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# Official statistics as data sources for national greenhouse gas inventories - classification issues and quality requirements

International Conference on Climate Change
and Official Statistics,
14-16 April 2008, Oslo, Norway

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# National greenhouse gas inventories

- **Reporting requirements**
- Submissions to
  - UNFCCC, Kyoto Protocol by 15 April each year
  - EC Commission by 15 January preliminary data, 15 March final data -- additional information on indicators
    - strict timelines -- 6 weeks delay ==> loss of eligibility to use Kyoto Mechanisms
    - strict reporting format (Common Reporting Format (CRF) tables, National Inventory Report NIR)
    - strict requirements on methodologies: IPCC guidelines and good practice guidance, which include requirements on QA/QC, uncertainty estimation, etc.

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# National greenhouse gas inventories

- **Legal, institutional and procedural requirements**:
  - National systems under Article 5, para 2 of the Kyoto Protocol (Guidelines, Decision 19/CMP.1)
    - to ensure capacity (resources, competence) for timely performance meeting the reporting requirements (Art. 7)
    - mandatory - reviewed in the context of the Initial report under the Kyoto Protocol
  - Quality management - continuous improvement; tiered approach; certain QC/QA measures mandatory (IPCC Tier 1)
- **UN Fundamental Principles of Official Statistics and European Statistics Code of Practice** :
  - aim largely to the same goal; differences in scope, detail and terminology

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# National greenhouse gas inventories

- **General requirements/inventory principles**
  - **transparency** (CRF tables, National Inventory Report)
  - **consistency** (time series - recalculations; consistency among sectors/categories)
  - **comparability** (among Parties of the UNFCCC)
  - **completeness**
  - **accuracy** (no systematic over/underestimation; uncertainties reduced as far as practicable)

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# Finland's National System

- Statistics Finland - national entity with overall responsibility since 2005
  - Statistics Act: access to administrative data
  - established procedures for data processing incl. confidentiality, verification and validation of data
  - Greenhouse Gas (GHG) inventories in Finland since early 1990s - current system more resources and expertise, more formalised system (detailed agreements and protocols on responsibilities)

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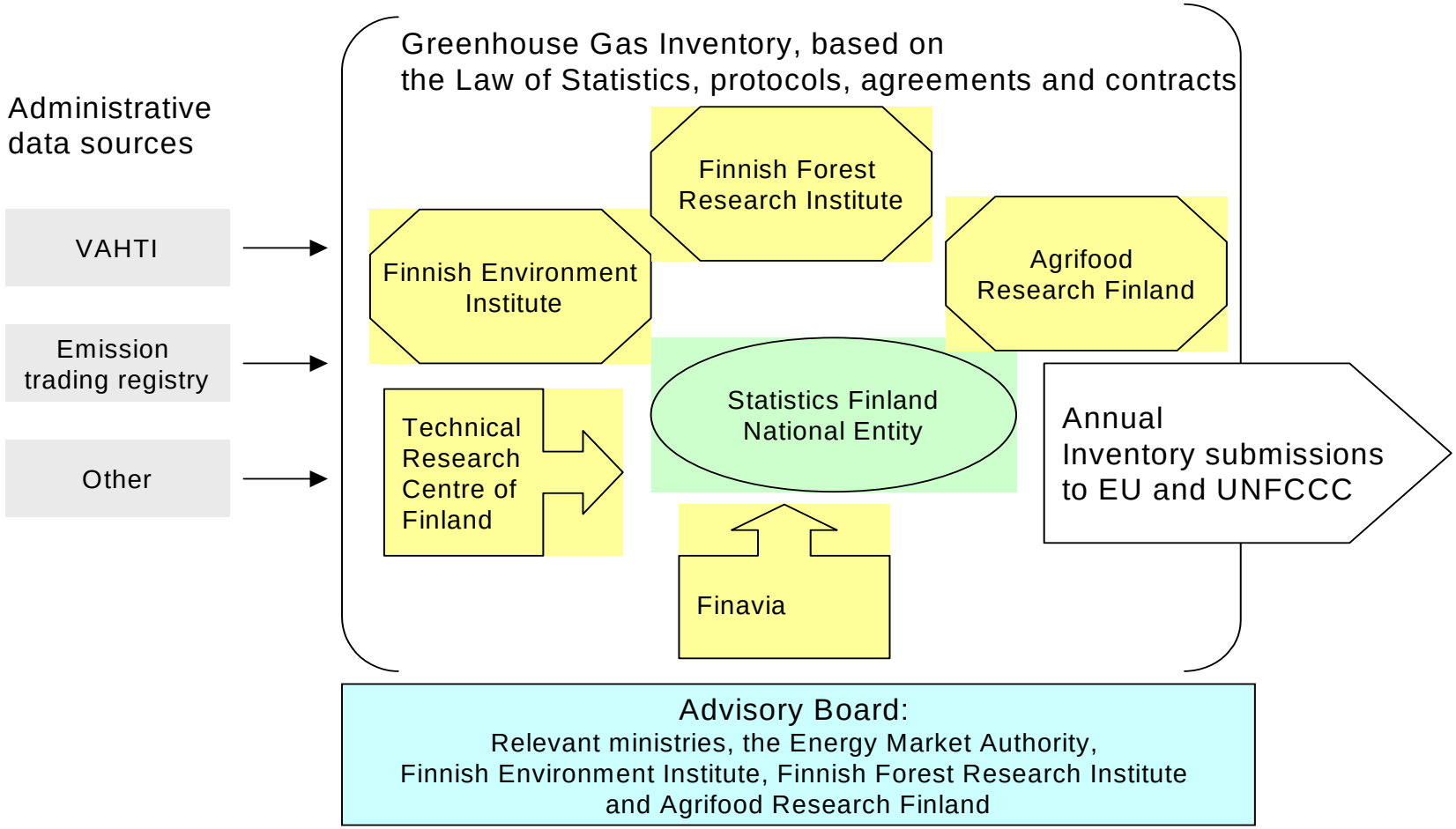
# Finland's National System



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# Inventory protocols and responsible organisations

| List of protocols | Responsible organisation |
|---|---|
| A. Stationary sources (fuel combustion in point sources, such as power plants, heating boilers, industrial combustion plants and processes) | A. Statistics Finland |
| B. Mobile sources (transport and off road machinery) | B. Technical Research Centre of Finland (VTT), aviation data - Finavia |
| C. Other fuel combustion (agriculture, households, services, public sector, etc.) | C. Statistics Finland |
| D. Fugitive emissions from energy production and distribution | D. Statistics Finland |
| E. Emissions from industrial processes | E. Statistics Finland |
| F. Emissions of F-gases | F. Finnish Environment Institute |
| G. Non-methane volatile organic compounds (NMVOC) | G. Finnish Environment Institute |
| H. Emissions from agriculture (non-combustion emissions) | H. Agrifood Research Finland (MTT) |
| I. Emissions from land use and land use change | I. Finnish Forest Research Institute, Agrifood Research Finland |
| J. Emissions from waste treatment | J. Finnish Environment Institute |
| K. Other emissions | K. Statistics Finland |

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# Finland's GHG Inventory - Data collection

- Relying mainly on data from the existing statistical system
  - much of the data register-based - several registers, which complement each other, but are not always consistent
    - no gaps allowed in the inventory; EU - gap filling procedure; Kyoto Protocol -adjustments)
    - no overlaps or double-counting of the emissions allowed
    - ensuring completeness and consistency can be resource consuming (e.g. land-use data in Finland)
  - data on F-gases, some industrial processes and peat production areas collected with direct queries (efforts to reduce the burden on data providers)

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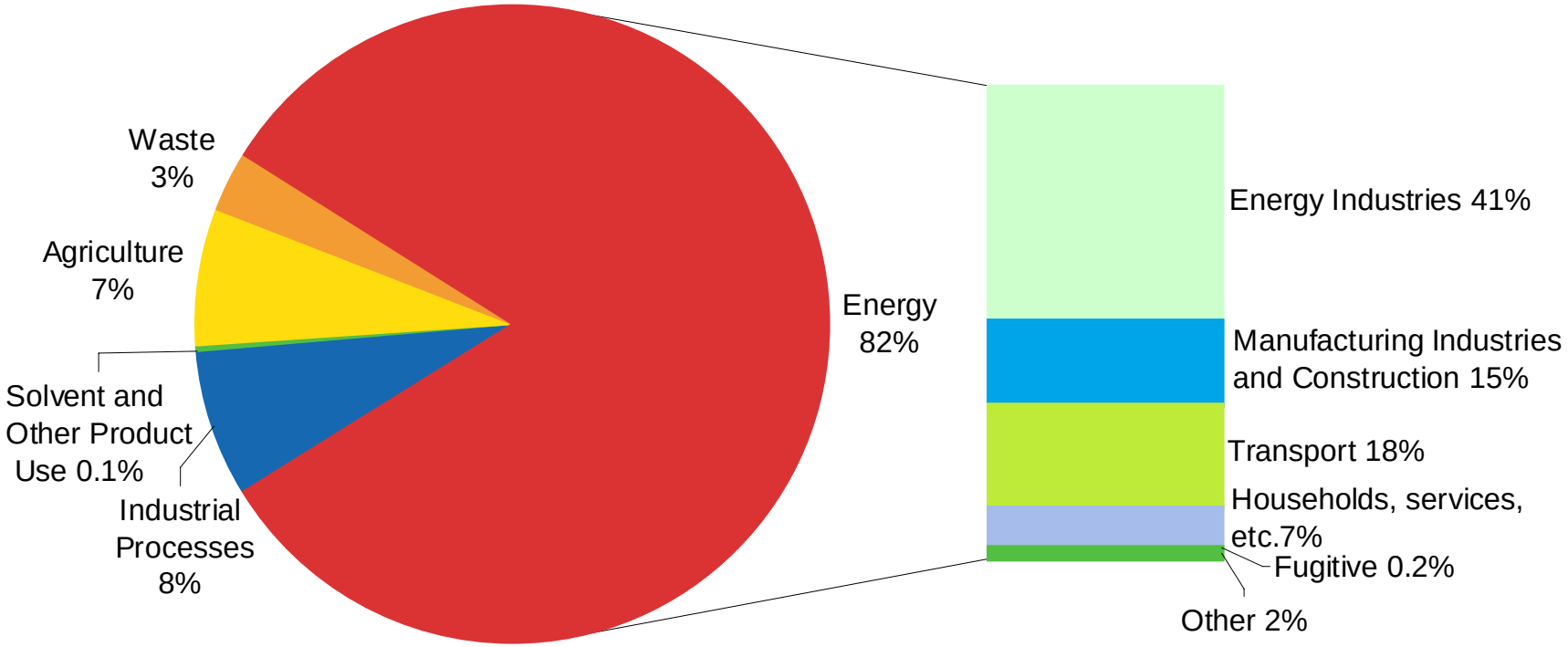
# Finland’s GHG inventory



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# Finland's GHG Inventory - specific issues on data collection by sectors

- **Energy:** GHG inventory, air pollutant inventory (CLRTAP), energy statistics, EU emission trading scheme (ETS)
  - three organisations -- efforts to reduce overlapping work and to ensure consistency in the outcomes
    - the same fuel classification used by all
    - EU ETS collects data by company or establishment - GHG and CLRTAP inventories by loading point (boiler, process, stack, etc.)
    - confidentiality
    - validation and verification of data

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# Finland's GHG Inventory - specific issues on data collection by sectors

- **Industrial Processes:**
  - the CRF does not follow ISIC/NACE classifications
    - difficult if not impossible to combine data over sectors by branch of industry
  - transparency and comparability vs. confidentiality: plant-specific data cannot be disclosed; less than three companies require grouping of data - calculation of emissions require detailed data
    - reviews - specific modalities for disclosure of confidential data

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# Finland's GHG Inventory - specific issues on data collection by sectors

- **Agriculture**:
  - national statistics give a good basis for the inventory
  - additional data needed on manure treatment (by climate zone), soil data (soil type, management by crop, location) -- 2006 IPCC guidelines will enhance the data needs
    - at present these data are based on research studies, expert opinion etc; the studies are resource consuming and often not representative on national scale
  - Agricultural statistics and GHG inventory: more interaction and collaboration needed

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# Finland's GHG Inventory - specific issues on data collection by sectors

- **Waste**: uncertainties in the estimates large
  - EU Regulation on Waste Statistics (EC 2150/2002) and the classification system (EWC) have improved the activity data for GHG inventory
    - classification - EWC
      - national improvements - e.g., data collection on composting
    - timing
      - waste statistics available too late for use in national inventory

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# Finland's GHG Inventory - specific issues on data collection by sectors

- **Land Use, Land-Use Change and Forestry**
  - National Forestry Inventory (NFI) - most important data source
    - definitions and land-use classification required by the Kyoto Protocol (based on land cover) differ from those used nationally (based on productivity of forests) and those reported to FAO (land cover and land use)
    - land-use change data -- not collected systematically
  - Kyoto Protocol
    - reporting of geographical location of boundaries of the units of land

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# Current data needs and the role of statistics

- Transparency
  - definitions, coverage and completeness of data
- Consistency
  - time series: indication and information on methodological changes
  - among sectors -- coherence of statistical information and between various reporting systems
- Comparability
  - among countries -- also relating to activity data, harmonisation of definitions, classifications  to the extent possible
  - regulations and other agreements help

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# Current data needs and the role of statistics

- Completeness
  - trade-offs with efficient use of resources, cost-effectiveness
  - significant sources, key categories - the focus
- Accuracy
  - methodological improvements -- data needs; sophisticated models will not provide accurate inventory data unless the data collection meets their needs
- Timeliness
- Dialogue and increased collaboration -- the key issue

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# Future reporting on CC

- UNFCCC and Kyoto Protocol
  - negotiations for future commitment periods ongoing
  - framework, structure of commitments may change
    - sectoral commitments -- enhanced need of data by ISIC/NACE classification
  - current inventory structure likely to continue (need for simplification?)

  - participation of international statistical community?
  - national GHG inventory => official GHG statistics?

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# Future input from national statistics to CC

- Need for additional information
  - sectoral data: indicators to measure performance of abatement measures (comparability of the data)
  - avoided deforestation (remote sensing data, harmonisation of forest inventory methods)

- Importance of dialogue with official statistics and other data providers -- costs, comparability, transparency

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# Thank you!

More information on Statistics Finland and the Finnish National Greenhouse Gas Inventory System at

www.stat.fi and

www.stat.fi/greenhousegases