



**LIETUVOS RESPUBLIKOS AMBASADA VOKIETIJOS FEDERACINĖJE
RESPUBLIKOJE**

**EMBASSY OF THE REPUBLIC OF LITHUANIA IN THE FEDERAL
REPUBLIC OF GERMANY**

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**SECOND PROGRESS REPORT ON THE IMPLEMENTATION OF THE PLAN
AND REQUEST FOR THE REINSTATING THE ELIGIBILITY OF LITHUANIA**

Please find enclosed the second progress report on the implementation of Lithuania's plan, developed in accordance with paragraph 24(b) of the preliminary finding (CC-2011-3-6/Lithuania/EB), confirmed by the final decision of the Enforcement Branch concerning Lithuania (CC-2011-3-8/Lithuania/EB) and Section XV, paragraph 2 and submitted under paragraph 3 of the Procedures and mechanisms relating to compliance under the Kyoto Protocol (Decision 27/CMP 1) as well as in accordance with paragraph 6 of the Decision on the review and assessment of the plan submitted under paragraph 2 of the Section XV (CC-2011-3-11/Lithuania/EB).

Herewith, in accordance with Section X, paragraph 2 of the Procedures and mechanisms relating to compliance under the Kyoto Protocol (Decision 27/CMP 1), Lithuania submits its request for the reinstatement of its eligibility suspended with the final decision of the Enforcement Branch, adopted on 21 December 2011.

The request to reinstate is based on the progress report implementing Lithuania's plan and the following conclusions stated in the Report of the individual review of the annual submission of Lithuania submitted in 2011 (FCCC/ARR/2011/LTU):

- The ERT concluded that the national system continues to perform its required functions as set out in Article 5, paragraph 1, of the Kyoto Protocol (annex to decision 19/CMP.1) and the Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol (annex to decision 15/CMP.1)
- The ERT concluded that Lithuania's inventory is generally in line with the Revised 1996 IPCC Guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF.
- The ERT concluded that no questions of implementation were identified during the review.

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On the basis of the above, we kindly request to consider an adoption of a decision reinstating the eligibility of Lithuania in 20th meeting of the Enforcement Branch to be held from 9 till 14 July 2012.

Please accept, dear Mr. Bondi Ogolla, the assurance of my highest consideration.

Yours sincerely,



Mindaugas Butkus
Ambassador

SECOND PROGRESS REPORT ON IMPLEMENTATION OF LITHUANIA'S PLAN

developed in accordance with paragraph 24(b) of the preliminary finding (CC-2011-3-6/Lithuania/EB), confirmed by the final decision of the Enforcement Branch concerning Lithuania (CC-2011-3-8/Lithuania/EB) and Section XV, paragraph 2 and submitted under paragraph 3 of the Procedures and mechanisms relating to compliance under the Kyoto Protocol (Decision 27/CMP 1) as well as in accordance with paragraph 6 of the Decision on the review and assessment of the plan submitted under paragraph 2 of the Section XV (CC-2011-3-11/Lithuania/EB)

June 2012

INTRODUCTION

1. Lithuania is pleased to present second progress report on implementation of Lithuania's plan, developed in accordance with paragraph 24(b) of the preliminary finding (CC-2011-3-6/Lithuania/EB), confirmed by the final decision of the Enforcement Branch concerning Lithuania (CC-2011-3-8/Lithuania/EB) and Section XV, paragraph 2 and submitted under paragraph 3 of the Procedures and mechanisms relating to compliance under the Kyoto Protocol (Decision 27/CMP.1) in March 2012.
2. Lithuania's activities to remedy non-compliance and fulfill the recommendations of Expert Review Team (ERT) as set out in the annual review report FCCC/ARR/2010/LTU have been planned for the period 2011-2012 and were presented in Table 1 of Lithuania's Plan. Additional measures for improving of Lithuania's GHG Inventory quality in accordance with the requirements of the Guidelines for national systems under Article 5, paragraph 1 of the Kyoto Protocol (Decision 19/CMP.1) were presented in Table 2 of Lithuania's Plan.
3. Lithuania's Plan and the first progress report showing the status of implementation of the Plan as of 22 March 2012 were submitted to the Enforcement Branch. The Enforcement Branch revised Lithuania's Plan and adopted the Decision on the review and assessment of the plan submitted under paragraph 2 of the Section XV (CC-2011-3-11/Lithuania/EB) on 2 May 2012. In accordance with paragraph 6 of the Decision on the review and assessment of the plan submitted under paragraph 2 of the Section XV, Lithuania is invited to submit its next progress report before the 1st July 2012.
4. Major measures to improve Lithuania's national system for the GHG inventory preparation have been implemented. These improvements were described in Lithuania's National Inventory Report 2011 and presented to ERT during in-country review, which took place from 26 September to 1 October 2011 in Vilnius. The ERT evaluated redesigned national system and was particularly complimentary about Lithuania's efforts to improve the national system. In the Report of the individual review of the annual submission of Lithuania submitted in 2011 (FCCC/ARR/2011/LTU) published by the UNFCCC Secretariat on 13 April 2012 ERT concluded that:
 - The national system continues to perform its required functions as set out in Article 5, paragraph 1, of the Kyoto Protocol (annex to decision 19/CMP.1) and the Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol (annex to decision 15/CMP.1) (paragraphs 192-202 of FCCC/ARR/2011/LTU).
 - Lithuania's inventory is generally in line with the Revised 1996 IPCC Guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF (paragraph 196 of FCCC/ARR/2011/LTU).

- No questions of implementation were identified during the review (paragraph 205 of FCCC/ARR/2011/LTU).
5. The enclosed second progress report presents the updated status of implementation of Lithuania's plan. Implemented measures to remedy the non-compliance and fulfil recommendations of ERT in annual review report (FCCC/ARR/2010/LTU) are presented in Table 1 and status of implementation of additional measures for improving of Lithuania's GHG Inventory quality following the recommendations of the ERT as set out in the annual review report (FCCC/ARR/2011/LTU) is presented in Table 2 of Lithuania's plan.

Table 1. Implemented measures to remedy the non-compliance and fulfil recommendations of ERT in the annual review report FCCC/ARR/2010/LTU

Non-compliance issues, including reference to relevant requirements	Reference to description	Measures to remedy the non-compliance	Status of implementation	Control/review of results
<p>National System issues specific to the activities under Article 3 paragraph 3 and 4 of the Kyoto Protocol</p> <p><i>15/CMP.1, 16/CMP.1, 19/CMP.1.</i></p>	<p>ARR 2010 Para 20</p>	<p>Re-designed National system for national GHG inventory preparation for effective functioning with clearly described functions and responsibilities, ensuring expert capacity for long-term:</p> <ul style="list-style-type: none"> • <u>Permanent GHG inventory preparation group established by Government Resolution No 683 of 8 June 2011</u> <p>Permanent GHG Inventory preparation working group consists of representatives from:</p> <ul style="list-style-type: none"> - Ministry of Environment (Chairman of the Commission); - Environmental Protection Agency (Deputy Chairman of the Commission); - Institute of Physics of the Centre for Physical Sciences and Technology (energy, transport); - Lithuanian Energy Institute (energy, except transport); - Institute of Animal Science of the Lithuanian University of Health Sciences (agriculture); - Lithuanian Research Centre for Agriculture and Forestry (LULUCF, except forestry); - State Forest Service (LULUCF, forestry); - Public body Centre for Environmental Policy (Industrial processes and waste). <p>Institutions, listed in the Governmental Resolution No</p>	<p>Implemented</p> <p>Relevant legislation adopted in 2010-2011</p>	<p>In-country review by ERT (Sept 2011)</p> <p>ARR 2011, improvements noted in para 13, 24, 26-29, 200</p> <p>Internal EU review (April–August 2012) + consultancies with Joint Research Centre</p> <p>Centralised and/or in-country review by ERT (Sept 2012)</p> <p>Internal QC</p>

Non-compliance issues, including reference to relevant requirements	Reference to description	Measures to remedy the non-compliance	Status of implementation	Control/review of results
		<p>683 of 8 June 2011, nominated experts, who have experience in areas related to GHG emissions accounting, and the personal composition of the permanent GHG inventory working group was approved by the MoE Order No DI-538 on July 2011. Functions and responsibilities of the working group for GHG inventory preparation as a whole are defined as follows:</p> <ul style="list-style-type: none"> - Evaluation of requirements for new data based on internal and external reviews; - Search and identification of specific data providers; - Preparation of requests for new data; - Identification, on the basis of the IPCC good practice guidelines, of methodologies for calculation of GHG emissions setting priority to key categories and categories with high uncertainty level; - Determination of activity data; - Determination of appropriate emission factors; - Calculation of emissions; - Data quality control; - Filling CRF tables for corresponding sectors, drafting relevant NIR sectoral chapters; - Preparation of comments and answers to the questions and comments received during the EC and UNFCCC reviews; - Other activities. <ul style="list-style-type: none"> • <u>Environment Protection Agency nominated as GHG inventory compiler and QA/QC manager</u> 		

Non-compliance issues, including reference to relevant requirements	Reference to description	Measures to remedy the non-compliance	Status of implementation	Control/review of results
		<p><u>by MoE Order No D1-1017 of 22 December 2010</u></p> <p>As the coordinator of the GHG inventory preparation process, EPA has the following functions and responsibilities:</p> <ul style="list-style-type: none"> - Development and implementation of QA/QC plan and specific QA/QC procedures; - Identification of data providers for specific information and collection of activity data and emission factors used to calculate emissions; - Cooperate with sectoral experts on the selection of methods complying with IPCC Good Practice Guidance for calculation of emissions giving the priority to key categories and categories with high uncertainty; - Checking and archiving of supplied input data, prepared inventory and used materials; - Key categories analysis; - Overall uncertainty assessment; - Preparation of Common Reporting Format (CRF) tables and compilation of National Inventory Report (NIR); - Maintaining the GHG inventory database; - Providing the final inventory (CRF tables and NIR) for Ministry of Environment; - Evaluating requirements for new data, based on internal and external reviews; - Other activities. <ul style="list-style-type: none"> • <u>State Forest Service delegated with functions</u> 		

Non-compliance issues, including reference to relevant requirements	Reference to description	Measures to remedy the non-compliance	Status of implementation	Control/review of results
		<p><u>to prepare LULUCF part of the GHG inventory by MoE Order No D1-666 of 29 July 2010</u></p> <p>The State Forest Service (SFS) compiles the National Forest Inventory and the forest information system, carries out monitoring of the status of the Lithuanian forests, collects and manages statistical data etc. The Service functions under the Ministry of Environment. Since year 2010 State Forest Service is responsible for LULUCF (forestry part) sector and Kyoto Protocol 3.3 and 3.4 removals and emission calculations for the LULUCF sector in the GHG inventory preparation process. SFS representative is also a member of the recently established working group for GHG inventory preparation under the Government Resolution No 683. In this framework, the State Forest Service has the following responsibilities:</p> <ul style="list-style-type: none"> - Collection of activity data and emission factors used to calculate emissions and removals for LULUCF sector and KP-LULUCF; - Selection of methods (complying with IPCC Good Practice Guidance for LULUCF) for calculation of emissions and removals giving the priority to key categories and categories with a high uncertainty; - Emission and removals estimates for LULUCF sector and KP-LULUCF; - Uncertainty assessment for LULUCF sector; - Checking and archiving of input data, 		

Non-compliance issues, including reference to relevant requirements	Reference to description	Measures to remedy the non-compliance	Status of implementation	Control/review of results
		<p>prepared estimates and used materials;</p> <ul style="list-style-type: none"> - Preparation of Common Reporting Format (CRF) tables and National Inventory Report (NIR) parts for LULUCF and KP-LULUCF; - Implementation of QA/QC plan and specific QA/QC procedures related to LULUCF and KP-LULUCF; - Providing the final estimates (CRF tables and NIR part) for the Environmental Protection Agency; - Evaluating requirements for new data, based on internal and external reviews. <p>National System improvements descriptions incorporated in 2011 NIR.</p>		
		<p>Annual land plots identification is being strengthened through the results of 2 studies in accordance with Action plan to improve LULUCF reporting of Lithuania, approved by ERT of 2011 NIR on 11 November 2011:</p> <p>1 study: "Forest land area changes in Lithuania during 1990-2011"</p> <p>2 study: "Changes of areas of croplands, grasslands, wetlands, settlements and other lands in Lithuania during 1990-2011"</p> <p>Descriptions of the implemented studies are provided in Annex I of this report.</p> <p>The results of the studies as improvements were</p>	<p>Implemented</p> <p>The study was conducted and final results were provided on 16-04-2012.</p> <p>The study was conducted and final results were provided on 15-05-2012.</p> <p>2012 NIR submission (April/May 2012)</p>	

Non-compliance issues, including reference to relevant requirements	Reference to description	Measures to remedy the non-compliance	Status of implementation	Control/review of results
		incorporated in 2012 NIR.		
		<p>Approval and amendments of the 7 legal acts improving the legislative basis to ensure mandatory registration of areas specific to the activities under Article 3 paragraph 3 and 4 of the Kyoto Protocol:</p> <ul style="list-style-type: none"> - Order of the Minister of Environment and Minister of Agriculture on Approval of Action plan to improve LULUCF reporting of Lithuania (No D1-987/3D-927) <p>The Order lists number of measures aimed to improve Lithuania's LULUCF reporting and provides information on implementation deadlines and responsible institutions.</p> <ul style="list-style-type: none"> - Order of the Minister of Environment on Approval of Harmonised Principles for data collection and reporting on LULUCF (No D1/27) <p>The Order establishes new harmonized methodology for improved data collection principles from emissions by sources and removals by sinks under LULUCF.</p> <ul style="list-style-type: none"> - Amendment of the Order of the Minister of Environment No D1-570 on National forest inventory by sampling method (No D1-59) <p>Amendment establishes new rules for data collection by sampling method on forest and non-forest land. This will improve identification of areas under LULUCF and KP-LULUCF.</p> <ul style="list-style-type: none"> - Amendment of the Government Resolution No 1255 on State Forest Cadastre (No 570) 	<p>Implementation in progress</p> <p>Adopted on 16-12-2011</p> <p>Adopted on 12-01-2012</p> <p>Adopted on 24-01-2012</p> <p>Adopted on 23-05-2012</p>	

Non-compliance issues, including reference to relevant requirements	Reference to description	Measures to remedy the non-compliance	Status of implementation	Control/review of results
		<p>Amendment will improve collection, compilation, processing, systematization, storage and usage of data on Lithuanian forests.</p> <ul style="list-style-type: none"> - Amendment of the Minister of Environment and Minister of Agriculture Order No 3D-130/D1-144 on Rules for afforestation of non-forest land (No 3D-239/D1-285) <p>Amendment will improve accounting of afforested areas on non-forest land and provide more precise data for LULUCF reporting.</p> <ul style="list-style-type: none"> - Order of the Minister of Environment and Minister of Agriculture on Inventory and Registration of natural afforestation of non-forest land (No D1-409/3D-331) <p>Order will improve accounting of naturally afforested areas in non-forest land and provide more precise data for LULUCF reporting.</p> <ul style="list-style-type: none"> - Amendment of the Minister of Agriculture Order No 302 on the Rules for national accounting of the land, introducing provisions on land use and land use change accounting in graphical form <p>The draft Order is prepared and coordinated among responsible institutions. The Order will establish provisions on state's land use accounting in graphical form (GIS).</p>	<p>Adopted on 03-04-2012</p> <p>Adopted on 08-05-2012</p> <p>To be approved by 14-12-2012</p>	
		<p>Increased capacities at State Forest Service and Environment Protection Agency:</p> <ul style="list-style-type: none"> - <u>2 specialists at SFS for LULUCF reporting:</u> Karolis Mickevičius (Chief specialist) – 	<p>Implemented</p> <p>Employed from 16-01-2012</p>	

Non-compliance issues, including reference to relevant requirements	Reference to description	Measures to remedy the non-compliance	Status of implementation	Control/review of results
		<p>Preparation of emissions and removals estimates for LULUCF and KP-LULUCF sectors, drafting of relevant NIR chapters.</p> <p>Saulius Jezukevičius (Chief specialist) – CRF database maintenance, management of LULUCF data archive system, sectoral QA/QC.</p> <ul style="list-style-type: none"> - <u>4 specialist at SFS for sampling of non-forest land of Lithuania’s territory (data collection necessary for LULUCF reporting):</u> Mindaugas Joknys (Senior specialist); Petras Ivinskis (Senior specialist); Sergėjus Popovas (Senior specialist); Audrius Pagojus (Senior specialist). - <u>Climate Change Division established at EPA (5 specialists):</u> Rita Tījūnaitė (Head of the Division) – Coordination of team work, drafting of relevant legislation, cross-cutting issues, compilation of the National GHG inventory report. <p>Alfonsas Katkus (Chief specialist) – F-gases database compilation, administration of Industrial processes sector, sectoral QA/QC activities.</p> <p>Neringa Kisielytė (Chief specialist) – CRF database maintenance, key categories and uncertainty analysis, administration of Waste Sector, sectoral QA/QC activities.</p> <p>Giedrė Raginytė (Chief specialist) – Administration of Agriculture and LULUCF sectors, management of GHG inventory archive system, sectoral QA/QC activities.</p> <p>Tomas Aukštinaitis (Chief specialist) –</p>	<p>Employed from 13-03-2012</p> <p>Employed from 01-02-2012</p>	

Non-compliance issues, including reference to relevant requirements	Reference to description	Measures to remedy the non-compliance	Status of implementation	Control/review of results
		Collection and systematization of EU ETS (Emission Trading Scheme) data, administration of Energy sector, sectoral QA/QC activities.		
<p>Failed to report information on anthropogenic greenhouse gas emissions by sources and removals by sinks from land use, land-use change and forestry activities under Article 3, paragraph 3, and on forest management under Article 3, paragraph 4, of the Kyoto Protocol (KP-LULUCF) with the inventory submission due under the Convention for the first year of the commitment period.</p> <p><i>Article 7, paragraph 1, of the Kyoto Protocol</i> <i>15/CMP.1 para2, 5-9</i> <i>15/CMP.1 paragraphs 5 to 9 of section I.D of the annex</i></p>	ARR 2010 Para 15, 184-189	Information on GHG emissions by sources and removals by sinks from LULUCF activities under Article 3, paragraph 3, and on forest management under Article 3, paragraph 4, of the Kyoto Protocol (KP-LULUCF) was submitted to UNFCCC secretariat (NIR 2011).	Implemented	<p>An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011</p> <p>ARR 2011, improvements noted in para 17, 155, 195-196, 198</p>

Non-compliance issues, including reference to relevant requirements	Reference to description	Measures to remedy the non-compliance	Status of implementation	Control/review of results
<p>Failed to ensure sufficient capacity for the timely performance of the functions defined in the Guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol (decision 19/CMP.1), including data collection for estimating anthropogenic GHG emissions by sources and sinks.</p> <p><i>19/CMP.1 annex para 10(b)</i></p>	<p>ARR 2010 Para 16, 184-189</p>	<p>Increased capacities in the State Forest Service (SFS) and Environment Protection Agency (EPA):</p> <ul style="list-style-type: none"> - 2 specialists in SFS for LULUCF reporting; - 4 specialists in SFS to conduct sampling of non-forest land of Lithuania's territory (necessary data collection for LULUCF reporting); - Climate Change Division established in EPA (5 specialists). 	<p>Implemented</p> <p>Employed from 16-01- 2012 Employed from 13-03-2012</p> <p>Employed from 01-02- 2012</p>	<p>An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011</p> <p>Measures foreseen in Action Plan to improve LULUCF reporting recognized as satisfactory by ERT 2011</p> <p>ARR 2011, improvements noted in para 9, 24, 26-29, 200</p>
<p>Failed to prepare national annual inventories and supplementary information in a timely manner in accordance with Article 5 and Article 7, paragraph 1, and relevant decisions of the COP/MOP.</p> <p><i>19/CMP.1 annex para 10(d)</i></p>	<p>ARR 2010 Para 20, 184-189, 191,193</p>	<p>Information on GHG emissions by sources and removals by sinks and information on activities under Article 3, paragraphs 3 and 4 required under Article 7, paragraph 1, of the Kyoto Protocol was submitted to UNFCCC secretariat in due time (15th April 2011).</p>	<p>Implemented</p>	<p>An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011</p> <p>ARR 2011, improvements noted in para 17, 155, 195-196, 198</p> <p>Consultancies with Joint Research Centre, internal EU review</p>

Non-compliance issues, including reference to relevant requirements	Reference to description	Measures to remedy the non-compliance	Status of implementation	Control/review of results
<p>Failed to provide information necessary to meet the reporting requirements defined in the Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol (decision 15/CMP.1).</p> <p><i>19/CMP.1 annex para 10(e)</i></p>	<p>ARR 2010 Para 20, 184-189</p>	<p>Strengthened through the results of 2 studies in accordance with Action plan to improve LULUCF reporting of Lithuania, approved by ERT of 2011 NIR on 11 November 2011:</p> <p>1 study: “Forest land area changes in Lithuania during 1990-2011”</p> <p>2 study: “Changes of areas of croplands, grasslands, wetlands, settlements and other lands in Lithuania during 1990-2011”</p> <p>The results of the studies as improvements were incorporated in 2012 NIR. Descriptions of the implemented Studies are provided in Annex I of this report.</p>	<p>Implemented</p> <p>The study was conducted and final results were provided on 16-04-2012.</p> <p>The study was conducted and final results were provided on 15-05-2012.</p> <p>2012 NIR submission (April/May 2012)</p>	<p>Measures foreseen in Action Plan to improve LULUCF reporting recognized as satisfactory by ERT 2011 in-country review</p> <p>Centralised and/or in-country review by ERT (Sept 2012)</p> <p>Consultancies with Joint Research Centre, internal EU review</p>

Non-compliance issues, including reference to relevant requirements	Reference to description	Measures to remedy the non-compliance	Status of implementation	Control/review of results
<p>Failed to ensure areas of KP-LULUCF land subject to articles 3.3 and 3.4 are identifiable</p> <p><i>16/CMP.1 annex para 20</i></p>	<p>ARR 2010 Para 16, 20 187</p> <p>2011 ERT Saturday paper, issued on 1 October 2011</p>	<p>Identification of areas of KP-LULUCF land subject to articles 3.3 and 3.4 is ensured through the application of definitions in accordance with Chapter IV of IPCC GPG. The definitions were approved by the Order of the Director of the State Forest Service of 29th October 2010.</p> <p>Approval of definitions improves identification of areas under KP-LULUCF and allows presenting reliable results on emissions/removals from land use categories under Articles 3.3 and 3.4.</p> <p>Strengthened through the results of 2 studies in accordance with the Action plan to improve LULUCF reporting of Lithuania, as approved by ERT 2011.</p>	<p>Implemented</p> <p>Agreement on definitions is in place, as approved by SFS Director Order.</p> <p>Improvements are reflected in NIR 2012</p>	<p>Action plan approved by ERT in Saturday Paper 2011 to be implemented in time.</p> <p>Internal QC by the State Forest Service Centralised and/or in-country review by ERT (Sept 2012)</p>
<p>Failed to document that there is no double counting of land subject to KP-LULUCF has not been met (9(c) of the annex to 15/CMP.1)</p> <p><i>15/CMP.1 annex para 9(c)</i></p>	<p>ARR 2010 Para 188</p>	<p>State Forest Service is a single body responsible for the accounting (on GIS basis) of land subject to KP-LULUCF and EPA is controlling quality of collected data eliminating possibility of double counting.</p> <p>Information incorporated in 2011 NIR.</p> <p>The number of procedures, as described in 2012 NIR, were preceded for the staff to ensure high quality data collection and for the collected data to avoid possible overlapping.</p>	<p>Implemented</p>	<p>An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011</p> <p>ARR 2011</p>
<p>Failed to prepare estimates in lines with the IPCC Guidelines and IPCC GPG-LULUCF</p>	<p>ARR 2010 Para 20, 186, 187</p>	<p>Estimates were improved using the results of 2 studies in accordance with the Action plan to improve LULUCF reporting of Lithuania, as approved by ERT 2011.</p>	<p>Implemented</p> <p>Improvements are reflected in 2012 NIR</p>	<p>An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011</p>

Non-compliance issues, including reference to relevant requirements	Reference to description	Measures to remedy the non-compliance	Status of implementation	Control/review of results
<i>19/CMP.1 annex Para 14(b); IPCC GPG</i>		By finalizing 2 studies land transition matrix was prepared, which allows accurately and transparently estimate GHG emissions and removals from LULUCF sector.		ARR 2011, improvements noted in para 155, 163, 198
Failed to collect sufficient activity data or emission factors <i>19/CMP.1 annex para 14(c)</i>	ARR 2010 Para 20, 187	Information on GHG emissions by sources and removals by sinks from KP-LULUCF was incorporated in NIR 2011. By finalizing 2 studies Lithuania is able transparently estimate GHG emissions by sources and removals by sinks from KP-LULUCF.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011, improvements noted in para 7, 155, 198
Failed to provide information on which of the 5 carbon pools were include or excluded <i>15/CMP.1 annex para 6(e)</i>	ARR 2010 Para 190	Lithuania has accounted for all 5 carbon pools under Article 3.3 and 3.4. and included all relevant data in the CRF tables for NIR 2011.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011, para 155

Annex A Sources				
Non-compliance issues	Reference to description in ARR	Measures to remedy the non-compliance	Status of implementation	Control/review of results
Completeness				
HFCs emissions from 2.F.2 foam blowing, actual and potential emissions reported as “NE” <i>IPCC Guidelines 19/CMP.1 annex para 14(b)</i>	ARR 2010 Para 12,14,72 140-159 (adjustment) Saturday paper 2010	HFCs are not used for foam blowing in Lithuania. However, HFCs are present in imported foam products used for insulation. In NIR 2011 HFCs emissions from 2.F.2 foam blowing were calculated using the method applied by ERT for adjustment (average emission rate from a cluster of countries). National data on foams containing HFCs use have been collected and HFCs emissions estimated using national data were reported in NIR 2012.	Implemented Improvements are reflected in 2012 NIR (15 April 2012)	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011, 2011 QA/QC plan 2011 NIR ARR 2011 (para 54(b), 93)
HFCs emissions from 2.F.4 aerosols or metered dose inhalers reported as “NE” <i>IPCC Guidelines 19/CMP.1 annex para 14(b)</i>	ARR 2010 Para 12,14,72 140-159 (adjustment) Saturday paper 2010	HFCs emissions from 2.F.4 metered dose inhalers have been reported in NIR 2011 using the data provided by the State Medicines Control Agency.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011 (para 54 (b), 80)
Transparency				
CH ₄ emissions from 6.A. Solid Waste Disposal on Land (Municipal Solid Waste), ERT informed Industrial Waste not included	ARR 2010 Para 12,14,124 160-172 (adjustment) Saturday paper	CH ₄ emissions from biodegradable industrial and commercial waste disposal on land using data from EPA waste database have been included in NIR 2011.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011 (para 54(d),

<i>IPCC Guidelines 19/CMP.1 annex para 14(b)</i>	2010			144)
CH ₄ emissions from 6.B Wastewater Handling (Sludge) reported as “IE” or “NA” but storage of sludge implies emissions occur <i>IPCC Guidelines 19/CMP.1 annex para 14(b)</i>	ARR 2010 Para 12,14,125 173-183 (adjustment) Saturday paper 2010	In NIR 2011 CH ₄ emission from 6.B Waste water handling (sludge) was calculated using the method applied by ERT for adjustment. National data on sewage sludge generation and disposal have been collected and CH ₄ emissions estimated using national data were reported in NIR 2012.	Implemented Improvements are reflected in 2012 NIR (15 April 2012)	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011 (para 146) 2011 QA/QC plan

Potential problems resolved

Non-compliance issues	Reference to description	Measures to remedy the non-compliance	Status of implementation	Control/review of results
Failed to Ensure sufficient capacity <i>19/CMP.1 annex para 10(b)</i>	ARR 2010 Para 16, 21-24	Description of improved national system and increased human capacities is provided in 2011 NIR.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011 (improvements noted in para 9, 24, 26-29, 200)
Failed to prepare estimates in accordance with the methods and good practice guidance described in IPCC Guidelines <i>19/CMP.1 annex para 14(b)</i> <i>IPCC Guidelines</i>	ARR 2010 Para 22-24	National system's improvements ensure preparation of GHG emission estimates in accordance with the methods and good practice guidance described in IPCC Guidelines. Description of improved national system is incorporated in 2011 NIR.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011 (improvements noted in para 6, 7, 194-196)
Failed to collect sufficient activity data, process information and emission factors <i>19/CMP.1 annex para 14(c)</i> <i>IPCC Guidelines</i>	ARR 2010 Para 21-23	National system's improvements ensure collection of sufficient activity data, process information and emission factors necessary for GHG inventory preparation. Description of improved national system is incorporated in 2011 NIR. In 2011, improvements were introduced for a number of CRF categories. Recalculations have been undertaken for the following reasons: - To take into account new and/or revised EFs (e.g. the EFs for CO ₂ emissions from combustion of motor gasoline, jet kerosene, gas/diesel oil, residual fuel oil, LPG and non-	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011 (improvements noted in para 30, 40, 62, 194-195) 2012 QA/QC plan 2013 NIR

		<p>liquefied petroleum gas in the energy sector; and in the EFs for nitric acid production) and updated AD (e.g. the AD for fugitive emissions in the energy sector and ammonia production);</p> <ul style="list-style-type: none"> - To correct errors in EFs and AD (e.g. international bunkers and cultivation of histosols); - To follow the reallocation or disaggregation of emissions (e.g. off-road machinery; domestic refrigeration and commercial refrigeration); - To use the European Union emissions trading scheme (EU ETS) data (e.g. cement production); - To improve the completeness (e.g. emissions from metered dose inhalers and other appliances using ozone-depleting substance (ODS) substitutes, fur animals, rabbits and nutria; N₂O emissions from waste incineration; emissions from landfilling of industrial and commercial waste; CH₄ emissions from sewage sludge); - To update parameters (e.g. those used for manure management); - To follow the change in the method used to estimate the carbon changes in biomass; to use National Forestry Inventory data; to take into account the volume of dead wood and stemwood; and to calculate the emissions from the KP-LULUCF activities. <p>In 2011-2012, 6 studies were initiated aiming to collect sufficient activity data, process information and emission factors in 5 sectors (Energy, Industrial processes, Agriculture,</p>		
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		LULUCF, Waste). 2 of those studies in LULUCF sector are already completed and their results incorporated in NIR 2012. Descriptions of those studies are provided in Annex I of this report. Remaining studies and status of their implementation are listed in Table 2 of this report.		
Failed to implement the Tier 1 QA/QC plan (specificity its aim to act on recommendations from previous ERTs) <i>19/CMP.1 annex para 14(g)</i>	ARR 2010 Para 36, 50, 51, 54, 57, 79, 86, 93, 104,106,109, 121	Most of the ERT recommendations of the 2010 ERT were addressed in 2011 and 2012 NIR. Remaining recommendations are to be implemented in further submissions following planned GHG improvements list in QA/QC plan.	Implemented	2011 QA/QC plan An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011 (improvements noted in para 7, 40, 54, 60, 62, 73, 74, 78, 79, 92, 101, 103, 109, 120, 123, 144)
Failed to improve transparency of inventory <i>19/CMP.1 annex para 14(g)</i>	ARR 2010 Para 37	Transparency was improved in 2011 NIR: more descriptions on institutional arrangements, methodologies, activity data and emissions factors used was provided.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011 (para 61)
Failed to improve Archiving of inventory <i>19/CMP.1 annex para 16(a)</i>	ARR 2010 Para 38 Saturday paper 2011	GHG inventory archive was improved following the implementation of Lithuania's GHG inventory archive improvement plan, approved by ERT of 2011 NIR on 30 October, 2011. According to improved national system for GHG inventory preparation, EPA was nominated as QA/QC coordinator of GHG inventory. Existing GHG inventory archive was transmitted to EPA from the Ministry of Environment for further enhancement and completion. In order to fill the gaps in archive, EPA developed checklists for each CRF category and performed comprehensive quality checks over the each CRF category to	Implementation in progress Improvements are to be implemented by 30-06-2012	2011 QA/QC plan Internal EU review (April – August 2012). Centralised and/or in-country review by ERT (Sept 2012)

		<p>identify missing references and documentation in the existing GHG inventory archive. According to the checklists results, sectoral experts provided all the missing references and documentation to the EPA, though all relevant GHG inventory material was collected, systematized, compiled and arranged according to the archive management system. Archive information include:</p> <ul style="list-style-type: none"> - Disaggregated EFs used, including references to the IPCC document for default factors or to published references or other documentation. - Activity data or sufficient information to enable activity data to be traced to the referenced source. - Worksheets and interim calculations for source category estimates and aggregated estimates and any recalculations of previous estimates. - QA/QC plans and outcomes of QA/QC procedures (external and internal reviews, checklists, planned inventory improvements). - Data on key source identification, uncertainty assessment. - Official Lithuania's GHG inventory submissions. <p>In addition, EPA developed draft manual describing common archiving procedures of Lithuania's GHG inventory (archive data structure, timing, data security etc.). This document will be approved and published as EPA Director's Order concerning the approval of the National GHG inventory data</p>	<p>To be approved by 30-06-2012</p>	
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		archiving procedures.		
CO ₂ , CH ₄ and N ₂ O emissions from 1.A.3.e other transport (pipelines) reported as NO <i>IPCC Guidelines</i> <i>19/CMP.1 annex para 14(b)</i>	ARR 2010 Para 12,13,45 Saturday paper 2010	CO ₂ , CH ₄ , N ₂ O emissions from pipeline transportation were reported in NIR 2011.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011
CO ₂ , CH ₄ and N ₂ O emissions from 1.A.5.a other military stationary combustion reported as “NE” <i>IPCC Guidelines</i> <i>19/CMP.1 annex para 14(b)</i>	ARR 2010 Para 12,13,45,46 Saturday paper 2010	CO ₂ , CH ₄ , N ₂ O emissions from other military stationary combustion were reported in NIR 2011.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011
CO ₂ , CH ₄ and N ₂ O emissions from 1.A.5.b other (military mobile combustion) stated that NATO operations are (wrongly) included under multilateral operations <i>IPCC Guidelines</i> <i>19/CMP.1 annex para 14(b)</i> <i>2/CP.3 para 5</i>	ARR 2010 Para 12,13,63 Saturday paper 2010	Explanation on allocation of emissions from NATO operations was provided in the NIR 2011.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011
CO ₂ , CH ₄ emissions from 1.B.2.b.iii Natural Gas Transmission (storage); does not account for storage <i>IPCC Guidelines</i> <i>19/CMP.1 annex para 14(b)</i>	ARR 2010 Para 12,13,60 Saturday paper 2010	Emissions of CO ₂ and CH ₄ from natural gas transmission using default EF of the IPCC good practice guidance were included in the 2011 GHG inventory submission.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011 (para 73)
CO ₂ , CH ₄ emissions from 1.B.2.b.v Natural Gas other leakage (at industrial plants and power stations , and, in residential and commercial sectors) reported as “NE” <i>IPCC Guidelines</i> <i>19/CMP.1 annex para 14(b)</i>	ARR 2010 Para 12,13,61 Saturday paper 2010	Emissions of CO ₂ and CH ₄ from Natural gas (other leakage) were included in 2011 GHG inventory submission.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011
HFCs emissions from 2.F.3 fire extinguishers reported as “NE”	ARR 2010 Para 12,13,72	HFCs emissions from fire extinguishers were reported in NIR 2011.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011

<i>IPCC Guidelines 19/CMP.1 annex para 14(b)</i>	Saturday paper 2010			ARR 2011 (para 92)
CH ₄ emissions from 6.B. Wastewater Handling, does not include all disposal routes <i>IPCC Guidelines 19/CMP.1 annex para 14(b)</i>	ARR 2010 Para 12,13,126 Saturday paper 2010	CH ₄ emission from uncollected municipal wastewater was estimated in 2011 GHG inventory submission.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011
CH ₄ , N ₂ O emissions from 6.C Waste incineration reported as “NE” <i>IPCC Guidelines 19/CMP.1 annex para 14(b)</i>	ARR 2010 Para 12,13,126 Saturday paper 2010	N ₂ O emissions from 6.C Waste incineration were reported in NIR 2011.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011 (para 40(e), 152)
CO ₂ , CH ₄ and N ₂ O emissions from 1.A.3.e other transport (off-road vehicles and machinery) – NIR states emissions are included but there is no information about where or how emissions were estimated <i>IPCC Guidelines 19/CMP.1 annex para 14(b)</i>	ARR 2010 Para 12,13,62 Saturday paper 2010	Emissions from off-road vehicles were reported in NIR 2011.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011 (para 54(a), 74)
CH ₄ emissions from 6.A. Solid Waste Disposal on Land: reason for recalculation not provided <i>IPCC GPG 7.3.3 (justification) IPCC GPG 8.10.1 (documentation) 19/CMP.1 annex para 14(b) FCCC/CMP/2005/8/Add.3</i>	ARR 2010 Para 12,13,130 Saturday paper 2010	The explanation for the revised estimation method of landfilled waste and analysis of correlation between GDP per capita and waste generation were documented in the NIR 2011.	Implemented	An issue was not raised in 2011 ERT Saturday paper, issued on 1 October 2011 ARR 2011

Table 2. Status of Implementation of additional measures to improve Lithuania's GHG inventory

Additional measures to improve GHG inventory	Status of implementation	Control/review of results
<p>Energy sector</p> <p>Study on National emission factors development for energy sector</p>	<p>Implementation in progress</p> <p>Agreement under the procurement procedure was signed on 6 June 2012.</p> <p>Study results are to be ready on 31 August 2012.</p>	<p>2012 QA/QC plan</p> <p>2013 NIR</p>
<p>Industrial processes sector</p> <p>Study on evaluation of the quantity of fluorinated gases (HFCs, PFCs and SF₆) used in Lithuania, development of the methods for emissions calculations and recommendations to improve F-gases data collection system</p>	<p>Implementation in progress</p> <p>Agreement under the procurement procedure to be signed in June 2012.</p> <p>Study results are to be ready on 31 August 2012.</p>	<p>2012 QA/QC plan</p> <p>2013 NIR</p>
<p>Agriculture sector</p> <p>Study on research and evaluation of methane and nitrous oxide producing capacity in the Lithuanian manure management systems</p>	<p>Implementation in progress</p> <p>Agreement under the procurement procedure was signed on 30 May 2012.</p> <p>Study results are to be ready on 31 August 2012.</p>	<p>2012 QA/QC plan</p> <p>2013 NIR</p>
<p>Waste sector</p> <p>Study on research and analysis of methane emissions from waste water and sludge</p>	<p>Implementation in progress</p> <p>Procurement procedure was re-started on 6 June 2012, due to the lack of proposals meeting the tendering requirements. Study results are to be ready in October 2012.</p>	<p>2012 QA/QC plan</p> <p>2013 NIR</p>
<p>LULUCF/ KP-LULUCF sector</p> <p>A long-term project on land use areas identification based on GIS.</p>	<p>Implementation in progress</p> <p>The pilot project on land use areas identification in Kelmes and Kaisiadoriu regions were implemented in 2011. Land fund graphical data were obtained and proposals for the optimisation of technological and organisational accounting of land fund data were presented during the implementation of the project.</p> <p>In 2012 project scope is being extended to all territory of Lithuania aiming to have comprehensive land use, land use changes database covering all territory of Lithuania in graphical form</p>	<p>2012 QA/QC plan</p> <p>2013 NIR</p>

	<p>for 2012. The data will be used as an additional information source for the comparison with land and forest plots data, collected by sampling method for the calculation GHG emissions and removals in LULUCF sector. The project will also serve as a QA/QC tool leading to improvement of land use areas identification on GIS basis (i.e. wall-to-wall mapping). Results covering all Lithuanian territory are planned to be delivered by 31 December 2012.</p>	
<p>Cross-cutting A training programme for Lithuanian inventory experts to further raise the technical competence in the inventory development process is to be implemented under the Norway Grants partnership project “Cooperation on the national GHG inventory”</p>	<p>Implementation in progress Norway Grants partnership project “Cooperation on the National GHG inventory” submitted for the approval by Norway Government in January 2012. Training programme is planned to be conducted in 2012.</p>	<p>2012 QA/QC plan</p>

ANNEX I

Study “Forest land changes in Lithuania during 1990-2011” (*Study 1*)

The *Study-1* was carried out by the team of specialists of Aleksandras Stulginskis University (former Lithuanian University of Agriculture) and Lithuanian association of impartial timber scalers led by professor G. Mozgeris. The *Study-1* was completed in the mid of April of 2012 and explicit study results are available in the prepared report¹.

The *Study-1* was aimed at identification of annual forest land areas and the changes which occurred in Lithuania during the period of 1990-2011, following the *Good Practice Guidance for Land Use, Land-Use Change and Forestry* by Intergovernmental panel on climate change and the requirements of United Nations framework convention on Climate Change and the Kyoto protocol on Land use, land-use change and Forestry.

To have clear view on the forest land 50 years ago, GIS database was developed storing boundaries of forest land in around the 1950s. Orthophotos based on the aerial photography from mainly 1946-1949 were used as the basic source material. Orthophotos were scanned, geo-referenced and the borders of forest land were manually digitized. The scale of orthophotos was 1:10 000, simultaneously, the database developed was meeting the requirements of mapping at a scale 1:10 000. In that sense, this data base is fully compatible with the geographic database of forest compartments kept at State Forest Cadastre and integrally with existing databases fits for the analysis of forest land area changes. Some gaps with missing orthophotos (mainly for country borderland and city areas) were filled using other map material, compatible in terms of scale, development date and contents. Even the most of such maps were soviet time topographic maps, there were also German, Polish, US military maps used for some areas, too. The database developed was validated for any topological errors, like overlapping polygons, gaps, etc. In addition to forest land, the database includes polygons identified as wooded areas on peat lands, city forests and parks, etc.

Next, annual identification of forest land covers and forest land-uses was carried out on 16325 systematically distributed sample plots available from Lithuanian National forest inventory focusing on the period from 1990 till 2011 and using the definitions from valid versions of Lithuanian Forest act and *Good Practice Guidance for Land Use, Land-Use Change and Forestry* by the Intergovernmental panel on Climate Change. All available auxiliary data sets (such as State forest cadastre data, maps from previous stand-wise forest inventories, topographic maps, orthophotos, satellite images, etc) with the use of information gathered during direct field visits were used to facilitate the identification of land cover and land-use categories in a long run. All sample plots were manually inspected and the solutions taken were based on the decisions of experienced engineers with forest inventory practise.

To achieve the annual wall-to-wall mapping of forest land areas and detect the changes several types of source material were used, like State forest cadastre, National paying agency information about agriculture, non agriculture and abandoned land afforestation, Lithuanian forest resource database at a scale 1:50 000, all available orthophotos for the country developed during the period being analysed, satellite maps from CORINE IMAGE, <http://earthexplorer.usgs.gov/>, other projects done

¹ Darbo „Miško žemės plotų kaitos Lietuvoje 1990-2011 m. įvertinimas“ ataskaita [eng. *Study „Estimation of forest land changes in Lithuania during 1990-2011“ report*] / Lietuvos nepriklausomų medienos matuotojų asociacija, Akademija, Kauno r., 2012. 100 p.

by the contractors. The main data source used was the geographic data from the State Forest Cadastre. These data sets includes borders of all forest compartments in the country (around 1,3 mill polygons), are associated with the data describing the stand characteristics of the compartment. Age of all stands was updated to fit defined datum-line – the year 2011. Then, the year of forest stand rise was estimated, subtracting the age of stand from 2011 (and adding 10 for naturally grown forests). Then, the origin of each compartment was checked to identify whether the forest appeared on forest or other (i.e. non-forest) land. Two basic and one additional criteria were used to solve that: forest was assumed to be grown on non-forest land if it was attributed in a special attribute field as grown on non-forest land. However, such identification was completely dependent on the content and quality of previously done stand-wise forest inventories and there were numerous forest compartments, actually grown on non-forest land, omitted. Therefore, special spatial overlay and selection techniques were developed and applied to identify forests, which were currently available but missing 50 years ago (according to the database developed and referring to the 1950s). Extra solution to identify afforestation/reforestation was to use stand attribute coming from stand register and stating the forest compartment to be first time inventoried during the last stand-wise forest inventory. However, such approach faced some limitations to reflect the newly established forests, as the State forest cadastre data was based on the information originating from stand-wise forest inventory. Stand-wise forest inventories in Lithuania are carried-out on a 10-years cycle base, thus, there were some regions with quite outdated information on the compartments and missing the boundaries of stands, established already after the stand-wise inventory. Several solutions were used to fill such information gaps. First off all, information from the recent stand-wise forest inventories was acquired from forest inventory contractors, which had not been officially delivered to the State Forest Service yet. Next, all non-forest compartments stored in the State forest cadastre database were checked for the records on potentially established forests there. Simultaneously, State forest enterprises were asked to confirm some facts on newly established forests. And, finally, data from National paying agency were acquired to represent the borders of afforestation, which were applied for EU subsidies. Special geo-processing technique was developed to eliminate overlapping in space and time of afforested/reforested areas, resulted by repeated identification of considered areas in independent input data sets.

The decision whether the forest stand, detected to be grown on non-forest land was afforestation or reforestation, was taken based on simple spatial queries testing – verifying presence or absence of the forest land at a certain area in 1950's.

Several techniques were used to detect deforested areas during the last two decades. First off all deforestation accounted for in the State Forest Cadastre was taken into the account. Recently non-forest land types, identified as forest stands during the previous forest inventories were candidates to be assigned to the deforestation category. Next, there were some records in the State Forest Cadastre attributed to officially registered deforestation category. And, finally, deforestation was manually mapped using available GIS, orthophoto and satellite image data. It was assumed, that the GIS database of Lithuanian forest resources at a scale of 1:50 000 developed in 1998-1999 represents the year 1990 as it was based on SPOT satellite images from around 1990-1992 and stand-wise forest inventory maps done before 1991. The accuracy of forest cover identification in that database was confirmed by the National forest inventory to be around 95%. Thus, the differences between the forest covers in the GIS database of Lithuanian forest resources at a scale 1:50 000 and State Forest Cadastre were reasoned by the imperfections of the first data set or the deforestation. All such areas were visually checked and all deforestations were identified using orthophotos available for Lithuania (referring to 4 dates in the period from 1990). Exact date of deforestation was adjusted using archive satellite data (mainly Landsat, but also coming from SPOT and DMC).

GIS database was developed to store the forest land-use polygons, distributed by feature classes representing forest land remaining forest land (F1), forest land remaining forest land but with the forest which appeared less than 20 years ago (F2), afforestation with human induce (A1), natural afforestation (A2), reforestation with human induce (R1), natural reforestation (R2) and the deforestation (D). Such feature classes were created to represent each year in the period 1990-2011.

The solutions described above were preferred to the identification of forest land dynamics using the satellite images only as being much more precise in identification of a single compartment with some change taken place. The accuracy of forest land identification was internally confirmed by the outputs from the inventory on 16325 systematically distributed sample plots from Lithuanian National forest inventory.

The *Study-1* report contains an annual forest land-use change table (matrix) for the period 1990-2011 which fits the requirements of Good Practice Guidance for Land Use, Land-Use Change and Forestry; IPCC and the United Nations framework convention on Climate Change and the Kyoto protocol. The *Study-1* also resulted in enhancement of forest inventory, introducing mandatory registration off all forest compartments fitting the afforestation/reforestation requirements of Good Practice Guidance for Land Use, Land-Use Change and Forestry; IPCC, the development of GIS based forest cadastre information system following the principles of continuous forest management.

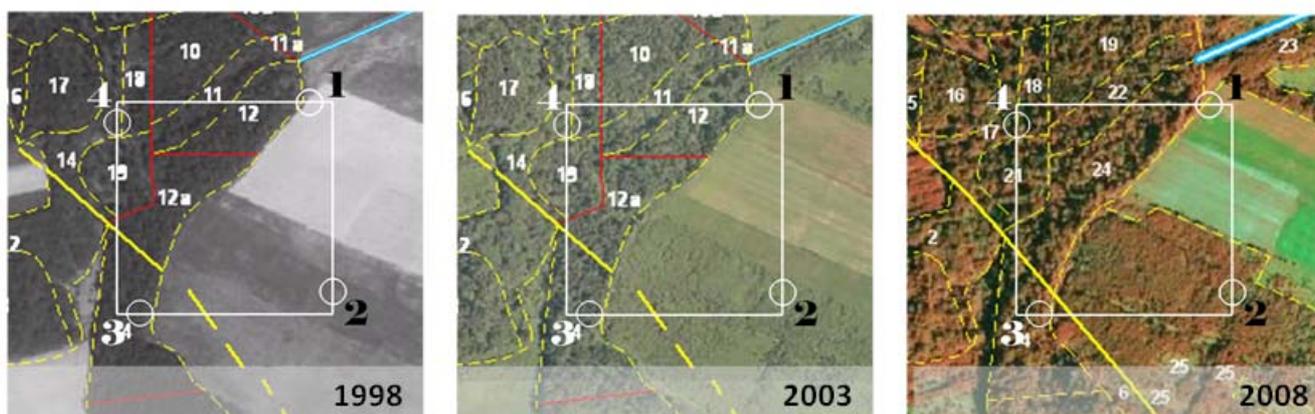


Figure 1. Land use change according to NFI data



Figure 2. Grassland converted to Forest Land



Figure 3. Wetland converted to Forest Land

Study “Changes of areas of Croplands, Grasslands, Wetlands, Settlements and Other lands in Lithuania during 1990-2011” (Study-2)

The *Study-2* was carried out by the specialists of the State Land Fund. The *Study 2* was completed in the end of April of 2012.

The *Study-2* was aimed at identification of annual croplands, grasslands, wetlands, settlements and other land areas and the changes which occurred in Lithuania during the period of 1990-2011, following the Good Practice Guidance for Land Use, Land-Use Change and Forestry.

Annual identification of different land categories was carried out on 16 325 systematically distributed sample plots available from Lithuanian National forest inventory focusing on the period from 1990 till 2011. Land use changes were identified analyzing all available historical data on land uses in statistical and graphical form and assessing historical data collection methods. The following actions were performed:

- analysis of data sources and land use data collection.
- identification of land areas on sample plots.
- compilation of sample plots data bases.
- analyses of Croplands, Grasslands, Wetlands, Settlements and Other lands statistics.
- justification of research methodology and harmonization of applied methods.

The main data sources that were used: 1990 year land areas analogical inventory plans; 1995 – 1998, 2005 – 2006, 2009 – 2010 digital orthophoto maps S 1:10 000 (ORT10LT), Lithuanian land fund statistical data, land areas and croplands declaration database.

Land areas and their changes were assessed based on National Forest Inventory sample plots grid and using land fund statistical data together with digital orthophoto maps, satellite images and database of declarations of land areas and croplands. In depth analysis was executed on approx. 11 thousand systematically distributed permanent sample plots falling on non-forest land.

In the course of analysis, land-use change matrix (annual change of areas of Croplands, Grasslands, Wetlands, Settlements and Other lands) in Lithuania during 1990-2011 was prepared. Proposals on land use definitions harmonization used 1990-2011 and the development of the harmonized methodology for the data evaluation and estimation of removals and emissions for LULUCF sector according to the UNFCCC requirements was elaborated.

Identification of land use categories is presented in Figure 4.



Figure 4. Identification of land use changes according to NFI permanent sample plots and cartographical data: a - land use plan, 1990; b, c and d - orthophoto maps 1995, 2005, 2009; e – map according to land declaration database, 2010

The study resulted in the following outputs (on annual bases for the period of 1990-2011):
 - area calculations made and land use change matrix prepared;

- annual change of areas of Croplands, Grasslands, Wetlands, Settlements and Other lands identified
- report, showing considered land unit changes prepared;
- proposals on land use definitions harmonization and development of the harmonized methodology for the data evaluation and estimation of removals and emissions for LULUCF sector according to the UNFCCC requirements elaborated.