



LVGMC

LV EMISSION INVENTORIES

UNDER NEC DIRECTIVE AND CONVENTION ON LONG RANGE TRANSBOUNDARY AIR POLLUTANTS



Ieva Sīle

**Latvian Environment, Geology
and Meteorology Centre**

Contents



- Reasons to report emissions
- Inventory preparation process
- Emission calculation methodologies
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- Challenges
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Reasons to report emissions



- Monitoring of current situation;
- Determining the progress of emission reduction;
- Development of future scenarios and national programmes to reduce emissions;
- Requirements set in:
 - Conventions (UNFCCC, CLRTAP),
 - EU legislation (Regulations, Directives),
 - national legislation (Minister of Cabinet regulations, national programmes, etc.).

CLRTAP/UNFCCC synergy in Latvia



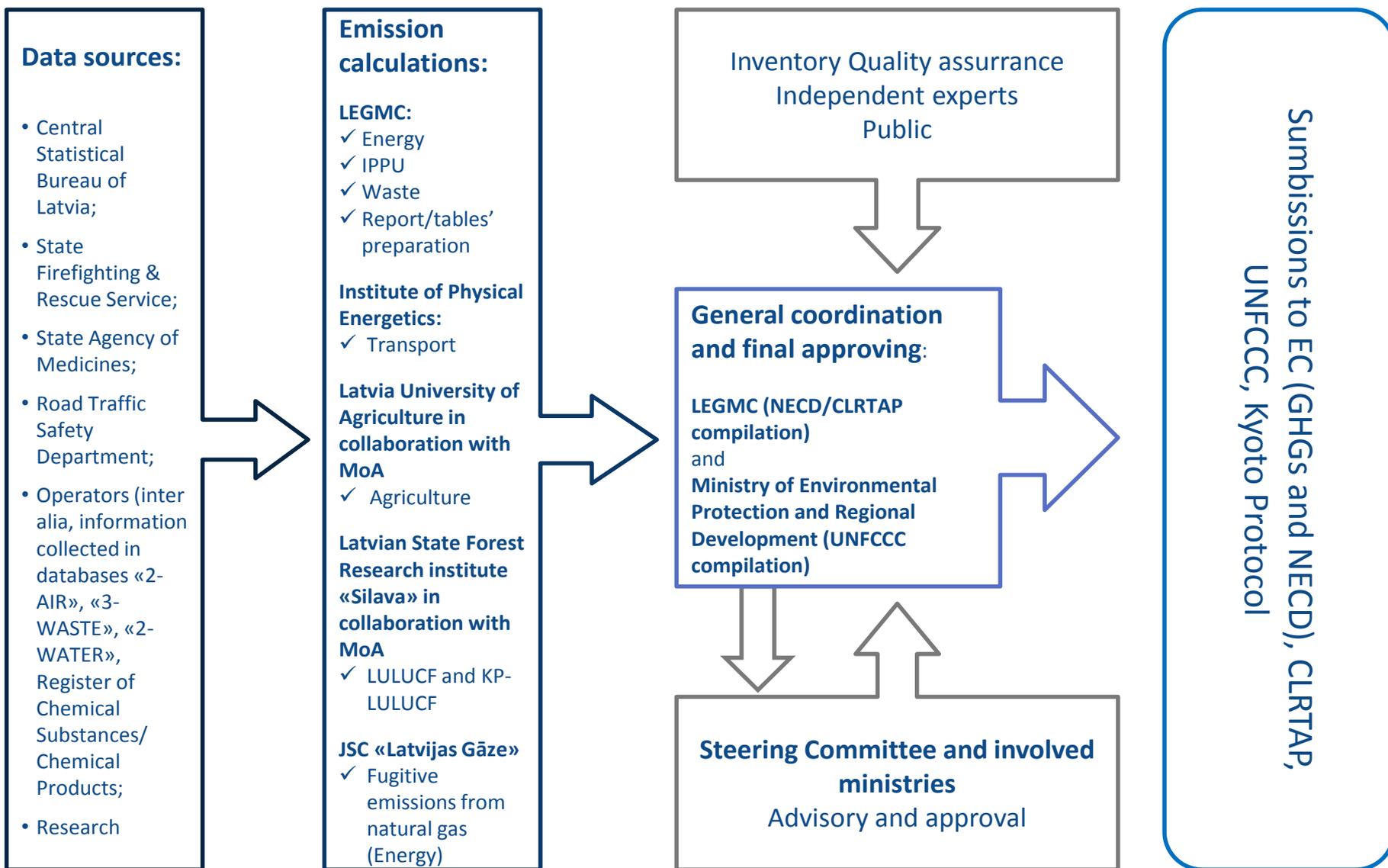
- Air pollutant emissions have traditionally been calculated together with GHGs:
 - need to report NO_x , SO_2 , NMVOC, CO, NH_3 in GHG reporting tables;
 - requirement in Reg. of Ministers No. 419, Art. 7.1, *to use calculated emissions' data which are submitted to LEGMC in accordance to legislation which regulates national system for GHG emissions;*
 - same experts for both UNFCCC/CLRTAP/NECD.

National system



- National system for NEC/CLRTAP is in accordance with Regulations of the Cabinet of Ministers No. 217 of March 27th, 2012 «*Regulations regarding the National Inventory System of Greenhouse Gas Emission Units*»;
- National system is formed by:
 - Responsible ministries;
 - Institutions which provide activity data;
 - Institutions which calculate emissions.

National system (2)



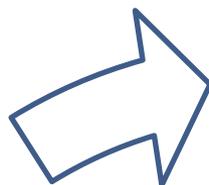
NEC/CLRTAP inventory preparation process



4. INVENTORY IMPROVEMENT:

- 1) Expert meetings;
- 2) Future actions.

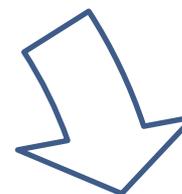
JUNE-JULY



1. INVENTORY PLANNING:

- 1) Setting quality objectives;
- 2) Elaboration of QA/QC plan;
- 3) Determine resources;
- 4) Choose methods and EF.

JULY-SEPTEMBER



2. INVENTORY PREPARATION:

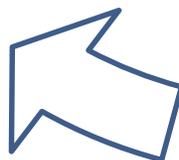
- 1) Data collection;
- 2) Estimating emissions;
- 3) Implementing QC checks;
- 4) Recalculations;
- 5) Reporting.

SEPTEMBER-DECEMBER/FEBRUARY

3. INVENTORY ASSESSMENT:

- 1) QA activity implementation;
- 2) International reviews (Stage 1, Stage 2 reviews annually in March-May; Stage 3 in-depth review every 5 years in June);
- 3) Resubmissions in March (if needed).

JANUARY/FEBRUARY-JUNE



Experts



- At the beginning there was only one expert calculating all emissions for all Conventions/Directives.
- In comparison, for 2014/2015 submissions there are ~10 experts (part-time!):

Sector	Experts
1 Energy	3
2 Industrial Processes and Product Use	2 (+1)
3 Agriculture	2
5 Waste	2
6 Other	1 (LULUCF in UNFCCC – at least 3 experts)

Main approach to calculate emissions



- Use of the actual NECD/CLRTAP reporting Excel based templates (since 2015 – *NFR14*);
 - Use of the latest Guidelines (EMEP/EEA 2013) or research, national and other scientific literature;
 - Calculations mostly in Excel databases (or COPERT in Transport sector);
 - **A challenge** due to templates/databases - no automatic filling in NFR tables currently possible (compiler must double-check data in NFR tables), therefore:
 - experts can either send their data in NFR tables to compiler at the same time and data are copied from the fulfilled templates (chance for compiler to have a mistake in copying process)
- OR
- experts have to fill in the templates one after the other (longer procedure).

Main methodology used in NECD emission inventory

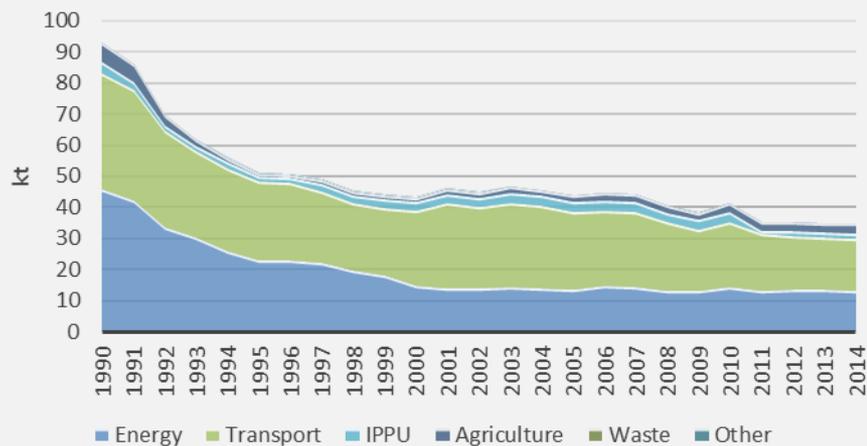


Sector	Methodology	Activity data source	EF
Energy	Tier 1 for Stationary combustion Tier 2 for Transport	National statistics (Energy Balance, Annual questionnaires sent to EUROSTAT), plant specific (e.g., ETS reports, data from enterprise with leakages from natural gas)	Default, plant specific (SO ₂ , NO _x from «2-AIR») → mainly EMEP/EEA 2013
IPPU	Tier 1,2,3 for Mineral production Tier 2 for Metal production Tier 1 for Chemical industry and Other (Road paving, Asphalt roofing) CS for Solvents (approx. Tier 2/3)	National statistics (production data with PRODCOM codes), plant specific (ETS reports, data from Chemical substances registry)	Default, plant specific → mainly EMEP/EEA 2013 or older versions
Agriculture	Tier 1,2 for Manure management, Tier 2 for Fertilizer use Tier 1 for Other (Grassland burning)	National statistics (numbers of animals, fertilizer use, area of grassland burned)	Default, country specific → mainly EMEP/EEA 2013 or national research; IPCC guidelines (for Other)
Waste	Tier 1 for Waste disposal, Composting Incineration Tier 2 for Waste-water handling	Plant specific (national databases «3-Waste», «2-Water»), country specific	Default → EMEP/EEA 2013
Other	Tier 1	National statistics from SFRS	Default → IPCC 2006 Guidelines, EMEP/CORINAIR

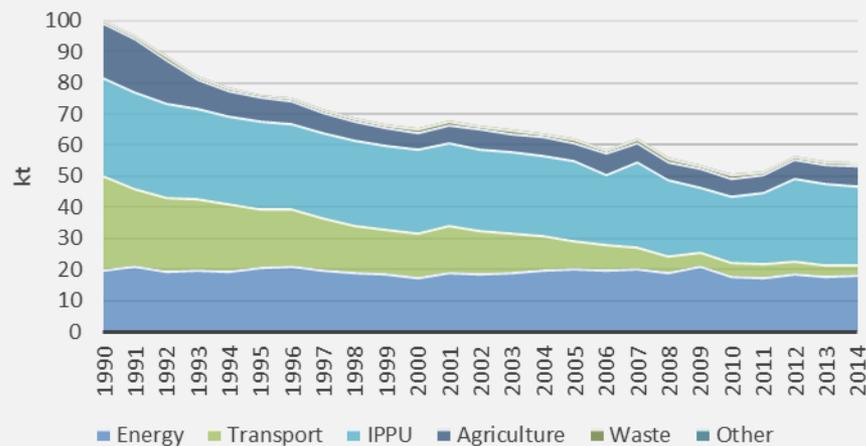
Main pollutants



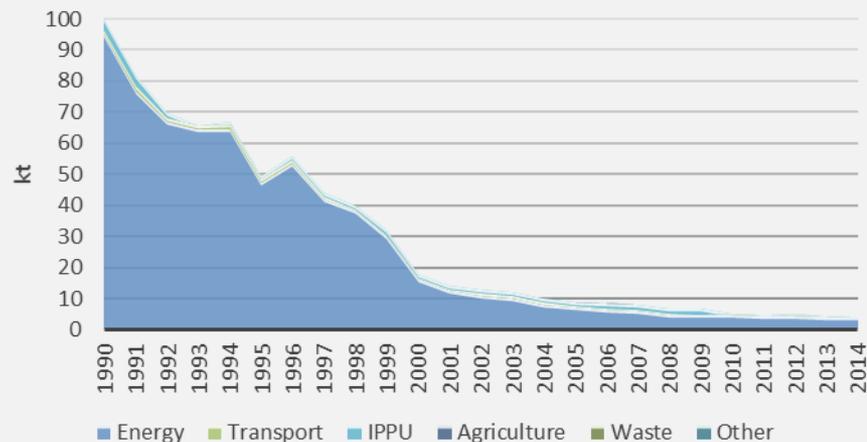
NO_x



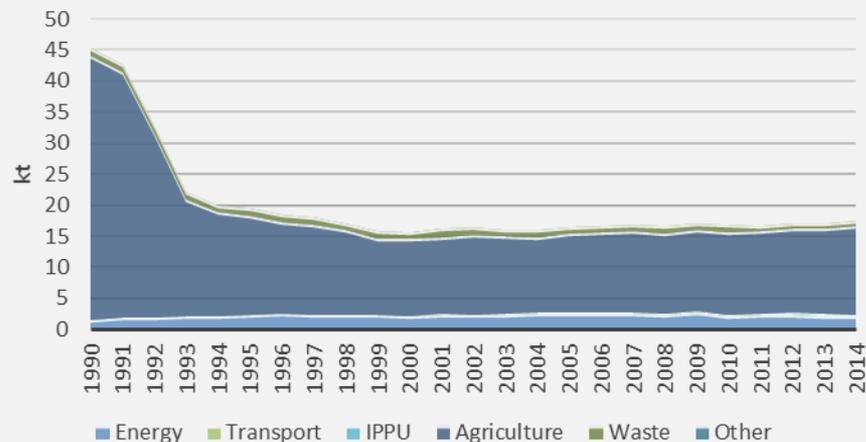
NM VOC



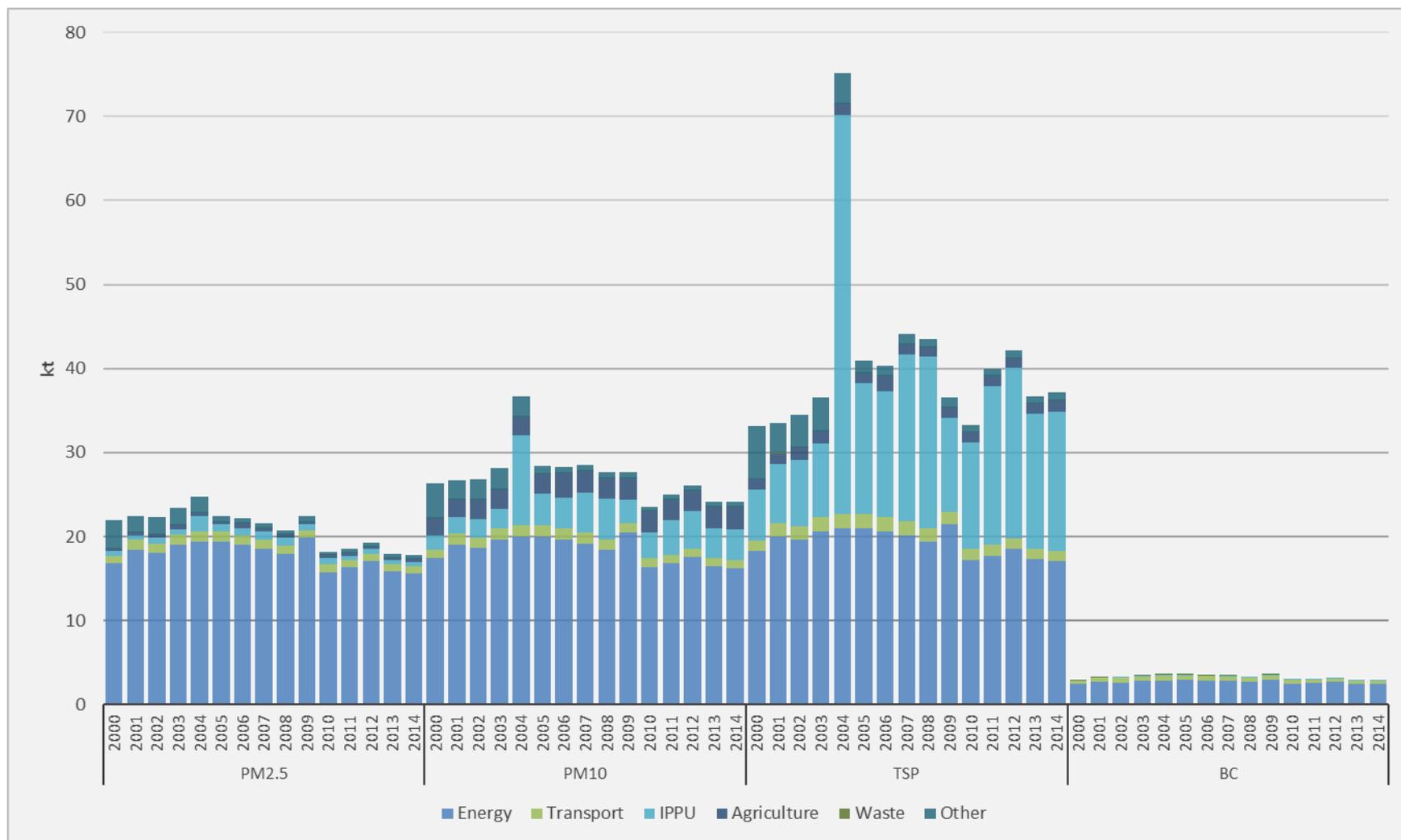
SO₂



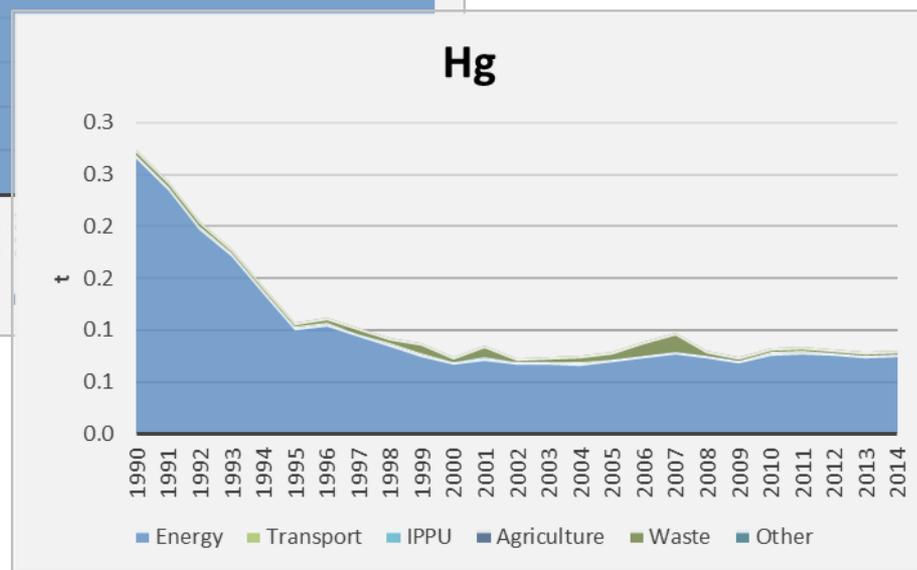
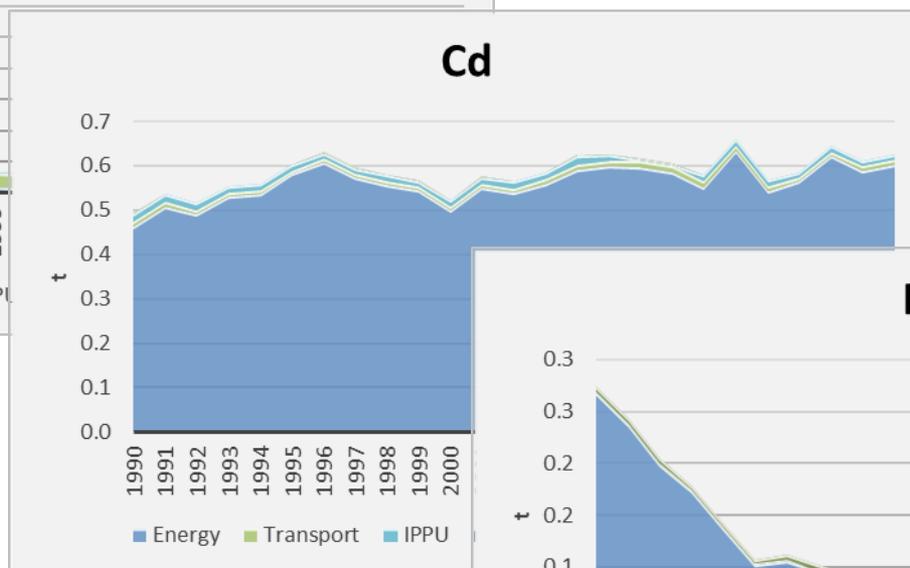
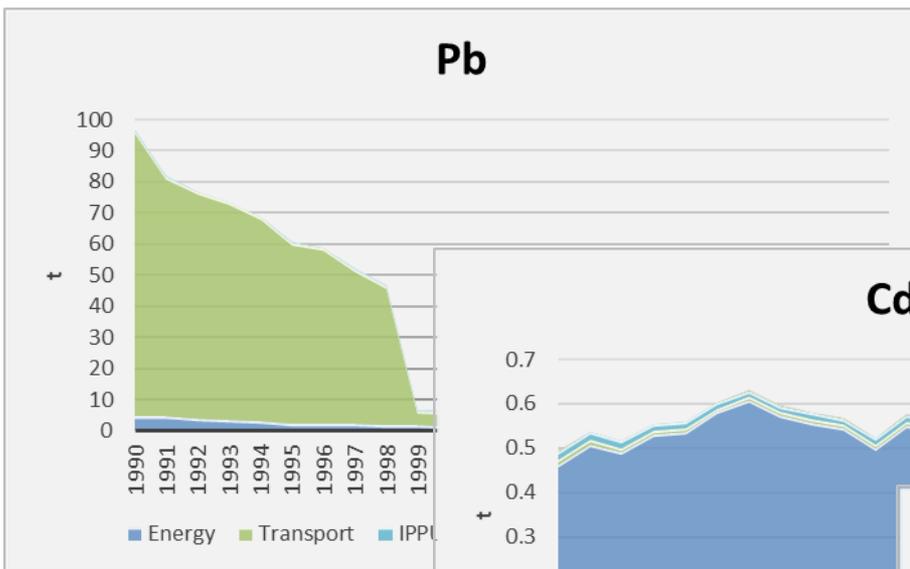
NH₃



Particulate matter



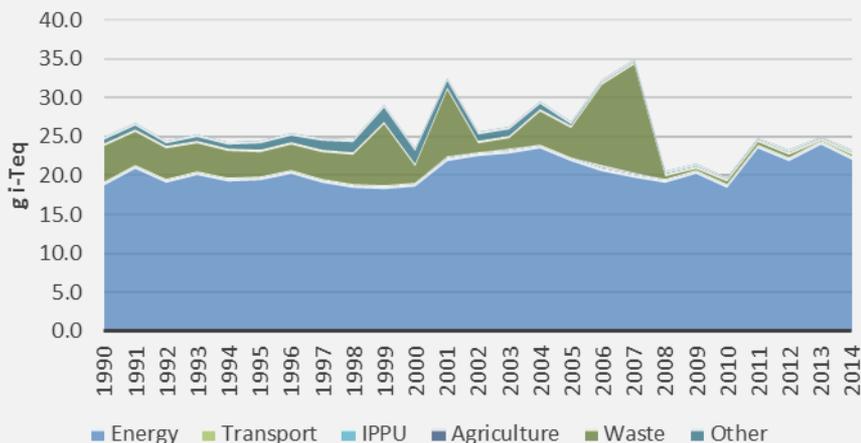
Heavy metals



Persistent organic pollutants



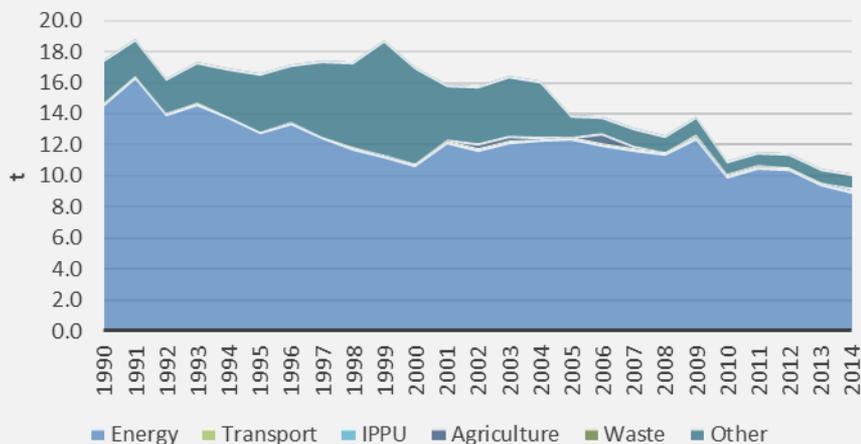
PCDD/F



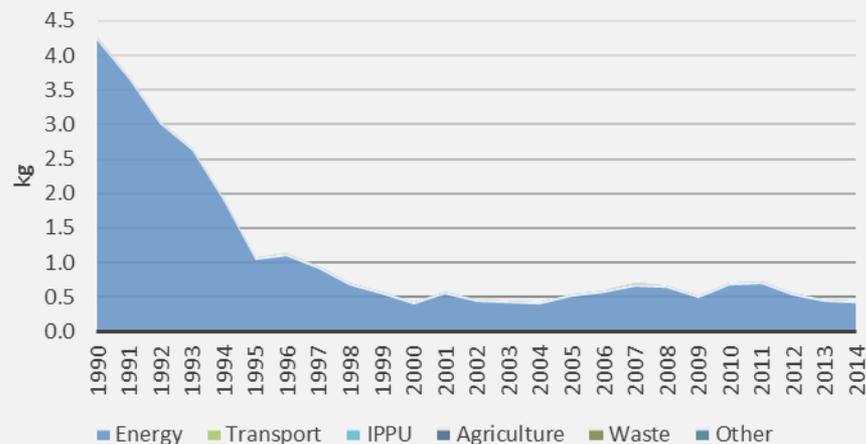
HCB



PAHs



PCB



Challenges...



- *Deadlines:*
 - NECD – 31st Dec (NFR tables + short description);
 - UNFCCC – 15th Jan*/Mar**/Apr*** (CRF tables + National Inventory report);
 - CLRTAP – 15th Feb (NFR tables + Informative Inventory report (15th Mar));
- *Reporting templates* → QA/QC!!!
- *Capacity* – both Conventions (and NECD) at almost the same time → lots of work even for 10 experts (part-time job);
- *Finances* – always a place for research, especially for key sources to change methodology from Tier1 to Tier 2/3;
- *Lack of continuity* – in case some experts decide to leave the team.

* *Submission for EU*

** *EU final submission*

*** *Submission for UNFCCC secretariat*

Ongoing projects



- 2009 – 2014 EEA grants programme on National climate policy «Development of the National System for Greenhouse Gas Inventory and Reporting on Policies, Measures and Projections»
- **Project promoter:** Ministry of Environmental protection and regional development
- **Project partners:** Ministry of Agriculture, LEGMC, Norwegian Environment Agency
- The **main objective** of the project is to strengthen Latvia's institutional capacity to improve the national system for preparing, analyzing and reporting high quality information to ensure continuous improvements of the GHG emission inventory, policies, measures and projections and to comply with the relevant UNFCCC, Kyoto protocol and European Commission reporting requirements.

Ongoing projects (2)



- It is planned to develop an Integrated database for climate change and **air pollutants'** emissions data collection and report preparation:
 - Centralized online emission database and calculating software with storage of all historical and actual data;
 - Tier 2 uncertainty and key source evaluation;
 - Automatic table and graph creating options;
 - Projections model with emission scenarios up to year 2050 with implemented actual models and developed models for IPPU and Waste sectors.
- **Benefits of this system:**
 - unified system both for GHGs and air pollutants;
 - both historical data calculation and projections calculations available;
 - automatic emission calculation → no manual mistakes;
 - faster report preparation → easier to prepare graphs/tables;
- **Status:** negotiations with database developer about the contract requirements. The research in Agriculture activities and development of soil database is almost finished.



- More information on activity data, emission factors, methodology distributed by subsectors is available on [Latvia's IIR](#).

Latvia's Informative Inventory Report 2015

Submitted under the Convention on Long-Range Transboundary Air Pollution

15th March 2016

Latvian Informative Inventory Report

(RTSD) collected and published data have been used considering stock of road traffic in Latvia. Total mileage data for passenger cars, light duty trucks, heavy duty trucks are produced by the RTSD is used for the years 1996-2013 and can be seen on Annex 2

Figure 3.7 Development of fuel consumption in Road transport (TJ)

As seen in Figure 3.7, the fuel consumption has essentially changed in the time period 1990-2013. The gasoline consumption from the highest consumption in 1990 has decreased in 1999, reaching the lowest consumption and after six year stabilisation the increase in 2006 and 2007. Consumption of gasoline had decreased in 2013 by 9.3 % compared with year 2012. Whereas the diesel fuel consumption starting from 1997 has increased in 2013 by 27.4 % compared with year 2012. While it decreased in 2008 and 2009 due to an economic recession fuel consumption has increased in 2013 by 4.8 % compared with year 2012. It was substantial LPG consumption increasing in year 2013 and 2012 in road transport. Consumption has increased in 2013 by 27.4 % compared with year 2012.

Figure 3.8 Distribution of passenger cars fleet by sub-classes

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Latvian Informative Inventory Report

Table 4.16 Emission factors for Iron and Steel production

Unit	EF for 1990-2010	EF for 2011-2013
NO _x	0.0051	0.00013
NMVOG	0.00002	0.000046
SO ₂	0.00016	0.00006
PM ₁₀	0.0005	0.000021
PM _{2.5}	0.0008	0.000024
TSP	0.001	0.00003
BC	2.4	0.36
CO	0.000001	1.7E-09
Fe	0.0001	0.0000038
CaD	0.0000008	0.0000002
Hq	0.00000005	0.00000005
As	0.00002	0.00000015
Cr	0.0000023	0.0000001
Cu	0.0000003	0.00000002
Ni	0.00001	0.0000007
Zn	0.00001	0.0000036
PCDD/F	6.7E-08	0.000003
Total 4 PAHs	0.01	0.00000048
PCB	NA	0.00000025

4.4.5 Activity data

Activity data were taken from the CSB of Latvia and enterprises. Activity data on production and output by manufacturing companies are freely available until 1999. CSB grants restricted information on production and output of goods since 1999, the information is classified as confidential. LEGMC has signed an agreement with CSB to get data production of products from sectors from what data are confidential. Still as if producers are participants in the EU ETS the GHG reports of these enterprises have been freely available.

The GHG reports of EU ETS operators are published on LEGMC home page. The data of the activity data is industrial producers and the confidentiality rules are no longer applicable in Latvia has simpler situation in activity data of 2C1 Metal Production because there are no steel producer and it participates in EU ETS and in International ETS. It is possible to obtain more accurate and complete activity data and emission factors from enterprises involved in the emission trading system (Figure 4.4).

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Area of grassland burning was taken from State Fire and Rescue Service - SFRS. Under this system SFRS sends reports on found cases to Rural Support Service who applies sanctions to the beneficiaries, such requirement under standards of good agricultural and environmental condition and respective sanctions will be continued onwards.

5.2 MANURE MANAGEMENT (NFR 3B)

5.2.1 Overview

In the NFR category 3B NO_x, NMVOG and NH₃ emissions from Manure Management are included.

In Figure 5.2, ammonia emissions from Manure Management distributed on different livestock categories in 2013 are shown. It can be seen that the majority of the ammonia emission is related to the cattle (56.90%), poultry (17.79%), fur animals (10.90%) and swine (10.14%) production.

Figure 5.2 Ammonia emissions from Manure Management in 2013

5.2.2 Trends in emissions

Table 5.4 Trends in emissions from Manure management between 1990 and 2013

Year	NO _x Gg
1990	30.49
1995	13.44
2000	9.20
2005	8.59
2010	7.61
2011	7.41
2012	7.67
2013	7.74

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THANK YOU!

Contacts:

Ieva Sīle

Senior specialist

Latvian Environment, Geology and Meteorology Centre

Air and Climate division

E-mail: ieva.sile@lvgmc.lv

www.lvgmc.lv