Bons Offices", Chisinau, 2000. p. 115-123. ** 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 2, page 2.42.
Describe How and Why this Method was Chosen	The "Methodology to calculate CO_2 Emissions from Agriculture Soils" (Banaru, 2000) was used, which is equivalent to a Tier 3 calculation methodology (method focused on determining the carbon balance in the worked cropland of the Republic of Moldova).

Table 2.2.5.IV: Methodology used to calculate GHG emissions/removals from 5C "Grassland" (5C1 Grassland Remaining Grassland)

Equation	$$\Delta C_{GG_{LB}} = (\Delta B_{perennial} + \Delta B_{grasses}) \cdot C_F$$ Where: $\Delta B_{perennial}$ – change in above and belowground perennial woody biomass (in case of the RM, the respective areas were included under category 5B1 'Cropland Remaining Cropland'), t.d.m./ha/yr; C_F – carbon fraction of dry matter (0.5); $\Delta B_{grasses}$ – change in belowground biomass of grasses, t.d.m./ha/yr: $$\Delta B_{grasses} = A_{grasses} \cdot (G_{grasses} - L_{grasses})$$ Where: $A_{grasses}$ – area of grasslands covered with grasses, thousand ha; $G_{grasses}$ – average annual biomass growth of grasses, t.d.m./ha/yr; $L_{grasses}$ – average annual biomass loss of grasses, t.d.m./ha/yr.
Reference	Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC, 2003), Vol. 3, Chapter 4, pages 3.115-3.117.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the most recent Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC, 2003).

Table 2.2.5.V: Methodology used to calculate GHG emissions/removals from Category 5C "Grassland" (5C2 Land Converted to Grassland)

Equation	$$\Delta C_{LG_{LB}} = A \cdot (L_{Conversion} + \Delta C_{Growth})$$ Where: A – area of lands converted to grasslands from some initial use, ha/yr; $L_{Conversion}$ – carbon stock change per area for that type of conversion, when land is converted to grassland (t C/ha/yr). $$L_{Conversion} = C_{After} - C_{Before}$$ Where: C_{After} – C stocks in biomass immediately after conversion to grassland, t C/ha; C_{Before} – C stocks in biomass immediately before conversion to grassland, t C/ha; ΔC_{Growth} – C stocks from one year of growth of grassland vegetation after conversion (t C/ha/yr).
Reference	Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC, 2003), Vol. 3, Chapter 4, pages 3.133-3.135.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in the most recent Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC, 2003).

2.2.6. Waste Sector

Tables 2.2.6.I -2.2.6.III below describe the methodology used to calculate GHG emissions from different categories within Waste Sector, including the applied equations, references to them and justification of their choice

Table 2.2.6.I: Methodology used to calculate CH_4 emissions from Category 6A "Solid Waste Disposal on Land"

Equation	$$\text{Emissions } CH_4 = \sum_x [(A \cdot k \cdot MSW_T(x) \cdot MSW_F(x) \cdot L_o(x)) \cdot e^{-k(t-k)}]$$ **(Equation 5.1)** Where: CH_4 – amount of methane generated in year t, Gg/yr; $\sum_x$ – amount of methane generated over a period of years x; t – years of inventory; x – years for which input data should be added; A – $(1-e^{-k})/k$; normalization factor which corrects the summation; k – methane generation rate constant, 1/yr; $MSW_T(x)$ – total MSW generated in year t, Gg/an; $MSW_F(x)$ – fraction of MSW disposed at solid waste disposal sites in year x; $L_o(x)$ – methane generation potential, Gg CH_4/Gg MSW. $$L_o = [MCF \cdot DOC \cdot DOC_F \cdot F \cdot 16/12]$$ Where: MCF (x) – methane correction factor in year x (fraction); DOC – degradable organic carbon (DOC) in year x (fraction), Gg C/Gg waste; DOC_F – fraction DOC dissimilated; F – fraction of CH4 in landfill gas; 16/12 – conversion from C to CH_4. $$DOC = (0.4 \cdot A) + (0.17 \cdot B) + (0.15 \cdot C) + (0.3 \cdot D)$$ **(Equation 5.4)** Where: A – fraction of MSW that is paper and textiles (default value - 40 per cent DOC by weight); B – fraction of MSW that is garden waste, park waste or other non-food organic putrescible (default value - 17 per cent DOC by weight), C – fraction of MSW that is food waste (default value - 15 per cent DOC by weight); D – fraction of MSW that is wood or straw (default value - 30 per cent DOC by weight). $$\text{Total } CH_4 \text{ emissions} = [\text{Emissions } CH_4 \ t - R(t)] \cdot (1 - OX)$$ **(Equation 5.2)** Where: R(t) – methane emissions recovered in year t; OX – oxidation factor (fraction).
Reference	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000), Chapter 5, pages 5.6-5.7.
Describe How and Why this Method was Chosen	There were used methodologies and approaches which are available in IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000).

Table 2.2.6.II: Methodology used to calculate CH_4 emissions from Category 6B "Wastewater Handling"

Equation	$$TM = WM + SM$$ **(Equation 14)** Where: TM – total methane emissions from wastewater and sludge treatment, kg CH_4; WM - methane emissions from wastewater treatment, kg CH_4; SM - methane emissions from sludge treatment, kg CH_4. $$SM = \sum_j (TOS_j \cdot EF_j - MR_j)$$ **(Equation 13)** Where: TOS_j - total amount of organic waste in sludge of type j in kg DC/ year (for sludge from domestic wastewater DC is equivalent to BOD, while for sludge from industrial wastewater, it is equivalent to COD); EF_j - emission factor for sludge of type j (for example, sludge originating from industrial wastewater treatment, sewage treatment, etc.), kg CH_4/kg DC; MR_j - amount of methane recovered or flared from sludge of type j in kg CH_4. If no data are available, the default value to be used is zero.

	$WM = \sum_i (TOW_i \cdot EF_i - MR_i)$ **(Equation 12)** Where: TOW_i - total amount of organic waste in wastewater of type i in kg / DC year (for domestic wastewater, DC is equivalent to BOD, while for industrial wastewater DC is equivalent to COD); EF_i - emission factor for wastewater of type i (for example, wastewater from industrial water treatment, sewage treatment, etc.), kg CH_4/kg DC; MR_i - amount of methane recovered or flared from wastewater of type i, in kg CH_4. If no data are available, the default value used is zero. $EF_j = B_{oj} \cdot \sum(SS_{jy} \cdot MCF_y)$ **(Equation 11)** Where: B_{oj} - maximum methane generation capacity (kg CH_4/kg DC) for sludge of type j; SS_{jy} – fraction of sludge type j treated using sludge management system of type y. MCF_y - methane conversion factor for each type of sludge management system y. $EF_i = B_{oi} \cdot \sum(WS_{ix} \cdot MCF_x)$ **(Equation 10)** Where: B_{oi} - maximum methane producing capacity (kg CH_4/kg DC) for wastewater of type i WS_{ix} – fraction of type i wastewater treated using a wastewater management system of type x. MCF_x - methane conversion factor for each type of wastewater management system x. $TOS_{ind} = W \cdot O \cdot D_{ind} \cdot DS_{ind}$ (Equation 9) and $TOW_{ind} = W \cdot O \cdot D_{ind} \cdot (1 - DS_{ind})$ **(Equation 8)** Where: TOW_{ind} – total industrial organic wastewater, kg COD_5/year ; TOS_{ind} – total industrial organic sludge, kg COD_5/year; O – total annual industrial output, t /year; W_{ind} – amount of wastewater consumed, m3/t of industrial output; D_{ind} – industrial degradable organic component, kg COD_5/m^3; DS – fraction of organic component removed as sludge. $P_{EQ} = TOW_{ind} / B / D$ Where: B – organic load in chemical oxygen demand per person, g COD/person/day, overall default – 60 g COD/person/day (IPCC, 2000); in the RM a country specific value was used: 75 g COD/person/day (SNIP 2.04.03.85); D – number of days in a calendar year (365 days in normal years and 366 days in leap years: 1992, 1996, 2000, 2004, 2008, 2012). $TOS_{dom} = P \cdot D_{dom} \cdot DS_{dom}$ **(Equation 7)** and $TOW_{dom} = W \cdot D_{dom} \cdot (1 - DS_{dom})$ **(Equation 6)** Where: TOW_{dom} – total domestic organic wastewater, kg BOD_5/year; TOS_{dom} – total domestic organic sludge, kg BOD_5/year; P – fictitious country population connected to sewage system: which is the actual number of country population connected to sewage systems (PWS), plus population equivalent number (P_{eq}), calculated under the 6B1 'Industrial Wastewater', in 1000 persons/year; D_{dom} – domestic degradable organic component, kg BOD/1000 persons/year; DS_{dom} – fraction of domestic degradable organic component removed as sludge.
Reference	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Chapter 6, pages 6.13-6.27. GPG IPCC 2000, Chapter 5, pages 5.14-5.24.
Describe How and Why this Method was Chosen	Approaches available in the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories were used, as complimented by approaches available in GPG IPCC 2000, specifically the ones related to emission factors.

Table 2.2.6.III: Methodology used to calculate N_2O emissions from Category 6B "Wastewater Handling"

Equation	N_2O emissions = PROTEIN • $Frac_{NPR}$ • NR_{PEOPLE} • EF_6 • 44/28 **(Equation 15)** Where: N_2O emissions - N_2O emissions from human waste sludge, kg N_2O/year PROTEIN - protein consumption per capita, kg / head / year; NR_{PEOPLE} - number of inhabitants in the Republic of Moldova; EF_6 - emission factor, default value used is 0.01 kg N_2O-N / kg N sludge; $Frac_{NPR}$ – nitrogen fraction in protein, default value used is 0.16 kg N/ kg protein. [44/28] - stoichiometric ratio between nitrogen contents in N_2O-N and N_2O.
Reference	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Chapter 6, page 6.28.
Describe How and Why this Method was Chosen	Approaches available in the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories were used.

2.3. Activity Data

2.3.1. Sector Energy

The Tables 2.3.1.I-2.3.1.VIII provide activity data used to calculate GHG emissions by using above described assessment methodologies. The information provided in the tables contributes to a better understanding of the general quality of activity data selected for assessing GHG emissions from categories considered within Energy Sector.

Table 2.3.1.I: Activity data for Category 1A1 "Energy Industries"

Type of Activity Data	Activity Data Units	Years	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Total number of industrial enterprises and production units, by ownership, in the "Electricity, Heat, Natural Gas and Water" sector	Units	2007-2013	National Inventory Report: 1990-2013. Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Tables 3-14 and 3-15.	January 2015. Vitalii Postolati	Adequate	Yes	Non Applicable
Electricity generation at Moldovan Thermal Power Plant in Dnestrovsc	million kWh	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-16.	January 2015. Vitalii Postolati	Adequate	Yes	Non Applicable
Electricity generation in ATULBD	million kWh	1995-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-17.	January 2015. Vitalii Postolati	Adequate	Yes	Non Applicable
Electricity Generation, Import and Consumption on the Right Bank of Dniester River	million kWh	2001-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-18.	January 2015. Vitalii Postolati	Adequate	Yes	Non Applicable
Fuel Consumption, Electricity and Heat Generation from the Combined Heat and Power Plants in the RM	Thou tons, mil. m^3, mil. kWh, thou. Gcal	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-19.	January 2015. Vitalii Postolati	Adequate	Yes	Non Applicable

Type of Activity Data	Activity Data Units	Years	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Public Heat Plants in Operation on the right bank of Dniester River	units	1993-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-20.	January 2015. Vitalii Postolati	Adequate	Yes	Non Applicable
Heat Generation on the Right Bank of Dniester River	thou Gcal	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-21.	January 2015. Vitalii Postolati	Adequate	Yes	Non Applicable
Heat Generation in the Republic of Moldova	thou Gcal	1996-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-22.	January 2015. Vitalii Postolati	Adequate	Yes	Non Applicable
Fuel Consumption for Electricity and Heat Generation in the Republic of Moldova	thousand tons / mil.m^3	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-29.	January 2015. Vitalii Postolati	Adequate	Yes	Non Applicable

Table 2.3.1.II: Activity data for Category 1A2 "Manufacturing Industries and Construction"

Type of Activity Data	Activity Data Units	Years	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Fuel Consumption with Energy Purposes within the 1A2 'Manufacturing Industries and Construction'	thousand tonnes / mil.m^3	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-37.	January 2015. Larisa Morari	Adequate	Yes	Non Applicable

Table 2.3.1.III: Activity data for Category 1A3 "Transport"

Type of Activity Data	Activity Data Units	Years	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Air Transport Means Existing by the end of the year	units	1996-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-39.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Road Transportation Means Existent by the end of the year in the RM (RBDR – Right Bank of Dniester River)	units	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-42.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Length and Density of Road Communication Lines by the end of the year in the RM (RBDR) per 1000 km^2	km, km / 1000 km^2	1996-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-43.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable

Type of Activity Data	Activity Data Units	Years	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Road Transportation Means Existent by the end of the year in the RM (LBDR – Left Bank of Dniester River)	units	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-44.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Length and Density of Road Communication Lines by the end of the year in the RM (LBDR) per 1000 km^2	km, km / 1000 km^2	1996-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-45.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Total Road Transportation Means in the Republic of Moldova by the end of the year	units	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-46.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Road Transportation Means in the Republic of Moldova by the end of the year	Units, Share in perc ent (%)	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-47.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
The Structure of Rolling Stock registered in the RM, as share of total number of road transportation means	share in percent (%)	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-48.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Length (km) and Density (km per 1000 km^2) of Railways by the end of the year in the Republic of Moldova	km, km per 1000 km^2	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-49.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Railway Transport Means Existent by the end of the year in the Republic of Moldova	units	1990-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-50.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
River Transport Means Existent by the end of the year on the Right Bank of Dniester River	units	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-51.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
River Transport Means Existent by the end of the year on the Left Bank of Dniester River	units	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-52.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Natural Gas Transportation and Distribution Networks in the RM (situation as of 01.01.2006, 01.01.2011 and 01.01.2015)	km, mm and kg f/cm^2	As of 01.01.2006, 01.01.2011, 01.01.2015	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-53.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable

Type of Activity Data	Activity Data Units	Years	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Implementation of Production Capacities - Natural Gas Pipelines in the Republic of Moldova	km/an	1995-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-54.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Volume of Natural Gas Transited towards the Balkans and Sold in the Republic of Moldova	billion m^3, million m^3	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-55.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Activity Data used for GHG Emissions Assessment within 1A3a 'Civil Aviation' in the Republic of Moldova	tonnes	2001-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-62.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Diesel Oil Consumption under the 1A3b 'Road Transportation' in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-65.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Gasoline Consumption under the 1A3b 'Road Transportation' in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-66.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Liquefied Petroleum Gases and Liquefied Natural Gases Consumption under the 1A3b 'Road Transportation' in the RM	thousand tonnes, million m^3	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-67.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Diesel Oil Consumption under the 1A3c 'Railways' in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-69.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
The Use of Other Fossil Fuels by the "Moldavian Railways" SOE	thousand tonnes, mil. m^3	2000-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-70.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Diesel Oil Consumption under the 1A3d 'Navigation' in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-72.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Natural Gas Consumption under the 1A3e 'Pipeline Transportation' in the Republic of Moldova	million m^3	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-73.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable

Table 2.3.1.IV: Activity data for Category 1A4 "Other Sectors"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Commercial Sector Contribution to the Republic of Moldova's GDP	%	2000-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-80.	January 2015. Tatiana Kirillova	Adequate	Yes	Non Applicable
Number of commercial entities in the Republic of Moldova	units	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-81.	January 2015. Tatiana Kirillova	Adequate	Yes	Non Applicable
Number of institutional entities in the Republic of Moldova	units	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-82.	January 2015. Tatiana Kirillova	Adequate	Yes	Non Applicable
Dwelling Stock in the Republic of Moldova	million m^2	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-83.	January 2015. Tatiana Kirillova	Adequate	Yes	Non Applicable
Contribution of Agriculture / Forestry / Fishing to GDP in the Republic of Moldova	%	2000-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-84.	January 2015. Tatiana Kirillova	Adequate	Yes	Non Applicable
Fuel Consumption under the 1A4a 'Commercial/Institutional' in the Republic of Moldova	thousand tonnes, million m^3	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-92.	January 2015. Tatiana Kirillova	Adequate	Yes	Non Applicable
Fuel Consumption under the 1A4a 'Commercial/Institutional' Source Category in the ATULBD	million m^3	1999-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-93.	January 2015. Tatiana Kirillova	Adequate	Yes	Non Applicable
Fuel Consumption under the 1A4b 'Residential'	thousand tonnes, million m^3	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-95.	January 2015. Tatiana Kirillova	Adequate	Yes	Non Applicable
Fuel Consumption under the 1A4b 'Residential' for ATULBD	mil. kWh	1995-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-96.	January 2015. Tatiana Kirillova	Adequate	Yes	Non Applicable

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Fuel Consumption under the 1A4c 'Agriculture / Forestry / Fishing' Source Category on the RBDR	thousand tonnes, mil. m^3	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-98.	January 2015. Tatiana Kirillova	Adequate	Yes	Non Applicable
Fuel Consumption under the 1A4c 'Agriculture / Forestry / Fishing' Source Category on the LBDR	thousand tonnes, mil. m^3	1995-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-99.	January 2015. Tatiana Kirillova	Adequate	Yes	Non Applicable

Table 2.3.1.V: Activity data for Category 1A5 "Other"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Fuel Consumption under the 1A5 'Other' Category	thousand tonnes, mil. m^3	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-108.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable

Table 2.3.1.VI: Activity data for Category 1B2 "Fugitive Emissions from Oil and Natural Gas"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Oil Extraction in the Republic of Moldova	thousand tonnes	2003-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-110.	January 2015. Serghei Burtev	Adequate	Yes	Non Applicable
Liquefied Petroleum Gases Imports in the Republic of Moldova	thousand tonnes	2002-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-111.	January 2015. Serghei Burtev	Adequate	Yes	Non Applicable
Liquefied Petroleum Gases Consumption in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-112.	January 2015. Serghei Burtev	Adequate	Yes	Non Applicable
Activity data used to estimate GHG Emissions originated from 1B2 'Fugitive Emissions from Oil and Natural Gas' in the RM	thousand tonnes, thou.m^3, mil. m^3, TJ	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-116.	January 2015. Serghei Burtev	Adequate	Yes	Non Applicable

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Natural Gas Transited, Imported and Consumed in the Republic of Moldova	mil. m^3, billion m^3	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-117.	January 2015. Serghei Burtev	Adequate	Yes	Non Applicable

Table 2.3.1.VII: Activity data for Category "Memo Items: International Bunkers – International Aviation"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Number of international flights operated by aircrafts from the Republic of Moldova	Number of flights	1995-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-125.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Share of international flights made in the Republic of Moldova with aircrafts produced in CIS and Western countries	% of total	1995-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-126.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable
Kerosene Consumption for International Aviation in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-127.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable

Table 2.3.1.VIII: Activity data for Category "CO_2 Emissions from Biomass"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Biomass Consumption in the Republic of Moldova	thou. m^3 comp., thou.toe, TJ	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-130.	January 2015. Elena Bicova	Adequate	Yes	Non Applicable

2.3.2. Industrial Processes Sector

The Tables 2.3.2.I-2.3.2.XVII provide activity data used to calculate GHG emissions by applying above described assessment methodologies. Information provided in these tables contributes to a better understanding of the general quality of activity data selected for assessment of GHG emissions for categories considered in the Industrial Processes Sector.

Table 2.3.2.I: Activity data for Category 2A1 "Cement Production"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity Data on Cement and Clinker Production in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-12.	January 2015. Vladimir Brega	Adequate	Yes	It was not carried out

Table 2.3.2.II: Activity data for Category 2A2 "Lime Production"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity data on lime production in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-15.	January 2015. Vladimir Brega	Adequate	Yes	It was not carried out
Lime import into the Republic of Moldova (RBDR)	thousand tonnes	1995-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-16.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable
Activity Data on Hydrated Lime Production	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-17.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable

Table 2.3.2.III: Activity data for Category 2A3 "Limestone and Dolomite Use"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity data on limestone and dolomite use in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-18.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable

Table 2.3.2.IV: Activity data for Category 2A4 "Soda Ash Use"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity data on soda ash use in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-19.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable

Table 2.3.2.V: Activity data for Category 2A5 "Asphalt Roofing Production"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity data on asphalt roofing production in the Republic of Moldova	thousand tonnes	2003-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-20.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable

Table 2.3.2.VI: Activity data for Category 2A6 "Road Paving with Asphalt"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity data on road paving with asphalt in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-22.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable

Table 2.3.2.VII: Activity data for Category 2A7 "Other" (Glass Production)

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity data on flat glass production	thousand m^2	1985-1992	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-24.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable
Activity data on production of glassware for wine industry	million 0.7 litre equivalent bottles	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-25.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable
Activity data on production of glassware for canning industry	million 0.5 litre equivalent glass jars	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-26.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable

Table 2.3.2.VIII: Activity data for Category 2A7 "Other" (Mineral Wool Production)

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity data on mineral wool production	thousand m^3	1990-2002	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-28.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable

Table 2.3.2.IX: Activity data for Category 2A7 "Other" (Bricks and Expanded Clay Production)

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity data on bricks production	million convent. bricks	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-31.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable
Activity data on amount of clay used for brick production	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-32.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable
Activity data on amount of clay used for expanded clay production	tonnes	2001-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-33.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable

Table 2.3.2.X: Activity data for Category 2B5 "Other"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity data on polyethylene production	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-47.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable
Activity data on ABS resins production	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-49.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable
Activity data on detergents production	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-51.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable

Table 2.3.2.XI: Activity data for Category 2C1 "Iron and Steel Production"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity data on steel production	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-55.	January 2015. Vladimir Brega	Adequate	Yes	It was not carried out
Activity data on rolling mills production	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-56.	January 2015. Vladimir Brega	Adequate	Yes	It was not carried out
Activity data on steel production at the Metal Integrated Works in Ribnita	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-57.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable

Table 2.3.2.XII: Activity data for Category 2D "Other Production" (2D2 Food and Drink)

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity data on production of bread and other food products	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-64.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable
Activity data on production of alcoholic beverages	thousand hl	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-66.	January 2015. Vladimir Brega	Adequate	Yes	Non Applicable

Table 2.3.2.XIII: Activity data for Category 2F1 "Refrigeration and Air Conditioning Equipment"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Breakdown of Different Refrigerants Incorporated in Refrigeration and Air Conditioning Equipment Imported in the RM	%	1995-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-71.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Activity Data on Refrigeration and Air Conditioning Equipment Imported in the Republic of Moldova	units	1995-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-75.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Activity Data on Imported HFCs Charged into 'Refrigeration and Air Conditioning Equipment' in the Republic of Moldova	tonnes	1995-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-76.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Number of Transportation Units Registered in the Republic of Moldova between 1996 and 2013 (standing for the end of the calendar year)	units	1996-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-79.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Transportation Units Charged with Air Conditioning Equipment in the RM between 1996 and 2013 (by the end of calendar year)	units	1996-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-80.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Transportation Units Charged with Air Conditioning Equipment in the RM between 1996 and 2013 (by the end of calendar year)	% of total	1996-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-81.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Activity Data on the Annual Import of HFC-134a Charged into the Air Conditioning Equipment of Transportation Units in the RM	tonnes	1996-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-82.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity Data on Import of HFC in Bulk in the Republic of Moldova	tonnes	1996-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-84.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable

Table 2.3.2.XIV: Activity data for Category 2F2 "Foam Blowing"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Imported Foam Blowing products in the Republic of Moldova	tonnes	1995-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-86.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Share of HFC-134a-based Foam Blowing Products in Total Imports in the Republic of Moldova	%	1995-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-87.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Activity Data on Import of HFC-134a Charged into the Foam Blowing Products in the Republic of Moldova	tonnes	1995-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-88.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable

Table 2.3.2.XV: Activity data for Category 2F3 "Fire Extinguishers"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Import of Carbon Dioxide Based Portable Fire Extinguishers in the Republic of Moldova	Units	2000-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-72.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable

Table 2.3.2.XVI: Activity data for Category 2F4 "Aerosols" (Metered Dose Aerosols)

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Import of Metered Dose Inhalers Using HFC-134a as Propellant in the Republic of Moldova	vials	2003-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-90.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Activity Data on HFC-134a Incorporated in Metered Dose Aerosols Imported in the Republic of Moldova	kg	2000-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-91.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable

Table 2.3.2.XVII: Activity data for Category 2F8 "Electrical Equipment"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
The dynamic of high-tension electrical circuit breakers installation process using SF_6 and CF_4	units installed annually	2003-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-92.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Total high-tension electrical circuit breakers available in bulk at the end of calendar year	units	2003-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-93.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Total amount of insulating gas - SF_6 available in bulk, charged in the high-tension electrical circuit breakers in the RM	kg	2003-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-94.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Total amount of insulating gas - CF_4 available in bulk, charged in the high-tension electrical circuit breakers in the RM	kg	2003-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-95.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable

2.3.3. Solvents and Other Products Use Sector

The Tables 2.3.3.I-2.3.3.IV provide activity data used to calculate GHG emissions by applying above described assessment methodologies. Information provided in these tables contributes to a better understanding of the general quality of activity data selected for assessment of GHG emissions for categories considered in the Solvents and Other Products Use Sector.

Table 2.3.3.I: Activity data for Category 3A "Paint Application"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity data on production of varnishes and paints in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 5, Table 5-14.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Activity data on import of varnishes and paints in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 5, Table 5-15.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Activity data on consumption of varnishes and paints in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 5, Table 5-16.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable

Table 2.3.3.II: Activity data for Category 3B "Degreasing and Dry Cleaning"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity Data on Consumption of Solvents Used in Degreasing and Dry Cleaning in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 5, Table 5-23.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable

Table 2.3.3.III: Activity data for Category 3C "Chemical Products, Manufacture and Processing"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity Data on Manufacturing Industrial Commodities in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 5, Table 5-31.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable

Table 2.3.3.IV: Activity data for Category 3D "Other Solvent Use"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity data on import of inks in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 5, Table 5-38.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Activity data on import of domestic care products in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 5, Table 5-39.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Population number in the Republic of Moldova	thou. inhabitants	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 5, Table 5-41.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Activity Data on Oil Production and Quantity of Seeds Used for Oil Extraction in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 5, Table 5-43.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Activity data on Glues and Other Adhesives Production, Import and Consumption in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 5, Table 5-45.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Activity data on import of new cars in the Republic of Moldova	units	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 5, Table 5-47.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity data on Fermented Tobacco, Cigars and Cigarettes production in the Republic of Moldova	thou tons, billion cigars and cigarettes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 5, Table 5-49.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable
Amount of Nitrous Oxide Used in Anaesthesia in the Republic of Moldova	kg	1990-2006	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 5, Table 5-50.	January 2015. Anatol Tarita	Adequate	Yes	Non Applicable

2.3.4. Sector Agriculture

The Tables 2.3.4.I-2.3.4.III provide activity data used to calculate GHG emissions by applying above described assessment methodologies. Information provided in these tables contributes to a better understanding of the general quality of activity data selected for assessment of GHG emissions for categories considered in the Agriculture Sector.

Table 2.3.4.I: Activity data for Category 4A "Enteric Fermentation"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Number of livestock and poultry in the Republic of Moldova	thousand heads	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-9.	January 2015. Sergiu Cosman	Adequate	Yes	It was not carried out
Weight of livestock and poultry (by livestock species and sub-categories) in the Republic of Moldova	kg	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-10.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Weight of most common breeds of cattle grown in the Republic of Moldova	kg	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-11.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Average daily weight gain of cattle and swine common for the herd in the Republic of Moldova	grams	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-12.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Average annual milk quantity obtained from a cow as calculated for the Republic of Moldova	kg/per capita/ year	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-13.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Average volume of milk per cow in the Republic of Moldova	kg/head /day	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-14.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Average production of sheep and goat milk in households of the Republic of Moldova	kg/head /year	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-15.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Average production of wool from sheep in the households of the Republic of Moldova	kg/head /year	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-16.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Mean annual temperature in the Republic of Moldova for North, Centre and South zones	˚C	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-17.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Live offspring obtained from 100 female livestock in publicly owned agricultural companies of the Republic of Moldova	calves, lambs, piglets and foals	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-18.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Value of gross energy (GE) calculated per livestock categories in the RM according to a Tier 2 methodology	MJ/head /day	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-20.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Percent of different livestock sub-categories among the livestock populations of the Republic of Moldova	% of total	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-21.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable

Table 2.3.4.II: Activity data for Category 4B "Manure Management"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Number of livestock and poultry in the Republic of Moldova	thousand heads	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-9.	January 2015. Sergiu Cosman	Adequate	Yes	It was not carried out
Body weight of livestock and poultry (by species and livestock sub-categories) in the Republic of Moldova	kg	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-10.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Body weight of the most common breeds of cattle in the Republic of Moldova	kg	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-11.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Average daily weight gain in cattle and swine in the Republic of Moldova	grams	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-12.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Average annual quantity of milk obtained per cow as calculated for the Republic of Moldova	kg/head/year	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-13.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Average daily amount of milk obtained per cow in the Republic of Moldova	kg/head /day	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-14.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Mean annual temperature in the Republic of Moldova for North, Centre and South zones	˚C	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-17.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Live offspring obtained from 100 female livestock in publicly owned agricultural companies	Claves and piglets	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-18.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Value of daily excretion of solid volatile substances in livestock categories in the Republic of Moldova	kg DRY/ day	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-27.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Share of different manure management systems used in the Republic of Moldova	MS%	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-34.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable
Average annual nitrogen excretion calculated for main categories of livestock and poultry	kg N / animal / year	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-41.	January 2015. Sergiu Cosman	Adequate	Yes	Non Applicable

Table 2.3.4.III: Activity data for Category 4D "Agricultural Soils"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Applied Synthetic Fertilizers in the Republic of Moldova	thou tons active substance (a.s.)	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-54.	January 2015. Ion Bacean	Adequate	Yes	It was not carried out
Applied Organic Fertilizers in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-56.	January 2015. Ion Bacean	Adequate	Yes	It was not carried out
Annual Amount of Organic Nitrogen Applied to Soils in the Republic of Moldova	thousand tonnes a.s.	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-57.	January 2015. Ion Bacean	Adequate	Yes	It was not carried out
Land fund by land use in the Republic of Moldova	thousand ha	1992-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-59.	January 2015. Ion Bacean	Adequate	Yes	Non Applicable
Annual Amount of Urine and Dung Nitrogen Deposited by Grazing Animals on Pasture, Range and Paddock in the RM	thousand tonnes a.s.	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-60.	January 2015. Ion Bacean	Adequate	Yes	Non Applicable

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Areas Sown with Crops in the Republic of Moldova	thousand ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-64.	January 2015. Ion Bacean	Adequate	Yes	It was not carried out
Gross Harvest of Agricultural Crops in the Republic of Moldova	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-65.	January 2015. Ion Bacean	Adequate	Yes	It was not carried out
Average Yield per Hectare of Agricultural Crops	ton/ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-66.	January 2015. Ion Bacean	Adequate	Yes	It was not carried out
Amount of N in Crop Residues Returned to Soils in the Republic of Moldova	thousand tonnes a.s.	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-67.	January 2015. Ion Bacean	Adequate	Yes	Non Applicable
Annual Loss of Soil Carbon in the Republic of Moldova	thou tons C / year	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-69.	January 2015. Ion Bacean	Adequate	Yes	Non Applicable
The Net Annual Amount of Nitrogen Mineralized in Mineral Soils as a Result of Loss of Soil Carbon in the RM	thousand tons a.s.	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-70.	January 2015. Ion Bacean	Adequate	Yes	Non Applicable

2.3.5. Land Use, Land-Use Change and Forestry Sector

In order to assess GHG emissions/removals associated with each category within LULUCF Sector, AD were used as published in different statistical reports, as well as in specialized reports and scientific papers. Most of these documents were produced under "Moldsilva" Agency. As a total, an amount of 16 reports and forms of sectorial or national significance were used for LULUCF Sector. The Tables 2.3.5.I-2.3.5.VI provide activity data used to calculate GHG emissions / removals by applying above described assessment methodologies. Information provided in these tables contributes to a better understanding of the general quality of activity data selected for assessment of GHG emissions / removals for categories considered in the LULUCF Sector.

Table 2.3.5.I: Activity data for Category 5A "Forest Land"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Forest Land Areas in the Republic of Moldova	thousand ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-7.	January 2015. Ion Talmaci	Adequate	Yes	It was not carried out

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Trends in Fuel Wood Harvests and Commercial Fellings Harvest in the Republic of Moldova	thousand m^3	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Tables 7-8, 7-9, 7-10.	January 2015. Ion Talmaci	Adequate	Yes	It was not carried out
Forest Land Areas Affected by Fires in the Republic of Moldova	thousand ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-14.	January 2015. Ion Talmaci	Adequate	Yes	Non Applicable
Evolution of pest outbreaks expansion by defoliant pests and applied amounts of aerial control measures	thousand ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.2.	January 2015. Ion Talmaci	Adequate	Yes	Non Applicable
Tree area affected by defoliant pests in the Republic of Moldova	thousand ha	2006-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.3.	January 2015. Ion Talmaci	Adequate	Yes	Non Applicable

Table 2.3.5.II: Activity data for Category 5B "Cropland"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Areas of Other Types of Woody Vegetation in the Republic of Moldova	thousand ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-17.	January 2015. Victor Sfecla	Adequate	Yes	It was not carried out
Area of Cropland with Perennial Woody Biomass in the Republic of Moldova	thousand ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-18.	January 2015. Victor Sfecla	Adequate	Yes	It was not carried out
Carbon Balance in Agriculture Soils of the Republic of Moldova	thousand ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-20.	January 2015. Valerian Cerbari	Adequate	Yes	Non Applicable
Stubble Fields Burning in the Republic of Moldova	thousand ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-22.	January 2015. Valerian Cerbari	Adequate	Yes	Non Applicable
Amount of Crop Residues Available for Combustion on Field in the Republic of Moldova	tonnes of dry matter / ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-23.	January 2015. Valerian Cerbari	Adequate	Yes	Non Applicable

Table 2.3.5.III: Activity data for Category 5C "Grassland"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Grassland Area in the Republic of Moldova	thousand ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-27.	January 2015. Aliona Miron	Adequate	Yes	Non Applicable
Area of Lands Converted to Grassland in the Republic of Moldova	thousand ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-29.	January 2015. Aliona Miron	Adequate	Yes	Non Applicable

Table 2.3.5.IV: Activity data for Category 5D "Wetlands"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Grassland Area in the Republic of Moldova (including wetlands area)	thousand ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-27.	January 2015. Aliona Miron	Adequate	Yes	Non Applicable

Table 2.3.5.V: Activity data for Category 5E "Settlements"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
The category 5F "Settlements" is a relatively conventional one. It includes virtually all categories of land included in other source categories of LULUCF Sector. Depending on the type of vegetation that covers the land, settlements can be included in forest land (urban forests etc.), croplands (parks, squares, green spaces), grassland, the appropriate emission factors being assigned to them.	thousand ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Tables 7-7, 7-8, 7-9, 7-10, 7-17, 7-18, 7-27.	January 2015. Ion Talmaci, Victor Svecla, Aliona Miron	Adequate	Yes	Non Applicable

Table 2.3.5.VI: Activity data for Category 5F "Other Land"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Grassland Area in the Republic of Moldova (including landslides)	thousand ha	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-27.	January 2015. Aliona Miron	Adequate	Yes	Non Applicable

2.3.6. Waste Sector

The Tables 2.3.6.I-2.3.6.II provide activity data used to calculate GHG emissions by applying above described assessment methodologies. Information provided in these tables contributes to a better understanding of the general quality of activity data selected for assessment of GHG emissions for categories considered in the Waste Sector.

Table 2.3.6.I: Activity data for Category 6A "Solid Waste Disposal on Land"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Activity Data on the Amount of Solid Waste Disposed on Land in the Republic of Moldova	thousand m^3	1985-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-12.	January 2015. Tatiana Tugui	Adequate	Yes	Non Applicable
Activity data on the Amount of Solid Waste Disposed on Land in the ATULBD	thousand m^3	1993-2014	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-13.	January 2015. Tatiana Tugui	Adequate	Yes	Non Applicable
Activity Data on the Amount of Industrial Waste Disposed on Land in the Republic of Moldova	thousand tonnes	1985-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-14.	January 2015. Tatiana Tugui	Adequate	Yes	Non Applicable
Activity Data on the Amount of Solid Municipal and Industrial Waste Disposed at SWDS in the Republic of Moldova	thousand tonnes	1985-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-15.	January 2015. Tatiana Tugui	Adequate	Yes	Non Applicable

Table 2.3.6.II: Activity data for Category 6B "Wastewater Handling"

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Wastewater Discharged into Surface Water Basins in the Republic of Moldova	mil. m^3	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-19.	January 2015. Tamara Guvir	Adequate	Yes	Non Applicable
Activity Data on Industrial Output Used to Estimate CH_4 Emissions from the 6B1 'Industrial Wastewater'	thousand tonnes	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-21.	January 2015. Tamara Guvir	Adequate	Yes	Non Applicable
Total Industrial Organic Wastewater in the Republic of Moldova	kg COD / year	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-22.	January 2015. Tamara Guvir	Adequate	Yes	Non Applicable

Type of Activity Data	Activity Data Units	Year(s) of Data	Reference	Date Obtained, Data Source or Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly into models, spreadsheets, etc.? Yes / No	Check with Comparable Data (e.g. at international level, IPCC defaults). Explain and show results
Number of Population Connected to Sewage System in the Republic of Moldova	inhabitants, % of total	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-23.	January 2015. Tamara Guvir	Adequate	Yes	Non Applicable
The Fictitious Number of Population Connected to Sewage Systems in the Republic of Moldova	inhabitants	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-24.	January 2015. Tamara Guvir	Adequate	Yes	Non Applicable
Activity Data Used to Estimate Methane Emissions from the 6B2 'Domestic Wastewater'	kg CBO_5/year	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-25.	January 2015. Tamara Guvir	Adequate	Yes	Non Applicable
Activity Data Used to Estimate N2O Emissions from 'Nitrous Oxide from Human Sewage' in the Republic of Moldova	kg protein / per capita / year	1990-2013	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-26.	January 2015. Tamara Guvir	Adequate	Yes	Non Applicable

2.4. Emission Factors

2.4.1. Energy Sector

The Tables 2.4.1.I-2.4.1.VIII show emission factors used to calculate GHG emissions from categories considered within Energy Sector. Additionally, references are given in tables in respect to each emission factor, as well as explanations on how adequate the chosen emission factor is for calculating GHG emissions, along with information on the way the respective emission factor was obtained.

Table 2.4.1.I: Emission factors for Category 1A1 "Energy Industries"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Net calorie values (*by default; **country specific)	TJ/Gg	* 2006 IPCC Guidelines, Vol. 2, Chapter 1, Tab. 1.2, pages 1.18-1.19. ** National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 3, Table 3-11.	November 2014. Vitalii Postolatii	Adequate	Yes	To the extent possible, country specific net calorie values are used from Energy Balance of the Republic of Moldova, which are believed to be closer to national circumstances.
Carbon content in fuels (default values)	tonnes/TJ	2006 IPCC Guidelines, Vol. 2, Cap. 1, Tab. 1.3, page 1.21-1.22 2006 IPCC Guidelines, Vol. 2, Cap. 1, Tab. 1.4, page 1.23-1.24	November 2014. Vitalii Postolatii	Adequate	Yes	Country specific values were not yet established for carbon content in fuels; thus default values were used.
Carbon oxidation fraction (default value)	factor	2006 IPCC Guidelines, Vol. 2, Cap. 1, Tab. 1.4, page 1.23-1.24	November 2014. Vitalii Postolatii	Adequate	Yes	Country specific values were not yet established for carbon oxidation fraction in fuels; thus default values were used.

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
CO_2, CH_4, N_2O emission factors (default values) for stationary combustion in Energy Industries	kg/TJ	2006 IPCC Guidelines, Vol. 2, Cap. 2, Tab. 2.2, page 2.16-2.17	November 2014. Vitalii Postolatii	Adequate	Yes	Country specific values were not yet established for CO_2, CH_4 and N_2O emission factors from stationary combustion in Energy Industries; thus default values were used.
NO_x emission factors (default values) for stationary combustion in Energy Industries	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-9, page 1.38	November 2014. Vitalii Postolatii	Adequate	Yes	Country specific values were not yet established for NO_x emission factors from stationary combustion in Energy Industries; thus default values were used.
CO emission factors (default values) for stationary combustion in Energy Industries	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-10, page 1.40	November 2014. Vitalii Postolatii	Adequate	Yes	Country specific values were not yet established for CO emission factors from stationary combustion in Energy Industries; thus default values were used.
NMVOC emission factors (default values) for stationary combustion in Energy Industries	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-11, page 1.42	November 2014. Vitalii Postolatii	Adequate	Yes	Country specific values were not yet established for NMVOC emission factors from stationary combustion in Energy Industries; thus default values were used.

Table 2.4.1.II: Emission factors for Category 1A2 "Manufacturing Industries and Constructions"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
CO_2, CH_4, N_2O emission factors (default values) for stationary combustion of fuels in manufacturing industries and constructions	kg/TJ	2006 IPCC Guidelines, Vol. 2, Cap. 2, Tab. 2.3, page 2.18-2.19	November 2014. Larisa Moraru	Adequate	Yes	CS values were not yet established for CO_2, CH_4 and N_2O emission factors from stationary combustion of fuels in manufacturing industries and constructions; thus default values were used.
NO_x emission factors (default values) for stationary combustion of fuels in manufacturing industries and constructions	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-9, page 1.38	November 2014. Larisa Moraru	Adequate	Yes	Country specific values were not yet established for NO_x emission factors from stationary combustion of fuels in manufacturing industries and constructions; thus default values were used.
CO emission factors (default values) for stationary combustion of fuels in manufacturing industries and constructions	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-10, page 1.40	November 2014. Larisa Moraru	Adequate	Yes	Country specific values were not yet established for CO emission factors from stationary combustion of fuels in manufacturing industries and constructions; thus default values were used.
NMVOC emission factors (default values) for stationary combustion of fuels in manufacturing industries and constructions	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-11, page 1.42	November 2014. Larisa Moraru	Adequate	Yes	Country specific values were not yet established for NMVCOC emission factors from stationary combustion of fuels in manufacturing industries and constructions; thus default values were used.

Table 2.4.1.III: Emission factors for Category 1A3a "Domestic Aviation"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
CO_2 emission factors (default values) for mobile combustion of fuels in domestic aviation	kg/TJ	2006 IPCC Guidelines, Vol. 2, Cap. 3, Tab. 3.6.4 page 3.64.	November 2014 Elena Bicova	Adequate	Yes	Country specific values were not yet established for CO_2 emission factors from mobile combustion of fuels in domestic aviation; thus default values were used.
CH_4, N_2O and NO_x emission factors (default values) for mobile combustion of fuels in domestic aviation	kg/TJ	2006 IPCC Guidelines, Vol. 2, Cap. 3, Tab. 3.6.5, page 3.64.	November 2014 Elena Bicova	Adequate	Yes	Country specific values were not yet established for CH_4, N_2O and NO_x emission factors from mobile combustion of fuels in domestic aviation; thus default values were used.
CO emission factors (default values) for mobile combustion of fuels in domestic aviation	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-10, page 1.40	November 2014 Elena Bicova	Adequate	Yes	Country specific values were not yet established for CO emission factors from mobile combustion of fuels in domestic aviation; thus default values were used.
NMVOC emission factors (default values) for mobile combustion of fuels in domestic aviation	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-11, page 1.42	November 2014 Elena Bicova	Adequate	Yes	Country specific values were not yet established for NMVOC emission factors from mobile combustion of fuels in domestic aviation; thus default values were used.

Table 2.4.1.IV: Emission factors for Category 1A3b "Road Transportation"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
CO_2 emission factors (default values) for mobile combusting of fuels in road transportation	kg/TJ	2006 IPCC Guidelines, Vol. 2, Cap. 3, Tab. 3.2.1, page. 3.16	November 2014 Elena Bicova	Adequate	Yes	CS values were not yet established for CO_2 emission factors from mobile combusting of fuels in road transportation; thus default values were used.
CH_4, N_2O emission factors (default values) for mobile combusting of fuels in road transportation	kg/TJ	2006 IPCC Guidelines, Vol. 2, Cap. 3, Tab. 3.2.2, page 3.21	November 2014 Elena Bicova	Adequate	Yes	CS values were not yet established for CH_4 and N_2O emission factors from mobile combusting of fuels in road transportation; thus default values were used.
NO_x emission factors (default values) for mobile combusting of fuels in road transportation	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-9, page 1.38	November 2014 Elena Bicova	Adequate	Yes	CS values were not yet established for NO_x emission factors from mobile combusting of fuels in road transportation; thus default values were used.
CO emission factors (default values) for mobile combusting of fuels in road transportation	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-10, page 1.40	November 2014 Elena Bicova	Adequate	Yes	CS values were not yet established for CO emission factors from mobile combusting of fuels in road transportation; thus default values were used.
NMVOC emission factors (default values) for mobile combusting of fuels in road transportation	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-11, page 1.42	November 2014 Elena Bicova	Adequate	Yes	CS values were not yet established for NMVOC emission factors from mobile combusting of fuels in road transportation; thus default values were used.

Table 2.4.1.V: Emission factors for Category 1A3c "Railways Transportation"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
CO_2, CH_4 and N_2O emission factors (default values) for mobile combustion of fuels in railways	kg/TJ	2006 IPCC Guidelines, Vol. 2, Cap. 3, Tab. 3.4.1, page 3.43	November 2014 Elena Bicova	Adequate	Yes	Country specific values were not yet established for CO_2, CH_4 and N_2O emission factors from mobile combustion of fuels in railways; thus default values were used.
NO_x emission factors (default values) for mobile combustion of fuels in railways	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-9, page 1.38	November 2014 Elena Bicova	Adequate	Yes	Country specific values were not yet established for NO_x emission factors from mobile combustion of fuels in railways; thus default values were used.
CO emission factors (default values) for mobile combustion of fuels in railways	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-10, page 1.40	November 2014 Elena Bicova	Adequate	Yes	Country specific values were not yet established for CO emission factors from mobile combustion of fuels in railways; thus default values were used.
NMVOC emission factors (default values) for mobile combustion of fuels in railways	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-11, page 1.42	November 2014 Elena Bicova	Adequate	Yes	Country specific values were not yet established for NMVOC emission factors from mobile combustion of fuels in railways; thus default values were used.

Table 2.4.1.VI: Emission factors for Category 1A3d "Naval Transportation"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
CO_2 emission factors, (default values) for mobile combustion of fuels in naval transportation	kg/TJ	2006 IPCC Guidelines, Vol. 2, Cap. 3, Tab. 3.5.2, page 3.50.	November 2014 Elena Bicova	Adequate	Da	CS values were not yet established for CO_2 emission factors from mobile combustion of fuels in naval transportation; thus default values were used.
CH_4, N_2O emission factors (default values) for mobile combustion of fuels in naval transportation	kg/TJ	2006 IPCC Guidelines, Vol. 2, Cap. 3, Tab. 3.5.3, page 3.50.	November 2014 Elena Bicova	Adequate	Yes	CS values were not yet established for CH_4 and N_2O emission factors from mobile combustion of fuels in naval transportation; thus default values were used.
NO_x emission factors (default values) for mobile combustion of fuels in naval transportation	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-9, page 1.38	November 2014 Elena Bicova	Adequate	Yes	CS values were not yet established for NO_x emission factors from mobile combustion of fuels in naval transportation; thus default values were used.
CO emission factors (default values) for mobile combustion of fuels in naval transportation	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-10, page 1.40	November 2014 Elena Bicova	Adequate	Yes	CS values were not yet established for CO emission factors from mobile combustion of fuels in naval transportation; thus default values were used.
NMVOC emission factors (default values) for mobile combustion of fuels in naval transportation	kg/TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 1-11, page 1.42	November 2014 Elena Bicova	Adequate	Yes	CS values were not yet established for NMVOC emission factors from mobile combustion of fuels in naval transportation; thus default values were used.

Table 2.4.1.VII: Emission factors for Category 1A4a "Institutional / Commercial Sector"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
CO_2, CH_4, N_2O emission factors (default values) for stationary combustion of fuels in the commercial / institutional sector	kg / TJ	2006 IPCC Guidelines, Vol. 2 Chap. 2 Tab. 2.4, p. 2.20-2.21.	November 2014 Tatiana Kirillova	Adequate	Yes	Default values were used, as the country-specific values for CO_2, CH_4 and N_2O EF from stationary combustion of fossil fuels in the commercial/institutional sector have not been established yet.
NO_x emission factors (default values) for stationary combustion of fuels in the institutional / commercial sector	kg / TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3 Tab. 1-9, p. 1.38.	November 2014 Tatiana Kirillova	Adequate	Yes	Default values were used, as the country-specific values for NO_x EF from stationary combustion of fossil fuels in the commercial/institutional sector have not been established yet.
CO emission factors (default values) for stationary combustion of fuels in the institutional / commercial sector	kg / TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3 Tab. 1-10, p. 1.40.	November 2014 Tatiana Kirillova	Adequate	Yes	Default values were used, as the country-specific values for CO EF from stationary combustion of fossil fuels in the commercial/institutional sector have not been established yet.
NMVOC emission factors (default values) for stationary combustion of fuels in the institutional / commercial sector	kg / TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3 Tab. 1-11, p. 1.42.	November 2014 Tatiana Kirillova	Adequate	Yes	Default values were used, as the country-specific values for NMVOC EF from stationary combustion of fossil fuels in the commercial/institutional sector have not been established yet.

Table 2.4.1.VIII: Emission factors for Categories 1A4b "Residential Sector" and 1A4c"Agriculture, Forestry and Fishing Sectors"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
CO_2, CH_4, N_2O emission factors for stationary combustion of fuels in the residential and agriculture / forestry / fishing sectors	kg / TJ	2006 IPCC Guidelines, Vol. 2 Cap. 2 Tab. 2.5, p. 2.22-2.23.	November 2014 Tatiana Kirillova	Adequate	Yes	Default values were used, as the CS values for CO_2, CH_4 and N_2O EF from stationary combustion of fossil fuels in the residential and agriculture / forestry / fishing sectors have not been established yet.
NO_x emission factors for stationary combustion of fuels in the residential sector and agriculture / forestry / fishing sector	kg / TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3 Tab. 1-9, p. 1.38.	November 2014 Tatiana Kirillova	Adequate	Yes	Default values were used, as the CS values for NO_x from stationary combustion of fossil fuels in the residential and agriculture / forestry / fishing sectors have not been established yet.
CO emission factors for stationary combustion of fuels in the residential sector and agriculture / forestry / fishing sector	kg / TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3 Tab. 1-10, p. 1.40.	November 2014 Tatiana Kirillova	Adequate	Yes	Default values were used, as the CS values for CO from stationary combustion of fossil fuels in the residential and agriculture / forestry / fishing sectors have not been established yet.
NMVOC emission factors for stationary combustion of fuels in the residential sector and agriculture / forestry / fishing sector	kg / TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3 Tab. 1-11, p. 1.42.	November 2014 Tatiana Kirillova	Adequate	Yes	Default values were used, as the CS values for NMVOC EF from stationary combustion of fossil fuels in the residential and agriculture / forestry / fishing sectors have not been established yet.

Table 2.4.1.IX: Emission Factors for Category 1B2 "Fugitive Emissions from Oil and Natural Gas"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
CO_2 , CH_4, N_2O, NMVOC EFs for fugitive emissions from oil and natural gas	Gg / 10^6 m^3/ year	2006 IPCC Guidelines, Vol. 2 Cap. 4 Tab. 4.2.5, p. 4.55-4.63.	November 2014 Sergei Burtev	Adequate	Yes	Default values were used, as the country-specific values for CO_2, CH_4, N_2O, NMVOC EFs from oil and natural gas sector have not been established yet.

Table 2.4.1.X: Emission Factors for Category "Memo Items: International Bunkers – International Aviation"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
CO_2 emission factors for mobile fuel combustion in international aviation (Tier 1 method)	kg / TJ	2006 IPCC Guidelines, Vol. 2 Cap. 3 Tab. 3.6.4 p. 3.64.	November 2014 Elena Bicova	Adequate	Yes	Default values were used, as the country-specific values for CO_2 EF from mobile fuel combustion in international aviation have not been established yet.
CH_4, N_2O and NO_x emission factors furniture for mobile fuel combustion in international aviation (Tier 1 method)	kg / TJ	2006 IPCC Guidelines, Vol. 2 Cap. 3 Tab. 3.6.5, p. 3.64.	November 2014 Elena Bicova	Adequate	Yes	Default values were used, as the CS values for CH_4, N_2O and NO_x EF from mobile fuel combustion in international aviation have not been established yet.
CO emission factors for mobile fuel combustion in international aviation (Tier 1 method)	kg / TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3 Tab. 1-10, p. 1.40.	November 2014 Elena Bicova	Adequate	Yes	Default values were used, as the country-specific values for CO EF from mobile fuel combustion in international aviation have not been established yet.
NMVOC emission factors for mobile fuels combustion in international aviation (Tier 1 method)	kg / TJ	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3 Tab. 1-11, p. 1.42.	November 2014 Elena Bicova	Adequate	Yes	Default values were used, as the country-specific values for NMVOC EF from mobile fuel combustion in international aviation have not been established yet.
CO_2, CH_4, N_2O NO_x, CO, NMVOC and SO_2 emission factors for mobile fuel combustion in international aviation LTO (Tier 2 method)	kg / LTO	2006 IPCC Guidelines, Vol. 2 Cap. 3 Tab. 3.6.9, p. 3.70-3.71.	November 2014 Elena Bicova	Adequate	Yes	Default values were used, as the country-specific values for CO_2, CH_4, N_2O NO_x, CO, NMVOC and SO_2 from mobile fuel combustion in international aviation in LTO have not been established yet.
NO_x emission factors furniture for mobile fuel combustion in international aviation cruise flight operation (Tier 2 method)	kg / LTO	2006 IPCC Guidelines, Vol. 2 Cap. 3 Tab. 3.6.10, p. 3.72	November 2014 Elena Bicova	Adequate	Yes	Default values were used, as the country-specific values for NO_x from the mobile fuel combustion in the International aviation cruise flight operation have not been established yet.

2.4.2. Industrial Processes Sector

The Tables 2.4.2.I-2.4.2.XVIII present emission factors used to calculate GHG emissions from the categories considered under the Industrial Processes Ssector. Also, the tables contain references for each emission factor, explanations of how appropriate is the emission factor selected to estimate GHG emissions, and information on how the respective emission factor was obtained.

Table 2.4.2.I: Emission Factors for Category 2A1 "Cement Production"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate CO_2 emissions from clinker production (including: CaO fraction, the CO_2/ CaO stoichiometric ratio, MgO fraction, CO_2/ MgO stoichiometric ratio, CKD fraction, $EF_{clinker}$)	Fractions, stoichiometric ratios, kg CO_2/ ton clinker	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-10.	November 2014 Vladimir Brega	Adequate	Yes	The country-specific FE collected directly from the source were used, which are considered to be more appropriate to national circumstances than default values.
The emission factors used to estimate NO_x emissions from clinker production.	kg NO_x/ ton clinker	EMEP CORINAIR Atmospheric Emissions Inventory Guidebook, 3rd edition, December 2000, B3311-11 and B3311-12, ic030311;	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for NO_x EF from clinker production have not been established yet.
The emission factors used to estimate SO_2 emissions from cement production	kg SO_2/ ton cement	Revised 1996 IPCC Guidelines, Vol. 3, Page 2.6	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for SO_2 EF from cement production have not been established yet.

Table 2.4.2.II: Emission Factors for Category 2A2 "Lime Production"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate CO_2 emissions from lime production (including: stoichiometric ratio, CaO fraction, MgO fraction, CaO / CaO·MgO fraction, EF_{lime})	Fractions, stoichiometric ratios, tons CO_2 / ton lime	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 3.1.2 "Lime Production", Table 3.4, p. 3.22. National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-13.	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for CO_2 EF from lime production have not been established yet.
The emission factors used to estimate NO_x, CO and SO_2 emissions from lime production	kg / ton lime	EMEP CORINAIR, 3rd edition, 15 February 1996, B3312-5, ic030312 Lime.	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for NO_x, CO and SO_2 EF from lime production have not been established yet.

Table 2.4.2.III: Emission Factors for Category 2A3 "Limestone and Dolomite Use"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
EFs used to estimate CO_2 emissions from limestone and dolomite use (including: limestone purity fraction, dolomite purity fraction, EF_{ls} EF_{dol})	Fractions, kg CO_2 / ton limestone or dolomite	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3 Cap.2, p. 2.10	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for CO_2 EF from limestone and dolomite production have not been established yet.

Table 2.4.2.IV: Emission Factors for Category 2A4 "Soda Ash Use"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factor used to estimate CO_2 emissions from soda ash use	kg CO_2 / ton soda ash used	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3 Cap.2, p. 2.13	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for CO_2 EF from soda ash use have not been established yet.

Table 2.4.2.V: Emission Factors for Category 2A5 "Asphalt Roofing"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factor used to estimate NMVOC emissions from asphalt roofing production	kg NMVOC / ton asphalt	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2, Table 2-3, page 2.9	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for NMVOC EF from asphalt roofing production have not been established.

Table 2.4.2.VI: Emission Factors for Category 2A6 "Road Paving with Asphalt"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate NMVOC emissions from asphalt production for road paving (road surface)	kg / ton asphalt	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 2-4, p. 2.14 National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-21.	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for NMVOC EF from asphalt production for road paving (emissions from paved roads with asphalt surface) have not been established yet.
Emission factors used to estimate NO_x, CO and SO_2 emissions from asphalt production for road paving (emissions from asphalt plants)	kg / ton asphalt	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Tab. 2-4, p. 2.14	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for NO_x, CO and SO_2 EF from asphalt production for road paving have not been established yet.

Table 2.4.2.VII: Emission Factors for Category 2A7 "Other" (Glass Production)

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factor used to estimate NMVOC emissions from glass production	kg gas / ton glass	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 3, Chapter 2.7.3 "Production of Other Mineral Products", page 2.14. National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Cap. 4, Table 4-23.	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for NMVOC EF from glass production have not been established yet.

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
The emission factors used to estimate NO_x and SO_2 emissions from flat glass and glass containers production	kg gas / ton glass	EMEP CORINAIR Atmospheric Emissions Inventory Guidebook, 3rd Edition, June 2005, B3314-20-23 for flat glass production and B3314-24-27 for production of glass for receptacles, ic030314, Glass Production.	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for NO_x and SO_2 EF from production of flat glass and glass containers have not been established.

Table 2.4.2.VIII: Emission Factors for Category 2A7 "Other" (Mineral Wool Production)

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate CO_2, CO and SO_2 emissions from mineral wool production	kg / ton mineral wool	EMEP CORINAIR Atmospheric Emissions Inventory Guidebook, 3rd edition, June 2005, B3318-7, ic030318, Mineral Wool. National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-27.	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for CO_2, CO and SO_2 EF from mineral wool production have not been established yet.

Table 2.4.2.IX: Emission Factors for Category 2A7 "Other" (Bricks and Expanded Clay Production)

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate CO_2 emissions from bricks and expanded clay production (including: CaO fraction stoichiometric ratio CO_2/ CaO, MgO fraction stoichiometric ratio CO_2/ MgO, EF)	Fractions, stoichiometric ratios, kg CO_2/ Ton clay	National Inventory Report, 1990-2013 Emissions Emission Sources and Sinks in Moldova, Chap. 4 Table 4-29 (brick) and Table 4-33 (expanded clay).	November 2014 Vladimir Brega	Adequate	Yes	Country-specific emission factors were used, collected directly from the source, considered to be more appropriate for national circumstances than the default values.
The emission factors used to estimate emissions SO_2 from red and white brick production (silicate)	kg SO_2/ Ton brick	Guide EMEP CORINAIR air emissions inventory, 3rd Edition, February 15, 1996, B3319-5, ic030319 brick.	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for SO_2 EF from red and white (silicate) brick production has not been established yet.

Table 2.4.2.X: Emission Factors for Category 2B5 "Other" (Polyethylene Production)

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
The emission factors used to estimate NMVOC emissions from polyethylene production	kg / ton product	EMEP CORINAIR air emissions inventory Guide, 3rd Edition, February 15, 1996, to B456-3 B456-1, pr040506, polyethylene production. National Inventory Report, 1990-2013 Emissions Emission Sources and Sinks in Moldova, Chap. 4 Table 4-46.	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for NMVOC EF from production of high and low density polyethylene have not been established yet.

Table 2.4.2.XI: Emission Factors for Category 2B5 "Other" (ABS Resins Production)

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
The emission factors used to estimate NMVOC emissions from the production of ABS resins	kg / ton product	EMEP CORINAIR Atmospheric Emissions Inventory Guidebook, 3rd edition, February 15, 1996, B4515, pr040515, Production of ABS resins. National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-48.	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for NMVOC EF from production synthetic resins (ABS) production have not been established yet.

Table 2.4.2.XII: Emission Factors for Category 2B5 "Other" (Detergents Production)

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
The emission factors used to estimate NMVOC emissions from production of detergents	kg / ton product	EPA-450 / 4-90-003, EPA, US Research Triangle Park, NC, March 1990. National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-50.	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for NMVOC EF from production of detergents have not been established yet.

Table 2.4.2.XIII: Emission Factors for Category 2C1 "Iron and Steel"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
EFs used to estimate CO_2 emissions from iron and steel production (including: C content in iron ore, C content in cast iron, C content in steel, the C mass from burning of electrodes, EF_{steel}, $EF_{cast\ iron}$)	%, kg CO_2 / ton steel	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 3, p. 3.26.	November 2014 Vladimir Brega	Adequate	Yes	Default values of emission factors were used along with country-specific parameters collected directly from the source, or calculated on the basis of information collected at national level which are deemed to be most appropriate to national circumstances.
The emission factors used to estimate NO_x, CO, NMVOC and SO_2 emissions from steel production	grams / ton steel	EMEP/EEA Atmospheric Emissions Inventory Guidebook (2013), 2.C.1 Steel Production, 040207 – Steel Production in EAF. National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-59.	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for NO_x, CO, NMVOC SO_2 emission factors from steel production have not been established yet.
Emission factors used to estimate NMVOC emissions from laminates	g / ton laminate	EMEP/EEA Atmospheric Emissions Inventory Guidebook (2013), 2.C.1 Steel Production, 040208 – Rolling Mills Production in EAF. National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-59.	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for NMVOC emission factors from production of laminates have not been established yet.

Table 2.4.2.XIV: Emission Factors for Category 2D "Other Production" (2D2 "Food and Drink")

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate NMVOC emissions from production of bread and other food products	kg / ton product	EMEP CORINAIR Atmospheric Emissions Inventory Guidebook, 3rd edition, February, 15, 1996, B465-5, pr040605, Bread Making and Other Food. National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-63.	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for NMVOC emission factors from production of bread and other food products have not been established yet.
Emission factors used to estimate NMVOC emissions from production of alcoholic beverages	kg / hl	EMEP CORINAIR Atmospheric Emissions Inventory Guidebook, 3rd edition, February 15, 1996, B466-5, pr040606, Alcoholic Beverages. National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-65.	November 2014 Vladimir Brega	Adequate	Yes	Default values were used, as the country-specific values for NMVOC emission factors from production of alcoholic beverages have not been established yet.

Table 2.4.2.XV: Emission Factors for Category 2F1 "Refrigeration and Air Conditioning Equipment"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
The composition of the refrigerant used in RM (R-134a, R-404a, R-407a, R-407B, R-407C, R-407D, R-408a, R-410a, R-507)	Percentage by weight, %	<http://www.epa.gov/ozone/snap/refrigerants/refblend.html> National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-70.	November 2014 Anatolie Tarita	Adequate	Yes	The composition of refrigerants mainly used in the Republic of Moldova is available in various electronic sources, including EPA website.
Share of different refrigerants incorporated in refrigeration equipment and air conditioners imported to the Republic of Moldova	%	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-71.	November 2014 Anatolie Tarita	Adequate	Yes	The share of different refrigerants incorporated in refrigeration equipment and air conditioners imported in Moldova is subjective information provided by representatives of the Republican Association of Refrigeration Technicians in the Republic of Moldova.
The EFs used to estimate HFCs emissions in refrigeration and air conditioning (including: Freon charge (Ei_{charge}); the lifetime of the equipment; % of Freon initial charge loss; % Freon initial charge at equipment end of life; Freon recovery efficiency after equipment decommissioning)	kg, years%	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 3, Table 3.22 on page 3.106; Table 3.23 on page 3.110; and Table 3.24 on page 3112. National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-74 and Table 4-78.	November 2014 Anatolie Tarita	Adequate	Yes	Default values of emission factors were used along with country-specific parameters provided by the representatives of the Republican Association of Refrigeration Technicians in the Republic of Moldova, which are deemed to be more appropriate to national circumstances.

Table 2.4.2.XVI: Emission Factors for Category 2F2 "Foam Blowing"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
EFs used to estimate HFCs emissions from foams blowing (lifetime of the product, loss of HFCs in the first year, annual loss of HFCs)	years %	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 3, Table 3.17, p. 3.96. National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 4, Table 4-85.	November 2014 Anatolie Tarita	Adequate	Yes	The country-specific values for HFCs EFs from foams blowing have not been established, so default values available in the IPCC GPG (IPCC, 2000) were used.

Table 2.4.2.XVII: Emission Factors for Category 2F4 "Aerosols" (Metered Dose Inhalers)

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate HFCs emissions from pressurized metered aerosols (amount of HFC propellant emitted into the atmosphere)	%	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 3, page 3.85.	November 2014 Anatolie Tarita	Adequate	Yes	The country-specific values for HFCs EFs from pressurized metered aerosols have not been established, so default values available in the IPCC GPG (IPCC, 2000) were used.

Table 2.4.2.XVIII: Emission Factors for Category 2F8 "Electrical Equipment"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
EFs used in estimate PFCs and SF_6 emissions from electrical equipment (electrical equipment lifetime, annual loss of insulating gas used as dielectric in high voltage electrical switches)	years %	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 3, p. 3.57	November 2014 Anatolie Tarita	Adequate	Yes	The country-specific values for PFCs and SF_6 EFs from electrical equipment have not been established, so default values available in the IPCC GPG (IPCC, 2000) were used.

2.4.3. Solvent and Other Products Use Sector

The Tables 2.4.3.I-2.4.3.X feature emission factors used to calculate GHG emissions from the categories considered under Solvents and Other Products Use Sector. Also, the tables contain references for each emission factor, explanations of how appropriate is the emission factor selected to estimate GHG emissions, and information on how the respective emission factor was obtained.

Table 2.4.3.I: Emission Factors for Category 3A "Paint Application"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate NMVOC emissions from paint application	grams / kg applied paints	EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.d 'Paint Application', Tables 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11, 3-12, 3-13, 3-14, 3-15 and 3-16, pages 19-25.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for NMVOC emission factors from application of coatings have not been established yet.
The emission factors used to estimate CO_2 emissions from application of coatings (carbon and solvents content in different types of goods)	%	Hungary's National Inventory Report for 1985-2009, Appendix A3.3, Table A3-2, p. A39. EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.d 'Paint Application', Table 2-1, p. 9.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for CO_2 emission factors from application of coatings have not been established yet.

Table 2.4.3.II: Emission Factors for Category 3B "Degreasing and Dry Cleaning"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate NMVOC emissions from degreasing and dry cleaning	g / kg	EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.e „Degreasing", Tables 3-1 3-2 3-3 and 3-5, p. 8, 10 and 12. Source Category 2.D.3.f „Dry Cleaning", Tables 1.3 and 3-2 p. 6 and 8.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for MVOC emission factors from degreasing and dry cleaning have not been established.
Emission factors used to estimate CO_2 emissions from degreasing and dry cleaning (carbon and solvents in different types of products)	%	Hungary's National Inventory Report for 1985-2009, Appendix A3.3, Table A3-2, p. A39.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for CO_2 emission factors from degreasing and dry cleaning have not been established.

Table 2.4.3.III: Emission Factors for Category 3C "Chemical Products, Manufacture and Processing"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate NMVOC emissions from chemicals products manufacture and processing	g / kg	EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.g ,Chemical Products, Manufacture and Processing', Tables 3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-8 3-9 3-10, 3-11, 3-12 and 3-13, p. 15-22.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for MVOC emission factors from production and processing of chemical products have not been established.
EF used to estimate CO_2 emissions from production and processing of chemicals (carbon and solvents content in different types of goods)	%	Hungary's National Inventory Report for the period 1985-2009, Appendix A3.3, Table A3-2, p. A39.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for CO_2 emission factors from production and processing of chemical products have not been established.

Table 2.4.3.IV: Emission Factors for Category 3D1 "Printing"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
EF used to estimate NMVOC emissions from printing	kg / ton ink	EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.h 'Printing', Table 3-1, p. 11.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the CS values for NMVOC EFs from printing have not been established.
EF used to estimate CO_2 emissions from printing (carbon and solvents content in different types of goods)	%	Hungary's National Inventory Report for the period 1985-2009, Appendix A3.3, Table A3-2, p. A39.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for CO_2 emission factors from printing have not been established.

Table 2.4.3.V: Emission Factors for Category 3D2 "Domestic and Other Solvent Use"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate NMVOC emissions from domestic solvent use	kg / person / year	EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.a 'Domestic Solvents Use' Sub-Chapter 3.24, page 9.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for NMVOC emission factors from domestic use of solvents have not been established.
EFs used to estimate CO_2 emissions from domestic solvent use (carbon and solvents content in different types of goods)	%	Hungary's National Inventory Report for the period 1985-2009, Appendix A3.3, Table A3-2, p. A39.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for CO_2 emission factors from domestic use of solvents have not been established.

Table 2.4.3.VI: Emission Factors for Category 3D3 "Other Solvent Use" (Seed Oil Extraction)

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate NMVOC emissions from other solvent use (seed oil extraction)	kg / ton seed	EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.i 'Other Product Use' (according to the nomenclature NFR), SNAP 060404, Table 3-4, page 15.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for NMVOC emission factors from other solvents use (seed oil extraction) have not been established.
Emission factors used to estimate CO_2 emissions from other solvent use (seed oil extraction) (carbon and solvents content in different types of goods)	%	Hungary's National Inventory Report for the period 1985-2009, Appendix A3.3, Table A3-2, p. A39.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for CO_2 emission factors from other solvents use (seed oil extraction) have not been established.

Table 2.4.3.VII: Emission factors for Category 3D3 "Other Solvent Use" (Use of Glues and Other Adhesives)

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
EFs used to estimate NMVOC emissions from other solvent use (use of glues and other adhesives)	kg / ton glue	EMEP / EEA Air Pollutant Emission Inventory (2013), Source Category 2.D.3.i "Other Solvents Use" (NFR classifier), SNAP 060 405 Table 3-11 p. 19.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for NMVOC emission factors from other solvents use (use of glues and other adhesives) have not been established.
EFs used in estimating CO_2 emissions from other solvent use (use of glues and other adhesives) (carbon and solvents content in different types of goods)	%	Hungary's National Inventory Report for the period 1985-2009, Appendix A3.3, Table A3-2, p. A39.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for CO_2 emission factors from other solvents use (glues and other products used as adhesives) have not been established.

Table 2.4.3.VIII: Emission Factors for Category 3D3 "Other Solvent Use" (Vehicles Dewaxing)

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate NMVOC emissions from other solvent use (new vehicles dewaxing)	kg gas / vehicle	EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.i 'Other Product Use' (according to the nomenclature NFR), SNAP 060409, Table 3-9, page 18.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for NMVOC emission factors from other solvents use (new vehicles dewaxing) have not been established.
Emission factors used to estimate CO_2 emissions from other solvents use (new vehicles dewaxing) (carbon and solvents content in different types of goods)	%	Hungary's National Inventory Report for 1985-2009, Appendix A3.3, Table A3-2, p. A39.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for CO_2 emission factors from other solvents use (new vehicles dewaxing) have not been established.

Table 2.4.3.IX: Emission Factors for Category 3D3 "Other Solvent Use" (Tobacco Combustion)

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate NO_x, CO and NMVOC emissions from other solvent use (tobacco combustion)	grams gas / ton tobacco	EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.i 'Other Product Use' (according to the nomenclature NFR), SNAP 060602, Table 3-14, page 21.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the CS values for NO_x, CO and NMVOC EFs from other solvents use (tobacco combustion) have not been established.
EFs used to estimate CO_2 emissions from other solvent use (tobacco burning) (carbon and solvents content in different types of goods)	%	Hungary's National Inventory Report for the period 1985-2009, Appendix A3.3, Table A3-2, p. A39.	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for CO_2 emission factors from other solvents use (tobacco burning) have not been established.

Table 2.4.3.X: Emission Factors for Category 3D3 "Other Solvent Use" (Use of N_2O in Anesthesia)

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Emission factors used to estimate N_2O emissions from anaesthesia	kg / ton	EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013, Source Category 2.D.3.i 'Other Product Use' (according to the nomenclature NFR), SNAP 0605 (http://www.eea.europa.eu//publications/emep-eea-guidebook-2013).	November 2014 Anatolie Tarita	Adequate	Yes	Default values were used, as the country-specific values for use of N_2O in anaesthesia have not been established.

2.4.4. Agriculture

The Tables 2.4.4.I-2.4.4.III feature emission factors used to calculate GHG emissions from categories considered under the Agriculture Sector. Also, tables include references for each emission factor, explanations on how appropriate the emission factor is for the estimation of GHG, and more information on how the respective emission factor was obtained.

Table 2.4.4.I: Emission Factors for Category 4A "Enteric Fermentation"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Default EF used for countries from different regions to estimate CH_4 emissions from Category 4A "Enteric Fermentation" (swine, horses, asses and rabbits)	kg CH_4 / head / year	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4 Chapter 10, Table 10.10, p. 10.28 (sheep, goats, swine, horses and asses) and Table 10.11, p. 10.29 (cattle).	November 2014 Sergiu Cosman	Adequate	Yes	Default values were used (according to Tier 1 method), as the country-specific values for CH_4 emission factors from enteric fermentation for such categories of animals as swine, horses, asses, rabbits have not been established.
Default EF used for countries from different regions to estimate CH_4 emissions from Category 4A "Enteric Fermentation" (cattle, sheep and goats)	kg CH_4/ head / year	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-22 (cattle) and Table 6-23 (sheep and goats).	November 2014 Sergiu Cosman	Adequate	Yes	The values of country-specific emission factors have been calculated for cattle, sheep and goats (Tier 2 method) as more appropriate to national circumstances.

Table 2.4.4.II: Emission Factors for Category 4B "Manure Management "

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Default EFs used for countries from different regions to estimate CH_4 emissions from Category 4B "Manure Management" (sheep, goats, horses, asses, poultry and rabbits)	kg CH_4/ head / year	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4 Chapter 10, Table 10.14, p. 10.38 (cattle and pigs) and Table 10.15, p. 10.40 (sheep, goats, horses, asses, poultry) and Table 10.16, p. 10.41 (rabbits and fur animals).	November 2014 Sergiu Cosman	Adequate	Yes	Default values were used (according to Tier 1 method), as the CS values for CH_4 EFs from enteric fermentation for such categories of animals as sheep, goats, horses, asses, poultry and rabbits have not been established.

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Default EF used for countries from different regions to estimate CH_4 emissions from Category 4B "Manure Management" (cattle and swine)	kg CH_4/ head / year	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-35 (cattle and swine).	November 2014 Sergiu Cosman	Adequate	Yes	The values of country-specific emission factors have been calculated for cattle and swine (Tier 2 method) as more appropriate to national circumstances.
Share of different manure management systems used in the Republic of Moldova	MS	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 10, Tables 10A-4, 10A-5, 10A-7 and 10A-8 (default values). National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-34 (country-specific values).	November 2014 Sergiu Cosman	Adequate	Yes	The share of different manure management systems used in RM is based on CS information considered to be most appropriate to national circumstances than the default values.
Methane Conversion Factor (MCF) for different categories of animals and manure management systems	%	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 10, Tables 10A-4, 10A-5, 10A-7 and 10A-8 (default values).	November 2014 Sergiu Cosman	Adequate	Yes	Default values were used, as no CS values for MCF for different types of animals and manure management systems have been established.
Annual average nitrogen excretion rates calculated for the main categories of livestock and poultry	kg N / head / year	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 10, Table 10.19, 10.59 and Table page 10A-9, page 10.82 (default values used by Countries in Eastern Europe). National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-41 (country-specific values).	November 2014 Sergiu Cosman	Adequate	Yes	Annual average nitrogen excretion rates for the main categories of livestock and poultry were calculated on the basis of country-specific information considered to be more appropriate to national circumstances than the default values.
EF_3 or direct N_2O EF for the S manure management system	kg N_2O-N / kg N	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 10, Table 10.21, p. 10.62 (default values).	November 2014 Sergiu Cosman	Adequate	Yes	Default values were used, as no CS values for EF_3 or direct N_2O EF for the S manure management system have been established.
Frac $_{GasMS}$ or N loss from MMS due to volatilisation of N-NH_3 and N-NO_x	%	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 10, Table 10.22, p. 10.65 (default values).	November 2014 Sergiu Cosman	Adequate	Yes	Default values instead of country specific values for Frac $_{GasMS}$ were used.
$Frac_{LeachMS}$ or per cent of managed manure N losses for livestock category T due to runoff and leaching during solid and liquid storage of manure	%	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 10, p. 10.56 (default values).	November 2014 Sergiu Cosman	Adequate	Yes	Default values instead of country specific values for Frac $_{LeachMS}$ were used.
$Frac_{LossMS}$ or total N loss from different manure management systems S	%	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 10, Table 10.23, p. 10.67 (default values).	November 2014 Sergiu Cosman	Adequate	Yes	Default values instead of country specific values for Frac $_{LossMS}$ were used.
EF_5 or the emission factor for indirect N_2O emissions from N leaching and runoff	kg N_2O-N / kg NH_3-N+NO_x-N	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 10, p. 10.57 (default values).	November 2014 Sergiu Cosman	Adequate	Yes	Default values instead of country specific values for EF_5 were used.

Table 2.4.4.III: Emission Factors for Category 4D "Agricultural Soils"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
EF_1 or the emission factor used to calculate N_2O emissions from various synthetic and organic N applications to soils	kg N_2O-N / N/kg N applied	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 11, Table 11.1, p. 11.11 (default values).	November 2014 Ion Bacean	Adequate	Yes	Default values were used as no country specific values have been set for EF_1.
$EF_{3\ (PRP)}$ or the EF used to calculate N_2O emissions from urine and dung N deposited by grazing animals on pasture	kg N_2O-N / kg N	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 11, Table 11.1, p. 11.11 (default values).	November 2014 Ion Bacean	Adequate	Yes	Default values were used as no CS values have been set for $EF_{3\ (PRP)}$.
DRY or dry matter (DM) fraction of harvested crop	tons d.m. / ton harvest	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 11, Table 11.2, p. 11.17 (default values).	November 2014 Ion Bacean	Adequate	Yes	Default values were used as no CS values have been set for the dry matter (DM) fraction of harvested crop.
$R_{AG\ (T)}$ or the ratio of above-ground residues to above-ground biomass	t $d.m._{AG\ (T)}$ / t d.m.	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 11, Table 11.2, p. 11.17 (default values).	November 2014 Ion Bacean	Adequate	Yes	CS values were also calculated for $R_{AG\ (T)}$ on the basis of CS information provided by the National Institute of Soil Science, Agrochemistry and Soil Protection "Nicolae Dimo".
$R_{BG\ (T)}$ or the ratio of belowground residues to above-ground biomass	t $d.m._{BG\ (T)}$ / t d.m.	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 11, Table 11.2, p. 11.17 (default values).	November 2014 Ion Bacean	Adequate	Yes	CS values were also calculated for $R_{BG\ (T)}$ on the basis of CS information provided by the National Institute of Soil Science, Agrochemistry and Soil Protection "Nicolae Dimo".
$Frac_{Remove\ (T)}$ or fraction agricultural residues removed from the field and used for other purposes	%	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-62.	November 2014 Ion Bacean	Adequate	Yes	Identified on the basis of expert judgement, opinion of prof. Valerian Cerbari, National Institute of Soil Science, Agrochemistry and Soil Protection "Nicolae Dimo".
P_{CR} or nitrogen content in agricultural crop residues	%	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-63.	November 2014 Ion Bacean	Adequate	Yes	P_{CR} or nitrogen content in agricultural crop residues was identified from the published data, both from national and international sources.
k_6 or coefficient of nitrogen use in agricultural crop residues	%	Banaru (2002), Methodical Guidelines for Determining humus balance in arable soils. MAFI / ICPA "Nicolae Dimo". TACIS project 9901 FDMOL "Support for the Development of Education, Research and Advisory Services in Agriculture". Chisinau, 2002. 23 p.	November 2014 Ion Bacean	Adequate	Yes	k_6 or the coefficient of use of nitrogen from agricultural crops residues was identified in national specialty literature.
R or C:N ratio of the soil organic matter	Ratio	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 11, p. 11.16 (default value used for arable land is 10, range: 8-15.	November 2014 Ion Bacean	Adequate	Yes	R in Moldovan soils humus was identified from national reference sources (Krupenikov, 1967; Krupenikov, Gonenco, 1984; Banaru, 2002), C / N ratio is 10.7 with range: 10.1-11.3.

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Frac $_{GASF}$ or fraction of N volatilized as NH_3 and NO_x from N containing fertilizers - volatilisation from synthetic fertiliser	t NH_3-N NO_x-N / t N	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 11, Table 11.3, p. 11.24 (default values).	November 2014 Ion Bacean	Adequate	Yes	Default values were used, as CS values for Frac $_{GASF}$ or fraction of N volatilized as NH_3 and NO_x from nitrogen containing fertilizers have not been established.
Frac $_{GAMS}$ or fraction of N volatilized as NH_3 and NO_x from manure - volatilisation from all organic N fertilisers applied and dung and urine deposited by grazing animals	t NH_3-N NO_x-N / t N	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 11, Table 11.3, p. 11.24 (default values) .	November 2014 Ion Bacean	Adequate	Yes	Default values were used, as country- specific values for Frac $_{GAMS}$ or fraction of nitrogen volatilized as NH_3 and NO_x from manure have not been established.
Frac $_{LEACH}$ or fraction of soil N lost as a result of leaching and run off of the nitrogen from N additions or deposition by grazing animals	kg N / kg N	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 11, Table 11.3, p. 11.24 (default values).	November 2014 Ion Bacean	Adequate	Yes	Default values were used; CS values for Frac $_{LEACH}$ or fraction of soil N lost as a result of leaching and run off of the nitrogen from N additions or deposition by grazing animals have not been established.
EF_4 or indirect N_2O emission factor from N volatilisation and re-deposition	N_2O-N / t per t NH_4-N and NO_x-N	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 11, Table 11.3, p. 11.24 (values used by default).	November 2014 Ion Bacean	Adequate	Yes	Default values were used, as country- specific values for EF_4 or indirect N_2O emission factor from N volatilisation and re-deposition have not been established.
EF_5 or indirect N_2O emission factor from leaching/run off	t N_2O-N / t N	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4, Chapter 11, Table 11.3, p. 11.24 (values used by default).	November 2014 Ion Bacean	Adequate	Yes	Default values were used, as country- specific values for EF_5 or indirect N_2O emission factor from leaching/run off have not been established.

2.4.5. Land Use, Land Use Change and Forestry Sector

A number of relevant coefficients / emission factors (annual growth of biomass, wood density, carbon fraction in biomass etc.) were used In the process of calculating GHG emissions/removals for the Land Use, Land-Use Change and Forestry Sector, in addition to initial/reference data (surfaces, volumes etc.). Most emission factors are of national origin, enabling to develop the inventory using Tier 2 methods, with no need to use coefficients/default values (except for the non-CO_2 EFs from the wood combustion). At the same time, to ensure proper quality of GHG inventory it is necessary that the respective coefficients/ indicators are periodically updating / verified.

The Tables 2.4.5.I-2.4.5.III feature emissions / removals factors used to calculate GHG emissions / removals from the categories considered under the Land Use, Land-Use Change and Forestry Sector. Also, the tables include references to each emission / removal factor, explanations of how appropriate the emission / removal factor selected to estimate GHG emissions / removals is, and information on how the respective emission / removal factor was obtained.

Table 2.4.5.I: Emission / Removals Factors for Category 5A "Forest Land"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Average annual net increments	m^3/ha	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-11.	November 2014 Ion Talmaci	Adequate	Yes	Calculated according to national data sources and / or applicable to national conditions: Ukrainian Forest Management Enterprise, (1988), Forestry Resources of the Moldovan SSR as of 1.01.1988 (in Russian). Irpeni; The national report on the state of the forest fund of Moldova, 1997; Osadchev, V.G., Ivankov, P.T., Sergovski, P.S., et al. (1955), Handbook on Woodworking (for Forest Farms Consumer Goods Manufacturing Workshops) (in Russian). Moscow, 1955; Giurgiu V. Decei I., S. Armăşescu Biometrics of trees and stands in Romania, 1972; Shvidenko, A.Z., Savich, I.N. (1987), Reference Materials for Valuation of Forests in Ukraine and Moldova (in Russian). "Urozhai", Kiev, Ukraine, pp. 162, 216, 232, 273, 320; G. Kapp, Velsen-Zerweck M. Horst A., L. Horn, Galupa D. I. et al.: Talmaci I., Baseline study of the project "Soil conservation in Moldova" 2003.
Basic Wood Density	constant mass t / m^3 standing volume	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-11.	November 2014 Ion Talmaci	Adequate	Yes	Calculated according to national data sources and / or applicable to national conditions: Osadchev, V.G., Ivankov, P.T., Sergovski, P.S., et al. (1955), Handbook on Woodworking (for Forest Farms Consumer Goods Manufacturing Workshops) (in Russian). Moscow, 1955; The wood samples trial report Trail and certification center for furniture and wood products, 2003. G. Kapp, Velsen-Zerweck M. Horst A., L. Horn, Galupa D. I. et al.: Talmaci I., Baseline study of the project "Soil conservation in Moldova" 2003.
Biomass expansion factor for conversion of annual net increment to aboveground tree increment, BEF_1	dimensionless	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-11.	November 2014 Ion Talmaci	Adequate	Yes	Calculated according to national data sources and / or applicable to national conditions: G. Kapp, Velsen-Zerweck M. Horst A., L. Horn, Galupa D. I. et al.: Talmaci I., Baseline study of the project "Soil conservation in Moldova" 2003; Giurgiu V. Decei I., S. Armăşescu Biometrics of trees and stands in Romania, 1972; Shvidenko, A.Z., Savich, I.N. (1987), Reference Materials for Valuation of Forests in Ukraine and Moldova (in Russian). "Urozhai", Kiev, Ukraine, pp. 162, 216, 232, 273, 320.
Biomass expansion factor for converting volumes of extracted round wood to total aboveground biomass, BEF_2	dimensionless	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-11.	November 2014 Ion Talmaci	Adequate	Yes	Calculated according to national data sources and / or applicable to national conditions: G. Kapp, Velsen-Zerweck M. Horst A., L. Horn, Galupa D. I. et al.: Talmaci I., Baseline study of the project "Soil conservation in Moldova" 2003; Giurgiu V. Decei I., S. Armăşescu Biometrics of trees and stands in Romania, 1972; Shvidenko, A.Z., Savich, I.N. (1987), Reference Materials for Valuation of Forests in Ukraine and Moldova (in Russian). "Urozhai", Kiev, Ukraine, pp. 162, 216, 232, 273, 320.
Root-shoot ratio appropriate to increments	dimensionless	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-12.	November 2014 Ion Talmaci	Adequate	Yes	Calculated according to national data sources and / or applicable to national conditions: Giurgiu V., Decei I., Armăşescu S. (1972), Biometry of Trees and Rammels in Romania (in Romanian). Bucharest, Ceres, p. 703, 728, 747; Shvidenko, A.Z., Savich, I.N. (1987), Reference Materials for Valuation of Forests in Ukraine and Moldova (in Russian). "Urozhai", Kiev, Ukraine, pp. 162, 216, 232, 273, 320; G. Kapp, Velsen-Zerweck M. Horst A., L. Horn, Galupa D. I. et al.: Talmaci I. "Soil conservation in Moldova" project baseline study, 2003.

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Carbon fraction of dry matter	Fraction	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-12.	November 2014 Ion Talmaci	Adequate	Yes	Calculated according to national data sources and / or applicable to national conditions: G. Kapp, Velsen-Zerweck M. Horst A., L. Horn, Galupa D. I. et al.: Talmaci I., Baseline study of the project "Soil conservation in Moldova", 2003; Vanin S. I. (1949), Wood Science. Moscow, 1949 (in Russian).
Fraction of biomass left to decay in forest	Fraction	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-12.	November 2014 Ion Talmaci	Adequate	Yes	Calculated according to national data sources and / or applicable to national conditions: G. Kapp, Velsen-Zerweck M. Horst A., L. Horn, Galupa D. I. et al.: Talmaci I., Baseline study of the project "Soil conservation in Moldova" 2003, 2003; Giurgiu V., Decei I., Armăşescu S. (1972), Biometry of Trees and Rammels in Romania (in Romanian). Bucharest, Ceres, p. 703, 728, 747; Shvidenko, A.Z., Savich, I.N. (1987), Reference Materials for Valuation of Forests in Ukraine and Moldova (in Russian). "Urozhai", Kiev, Ukraine, pp. 162, 216, 232, 273, 320.
Average loss from current increments due to disturbances (forest pest)	t / ha / year	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-12 and Annex 3-4.4	November 2014 Ion Talmaci	Adequate	Yes	Calculated according to national data sources and / or applicable to national conditions: Ukrainian Forest Management Enterprise, (1988), Forestry Resources of the Moldovan SSR as of 1.01.1988 (in Russian). Irpeni; The national report on the forest fund status in Moldova, 1997; Osadchev, V.G., Ivankov, P.T., Sergovski, P.S., et al. (1955), Handbook on Woodworking (for Forest Farms Consumer Goods Manufacturing Workshops) (in Russian). Moscow, 1955; Giurgiu V., Decei I., Armăşescu S. (1972), Biometry of Trees and Rammels in Romania (in Romanian). Bucharest, Ceres, p. 703, 728, 747; Shvidenko, A.Z., Savich, I.N. (1987), Reference Materials for Valuation of Forests in Ukraine and Moldova (in Russian). "Urozhai", Kiev, Ukraine, pp. 162, 216, 232, 273, 320; G. Kapp, Velsen-Zerweck M. Horst A., L. Horn, Galupa D. I. et al.: Talmaci I., Baseline study of the project "Soil conservation in Moldova" 2003; Order of the Federal Forestry Agency of the Russian Federation No. 523 dated 29.12.2007, Annex 4 "Technical guidance on localization and liquidations of pests outbreaks" (in Russian).
Average dendrometrical indicators of the main species of trees occurring in the forests of the RM (including: average production class; average consistency; average amount per 1 ha of forest, in m^3; average amount per 1 ha of workable stands, in m^3; average total growth, In thou m^3, average growth per ha of forest, in m^3)	m^3	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.1.	November 2014 Ion Talmaci	Adequate	Yes	Calculated according to national data sources and / or applicable to national conditions: Украинское лесоустроительное предприятие: Ukrainian Forest Management Enterprise, (1988), Forestry Resources of the Moldovan SSR as of 1.01.1988 (in Russian). Irpeni; The national report on the forest fund status in Moldova, 1997; Shvidenko, A.Z., Savich, I.N. (1987), Reference Materials for Valuation of Forests in Ukraine and Moldova (in Russian). "Urozhai", Kiev, Ukraine, pp. 162, 216, 232, 273, 320.
C_f or combustion factor	kg gas / t d.m.	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4 Chapter 2, Table 2.6, p. 2.48-2.49.	November 2014 Ion Talmaci	Adequate	Yes	Coefficients available in the latest methodological guidance developed by the IPCC (2006 IPCC Guidelines) were used.

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
MB • C_f or the amount of fuel actually burnt, in case of spontaneous forest fires	t d.m. / ha	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4 Chapter 2, Table 2.4, p. 2.45-2.46.	November 2014 Ion Talmaci	Adequate	Yes	Coefficients available in the latest methodological guidance developed by the IPCC (2006 IPCC Guidelines) were used.
G_{ef} or default emission factors	kg / t d.m.	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4 Chapter 2, Table 2.5, p. 2.47	November 2014 Ion Talmaci	Adequate	Yes	Coefficients available in the latest methodological guidance developed by the IPCC (2006 IPCC Guidelines) were used.

Table 2.4.5.II: Emission / Removal Factors for Category 5B "Cropland"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
G or annual biomass increments (including: protective forest belts and other types of forest vegetation, vineyards, orchards, individual gardens)	t C / year / ha	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-19.	November 2014 Victor Sfecla	Adequate	Yes	Calculated according to national data sources and / or applicable to national conditions: Ukrainian Forest Management Enterprise, (1988), Forestry Resources of the Moldovan SSR as of 1.01.1988 (in Russian). Irpeni; Gh. Vdovîi, D. Galupa and. (1997), National Report on the forest fund status in Moldova, 1997; Giurgiu V., Decei I., Armăşescu S. (1972), Biometry of Trees and Rammels in Romania (in Romanian). Bucharest, Ceres, p. 703, 728, 747; G. Kapp, Velsen-Zerweck M. Horst A., L. Horn, Galupa D. I. et al.; Talmaci I., Baseline study of the project "Soil conservation in Moldova", 2003.
L or annual volume of harvested biomass (including: vineyards, orchards, trees in individual gardens)	t C / year / ha	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-11.	November 2014 Victor Sfecla	Adequate	Yes	
DRY or dry matter fraction (d.m.) of harvested product	t d.m. / t harvest	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4 Chapter 11, Table 11.2, p. 11.17.	November 2014 Valerian Cerbari	Adequate	Yes	Default values were used, as no country- specific values for DRY or dry matter (d.m.) fraction basis in harvested product have not been established yet.
$R_{AG\,(T)}$ or ratio of above-ground agricultural residues to basic vegetal production of crop T	t $d.m._{AG\,(T)}$ / t d.m.	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4 Chapter 11, Table 11.2, p. 11.17 (default values).	November 2014 Valerian Cerbari	Adequate	Yes	Country-specific values for $R_{AG\,(T)}$ were calculated as well on the basis of specific information provided by the National Institute of Soil Science, Agrochemical And Soil Protection "Nicolae Dimo". N. Nikolaev, Boincean B., M. Sidorov, Vanicovici Gh., Colţun V. (2006), Agrotehnica. Ministry of Education and Youth of the RM. - Balti: Balti University Press, 2006, P. 298.
$R_{BG\,(T)}$ or the ratio of below ground crop residues to basic vegetal production of crop T	t $d.m._{BG\,(T).}$ / t d.m.	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4 Chapter 11, Table 11.2, p. 11.17 (default values).	November 2014 Valerian Cerbari	Adequate	Yes	Country-specific values for $R_{BG\,(T)}$ were calculated as well on the basis of specific information provided by the National Institute of Soil Science, Agrochemical And Soil Protection "Nicolae Dimo".
$Frac_{Remove\,(T)}$ or fraction of crop residues removed from the field and used for other purposes	%	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 6, Table 6-62.	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of expert judgement, prof. Valerian Cerbari, National Institute of Soil Science, Agrochemical and Soil Protection "Nicolae Dimo".

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
k_1 or crop residues humification coefficient	fraction	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.5, Table 3-4.5.1.	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature. M. Rusu, Marghitas M. Oroian I., T. Mihailescu, Dumitras A. (2005), Treaty of agrochemicals. Bucharest: "Ceres", 2005. 672 p.
Humus to carbon conversion rate	Ratio	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.5, Table 3-4.5.1.	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature. Arinushkina, E.V. (1975) Guidelines for Chemical Analysis of Soils (in Russian). Moscow State University Press. Moscow, 1975. 470 p.
k_2 or organic fertilizers humification coefficient		National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.5, Table 3-4.5.2.	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature. Banaru A. (2003), Guidance for use of organic fertilizers. ACSA, World Bank RISP Project "Rural Investment and Services" and FDMOL 9901 TACIS project. Chisinau, 2003, 52 p.
$k_{3\,(T)}$ or nitrogen export coefficient with crop T vegetal production	kg / t	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.5, Table 3-4.5.3.	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature. Banaru A. (2003), Guidance for use of organic fertilizers. ACSA, World Bank RISP Project "Rural Investment and Services" and FDMOL 9901 TACIS project. Chisinau, 2003, 52 p.
P_{SN} or the proportion of nitrogen in commercial fertilizers	% sa	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.5, Table 3-4.5.4.	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature.
k_4 or coefficient of nitrogen use from fertilizers	%	Banaru, A. et al. (2002).	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature. Banaru, A. et al. (2002), Methodological Guidelines for Determining humus balance in arable soils. MAIA / ICPA "Nicolae Dimo". TACIS project FDMOL 9901. Chisinau, 2002. 23 p.
P_{ON} or the proportion of nitrogen in organic fertilizers	% s.a	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.5, Table 3-4.5.5.	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature. Banaru, A. et al. (2002), Methodological Guidelines for Determining humus balance in arable soils. MAIA / ICPA "Nicolae Dimo". TACIS project FDMOL 9901. Chisinau, 2002. 23 p.
k_5 or average coefficients of nitrogen use from organic fertilizers	%	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.5, Table 3-4.5.5.	November 2014 Valerian Cerbari	Adequate	Yes	It was found based on country-specific information available in the scientific literature. Banaru, A. et al. (2002), Methodological Guidelines for Determining humus balance in arable soils. MAIA / ICPA "Nicolae Dimo". TACIS project FDMOL 9901. Chisinau, 2002. 23 p.

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Activity data on the use of conversion coefficients of various forms of waste into manure organogenous litter	Fraction	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.5, Table 3-4.5.6.	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature. Banaru, A. et al. (2002), Methodological Guidelines for Determining humus balance in arable soils. MAIA / ICPA "Nicolae Dimo". TACIS project FDMOL 9901. Chisinau, 2002. 23 p.
P_{CR} or nitrogen content in crop residues	% a.s.	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.5, Table 3-4.5.7.	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature. Banaru, A. et al. (2002), Methodological Guidelines for Determining humus balance in arable soils. MAIA / ICPA "Nicolae Dimo". TACIS project FDMOL 9901. Chisinau, 2002. 23 p.
k_6 or coefficient of nitrogen use in crop residues	%	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.5, Table 3-4.5.7.	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature. Banaru, A. et al. (2002), Methodological Guidelines for Determining humus balance in arable soils. MAIA / ICPA "Nicolae Dimo". TACIS project FDMOL 9901. Chisinau, 2002. 23 p.
$k_{7\,(T)}$ or coefficients of symbiotic nitrogen fixation by T culture	kg N / ton production	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.5, Table 3-4.5.8.	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature. Banaru, A. et al. (2002), Methodological Guidelines for Determining humus balance in arable soils. MAIA / ICPA "Nicolae Dimo". TACIS project FDMOL 9901. Chisinau, 2002. 23 p.
$k_{8\,(T)}$ or coefficients of symbiotic nitrogen export by T culture	%	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.5, Table 3-4.5.8.	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature. Banaru, A. et al. (2002), Methodological Guidelines for Determining humus balance in arable soils. MAIA / ICPA "Nicolae Dimo". TACIS project FDMOL 9901. Chisinau, 2002. 23 p.
r_1 or coefficient expressing dependence of humus mineralization on soil granulometrical composition	Fraction	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.5, Table 3-4.5.9.	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature. Likov A.M. Methods of Estimating the Humus Balance in Soils Used in Intensive Agriculture (in Russian). Timiryazev Agricultural Academy Bulletin, 1979. No. 6, pp. 14-20.
r_2 or coefficient expressing humus mineralization dependence on crops technology	Fraction	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Annex 3-4.5, Table 3-4.5.10.	November 2014 Valerian Cerbari	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature. Likov A.M. Methods of Estimating the Humus Balance in Soils Used in Intensive Agriculture (in Russian). Timiryazev Agricultural Academy Bulletin, 1979. No. 6, pp. 14-20.
R or C/N ratio of the soil organic matter (R = C / N)	ratio	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4 Chapter 11, page 11.16 (default value used for arable land is 10, margin: 8-15.	November 2014 Valerian Cerbari	Adequate	Yes	R or C/N ratio in organic matter (humus) in Moldovan soils was identified in national reference sources; the C/N ratio is 10.7, range: 10.1-11.3. Banaru A. (2002), Methodological Guidelines for Determining humus balance in arable soils. MAIA / ICPA "Nicolae Dimo". TACIS project FDMOL 9901. Chisinau, 2002. P.23

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
C_f or vegetal mass burning coefficient		2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4 Chapter 2, Table 2.6, p. 2.48-2.49.	November 2014 Valerian Cerbari	Adequate	Yes	Coefficients available in the latest methodological guidance developed by the IPCC (IPCC Guidelines 2006) were used.
MB • C_f or the amount of fuel actually burnt (post-harvest field burning)	t d.m. / ha	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4 Chapter 2, Table 2.4, p. 2.45-2.46.	November 2014 Valerian Cerbari	Adequate	Yes	Coefficients available in the latest methodological guidance developed by the IPCC (IPCC Guidelines 2006) were used.
G_{ef} or default emission factors	kg / t d.m.	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 4 Chapter 2, Table 2.5, p. 2.47	November 2014 Valerian Cerbari	Adequate	Yes	Coefficients available in the latest methodological guidance developed by the IPCC (IPCC Guidelines 2006) were used.

Table 2.4.5.III: Emission / Removal Factors for Category 5C "Grassland"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
$G_{Grasses}$ or Annual Biomass Growth	MC t / ha / year	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-29.	November 2014 Aliona Miron	Adequate	Yes	Identified based on country-specific information available in literature and ICAS reports (2014) on grasslands inventory in National Park Orhei.
Carbon fraction in biomass	Fraction	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-31.	November 2014 Aliona Miron	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature.
Carbon stocks in biomass after conversion to grassland	t C / ha / year	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-31.	November 2014 Aliona Miron	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature.
Carbon stocks in biomass before conversion to grassland	t C / ha / year	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-31.	November 2014 Aliona Miron	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature: Ukrainian Forest Management Enterprise (1987), Joint Project on Management and Development of Forestry and Forest Enterprises of the Ministry of Forestry of the MSSR (in Russian). Vol. 1, Irpeni; Gh. Vdovîi, D. Galupa and. (1997), National Report on the forest fund status in Moldova; G. Kapp, Velsen-Zerweck M. Horst A., L. Horn, Galupa D. I. et al .: Talmaci I., Baseline study of the project "Soil conservation in Moldova" 2003.

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Carbon stocks from one year of growth of vegetation after conversion,	t C / ha / year	National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 7, Table 7-31.	November 2014 Aliona Miron	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature: Ukrainian Forest Management Enterprise (1987), Joint Project on Management and Development of Forestry and Forest Enterprises of the Ministry of Forestry of the MSSR (in Russian). Vol. 1, Irpeni; Gh. Vdovîi, D. Galupa and. (1997), National Report on the state forest fund of Moldova; G. Kapp, Velsen-Zerweck M. Horst A., L. Horn, Galupa D. I. et al.: Talmaci I., Baseline study of the project "Soil conservation in Moldova" 2003.

2.4.6. Waste sector

The Tables 2.4.6.I-2.4.6.II feature emission factors used to calculate GHG emissions from categories considered under the Waste sector. Also, tables include references for each emission factor, explanation of how appropriate the emission factor selected to estimate GHG emissions is, and information on how the respective emission factor was obtained.

Table 2.4.6.I: Emission Factors for Category 6A "Solid Waste Disposal on Land"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
MCF or methane correction factor	Fraction	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 5, Table 5.1, p. 5.9	November 2014 Tatiana Tugui	Adequate	Yes	Methane correction factor available in the IPCC Good Practice Guidance (IPCC, 2000) was used.
DOC or degradable organic carbon (fraction)	Gg C / Gg MSW	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 5, p. 5.9 National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-9.	November 2014 Tatiana Tugui	Adequate	Yes	In the RM the DOC fraction values were deducted from country-specific activity data (morphological analysis of DMS) using the "MSW Learning Tool" developed by the University of Florida (1996), based on results of laboratory experiments made by Morton Barlaz (1987, 1997) and Chandler, Van Soest (1980).
DOC_F or fraction of DOC disimilated	Fraction	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 5, p. 5.9 National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-10.	November 2014 Tatiana Tugui	Adequate	Yes	In the RM the DOC fraction values were deducted from country- specific activity data (morphological analysis of DMS) using the "MSW Learning Tool" developed by the University of Florida (1996), based on results of laboratory experiments made by Morton Barlaz (1987, 1997) and Chandler, Van Soest (1980).

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
F or CH_4 fraction in biogas (by volume)	Fraction	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 5, Table 5.1, p. 5.10. National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-11.	November 2014 Tatiana Tugui	Adequate	Yes	The results of measurements taken at the national level show the CH_4 concentrations of about 53-66% and CO_2 of about 16-20% (Tugui, Duca, Taranu et al., 2005). As a result of research aimed at identifying the composition of landfill biogas in the country, it has been established that the average ratio of CH_4/CO_2 is about 60:40.
A = (1-e*) / K or the normalization factor	Factor	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 5, Table 5.1, p. 5.6.	November 2014 Tatiana Tugui	Adequate	Yes	The normalization factor has been used (correcting the summing data for the previous years) calculated by DEPA experts at Tantareni landfill, which is equal to 0.934.
k or methane generation rate constant, 1 / year	constant	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 5, p. 5.6-5.7.	November 2014 Tatiana Tugui	Adequate	Yes	Methane generation rate constant was used, calculated by DEPA experts for Tantareni landfill, which is equal to 0.139.
OX or methane oxidation factor	Factor	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 5, p. 5.10.	November 2014 Tatiana Tugui	Adequate	Yes	Methane oxidation factor has been used, available in the IPCC Good Practices Guidance (IPCC, 2000).

Table 2.4.6.II: Emission Factors for Category 6B "Wastewater Handling"

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
D_{ind} or degradable organic component in wastewater from different industries	kg COD / m^3	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 5, Table 5.4, p. 5.22. National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-20.	November 2014 Tamara Guvir	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature: Mircea Gh. Negulescu, et al. (1968), Industrial wastewater. Technical Publishing House, Bucharest 1968; CEC All Union Scientific Research Institute for Water Supply, Sewage, Hydraulic Engineering Works and Engineering Hydrogeology, (VNII VODGEO GOSSTROI of USSR) (1982), Consolidated Norms on Water Supply and Sewerage for Different Branches of Industry (in Russian). Moscow, 1982 (in Russian); Stroiizdat (1981), Sewage Systems in Settlements and Industrial Enterprises (in Russian). Projector's Guidebook. Moscow, 1981.

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
W_{ind} or quantity of wastewater per unit of industrial output	m^3/ t	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 5, Table 5.4, p. 5.22. National Inventory Report, 1990-2013, Greenhouse Gas Sources and Sinks in the Republic of Moldova, Chapter 8, Table 8-20.	November 2014 Tamara Guvir	Adequate	Yes	Identified on the basis of country-specific information available in the scientific literature. Mircea Gh. Negulescu, et al. (1968), industrial wastewater. Technical Publishing House, Bucharest 1968; CEC All Union Scientific Research Institute for Water Supply, Sewage, Hydraulic Engineering Works and Engineering Hydrogeology (VNII VODGEO GOSSTROI of USSR) (1982), Consolidated Norms on Water Supply and Sewerage for Different Branches of Industry (in Russian). Moscow, 1982 (in Russian); Stroiizdat (1981), Sewage Systems in Settlements and Industrial Enterprises (in Russian). Projector's Guidebook. Moscow, 1981.
B or specific amount of COD discharged into public sewers	grams COD / head / day	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 5, Box 5.1, p. 5.16.	November 2014 Tamara Guvir	Adequate	Yes	Default value used is 60 g CBO / head / day (IPCC, 2000); Republic of Moldova has used a country-specific value, 75 g CBO / head / day (SNIP 2.04.03.85).
EF_i or methane emission factor	kg CH_4 / kg BOD	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 5, Box 5.1, p. 5.16.	November 2014 Tamara Guvir	Adequate	Yes	Methane emission factor available in the IPCC Good Practices Guidance (IPCC, 2000) has been used. Default value used is 0.6.
D_{dom} or degradable organic component in domestic wastewater,	kg BOD / 1000 persons / year	Revised IPCC 1996 Guidelines for National GHG Emission Inventories, Vol. 3 Chap.6 Table 6-5, p. 6.23.	November 2014 Tamara Guvir	Adequate	Yes	Methane emission factor available in the Revised IPCC 1996 Guidelines for National GHG Emission Inventories (IPCC, 1997) has been used. The default value used by former USSR countries is 18,250 kg CBO / 1000 persons / year.
B_{oi} or the maximum methane production in wastewater and sludge	kg CH_4/kg BOD, kg CH_4/kg COD	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 5, p. 5.17, 5.20, 5.24.	November 2014 Tamara Guvir	Adequate	Yes	Coefficients available in GPG (IPCC, 2000) were used. Default values used are 0.6 kg CH_4/ kg CBO and / or 0.25 kg CH_4/ kg COD.
MCF_x or methane conversion factor for wastewater and sludge handling systems	Factor	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 5, p. 5.17-5.18.	November 2014 Tamara Guvir	Adequate	Yes	Methane conversion factor for wastewater and sludge treatment systems in the RM was calculated. The calculated value is 0.8.
WS_{ix} or fraction of wastewater anaerobic treatment	Fraction	IPCC Good Practice Guidance and Uncertainty Management in National GHG Inventories, Chapter 5, p. 5.18.	November 2014 Tamara Guvir	Adequate	Yes	Fraction of wastewater treated by anaerobic method was determined. In Moldova, the value of this fraction is 20%.
EF_6 or N_2O emission factor	kg N_2O-N / kg N sludge	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Chapter 6, p. 6.28.	November 2014 Tamara Guvir	Adequate	Yes	The EF available in Revised IPCC 1996 Guidelines for National GHG Emission Inventories has been used. Default value used is 0.01 kg N_2O-N / kg N sludge.

Type of Factor	Units	Reference	Date Obtained, Contact Information	Applied QA/QC Procedure: Adequate / Inadequate / Unknown	Are all data entered correctly? Yes / No	Explain how this factor is appropriate to national circumstances. Provide sources.
Frac $_{NPR}$ or nitrogen fraction in protein	kg N / kg protein	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Chapter 6, p. 6.28.	November 2014 Tamara Guvir	Adequate	Yes	The value of fraction available Revised IPCC 1996 Guidelines for National GHG Emission Inventories has been used. Default value used is 0.16 kg N / kg protein.
[44/28], stoichiometric ratio of the N content in N_2O-N and N_2O	ratio	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, Chapter 6, p. 6.28.	November 2014 Tamara Guvir	Adequate	Yes	The stoichiometric ratio available in the Revised IPCC 1996 Guidelines for National GHG Emission Inventories has been used.

2.5. Uncertainties

The tables below provide information on the uncertainties associated with emissions / removals from key and non-key categories. More information on the source of uncertainties for each category can be found in the sectorial chapters of the "National Inventory Report, 1990-2013. GHG Sources and Sinks in the Republic of Moldova" (2015).

Table 2.5.1: Combined uncertainties for estimated greenhouse gas emissions and removals categories for 2013 year, presented as a per cent of total national emissions for the reporting year

IPCC Code	Source category	GHG	Key Category? [Yes or no]	The amount of emissions / removals in 2013 (Gg CO_2 Eq.)	The level of combined uncertainty presented as a percentage of total national emissions in 2013 (**±%**)	Lower Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)	Upper Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)
1A1	Energy Industries	CO_2	Yes	3308.1821	1.8363	3247.4332	3368.9310
1A1	Energy Industries	CH_4	No	1.3734	0.0054	1.3733	1.3735
1A1	Energy Industries	N_2O	No	4.3651	0.0172	4.3643	4.3658
1A2	Manufacturing Industries and Constructions	CO_2	Yes	607.6708	0.3373	605.6211	609.7206
1A2	Manufacturing Industries and Constructions	CH_4	No	0.6760	0.0027	0.6760	0.6760
1A2	Manufacturing Industries and Constructions	N_2O	No	1.4119	0.0056	1.4118	1.4119
1A3	Transport	CO_2	Yes	1835.2651	1.0187	1816.5688	1853.9615
1A3	Transport	CH_4	No	6.7267	0.0213	6.7253	6.7281
1A3	Transport	N_2O	No	35.1848	0.1388	35.1360	35.2336
1A4	Other sectors	CO_2	Yes	1945.5770	1.0800	1924.5656	1966.5885
1A4	Other sectors	CH_4	No	88.1695	0.3478	87.8629	88.4762
1A4	Other sectors	N_2O	No	16.7922	0.0660	16.7811	16.8033
1A5	Others	CO_2	No	30.3317	0.0168	30.3266	30.3368
1A5	Others	CH_4	No	0.0009	0.0000	0.0009	0.0009
1A5	Others	N_2O	No	0.0862	0.0003	0.0862	0.0862

IPCC Code	Source category	GHG	Key Category? [Yes or no]	The amount of emissions / removals in 2013 (Gg CO_2 Eq.)	The level of combined uncertainty presented as a percentage of total national emissions in 2013 (±%)	Lower Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)	Upper Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)
1B2	Fugitive Emissions from Oil and Natural Gas	CO_2	No	2.1589	0.0060	2.1588	2.1590
1B2	Fugitive Emissions from Oil and Natural Gas	CH_4	Yes	520.6450	1.4450	513.1216	528.1683
1B2	Fugitive Emissions from Oil and Natural Gas	N_2O	No	0.0053	0.0000	0.0053	0.0053
2A1	Cement Production	CO_2	Yes	476.9147	0.1350	476.2710	477.5585
2A2	Lime Production	CO_2	No	4.0523	0.0026	4.0522	4.0524
2A3	Limestone and Dolomite Use	CO_2	No	14.3708	0.0178	14.3682	14.3734
2A4	Soda Ash Use	CO_2	No	15.5217	0.0184	15.5188	15.5245
2A7	Other: Mineral Wool Production	CO_2	No	0.0000	0.0000	0.0000	0.0000
2A7	Other: Bricks and Expanded Clay Production	CO_2	No	15.6916	0.0195	15.6885	15.6946
2C1	Iron and Steel Production	CO_2	No	3.1441	0.0014	3.1441	3.1442
2F1	Refrigeration and Air Conditioning	HFC	Yes	96.9365	0.3853	96.5630	97.3100
2F2	Expanded Foam	HFC	No	45.1716	0.1982	45.0820	45.2611
2F4	Aerosols	HFC	No	0.0791	0.0003	0.0791	0.0791
2F8	Electrical Equipment	PFC	No	0.0273	0.0001	0.0273	0.0273
2F8	Electrical Equipment	SF_6	No	0.6803	0.0027	0.6803	0.6803
3A1	Conventional Solvent Paint Application	CO_2	No	19.6123	0.0393	19.6046	19.6200
3A1	Waterborne Paint Application	CO_2	No	0.8445	0.0033	0.8445	0.8446
3.B	Degreasing and Dry Cleaning	CO_2	No	29.9961	0.0485	29.9815	30.0107
3.C	Polyurethane Products Processing	CO_2	No	0.4113	0.0010	0.4113	0.4113
3.C	Polystyrene Products Processing	CO_2	No	0.7209	0.0018	0.7209	0.7210
3.C	Rubber Processing	CO_2	No	0.0016	0.0000	0.0016	0.0016
3.C	Pharmaceutical Products Manufacturing	CO_2	No	2.6841	0.0054	2.6839	2.6842
3.C	Paints and Varnishes Production	CO_2	No	0.4021	0.0008	0.4021	0.4021
3.C	Tires Production and Restoration	CO_2	No	0.0332	0.0001	0.0332	0.0332
3.C	Footwear Production	CO_2	No	0.3958	0.0008	0.3958	0.3958
3D1	Printing	CO_2	No	0.3936	0.0008	0.3936	0.3936
3D2	Domestic Use of Solvents	CO_2	No	8.5495	0.0337	8.5466	8.5524
3D3	Seed Oil Extraction and Seed Drying	CO_2	No	0.1233	0.0003	0.1233	0.1233
3D3	Glue and Other Adhesives Use	CO_2	No	2.3936	0.0048	2.3935	2.3938
3D3	New Vehicle Dewaxing	CO_2	No	0.0295	0.0001	0.0295	0.0295
3D3	Tobacco Combustion	CO_2	No	0.0001	0.0000	0.0001	0.0001

IPCC Code	Source category	GHG	Key Category? [Yes or no]	The amount of emissions / removals in 2013 (Gg CO_2 Eq.)	The level of combined uncertainty presented as a percentage of total national emissions in 2013 (±%)	Lower Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)	Upper Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)
3D3	Use of N_2O for Anaesthesia	N_2O	No	0.0000	0.0000	0.0000	0.0000
4A1	Enteric Fermentation: Cattle	CH_4	Yes	379.4545	0.5370	377.4168	381.4922
4A3	Enteric Fermentation: Sheep	CH_4	Yes	107.4261	0.1520	107.2628	107.5894
4A4	Enteric Fermentation: Goats	CH_4	No	18.8883	0.0267	18.8833	18.8934
4A6	Enteric Fermentation: Horses	CH_4	No	17.3769	0.0431	17.3694	17.3844
4A7	Enteric Fermentation: Mules and Asses	CH_4	No	0.4500	0.0011	0.4500	0.4500
4A8	Enteric Fermentation: Swine	CH_4	No	14.0012	0.0348	13.9963	14.0060
4A10	Enteric Fermentation: Rabbits	CH_4	No	3.6699	0.0097	3.6696	3.6703
4B1	Manure Management: Cattle	CH_4	No	18.9426	0.0333	18.9363	18.9489
4B3	Manure Management: Sheep	CH_4	No	2.8922	0.0072	2.8920	2.8924
4B4	Manure Management: Goats	CH_4	No	0.3742	0.0009	0.3742	0.3742
4B6	Manure Management: Horses	CH_4	No	1.5060	0.0037	1.5059	1.5061
4B7	Manure Management: Mules and Asses	CH_4	No	0.0342	0.0001	0.0342	0.0342
4B8	Manure Management: Swine	CH_4	No	22.6344	0.0397	22.6255	22.6434
4B9	Manure Management: Poultry	CH_4	No	7.5849	0.0200	7.5834	7.5864
4B10	Manure Management: Rabbits	CH_4	No	0.4976	0.0012	0.4976	0.4976
4B11	Manure Management: Cattle	N_2O direct	No	75.2788	0.1869	75.1381	75.4195
4B11b	Manure Management: Sheep	N_2O direct	No	68.7634	0.1707	68.6460	68.8808
4B11c	Manure Management: Goats	N_2O direct	No	16.0582	0.0399	16.0518	16.0646
4B11d	Manure Management: Horses	N_2O direct	No	13.1103	0.0325	13.1060	13.1146
4B11	Manure Management: Mules and Asses	N_2O direct	No	0.2231	0.0006	0.2231	0.2231
4B11f	Manure Management: Swine	N_2O direct	No	56.5303	0.1403	56.4509	56.6096
4B11g	Manure Management: Poultry	N_2O direct	No	74.9153	0.1973	74.7675	75.0631
4B11h	Manure Management: Rabbits	N_2O direct	No	23.7736	0.0626	23.7588	23.7885
4B12	Manure Management: Cattle	N_2O indirect	No	14.5805	0.0866	14.5679	14.5931
4B12b	Manure Management: Sheep	N_2O indirect	No	11.1741	0.0664	11.1666	11.1815
4B12c	Manure Management: Goats	N_2O indirect	No	2.6095	0.0206	2.6089	2.6100
4B12d	Manure Management: Horses	N_2O indirect	No	2.1304	0.0168	2.1301	2.1308
4B12	Manure Management: Mules and Asses	N_2O indirect	No	0.0363	0.0003	0.0363	0.0363
4B12f	Manure Management: Swine	N_2O indirect	No	14.0047	0.0832	13.9930	14.0163
4B12g	Manure Management: Poultry	N_2O indirect	No	18.5493	0.1114	18.5286	18.5699

IPCC Code	Source category	GHG	Key Category? [Yes or no]	The amount of emissions / removals in 2013 (Gg CO_2 Eq.)	The level of combined uncertainty presented as a percentage of total national emissions in 2013 (±%)	Lower Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)	Upper Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)
4B12h	Manure Management: Rabbits	N_2O indirect	No	3.8632	0.0307	3.8620	3.8644
4D1a	Synthetic N Fertilizers Application	N_2O direct	Yes	205.1115	0.1258	204.8536	205.3694
4D1b	Organic N Applied as Fertilizer	N_2O direct	No	1.1621	0.0023	1.1621	1.1622
4D1c	Urine and Dung N Deposited on Pasture	N_2O direct	No	40.7834	0.2264	40.6911	40.8757
4D1d	N in Crop Residue	N_2O direct	No	111.5439	0.2232	111.2948	111.7929
4D1e	N Mineralization	N_2O direct	Yes	549.4030	1.0996	543.3619	555.4440
4D2a	Atmospheric Deposition of N volatilized	N_2O indirect	No	26.1645	0.3400	26.0755	26.2534
4D2b	N Leaching/Runoff from Managed Soils	N_2O indirect	No	201.2231	2.6491	195.8925	206.5537
5A1	Forest Land Remaining Forest Land	CO_2	Yes	1887.6165	-3.7779	1958.9278	1816.3051
5A1	Non-CO_2 Emissions from Vegetation Fires	CH_4	No	0.9128	0.0023	0.9128	0.9129
5A1	Non-CO_2 Emissions from Vegetation Fires	N_2O	No	0.7454	0.0030	0.7454	0.7455
5B1	Land Covered with Woody Vegetation	CO_2	Yes	-483.4705	-1.0219	-488.4112	-478.5299
5B2	Annual Change in Carbon Stocks in Mineral Soils	CO_2	Yes	3728.9563	4.1398	3574.5859	3883.3267
5B1	Non-CO_2 Emissions from Stubble Fields Burning	CH_4	No	0.0564	0.0001	0.0564	0.0564
5B1	Non-CO_2 Emissions from Stubble Fields Burning	N_2O	No	0.0216	0.0001	0.0216	0.0216
5C1	Grassland Remaining Grassland	CO_2	Yes	1461.3867	-2.0681	1491.6103	1431.1630
5C2	Land Converted to Grassland	CO_2	No	4.1664	0.0103	4.1659	4.1668
6A1	Managed Solid Waste Disposal on Land	CH_4	Yes	590.1795	1.0360	584.0655	596.2935
6A2	Unmanaged Solid Waste Disposal on Land	CH_4	Yes	340.2676	0.7555	337.6968	342.8383
6A3	Industrial Solid Waste Disposal on Land	CH_4	Yes	413.4471	1.1702	408.6089	418.2853
6B2	Domestic and Commercial Wastewater	CH_4	Yes	136.4857	0.3388	136.0232	136.9481
6B2	Domestic and Commercial Wastewater	N_2O	No	85.4174	0.2249	85.2253	85.6095
	NET TOTAL EMISSIONS			**12738.7123**	**7.5489**	**11777.0774**	**13700.3471**

Table 2.5.2: Uncertainties covered by the trend in the total national emissions for categories of GHG sources and removals estimated for 2013

IPCC Code	Source category	GHG	Category key? [Yes or no]	The amount of emissions / removals in 2013 (Gg CO_2 Eq.)	Uncertainties covered by the trend in total national emissions (±%)	Lower Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)	Upper Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)
1A1	Energy Industries	CO_2	Yes	3308.1821	0.7579	3283.1098	3333.2544
1A1	Energy Industries	CH_4	No	1.3734	0.0024	1.3734	1.3735
1A1	Energy Industries	N_2O	No	4.3651	0.0174	4.3643	4.3658
1A2	Manufacturing Industries and Constructions	CO_2	Yes	607.6708	0.1159	606.9666	608.3751

IPCC Code	Source category	GHG	Category key? [Yes or no]	The amount of emissions / removals in 2013 (Gg CO_2 Eq.)	Uncertainties covered by the trend in total national emissions (±%)	Lower Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)	Upper Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)
1A2	Manufacturing Industries and Constructions	CH_4	No	0.6760	0.0001	0.6760	0.6760
1A2	Manufacturing Industries and Constructions	N_2O	No	1.4119	0.0005	1.4118	1.4119
1A3	Transport	CO_2	Yes	1835.2651	0.3522	1828.8019	1841.7284
1A3	Transport	CH_4	No	6.7267	0.0024	6.7266	6.7269
1A3	Transport	N_2O	No	35.1848	0.0066	35.1825	35.1871
1A4	Other sectors	CO_2	Yes	1945.5770	0.3778	1938.2263	1952.9278
1A4	Other sectors	CH_4	No	88.1695	0.0180	88.1537	88.1854
1A4	Other sectors	N_2O	No	16.7922	0.0087	16.7907	16.7937
1A5	Others	CO_2	No	30.3317	0.0064	30.3297	30.3336
1A5	Others	CH_4	No	0.0009	0.0000	0.0009	0.0009
1A5	Others	N_2O	No	0.0862	0.0001	0.0862	0.0862
1B2	Fugitive Emissions from Oil and Natural Gas	CO_2	No	2.1589	0.0024	2.1588	2.1589
1B2	Fugitive Emissions from Oil and Natural Gas	CH_4	Yes	520.6450	0.5269	517.9018	523.3881
1B2	Fugitive Emissions from Oil and Natural Gas	N_2O	No	0.0053	0.0000	0.0053	0.0053
2A1	Cement Production	CO_2	Yes	476.9147	0.0545	476.6549	477.1746
2A2	Lime Production	CO_2	No	4.0523	0.0028	4.0522	4.0525
2A3	Limestone and Dolomite Use	CO_2	No	14.3708	0.0273	14.3669	14.3747
2A4	Soda Ash Use	CO_2	No	15.5217	0.0088	15.5203	15.5230
2A7	Other: Mineral Wool Production	CO_2	No	0.0000	0.0004	0.0000	0.0000
2A7	Other: Bricks and Expanded Clay Production	CO_2	No	15.6916	0.0089	15.6902	15.6930
2C1	Iron and Steel Production	CO_2	No	3.1441	0.0004	3.1441	3.1441
2F1	Refrigeration and Air Conditioning	HFC	Yes	96.9365	0.1324	96.8081	97.0648
2F2	Expanded Foam	HFC	No	45.1716	0.0737	45.1383	45.2049
2F4	Aerosols	HFC	No	0.0791	0.0001	0.0791	0.0791
2F8	Electrical Equipment	PFC	No	0.0273	0.0000	0.0273	0.0273
2F8	Electrical Equipment	SF_6	No	0.6803	0.0009	0.6803	0.6803
3A1	Conventional Solvent Paint Application	CO_2	No	19.6123	0.0055	19.6113	19.6134
3A1	Waterborne Paint Application	CO_2	No	0.8445	0.0003	0.8445	0.8446
3.B	Degreasing and Dry Cleaning	CO_2	No	29.9961	0.0073	29.9939	29.9983
3.C	Polyurethane Products Processing	CO_2	No	0.4113	0.0003	0.4113	0.4113
3.C	Polystyrene Products Processing	CO_2	No	0.7209	0.0006	0.7209	0.7210

IPCC Code	Source category	GHG	Category key? [Yes or no]	The amount of emissions / removals in 2013 (Gg CO_2 Eq.)	Uncertainties covered by the trend in total national emissions (±%)	Lower Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)	Upper Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)
3.C	Rubber Processing	CO_2	No	0.0016	0.0003	0.0016	0.0016
3.C	Pharmaceutical Products Manufacturing	CO_2	No	2.6841	0.0018	2.6840	2.6841
3.C	Paints and Varnishes Production	CO_2	No	0.4021	0.0002	0.4021	0.4021
3.C	Tires Production and Restoration	CO_2	No	0.0332	0.0000	0.0332	0.0332
3.C	Footwear Production	CO_2	No	0.3958	0.0004	0.3958	0.3958
3D1	Printing	CO_2	No	0.3936	0.0001	0.3936	0.3936
3D2	Domestic Use of Solvents	CO_2	No	8.5495	0.0074	8.5489	8.5501
3D3	Seed Oil Extraction and Seed Drying	CO_2	No	0.1233	0.0001	0.1233	0.1233
3D3	Glue and Other Adhesives Use	CO_2	No	2.3936	0.0009	2.3936	2.3937
3D3	New Vehicle Dewaxing	CO_2	No	0.0295	0.0000	0.0295	0.0295
3D3	Tobacco Combustion	CO_2	No	0.0001	0.0000	0.0001	0.0001
3D3	Use of N_2O for Anaesthesia	N_2O	No	0.0000	0.0000	0.0000	0.0000
4A1	Enteric Fermentation: Cattle	CH_4	Yes	379.4545	0.1558	378.8632	380.0458
4A3	Enteric Fermentation: Sheep	CH_4	Yes	107.4261	0.0445	107.3783	107.4739
4A4	Enteric Fermentation: Goats	CH_4	No	18.8883	0.0099	18.8864	18.8902
4A6	Enteric Fermentation: Horses	CH_4	No	17.3769	0.0112	17.3750	17.3789
4A7	Enteric Fermentation: Mules and Asses	CH_4	No	0.4500	0.0003	0.4500	0.4500
4A8	Enteric Fermentation: Swine	CH_4	No	14.0012	0.0070	14.0002	14.0021
4A10	Enteric Fermentation: Rabbits	CH_4	No	3.6699	0.0029	3.6698	3.6700
4B1	Manure Management: Cattle	CH_4	No	18.9426	0.0183	18.9392	18.9461
4B3	Manure Management: Sheep	CH_4	No	2.8922	0.0015	2.8922	2.8923
4B4	Manure Management: Goats	CH_4	No	0.3742	0.0003	0.3742	0.3742
4B6	Manure Management: Horses	CH_4	No	1.5060	0.0010	1.5060	1.5060
4B7	Manure Management: Mules and Asses	CH_4	No	0.0342	0.0000	0.0342	0.0342
4B8	Manure Management: Swine	CH_4	No	22.6344	0.0152	22.6310	22.6379
4B9	Manure Management: Poultry	CH_4	No	7.5849	0.0046	7.5845	7.5852
4B10	Manure Management: Rabbits	CH_4	No	0.4976	0.0003	0.4976	0.4976
4B11	Manure Management: Cattle	N_2O direct	No	75.2788	0.0601	75.2336	75.3241
4B11b	Manure Management: Sheep	N_2O direct	No	68.7634	0.0331	68.7407	68.7862
4B11c	Manure Management: Goats	N_2O direct	No	16.0582	0.0130	16.0561	16.0603
4B11d	Manure Management: Horses	N_2O direct	No	13.1103	0.0081	13.1092	13.1114

IPCC Code	Source category	GHG	Category key? [Yes or no]	The amount of emissions / removals in 2013 (Gg CO_2 Eq.)	Uncertainties covered by the trend in total national emissions (±%)	Lower Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)	Upper Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)
4B11	Manure Management: Mules and Asses	N_2O direct	No	0.2231	0.0002	0.2231	0.2231
4B11f	Manure Management: Swine	N_2O direct	No	56.5303	0.0647	56.4937	56.5668
4B11g	Manure Management: Poultry	N_2O direct	No	74.9153	0.0478	74.8795	74.9512
4B11h	Manure Management: Rabbits	N_2O direct	No	23.7736	0.0187	23.7692	23.7781
4B12	Manure Management: Cattle	N_2O indirect	No	14.5805	0.0354	14.5753	14.5857
4B12b	Manure Management: Sheep	N_2O indirect	No	11.1741	0.0094	11.1730	11.1751
4B12c	Manure Management: Goats	N_2O indirect	No	2.6095	0.0063	2.6093	2.6096
4B12d	Manure Management: Horses	N_2O indirect	No	2.1304	0.0036	2.1303	2.1305
4B12	Manure Management: Mules and Asses	N_2O indirect	No	0.0363	0.0001	0.0363	0.0363
4B12f	Manure Management: Swine	N_2O indirect	No	14.0047	0.0448	13.9984	14.0109
4B12g	Manure Management: Poultry	N_2O indirect	No	18.5493	0.0161	18.5463	18.5523
4B12h	Manure Management: Rabbits	N_2O indirect	No	3.8632	0.0073	3.8629	3.8635
4D1a	Synthetic N Fertilizers Application	N_2O direct	Yes	205.1115	0.0396	205.0304	205.1926
4D1b	Organic N Applied as Fertilizer	N_2O direct	No	1.1621	0.0143	1.1620	1.1623
4D1c	Urine and Dung N Deposited on Pasture	N_2O direct	No	40.7834	0.0779	40.7516	40.8152
4D1d	N in Crop Residue	N_2O direct	No	111.5439	0.0417	111.4974	111.5903
4D1e	N Mineralization	N_2O direct	Yes	549.4030	0.3387	547.5421	551.2638
4D2a	Atmospheric Deposition of N volatilized	N_2On indirect	No	26.1645	0.0820	26.1430	26.1859
4D2b	N Leaching/Runoff from Managed Soils	N_2O indirect	No	201.2231	0.7301	199.7541	202.6921
5A1	Forest Land Remaining Forest Land	CO_2	Yes	1887.6165	1.7846	1853.9294	1921.3035
5A1	Non-CO_2 Emissions from Vegetation Fires	CH_4	No	0.9128	0.0007	0.9128	0.9128
5A1	Non-CO_2 Emissions from Vegetation Fires	N_2O	No	0.7454	0.0009	0.7454	0.7454
5B1	Land Covered with Woody Vegetation	CO_2	Yes	-483.4705	0.4598	-481.2475	-485.6935
5B2	Annual Change in Carbon Stocks in Mineral Soils	CO_2	Yes	3728.9563	1.8023	3661.7481	3796.1645
5B1	Non-CO_2 Emissions from Stubble Fields Burning	CH_4	No	0.0564	0.0005	0.0564	0.0564
5B1	Non-CO_2 Emissions from Stubble Fields Burning	N_2O	No	0.0216	0.0003	0.0216	0.0216
5C1	Grassland Remaining Grassland	CO_2	Yes	1461.3867	0.8649	1448.7471	1474.0262
5C2	Land Converted to Grassland	CO_2	No	4.1664	0.0050	4.1662	4.1666
6A1	Managed Solid Waste Disposal on Land	CH_4	Yes	590.1795	0.3339	588.2090	592.1500
6A2	Unmanaged Solid Waste Disposal on Land	CH_4	No	340.2676	0.2693	339.3512	341.1839
6A3	Industrial Solid Waste Disposal on Land	CH_4	No	413.4471	0.4791	411.4663	415.4280

IPCC Code	Source category	GHG	Category key? [Yes or no]	The amount of emissions / removals in 2013 (Gg CO_2 Eq.)	Uncertainties covered by the trend in total national emissions (±%)	Lower Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)	Upper Bound Emissions Estimate in 2013 (Gg CO_2 Eq.)
6B2	Domestic and Commercial Wastewater	CH_4	Yes	136.4857	0.0721	136.3872	136.5841
6B2	Domestic and Commercial Wastewater	N_2O	No	85.4174	0.0625	85.3641	85.4708
	NET TOTAL EMISSIONS			**12738.7123**	**3.1116**	**12342.3344**	**13135.0902**

2.6. Potential Improvements to the Methodology and Data Documentation Analysis

2.6.1. Energy Sector

Table 2.6.1 lists potential improvements suggested to be made in the next inventory cycle to the methodology and data documentation analysis in the Energy Sector.

Table 2.6.1: Potential Improvements to the Methodology and Data Documentation Analysis in Energy Sector

#	Category	Potential Improvements
1.	1A1 Energy Industries	Information structuring by type of electricity and heat generation installations has been initiated aimed at making the assessment of GHG emissions in category 1A1 "Energy Industries" more accurate, as this is a key category. The possibility of moving to a higher tier calculation method (Tier 3) is being assessed. Questionnaires to collect the necessary information were sent to each power generation facility. By February 2015 every natural gas based electricity and heat generation facility on the right bank of the Dniester River has provided answers for the questionnaires. Based on the filled in questionnaires GHG emissions were calculated according to Tier 3 calculation method. Also, emission factors to be used in Tier 3 calculation method were selected. For certain GHG these coefficients coincide with those used for Tier 1 calculation method. The analysis of results obtained by applying Tier 1 and Tier 3 calculation methods showed little difference, suggesting that Tier 1 method may be accepted for further use. A potential improvement would be using Tier 3 method for the MTPP. It should be noted that the MTPP is operated not only on natural gas, but also fuel oil and coal. Attempts will be made to collect activity data on fuel consumption for heat generation on the left bank of the Dniester River.
3.	1A2 Manufacturing Industries and Constructions	Potential improvements in the category 1A2 "Manufacturing industries and constructions" could be made with reference to the availability of updated activity data on fuel consumption for energy purposes in the category of respective sources on the left bank of the Dniester River.
4.	1A3 Transport	Potential improvements in the category 1A3 "Transport" could be made with reference to the availability of updated activity data on fuel consumption in the category of respective sources on the left bank of the Dniester River. Also the possibility of moving to higher tier methodology (Tier 3), for example when using the COPERT program, will be considered. For this to become possible it is necessary to collect disaggregated data on vehicles by type of transport, type of fuel used, and engine capacity, annual mileage and weather conditions for the vehicle use period. Questionnaires on data collection information were drafted and sent to the SE "CRIS" Registru for filling in, however, unfortunately until now the requested information could not be obtained. It would also be possible to shift to a higher level methodology (Tier 2) to assess the GHG emissions from railroad transport, but this category is not a key one, as the respective emissions are modest.
6.	1A4 Other Sectors	Potential improvements in the category of sources 1A4 "Other Sectors" could be made with reference to the availability of updated activity data on fuel consumption in the category of respective sources for the left bank of the Dniester River.
7.	1B2 Fugitive Emissions from Oil and Natural Gas	Potential improvements in the category 1B2 "Fugitive emissions from oil and natural gas", could be made with reference to the availability of additional information on fugitive leaks from oil and gas distribution systems (from the infrastructure for production, collection, processing, refining and distribution of petroleum products and natural gas to final customers; for the operation of equipment, losses from evaporation, ventilation, flaring, accidental spillages from pipeline systems damage, etc.). The possibility of moving to a higher tier methodology is being considered, as well as the requirements towards the activity data needed for this transition. Work on developing a questionnaire to be sent to the company "Valiexchimp" JSC, active in the extraction of oil and natural gas in the south, has been initiated.

#	Category	Potential Improvements
8.	Memo Items: International Bunkers (International Aviation)	Potential improvements in the category "Memo Items: International Aviation" can be made with reference to switching to a higher-tier methodology and collection of more disaggregated activity data. Referring to switching to a higher tier methodology, the 2006 IPCC Guidelines for National Greenhouse Gas Inventories recommend taking into account the EMEP/EEA Air Pollution Emission Inventory Guidebook 2013, Technical guidance to prepare national emission inventories. The latter provides a Tier 3 calculation methodology, and Annexes provide disaggregated EFs and relevant activity data by types of aircraft. The opportunity of using this calculation methodology has been assessed and test calculations of GHG emissions from international aviation by using Tier 3 methodology for 2013 have been carried out. This activity can be extended by covering the whole period under review.
9.	CO_2 emissions from biomass	Potential improvements in the category "CO_2 emissions from biomass" could be made with reference to collection of higher accuracy activity data from the sources alternative to Energy Balances of the Republic of Moldova, in particular for the period up to year 2010 (as of this year the NBS has switched to a different method of evaluating the biomass consumption in Moldova, and the differences compared with the previous period are significant). In order to ensure consistency in time it is necessary to extend the applicability of this methodology for the period up to 2010.

2.6.2. Industrial Processes Sector

The Table 2.6.2 lists potential improvements suggested to be made in the next inventory cycle to the process of documenting the assessment methodologies and activity data used in the Industrial Processes Sector.

Table 2.6.2: Potential Improvements to the Methodology and Data Documentation Analysis in the Industrial Processes Sector

#	Categories	Potential Improvements
1.	2A Mineral Products 2B Chemical Industry 2C Metal Production 2D Other Production	Potential improvements could include activities specifying the activity data used to evaluate GHG emissions from categories 2A Mineral Products, 2B Chemical Industry, 2C Metal Production and 2D Other Production, particularly due to the fact that the electronic versions of Statistical Reports "PRODMOLD-A: production in natural expression as total per country, by types of products", for the years 2005-2011 became available by the end of the current inventory cycle (during the current inventory cycle the "PRODMOLD-A Statistical Reports" for years 2012 and 2013 only were available). The respective Statistical Reports contain more accurate activity data (values are presented in tons and / or in kg, while in other statistical publications, in thousand tons), also the information contained in the respective statistical report is disaggregated by sectorial level, and production sub-categories.
2.	2F Consumption of Halocarbons and SF_6	Potential improvements could include activities aimed at completing the database with new data collected from companies operating in the sales of refrigeration and air conditioning systems, and activities aimed at specifying the country specific values of emission factors and parameters used to assess F-gas emissions from category 2F "Consumption of Halocarbons and SF_6".

2.6.3. Solvents and Other Products Use Sector

The Table 2.6.3 lists potential improvements suggested to be made in the next inventory cycle to the process of documenting the assessment methodologies and activity data used in the Solvents and Other Products Use Sector.

Table 2.6.3: Potential Improvements to the Methodology and Data Documentation Analysis in the Solvents and Other Products Use Sector

#	Category	Potential Improvements
1.	3A Paint Application 3B Degreasing and Dry Cleaning 3C Chemicals Products Manufacture and Processing 3D Other Use of Solvents	Possible improvements could include activities specifying the activity data used to assess GHG emissions from category 3A Paint Application, 3B Degreasing and Dry Cleaning 3C Chemicals Products Manufacture and Processing, 3D Other Use of Solvents, in particular due to availability by the end of this cycle inventory electronic versions of Statistical Report "PRODMOLD-A: total production in natural republic, by product type", for the years 2005-2011 (in current inventory cycle were available only the Statistical Report PRODMOLD-A: total production in natural republic, by product type" for the years 2012 and 2013). Statistical Reports contain activity data of higher precision (values are presented in tons and / or in kg, while in other statistical publications, in thousand tons, also in the statistical report that information is disaggregated both at sectorial level, production and subcategories).

2.6.4. Agriculture

Table 2.6.4 lists potential improvements suggested to be made in the next inventory cycle to the process of documenting the assessment methodologies and activity data used in the Agriculture sector.

Table 2.6.4: Potential Improvements to the Methodology and Data Documentation Analysis in the Agriculture Sector

#	Category	Potential Improvements
1.	4A Enteric Fermentation	Potential improvements could include activities specifying the activity data and productivity indicators used to calculate GHG emissions from category 4A "Enteric Fermentation" on the basis of a Tier 2 method, specifically for cattle and sheep, animal categories with the highest share in the structure of CH_4 emissions in this category.
2.	4B Manure Management	Potential improvements could include activities specifying the activity data and productivity indicators used to calculate CH_4 emissions of from category 4B "Manure Management", especially for cattle and pigs, the animal categories with the highest share in the structure of CH_4 emissions from this category; as well as activities aimed at specifying the value of the coefficients used to calculate national emission factors based on a Tier 2 method; also conducting a national study on updating the information on the share of different manure management systems in the livestock sector of the Republic of Moldova. With reference to N_2O emissions from the category 4B "Manure Management", potential improvements could include activities concerning collection of additional data, particularly data concerning manure management systems at the national level, and activities aimed at specification of country-specific values of nitrogen excretion rates $N_{ex\,(T)}$ (in kg N / head / year) for animal categories in the Republic of Moldova.
3.	4D Agricultural Soils	Potential improvements could include activities specifying the activity data and country-specific coefficients used to estimate direct N_2O emissions from return of crop residues to soil and N_2O emissions from nitrogen mineralization due to carbon loss resulting from land use change and soil management practices in the Republic of Moldova.

2.6.5. Land Use, Land-Use Change and Forestry Sector

Estimates of GHG emissions/removals from LULUCF sector calculated to date indicate the need for major methodological improvements, and the need to improve the process of activity data documentation/recording, particularly for key categories that have a major influence on the data quality. The Table 2.6.5 lists the suggested potential improvements to be made in the next inventory cycle aiming at documentation of assessment methodologies and activity data used in the LULUCF Sector.

Table 2.6.5: Potential Improvements to the Methodology and Data Documentation Analysis in Land Use, Land-Use Change and Forestry Sector

#	Category	Potential Improvements
1.	5A Forest Land	• Improving the records relating to distribution of forest by species. • Estimated and actual consumption records (legal and illegal harvesting) of timber from the forests in the Republic of Moldova. • Keep state records of forests and other types of forest vegetation in conformity with the methodology and at the frequency (every 5 years) set in the GD no.1007 of 30.10.1997. Make measurements verifications / updates of country-specific emission / removal factors (actual growth of biomass, wood density, extension coefficient, emission factors from forest fires etc.). • Improve cadastral records (as the main source of activity data) so that the cadastral explanatory notes mention the forest land use categories. • Conducting in-depth studies on carbon balance in forest land category, as well as other forest components including their contribution to the GHG inventory for LULUCF sector.
2.	5B Cropland	• Estimated and actual consumption records (legal and illegal harvesting) of wood from forest belts and other forest vegetation. • Verification / updating measurements of country-specific emission / removals factors (actual biomass growth, extension coefficients, emission factors from firing forest belts and other types of forest vegetation etc.). • Estimation and recording volumes of harvested biomass during the perennial plantations cleaning / maintenance works.

#	Category	Potential Improvements
3.	5C Grassland	• Improve cadastral records (as main source of activity data) so that the cadastral explanatory notes mention the land use categories to where the lands excluded from the agricultural and/or forestry circuit are transferred. • Estimate the biomass remaining after conversion of land with woody vegetation (forest vegetation, perennial plantations) into grasslands (root systems, herbaceous vegetation, etc.).
4.	5E Settlements	• Improvement of records of lands covered by forest vegetation (species, actual growth, timber harvest etc.).

2.6.6. Waste Sector

The Table 2.6.6 5 lists the suggested potential improvements to be made in the next inventory cycle aiming at documentation of assessment methodologies and activity data used in the Waste Sector.

Table 2.6.6: Potential Improvements to the Methodology and Data Documentation Analysis in the Waste Sector

#	Category	Potential Improvements
1.	6A Solid Waste Disposal on Land	Among the main priorities is the need to foster improved statistical recording related to waste. Waste management will be essentially restructured. In this context it is appropriate to transpose the Commission Decision 2000/532 / EC on the list of waste, including hazardous waste. Adoption of the List of waste, including hazardous waste, will help to improve the national statistical records waste management according to EU requirements and will allow meeting the commitments the Republic of Moldova has made while ratifying international treaties on environmental protection and effective reporting on their coherent implementation. In this context, it is recommended to improve the quality of activity data related to industrial solid waste generation and storage. The Waste Management Strategy for 2013-2027 of the Republic of Moldova provides for the development of integrated municipal waste management systems by harmonizing the legal, institutional and regulatory framework with the EU standards, based on regional approach (geographical position, economic development, availability of access roads, soil and hydrogeological conditions, the number of population etc.). In line with this, it foresees the promotion and implementation of selective collection systems in all localities, both in residential and production sector, as well as facilities for sorting, recycling and composting; development of municipal waste disposal capacities by construction of seven regional SWDS and two mechanical-biological treatment plants.
2.	6B Wastewater Handling	In order to improve access to quality water supply and sanitation services sector planning actions are taken at different levels in the Republic of Moldova. Recently, through the Government Decision No. 199 of 20/03/2014 it was approved the Water Supply and Sanitation Strategy (2014-2028); also Regional Water Supply and Sanitation Plans are underway at regional level (Development Regions South, Centre and North). All these actions will ensure improvements to the "Wastewater Handling" category by implementing well-defined regulatory, institutional and economic tools. Regulatory instruments will focus on the set of laws (Law on Water No. 272 of 23.12.2011, the draft Law on Water Supply and Sanitation, and a set of secondary legislation for the Law on Water, draft regional plans on water supply and sanitation and other). The provisions of these regulations will improve the water supply and sewerage services provision, wastewater, rainwater, sludge management what will overall improve service quality in this sector. Institutional instruments will focus on the sector management reform through regionalization of services, what would encourage the water supply and sewage utility operators to group together in companies operating regionally, based on inter-municipal associations / enterprises or public-private partnerships (PPP) that can serve as economically viable business models. Consolidation of the water utility operators will be accompanied by adjustment of tariffs to ensure proper operation and maintenance of systems, for further roll out and expansion of services over new settlements. Currently in the process of regionalization covers six water companies in Hancesti, Soroca, Ceadar-Lunga and Orhei. These reforms will change the wastewater management, what will help reduce GHG emissions from this sector. Another institutional aspect planned for implementation is establishment of regulatory bodies by extending the ANRE's scope, what will have a significant influence on the sector functioning regulation. These tools will determine the sector management sustainability. Economic instruments will focus on the concept of "sustainable cost recovery services" with three main features: an appropriate mix of tariffs, fees and transfers to finance recurrent and capital costs and to boost other forms of financing; predictability of public subsidies to facilitate investment (planning); pricing policies that make services accessible to all, including the poorest, while ensuring the sustainability of service providers. The sector planning perspective can essentially improve the management of wastewater and sludge from 6B "Wastewater Handling" Category. The sludge treatment actions will reduce the risks for the quality of natural water resources, which increasingly become susceptible to climate change. The actions listed above will contribute to meeting by the RM's commitments towards the implementation of the Protocol on Water and Health provisions and other international acts aimed at reducing the share of population with no access to safe drinking water and sanitation systems, and at the same time the UNFCCC provisions. Planning the phased harmonization of national water legislation with the EU legislation is also a good tool for enhancing the implementation of the best practices in the sector, wastewater, sludge treatment technologies, what will allow capturing and sustainably using the methane emissions from sludge deposits (including production of heat and electricity). Consideration of the use of country specific data related to the BOD fraction removed with sludge, the maximum capacity of methane formation, the methane correction factor and other relevant parameters used in the evaluation of emissions from the 6B "Wastewater Handling" category in the calculation of methane emissions, will improve future inventories.

Chapter 3: Description of QA/QC Procedures

1: Institutional Arrangements

2: Methods and Data Documentation

3: Description of QA/QC Procedures

4: Description of Archiving System

5: Key Category Analysis

6: National Inventory Improvement Plan

Contact data of the Coordinator of the National Greenhous Gas Inventory

Country	Republic of Moldova	**Postal address:**	156A Mitropolit Dosoftei str., room 37, MD-2004, Chisinau, Republic of Moldova
Name:	Taranu Marius	**Telephone/Fax:**	+373 22 23 22 47
Position:	Coordinator of the National Greenhouse Gas Inventory	**E-mail:**	marius.taranu@clima.md
Organization:	Climate Change Office, Ministry of Environment	**URL:**	http://www.clima.md

3. Quality Assurance/Quality Control Procedures

3.1. Background

Quality assurance and quality control measures are two distinct types of activities. The IPCC defines each as follows:

- **Quality Assurance (QA)** – a planned system of review procedures conducted by personnel not directly involved in the inventory development process, to verify whether data quality related objectives have been achieved, confirm that the inventory represents the best possible estimate of emissions and removals, given the available data and scientific knowledge. At the same time, it contributes to ensuring the quality control programs efficiency.
- **Quality Control (QC)** – a system of routine technical activities implemented by the inventory development team to measure and control the quality of the inventory as it is prepared. Quality control includes general methods such as data accuracy and estimates calculation control, as well as use of approved standardized procedures for calculating emissions, measurements, uncertainties estimates, information archiving and reporting (Tier 1).

  A higher tier quality control includes technical review of key categories, activity data and emission factors, and estimation methods used.

  Quality control ensures:

  i) constant and thorough inventory verification to confirm that the data are intact, accurate and complete;

  ii) identification and correction of errors or omissions;

  iii) documentation and archiving of all information underlying the inventory development and registration of all quality control activities;

The Quality Assurance and Quality Control Plan contains the following elements:

- List of personnel responsible for coordinating QA/QC;
- General (Tier 1) QC procedures;
- Source-specific (Tier 2) QC procedures;
- QA review procedures;
- Reporting, documentation and archiving procedures.

Each of these elements are described in more detail below.

3.2. Quality Assurance and Quality Control Plan

The written QA/QC Plan is a fundamental element of the National QA/QC System. This plan outlines QA/QC activities performed, the personnel responsible for these activities, and the schedule for completing these activities. The following sections describe the QA/QC Plan that the Republic of Moldova is following to ensure a high quality national inventory.

3.3. Quality Assurance and Quality Control Personnel

The QA/QC Coordinator is the main person responsible for implementing the QA/QC Plan. In this role, the QA/QC Coordinator:

- Clarifies and communicates QA/QC responsibilities to inventory members.
- Develops and maintains QA/QC checklists appropriate to various inventory team member roles.
- Ensure timely and accurate completion of QA/QC checklists and the related activities.
- Draws up an overall schedule of QA/QC activities and the schedule of external revisions to be made by the third parties;
- Manages and delivers documentation of QA/QC activities to the inventory and archive coordinators;
- Coordinates external reviews of the inventory document and ensures that comments are incorporated into the inventory.

In this role, the QA/QC Coordinator communicates with several other inventory members.

Table 3.1 summarizes the key personnel responsible for QA/QC activities.

Table 3.1: Personnel Responsible for QA/QC Activities

Title	QA / QC Responsibility	Name	Organisation	Contact Information
National GHG Inventory Coordinator	All aspects of the inventory program, cross-cutting QA/QC	Marius Ţăranu	Climate Change Office, Ministry of Environment	156A Mitropolit Dosoftei str., room 37, MD-2004, Chisinau, Republic of Moldova Tel/Fax: +373 22 23 22 47, E-mail: marius.taranu@clima.md
QA / QC Coordinator	Implementing the overall QA / QC Plan	Marius Ţăranu	Climate Change Office, Ministry of Environment	156A Mitropolit Dosoftei str., room 37, MD-2004, Chisinau, Republic of Moldova Tel/Fax: +373 22 23 22 47, E-mail: marius.taranu@clima.md
Energy Sector Lead	Implement categories specific QA/QC procedures (Tier 1 and Tier 2 procedures listed in Tables 3.2 and 3.3 below) (Energy)	PhD. Technical Sciences Elena Bicova	Energy Institute of the Academy of Sciences	5 Academiei str., room 443, MD-2028, Chisinau, Republic of Moldova Tel.: +373 22 73 74 94, E-mail: elena-bicova@mail.ru
Industrial Processes Sector Lead	Implement categories specific QA / QC procedures (Tier 1 and Tier 2 procedures listed in Tables 3.2 and 3.3 below) (Industrial Processes)	PhD in Chemistry Vladimir Brega	Institute of Ecology and Geography of the Academy of Sciences	1 Academiei str., room 405, MD-2028, Chisinau, Republic of Moldova Tel.: +373 22 73 19 18, E-mail: bregaradu@rocketmail.com
Solvents and Other Products Use Sector Lead	Implement categories specific QA / QC procedures (Tier 1 and Tier 2 procedures listed in Tables 3.2 and 3.3 below) (Solvents and Other Products Use)	PhD in Biology Anatolie Tarita	Institute of Ecology and Geography of the Academy of Sciences	3 Academiei str., room 437, MD-2028, Chisinau, Republic of Moldova Tel.: +373 22 71 89 38, +373 22 72 17 74 , E-mail: ozonmd@mail.ru
Agriculture Sector Lead	Implement categories specific QA / QC procedures (Tier 1 and Tier 2 procedures listed in Tables 3.2 and 3.3 below) (Agriculture)	PhD in Agriculture Sergiu Cosman	Scientific Practical Institute for Biotechnology in Animal Husbandry and Veterinary Medicine	Maximovca village, Anenii-Noi district, MD-6525, Republic of Moldova Tel.: +373 22 35 93 57; +373 22 35 92 95, E-mail: sergiu_cosman@mail.ru

Title	QA / QC Responsibility	Name	Organisation	Contact Information
LULUCF Sector Lead	Implement categories specific QA / QC procedures (Tier 1 and Tier 2 procedures listed in Tables 3.2 and 3.3 below) (Land Use, Land-Use Change and Forestry)	Ion Talmaci	Forest Research and Management Institute, Agency "Moldsilva", Ministry of Environment	69 Calea Iesilor Str., MD-2069, Chisinau, Republic of Moldova Tel: +373 22 92 89 59, E-mail: iontalmaci@mail.ru
Waste Sector Lead	Implement categories specific QA / QC procedures (Tier 1 and Tier 2 procedures listed in Tables 3.2 and 3.3 below) (Waste)	PhD in Chemistry Tatiana Ţugui	Environmental Pollution Prevention Office, Ministry of Environment	9, Cosmonautilor str., office 736, MD-2005 Chisinau, Moldova Tel. / Fax: +373-22-22-25-42 E-mail: tuguitatiana@ymail.com
External Reviewer - Energy Sector	Review of the inventory by an expert who was not directly involved in compiling the GHG inventory (Energy Sector), to confirm that the inventory provides the best possible estimate of emissions and removals	PhD. Technical Sciences Michael Tirsu, Director	Energy Institute of the Academy of Sciences	5, Academiei str. MD-2028, Chisinau, Moldova Tel.: +373 22 73-53-84, E-mail: tirsu.mihai@gmail.com
External Reviewer - Industrial Processes Sector	Review of the inventory by an expert who was not directly involved in compiling the GHG inventory (Industrial Processes Sector), to confirm that the inventory provides the best possible estimate of emissions and removals	PhD Ing. Natalia Beglet	Technical University of Moldova	78, 31 August 1989 str. block no. 2 MD-2004, Chisinau, Moldova Tel.: + 373-22-237-282 E-mail: natalia.beglet@gmail.com
External Reviewer - Solvents and Other Products Use Sector	Review of the inventory by an expert who was not directly involved in compiling the GHG inventory (Solvents and Other Products Use Sector), to confirm that the inventory provides the best possible estimate of emissions and removals	Lecturer, PhD Ing. Andrei Chiciuc, Head of Department	Technical University of Moldova, Department of Quality Management	78, 31 August 1989 str. block nr. 2 MD-2004, Chisinau, Moldova Tel.: + 373-22-237-619 E-mail: 4chiciuc@gmail.com
External Reviewer - Agriculture Sector (Animal Breeding)	Review of the inventory by an expert who was not directly involved in compiling the GHG inventory (Agriculture Sector – Animal Breeding), to confirm that the inventory provides the best possible estimate of emissions and removals	Prof., PhD Agr. Nicholas Bucataru	Technical University of Moldova	8/1, Mirceşti str. Ap t.71 Chisinau, Republic of Moldova Tel.: + 373-22-43-21-50 E-mail: bucataru_n@yahoo.com
External Reviewer - Agriculture Sector (Agriculture Soils)	Review of the inventory by an expert who was not directly involved in compiling the GHG inventory (Agriculture Sector – Agriculture Soils), to confirm that the inventory provides the best possible estimate of emissions and removals	PhD Agr., conf. Tamara Leah, Deputy Director	Institute of Soil Science, Agrochemistry and Soil Protection "Nicolae Dimo"	100, Ialoveni str. MD-2070, Chisinau, Moldova Tel.: + 373 22 28 48 43 28 48 62 Fax: + 373 22 28 48 55 E-mail: tamaraleah09@gmail.com
External Reviewer - Land Use, Land-Use Change and Forestry	Review of the inventory by an expert who was not directly involved in compiling the GHG inventory (Land Use, Land-Use Change and Forestry Sector), to confirm that the inventory provides the best possible estimate of emissions and removals	Head of the forecasts, programs and strategies section Liliana Spitoc	Forest Research and Management Institute, Agency "Moldsilva", Ministry of Environment	69, Calea Ieşilor str. Chisinau, Moldova Tel.: + 373-22-92-89-56, E-mail: liliana.spitoc@yahoo.com
External Reviewer - Waste Sector	Review of the inventory by an expert who was not directly involved in compiling the GHG inventory (Waste Sector), to confirm that the inventory provides the best possible estimate of emissions and removals	Ludmila Gofman	Independent consultant	E-mail: ludmila.gofman@gmail.com

3.4. Communicating Quality Assurance and Quality Control Plan

The contents of the QA/QC Plan are communicated to inventory team members and outside experts so that the procedures can be effectively implemented, evaluated, and improved. The QA/QC Coordinator implements the following QA/QC procedures:

- Convene a meeting with all team members to update the QA/QC Plan;
- Finalize and distribute the QA/QC Plan to all team members required to perform QA/QC;
- Conduct a "kick-off" meeting with all of those working on the inventory, introduce QA/QC Plan and distribute QC checklists;
- Send written or electronic memos reminding team members of their QA/QC responsibilities and overall schedule.

3.5. General (Tier 1) QC Procedures for Source/Sink Category Leads

A minimum set of QC procedures are followed each inventory consecutive cycle for all categories to ensure that basic standards of quality are met. These standards focus on the processing, handling, documenting, archiving, and reporting procedures common to all categories. Table 3.2 lists the specific Tier 1 QC activities with indication of deadlines by when the activities were completed.

Table 3.2: General (Tier 1) QC Activities

QC activity	Quality Control and Verification Procedures	Task completed		Corrective action taken	
		Name	Date	Supporting documents	Date
Data Gathering, Input, and Handling Checks					
Check that assumptions and criteria for the selection of AD and EFs are documented.	• Cross-check descriptions of activity data and emission factors with information on categories and ensure that these are properly recorded and archived.	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
Check for transcription errors in data input and reference.	• Confirm that bibliographical data references are properly cited in the internal documentation (MDD report) • Cross-check a sample of input data from each category (either measurements or parameters used in calculations) for transcription errors. • Utilize electronic data where possible to minimize transcription errors. • Check that spreadsheet features are used to minimize user/entry error: o Avoid hardwiring factors into formulas. o Create automatic look-up tables for common values used throughout calculations. o Use cell protection so fixed data cannot accidentally be changed. o Build in automated checks, such as computational checks for calculations, or range checks for input data.	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
Check that emissions/removals are calculated correctly.	• Reproduce a representative sample of emissions/removals calculations. • If models are used, selectively mimic complex model calculations with abbreviated calculations to judge relative accuracy.	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		

QC activity	Quality Control and Verification Procedures	Task completed		Corrective action taken	
		Name	Date	Supporting documents	Date
Check that parameter and emission/removal units are correctly recorded and that appropriate conversion factors are used.	• Check that units are properly labelled in calculation sheets and (MDD template report) • Check that units are correctly carried through from beginning to end of calculations. • Check that conversion factors are correct. • Check that temporal and spatial adjustment factors are used correctly.	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
Check the integrity of database files.	• Confirm that the appropriate data processing steps are correctly represented in the database. • Confirm that data relationships are correctly represented in the database. • Ensure that data fields are properly labelled and have the correct design specifications. • Ensure that adequate documentation of database and model structure and operation are archived.	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
Check for consistency in data between categories.	• Identify parameters (e.g., activity data, constants) that are common to multiple categories and confirm that there is consistency in the values used for these parameters in the emissions/removals calculations.	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
Check that the movement of inventory data among processing steps is correct.	• Check that emissions/removals data are correctly aggregated from lower reporting levels to higher reporting levels when preparing summaries. • Check that emissions/removals data are correctly transcribed between different intermediate products.	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
Data Documentation					
Review of internal documentation and archiving.	• Check that there is detailed internal documentation to support the estimates and enable duplication of calculations. • Check that every primary data element has a reference for the source of the data (via cell comments or another system of notation). • Check that inventory data, supporting data, and inventory records are archived and stored to facilitate detailed review. • Check that the archive is closed and retained in secure place following completion of the inventory • Check integrity of any data archiving arrangements of outside organizations involved in inventory preparation.	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
Calculation Checks					
Check methodological and data changes resulting in recalculations.	• Check for temporal consistency in time series input data for each category. • Check for consistency in the algorithm/method used for calculations throughout the time series. • Reproduce a representative sample of emission calculations to ensure mathematical correctness.	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		

QC activity	Quality Control and Verification Procedures	Task completed		Corrective action taken	
		Name	Date	Supporting documents	Date
Check time series consistency	• Check for temporal consistency in time series input data for each category. • Check for consistency in the algorithm/method used for calculations throughout the time series. • Check methodological and data changes resulting in recalculations. • Check that the effects of mitigation activities have been appropriately reflected in time series calculations.	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
Check completeness	• Confirm that estimates are reported for all categories and for all years from the appropriate base year over the period of the current inventory. • For subcategories, confirm that the entire category is being covered. • Proved clear definition of 'Other' type categories. • Check that known data gaps that result in incomplete category emissions/removals estimates are documented, including qualitative evaluation of the importance of the estimate in relation to total net emissions (e.g. subcategories classified as 'not estimated').	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
Trend checks	• For each category, compare current inventory estimates to previous estimates, if available. If there are significant changes or departures from expected trends, re-check estimates and explain any difference. Significant changes in emissions or removals from previous years may indicate possible input or calculation errors. • Check value of implied emission factors (aggregate emissions/removals divided by activity data) across time series. Are changes in emissions or removals being captured? • Check if there any unusual or unexplained trends noticed for activity data or other parameters across the time series.	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
Source: This list has been adapted from IPCC Good Practice Guidance and the 2006 IPCC Guidelines for National GHG Inventories.					

3.6. Category-Specific (Tier 2) Procedures

In addition to the Tier 1 QC procedures outlined in the preceding section, Tier 2 QC procedures, particularly for select key categories, were applied.

These key categories are:

1) 5B Croplands – CO_2
2) 1A1 Energy Industries – Gaseous fuels – CO_2
3) 5A Forest Land – CO_2
4) 1A3b Road Transportation – CO_2
5) 5C Grassland – CO_2
6) 6A Solid Waste Disposal on Land – CH_4
7) 1A4b Other Sectors: Residential Sector – CO_2

8) 4D Direct N_2O emissions from Agricultural Soils – N_2O
9) 1A2 Manufacturing Industries and Constructions – CO_2
10) 4A Enteric Fermentation – CH_4
11) 1B2 Fugitive Emissions from Oil and Gas Operations – CH_4
12) 2A1Cement Production – CO_2
13) 1A4a Other sectors: Commercial / Institutional Sectors – CO_2
14) 1A1 Energy Industries – Solid Fuels – CO_2
15) 4B Direct N_2O emissions From Manure Management – N_2O
16) 4D Indirect N_2O emissions from Agricultural Soils – N_2O
17) 1A4c Other sectors: Agriculture / Forestry / Fisheries Sectors – CO_2
18) 6B Wastewater Handling – CH_4
19) 2F1 Air Conditioning Equipment – HFCs
20) 6B Wastewater Handling – CH_4
21) 1A1 Energy Industries – Liquid Fuels – CO_2
22) 1A3c Railways – CO_2
23) 2A3 Limestone and Dolomite Use – CO_2.

Specific procedures (Tier2) verification and QC procedures are listed in Table 3.3.

Table 3.3: Category-Specific (Tier 2) QC Procedures

QC activity	Quality control and Verification Procedures	Task completed		Corrective action taken	
		Name	Date	Supporting documents	Date
Assess the applicability of IPCC default factors	• Evaluate whether national conditions are similar to those used to develop the IPCC default factors • Compare default factors to site or plant-level factors • Consider options for obtaining country-specific factors • Document results of this assessment	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
Review country-specific factors	• QC the data used to develop the country-specific factor • Assess whether secondary studies used to develop country-specific factors used Tier 1 QC activities • Compare country-specific factors to IPCC defaults; document any significant discrepancies • Compare country-specific factors to site or plant-level factors • Compare to factors from other countries (using IPCC Emission Factor Database) • Document results of this assessment	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		

QC activity	Quality control and Verification Procedures	Task completed		Corrective action taken	
		Name	Date	Supporting documents	Date
Review measurements	• Determine if national or international (e.g., ISO) standards were used in measurements • Ensure measurement equipment is calibrated and maintained properly • Compare direct measurements with estimates using a factor; document any significant discrepancies	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
Evaluate time series consistency	• Review significant (> 10%) changes in year-over-year estimates for categories and sub-categories • Compare top-down and bottom-up estimates for similar orders of magnitude • Conduct reference calculations that use stoichiometric ratios and conservation of mass and land	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Ţugui	05/31/2015		
Review national level activity data	• Determine the level of QC performed by the data collection agency. If inadequate, consider alternative data sources such as IPCC defaults and international data sets. Adjust the relevant uncertainty accordingly. • Evaluate time series consistency • Compare activity data from multiple references if possible	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
Review site-specific activity data	• Determine if national or international (e.g., ISO) standards were used in estimates • Compare aggregated site-specific data (e.g. production) to national statistics/data • Compare data across similar sites • Compare top-down and bottom-up estimates for similar orders of magnitude	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
QC uncertainty estimates	• Apply QC techniques to uncertainty estimates • Review uncertainty calculations • Document uncertainty assumptions and qualifications of any experts consulted	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		
Verify GHG estimates	• Compare estimates to other national or international estimates at the national, gas, sector, or sub-sector level as available	Elena Bicova Vladimir Brega Anatol Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	05/31/2015		

3.7. Quality Assurance (QA) Procedures

Expert review offers the opportunity to uncover technical issues related to the application of methodologies, selection of activity data, and development and choice of emission factors. Because of their knowledge and experience in areas related to the inventory, the listed experts indicated in Table 3.4, below, have been included in the QA process. Their comments have been reviewed and addressed, as appropriate, prior to the submission of the Inventory of anthropogenic GHG emissions by sources and sinks of CO_2 in the current inventory cycle.

Table 3.4 External Reviewers

Name	Organisation	Area of Expertise	Contact Information	Summary of conclusions and recommendations
PhD Technical Sciences Michael Tirsu, Director	Institute of Power Engineering of the Academy of Sciences of Moldova	Energy Sector	5, Academiei Str. MD-2028 Chisinau, Moldova Tel.: +373-22-73-53-84, E-mail: tirsu.mihai@gmail.com, mtirsu@ie.asm.md	The quality assurance of the material presented in Chapter 3 "Energy" of the National Inventory Report: 1990-2013, Emission Sources and Sinks in the Republic of Moldova, has revealed some errors that need to be corrected to improve the quality of the material. The errors identified in the draft version of Chapter 3 relate to: • Page 8 – spelling mistakes • Page 13 –consider the included Note • Page 52 – the title of Figure 3-14 is not correct • Page 60 - the word "of" is repeated redundantly • The spread sheets contain some comments that need to be removed. The "Energy Sector" GHG emissions were calculated correctly, a fact confirmed by test calculation made for 2013 year. The inventory of emissions for the time series 1990-2013 is carried out in conformity with the IPCC guidelines (1997, 2000 and 2006), the activity data used in this chapter are properly substantiated. The revealed errors do not undermine the quality of the inventory document and it can be used for development of GHG mitigation proposals in energy sector and in other practical purposes.
PhD Ing. Natalia Beglet	Technical University of Moldova	Industrial Processes Sector	#78, 31 August 1989 Str., Block No. 2, MD-2004, Chisinau, Moldova Tel: +373-22-237-282 E-mail: Natalia.Beglet@gmail.com	Chapter 4 "Industrial Processes" of the National Inventory Report: 1990-2013, Emission Sources and Sinks in the Republic of Moldova was developed in compliance with all methodological requirements for the GHG inventories: Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, 2006 IPCC Guidelines for National Greenhouse Gas Inventories, ECE Convention on Long-Range Transboundary Air Pollution and European Environment Agency EMEP/CORINAIR (2000), Atmospheric Emission Inventory Guidebook EMEP/EEA Air Pollution Emission Inventory Guidebook 2013, Technical guidance to prepare national emission inventories, and other guidelines developed under the UNFCCC. For each category of the emission sources in the Chapter 4 "Industrial Processes" of the National Inventory Report: 1990-2013, Emission Sources and Sinks in the Republic of Moldova were provided a brief description, methodological issues, uncertainty assessment results, description of QA/QC procedures, information on recalculations made and planned improvements. For most categories and emission sources official sources or information directly from producers were used as activity data and reference sources. Data used in Chapter 4 "Industrial Processes" are clear and can be used to carry out various studies.
PhD Ing. Andrei Chiciuc, Head of Quality Management Department	Technical University of Moldova	Solvents and Other Products Use Sector	78, 31 August 1989 Str., Block No. 2 MD-2004, Chisinau, Moldova Tel: + 373-22-237-619 E-mail: 4chiciuc@gmail.com	Chapter 5 "Solvents and Other Products Use" of the National Inventory Report: 1990-2013, Emission Sources and Sinks in the Republic of Moldova was developed in compliance with all methodological requirements to GHG inventories. For each category of the emission sources in the Chapter 5 "Solvents and Other Products Use" of the National Inventory Report: 1990-2013, Emission Sources and Sinks in the Republic of Moldova were provided a brief description, methodological issues, uncertainty assessment results, description of QA/QC procedures, information on recalculations made and planned improvements. For most emission sources, official sources or information directly from producers were used as activity data and references. Data included in this chapter are substantiated enough and can be successfully used for various practical purposes.
Prof., PhD Agr. Sci. Nicholai Bucataru	Technical University of Moldova	Agricultural Sector - Animal Breeding	8/1, Mirceşti Str. Ap.71 Chisinau, Republic of Moldova Telephone: +373-22-43-21-50 E-mail: bucataru_n@yahoo.com	Chapter 6 "Agriculture" of the National Inventory Report: 1990-2013, Emission Sources and Sinks in the Republic of Moldova contain some inaccuracies, which we believe should be corrected: p.3. - "Tier 1 (IPCC 2006)" should be replaced by "Tier 1 (IPCC 2000)"; p. 5. - The Figure 6.1, in the first box "24 to 48 times" should be replaced by "24 to 48 hours"; p. 6 - Multiplication sign in the formula is represented as x and should be represented as "·" ; p.7. - In Table 6.9 "Hens and roosters" should be replaced by "Chicken" to comply with the wording in other tables and to avoid use of masculine gender forms for other species as well; p. 8. - Table 6.10 to replace the phrase "bull production" with "bull breeding", "birds of all ages" with "birds of all species and ages"; page 9. – "Bucătaru, Rodionov, 2003" shall be replaced by "Bucataru, Radionov, 2003"; "Bucătaru, Rodionov, Varban, 2003" shall be replaced by Bucataru, Radionov, Varban, 2003". The same correction shall be made on p. 11, and p. 64, 65, 66; page 10 – the incorrect word order in "cattle" shall be corrected; p. 12 - Table 6-19 the meaning of "Gross Power" is not clear; p. 19, line 3 from above the wording for "Tier 2 methodology" should be changed; p. 23 - in Table 6.29 "Broiler" should be replaced by "Broilers"; p. 29 - it is necessary to decipher the abbreviation "mm" in formula N_2O D(mm) and 44/28 ratio, because, traditionally, 1 mm stands for 1 millimetre. The same is also found on p. 32, 33, 35; p. 30 - Table 6.41 the word "turkey" should be replace with "Turkeys", as in other tables; p. 33 - row 23 below probably NH_3 was meant, not NO_3; Also on this page it is necessary to explain why "Frac $_{leach\ MS}$" in the formula and "Frac $_{Loss\ MS}$" further

Name	Organisation	Area of Expertise	Contact Information	Summary of conclusions and recommendations
				below. It is also necessary to unify "the source category 4A" and "source category 4.A". The same situation with the source category 4B (the text is 4B and 4.B). Annex 5-3.4 to the Report supplements the results of uncertainty analysis, including from livestock. Here a streamlined wording for "Turkeys" should be used. Tab. CH4 Emissions (Category 4B) Tier 1. Table CH_4 Emissions (Category 4B) Tier 2. "calves and heifers up to one year" should be replaced with "calves up to one year" and "Hens and roosters" with "Chicken" Pos. 239 – should be specified, as the average annual amount of milk, as specified in the table, is expressed in quintals, and it is impossible that a goat yields 204 quintals of milk /year; the same is with sheep in pos. 240 (see. pos. 236 and 237); the situation is similar in pos. 241-246, where the measuring unit is ton. A goat cannot yield more than 20 tons of milk / year. In the same table "Bulls production" should be replaced by "breeding bulls" pos. 271, 362), spelling error should be corrected in "mares" (pos. 277 and 288 ,298, 309, 326, 336, 367), "birds of all ages" shall be replaced with "birds of all species and ages" (pos. 278, 289, 299, 310, 327, 337 368, 376, 383, 390), proper and streamlined wording should be used for "sows" (pos. 322, 332), and "asinine" (pos. 348) . It is unclear why not all sections in pos. 239-246; 290-299; 301-310; 311-355 are filled in this table. Overall, subsections 6.2 "Enteric fermentation" (category 4A) and 6.3 "Manure Management" (category 4B) in Chapter 6 "Agriculture" in the National Inventory Report: 1990-2013, Emission Sources and Sinks in the Republic of Moldova correct reflects the state of GHG emissions sources from the livestock sector of the Republic of Moldova.
PhD Agr. Sci., Tamara Leah, Deputy Director	Institute of Soil Science, Agrochemistry and Soil Protection "Nicolae Dimo"	Agricultural Sector – Agricultural Soils	Str. Ialoveni 100, et. I MD-2070, Chisinau, Moldova Tel: +373 22 28 48 43, +373 22 28 48 62 Fax: +373 22 28 48 55 E-mail: tamaraleah09@gmail.com	As a result of verification of information contained in section 6.4 of Chapter 6 "Agriculture" of the National Inventory Report: 1990 to 2013, Emission Sources and Sinks in the Republic of Moldova, it has been revealed that a brief description of emissions trends, key categories, applied methodologies, AD and EFs are provided for each category. It has been stated that in order to ensure the consistency of results over time for the entire period under review, the same calculation methodology was used for all direct and indirect N_2O emission sources. The undertaken calculations are correct. Bibliographical sources used in respective chapter referring to activity data used, are included in the bibliography section. All references contained in the respective chapter are cited in the text. References included in the chapter are transcribed correctly. Changes in activity data used to measure GHG emissions in the current inventory cycle versus the previous cycle, are well justified. Criteria for selection activity data and emission factors are analysed and substantiated. The emission factors used in the current inventory cycle are representative. All GHG emissions calculations from primary tables are included in the summary tables, measurement units, parameters and conversion factors are applied properly. Measurement units are properly labelled and properly managed. Subchapter 6.4 of Chapter 6 "Agriculture" of the National Inventory Report: 1990-2013, Emission Sources and Sinks in the Republic of Moldova are developed in accordance with the requirements of IPCC Guidelines (1997, 2000, 2006). The data included in this section are complete and may be recommended for different practical purposes for evaluation of the quality of different components of the environment. The information presented in section 6.4 can be used for formulating GHG mitigation projects in agriculture by developing rational land cultivation and soils fertilization systems, which would reduce losses of carbon and nitrogen, and contribute to long-term storage of these elements in the soil in the form of organic material (humus) and other organic substances resistant to decomposition.
Liliana Spitoc, Head of the Forecasts, Programs and Strategies Section	Forest Research and Management Institute, Agency "Moldsilva", Ministry of Environment	LULUCF Sector	69, Calea Iesilor Str. Chisinau, Moldova Phone: + 373-22-92-89-56, E-mail: liliana.spitoc@yahoo.com	As a result of the spread sheets verification it has found that the data used in tables and figures in Chapter 7 "LULUCF" of the National Inventory Report: 1990-2013, Emission Sources and Sinks in the Republic of Moldova, especially in subsections 7.2 Forest Land (category 5A), 7.3 Cropland (category 5B) and 7.4 Grassland (category 5C) are correctly calculated in accordance with the requirements of the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories. Spread sheets with deviations from standards (IPCC, 1997) have not been revealed. Activity data used at national level are reasonable. Reference sources for the activity data are official (state records data on forest fund lands - forests area, species distribution, woody mass volume, etc.; forest management data - areas and dendrometrical characteristics of forests and other forest vegetation; the general land cadastre data - area of forest vegetation outside the forest fund, meadows, perennial plantations, arable land, land under settlements, other categories of land, etc.; Statistical Reports of "Moldsilva" Agency concerning the volume of timber harvested in the process forest cuttings (by categories and species); Statistical Reports of "Moldsilva" Agency concerning the volume of illegal logging detected in the managed forestry fund, as well as in forests and forest vegetation managed by other owners; the Reports of the State Ecological Inspectorate - volume of illegal logging detected by its territorial subdivisions; the Reports of the State Ecological Inspectorate - volume timber mass authorized for harvesting in forests and forest vegetation owned by municipalities, ministries, departments; National Reports on the State of the Environment in the Republic of Moldova - the stubble burned areas; Statistical Yearbooks - data-harvesting of wood products, forest areas under fires, areas sown with crops, total ad per ha output of the main crops, etc. The results of activity data samples verification showed no transcription errors.

Name	Organisation	Area of Expertise	Contact Information	Summary of conclusions and recommendations
				However, some small errors / unclear issues were identified, the removal of which will improve the presentation of the NIR: though both versions of abbreviation used in Romanian language for "LULUCF" are correct, it should be streamlined through the whole report. For 5B category a similar situation is for "Cropland" (p. 2, 3, 4, 6, 27 etc.); On p.7 Chapter 7.2 sub-chapter 7.21. paragraph 2, sentence 3 and 4: It is proposed to replace the word "stability" with "consistency", which corresponds to the national definition of forest, approved by the Order of "Moldsilva" Agency No. 7-p of 11.01.2006; p. 8 paragraph 2 - Forest Code is cited, however it not found in the list of references; the definition of the variable p. 9 "$L_{Fuelwood}$ - The annual loss of biomass as a result of timber harvesting, calculated according to the equation", timber should be replaced by $L_{firewood}$; p. 9 use of "m^3" should be streamlined; P. 10 Table 7-7. Punctuation issue - should be a colon (:); p. 12 after tab. 7-11 source: typo; concrete source should be indicated for the coefficients used: e.g. on p. 13 CF = combustion factor, default value used is 0.45 (IPCC, 2006), the source should be indicated: "2006 IPCC Guidelines, vol.4 Chpter 2, Table 2.6, p.2.48) "MB • Cf which is 19.8 t d.m. / ha – the source will be"2006 IPCC Guidelines, vol.4, chapter 2, Table 2.4, p. 2.45-2.46" p.13, Table 7-13: the source should be indicated: "2006 IPCC Guidelines, vol. 4, chapter 2, Table 2.5, p. 2.47" p. 39, Appendix Table 3-4.1: Column II "average stability" should be replaced by "average consistency"; p. 17 the cited source (Paladiiciuk, 1986) is not mentioned in the list of bibliography; p. 18 head. 7.3.2, paragraph 2 and further in the text the appropriate wording should be used consistently through the text; p. 20, paragraph 1, sentence "annual" should be replaced with "perennial" p. 20, paragraph 2, sentence 2, "stands productivity" shall be replaced by "forest belts productivity"; p. 21 equation "non-CO_2 emissions" if the equation from the cited source is used, it should be used as in the original, and "combustion emissions" should be replaced by L_{nature}. In conclusion, Chapter 7 "LULUCF" of the National Inventory Report: 1990-2013, Emission Sources and Sinks in the Republic of Moldova, meets the methodological requirements, is well structured, well-argued and formatted and ready to be published, providing the respective corrections are made.
Ludmila Gofman	Independent consultant	Waste Sector	E-mail: ludmila.gofman@gmail.com	As a result of verification and quality assurance of categories 6A "Solid Waste Disposal on Land" and 6B "Wastewater Handling" within Sector 6 "Waste", no data entry or calculation errors were revealed. Some omissions in terms of reference sources cited in the bibliography list and vice versa were noted. Also, in some cases (e.g., in footnotes and bibliography) references to web addresses indicate hyperlinks with no brackets. As a result of verification of tables, figures, equations and overall format, errors or omissions have not been identified. More details on above mentioned comments are provided in the verification checklists and in the electronic version of draft Chapter 8 "Waste" of the National Inventory Report: 1990-2013, Emission Sources and Sinks in the Republic of Moldova. Chapter 8 "Waste Sector" of the National Inventory Report: 1990-2013, Emission Sources and Sinks in the Republic of Moldova, meets the methodological requirements, is well structured, well-argued and formatted and ready to be published, if the abovementioned corrections are undertaking.

Coordinator QA / QC Checklist

Activities	Tasks completed	
	Name	Date
• Clarify and communicate QA/QC responsibilities to inventory team members.	Marius Taranu	01.10.2014
• Develop and QA/QC checklists appropriate to roles on the inventory team	Marius Taranu	01.10.2014
• Distribute QA/QC checklist to appropriate inventory team members and set deadline for completion.	Marius Taranu	01.10.2014
• Ensure the timely and accurate completion of QA/QC checklists and related activities by checking in with team members.	Marius Taranu	05.31.2015
• Collect completed QA/QC checklists and forms.	Marius Taranu	01.06.2015
• Review completed QA/QC checklists and forms for completeness and accuracy.	Marius Taranu	01.06.2015
• Deliver documentation of QA/QC activities to the inventory and archive coordinators.	Marius Taranu	01.06.2015
• Coordinate external reviews of the inventory document and ensure that comments are incorporated into the inventory. Steps to coordinating external reviewers include: 1. Identify external reviewers (e.g., through category leads). 2. Set review schedule. 3. Establish review format (e.g., digital mark-up in Word or Excel). 4. Contact external reviewers informing them of the schedule and expectations. 5. Distribute Inventory draft for review. 6. Collect and compile review comments. 7. Deliver compiled comments to inventory and archive coordinators. 8. Update inventory, as appropriate based on comments.	Marius Taranu	01.08.2015 10.08.2015 20.08.2015 09.01.2015 10.09.2015 09.25.2015 09.27.2015 30.09.2015

Inventory Lead Checklist: Cross-Cutting Checks for Overall Inventory Quality

Activities	Task Completed	
	Name	Date
Emission Calculations Across GHG Emission and Removal Categories		
• Identify parameters that are common across categories (e.g. conversion factors, carbon content coefficients, etc.) and check for consistency	Marius Taranu	30.06.2015
• Check that using same data inputs (e.g. animal population data) report comparable values (i.e., analogous in magnitude)	Marius Taranu	30.06.2015
• Check across categories that same electronic data set is used for common data (e.g., linking animal population data to the enteric fermentation and manure management calculations)	Marius Taranu	30.06.2015
• Check that the number of significant digits or decimal places for common parameters, conversion factors, emission factors, or activity data is consistent across categories	Marius Taranu	30.06.2015
• Check that total emissions are reported consistently (in terms of significant digits or decimal places) across categories	Marius Taranu	30.06.2015
• Check that emissions data are correctly aggregated from lower reporting levels to higher reporting levels	Marius Taranu	30.06.2015
Documentation		
• Check if internal documentation practices are consistent across categories	Marius Taranu	30.06.2015
Completeness		
• Check for completeness across categories and years	Marius Taranu	30.06.2015
• Check that data gaps are identified and reported as required	Marius Taranu	30.06.2015
• Compare current national inventory estimates with previous years'	Marius Taranu	30.06.2015
Maintaining Master Inventory File: Spreadsheets and Inventory Document		
• Have file control procedures been followed?	Marius Taranu	30.06.2015

Inventory Lead Checklist: Detailed Checklist for Inventory Document

Activities	Task Completed	
	Name	Date
Front Section		
• Cover page has correct date, title, and contact address	Marius Taranu	30.09.2015
• Tables of contents/tables/figures are accurate: titles match document, pages match; numbers run consecutively and have correct punctuation	Marius Taranu	30.09.2015
• The Executive Summary and Introduction are updated with appropriate years and discussion of trends	Marius Taranu	30.09.2015
Tables and Figures		
• All numbers in tables match numbers in spread sheets	Marius Taranu	30.09.2015
• Check that all tables have correct number of significant digits	Marius Taranu	30.09.2015
• Check alignment in columns and labels	Marius Taranu	30.09.2015
• Check that table formatting is consistent	Marius Taranu	30.09.2015
• Check that all figures are updated with new data and referenced in the text	Marius Taranu	30.09.2015
• Check table and figure titles for accuracy and consistency with content	Marius Taranu	30.09.2015
Equations		
• Check for consistency in equations	Marius Taranu	30.09.2015
• Check that variables used in equations are defined following the equation	Marius Taranu	30.09.2015
References		
• Check consistency of references, and that in text citations and references match	Marius Taranu	30.09.2015
General Format		
• All acronyms are spelled out first time and not subsequent times throughout each chapter	Marius Taranu	30.09.2015
• All fonts in text, headings, titles, and subheadings are consistent	Marius Taranu	30.09.2015
• All highlighting, notes, and comments are removed from document	Marius Taranu	30.09.2015
• Size, style, and indenting of bullets are consistent	Marius Taranu	30.09.2015
• Spell check is complete	Marius Taranu	30.09.2015
Other Issues		
• Check that each section is updated with current year (or most recent year that inventory report includes)	Marius Taranu	30.09.2015

Chapter 4: Description of Archiving System

Contact data of the Coordinator of the National Greenhous Gas Inventory

Country	Republic of Moldova	**Postal address:**	156A Mitropolit Dosoftei str., room 37, MD-2004, Chisinau, Republic of Moldova
Name:	Taranu Marius	**Telephone/Fax:**	+373 22 23 22 47
Position:	Coordinator of the National Greenhouse Gas Inventory	**E-mail:**	marius.taranu@clima.md
Organization:	Climate Change Office, Ministry of Environment	**URL:**	http://www.clima.md

4. Description of Archiving System

4.1. Background

Archives refer to a collection of records that have been created during the development of the inventory (references, methodological choice, expert comments, revisions, etc.), as well as document the location where these records are kept. The Archiving System is a critical component of the inventory development process and is important for sustaining the National Inventory System of the Republic of Moldova. An Archiving System helps make a national inventory transparent and reproducible, and facilitates development of subsequent inventories by future inventory staff and sector/category leads (individuals responsible for developing estimates within a particular sector). Each new inventory cycle will benefit from effective data and document management during development of the previous inventory.

All information used to create the inventory is archived in a single location in both electronic and hard copy (paper) storage so that future inventory managers can reference all relevant files to respond to reviewer feedback including questions about methodologies. Archived information include all emission factors and activity data at the most detailed level, and documentation of how these factors and data have been generated and aggregated for the preparation of the inventory. This information also includes internal documentation on QA/QC procedures, external and internal reviews, documentation of annual key categories and key category identification, and planned inventory improvements. Copies of archived documents are kept in multiple locations to reduce the risk of losing all records due to theft or disaster (e.g., fire, earthquake, or flooding).

4.2. Assess Existing Archiving Program and Procedures

Below are provided the archiving procedures applied for the documents and files available from the previous inventory cycle.

- Documents and files available from the previous inventory cycle are stored both electronically and in hard copies.
- The National Inventory Coordinator, who acts also as Archiving System Coordinator has access to archived information, as well as the Manager of Climate Change Office, Ministry of Environment.
- Most documents are kept both in draft and final versions.
  Contact names are available as a List by category and sector of responsibility.

Further are provided the procedures used for archiving documents and files available from the latest inventory cycle.

- Documents and files available from the current inventory cycle are stored both electronically and in hard copies.
- The information is stored in the Climate Change Office at 156A, Mitropolit Dosoftei Street, office 37, MD 2004, Chisinau, Republic of Moldova.
- The information is stored both on the hard drive and external memory support; the initially received information is usually available only on paper, then it is scanned and stored also in electronic format.
- The files are named based on the reference name document and date of receipt.
- To reflect subsequent updates, the file names are changed by providing the date of last update.

Once filled in electronically, the 6 National System Templates are kept by the Archiving System Coordinator, including:

- Template 1: "Institutional Arrangements"
- Template 2: "Methods and Data Documentation"
- Template 3 "Description of QA/QC Procedures "
- Template 4: "Description of Archiving System".
- Template 5: "Key Categories Analysis".
- Template 6: "National Inventory Improvement Plan".

4.3. Archive System Plan

The following sections describe the Archive System Plan followed by the national entity designated with responsibility for developing national GHG inventory to ensure a high-quality national inventory based on an assessment of existing practices as described in section 4.2 above.

4.3.1. Archiving Coordinator Role and Responsibilities

The role of Archiving Coordinator is designated at the beginning of the inventory cycle. The Archiving Coordinator is responsible for ensuring that all archiving procedures are performed for the inventory and all supporting documents and spreadsheets are retained appropriately. The Archiving Coordinator is also responsible for clarifying who is responsible for carrying out archive procedures at various levels, as well as for ensuring that all team members know their archiving responsibilities, including which documents should be archived.

These responsibilities require that the Archiving Coordinator:

- Communicates archiving system plan, procedures, and responsibilities to other staff;
- Determines archiving tasks and assign tasks to staff, create a checklist of archiving procedures for team members;
- Draws up a checklist of archiving procedures to be followed by inventory team members;
- Ensures that the archive procedures (see section 4.3.2 below) are carried out effectively;
- Serve as the keeper of the permanent archive and respond to future requests to view archive materials.

4.3.2. Archive Procedures

It is essential to outline each aspect of the archiving process so that these procedures can be effectively implemented. The archive plan developed by the Archive Coordinator will take into account the following:

Management of Files

- Files are saved with IPCC category name, greenhouse gas and inventory year, and track the file version by including the date the file was last saved. For example: "4D_N2O _Croplands _1990-2013_23.04.2015.xls "
- The file management procedures and naming conventions are clearly communicated / reminded to the national inventory team members at the beginning of each cycle inventory.

Data Retention

At the end of each cycle inventory, spreadsheets and other electronic files used to create inventory estimates are provided to the Archiving Coordinator.

The essential components of the archive are:

- Data and calculation spreadsheets and other electronic files for every category used to create inventory estimates.
- QA/QC Plan with completed checklists.
- Key category analysis spreadsheets.
- Internal and external review comments and responses.
- Latest draft and final electronic versions of the inventory document (National Inventory Report), in Romanian and English (for use as a starting point to update the inventory in the future).
- Updated Template 1: "Institutional Arrangements" and Template 2: "Methods and data documentation", which are used to list and check references.

The files listed above are most easily archived by saving to *external USB memory drives,* or other durable media, and are given to the Archiving Coordinator. If it was not possible to store the data archive in electronic format, files are printed, catalogued, and placed in the inventory archive. The contents of *external USB memory drives,* is clearly labelled for easy reference.

The numerical system used by the national inventory team to catalogue archive items is cataloguing by sector. For example, the data related to the first new source in the energy sector is labelled "E-1-dat", the second source "E-2-dat", etc. The sources for waste are: "W-1-dat", "W-2-dat", etc. Dates are also included in the labels for proper version control.

Document Retention

Source documents and references used to create the inventory are collected and provided to the Archiving Coordinator. Vital information from publications, contacts, and other sources are included in the documents provided to the Archiving Coordinator. This information includes, at a minimum, the title page with the name of the author(s), pages of actual data used, pages explaining data used, and pages describing methodologies used.

The following documents are included:

- All new reference documents for the current year's inventory records file. The files retained in storage from any given inventory year are known as the inventory archive. The Archiving Coordinator is responsible for reviewing the references cited in the inventory and collecting all new documents.
- Draft versions (either electronic or hard copy) used for major internal and external peer reviews, as well as the final submitted versions of the inventory.
- The final version of the National Inventory System Report (compilation of completed templates including Institutional Arrangements, QA/QC Plan, Description of Archiving System, Key Category Analysis, and National Inventory Improvement Plan).
- Documents created to address comments received during any official review periods or from expert reviews. These documents typically include both, comments received verbatim, as well as the response and subsequent actions taken by the inventory staff.

Storage Mechanisms

All archive materials are duplicated (two copies of each document), catalogued and placed in the archive file. An index describing the contents of the archive is placed at the front. The Archiving Coordinator chooses a centralized and secure location (Climate Change Office, 156a Mitropolit Dosoftei Str., office 37, MD-2004, Chisinau, Republic of Moldova) for the placement of the hard copy and electronic archive.

4.3.3. Overall Archive Procedures Checklist

To ensure a successful archiving system, the Archiving Coordinator uses a comprehensive checklist. Checklists help to ensure that all archiving procedures occur in a timely and complete manner.

The final archiving task list and schedule show all archiving tasks, corresponding task leaders, and due dates. The Archiving Coordinator ensures that all tasks are outlined prior to the start of any archive procedure. The Archiving Coordinator is also responsible for assigning task leaders to accomplish each archive task prior to the due date. The Archiving Coordinator completes staffing for each task and date due at the beginning of the inventory cycle. Table 4.1 below provides the comprehensive checklist used by the Archiving Coordinator in the Republic of Moldova.

Table 4.1: Archive Tasks, Responsibilities and Schedule

Subtask	Date Due	Task Completed	
		Name:	Date
Archiving Coordinator			
Create official archive located in Climate Change Office, Ministry of Environment	01.07.2015	Marius Taranu	
Communicate archiving plan and set deadlines	01.07.2015	Marius Taranu	
Collect copies of all data references	08/31/2015	Marius Taranu	
Request missing references from sector / category leads	30/09/2015	Marius Taranu	
Compile electronic versions of spreadsheets used to estimate net emissions by sector	08/31/2015	Marius Taranu	
Collect copies of draft versions of inventory document	30.06.2015	Marius Taranu	
Collect copies of final versions of inventory document	30/09/2015	Marius Taranu	
Compile electronic versions of final versions of inventory document	31/10/2015	Marius Taranu	
Collect copies of expert review comment response documents from each category lead	31/10/2015	Marius Taranu	
Collect copies of public review comment response documents from each sector / category lead	31/10/2015	Marius Taranu	
Catalogue all documents using a unique tracking number and index	30.11.2015	Marius Taranu	
Collect completed Institutional Arrangements and Methods and Data Documentation templates	30/09/2015	Marius Taranu	
Compile electronic versions of Key Category Analyses Report	30/09/2015	Marius Taranu	
Compile electronic versions of QA/QC checklists	31/10/2015	Marius Taranu	
Save all electronic files on archive CD-ROM	30.11.2015	Marius Taranu	
Ensure all hard copy materials are present in official archive by reviewing contents against index	30.11.2015	Marius Taranu	
Ensure all necessary electronic files are contained on CD-ROM and ensure that it is placed with other official archive materials	30.11.2015	Marius Taranu	
Distribute electronic files at start of next inventory update	01/01/2016	Marius Taranu	

Subtask	Date Due	Task Completed	
		Name:	Date
Sector / Category Lead			
Send electronic versions of spreadsheets used to estimate net emissions to Inventory Coordinator.	30.06.2015	Elena Bicova Vladimir Brega Anatolie Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	
Send final text documents for sector or category to Inventory Coordinator.	30/09/2015	Elena Bicova Vladimir Brega Anatolie Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	
Send Methods and Data Documentation reports for all sectors and each category.	30/09/2015	Elena Bicova Vladimir Brega Anatolie Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	
Create index of draft documents and files for electronic and hard copy storage.	30/09/2015	Elena Bicova Vladimir Brega Anatolie Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	
Create index of final documents and files for electronic and hard copy storage.	31/10/2015	Elena Bicova Vladimir Brega Anatolie Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	
Compile and send electronic versions of any Key Category Analyses and documents to Inventory Coordinator.	30/09/2015	Elena Bicova Vladimir Brega Anatolie Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	
Send list of QA/QC steps and corrective actions (by category) to Inventory Coordinator.	31/10/2015	Elena Bicova Vladimir Brega Anatolie Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	
Save all final electronic files on archive external USB memory drives. Label as “FINAL” with name of category/sector, date, and contact information, and send copy to Inventory Coordinator.	31/10/2015	Elena Bicova Vladimir Brega Anatolie Tarita Sergiu Cosman Ion Talmaci Tatiana Tugui	

Chapter 5: Key Category Analysis

Contact data of the Coordinator of the National Greenhous Gas Inventory

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Name:	Taranu Marius	**Telephone/Fax:**	+373 22 23 22 47
Position:	Coordinator of the National Greenhouse Gas Inventory	**E-mail:**	marius.taranu@clima.md
Organization:	Climate Change Office, Ministry of Environment	**URL:**	http://www.clima.md

5. Key Category Analysis

5.1. Background

The concept of "key categories" was created by the IPCC as a way to help countries prioritize resources for improving national greenhouse gas inventories[1]. Key categories have the greatest contribution to the overall level of national emissions. When an entire time series of emission estimates is prepared, key categories can also be identified as those categories that have the largest influence on the trend of emissions over time[2]. In addition, when uncertainty estimates are incorporated into emission estimates, additional key categories are identified.

The results of the key category analysis provide a country with a list of their most important inventory categories. This list is a starting point from which a country can begin the process of improving their greenhouse gas inventory. To improve the national greenhouse gas inventory, it may be necessary to consider applying more accurate or higher tier methodologies, collect more detailed activity data, or develop country-specific emission factors. These activities all require additional resources, and it is not possible to make improvements for every inventory category. The inventory category list resulting from this analysis can provide a quantitative framework for the national greenhouse gas inventory team to develop an inventory improvement plan. The key category analysis also provides more complete and transparent information for the National Communications and Biennial Update Reports.

This report presents the results of the IPCC Approach 1 methodologies for determining key categories (referred to as Tier 1). In the Tier 1 methodology, key categories are identified using a pre-determined cumulative emissions threshold, where key categories are those that, when summed together in descending order of magnitude, add up to 95% of the total level.

5.2. Key Category Software

The Key Categories Analysis was performed using the key categories calculation software developed by the US Environmental Protection Agency (US EPA's Key Category Calculation Tool).

5.3. Tier 1 Key Categories for 1990 Level Analysis

When inventory categories are sorted in order of decreasing GHG magnitude, those that fall at the top of the list and cumulatively account for 95% of emissions are considered key categories. They are those inventory categories that contribute the most to overall national total emissions.

Table 5.1 presents the results of the IPCC Tier 1 key category level analysis without the contribution of LULUCF sector for the base year. There are a total of 17 key categories based on the Tier 1 level assessment.

[1] The 1996 IPCC Guidelines refer to "key source categories" which has been revised in subsequent IPCC Guidelines to "key categories" since sinks are also included in the analysis.

[2] The 2006 IPCC Guidelines for National Greenhouse Gas Inventories (IPCC 2006) defines a key category as a "category that is prioritized within the national inventory system because its estimate has a significant influence on a country's total inventory of greenhouse gases in terms of the absolute level, the trend, or the uncertainty in emissions and removals. Whenever the term key category is used, it includes both source and sink categories". See Chapter 4, "Methodological Choice and Identification of Key Categories", in IPCC 2006 for more information, <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>

Table 5.1: 1990 year Key Category Tier 1 Analysis – Level Assessment, without LULUCF

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status
CO_2 Emissions from Energy Industries - Oil	Energy	6785.7360	15.63%	15.63%	key category
CO_2 Emissions from Energy Industries - Coal	Energy	6394.4000	14.73%	30.36%	key category
CO_2 Emissions from Energy Industries - Gas	Energy	6152.6295	14.17%	44.53%	key category
CO_2 Other Sectors: Residential	Energy	4407.6336	10.15%	54.68%	key category
CO_2 Mobile Combustion: Road Vehicles	Energy	3364.2178	7.75%	62.43%	key category
CO_2 Emissions from Manufacturing Industries and Construction	Energy	2188.7285	5.04%	67.47%	key category
CO_2 Other Sectors: Agriculture/Forestry/Fishing	Energy	1942.3629	4.47%	71.94%	key category
CH_4 Emissions from Enteric Fermentation in Domestic Livestock	Agriculture	1840.2088	4.24%	76.18%	key category
CH_4 Emissions from Solid Waste Disposal Sites	Waste	1544.2480	3.56%	79.74%	key category
CO_2 Other Sectors: Commercial/Institutional	Energy	1412.4933	3.25%	82.99%	key category
N_2O Direct Emissions from Agricultural Soils	Agriculture	1167.9904	2.69%	85.68%	key category
N_2O Direct Emissions from Manure Management	Agriculture	1116.3560	2.57%	88.25%	key category
CO_2 Emissions from Cement Production	Industrial Processes	971.7056	2.24%	90.49%	key category
CH_4 Fugitive Emissions from Oil and Gas Operations	Energy	682.2942	1.57%	92.06%	key category
CO_2 Emissions from Limestone and Dolomite Use	Industrial Processes	619.4733	1.43%	93.49%	key category
CO_2 Mobile Combustion: Railways	Energy	452.3598	1.04%	94.53%	key category
N_2O Indirect Emissions from Agricultural Soils	Agriculture	365.0744	0.84%	95.37%	key category
CH_4 Emissions from Manure Management	Agriculture	308.7371	0.71%	96.08%	non key category
N_2O Indirect Emissions from Manure Management	Agriculture	265.5323	0.61%	96.69%	non key category
CH_4 Other Sectors: Residential	Energy	230.2856	0.53%	97.22%	non key category
CH_4 Emissions from Wastewater Handling	Waste	215.6014	0.50%	97.72%	non key category
CO_2 Other (Energy)	Energy	154.2715	0.36%	98.07%	non key category
CO_2 Emissions from Lime Production	Industrial Processes	148.6611	0.34%	98.42%	non key category
N_2O Emissions from Wastewater Handling	Waste	105.6201	0.24%	98.66%	non key category
CO_2 Mobile Combustion: Other (Pipeline Transport)	Energy	91.1782	0.21%	98.87%	non key category
CO_2 Emissions from Degreasing and Dry Cleaning	SOPU	62.7662	0.14%	99.01%	non key category
N_2O Mobile Combustion: Railways	Energy	54.1488	0.12%	99.14%	non key category
N_2O (Non-CO2) Emissions from Energy Industries	Energy	51.2316	0.12%	99.26%	non key category
N_2O Mobile Combustion: Road Vehicles	Energy	50.1981	0.12%	99.37%	non key category
CO_2 Emissions from Brick Production	Industrial Processes	49.4409	0.11%	99.49%	non key category
CO_2 Emissions from Paint Application	SOPU	41.5890	0.10%	99.58%	non key category
CO_2 Emissions from Soda Ash Production and Use	Industrial Processes	32.9560	0.08%	99.66%	non key category

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status
CH_4 Mobile Combustion: Road Vehicles	Energy	24.8796	0.06%	99.71%	non key category
N_2O Other Sectors: Residential	Energy	19.4047	0.04%	99.76%	non key category
CO_2 Mobile Combustion Water Borne Navigation	Energy	18.9048	0.04%	99.80%	non key category
CO_2 Emissions from Other Products	SOPU	14.0135	0.03%	99.84%	non key category
CO_2 Emissions from the Iron and Steel Industry	Industrial Processes	11.7182	0.03%	99.86%	non key category
CH_4 (Non-CO2) Emissions from Energy Industries	Energy	9.2887	0.02%	99.88%	non key category
CH_4 Other Sectors: Agriculture/Forestry/Fishing	Energy	8.9856	0.02%	99.90%	non key category
CO_2 Emissions from Mineral Wool Production	Industrial Processes	8.0816	0.02%	99.92%	non key category
CO_2 Emissions from Chemical Products, Manufacture and Processing	SOPU	7.7278	0.02%	99.94%	non key category
N_2O Other Sectors: Commercial/Institutional	Energy	6.3499	0.01%	99.96%	non key category
CH_4 Other Sectors: Commercial/Institutional	Energy	5.2253	0.01%	99.97%	non key category
N_2O Emissions from Manufacturing Industries and Construction	Energy	5.1641	0.01%	99.98%	non key category
N_2O Other Sectors: Agriculture/Forestry/Fishing	Energy	5.0378	0.01%	99.99%	non key category
CH_4 Emissions from Manufacturing Industries and Construction	Energy	2.0005	0.00%	100.00%	non key category
CO_2 Fugitive Emissions from Oil and Gas Operation	Energy	0.6377	0.00%	100.00%	non key category
CH_4 Mobile Combustion: Railways	Energy	0.5323	0.00%	100.00%	non key category
N_2O Other (Energy)	Energy	0.4911	0.00%	100.00%	non key category
N_2O Mobile Combustion Water Borne Navigation	Energy	0.1582	0.00%	100.00%	non key category
CH_4 Other (Energy)	Energy	0.0484	0.00%	100.00%	non key category
CH_4 Mobile Combustion Water Borne Navigation	Energy	0.0375	0.00%	100.00%	non key category
N_2O Emissions from Use of N2O for Anaesthesia	SOPU	0.0205	0.00%	100.00%	non key category
N_2O Fugitive Emissions from Oil and Gas Operation	Energy	0.0002	0.00%	100.00%	non key category
Total			**100.00%**		

Table 5.2 presents the results of the IPCC Tier 1 key category level analysis with considering the contribution of LULUCF sector for the base year. There are a total of 19 key categories based on the Tier 1 level assessment.

Table 5.2: 1990 year Key Category Tier 1 Analysis – Level Assessment, with LULUCF

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status
CO_2 Emissions from Energy Industries - Oil	Energy	6785.7360	13.76%	13.76%	key category
CO_2 Emissions from Energy Industries - Coal	Energy	6394.4000	12.97%	26.73%	key category
CO_2 Emissions from Energy Industries - Gas	Energy	6152.6295	12.48%	39.21%	key category

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status
CO_2 Other Sectors: Residential	Energy	4407.6336	8.94%	48.14%	key category
CO_2 Mobile Combustion: Road Vehicles	Energy	3364.2178	6.82%	54.97%	key category
CO_2 from Croplands remaining Croplands	LULUCF	-2216.0460	4.49%	59.46%	key category
CO_2 from Forest Land remaining Forest Land	LULUCF	-2197.5790	4.46%	63.92%	key category
CO_2 Emissions from Manufacturing Industries and Construction	Energy	2188.7285	4.44%	68.35%	key category
CO_2 Other Sectors: Agriculture/Forestry/Fishing	Energy	1942.3629	3.94%	72.29%	key category
CH_4 Emissions from Enteric Fermentation in Domestic Livestock	Agriculture	1840.2088	3.73%	76.03%	key category
CH_4 Emissions from Solid Waste Disposal Sites	Waste	1544.2480	3.13%	79.16%	key category
CO_2 from Grassland remaining Grassland	LULUCF	-1469.8567	2.98%	82.14%	key category
CO_2 Other Sectors: Commercial/Institutional	Energy	1412.4933	2.86%	85.00%	key category
N_2O Direct Emissions from Agricultural Soils	Agriculture	1167.9904	2.37%	87.37%	key category
N_2O Direct Emissions from Manure Management	Agriculture	1116.3560	2.26%	89.63%	key category
CO2 Emissions from Cement Production	IP	971.7056	1.97%	91.60%	key category
CH_4 Fugitive Emissions from Oil and Gas Operations	Energy	682.2942	1.38%	92.99%	key category
CO_2 Emissions from Limestone and Dolomite Use	IP	619.4733	1.26%	94.24%	key category
CO_2 Mobile Combustion: Railways	Energy	452.3598	0.92%	95.16%	key category
N_2O Indirect Emissions from Agricultural Soils	Agriculture	365.0744	0.74%	95.90%	non key category
CH_4 Emissions from Manure Management	Agriculture	308.7371	0.63%	96.53%	non key category
N_2O Indirect Emissions from Manure Management	Agriculture	265.5323	0.54%	97.07%	non key category
CH_4 Other Sectors: Residential	Energy	230.2856	0.47%	97.53%	non key category
CH_4 Emissions from Wastewater Handling	Waste	215.6014	0.44%	97.97%	non key category
CO_2 Other (Energy)	Energy	154.2715	0.31%	98.28%	non key category
CO_2 Emissions from Lime Production	IP	148.6611	0.30%	98.59%	non key category
N_2O Emissions from Wastewater Handling	Waste	105.6201	0.21%	98.80%	non key category
CO_2 Mobile Combustion: Other (Pipeline Transport)	Energy	91.1782	0.18%	98.98%	non key category
CO_2 Emissions from Degreasing and Dry Cleaning	SOPU	62.7662	0.13%	99.11%	non key category
N_2O Mobile Combustion: Railways	Energy	54.1488	0.11%	99.22%	non key category
N_2O Emissions from Energy Industries	Energy	51.2316	0.10%	99.33%	non key category
N_2O Mobile Combustion: Road Vehicles	Energy	50.1981	0.10%	99.43%	non key category
CO_2 Emissions from Brick Production	IP	49.4409	0.10%	99.53%	non key category
CO_2 Emissions from Paint Application	SOPU	41.5890	0.08%	99.61%	non key category
CH_4 Emissions from Soda Ash Production and Use	IP	32.9560	0.07%	99.68%	non key category

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status
CH_4 Mobile Combustion: Road Vehicles	Energy	24.8796	0.05%	99.73%	non key category
N_2O Other Sectors: Residential	Energy	19.4047	0.04%	99.77%	non key category
CO_2 Mobile Combustion Water Borne Navigation	Energy	18.9048	0.04%	99.81%	non key category
CO_2 Emissions from Other Products	SOPU	14.0135	0.03%	99.84%	non key category
CO_2 Emissions from the Iron and Steel Industry	IP	11.7182	0.02%	99.86%	non key category
CH_4 Emissions from Energy Industries	Energy	9.2887	0.02%	99.88%	non key category
CH_4 Other Sectors: Agriculture/Forestry/Fishing	Energy	8.9856	0.02%	99.90%	non key category
CO_2 Emissions from Mineral Wool Production	IP	8.0816	0.02%	99.91%	non key category
CO_2 Emissions from Chemical Products, Manufacture and Processing	SOPU	7.7278	0.02%	99.93%	non key category
CO_2 from Wetland remaining Wetland	LULUCF	-6.3800	0.01%	99.94%	non key category
N_2O Other Sectors: Commercial/Institutional	Energy	6.3499	0.01%	99.95%	non key category
CH_4 Other Sectors: Commercial/Institutional	Energy	5.2253	0.01%	99.96%	non key category
N_2O Emissions from Manufacturing Industries and Construction	Energy	5.1641	0.01%	99.98%	non key category
N_2O Other Sectors: Agriculture/Forestry/Fishing	Energy	5.0378	0.01%	99.99%	non key category
CH_4 from Croplands remaining Croplands	LULUCF	2.0547	0.00%	99.99%	non key category
CH_4 Emissions from Manufacturing Industries and Construction	Energy	2.0005	0.00%	99.99%	non key category
N_2O from Croplands remaining Croplands	LULUCF	0.7864	0.00%	100.00%	non key category
CO_2 Fugitive Emissions from Oil and Gas Operation	Energy	0.6377	0.00%	100.00%	non key category
CH_4 Mobile Combustion: Railways	Energy	0.5323	0.00%	100.00%	non key category
N_2O Other (Energy)	Energy	0.4911	0.00%	100.00%	non key category
CH_4 from Forest Land remaining Forest Land	LULUCF	0.2347	0.00%	100.00%	non key category
N_2O from Forest Land remaining Forest Land	LULUCF	0.1917	0.00%	100.00%	non key category
N_2O Mobile Combustion Water Borne Navigation	Energy	0.1582	0.00%	100.00%	non key category
CH_4 Other (Energy)	Energy	0.0484	0.00%	100.00%	non key category
CH_4 Mobile Combustion Water Borne Navigation	Energy	0.0375	0.00%	100.00%	non key category
N_2O Emissions from Use of N2O for Anaesthesia	SOPU	0.0205	0.00%	100.00%	non key category
N_2O Fugitive Emissions from Oil and Gas Operation	Energy	0.0002	0.00%	100.00%	non key category
Total			**100.00%**		

5.4. Tier 1 Key Categories for 2013 Level and Trend Analysis

Table 5.3 presents the results of the IPCC Tier 1 key category level analysis without the contribution of LULUCF sector for the most recent year. There are a total of 17 key categories based on the Tier 1 level assessment.

Table 5.3: 2013 year Key Category Tier 1 Analysis – Level Assessment, without LULUCF

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	GHG emissions in 2013, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status
CO_2 Emissions from Energy Industries - Gas	Energy	6152.6295	2753.2020	21.45%	21.45%	key category
CO_2 Mobile Combustion: Road Vehicles	Energy	3364.2178	1759.1150	13.70%	35.15%	key category
CH_4 Emissions from Solid Waste Disposal Sites	Waste	1544.2480	1343.8942	10.47%	45.62%	key category
CO_2 Other Sectors: Residential	Energy	4407.6336	1309.0059	10.20%	55.82%	key category
N_2O Direct Emissions from Agricultural Soils	Agriculture	1167.9904	908.0039	7.07%	62.89%	key category
CO_2 Emissions from Manufacturing Industries and Construction	Energy	2188.7285	607.6708	4.73%	67.63%	key category
CH_4 Emissions from Enteric Fermentation in Domestic Livestock	Agriculture	1840.2088	541.2669	4.22%	71.84%	key category
CH_4 Fugitive Emissions from Oil and Gas Operations	Energy	682.2942	520.6450	4.06%	75.90%	key category
CO_2 Emissions from Cement Production	IP	971.7056	476.9147	3.72%	79.62%	key category
CO_2 Other Sectors: Commercial/Institutional	Energy	1412.4933	471.6212	3.67%	83.29%	key category
CO_2 Emissions from Energy Industries - Coal	Energy	6394.4000	470.1322	3.66%	86.95%	key category
N_2O Direct Emissions from Manure Management	Agriculture	1116.3560	328.6530	2.56%	89.51%	key category
N_2O Indirect Emissions from Agricultural Soils	Agriculture	365.0744	227.3876	1.77%	91.28%	key category
CO_2 Other Sectors: Agriculture/Forestry/Fishing	Energy	1942.3629	164.9499	1.29%	92.57%	key category
CH_4 Emissions from Wastewater Handling	Waste	215.6014	136.4857	1.06%	93.63%	key category
HFCs Emissions from Refrigeration and Air Conditioning Equipment	IP	0.0000	96.9365	0.76%	94.39%	key category
N_2O Emissions from Wastewater Handling	Waste	105.6201	85.4174	0.67%	95.05%	key category
CO_2 Emissions from Energy Industries - Oil	Energy	6785.7360	84.8480	0.66%	95.71%	non key category
CH_4 Other Sectors: Residential	Energy	230.2856	84.5901	0.66%	96.37%	non key category
N_2O Indirect Emissions from Manure Management	Agriculture	265.5323	66.9478	0.52%	96.89%	non key category
CO_2 Mobile Combustion: Railways	Energy	452.3598	62.3858	0.49%	97.38%	non key category
CH_4 Emissions from Manure Management	Agriculture	308.7371	54.4662	0.42%	97.80%	non key category
HFCs Emissions from Foam Blowing	IP	0.0000	45.1716	0.35%	98.16%	non key category
CO_2 Other (Energy)	Energy	154.2715	30.3317	0.24%	98.39%	non key category
CO_2 Emissions from Degreasing and Dry Cleaning	SOPU	62.7662	29.9961	0.23%	98.63%	non key category
N_2O Mobile Combustion: Road Vehicles	Energy	50.1981	27.7130	0.22%	98.84%	non key category
CO_2 Emissions from Paint Application	SOPU	41.5890	20.4569	0.16%	99.00%	non key category
CO_2 Emissions from Soda Ash Production and Use	IP	32.9560	15.5217	0.12%	99.12%	non key category
N_2O Other Sectors: Residential	Energy	19.4047	15.2511	0.12%	99.24%	non key category
CO_2 Emissions from Limestone and Dolomite Use	IP	619.4733	14.3708	0.11%	99.35%	non key category
CO_2 Emissions from Brick Production	IP	49.4409	13.4504	0.10%	99.46%	non key category
CO_2 Mobile Combustion: Other (Pipeline Transport)	Energy	91.1782	13.2968	0.10%	99.56%	non key category

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	GHG emissions in 2013, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status
CO_2 Emissions from Other Products	SOPU	14.0135	11.4896	0.09%	99.65%	non key category
N_2O Mobile Combustion: Railways	Energy	54.1488	7.4678	0.06%	99.71%	non key category
CH_4 Mobile Combustion: Road Vehicles	Energy	24.8796	6.6527	0.05%	99.76%	non key category
CO_2 Emissions from Chemical Products, Manufacture and Processing	SOPU	7.7278	4.6492	0.04%	99.80%	non key category
N_2O Emissions from Energy Industries	Energy	51.2316	4.3651	0.03%	99.83%	non key category
CO_2 Emissions from Lime Production	IP	148.6611	4.0523	0.03%	99.86%	non key category
CO_2 Emissions from the Iron and Steel Industry	IP	11.7182	3.1441	0.02%	99.89%	non key category
CH_4 Other Sectors: Commercial/Institutional	Energy	5.2253	2.7585	0.02%	99.91%	non key category
CO_2 Emissions from Expanded Clay Production	IP	0.0000	2.2411	0.02%	99.93%	non key category
CO_2 Fugitive Emissions from Oil and Gas Operation	Energy	0.6377	2.1589	0.02%	99.94%	non key category
N_2O Emissions from Manufacturing Industries and Construction	Energy	5.1641	1.4119	0.01%	99.95%	non key category
CH_4 Emissions from Energy Industries	Energy	9.2887	1.3734	0.01%	99.97%	non key category
N_2O Other Sectors: Commercial/Institutional	Energy	6.3499	1.0959	0.01%	99.97%	non key category
CH_4 Other Sectors: Agriculture/Forestry/Fishing	Energy	8.9856	0.8209	0.01%	99.98%	non key category
SF_6 Emissions from Electrical Equipment	IP	0.0000	0.6803	0.01%	99.99%	non key category
CH_4 Emissions from Manufacturing Industries and Construction	Energy	2.0005	0.6760	0.01%	99.99%	non key category
N_2O Other Sectors: Agriculture/Forestry/Fishing	Energy	5.0378	0.4452	0.00%	99.99%	non key category
CO_2 Mobile Combustion Water Borne Navigation	Energy	18.9048	0.2710	0.00%	100.00%	non key category
CO_2 Mobile Combustion: Civil Aviation	Energy	0.0000	0.1966	0.00%	100.00%	non key category
N_2O Other (Energy)	Energy	0.4911	0.0862	0.00%	100.00%	non key category
HFCs Emissions from Aerosols	IP	0.0000	0.0791	0.00%	100.00%	non key category
CH_4 Mobile Combustion: Railways	Energy	0.5323	0.0734	0.00%	100.00%	non key category
PFCs Emissions from Electrical Equipment	IP	0.0000	0.0273	0.00%	100.00%	non key category
N_2O Fugitive Emissions from Oil and Gas Operation	Energy	0.0002	0.0053	0.00%	100.00%	non key category
N_2O Mobile Combustion Water Borne Navigation	Energy	0.1582	0.0023	0.00%	100.00%	non key category
N_2O Mobile Combustion: Civil Aviation	Energy	0.0000	0.0017	0.00%	100.00%	non key category
CH_4 Other (Energy)	Energy	0.0484	0.0009	0.00%	100.00%	non key category
CH4 Mobile Combustion Water Borne Navigation	Energy	0.0375	0.0005	0.00%	100.00%	non key category
CH4 Mobile Combustion: Civil Aviation	Energy	0.0000	0.0000	0.00%	100.00%	non key category
N2O Emissions from Use of N2O for Anaesthesia	SOPU	8.0816	0.0000	0.00%	100.00%	non key category
CO2 Emissions from Mineral Wool Production	IP	0.0205	0.0000	0.00%	100.00%	non key category
Total				**100.00%**		

Table 5.4 presents the results of the IPCC Tier 1 key category level analysis with considering the contribution of LULUCF sector for the most recent year. There are a total of 17 key categories based on the Tier 1 level assessment.

Table 5.4: 2013 year Key Category Tier 1 Analysis – Level Assessment, with LULUCF

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	GHG emissions in 2013, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status,
CO_2 from Croplands remaining Croplands	LULUCF	-2216.0460	3245.4858	16.70%	16.70%	key category
CO_2 Emissions from Energy Industries - Gas	Energy	6152.6295	2753.2020	14.16%	30.86%	key category
CO_2 from Forest Land remaining Forest Land	LULUCF	-2197.5790	-1887.6165	9.71%	40.57%	key category
CO_2 Mobile Combustion: Road Vehicles	Energy	3364.2178	1759.1150	9.05%	49.62%	key category
CO_2 from Grassland remaining Grassland	LULUCF	-1469.8567	-1461.3867	7.52%	57.14%	key category
CH_4 Emissions from Solid Waste Disposal Sites	Waste	1544.2480	1343.8942	6.91%	64.06%	key category
CO_2 Other Sectors: Residential	Energy	4407.6336	1309.0059	6.73%	70.79%	key category
N_2O Direct Emissions from Agricultural Soils	Agriculture	1167.9904	908.0039	4.67%	75.46%	key category
CO_2 Emissions from Manufacturing Industries and Construction	Energy	2188.7285	607.6708	3.13%	78.59%	key category
CH_4 Emissions from Enteric Fermentation in Domestic Livestock	Agriculture	1840.2088	541.2669	2.78%	81.38%	key category
CH_4 Fugitive Emissions from Oil and Gas Operations	Energy	682.2942	520.6450	2.68%	84.05%	key category
CO_2 Emissions from Cement Production	IP	971.7056	476.9147	2.45%	86.51%	key category
CO_2 Other Sectors: Commercial/Institutional	Energy	1412.4933	471.6212	2.43%	88.93%	key category
CO_2 Emissions from Energy Industries - Coal	Energy	6394.4000	470.1322	2.42%	91.35%	key category
N_2O Direct Emissions from Manure Management	Agriculture	1116.3560	328.6530	1.69%	93.04%	key category
N_2O Indirect Emissions from Agricultural Soils	Agriculture	365.0744	227.3876	1.17%	94.21%	key category
CO_2 Other Sectors: Agriculture/Forestry/Fishing	Energy	1942.3629	164.9499	0.85%	95.06%	key category
CH_4 Emissions from Wastewater Handling	Waste	215.6014	136.4857	0.70%	95.76%	non key category
HFCs Emissions from Refrigeration and Air Conditioning Equipment	IP	0.0000	96.9365	0.50%	96.26%	non key category
N_2O Emissions from Wastewater Handling	Waste	105.6201	85.4174	0.44%	96.70%	non key category
CO_2 Emissions from Energy Industries - Oil	Energy	6785.7360	84.8480	0.44%	97.14%	non key category
CH_4 Other Sectors: Residential	Energy	230.2856	84.5901	0.44%	97.57%	non key category
N_2O Indirect Emissions from Manure Management	Agriculture	265.5323	66.9478	0.34%	97.92%	non key category
CO_2 Mobile Combustion: Railways	Energy	452.3598	62.3858	0.32%	98.24%	non key category
CH_4 Emissions from Manure Management	Agriculture	308.7371	54.4662	0.28%	98.52%	non key category
HFCs Emissions from Foam Blowing	IP	0.0000	45.1716	0.23%	98.75%	non key category
CO_2 Other (Energy)	Energy	154.2715	30.3317	0.16%	98.91%	non key category
CO_2 Emissions from Degreasing and Dry Cleaning	SOPU	62.7662	29.9961	0.15%	99.06%	non key category
N_2O Mobile Combustion: Road Vehicles	Energy	50.1981	27.7130	0.14%	99.21%	non key category

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	GHG emissions in 2013, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status,
CO_2 Emissions from Paint Application	SOPU	41.5890	20.4569	0.11%	99.31%	non key category
CO_2 Emissions from Soda Ash Production and Use	IP	32.9560	15.5217	0.08%	99.39%	non key category
N_2O Other Sectors: Residential	Energy	19.4047	15.2511	0.08%	99.47%	non key category
CO_2 Emissions from Limestone and Dolomite Use	IP	619.4733	14.3708	0.07%	99.54%	non key category
CO_2 Emissions from Brick Production	IP	49.4409	13.4504	0.07%	99.61%	non key category
CO_2 Mobile Combustion: Other (Pipeline Transport)	Energy	91.1782	13.2968	0.07%	99.68%	non key category
CO_2 Emissions from Other Products	SOPU	14.0135	11.4896	0.06%	99.74%	non key category
N_2O Mobile Combustion: Railways	Energy	54.1488	7.4678	0.04%	99.78%	non key category
CH_4 Mobile Combustion: Road Vehicles	Energy	24.8796	6.6527	0.03%	99.81%	non key category
CO_2 Emissions from Chemical Products, Manufacture and Processing	SOPU	7.7278	4.6492	0.02%	99.84%	non key category
N_2O Emissions from Energy Industries	Energy	51.2316	4.3651	0.02%	99.86%	non key category
CO_2 from Wetland remaining Wetland	LULUCF	-6.3800	4.1664	0.02%	99.88%	non key category
CO_2 Emissions from Lime Production	IP	148.6611	4.0523	0.02%	99.90%	non key category
CO_2 Emissions from the Iron and Steel Industry	IP	11.7182	3.1441	0.02%	99.92%	non key category
CH_4 Other Sectors: Commercial/Institutional	Energy	5.2253	2.7585	0.01%	99.93%	non key category
CO_2 Emissions from Expanded Clay Production	IP	0.0000	2.2411	0.01%	99.94%	non key category
CO_2 Fugitive Emissions from Oil and Gas Operation	Energy	0.6377	2.1589	0.01%	99.95%	non key category
N_2O Emissions from Manufacturing Industries and Construction	Energy	5.1641	1.4119	0.01%	99.96%	non key category
CH_4 Emissions from Energy Industries	Energy	9.2887	1.3734	0.01%	99.97%	non key category
N_2O Other Sectors: Commercial/Institutional	Energy	6.3499	1.0959	0.01%	99.97%	non key category
CH_4 from Forest Land remaining Forest Land	LULUCF	0.2347	0.9128	0.00%	99.98%	non key category
CH_4 Other Sectors: Agriculture/Forestry/Fishing	Energy	8.9856	0.8209	0.00%	99.98%	non key category
N_2O from Forest Land remaining Forest Land	LULUCF	0.1917	0.7454	0.00%	99.99%	non key category
SF_6 Emissions from Electrical Equipment	IP	0.0000	0.6803	0.00%	99.99%	non key category
CH_4 Emissions from Manufacturing Industries and Construction	Energy	2.0005	0.6760	0.00%	99.99%	non key category
N_2O Other Sectors: Agriculture/Forestry/Fishing	Energy	5.0378	0.4452	0.00%	100.00%	non key category
CO_2 Mobile Combustion Water Borne Navigation	Energy	18.9048	0.2710	0.00%	100.00%	non key category
CO_2 Mobile Combustion: Civil Aviation	Energy	0.0000	0.1966	0.00%	100.00%	non key category
N_2O Other (Energy)	Energy	0.4911	0.0862	0.00%	100.00%	non key category
HFCs Emissions from Aerosols	IP	0.0000	0.0791	0.00%	100.00%	non key category
CH_4 Mobile Combustion: Railways	Energy	0.5323	0.0734	0.00%	100.00%	non key category
CH_4 from Croplands remaining Croplands	LULUCF	2.0547	0.0564	0.00%	100.00%	non key category

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	GHG emissions in 2013, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status,
PFCs Emissions from Electrical Equipment	IP	0.0000	0.0273	0.00%	100.00%	non key category
N_2O from Croplands remaining Croplands	LULUCF	0.7864	0.0216	0.00%	100.00%	non key category
N_2O Fugitive Emissions from Oil and Gas Operation	Energy	0.0002	0.0053	0.00%	100.00%	non key category
N_2O Mobile Combustion Water Borne Navigation	Energy	0.1582	0.0023	0.00%	100.00%	non key category
N_2O Mobile Combustion: Civil Aviation	Energy	0.0000	0.0017	0.00%	100.00%	non key category
CH_4 Other (Energy)	Energy	0.0484	0.0009	0.00%	100.00%	non key category
CH_4 Mobile Combustion Water Borne Navigation	Energy	0.0375	0.0005	0.00%	100.00%	non key category
CH_4 Mobile Combustion: Civil Aviation	Energy	0.0000	0.0000	0.00%	100.00%	non key category
CO_2 Emissions from Mineral Wool Production	IP	8.0816	0.0000	0.00%	100.00%	non key category
N_2O Emissions from Use of N2O for Anaesthesia	SOPU	0.0205	0.0000	0.00%	100.00%	non key category
Total				**100.00%**		

Table 5.5 presents the results of the IPCC key category trend analysis for the years 1990 to 2013. The key categories are listed in order of decreasing contribution to the overall trend. Together they account for at least 95% of the overall trend in national total emissions. There are a total of 13 key categories based on the trend analysis, without considering the contribution of LULUCF sector.

Table 5.5: 2013 year Key Category Tier 1 Analysis – Trend Assessment, without LULUCF

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	GHG emissions in 2013, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status
CO_2 Emissions from Energy Industries - Oil	Energy	6785.7360	84.8480	23.35%	23.35%	key category
CO_2 Emissions from Energy Industries - Coal	Energy	6394.4000	470.1322	17.26%	40.62%	key category
CO_2 Emissions from Energy Industries - Gas	Energy	6152.6295	2753.2020	11.36%	51.97%	key category
CH_4 Emissions from Solid Waste Disposal Sites	Waste	1544.2480	1343.8942	10.79%	62.76%	key category
CO_2 Mobile Combustion: Road Vehicles	Energy	3364.2178	1759.1150	9.29%	72.05%	key category
N_2O Direct Emissions from Agricultural Soils	Agriculture	1167.9904	908.0039	6.84%	78.89%	key category
CO_2 Other Sectors: Agriculture/Forestry/Fishing	Energy	1942.3629	164.9499	4.97%	83.86%	key category
CH_4 Fugitive Emissions from Oil and Gas Operations	Energy	682.2942	520.6450	3.88%	87.74%	key category
CO_2 Emissions from Cement Production	IP	971.7056	476.9147	2.30%	90.04%	key category
CO_2 Emissions from Limestone and Dolomite Use	IP	619.4733	14.3708	2.05%	92.10%	key category
N_2O Indirect Emissions from Agricultural Soils	Agriculture	365.0744	227.3876	1.45%	93.55%	key category
CH_4 Emissions from Wastewater Handling	Waste	215.6014	136.4857	0.88%	94.43%	key category
CO_2 Mobile Combustion: Railways	Energy	452.3598	62.3858	0.87%	95.30%	key category
N_2O Emissions from Wastewater Handling	Waste	105.6201	85.4174	0.66%	95.96%	non key category

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	GHG emissions in 2013, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status
CO_2 Other Sectors: Commercial/Institutional	Energy	1412.4933	471.6212	0.66%	96.61%	non key category
CO_2 Emissions from Lime Production	IP	148.6611	4.0523	0.48%	97.10%	non key category
CO_2 Emissions from Manufacturing Industries and Construction	Energy	2188.7285	607.6708	0.48%	97.58%	non key category
CH_4 Emissions from Manure Management	Agriculture	308.7371	54.4662	0.45%	98.03%	non key category
CH_4 Other Sectors: Residential	Energy	230.2856	84.5901	0.20%	98.23%	non key category
CO_2 Other (Energy)	Energy	154.2715	30.3317	0.19%	98.41%	non key category
CO_2 Mobile Combustion: Other (Pipeline Transport)	Energy	91.1782	13.2968	0.17%	98.58%	non key category
N_2O Mobile Combustion: Road Vehicles	Energy	50.1981	27.7130	0.16%	98.73%	non key category
N_2O Indirect Emissions from Manure Management	Agriculture	265.5323	66.9478	0.14%	98.88%	non key category
CO_2 Emissions from Degreasing and Dry Cleaning	SOPU	62.7662	29.9961	0.14%	99.01%	non key category
N_2O Emissions from Energy Industries	Energy	51.2316	4.3651	0.13%	99.15%	non key category
N_2O Other Sectors: Residential	Energy	19.4047	15.2511	0.12%	99.26%	non key category
N_2O Mobile Combustion: Railways	Energy	54.1488	7.4678	0.10%	99.36%	non key category
CO_2 Emissions from Paint Application	SOPU	41.5890	20.4569	0.10%	99.46%	non key category
CO_2 Emissions from Other Products	SOPU	14.0135	11.4896	0.09%	99.55%	non key category
CO_2 Other Sectors: Residential	Energy	4407.6336	1309.0059	0.07%	99.63%	non key category
CO_2 Emissions from Soda Ash Production and Use	IP	32.9560	15.5217	0.07%	99.70%	non key category
CO_2 Mobile Combustion Water Borne Navigation	Energy	18.9048	0.2710	0.06%	99.76%	non key category
CH_4 Emissions from Enteric Fermentation in Domestic Livestock	Agriculture	1840.2088	541.2669	0.03%	99.79%	non key category
CO_2 Emissions from Mineral Wool Production	IP	8.0816	0.0000	0.03%	99.82%	non key category
CO_2 Emissions from Chemical Products, Manufacture and Processing	SOPU	7.7278	4.6492	0.03%	99.85%	non key category
CO_2 Fugitive Emissions from Oil and Gas Operation	Energy	0.6377	2.1589	0.02%	99.88%	non key category
CH_4 Other Sectors: Agriculture/Forestry/Fishing	Energy	8.9856	0.8209	0.02%	99.90%	non key category
N_2O Direct Emissions from Manure Management	Agriculture	1116.3560	328.6530	0.02%	99.91%	non key category
CH_4 Emissions from Energy Industries	Energy	9.2887	1.3734	0.02%	99.93%	non key category
CH_4 Other Sectors: Commercial/Institutional	Energy	5.2253	2.7585	0.01%	99.95%	non key category
CO_2 Emissions from Brick Production	IP	49.4409	13.4504	0.01%	99.96%	non key category
N_2O Other Sectors: Agriculture/Forestry/Fishing	Energy	5.0378	0.4452	0.01%	99.97%	non key category
N_2O Other Sectors: Commercial/Institutional	Energy	6.3499	1.0959	0.01%	99.98%	non key category
CH_4 Mobile Combustion: Road Vehicles	Energy	24.8796	6.6527	0.01%	99.99%	non key category
CO_2 Emissions from the Iron and Steel Industry	IP	11.7182	3.1441	0.00%	99.99%	non key category
N_2O Emissions from Manufacturing Industries and Construction	Energy	5.1641	1.4119	0.00%	100.00%	non key category

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	GHG emissions in 2013, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status
CH_4 Emissions from Manufacturing Industries and Construction	Energy	2.0005	0.6760	0.00%	100.00%	non key category
CH_4 Mobile Combustion: Railways	Energy	0.5323	0.0734	0.00%	100.00%	non key category
N_2O Other (Energy)	Energy	0.4911	0.0862	0.00%	100.00%	non key category
N_2O Mobile Combustion Water Borne Navigation	Energy	0.1582	0.0023	0.00%	100.00%	non key category
CH_4 Other (Energy)	Energy	0.0484	0.0009	0.00%	100.00%	non key category
CH_4 Mobile Combustion Water Borne Navigation	Energy	0.0375	0.0005	0.00%	100.00%	non key category
N_2O Emissions from Use of N_2O for Anaesthesia	SOPU	0.0205	0.0000	0.00%	100.00%	non key category
N_2O Fugitive Emissions from Oil and Gas Operation	Energy	0.0002	0.0053	0.00%	100.00%	non key category
HFCs Emissions from Aerosols	IP	0.0000	0.0791	0.00%	100.00%	non key category
SF_6 Emissions from Electrical Equipment	IP	0.0000	0.6803	0.00%	100.00%	non key category
HFCs Emissions from Refrigeration and Air Conditioning Equipment	IP	0.0000	96.9365	0.00%	100.00%	non key category
CO_2 Emissions from Expanded Clay Production	IP	0.0000	2.2411	0.00%	100.00%	non key category
N_2O Mobile Combustion: Civil Aviation	Energy	0.0000	0.0017	0.00%	100.00%	non key category
HFCs Emissions from Foam Blowing	IP	0.0000	45.1716	0.00%	100.00%	non key category
PFCs Emissions from Electrical Equipment	IP	0.0000	0.0273	0.00%	100.00%	non key category
CO_2 Mobile Combustion: Civil Aviation	Energy	0.0000	0.1966	0.00%	100.00%	non key category
CH_4 Mobile Combustion: Civil Aviation	Energy	0.0000	0.0000	0.00%	100.00%	non key category
Total				**100.00%**		

Table 5.6 presents the results of the IPCC Tier 1 key category trend analysis with considering the contribution of LULUCF sector. There are a total of 17 key categories based on the Tier 1 level assessment.

Table 5.6: 2013 year Key Category Tier 1 Analysis – Trend Assessment, with LULUCF

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	GHG emissions in 2013, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status
CO_2 Emissions from Energy Industries - Oil	Energy	6785.7360	84.8480	16.82%	16.82%	key category
CO_2 from Croplands remaining Croplands	LULUCF	-2216.0460	3245.4858	14.62%	31.44%	key category
CO_2 Emissions from Energy Industries - Coal	Energy	6394.4000	470.1322	14.10%	45.54%	key category
CO_2 from Forest Land remaining Forest Land	LULUCF	-2197.5790	-1887.6165	8.50%	54.04%	key category
CO_2 from Grassland remaining Grassland	LULUCF	-1469.8567	-1461.3867	6.58%	60.62%	key category
CH_4 Emissions from Solid Waste Disposal Sites	Waste	1544.2480	1343.8942	6.05%	66.67%	key category
CO_2 Other Sectors: Residential	Energy	4407.6336	1309.0059	5.28%	71.95%	key category
CO_2 Other Sectors: Agriculture/Forestry/Fishing	Energy	1942.3629	164.9499	4.18%	76.14%	key category

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	GHG emissions in 2013, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status
N_2O Direct Emissions from Agricultural Soils	Agriculture	1167.9904	908.0039	4.09%	80.23%	key category
CO_2 Emissions from Energy Industries - Gas	Energy	6152.6295	2753.2020	3.20%	83.43%	key category
CO_2 Emissions from Manufacturing Industries and Construction	Energy	2188.7285	607.6708	2.81%	86.24%	key category
CH_4 Emissions from Enteric Fermentation in Domestic Livestock	Agriculture	1840.2088	541.2669	2.44%	88.68%	key category
CO_2 Emissions from Cement Production	IP	971.7056	476.9147	2.15%	90.83%	key category
N_2O Direct Emissions from Manure Management	Agriculture	1116.3560	328.6530	1.48%	92.31%	key category
CO_2 Other Sectors: Commercial/Institutional	Energy	1412.4933	471.6212	1.46%	93.76%	key category
N_2O Indirect Emissions from Agricultural Soils	Agriculture	365.0744	227.3876	1.02%	94.79%	key category
CO2 Mobile Combustion: Railways	Energy	452.3598	62.3858	0.87%	95.65%	key category
CH_4 Fugitive Emissions from Oil and Gas Operations	Energy	682.2942	520.6450	0.61%	96.27%	non key category
CH_4 Emissions from Wastewater Handling	Waste	215.6014	136.4857	0.61%	96.88%	non key category
CO_2 Mobile Combustion: Road Vehicles	Energy	3364.2178	1759.1150	0.61%	97.49%	non key category
N_2O Emissions from Wastewater Handling	Waste	105.6201	85.4174	0.38%	97.88%	non key category
N_2O Indirect Emissions from Manure Management	Agriculture	265.5323	66.9478	0.30%	98.18%	non key category
CO_2 Other (Energy)	Energy	154.2715	30.3317	0.25%	98.43%	non key category
CH_4 Emissions from Manure Management	Agriculture	308.7371	54.4662	0.25%	98.68%	non key category
CH_4 Other Sectors: Residential	Energy	230.2856	84.5901	0.20%	98.88%	non key category
CO_2 Mobile Combustion: Other (Pipeline Transport)	Energy	91.1782	13.2968	0.17%	99.05%	non key category
CO_2 Emissions from Degreasing and Dry Cleaning	SOPU	62.7662	29.9961	0.14%	99.19%	non key category
N_2O Emissions from Energy Industries	Energy	51.2316	4.3651	0.11%	99.30%	non key category
N_2O Mobile Combustion: Railways	Energy	54.1488	7.4678	0.10%	99.40%	non key category
CO_2 Emissions from Paint Application	SOPU	41.5890	20.4569	0.09%	99.49%	non key category
CO_2 Emissions from Soda Ash Production and Use	IP	32.9560	15.5217	0.07%	99.56%	non key category
CO_2 Emissions from Limestone and Dolomite Use	IP	619.4733	14.3708	0.06%	99.63%	non key category
CO_2 Emissions from Brick Production	IP	49.4409	13.4504	0.06%	99.69%	non key category
CO_2 Emissions from Other Products	SOPU	14.0135	11.4896	0.05%	99.74%	non key category
CO_2 Mobile Combustion Water Borne Navigation	Energy	18.9048	0.2710	0.05%	99.79%	non key category
CH_4 Mobile Combustion: Road Vehicles	Energy	24.8796	6.6527	0.03%	99.82%	non key category
CO_2 Emissions from Chemical Products, Manufacture and Processing	SOPU	7.7278	4.6492	0.02%	99.84%	non key category
N_2O Other Sectors: Residential	Energy	19.4047	15.2511	0.02%	99.86%	non key category
CH_4 Other Sectors: Agriculture/Forestry/Fishing	Energy	8.9856	0.8209	0.02%	99.88%	non key category
CO_2 from Wetland remaining Wetland	LULUCF	-6.3800	4.1664	0.02%	99.90%	non key category

Categories	Sector	GHG emissions in 1990, Gg CO_2 eq.	GHG emissions in 2013, Gg CO_2 eq.	Contribution to total national emissions	Cumulative Sum	Status
CO_2 Emissions from Lime Production	IP	148.6611	4.0523	0.02%	99.92%	non key category
CH_4 Emissions from Energy Industries	Energy	9.2887	1.3734	0.02%	99.93%	non key category
CO_2 Emissions from the Iron and Steel Industry	IP	11.7182	3.1441	0.01%	99.95%	non key category
N_2O Other Sectors: Commercial/Institutional	Energy	6.3499	1.0959	0.01%	99.96%	non key category
N_2O Other Sectors: Agriculture/Forestry/Fishing	Energy	5.0378	0.4452	0.01%	99.97%	non key category
CO_2 Fugitive Emissions from Oil and Gas Operation	Energy	0.6377	2.1589	0.01%	99.98%	non key category
N_2O Emissions from Manufacturing Industries and Construction	Energy	5.1641	1.4119	0.01%	99.98%	non key category
CH_4 from Forest Land remaining Forest Land	LULUCF	0.2347	0.9128	0.00%	99.99%	non key category
N_2O from Forest Land remaining Forest Land	LULUCF	0.1917	0.7454	0.00%	99.99%	non key category
N_2O Mobile Combustion: Road Vehicles	Energy	50.1981	27.7130	0.00%	99.99%	non key category
CH_4 Emissions from Manufacturing Industries and Construction	Energy	2.0005	0.6760	0.00%	100.00%	non key category
CH_4 Mobile Combustion: Railways	Energy	0.5323	0.0734	0.00%	100.00%	non key category
N_2O Other (Energy)	Energy	0.4911	0.0862	0.00%	100.00%	non key category
CH_4 Other Sectors: Commercial/Institutional	Energy	5.2253	2.7585	0.00%	100.00%	non key category
N_2O Mobile Combustion Water Borne Navigation	Energy	0.1582	0.0023	0.00%	100.00%	non key category
CH_4 from Croplands remaining Croplands	LULUCF	2.0547	0.0564	0.00%	100.00%	non key category
CH_4 Other (Energy)	Energy	0.0484	0.0009	0.00%	100.00%	non key category
N_2O from Croplands remaining Croplands	LULUCF	0.7864	0.0216	0.00%	100.00%	non key category
CH_4 Mobile Combustion Water Borne Navigation	Energy	0.0375	0.0005	0.00%	100.00%	non key category
N_2O Fugitive Emissions from Oil and Gas Operation	Energy	0.0002	0.0053	0.00%	100.00%	non key category
CO_2 Emissions from Mineral Wool Production	IP	8.0816	0.0000	0.00%	100.00%	non key category
N_2O Emissions from Use of N_2O for Anaesthesia	SOPU	0.0205	0.0000	0.00%	100.00%	non key category
HFCs Emissions from Aerosols	IP	0.0000	0.0791	0.00%	100.00%	non key category
SF_6 Emissions from Electrical Equipment	IP	0.0000	0.6803	0.00%	100.00%	non key category
HFCs Emissions from Refrigeration and Air Conditioning Equipment	IP	0.0000	96.9365	0.00%	100.00%	non key category
CO_2 Emissions from Expanded Clay Production	IP	0.0000	2.2411	0.00%	100.00%	non key category
HFCs Emissions from Foam Blowing	IP	0.0000	45.1716	0.00%	100.00%	non key category
CH_4 Mobile Combustion: Civil Aviation	Energy	0.0000	0.0000	0.00%	100.00%	non key category
PFCs Emissions from Electrical Equipment	IP	0.0000	0.0273	0.00%	100.00%	non key category
N_2O Mobile Combustion: Civil Aviation	Energy	0.0000	0.0017	0.00%	100.00%	non key category
CO_2 Mobile Combustion: Civil Aviation	Energy	0.0000	0.1966	0.00%	100.00%	non key category
Total				**100.00%**		

5.5. Methodology

The methodologies used in this report are taken from IPCC Good Practice (2000) and 2006 IPCC Guidelines for National Greenhouse Gas Inventories. More detailed descriptions of the methodologies can be found in these documents.

5.5.1. Tier 1 Level Assessment

For a Tier 1 Level Assessment of key categories, calculate the contribution of each inventory category's emissions to the total national inventory level, according to Equation 1:

EQUATION 1

$$\text{Key Category Level Assessment} = \frac{|\text{Source or Sink Category Estimate}|}{\text{Total Contribution}}$$

$$L_{x,t} = {|E_{x,t}|}/{\Sigma_y |E_{y,t}|}$$

Where:

$L_{x,t}$ = the level assessment for source or sink category *x* in year *t*

$|E_{x,t}|$ = the absolute value of emission or removal estimate of source or sink category *x* in year *t*

$\Sigma_y |E_{y,t}|$ = the total contribution, which is the sum of the absolute values of emissions and removals in year *t* calculated using the aggregation level chosen by the country for key category analysis. Because both emissions and removals are entered with positive sign, the total contribution/level can be larger than a country's total emissions less removals.

This equation determines the contribution of each inventory category's GHG emissions to the national total. Key categories are those that, when added together in descending order of magnitude, constitute at least 95% of the total emissions for a given year.

5.5.2. Tier 1 Trend Assessment

The contribution of each category's emission trend to the trend in the total inventory can be assessed if more than one year of inventory data are available, according to Equation 2:

EQUATION 2

$$T_{x,t} = \frac{|E_{x,0}|}{\Sigma_y |E_{y,0}|} \times \left| \frac{(E_{x,t} - E_{x,0})}{|E_{x,0}|} - \frac{(\Sigma_y E_{y,t} - \Sigma_y E_{y,0})}{|\Sigma_y E_{y,0}|} \right|$$

Where:

$T_{x,t}$ = the trend assessment of source or sink category *x* in year *t* as compared to the base year (year 0)

$|E_{x,0}|$ = the absolute value of emission or removal estimate of source or sink category *x* in year 0

$E_{x,t}$ and $E_{x,0}$ = the real values of estimates of source or sink category *x* in years *t* and 0, respectively

$\Sigma_y E_{y,t}$ and $\Sigma_y E_{y,0}$ = the total inventory estimates in years *t* and 0, respectively

The trend assessment for an individual source or sink category is the change in the category emission/removal over time, computed by subtracting the base year (year 0) estimate for source or sink category *x* from the current year (year *t*) estimate, and dividing by the current year estimate. The total trend is the change in the total inventory emissions over time, computed by subtracting the base year (year 0) estimate for the total inventory from the current year (year *t*) estimate, and dividing by the current year estimate.

The trend assessment will identify inventory categories that have a trend different from the trend of the overall inventory. As differences in trend are more significant to the overall inventory level for larger inventory categories, the result of the trend difference (i.e., the inventory category trend minus the total trend) is multiplied by the result of the level assessment from the base year ($L_{x,t}$ from Equation 1) to provide appropriate weighting. Thus, key categories will be those where the inventory category trend diverges significantly from the total trend, weighted by the emission level of the inventory category.

This type of key category analysis is only applicable to those countries that have emission inventories for more than one year. Thus, key categories are those whose trend diverges significantly from the total trend, weighted by the level of emissions or removals of the category in the base year. Key categories are those that, when summed together in descending order of magnitude, add up to more than 95% of the total trend.

5.6. Additional Information

Table 5.7 presents the key categories for the Republic of Moldova inventory based on the Tier 1 methodological approach [with LULUCF: 17 key categories by level (L) and 17 key categories by trend (T); without LULUCF: 17 key categories by level (L) and 13 key categories by trend (T)] using emissions data in this report for the 1990-2013 period.

Table 5-7: Results of Tier 1 key categories analysis for the time series 1990-2013

IPCC Classification	Key Categories	Gases	Tier 1 Key Categories Analysis				GHG emissions 2013 (Gg CO_2 eq.)
			with LULUCF		without LULUCF		
			L	T	L	T	
5B	Cropland	CO_2	X	X			3245.4858
1A1	Energy Industries - Gas	CO_2	X	X	X	X	2753.2020
5A	Forest Land	CO_2	X	X			-1887.6165
1A3b	Road Transportation	CO_2	X		X	X	1759.1150
5C	Grasslands	CO_2	X	X			-1461.3867
6A	Solid Waste Disposal on Land	CH_4	X	X	X	X	1343.8942
1A4b	Other: Residential	CO_2	X	X	X		1309.0059
4D	Direct Emissions from Agricultural Soils	N_2O	X	X	X	X	908.0039
1A2	Manufacturing Industries and Construction	CO_2	X	X	X		607.6708
4A	Enteric Fermentation	CH_4	X	X	X		541.2669
1B2	Fugitive Emissions from Oil and Natural Gas	CH_4	X		X	X	520.6450
2A1	Cement Production	CO_2	X	X	X	X	476.9147
1A4a	Other: Commercial/Institutional	CO_2	X	X	X		471.6212
1A1	Energy Industries - Coal	CO_2	X	X	X	X	470.1322
4B	Direct Emissions from Manure Management	N_2O	X	X	X		328.6530
4D	Indirect Emissions from Agricultural Soils	N_2O	X	X	X	X	227.3876
1A4c	Other: Agriculture/Forestry/Fishing	CO_2	X	X	X	X	164.9499
6B	Waste water treatment	CH_4			X	X	136.4857
2F1	HFC Emissions from Refrigeration and Air Conditioning Equipment	HFCs			X		96.9365
6B	Wastewater Handling	N_2O			X		85.4174
1A1	Energy Industries – Residual Fuel Oil	CO_2		X		X	84.8480
1A3c	Railways	CO_2		X		X	62.3858
2A3	Limestone and Dolomite Use	CO_2				X	14.3708
Sub-total without LULUCF							12362.9064
Total National Emissions without LULUCF							12836.3270
Per cent of National Emissions without LULUCF							96.31%
Sub-total with LULUCF							11926.1787
Total National Emissions with LULUCF							12738.7123
Per cent of Total National Emissions with LULUCF							93.62%

Abbreviations: L - level assessment; T - trend assessment.

Chapter 6: National Inventory Improvement Plan

1: Institutional Arrangements

2: Methods and Data Documentation

3: Description of QA/QC Procedures

4: Description of Archiving System

5: Key Category Analysis

6: National Inventory Improvement Plan

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6. National Inventory Improvement Plan

6.1. Objectives

This National Inventory Improvement Plan (NIIP) presents actions that the Republic of Moldova has identified to improve its national GHG inventory systems. The NIIP will guide future efforts to increase the transparency, consistency, comparability, completeness, and accuracy of future inventories. The plan addresses many of the shortcomings of the previous inventory, and will inform future inventory teams of needed improvements. These improvements have been identified through documentation of existing institutional arrangements, category-by-category analyses of methods and data, QA/QC procedures, developing archiving systems, and an assessment of key categories in the Republic of Moldova.

6.2. Institutional Arrangement Priorities

The National Inventory System involves all of the institutional, legal, and procedural arrangements made by the Republic of Moldova for estimating anthropogenic emissions and removals, as well as the reporting and archiving of inventory information. Identified within a National Inventory System is the designated government agency responsible for producing a national greenhouse gas inventory, the key organizations that contribute data and methods, estimates, and the end-users of the inventory.

Preparing a comprehensive inventory requires establishing, identifying, and documenting all relevant contributors to the National Inventory. Assessing and documenting the status of existing institutional arrangements for inventory development will ensure continuity and integrity of the inventory, promote institutionalization of the inventory process, and facilitate prioritization of future improvements.

Table 6.1 lists the priority actions identified in the Chapter 1: Institutional Arrangements.

Table 6.1: Priority Actions for the National Inventory System

Sector	Strengths of the National Inventory System Management Structure	Potential Improvements of the National inventory System Management Structure
General	The key strengths in the management structure of the National Inventory System are as follows: • The existence of legal provisions that establish the obligation to submit data related to the inventory process of GHG emissions towards specific deadlines to the competent authority designated with responsibility for national inventory preparation; • Existence of a group of qualified experts specializing in areas related to the process of GHG emissions inventory with rich experience gained over the years 1997-2015, starting from the first cycle of GHG emissions inventory conducted during preparation of the First National Communication of the Republic of Moldova to the UNFCCC (1997-2000) and ending with the last inventory cycle conducted during preparation of the First Biannual Report of the Republic of Moldova to UNFCCC (2014-2015); • Possibilities for elucidation of quantitative and qualitative aspects related to the inventory process from sectorial, national and international statistical reports and publications; • The existence of national studies in various sectorial areas, which allowed for the possibility in the near future to start using calculation methodologies of higher tiers within the national inventory;	It is anticipated that by the end of 2016 year, a National Reporting System to UNFCCC (NRS-UNFCCC) has to be established through a Governmental Decision. It will be created for the implementation and achievement of UNFCCC provisions (the Parliament Decision no. 404-XIII of March 16, 1995 "On Ratification of the UNFCCC", Official Gazette of the Republic of Moldova on April 27, 1995 no. 23), the Kyoto Protocol to the UNFCCC (Law no. 29 of 13.02.2003 for Republic of Moldova adhering to the Kyoto Protocol to the UNFCCC, Official Gazette of Republic of Moldova no. 48 of 18 March 2003, art. 193); and to implement and achieve the implementation of the Environment Protection Strategy for the 2014-2023 years and the Environment Protection Action Plan (Government Decision No. 301 of 24 April 2014, Official Gazette of Republic of Moldova of May 6, 2014, No. 104-109, Art. 328) (particularly Specific Objective 1 "Ensuring the conditions of good governance and efficiency of the institutional and managerial potential in environmental protection in order to achieve environmental objectives ", Line of Action 3, "Ensuring institutional reform in the environment sector ", Action 27 "Institutionalization of protective functions of forests, soil, air and climate change within the environmental protection system "). NRS-UNFCCC is to regulate all aspects of the institutional and procedural arrangements for estimating emissions of anthropogenic

Sector	Strengths of the National Inventory System Management Structure	Potential Improvements of the National inventory System Management Structure
	• The existence of a database of activity data related to the inventory process of GHG emissions, which is updated within each inventory cycle and is maintained institutionally starting from the first cycle of GHG emissions inventory. • Experience gained in implementing quality verification, quality control and quality assurance measures for the national inventory of GHG emissions.	greenhouse gas emissions by sources and removals by sequestering of carbon dioxide covered by the Kyoto Protocol to the UNFCCC and the subsequent decisions, to report, archive and store information comprised in the national inventory of greenhouse gas emissions.
Energy	The Working Group for Energy sector was established along with the launch of the first inventory cycle of emissions / removals of greenhouse gases in the Republic of Moldova (1997-2000) by involving specialists from the Institute Power Engineering of the Academy of Sciences, a research and development organization with profile "Electrical Engineering and Technologies" within the ASM. The statistical indicators needed for assessing GHG emissions from the energy sector are to be found in a number of specialized central authorities, but they originate from some state owned enterprises and joint stock companies under the central government and from companies with state participation. Thus, for example, the Energy Balances of the Republic of Moldova are generated by the National Bureau of Statistics, consistently since 1993, and are made available regularly to estimate the anthropogenic emissions of greenhouse gas emissions. The Civil Aeronautical Authority, a public certification, control and surveillance authority of civil aviation, provides information on fuel use for domestic and international aviation, number of aircrafts used and the number of flights. Relevant information is provided directly from source also by "Termoelectrica" JSC with subdivisions (CHP-1, CHP-2 and Termoservicii), "CHP-North" JSC Balti, "Moldovagaz" JSC, "Railways of Moldova" SC, "Air Moldova" SC and SC "State Information Resources Centre "Registru ". The main strengths in the management structure of the National Inventory System for the energy sector are as follows: • The existence of legal provisions that establish the obligation to submit data for the inventory process of GHG emissions from the energy sector to the competent authority designated with responsibility for national inventory compilation; • The existence of an electronic database containing activity data for the energy sector, which is updated regularly; • The existence of a group of qualified experts specializing in areas related to the process of inventory of GHG emissions from the energy sector; • Possibilities for elucidation of quantitative and qualitative aspects related to the process of inventory in Energy Balances of the Republic of Moldova; • Existence of national research studies in the field of energy, including assessments that comprise the use trends in the energy resources of the Republic of Moldova; assessments of the structural changes of the energy balances of the Republic of Moldova and the impact on the efficiency of energy statistics systems; evaluation of assessment methodologies for calculating emissions of various pollutants from fossil fuel combustion in the energy sector of the Republic of Moldova; comparison of different emission factors available in the existing methodological guides; identification of new primary data sources for assessing GHG emissions from the energy sector. All of the above makes it possible to start using higher tier calculation methodologies in near future.	Within NRS-UNFCCC, the NBS, the Ministry of Transportation and Roads Infrastructure, the Ministry of Economy, the Ministry of Defence, the Civil Aeronautical Authority, "Termoelectrica" JSC Chisinau with its subdivisions (CHP-1, CHP-2 and Termoservicii), "CHP-North" JSC, Balti, "Moldovagaz" JSC, SC "Railway of Moldova", SC "Air Moldova" and SC "Centre for State Information Resources "Registru" will be designated as main providers of AD and EFs needed to estimate emissions of GHG from the energy sector. The entities will be given specifics on the information to be submitted and deadline for its presentation to the competent authority designated with responsibility for compiling the national inventory of greenhouse gas emissions. The Institute of Power Engineering of the ASM will continue to hold responsibility for compilation and review of inventory data for the energy sector and will develop their human and institutional capacities needed to ensure quality and timeliness for compilation and review process in respect to inventory data for the energy sector. In this context, strengthening of technical capacities of the working group members will continue, including in issues related to processing of primary data on fuel use in the national economy and / or sectorial level, taking particular account of structural changes in energy use (e.g. ., the emergence of new types of fuels in primary energy use, increase of the share of renewables in primary energy use, etc.); studying the trends in use of fuels and energy (electricity and heat) at national and sectorial level; as well as aspects of documenting and archiving the information collected; study of opportunities to start using higher tier methodologies for source categories such as 1A1 "Energy industry", 1A3 'Transport' 1B2 'Fugitive Emissions from Oil and Natural Gas ". Simultaneously, in October-November 2015, an external peer review was carried out for Chapter 3 "Energy" of the "National Inventory Report: 1990-2013. Sources and Sinks of GHG emissions in the Republic of Moldova "(peer review was conducted by Ms Veronika Ginzburg, an international expert from the Russian Federation). Upon finalization of this peer review, weaknesses in the GHG inventory of energy sector are to be identified and recommendations will be provided to improve the quality of national inventory for this sector. In the same context, on November 23-25, a thematic training was carried out for national consultants involved in the process, being delivered by respective international consultant.
Industrial Processes	A Working Group was established in industrial processes sector along with the launch of the first inventory cycle of emissions / removals of greenhouse gases in the Republic of Moldova (1997-2000) involving experts from the National Institute of Ecology (reorganized through merger with the Institute of Geography in 2005 resulting in the Institute of Ecology and Geography of the Academy of Sciences of Moldova), a research - development entity with the following main research areas: integrated environmental monitoring and ecological rehabilitation; dynamics and evolution of natural and anthropogenic ecosystems in local, regional and transboundary context, development of a geo-information system for environment and natural resources, etc.	Within NRS-UNFCCC, the National Bureau of Statistics, the Ministry of Transportation and Roads Infrastructure of the Republic of Moldova, the Ministry of Health of the Republic of Moldova, the Customs Service of the Republic of Moldova, SC "State Information Resource Centre "Registru", State Company "MOLDELECTRICA", RED UNION FENOSA JSC with foreign capital, State Company "Chisinau Glass Factory No.1", JV "Glass Container Company" JSC, "Lafarge Cement (Moldova)" JSC, Combination of building materials from Chisinau Macon JSC, JV Efes Vitanta Moldova Brewery JSC, Public Association of refrigeration technicians of the Republic of Moldova,

Sector	Strengths of the National Inventory System Management Structure	Potential Improvements of the National inventory System Management Structure
	The statistical indicators needed to evaluate GHG emissions from industrial processes sector are to be found in several specialized central public authorities. Thus, for example, the statistical reports PRODMOLD-A "Statistical survey of industrial products" is generated by the National Bureau of Statistics, and are made available electronically since 2005 to estimate the anthropogenic emissions of greenhouse gases from the industrial processes sector. The Agency for Geology and Mineral Resources, a specialized entity of the central public administration responsible for research, accounting, regulation and control of the use of mineral resources, aimed at implementing the state policy in geological research, rational use and protection of subsoil, provides information on the amount of extracted non-metallic minerals containing limestone for use as raw material in industrial processes in which burning of limestone in the oven is used. Relevant information is also provided by the Ministry of Transportation and Roads Infrastructure of the Republic of Moldova, Ministry of Health of the Republic of Moldova, Customs Service of the Republic of Moldova, SC "State Information Resource Centre "Registru", State Company "MOLDELECTRICA", RED UNION FENOSA JSC with foreign capital, state company "Chisinau Glass Factory No.1", JV "Glass Container Company" JSC, "Lafarge Cement (Moldova)" JSC, Combination of building materials in Chisinau Macon JSC, JV Efes Vitanta Moldova Brewery, Public Association of the Refrigerating Technicians of the Republic of Moldova, SC "ECOLUX" Ltd, SC "FRIGOIND" Ltd, SC "FRIO-DINS" Ltd. The main strengths in the management structure of the National Inventory System for industrial processes sector are as follows: • The existence of legal provisions that establish the obligation to submit data for the inventory process of GHG emissions from industrial processes sector to the competent authority designated with responsibility for national inventory compilation; • The existence of a group of qualified experts specializing in areas related to the process of inventory of GHG emissions from the industrial process; • Possibilities for elucidation of quantitative and qualitative aspects related to the inventory process in statistical reports PRODMOLD-A, "Statistical survey of industrial products"; • Existence of some national studies on industry, which makes it possible to use higher tier calculation methodologies in the sector of industrial processes.	SC "ECOLUX" Ltd, SC „FRIGOIND" Ltd, SC "FRIO-DINS" Ltd. will be designated as the main suppliers of activity data and emission factors needed to estimate emissions of greenhouse gases for the industrial processes, specifying the information to be submitted and the deadline for data presentation to the competent authority designated with responsibility for compiling national inventories of greenhouse gas emissions. The specialists of the Institute of Ecology and Geography (IEG) of the ASM will continue to hold responsibility for compilation and review of inventory data for industrial processes sector. Within the IEG of the ASM, the opportunity will be assessed to develop the human and institutional capacities needed to ensure continued high quality of the compilation process and review of inventory data for industrial processes sector.
Solvents and Other Product Use	The Working Group for Solvents and Other Product Use (SOPU) Sector was established along with launching of the first inventory cycle of emissions / removals of greenhouse gases in the Republic of Moldova (1997-2000) by involving specialists of the State Ecological Inspectorate responding to the Ministry of Environment and the National Institute of Ecology (which was reorganized through merger with the Institute of Geography in 2005 and became the Institute of Ecology and Geography of the Academy of Sciences of Moldova). This is a research -development organisation, which operates along the following main research directions: integrated environmental monitoring and ecological rehabilitation, dynamics and evolution of natural and anthropogenic geo- and ecosystems in the local, regional and transboundary context, development of a geo-information system for environment and natural resources, etc. The statistical indicators needed to evaluate GHG emissions from the SOPU Sector are mainly found in two specialized central public authorities. Thus, the statistical reports PRODMOLD-A, "Statistical survey of industrial products", are generated by the National Bureau of Statistics and are made available electronically since 2005 to estimate the anthropogenic emissions of greenhouse gases from the SOPU Sector. At the same time, the Customs Service, a specialized public authority responsible for insuring economic security of the country and efficient collection of taxes and dues, combating customs fraud, facilitation of international trade and uniform and impartial application of customs law, provides data on import and export of solvents.	Within the NRS-UNFCCC, NBS and the Customs Service will be designated as main suppliers of AD and EFs needed to estimate GHG emissions from SOPU Sector, specifying the information to be presented and the deadline for its submission to the competent authority designated with responsibility for compiling national GHG inventories. The experts of the Institute of Ecology and Geography (IEG) of the ASM will continue to hold responsibility for compilation and review of inventory data for the SOPU Sector. Within the IEG of the ASM opportunities for developing human and institutional capacities needed to ensure continued high quality of the compilation process and review of inventory data for the SOPU Sector use will be studied.

Sector	Strengths of the National Inventory System Management Structure	Potential Improvements of the National inventory System Management Structure
	The key strengths of the management structure of the national inventory system for SOPU Sector are as follows: • The existence of legal provisions that establish the obligation to submit data for the inventory process of GHG emissions from the SOPU Sector to the competent authority designated with responsibility for national inventory compilation; • The presence of a group of qualified experts specializing in areas related to the process of inventory of GHG emissions from the SOPU Sector; • Possibilities for elucidation of quantitative and qualitative aspects related to the inventory process from statistical reports PRODMOLD-A, "Statistical survey of industrial products", as well as from information received from the Customs Service of the Republic of Moldova; • Existence of international studies that made it possible to use higher tier calculation methodologies of emissions from SOPU Sector.	
Agriculture	A Working Group for Agriculture Sector was established along with the launching of the first inventory cycle of emissions / removals of greenhouse gases in the Republic of Moldova (1997-2000) by involving specialists from the Institute of Soil Science, Agrochemistry and Soil Protection "Nicolae Dimo". The main directions and priorities of its activity refer in general to soil, water and agrochemical, water studies (combating soil erosion, stabilization of landslides, draining soils with excess moisture) and land improvements in order to increase soil fertility. Since 2006 within the working group for Agriculture Sector experts from State Agrarian University of Moldova (SAUM) are involved. The SAUM is an entity of the university education system under the Ministry of Agriculture and Food Industry (MAFI); since 2010 experts from the Scientific-Practical Institute for Biotechnology in Animal Breeding and Veterinary Medicine are involved. The research - development profile of the Institute comprises "technology in livestock husbandry and veterinary medicine" (it carries out research in the basic branches of the livestock sector: cattle, swine, sheep, rabbits, poultry, beekeeping and fish farming). The statistical indicators needed to evaluate GHG emissions from the Agriculture Sector are to be found mainly in the NBS. Thus, for example, Statistical Reports (SR) Nr. 6 "The number of livestock and poultry in households", SR No. 9 AGR "The use of plant protection products and the introduction of artificial and natural fertilizers", SR No. 15-AGR "Livestock", SR No. 24-AGR "Condition of livestock sector", SR No. 29-AGR "The output from the harvested crops throughout the sewn area" are generated by the NBS and are available in electronic format since 2005 to estimate the anthropogenic emissions of greenhouse gases from the agriculture sector. The main strengths of the management structure of the National Inventory System for Agriculture Sector are as follows: • The existence of legal provisions that establish the obligation to submit data for the inventory process of GHG emissions from the Agriculture Sector to the competent authority designated with responsibility for national inventory compilation; • The existence of a group of qualified experts specialized in areas related to the estimation of GHG emissions from Agriculture Sector; • Possibilities for elucidation of quantitative and qualitative aspects related to inventory process from SR No. 6 "The number of livestock and poultry in households", SR No. 9 AGR "The use of plant protection products and the introduction of artificial and natural fertilizer", SR No. 15-AGR "Livestock", SR No. 24-AGR "Condition of livestock sector", SR No. 29-AGR "The output from harvested crops throughout the area sown"; • Existence of national studies, which made it possible the transition to use higher tier calculation methodologies for emissions from the Agriculture Sector.	Within the NRS-UNFCCC, the National Bureau of Statistics will be designated as the main data provider of activity data and emission factors needed to estimate greenhouse gas emissions for the agriculture sector, specifying the information to be presented, and the deadline for presentation to the competent authority designated with responsibility for compiling national inventories of greenhouse gas emissions. The experts of the Scientific-Practical Institute for Biotechnology in Animal Breeding and Veterinary Medicine, the State Agrarian University of Moldova and the Institute of Soil Science, Agrochemistry and Soil Protection "Nicolae Dimo" will continue to hold responsibility for compilation and review of inventory data for the Agriculture sector. Within these organizations, the opportunities to develop human and institutional capacities needed to ensure continued high quality of the compilation process and review of inventory data for Agriculture Sector will be assessed.

Sector	Strengths of the National Inventory System Management Structure	Potential Improvements of the National inventory System Management Structure
Land Use, Land-Use Change and Forestry	The Working Group for LULUCF Sector was established along with the launching of the first inventory cycle for emissions / removals of greenhouse gases in the Republic of Moldova (1997-2000) by involving experts from the Forestry Research and Management Institute (FRMI). FRMI is a plenipotentiary structure in forest improvement, organizing detection and combating forest diseases and pests, as well as in scientific research of forests and designing of forests. It responds to "Moldsilva" Agency of the Ministry of Environment, a specialized body of central public administration responsible for implementing state policies in the area of forestry and hunting. It has joined international trends on socio-economic development, sustainable development of forestry and hunting, protection, guarding of forests and fauna, preservation and conservation of biodiversity, professional training and access to ecological and forest related education. The indicators and statistical parameters necessary for evaluation of emissions / removals of GHG in the LULUCF sector are generated by a number of specialized central public authorities, while most of the data related to the forestry sector are concentrated in "Moldsilva" Agency. Within the central office of the Agency, the Division for Forestry Fund, Protected Areas, Guarding and Protection (DFFPAGP) is responsible for developing and / or standardizing national and sectorial statistical reports related to harvesting timber (authorized and illegal), cultivating of forests etc.; the aspects related to forest management and management of other types of forest vegetation owned by local authorities (municipalities) are concentrated in the State Ecological Inspectorate (SEI), which is subordinated to the Ministry of Environment (MoEN). SEI performs state control in the forestry area, provides licences for tree logging for wood. The cadastre data related to cadastre aspects (area covered with forests, forest vegetation outside the forest (windbreaks, planting trees and shrubs, green spaces, etc.), meadows, perennial plantations, arable land, land of settlements, other land etc. ; changing of land use category from one year to another etc.) are concentrated in the Agency for Land Relations and Cadastre (ALRC). The key strengths in the management structure of the national inventory system for LULUCF Sector are as follows: • The existence of legal provisions that establish the obligation to submit data for the inventory process of GHG emissions/removals from LULUCF Sector to the competent authority designated with responsibility for national inventory compilation; • The existence of a group of qualified experts specializing in areas related to the process of inventorying GHG emissions/removals from LULUCF Sector; • Possibilities for elucidation of quantitative aspects related inventory process in General State Land Cadastre; • Possibilities for elucidation of quantitative and qualitative aspects of forest improvement and state records on forests; • The existence of a set of reports related to harvesting of timber, forest cultivation, forests affected by pests and diseases, etc. • The existence of studies on the condition of forest vegetation outside the forests (forest belts, green spaces, etc.); • The existence of studies on grassland productivity depending on the initial growth conditions (relief, soil, etc.).	Within NRS-UNFCCC, Agency "Moldsilva", Agency for Land Relations and Cadastre, the State Ecological Inspectorate and the National Bureau of Statistics will be designated as main suppliers of activity data and emission factors needed to estimate GHG emissions / removals in LULUCF sector, specifying the information to be submitted and the deadline for its submission to the competent authority designated with responsibility for compiling national inventories of greenhouse gas emissions. It is anticipated that the Forestry Research and Management Institute will be officially charged with the responsibility of compiling and reviewing the inventory data on LULUCF sector. In the FRMI a LULUCF Sector Working Group will be set up and a coordinator and consultants responsible for specific categories / sections will be appointed. This process will also involve experts of the Institute of Soil Science, Agrochemistry and Soil Protection "N. Dimo ", which are responsible for evaluating GHG emissions / removals from the subcategory 5B1.2 Annual changes in carbon stocks in mineral soils. FRMI will continue to develop human and institutional capacities needed to ensure high quality and timeliness of compilation and review of inventory data in LULUCF Sector. Additionally, during October-November 2015 an external peer review of Chapter 7 "LULUCF Sector" of the "National Inventory Report: 1990-2013. Sources and Sinks GHG emissions in the Republic of Moldova" was carried out (the peer review was carried out by Mr Viorel Blujdea, Romania, international consultant in LULUCF/AFOLU). Following this peer review results, gaps / weaknesses were identified in the LULUCF inventory. A list of recommendations has been drawn up to improve the quality of the national inventory developed for this sector. In the same context, during the period November 25 to 27, 2015 a thematic training for national consultants involved in that process was organized, delivered by the same international consultant.
Waste	The Working group for the Waste Sector was established along with the launching of the first inventory cycle of emissions / removals of greenhouse gases in the Republic of Moldova (1997-2000) by involving experts of the Ministry of Environment, Division for pollution prevention and waste management, Management of waste and chemicals unit. Since 2009, the national consultants involved in inventorying GHG emissions from the Waste Sector are working within the for Environmental Pollution Prevention Office of the Ministry of Environment, respectively within GIZ Project "Modernization of local public services in the Republic of Moldova".	The experts working within the Environmental Pollution Prevention Office of the Ministry of Environment will continue to bear responsibility for inventory data compilation and review for the Waste Sector. Within the NRS-UNFCCC, the NBS will be designated as the main data provider of activity data and emission factors needed to estimate GHG emissions from the Waste Sector, specifying the information to be submitted, and the deadline for its submission to the competent authority designated with responsibility for compiling national inventories of greenhouse gas emissions.

Sector	Strengths of the National Inventory System Management Structure	Potential Improvements of the National inventory System Management Structure
	The statistical indicators needed to assess the GHG emissions from the Waste Sector are to be found in the National Bureau of Statistics, which generates and provides SR No.1 on toxic waste "Formation, use and disposal of toxic waste" and SR Nr.2- on waste, "Formation, use of waste ". The main strengths of the management structure of the National Inventory System for the Waste Sector are as follows: • The existence of legal provisions that establish the obligation to submit data for the inventory process of GHG emissions from the Waste Sector to the competent authority designated with responsibility for national inventory compilation; • The existence of a group of qualified experts specializing in areas related to the estimation of GHG emissions from Waste Sector; • Possibilities for elucidation of quantitative and qualitative aspects related to inventory process in SR No.1 on toxic waste, "Formation, use and disposal of toxic waste" and SR No.2 on waste, "Formation, use of waste"; • The existence of national and international studies, which made it possible to use higher tier calculation methodologies for emissions from the Waste Sector.	The experts working in the Environmental Pollution Prevention Office of the Ministry of Environment will continue to hold responsibility for compilation and review of inventory data for the waste sector. The Environmental Pollution Prevention Office of the Ministry of Environment will evaluate the opportunity to develop human capacities needed to ensure continued high quality of the compilation process and review of inventory data for the Waste Sector.

Source: Table 1.9 from Chapter 1: Institutional Arrangements.

6.3. Summary of Key Categories

The concept of "key categories" was created by the IPCC as a way to help countries prioritize resources for improving national greenhouse gas inventories. Key categories have the greatest contribution to the overall level of national emissions. When an entire time series of emission estimates is prepared, key categories can also be identified as those categories that have the largest influence on the trend of emissions over time. In addition, when uncertainty estimates are incorporated into emission estimates, additional key categories are identified.

The results of the key category analysis provide a country with a list of their most important inventory categories. This list is a starting point from which a country can begin the process of improving their greenhouse gas inventory. To improve the national greenhouse gas inventory, it may be necessary to consider applying more accurate or higher tier methodologies, collect more detailed activity data, or develop country-specific emission factors. These activities all require additional resources, and it is not possible to make improvements for every inventory category. Therefore, the Republic of Moldova has identified the categories listed in Table 6.2 as the most important categories contributing to national net emissions. Assessing the methods and data used to estimate emissions and/or removals from these key categories is integral to identifying priorities. These categories were identified through the Key Category Analysis, using software provided by U.S. EPA. A level assessment was conducted, identifying the largest categories accounting for at least 95% of the total estimate.

Table 6-2 presents the key categories for the Republic of Moldova inventory based on the Tier 1 methodological approach [with LULUCF: 17 key categories by level (L) and 17 key categories by trend (T); without LULUCF: 17 key categories by level (L) and 13 key categories by trend (T)] using emissions data in this report for the 1990-2013 period.

Table 6.2: Results of the Tier 1 Key Categories Analysis for the time series 1990 to 2013 in the Republic of Moldova

IPCC Classification	Key Categories	Gases	Tier 1 Key Categories Analysis				GHG emissions 2013 (Gg CO_2 equivalent)
			with LULUCF		without LULUCF		
			L	T	L	T	
5B:	Cropland	CO_2	X	X			3245.4858
1A1	The energy industry - Gas	CO_2	X	X	X	X	2753.2020
5a.	Forestlands	CO_2	X	X			-1887.6165
1A3b	Road transport	CO_2	X		X	X	1759.1150
5C	Pastures	CO_2	X	X			-1461.3867
6A	Solid Waste Disposal on Land	CH_4	X	X	X	X	1343.8942
1A4b	Other sectors: Residential	CO_2	X	X	X		1309.0059
4d	Direct emissions from agricultural soils	N_2O	X	X	X	X	908.0039
1A2	Manufacturing and construction	CO_2	X	X	X		607.6708
4A	Enteric fermentation	CH_4	X	X	X		541.2669
1B2	Fugitive emissions from oil and gas operations	CH_4	X		X	X	520.6450
2A1	Cement production	CO_2	X	X	X	X	476.9147
1A4a	Other sectors: Commercial / Institutional	CO_2	X	X	X		471.6212
1A1	The energy industry - coal	CO_2	X	X	X	X	470.1322
4B	Direct emissions from manure management	N_2O	X	X	X		328.6530
4d	Indirect emissions from agricultural soils	N_2O	X	X	X	X	227.3876
1A4c	Other sectors: Agriculture / Forestry / Fisheries	CO_2	X	X	X	X	164.9499
6b	Wastewater handling	CH_4			X	X	136.4857
2F1	HFC emissions from air conditioning equipment	HFCs			X		96.9365
6b	Wastewater handling	N_2O			X		85.4174
1A1	The energy industry - fuel oil	CO_2		X		X	84.8480
1A3c	Rail roads	CO_2		X		X	62.3858
2A3	Use and dolomite limestone	CO_2				X	14.3708
Sub-total without the contribution of Category 5 LULUCF							12362.9064
Total national emissions without the contribution of Category 5 LULUCF							12836.3270
Percentage of the total without Category 5 'LULUCF							96.31%
Sub-totalwith the contribution of Category 5 LULUCF							11926.1787
Total national emissions with the contribution of Category 5 LULUCF							12738.7123
Percentage of the total with Category 5 LULUCF							93.62%

Abbreviations: L - level assessment; T - trend assessment. Source: Table 5.7 from Chapter 5: Key Categories Analysis.

6.4. Potential Category-Improvements

Information on key category analysis is reported in section 6.3. Priority areas for improvement for these and other categories are identified using this documentation. Table 6.3 lists the problems and potential improvements for key categories within the Energy Sector.

Table 6.3: Potential Improvements to the Methodology and Data Documentation Analysis in Energy Sector

#	Category	Potential Improvements
1.	1A1 Energy Industries	Information structuring by type of electricity and heat generation installations has been initiated aimed at making the assessment of GHG emissions in category 1A1 "Energy Industries" more accurate, as this is a key category. The possibility of moving to a higher tier calculation method (Tier 3) is being assessed. Questionnaires to collect the necessary information were sent to each power generation facility. By February 2015 every natural gas based electricity and heat generation facility on the right bank of the Dniester River has provided answers for the questionnaires. Based on the filled in questionnaires GHG emissions were calculated according to Tier 3 calculation method. Also, emission factors to be used in Tier 3 calculation method were selected. For certain GHG these coefficients coincide with those used for Tier 1 calculation method. The analysis of results obtained by applying Tier 1 and Tier 3 calculation methods showed little difference, suggesting that Tier 1 method may be accepted for further use. A potential improvement would be using Tier 3 method for the MTPP. It should be noted that the MTPP is operated not only on natural gas, but also fuel oil and coal. Attempts will be made to collect activity data on fuel consumption for heat generation on the left bank of the Dniester River.
3.	1A2 Manufacturing Industries and Constructions	Potential improvements in the category 1A2 "Manufacturing industries and constructions" could be made with reference to the availability of updated activity data on fuel consumption for energy purposes in the category of respective sources on the left bank of the Dniester River.
4.	1A3 Transport	Potential improvements in the category 1A3 "Transport" could be made with reference to the availability of updated activity data on fuel consumption in the category of respective sources on the left bank of the Dniester River. Also the possibility of moving to higher tier methodology (Tier 3), for example when using the COPERT program, will be considered. For this to become possible it is necessary to collect disaggregated data on vehicles by type of transport, type of fuel used, and engine capacity, annual mileage and weather conditions for the vehicle use period. Questionnaires on data collection information were drafted and sent to the SE "CRIS" Registru for filling in, however, unfortunately until now the requested information could not be obtained. It would also be possible to shift to a higher level methodology (Tier 2) to assess the GHG emissions from railroad transport, but this category is not a key one, as the respective emissions are modest.
6.	1A4 Other Sectors	Potential improvements in the category of sources 1A4 "Other Sectors" could be made with reference to the availability of updated activity data on fuel consumption in the category of respective sources for the left bank of the Dniester River.
7.	1B2 Fugitive Emissions from Oil and Natural Gas	Potential improvements in the category 1B2 "Fugitive emissions from oil and natural gas", could be made with reference to the availability of additional information on fugitive leaks from oil and gas distribution systems (from the infrastructure for production, collection, processing, refining and distribution of petroleum products and natural gas to final customers; for the operation of equipment, losses from evaporation, ventilation, flaring, accidental spillages from pipeline systems damage, etc.). The possibility of moving to a higher tier methodology is being considered, as well as the requirements towards the activity data needed for this transition. Work on developing a questionnaire to be sent to the company "Valiexchimp" JSC, active in the extraction of oil and natural gas in the south, has been initiated.
8.	Memo Items: International Bunkers (International Aviation)	Potential improvements in the category "Memo Items: International Aviation" can be made with reference to switching to a higher-tier methodology and collection of more disaggregated activity data. Referring to switching to a higher tier methodology, the 2006 IPCC Guidelines for National Greenhouse Gas Inventories recommend taking into account the EMEP/EEA Air Pollution Emission Inventory Guidebook 2013, Technical guidance to prepare national emission inventories. The latter provides a Tier 3 calculation methodology, and Annexes provide disaggregated EFs and relevant activity data by types of aircraft. The opportunity of using this calculation methodology has been assessed and test calculations of GHG emissions from international aviation by using Tier 3 methodology for 2013 have been carried out. This activity can be extended by covering the whole period under review.
9.	CO_2 emissions from biomass	Potential improvements in the category "CO_2 emissions from biomass" could be made with reference to collection of higher accuracy activity data from the sources alternative to Energy Balances of the Republic of Moldova, in particular for the period up to year 2010 (as of this year the NBS has switched to a different method of evaluating the biomass consumption in Moldova, and the differences compared with the previous period are significant). In order to ensure consistency in time it is necessary to extend the applicability of this methodology for the period up to 2010.

Source: Table 2.6.1 from Chapter 2: Methods and Data Documentation.

Table 6.4 lists the problems and potential improvements to the key categories within the Industrial Processes Sector.

Table 6.4: Potential Improvements to the Methodology and Data Documentation Analysis in the Industrial Processes Sector

#	Categories	Potential Improvements
1.	2A Mineral Products	Potential improvements could include activities specifying the activity data used to evaluate GHG emissions from category 2A Mineral Products, particularly due to the fact that the electronic versions of Statistical Reports "PRODMOLD-A: production in natural expression as total per country, by types of products", for the years 2005-2011 became available by the end of the current inventory cycle (during the current inventory cycle the "PRODMOLD-A Statistical Reports" for years 2012 and 2013 only were available). The respective Statistical Reports contain more accurate activity data (values are presented in tons and / or in kg, while in other statistical publications, in thousand tons), also the information contained in the respective statistical report is disaggregated by sectorial level, and production sub-categories.
2.	2F Consumption of Halocarbons and SF_6	Potential improvements could include activities aimed at completing the database with new data collected from companies operating in the sales of refrigeration and air conditioning systems, and activities aimed at specifying the country specific values of emission factors and parameters used to assess F-gas emissions from category 2F "Consumption of Halocarbons and SF_6".

Source: Table 2.6.2 from Chapter 2: Methods and Data Documentation.

Table 6.5 lists the problems and potential improvements for key categories within Agriculture Sector.

Table 6.5: Potential Improvements to the Methodology and Data Documentation Analysis in the Agriculture Sector

#	Category	Potential Improvements
1.	4A Enteric Fermentation	Potential improvements could include activities specifying the activity data and productivity indicators used to calculate GHG emissions from category 4A "Enteric Fermentation" on the basis of a Tier 2 method, specifically for cattle and sheep, animal categories with the highest share in the structure of CH_4 emissions in this category.
2.	4B Manure Management	Potential improvements could include activities specifying the activity data and productivity indicators used to calculate CH_4 emissions of from category 4B "Manure Management", especially for cattle and pigs, the animal categories with the highest share in the structure of CH_4 emissions from this category; as well as activities aimed at specifying the value of the coefficients used to calculate national emission factors based on a Tier 2 method; also conducting a national study on updating the information on the share of different manure management systems in the livestock sector of the Republic of Moldova. With reference to N_2O emissions from the category 4B "Manure Management", potential improvements could include activities concerning collection of additional data, particularly data concerning manure management systems at the national level, and activities aimed at specification of country-specific values of nitrogen excretion rates $N_{ex\,(T)}$ (in kg N / head / year) for animal categories in the Republic of Moldova.
3.	4D Agricultural Soils	Potential improvements could include activities specifying the activity data and country-specific coefficients used to estimate direct N_2O emissions from return of crop residues to soil and N_2O emissions from nitrogen mineralization due to carbon loss resulting from land use change and soil management practices in the Republic of Moldova.

Source: Table 2.6.4 from Chapter 2: Methods and Data Documentation.

Table 6.6 lists the problems and potential improvements to the key categories within LULUCF sector.

Table 6.6: Potential Improvements to the Methodology and Data Documentation Analysis in Land Use, Land-Use Change and Forestry Sector

#	Category	Potential Improvements
1.	5A Forest Land	• Improving the records relating to distribution of forest by species. • Estimated and actual consumption records (legal and illegal harvesting) of timber from the forests in the Republic of Moldova. • Keep state records of forests and other types of forest vegetation in conformity with the methodology and at the frequency (every 5 years) set in the GD no.1007 of 30.10.1997. Make measurements verifications / updates of country-specific emission / removal factors (actual growth of biomass, wood density, extension coefficient, emission factors from forest fires etc.). • Improve cadastral records (as the main source of activity data) so that the cadastral explanatory notes mention the forest land use categories. • Conducting in-depth studies on carbon balance in forest land category, as well as other forest components including their contribution to the GHG inventory for LULUCF sector.
2.	5B Cropland	• Estimated and actual consumption records (legal and illegal harvesting) of wood from forest belts and other forest vegetation. • Verification / updating measurements of country-specific emission / removals factors (actual biomass growth, extension coefficients, emission factors from firing forest belts and other types of forest vegetation etc.). • Estimation and recording volumes of harvested biomass during the perennial plantations cleaning / maintenance works.

#	Category	Potential Improvements
3.	5C Grassland	• Improve cadastral records (as main source of activity data) so that the cadastral explanatory notes mention the land use categories to where the lands excluded from the agricultural and/or forestry circuit are transferred. • Estimate the biomass remaining after conversion of land with woody vegetation (forest vegetation, perennial plantations) into grasslands (root systems, herbaceous vegetation, etc.).

Source: Table 2.6.5 from Chapter 2: Methods and Data Documentation.

Table 6.7 lists the problems and potential improvements to the key categories within Waste Sector.

Table 6.7: Potential Improvements to the Methodology and Data Documentation Analysis in the Waste Sector

#	Category	Potential Improvements
1.	6A Solid Waste Disposal on Land	Among the main priorities is the need to foster improved statistical recording related to waste. Waste management will be essentially restructured. In this context it is appropriate to transpose the Commission Decision 2000/532 / EC on the list of waste, including hazardous waste. Adoption of the List of waste, including hazardous waste, will help to improve the national statistical records waste management according to EU requirements and will allow meeting the commitments the Republic of Moldova has made while ratifying international treaties on environmental protection and effective reporting on their coherent implementation. In this context, it is recommended to improve the quality of activity data related to industrial solid waste generation and storage. The Waste Management Strategy for 2013-2027 of the Republic of Moldova provides for the development of integrated municipal waste management systems by harmonizing the legal, institutional and regulatory framework with the EU standards, based on regional approach (geographical position, economic development, availability of access roads, soil and hydrogeological conditions, the number of population etc.). In line with this, it foresees the promotion and implementation of selective collection systems in all localities, both in residential and production sector, as well as facilities for sorting, recycling and composting; development of municipal waste disposal capacities by construction of seven regional SWDS and two mechanical-biological treatment plants.
2.	6B Wastewater Handling	In order to improve access to quality water supply and sanitation services sector planning actions are taken at different levels in the Republic of Moldova. Recently, through the Government Decision No. 199 of 20/03/2014 it was approved the Water Supply and Sanitation Strategy (2014-2028); also Regional Water Supply and Sanitation Plans are underway at regional level (Development Regions South, Centre and North). All these actions will ensure improvements to the "Wastewater Handling" category by implementing well-defined regulatory, institutional and economic tools. Regulatory instruments will focus on the set of laws (Law on Water No. 272 of 23.12.2011, the draft Law on Water Supply and Sanitation, and a set of secondary legislation for the Law on Water, draft regional plans on water supply and sanitation and other). The provisions of these regulations will improve the water supply and sewerage services provision, wastewater, rainwater, sludge management what will overall improve service quality in this sector. Institutional instruments will focus on the sector management reform through regionalization of services, what would encourage the water supply and sewage utility operators to group together in companies operating regionally, based on inter-municipal associations / enterprises or public-private partnerships (PPP) that can serve as economically viable business models. Consolidation of the water utility operators will be accompanied by adjustment of tariffs to ensure proper operation and maintenance of systems, for further roll out and expansion of services over new settlements. Currently in the process of regionalization covers six water companies in Hancesti, Soroca, Ceadar-Lunga and Orhei. These reforms will change the wastewater management, what will help reduce GHG emissions from this sector. Another institutional aspect planned for implementation is establishment of regulatory bodies by extending the ANRE's scope, what will have a significant influence on the sector functioning regulation. These tools will determine the sector management sustainability. Economic instruments will focus on the concept of "sustainable cost recovery services" with three main features: an appropriate mix of tariffs, fees and transfers to finance recurrent and capital costs and to boost other forms of financing; predictability of public subsidies to facilitate investment (planning); pricing policies that make services accessible to all, including the poorest, while ensuring the sustainability of service providers. The sector planning perspective can essentially improve the management of wastewater and sludge from 6B "Wastewater Handling" Category. The sludge treatment actions will reduce the risks for the quality of natural water resources, which increasingly become susceptible to climate change. The actions listed above will contribute to meeting by the RM's commitments towards the implementation of the Protocol on Water and Health provisions and other international acts aimed at reducing the share of population with no access to safe drinking water and sanitation systems, and at the same time the UNFCCC provisions. Planning the phased harmonization of national water legislation with the EU legislation is also a good tool for enhancing the implementation of the best practices in the sector, wastewater, sludge treatment technologies, what will allow capturing and sustainably using the methane emissions from sludge deposits (including production of heat and electricity). Consideration of the use of country specific data related to the BOD fraction removed with sludge, the maximum capacity of methane formation, the methane correction factor and other relevant parameters used in the evaluation of emissions from the 6B "Wastewater Handling" category in the calculation of methane emissions, will improve future inventories.

Source: Table 2.6.6 from Chapter 2: Methods and Data Documentation.

6.5. Potential Improvements to QA/QC Procedures

The existing quality assurance (QA) and quality control (QC) procedures (see Chapter 3: Description of QA/QC Procedures), basically, provide for the current needs. In this context, potential improvements to the QA/QC procedures are mostly aimed at improving the efficiency of application thereof, but also attracting experts of higher qualification from abroad and involving them into this exercise, especially for QA exercise.

Table 6.8: Potential Improvements to QA/QC Procedures

#	Sector	Potential Improvements	
		QC	QA
1	Energy	The existing verification and quality control procedures largely meet the current needs. The potential improvement are seen as improvements in the efficiency of applying general procedures (Tier 1) verification and QC and respectively, of applying specific procedures (Tier 2) verification and QC procedures to as many key categories from the energy sector as possible.	The existing quality assurance procedures, more or less meet the current needs. However, in the context of the transition to the reporting requirements of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and the fact that energy sector has the largest contribution to total national emissions (65.5% of the national total in 2013), the next inventory cycle will require more attention to the quality assurance procedures by attracting international consultants with extensive expertise in application of the 2006 IPCC Guidelines. As a first step in this direction is the international technical evaluation of the energy sector GHG inventory conducted in October-November 2015 by Dr. Veronica Ginzburg from the Institute of Global Climate and Ecology, Roshidromet / Academy of Science of the Russian Federation, with large experience in compiling the energy sector GHG Inventory in the Russian Federation and having an extensive international experience (since 2005) in peer reviewing the energy sector GHG inventories of the UNFCCC Annex I Parties. Further improvements will emerge from improving the issues identified during this peer review, and respectively, based on recommendations formulated by Dr. Veronika Ginzburg in the "Report on the technical review of the National Greenhouse Gas Inventories of the Republic of Moldova – Energy Sector". The national inventory team will try taking into account the recommendations made during the evaluation to the largest possible extent during the next inventory cycle.
2	Industrial Processes	The existing verification and quality control procedures largely meet the current needs. The potential improvement are seen as improvements in the efficiency of applying general procedures (Tier 1) verification and QC and respectively, of applying specific procedures (Tier 2) verification and QC procedures to as many key categories from the industrial processes sector as possible.	The existing quality assurance procedures, more or less meet the current needs. However, in the context of the transition to the reporting requirements of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and the fact that industrial processes sector has a relevant contribution to total national emissions (5.2% of the national total in 2013), the next inventory cycle will require more attention to the quality assurance procedures by attracting international consultants with extensive expertise in application of the 2006 IPCC Guidelines. The Climate Change Office will assess this opportunity from the perspective of available financial resources.
3	Solvents and Other Products Use	The existing verification and quality control procedures largely meet the current needs. The potential improvement are seen as improvements in the efficiency of applying general procedures (Tier 1) verification and QC and respectively, of applying specific procedures (Tier 2) verification and QC procedures to as many key categories from the solvents and other product use sector as possible.	The existing quality assurance procedures, more or less meet the current needs.
4	Agriculture	The existing verification and quality control procedures largely meet the current needs. The potential improvement are seen as improvements in the efficiency of applying general procedures (Tier 1) verification and QC and respectively, of applying specific procedures (Tier 2) verification and QC procedures to as many key categories from the agriculture sector as possible.	The existing quality assurance procedures, more or less meet the current needs. However, in the context of the transition to the reporting requirements of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and the fact that agriculture sector has the second largest contribution to total national emissions (16.6% of the national total in 2013), the next inventory cycle will require more attention to the quality assurance procedures by attracting international consultants with extensive expertise in application of the 2006 IPCC Guidelines. The Climate Change Office will assess this opportunity from the perspective of available financial resources.

#	Sector	Potential Improvements	
		QC	QA
5	LULUCF	The existing verification and quality control procedures largely meet the current needs. The potential improvement are seen as improvements in the efficiency of applying general procedures (Tier 1) verification and QC and respectively, of applying specific procedures (Tier 2) verification and QC procedures to as many key categories from the LULUCF sector as possible.	The existing quality assurance procedures, more or less meet the current needs. However, in the context of the transition to the reporting requirements of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and the fact that some key categories representing the LULUCF sector (e.g., 5A Forest Land and 5B Cropland) greatly contribute to the total national emissions, the next inventory cycle will require greater attention to quality assurance procedures by attracting international consultants with extensive expertise in application of the 2006 IPCC Guidelines. As a first step in this direction is the international technical evaluation of the LULUCF sector GHG inventory conducted in October-November 2015 by the international consultant Dr. Vorel Blujdea from the National Forestry Research and Development Institute "Marin Dracea" (former ICAS Bucharest), responsible for compiling the LULUCF Sector GHG Inventory for Romania and who has an extensive expertise (since 2008) in implementation of annual completeness check and QA/QC program for LULUCF sector of the submissions of EU 28 member states (MS) under EU GHG monitoring mechanism regulation (procedure is equivalent to UNFCCC review ensuring consistency of MS submissions to UNFCCC) and in the compilation of LULUCF sections in the European Union's National Inventory Report and LULUCF cross-sectoral elements (between 2008 and 2014 Dr. Viorel Blujdea was a national detached expert to Joint Research Centre of the European Commission as a scientific/technical officer in charge with EU's GHG inventory and supplementary submission to Kyoto Protocol for LULUCF sector, in charge with LULUCF sections in 6 annual submission from 2009 to 2014). Further improvements will emerge from improving the issues identified during this peer review, and respectively, based on recommendations formulated by Dr. Vorel Blujdea in the "Report on the technical review of the National Greenhouse Gas Inventories of the Republic of Moldova – LULUCF Sector". The national inventory team will try taking into account the recommendations made during the evaluation to the largest possible extent during the next inventory cycle.
6	Waste	The existing verification and quality control procedures largely meet the current needs. The potential improvement are seen as improvements in the efficiency of applying general procedures (Tier 1) verification and QC and respectively, of applying specific procedures (Tier 2) verification and QC procedures to as many key categories from the waste sector as possible.	The existing quality assurance procedures, more or less meet the current needs. However, in the context of the transition to the reporting requirements of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and the fact that waste sector has the third largest contribution to total national emissions (12.2% of the national total in 2013), the next inventory cycle will require more attention to the quality assurance procedures by attracting international consultants with extensive expertise in application of the 2006 IPCC Guidelines. The Climate Change Office will assess this opportunity from the perspective of available financial resources.

6.6. Potential Archiving System Improvements

The existing national inventory archiving system procedures (see Chapter 4: Description of Archiving System) largely provide for the current needs. Table 6.9 identifies potential improvements needed to strengthen the inventory archiving system procedures, both by the competent authority responsible for managing the national inventory system (Climate Change Office of the Ministry of Environment) and by the partner institutions involved in compiling the GHG inventory at sector level (Energy, IPPU, Agriculture, LULUCF and Waste).

Table 6.9: Potential Improvements to the Archive System

#	Sector	Potential Improvements
1	General	• Periodic assessment (at the end of each inventory cycle) of the existent Archiving Program and Procedures and of the Archive System Plan established and applied by the Climate Change Office aimed to identify improvement opportunities. • Periodic assessment (at the end of each inventory cycle) of the specific archiving procedures (file management, data storage, records keeping, storage mechanisms) established and applied by the Climate Change Office aimed to identify improvement opportunities.
2	Energy	• Setting up in the General Archive of the Institute of Power Engineering of the Academy of Sciences of Moldova of a compartment on the energy sector GHG inventory related information (energy balances, other initial reference sources of activity data, previous inventories results, Chapters 3 "Energy" from earlier National Inventory Reports, etc.). • Including the energy sector GHG inventory related matters (files, correspondence, etc.) in the archive files nomenclature of the Institute of Power Engineering of the Academy of Sciences of Moldova.

#	Sector	Potential Improvements
3	Industrial Processes and Products Use	• Setting up in the General Archives of the Institute of Ecology and Geography of the Academy of Sciences of Moldova and of the Ozone Office of the Ministry of Environment of a compartment on the industrial processes and solvents and other products use sectors GHG inventory related information (Statistical Yearbooks of the Republic of Moldova, Statistical Reports PRODMOLD – A "Production in natural expression in the industry of the Republic of Moldova", Statistical Reports No.1-ozon "Trade regime and regulating use of halogenated hydrocarbons which destroy the ozone layer", other initial reference sources of activity data, previous inventories results, Chapter 4 "Industrial Processes" and Chapter 5 "Solvents and Other Products Use" from earlier National Inventory Reports, etc.). • Including the industrial processes and solvents and other products use sectors GHG inventory related matters (files, correspondence, etc.) in the archive files nomenclature of the Institute of Ecology and Geography of the Academy of Sciences of Moldova and of the Ozone Office of the Ministry of Environment.
4	Agriculture	• Setting up in the General Archives of the Scientific-Practical Institute for Biotechnology in Animal Breeding and Veterinary Medicine and the Institute of Soil Science, Agrochemistry and Soil Protection "Nicolae Dimo" of a compartment on the agriculture sector GHG inventory related information (Statistical Yearbook of the Republic of Moldova, Statistical Reports No. 9-AGR "Use of plant protection products and introduction of artificial and natural fertilizer", No. 29-AGR "Production obtained from crops harvested from all seeded area", No. 6 "Number of cattle and poultry in households", No. 15-AGR "Number of livestock", No. 24-AGR "Condition of the livestock sector", other initial reference sources of activity data, previous inventories results, Chapters 6 "Agriculture" from earlier National Inventory Reports, etc.). • Including the agriculture sector GHG inventory related matters (files, correspondence, etc.) in the archive files nomenclature of the Scientific-Practical Institute for Biotechnology in Animal Breeding and Veterinary Medicine and the Institute of Soil Science, Agrochemistry and Soil Protection "Nicolae Dimo"
5	LULUCF	• Setting up in the General Archives of the Forestry Research and Management Institute and "Moldsilva" Agency of the Ministry of Environment of a compartment on the LULUCF sector GHG inventory related information (Statistical Yearbook of the Republic of Moldova, State Land Cadastre of the Republic of Moldova, Statistical Evidence and Reports of "Moldsilva" Agency, other initial reference sources of activity data, previous inventories results, Chapter 7 "LULUCF" from earlier National Inventory Reports, etc.). • Including the LULUCF sector GHG inventory related matters (files, correspondence, etc.) in the archive files nomenclature of the Forestry Research and Management Institute and "Moldsilva" Agency of the Ministry of Environment.
6	Waste	• Setting up in the General Archives of the Environmental Pollution Prevention Office of the Ministry of Environment of a compartment on the waste sector GHG inventory related information (Statistical Yearbooks of the Republic of Moldova, "State of the Environment Reports in the Republic of Moldova", State Ecological Inspectorate Yearbooks 'State of Environment in the Republic of Moldova", Statistical Report No. 1 – "Toxic waste: generation, use and neutralization of toxic waste", Statistical Report No.2 "Generation, use of waste", other Initial reference sources of activity data, previous inventories results, Chapters 8 "Waste" from earlier National Inventory Reports, etc.). • Including the waste sector GHG inventory related matters (files, correspondence, etc.) in the archive files nomenclature of the Environmental Pollution Prevention Office of the Ministry of Environment.

6.7. Communication, Outreach, and Training Priorities

It is important to communicate the purpose and results of the inventory to policymakers, academia and public society. To this end, various awareness activities are planned within each inventory cycle, such as:

- meetings, roundtables with stakeholders;
- awareness raising events with policymakers, academia and public society at large on the efforts to be made to increase the quality of national GHG inventory;
- providing feedback to ministries, central public authorities, academia and public society at large;
- communicating the inventory results to data providers, policymakers, academia and public society at large, including through posting relevant information and inventory documents on the Climate Change Office website (<www.clima.md>);
- improving relationships with all partner institutions.

At the same time, the Climate Change Office pays special attention to the continuous training of hiring inventory staff for acquiring best practices for the GHG emissions inventory compiling. Thus, for example, within the current inventory cycle the following activities were carried:

- thematic trainings in the GHG inventories:
  - for national consultants in the energy sector - two days training seminar on 23-24 November 2015, conducted by the international consultant Dr Veronika Ginzburg from the Russian Federation;
  - for national consultants in the LULUCF sector - two days training seminar on 25-26 November 2015, conducted by the international consultant Dr Viorel Blujdea from Romania;
- developing a transition plan to ensure smooth transfer of capacity associated with the gradual transition to the use of the 2006 IPCC Guidelines[3] and capacity building of national experts involved in the GHG inventories with application of 2006 IPCC Guidelines and the associated software for calculating and reporting GHG emissions (e.g., version 2.16, published on 5th of November 2015[4]).

6.8. Prioritized List of Potential Improvements

This section prioritizes the most critical improvements needed, based on an assessment of the relative importance of improvements identified for institutional arrangements, methods and data documentation, quality assurance and quality control procedures, archiving systems, key categories analysis and communication issues, outreach and training (see above). By addressing these potential improvements the country can move toward producing a more complete and higher-quality inventory. Table 6.10 lists these potential improvements and identifies the priority level associated with each (High, Medium, or Low).

Table 6.10: National Inventory Improvement Priorities

#	Sector	Priority Level	Improvements Needed
1	General	High	Strengthening institutional arrangements in order to ensure the constant development of GHG national inventories, through a legislative/regulatory framework to be considered and approved by the Government of the Republic of Moldova by the end of 2016 year.
2	General	High	The gradual to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories in all sectors (energy, industrial processes and product use, agriculture, LULUCF and waste). enhancing the professional capacities of national experts involved in the inventory process, as well as transitioning from default EFs and Tier 1 methodologies to country specific emission factors and Tier 2 and 3 methodologies, particularly focusing on key categories
3	General	High	Enhancing the professional capacities of national experts involved in the inventory process, specifically in the application of 2006 IPCC Guidelines and the associated GHG emissions calculation and reporting software (the latest available version is 2.16, published on November 5, 2015), including through thematic trainings with participation of international trainers.
4	General	High	Strengthening the data management system for tracking and archiving the inventory information used in each inventory cycle.
5	General	Medium	Improving relationships with all partner institutions and ensuring a continuous dialogue with policymakers, academia and public society at large aiming at communication of the purpose of the inventory, raising awareness of the efforts to be made to increase the quality of national GHG inventory; feedback on comments received, communication of inventory results, etc. The activities will be carried out through various events such as meetings, seminars, round tables with stakeholders; posting the most relevant products and reports on the Climate Change Office website (<www.clima.md>).
6	Energy	Medium	Transitioning from default EFs and Tier 1 methodologies to country specific emission factors and Tier 2 and 3 methodologies, in particular for the following key categories: 1A3 Transport and 1B2 Fugitive Emissions from Oil and Natural Gas .
7	Energy	High	Implementing to as full extent as possible the recommendations contained in the "Report on the technical review of the National Greenhouse Gas Inventories of the Republic of Moldova – Energy Sector", conducted by Dr Veronica Ginzburg, Institute of Global Climate and Ecology, Roshidromet / Academy of Science of the Russian Federation in October-November 2015.

[3] 2006 IPCC Guidelines for National Greenhouse Gas Inventories <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>

[4] IPCC Inventory Software Version 2.16 released on 5th November 2015 <http://www.ipcc-nggip.iges.or.jp/software/index.html>

#	Sector	Priority Level	Improvements Needed
8	Industrial Processes and Other Products	Medium	Specification of activity data used to assess GHG emissions from Sector 2 "Industrial Processes and Other Products" due to availability by the end of this inventory cycle timeline of the electronic versions of the Statistical Reports PRODMOLD – A "Production in natural expression in the industry of the Republic of Moldova" for the years 2005-2011 (in the current inventory cycle only PRODMOLD-A Statistical Reports for years 2012 and 2013 were available), because these statistical reports contain more accurate activity data disaggregated by production sub-categories.
9	Agriculture	High	Processing the results of the national study on updating information on the share of different manure management systems in the livestock sector of the Republic of Moldova, to be used to assess more accurately the GHG emissions from the category 4B "Manure Management".
10	Agriculture	Medium	Accomplishing, by the end of the next inventory cycle of an external independent technical evaluation of the GHG inventories – Agriculture Sector, by an international consultant with extensive expertise in assessing GHG inventories of the Annex I Parties, and with a good knowledge of the 2006 IPCC Guidelines.
11	LULUCF	High	Developing the land use and land-use change matrix for a period of time corresponding to the reporting requirements relative to the base year. The reporting period has to match the needs of emissions reductions accounting relative to international commitments of the Republic of Moldova (to properly quantify the emissions in the base year, the time series should start in 1970), which requires a thorough discussion on availability of data and possibilities of reconstructing the historical time series.
12	LULUCF	High	Ensure territorial completeness of the national GHG inventory (with reference to the LULUCF sector, the current GHG inventory covers as much as ~ 80% of the country area), reporting the areas occupied by all land use categories (currently, conversions between land categories and between the type of management within categories of land use are not fully reflected in the national GHG inventory, what can have a very significant effect on all inventory estimates, including on key category analysis). Lack of conversions in the inventory hides both the effect of deforestation, as well as the effect of afforestation. So, the land use change matrix is needed as it would be the only solution to ensure completeness of emissions and removals.
13	LULUCF	Medium	Careful re-assessment of the land use categories structure, related to the LULUCF GPG (IPCC, 2003) and the 2006 IPCC Guidelines, given the particular aggregation mode addressed in the current inventory (ex. in 5A1, 5A2, 5E1 and in 5E2 and 5B1) which is not in accordance with the classification recommended by LULUCF GPG (IPCC, 2003) or the 2006 IPCC Guidelines. In this context, land use categories shall be defined and a more explicit presentation of the correspondence between the IPCC categories and country specific land use classes shall be provided.
14	LULUCF	High	Making major recalculations due to improved GHG inventory completeness with land use change or sources sub-categories.
15	LULUCF	Medium	Re-assessment of key categories after major recalculations caused by improvements in the GHG inventory completeness, with land use change or sources sub-categories, by exploring and efficient use of "key categories" and "significant pools" provisions in the 2006 IPCC Guidelines compared with the Tier method to be used (see Section 4.2 and Table 4.1 "Suggested analysis aggregation level for of analysis", Volume 1, Chapter 4 of 2006 IPCC Guidelines).
16	LULUCF	Medium	Continuous improvement of the quality assurance and quality control activities (taking into account the recommendations outlined in Volume 1, Chapter 6 of the 2006 IPCC Guidelines, but keeping in mind country specifics and existing capacities).
17	LULUCF	High	Implementing to as full extent as possible the recommendations contained in the "Report on the technical review of the National Greenhouse Gas Inventories of the Republic of Moldova – LULUCF Sector", conducted by Dr Viorel Blujdea from the National Institute for Forestry Research and Development "Marin Dracea" (former ICAS Bucharest, Romania) in October-November 2015.
18	LULUCF	High	To raise substantially the quality of GHG inventory in the LULUCF sector, periodic (e.g., once in 3 of 5 years) 'Forest Inventory' would be needed, to provide updated information, not only for the state of forest fund, but also for private forest land or those under the administration of local authorities. Also, new production tables and other forest relevant information are needed. To accomplish these imperatives, the inter-institutional collaborative effort, and the needed financial resources may be very significant; so it is imperative to identify as soon as possible opportunities for obtaining such a financial support from the international donors and/or partners.
19	Waste	Medium	Conducting a study on determining the morphological composition of solid municipal waste deposited in various urban areas (Chisinau, Straseni, Causeni, etc.) of the Republic of Moldova in the period since 1st October 2015 to 30th September 2016, in each locality at least 3 analyses per season (autumn, winter, spring and summer).
20	Waste	Medium	Accomplishing, by the end of the next inventory cycle of an external independent technical evaluation of the GHG inventories – Waste Sector, by an international consultant with extensive expertise in assessing GHG inventories of the Annex I Parties, and with a good knowledge of the 2006 IPCC Guidelines.