

Estonian Environmental Research Centre

## Range of activities of Estonian Environmental Research Centre and cooperation with other European countries

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## Historical background

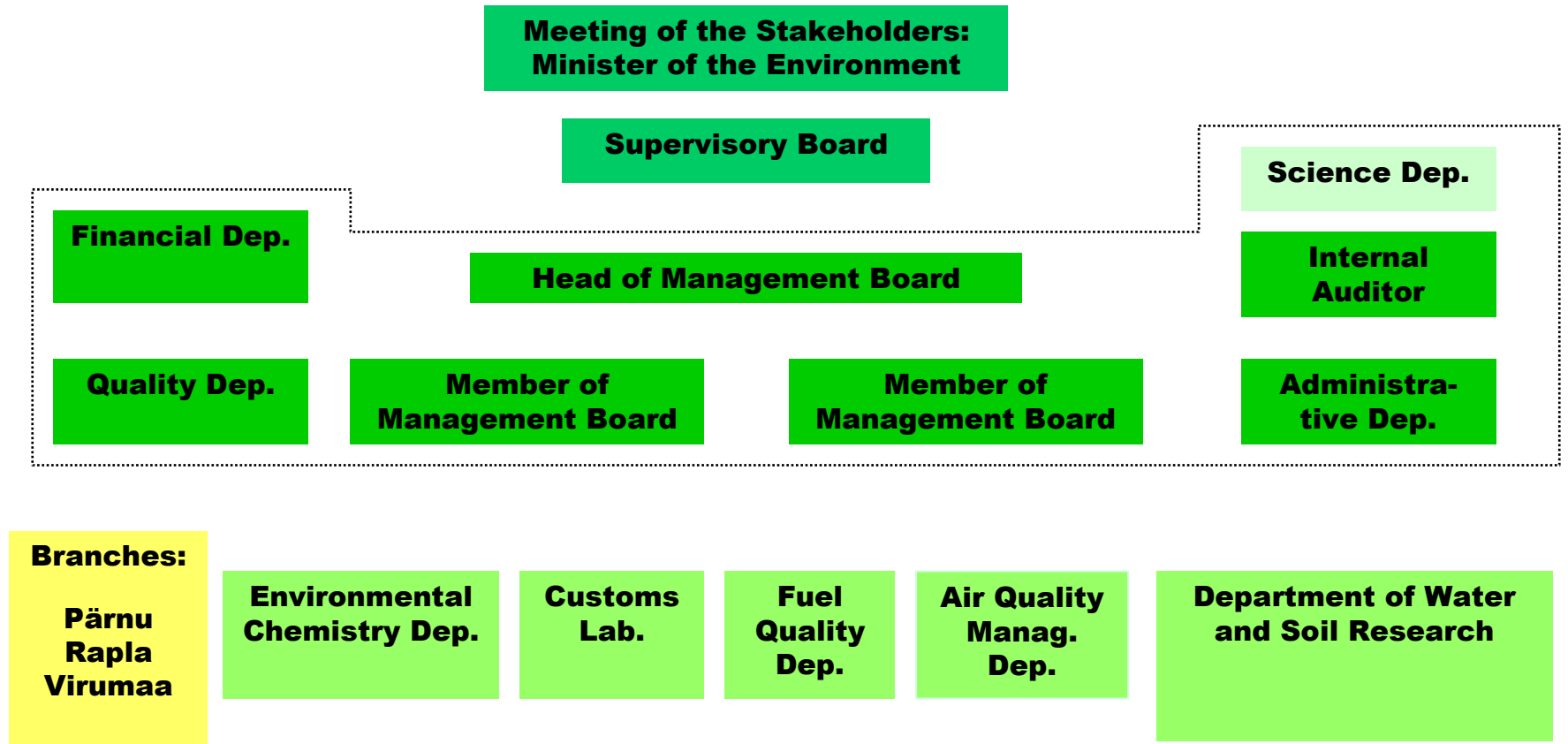
The predecessor of the EERC was the Estonian Environmental Laboratory (EEL), which was founded in 1991 to serve the purposes of the Ministry of the Environment, Ministry of Agriculture and the Marine Institute.

The EEL in its turn grew out from a soil and water laboratory established already back in 1956.

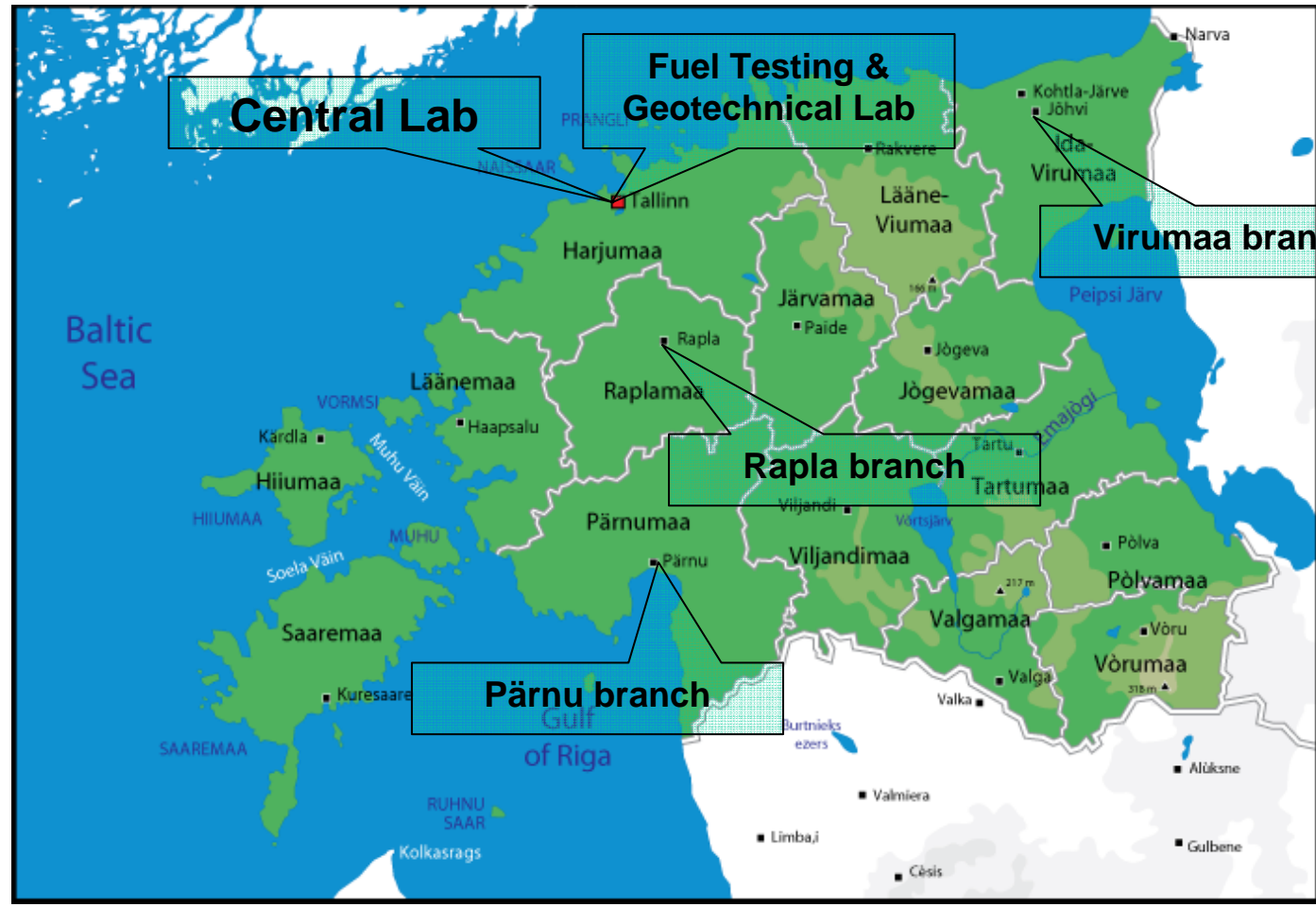
Currently EERC has two central laboratories in Tallinn and three branches around the Estonia. EERC operates air quality monitoring network for industries and runs two separate laboratories in wastewater treatment plants. In total EERC has 114 employees.



# Structure of EERC



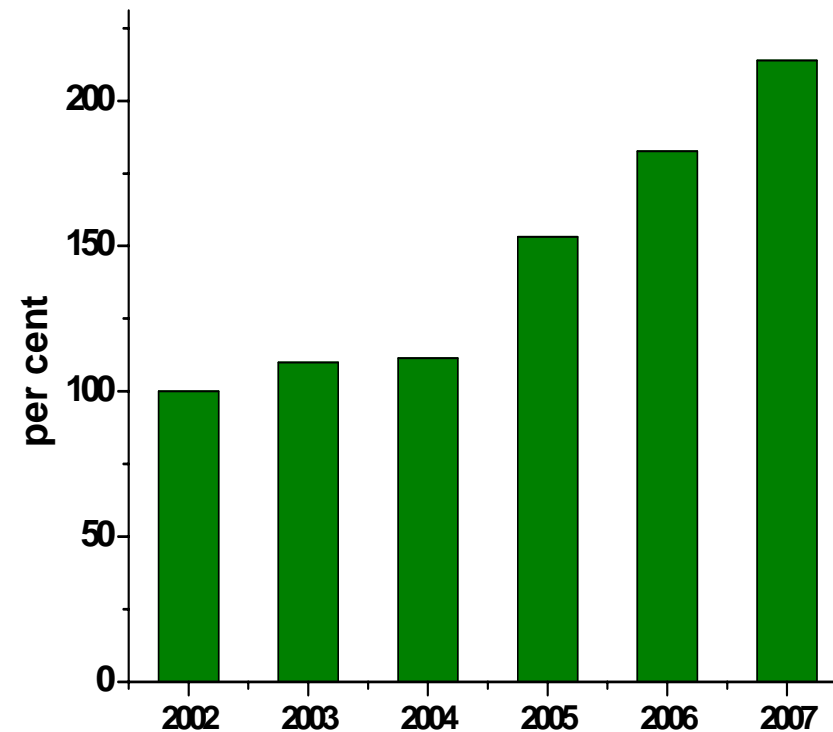
# Locations



# Financial background

## Turnover:

- **2002 20.1 million EEK**
- **2003 22.1 million EEK**
- **2004 22.4 million EEK**
- **2005 30.8 million EEK**
- **2006 36,7 million EEK**



# Quality Control



- The EERC is accredited by the Estonian Accreditation Centre and DAP Deutsches Akkreditierungssystem Prüfwesen GmbH
- The Quality Assurance and Control system used at the laboratories meets the requirements of ISO/IEC 17025:2005
- The EERC participates regularly in over 30 intercalibrations (air, water, fuel, foodstuff, soil, microbiology)
- The EERC is in charge of the conduct of intercalibrations in certain fields within Estonia



# Range of activities of EERC part I



The range of activities of the EERC involves:

- carrying out of state orders to ensure compliance with national legislation and international obligations
- environmental research
- coordination and management of environmental projects;
- performance of ground-, surface-, precipitation- and wastewater analysis
- environmental expertise and auditing;
- methodical instruction of environmental laboratories in Estonia;

# Range of activities of EERC part II



- training in the field of environmental protection (courses up to 6 months);
- conducting intercomparisons on national and international levels, statistical analysis and discussions of the results;
- consultancy in the field of environment;
- research projects and development of environmental measurement and analytical techniques;
- chemical analysis of raw material, products and other objects.

# Department of Environmental Chemistry



- wastewater analysis
- estimation of the extent of environmental pollution caused by accidents and malfunctions in waste water treatment facilities
- precipitation analyses
- wide range of different chemical analyses
- microbiological analysis
- analysis of air samples
- chemical analysis of soil samples



# Department of Water and Soil Research



- geotechnical soil properties
- soil sampling
- soil and ground water research
- groundwater and wastewater monitoring
- expert opinions on polluted areas
- remediation of polluted soils



# Fuel Quality Department

- Responsible for Estonian Fuel Quality Management System
- Performance of national fuel quality monitoring programme in compliance with EC legislation
- Fuel Quality reporting to the European Commission
- National fuel quality laboratory



# Fuel Quality Department

- Fuel analyses for the Customs, Environmental Inspectorate and other national agencies
- All test methods according to EN 228 (petrol), EN 590 (diesel fuel), EN 14214 (biodiesel fuel) and many more available
- Fuel Lab is registered as member of FAM (German round robin tests organizing institutions)



# Customs laboratory

The EERC is the partner laboratory of the **Estonian Tax and Customs Board** and contracted to perform all the analyses required by them including fuel, food, industrial goods etc.

ESTONIAN TAX AND  
CUSTOMS BOARD



- Food product analysis
- Fuel analysis
- Chemical analysis of different products



# Air Quality Management Department



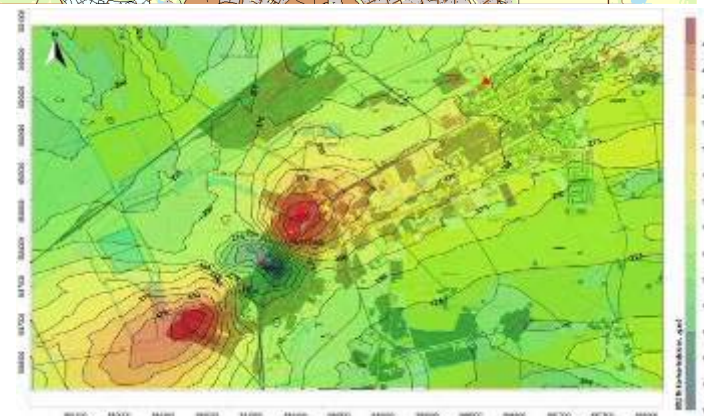
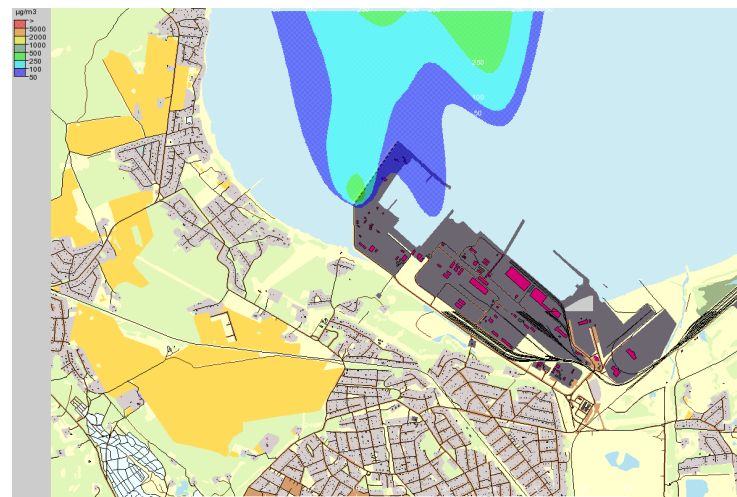
- Estonian national air quality monitoring network
- air quality management in cities and on national level;
- stationary monitoring stations for industry
- ambient air quality measurements
- emission measurements from combustion plants (gaseous pollutants, heavy metals, particulate matter, dioxins, PAHs etc.)



# Air Quality Management Department



- air emission measurements from diffuse sources (agriculture, wastewater treatment etc.)
- odour sampling;
- dynamic olfactometry;
- odour dispersion modelling;
- dispersion modelling (Gaussian, Eulerian, MATCH etc.);
- reverse Gaussian modelling;
- keeping national air emission databases.



# Air Quality Management Department – Ozone unit



- leakage testing for ozone layer depleting substances
- national reporting of the substances causing climate changes, especially F-gases
- national reporting of the ozone layer depleting substances



Letter of Formal Notice (first EC warning letter) has been sent to five Member States (among them **Estonia**) due to delays in delivering assigned amount reports required under the Kyoto Protocol. Ozone unit of EERC prepared the necessary report in three months and the ongoing infringement procedure by Luxembourg was cancelled

## New fields of activity

- **Microbiological laboratory**
  - The EERC is participating in FP6 European project “Horizontal High” to implement Sewage Sludge Directive 86/278/EEC
  - The recovery and use of sewage sludge requires chemical and microbiological research to identify the content of dangerous substances and bacteria causing diseases to prevent them from getting into the environment.
- **Co-operation with pharmaceutical industry**
  - Various analyses of medicinal preparations and products as well as quality control of chemicals

# Involvement in and coordination of EU projects



- MOBAIR ES9408
- DADAM ES9408/0201
- ENMOCAP ES 9408
- Air Accession Project ES 9805.02 /Investment
- Air Accession Twinning Project ES 98/IB/EN-01
- Development of the Estonian Fuel Quality Management System 2003/005-026.09.02

# Involvement in and coordination of EU projects



- Development of the Estonian Air Quality Management System 2002/000-579.07.01
- Technical assistance for drafting of legal acts needed to implement the air quality management system and emergency action plans to combat heavy air pollution episodes Framework Contract N° AMS/451
- Enhancing the capacity to reduce the emissions of fluorinated greenhouse gases in Estonia 2005/17360.04.01

**In 2006 EERC had investments from EuropeAid Phare projects about 93 million EEK**

# Participation in United Nations Environment Programmes



- Implementation of Estonia's Country Programme for the Phaseout of Ozone Depleting Substances
  - Institutional Strengthening (UNEP)
  - Recovery and Recycling (UNDP)
  - Regional Halons Management Bank (UNDP)
  - Train the Trainers in Refrigeration (UNEP)
- European Team and Global Team Members from Europe Regionally Based Assessment of Persistent Toxic Substances
- Regionally Based Assessment of Persistent Toxic Substances. Global Report 2003

# Participation In European Commission Fifth And Sixth Framework Programmes



- SAFEFoodNET. Chemical Food Safety Network for the enlarging Europe
- MULTI-ASSESS. Model for multi-pollutant impact and assessment of threshold levels for cultural heritage
- ELICC. Dioxins & PCBs: Environmental Levels and Human Exposure in Candidate Countries
- Project “Dioxins in Candidate Countries”.
- HEAR NAS. “Improving Environmental Health Research and Management in Newly Associated States” – RTD Programme under the Fifth Framework Programme of the European Community

# Cooperation with European and Asian Countries



UNEP/GEF Project. Assessment of Existing Capacity and Capacity Building Needs to Analyse Persistent Organic Pollutants (POPs) in Developing Countries

(The project was financed by the Global Environment Facility and implemented by UNEP through UNEP Chemicals. Co-financed of the project is through the Governments of Canada, Germany, and Japan)

# Cooperation with other European Countries



- SCALE. “Integrated Monitoring of dioxins & PCBs in the Baltic Region”
- Persistent, Bioaccumulative and Toxic Chemicals in Central and Eastern European Countries
- Inventory of Dioxin and Furan Releases in Estonia
- Passive Air Sampling Across Europe and Baltic states Campaigns
- UNEP/GEF. Regionally Based Assessment of Persistent Toxic Substances
- Towards the establishment of an obsolete POPs/Pesticides stockpile fund for Central and Eastern European Countries

# Cooperation with the JRC

Intercomparison measurements of particulate matter in Tallinn



Annual intercomparison measurements of gas analysers in Ispra since 1999



## Ongoing research projects

- INTERREG “ShipNODep” – “Impact of nitrogen emissions and deposition originating from ship traffic”
- Health impact assessment of fine particulate matter (Tallinn), co-project between EERC and University of Tartu
- Cooperation between EERC and VTT (Finland) regarding the odour sampling and analysis by dynamic olfactometry – Nordforsk project application “ODOUR - Odour Determinations in the Nordic and Baltic countries”

**EERC is member of the European Network of Environmental Research Organisations (ENERO)**

## Possible cooperation with JRC

- Interlaboratory comparison measurements of (fine) particulate matter (both mass and number)
- Sampling, analysis and identification of toxic chemicals originating from forest fires
- Chemical analysis of the food products in respect of heavy metals, PCBs, dioxins etc.
- Emission measurements of the fine primary particulate matter from small-scale combustion
- the development and validation of air quality monitoring methods and assessing exposure of air pollutants to population (indoor and outdoor air)

Estonian Environmental Research Centre



**Thank you for your attention!**

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