

## Organisation of environmental statistics and accounting in Finland

## Co-operation and data flows between the National Statistical Office and the Ministry of the Environment in Finland

**Activity A.12: Methodology on environmental accounting  
with emphasis on air and waste accounts  
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## Statistical systems, United Nation framework

- **Social Statistics**

- **Environment statistics (FDES)**

Environmental-economic accounting (SEEA)

- **Economic statistics**

## Components of the FDES by the United Nations

- Environmental Conditions and Quality
- Environmental Resources and **their Use**
- **Emissions, Residuals and Waste**
- Disasters and Extreme Events
- Human Habitat and Environmental Health
- **Environment Protection, Management and Engagement**

# Framework for the Development of Environment Statistics (FDES) 2013

**Table 2.2: Components and Sub-components of the FDES**

## **1: Environmental Conditions and Quality**

- 1.1: Physical Conditions
- 1.2: Land Cover, Ecosystems and Biodiversity
- 1.3: Environmental Quality

## **2: Environmental Resources and their Use**

- 2.1: Non-energy Mineral Resources
- 2.2: Energy Resources
- 2.3: Land
- 2.4: Soil Resources
- 2.5: Biological Resources
- 2.6: Water Resources

## **3: Residuals**

- 3.1: Emissions to Air
- 3.2: Generation and Management of Wastewater
- 3.3: Generation and Management of Waste

## **4: Extreme Events and Disasters**

- 4.1: Natural Extreme Events and Disasters
- 4.2: Technological Disasters

## **5: Human Settlements and Environmental Health**

- 5.1: Human Settlements
- 5.2: Environmental Health

## **6: Environment Protection, Management and Engagement**

- 6.1: Environment Protection and Resource Management Expenditure
- 6.2: Environmental Governance and Regulation
- 6.3: Extreme Event Preparedness and Disaster Management
- 6.4: Environmental Information and Awareness

## DPSIR-chain by the OECD

- **Driving force (D)** – e.g. economic growth –
- **Pressure (P)** – increased use of energy, increased emissions –
- **State (S)** – decreased air quality –
- **Impact (I)** – to human health, to biodiversity –
- **Response (R)** – environmental taxes on fuels

## Data sources for environmental statistics

- Administrative records (government agencies in charge of natural resources)
- Statistical censuses (population, housing, agriculture, businesses)
- Statistical surveys (households, employment, environment management)
- Monitoring systems (water quality, air pollution, climate, soils, and so on)
- Remote sensing (e.g. satellite imaging of land use and cover)
- Estimates and modeling (e.g. estimation by regression, extrapolation etc.)
- Scientific research (e.g. biological assays, CO<sub>2</sub> concentration)
- Projects and special studies undertaken for domestic or international demand

# Organisation at Statistics Finland

## Before 2013

- Environmental statistics in Social Statistics
- Environmental accounting in Economic Statistics
- Energy statistics in Business Statistics
- Environment statistics, environmental accounting and energy statistics in Business Statistics 1997 - 2012

## Currently

- In Economic and Environmental Statistics
  - Environment and Energy
    - Environmental accounting
    - Energy statistics
  - Greenhouse gas inventory since 2005

## Current Environmental Accounts

- Environmental expenditures by industry
- Environmental expenditures by public sector
- Environmental taxes by tax type and by branches of industry
- Statistics on the environmental goods and services sector
- Economy-wide material flow accounts
- Air emissions by industry
- Forest accounts
- Pilot study on energy accounts (physical supply-use table for energy)
- Many pilot studies since 1980's



## Current environmental statistics

- Environmental Statistics Yearbook
  - Statistics and data from other organisations than Stat.Fi
- Waste statistics (EU regulation)
  - Agreement between Statistics Finland and Finnish Environment Institute
- Coordination of environmental and natural resource statistics outside Statistics Finland
  - Ministries of Environment, Agriculture and Forestry, and Employment and the Economy

## Current energy statistics

- Quarterly energy prices
  - Quarterly energy supply and consumption
  - Energy use in manufacturing
  - Production of electricity and heat
  - Consumption of hard coal
  - Energy balances
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- EU Energy statistics regulation
  - Agreements with branch organisations etc.
  - Reporting to IEA and EU

## National Greenhouse Gas Inventory

- The Kyoto Protocol identifies the National System of Greenhouse Gas Inventory.
- In addition to the annual calculations, the system is used to produce estimates about the actual effects of the climate policy and forecasts for future development.
- Agreements between the inventory unit and expert organisations
- Quality management.
- Communication with the UNFCCC, co-ordination of participation in reviews

## Integrated data system

- The system contains all unit level data of our own surveys and unit level data imported from other organisations
- Tools to manage the surveys, to edit the data, to analyse the results and to tabulate the reports
- Waste statistics, environmental accounting, energy statistics and greenhouse gas inventory use the system
- Need to integrate some additional data by economic activity (NACE) to the system

## Main environmental statistics of other authorities

### State of the environment

- State of water resources:  
Finnish Environment Institute
- Air quality:  
Finnish Meteorological Institute
- State of forests:  
Finnish Forest Research Institute
- Biodiversity:  
Finnish Environment Institute

### Pressures

- Air emissions from traffic:  
Technical Research Centre of Finland
- Other air emissions:  
Finnish Environment Institute
- Waste water discharges:  
Finnish Environment Institute
- Long-range transport of air pollutants:  
Finnish Meteorological Institute

## Main environmental statistics of other authorities

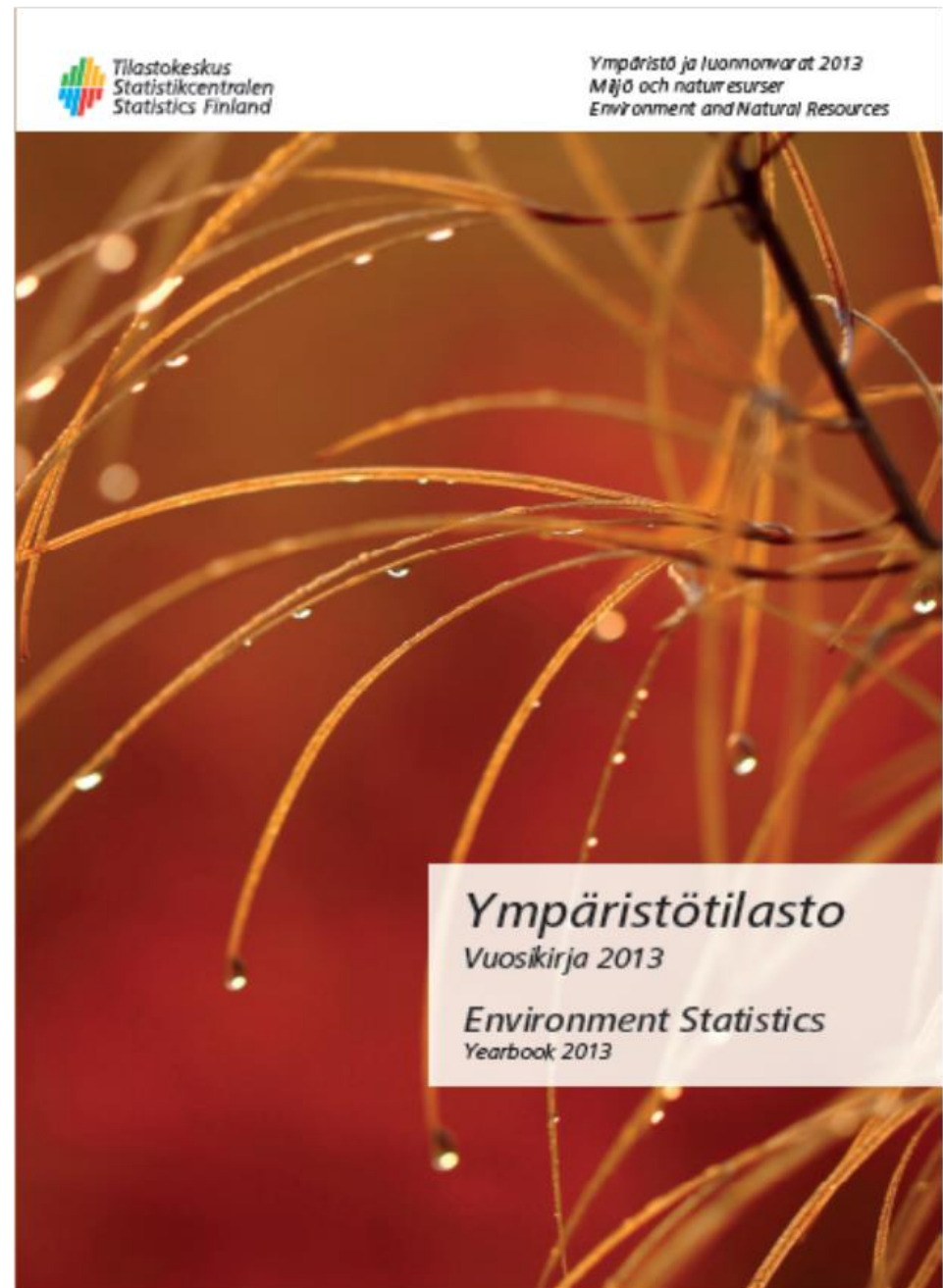
### Information on renewable natural resources

- Forest resources:  
Finnish Forest Research Institute
- Water resources:  
Finnish Environment Institute
- Fish and game resources:  
Finnish Game and Fisheries  
Research Institute

### Information on non-renewable natural resources

- Mineral resources:  
Geological Survey of Finland
- Land resources:  
National Land Survey of Finland  
Ministry of the Environment  
Finnish Environment Institute

...and  
all main  
environmental  
statistics  
presented in:

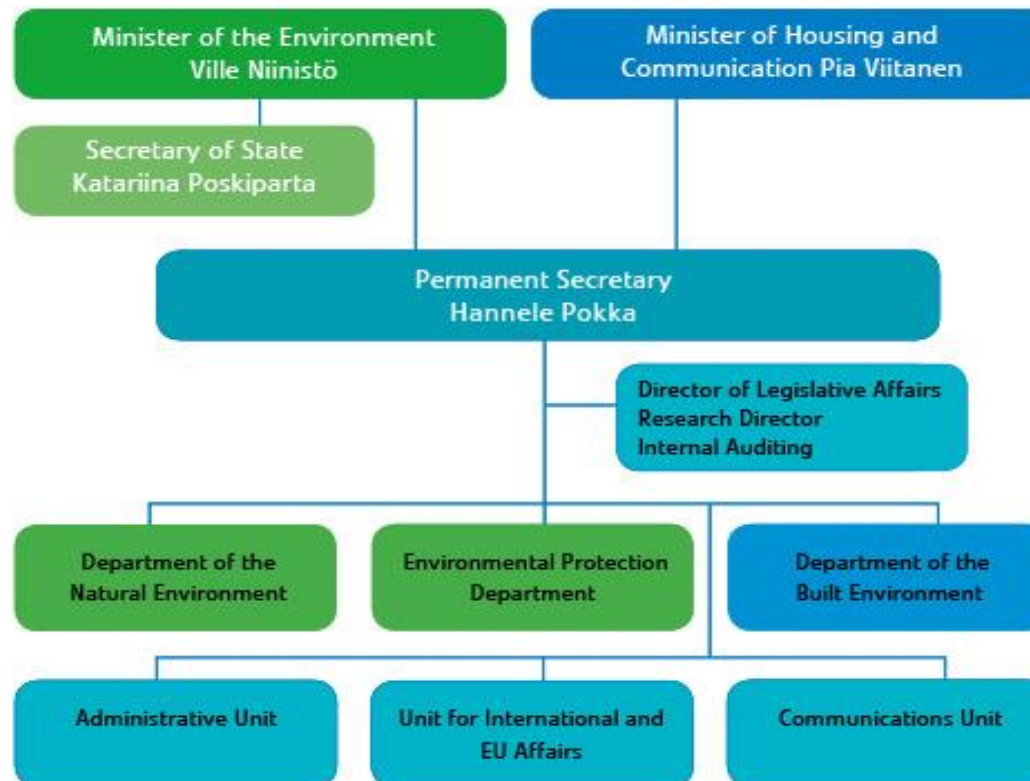


## Summary

- Statistics Finland focuses on environmental statistics and accounts describing pressures, responses and driving forces
- Statistics on natural resources and state of the environment are compiled mainly by research institutes close to the government
- Co-operation between Statistics Finland, ministries and research institutes is regular and well organized
- Co-operation is a key to effective use of all possible data sources of environmental statistics



# Ministry of the Environment (MoE) Organisation



## Environmental Protection Department of the MoE

- **air pollution abatement and climate change**
- **waste issues**
- prevention of environmental risks from chemicals etc.
- soil contamination
- **prevention of and compensation for environmental damage**
- **environmental economics and environmental technology**
- **sustainable consumption and production**
- coordinates sustainable development issues within the ministry's administrative sector.
- Divisions:  
Climate Change, Sustainable Materials Economy, Integrated Environmental Protection, Environmental Risks, Support services

## **Finnish Environment Institute (SYKE)**

### ■ FRESHWATER CENTRE

- WATER RESOURCES, MANAGEMENT, MONITORING AND ASSESSMENT, MODELLING AND ASSESSMENT, MARINE POLLUTION RESPONSE

### ■ MARINE RESEARCH CENTRE

- MODELLING AND INNOVATIONS, STATE OF THE MARINE ENVIRONMENT, MARINE SPATIAL PLANNING, RESEARCH VESSELS

### ■ NATURAL ENVIRONMENT CENTRE

- BIODIVERSITY, ECOSYSTEM CHANGE

### ■ **CENTRE FOR SUSTAINABLE CONSUMPTION AND PRODUCTION**

- ENVIRONMENTAL PERFORMANCE , WASTE AND EFFLUENT, CONTAMINANTS

### ■ ENVIRONMENTAL POLICY CENTRE

- ENVIRONMENTAL GOVERNANCE STUDIES, BUILT ENVIRONMENT

### ■ LABORATORY CENTRE

- REFERENCE LABORATORY, ENVIRONMENT MEASUREMENT AND TESTING LABORATORY, RESEARCH AND INNOVATION LABORATORY

### ■ CLIMATE CHANGE PROGRAMME, ADMINISTRATIVE SERVICES, COMMUNICATIONS, INTERNATIONAL AFFAIRS UNIT, DATA AND INFORMATION CENTRE

## **Centres for Economic Development, Transport and the Environment (ELY Centres)**

- Responsible for the regional implementation and development tasks of the central government.
- Finland has a total of 15 ELY Centres, which are tasked with promoting regional competitiveness, well-being and sustainable development and curbing climate change.
- ELY Centres have three areas of responsibility:
  - Business and industry, labour force, competence, cultural activities
  - Transport and infrastructure
  - **Environment and natural resources**

# Organisation of the Eurostat

## Eurostat Directorates

- Cooperation in the European Statistical System; international cooperation; resources
- Corporate statistical and IT services
- National accounts, prices and key indicators
- Government finance statistics
- **Sectoral and regional statistics**
- Social statistics
- Global business statistics

## Sectoral and regional statistics

- E1: Agriculture and fisheries
- E2: Environmental accounts and climate change
- E3: Environment and forestry
- E4: Regional statistics and geographical information
- E5: Energy
- E6: Transport