



**NLS**  
NATIONAL  
LAND SURVEY  
OF FINLAND

# Helping Build Sustainability – for both Natural and Man-Made Environment

**Joint PCC and EG CLR KEN Conference**  
**Prague, 22-23 November, 2022**

**22 November, 2022**

**Pekka Halme**

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# Inclusive and competent Finland – a socially, economically and ecologically sustainable society

Current government's programme (Dec 2019)

- Finland is carbon neutral by 2035 and carbon negative soon after.
- Electricity and heat production in Finland must be made nearly emissions-free by the end of the 2030s.

Land use

Land-use sector is both a significant carbon sink and a source of CO<sub>2</sub> emissions



# SDGs to Which the NLS Can Contribute the Most

Strategy exercise summer 2019



# Responsibility for the Earth – NLS's sustainability programme

<https://www.maanmittauslaitos.fi/en/sustainability/development-of-sustainability>

## Sustainable environment

- Reduce the carbon footprint of our operations.
- Produce knowledge and research to be used to slow climate change and promote biodiversity.
  - Produce new research data aiming to diversify forestry industries, promote the impact forests have ..., and protect biodiversity. (2022)
  - Improved real estate structure, reduces the carbon footprint of agriculture and forestry, enable development of biodiversity and increase traffic safety in a region. (2022)
  - In land consolidations we reserve areas for Peltopankki (Field Bank) pilot that are suitable for founding wetlands and safeguarding biodiversity. (2023)

# Responsibility for the Earth - NLS's sustainability programme

## Data to serve society (2022)

- We provide information, research results and innovations as extensively as possible for others to use and develop further.
- We develop our datasets and services in cooperation with our customers and partners.
  - We promote the following long-term goal in the Mammutti and LaserVesi projects. The basic geographical data we produce is used in society, e.g., in research and as a basis for various datasets.

# Cadastral and Land Register

Cadastral and Land Register contain

- no environmental information
- no building information
- little land use planning information

Added value when used with other databases like

- topographic and land use data
- soil data
- forest data
- water data

# Tracking Land Use Changes - Project Mammutti

Jointly by Finnish Environment Institute, **NLS**, Natural Resources Institute Finland, Finnish Food Authority, Finnish Forest Centre

- Improve the knowledge base describing land use and its changes
  - planning, decision-making, and reporting
- Create a common operating model for organisations producing land use information that enables regular monitoring of land use and its changes
- Develop data products on four themes
  - forests, peatlands and wetlands, agricultural land, and built-up and urban areas.



# Creating Resilience – Project LaserVesi

- How dense laser scanning data can be utilised to meet the many demands of the society.
  - In urban areas data for handling the stormwater and how to adapt to climate change.
  - Demand for accurate data on where impermeable and permeable surfaces are located.
- How to map ditches in forestlands as automatedly as possible.
  - High quality topographic data on ditches play a central role e.g. in water protection, forestry in peatlands, preservation of diversity of swamp ecosystems and calculating carbon balance of peatlands.



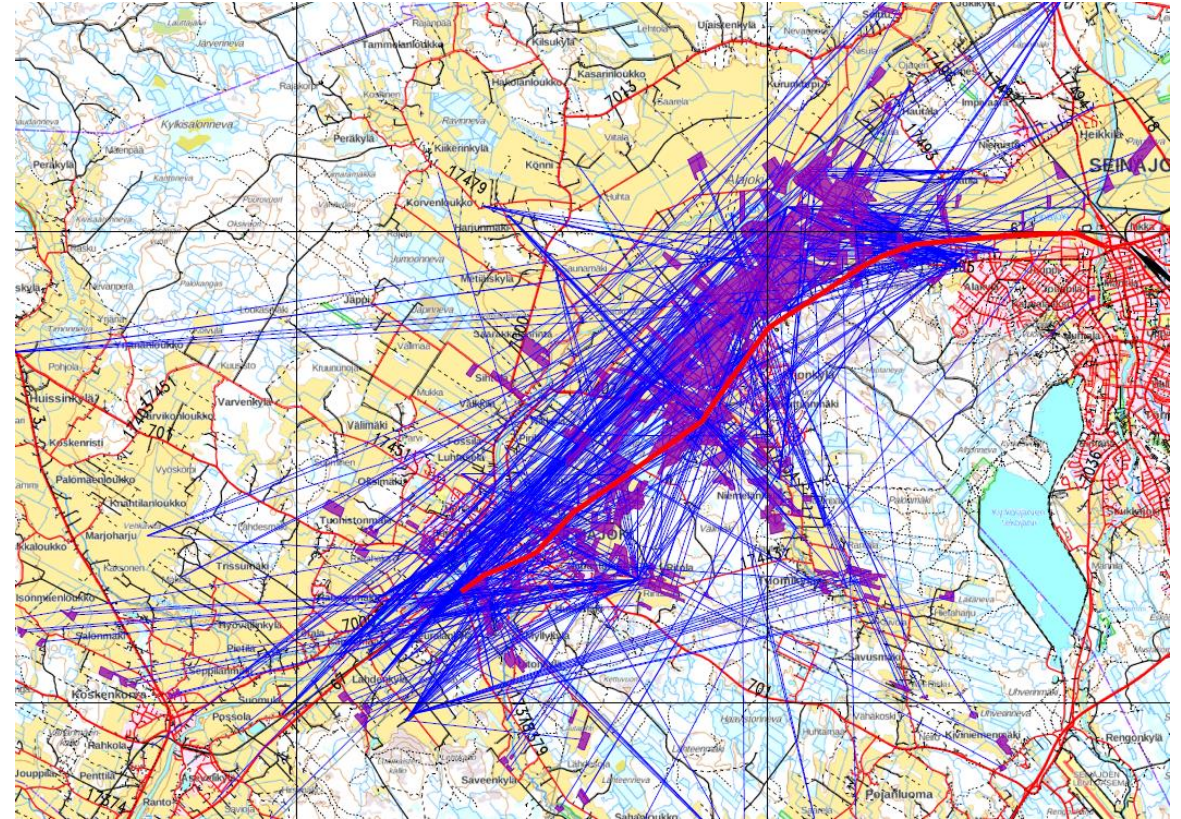
# Finding Land Use Plans - Project VOOKA

Part of development of a new national data system for built-up areas

- Nation-wide index map on valid land-use plans (vector) with links to actual maps and documentation (raster).
- Renew management, handling and utilisation of data of built-up areas.
  - national data model, interoperability
- 2022 a pilot and by end of 2028 all data uploaded
- Coordinated by Finnish Environment Institute and funded by MoE.
  - municipalities, Association of Finnish Municipalities,
  - MoE, **NLS** and Centres for Economic Development, Transport and the Environment

# Multiple Effects of Land Consolidation

- Decreasing production costs of farms but also
- projects that affect e.g.
  - carbon emissions
  - traffic safety
  - vitality of the region
- The benefits to the farmers, society and environment come hand in hand.



Straight-line distances from farm centres to their fields. You need to use the main road with an average daily traffic of 10 000 vehicles.

# Infrastructures Under Ground

- Data on underground infrastructures available from municipal information services and e.g., from the company Suomen Erillisverkot Oy.  
<https://www.erillisverkot.fi/en/>.
- Data on communication networks available in the Traficom (The Finnish Transport and Communications Agency) website.
- Strong identification required. Access to a certain object/area only and limited amount of data per day.
- The utility companies typically get property data from the Cadastre and use it as reference information.



# Infrastructures above Ground

- Roads, railroads, high-voltage power lines, gas pipelines etc. are handled in legal surveys carried out by NLS
- Registered as cadastral units – either as property or use right unit
- Low-voltage power lines mostly based on agreements



# Summary

- Global threats can feel overwhelming
- We contribute by doing what we can do best
  - maintain databases and registers
  - provide data
  - do research and use technology
  - cooperate
- Let's just do it



# Advancing together

