



# Surveillance structure and inspection challenges of small water supplies in the Nordic region

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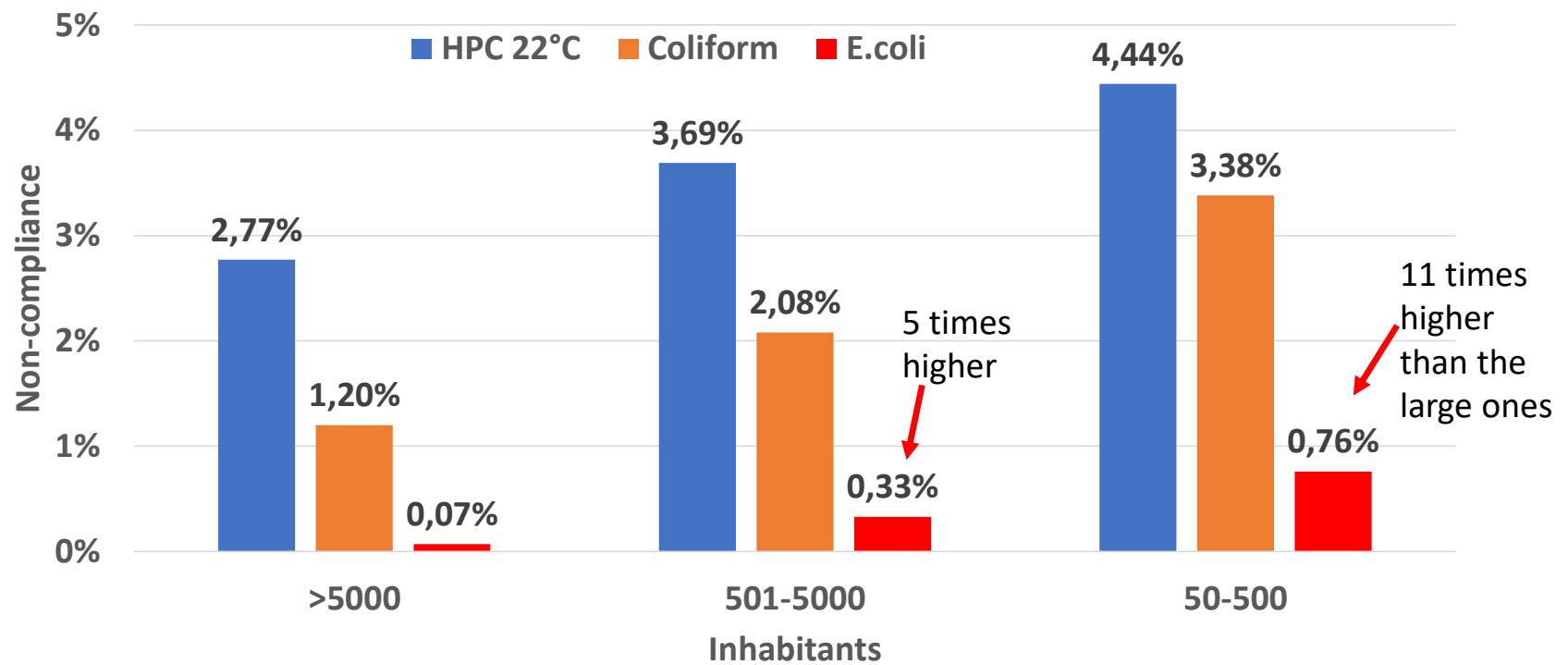
## **Nordic project: Nordic Council -NMDD Grant 2019-2025: Improving drinking water quality at small water supplies in the Nordic countries**



- **Background**
  - Non-compliance in small water supplies
  - The new EU Drinking Water Directive requirements
- **Objective of the project**
  - To improve drinking water quality in the Nordic region with emphasis on the small water supplies
- **Four work phases:**
  1. Status of risk-based approach in small water supplies – **Paper 1**.
  2. **53 interviews** with small water supplies (32), surveillance authorities and institutions (21) to gain information on various aspect of challenges and possible solution for safe water for all – **Paper 2, 4, 5, 6**.
  3. Information to the public – applying the Article 17 in the Nordic countries – **Paper 3**
  4. Short policy paper that connects the main themes and practical solution drawn from the papers published
- **Until now 43 project meetings**
  - 39 online meeting project meetings
  - 4 on-site meetings
  - Meetings with assisting PhD/MS students during interviewing process
- **In all 22 people have participated in the project**

## Why focus on small supplies?

Non-compliance in microbes in Nordic regulated water supplies according to size



Reference: Gunnarsdottir, M.J., Persson, K.M., Andradottir, H.O. and Gardarsson, S.M. (2017). Status of small water supplies in the Nordic countries: Characteristics, water quality and challenges. International Journal of Hygiene and Environmental Health. 220 (8), 1309-1317. <https://doi.org/10.1016/j.ijheh.2017.08.006>

# New EU Drinking Water Directive 2020/2184

Entered into force 12 January 2021

## Five main changes

1. Risk base approach in water supplies
2. Increased information to the public
3. New and revised parameters
4. Increased sampling frequency for small supplies
5. Material in contact with water
6. Water for all before 2030 to fulfil SDG no.6

See directive: <https://eur-lex.europa.eu/eli/dir/2020/2184/oj>

# Publications in the project



- 1. Status of risk-based approach and national framework for safe drinking water in small water supplies of the Nordic water sector.** IJHEH 2020.
- 2. Implementing risk-based approaches to improve drinking water quality in small water supplies in the Nordic region - barriers and solutions,** Journal of Water and Health 2023.
- 3. Water quality for citizen confidence: The implementation process of 2020 EU Drinking Water Directive in Nordic countries,** Water Policy 2024
- 4. Small water supplies in Nordic countries: climate change effects, risks and contingency planning.** Journal of Water and Health 2025.
- 5. Lessons from Covid-19 effects on small Nordic water supplies: future resilience and vulnerability.** In review.
- 6. Surveillance and inspection structure and challenges of small water supplies in the Nordic region.** In draft
- 7. Resilient drinking water in small Nordic supplies: Risk-based management, climate adaption and surveillance reform.** Short policy paper/Essay in draft

## Nordic drinking water sector

- 8 Nordic countries
  - Åland, Denmark, Faroe Islands, Finland, Greenland, Iceland, Norway and Sweden
- 27 million inhabitants
- 16500 **regulated** water supplies serving 91% of the population whereof:
  - 20% (3300) are large supplies serving 83% of the population (22,4 million)
  - 80% (13200) are small supplies (<500 consumers) serving 8% of the population (2,2 million)
- Large number of very small **unregulated** water supplies serving single or few households and 9% of the population (2,4 million)
- There are 1165 municipalities and 790 surveillance units in the Nordic countries



The Nordic flags



Denmark



Greenland



Norway



Sweden



Iceland



Finland



Faroe Islands



Åland

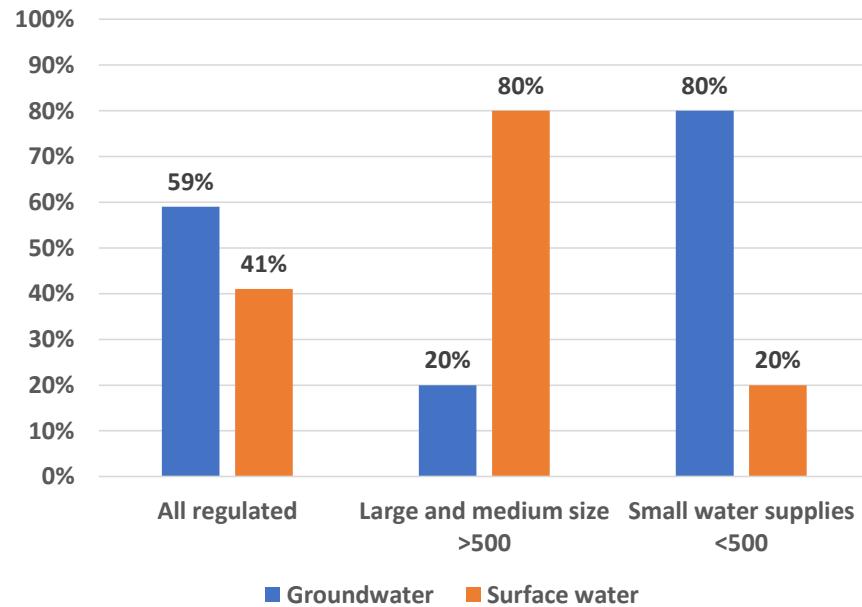


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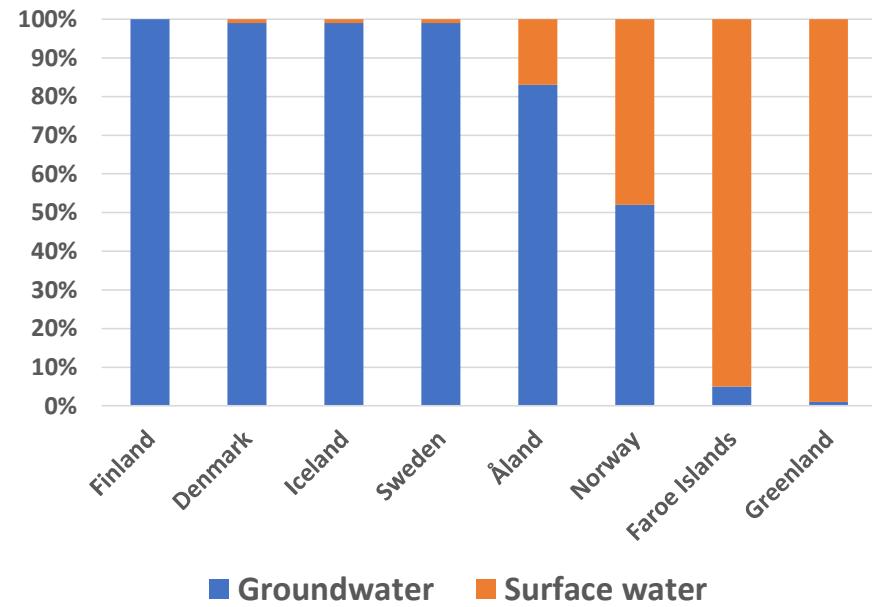
# Water harnessing for the 16500 regulated water supplies in the Nordic region



All regulated, large and small supplies



Small water supplies in each country



Klöve et al, 2017



# Methods for surveillance paper

## **The aim was to**

- Map the legal framework for surveillance including role and responsibility of the authority
- Study the 53 interviews for comments on challenges and success with surveillance using qualitative research methods for coding and analyzing
- The main work is led by inspectors from each country together with the core project group

## **Inspectors in the working group**

- Åland Islands: Magnus Eriksson, inspector Åland Environmental and Health Protection Authority
- Faroe Islands: Kim Bergkvist, inspector Faroese Food and Veterinary Authority
- Finland Ville Soininen, inspector Environmental Health Authority Kalajoki
- Finland Virpi Lämsä, inspector Environmental Health Authority Kalajoki
- Greenland: Susanna Berglund, special advisor Government of Greenland
- Iceland: Þorsteinn Narfason, inspector Environment & Public Health Authority of West Iceland:
- Sweden: Daniel Stensing, inspector Public Health authority of Gotland

# National framework for surveillance - 1



## **Surveillance authority level**

- Governmental – Åland, Faroe Islands, Greenland, Norway
- Municipal – Denmark, Finland, Iceland, Sweden

## **Main governmental institute**

- Food Authority in Faroe Islands, Iceland, Norway and Sweden
- Health Authority in Åland, Finland
- Environmental Authority in Denmark and Greenland

## **Size limit for regulated and surveillance**

- Most regulated as in EU DWD  $\geq 10 \text{ m}^3/\text{day}$  / 50 people or commercial or public activity
- Some with stricter for less – Denmark and Faroe Islands if more than one household then with reduced surveillance
- Finland with special legislation for smaller supplies

# National framework for surveillance - 2



## **Duty of the inspectors according to legislation**

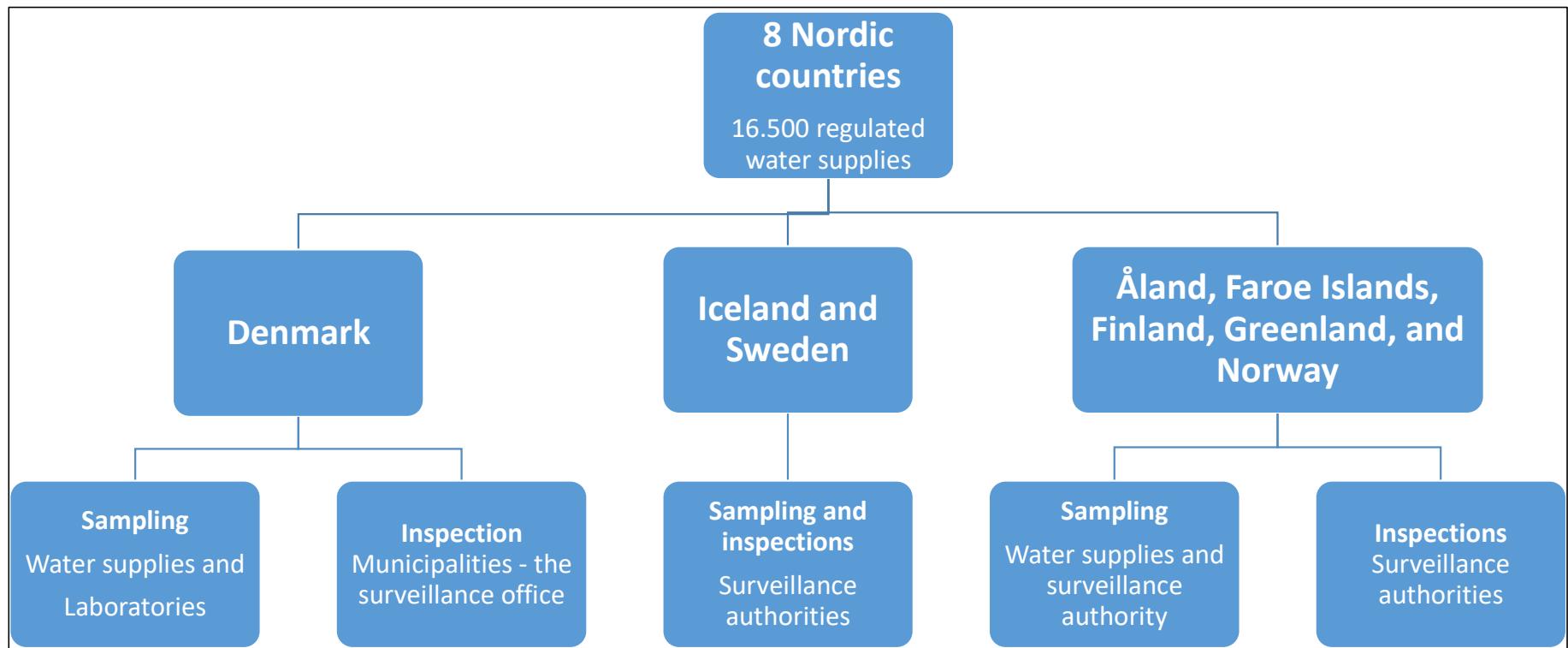
- Ensuring drinking water is wholesome and clean
- Sample at consumers tap for compliance, except Faroe Islands, Iceland sampling where available for users
- Report regularly on water quality
- Approve operational permit if under Food Act
- Responsibility that consumers are informed if health risk
- Contact the medical authority if health risk (not all)

## **Enforcement tools for inspectors in legislation**

- Right to access for inspection and sampling
- Prohibit use
- Fine
- Report to police or ask for police assistance
- Improvement at the expense of the supply



# Sampling and inspection



# Surveillance issue mentioned in the 53 interviews

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National administrative framework

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Inspection, sampling and registering lacking

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New EU DWD increases sampling in small supplies

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Lack of support as training and guidelines

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Remoteness a challenge

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Operation licence issues

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Staff issues

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Lack of communication

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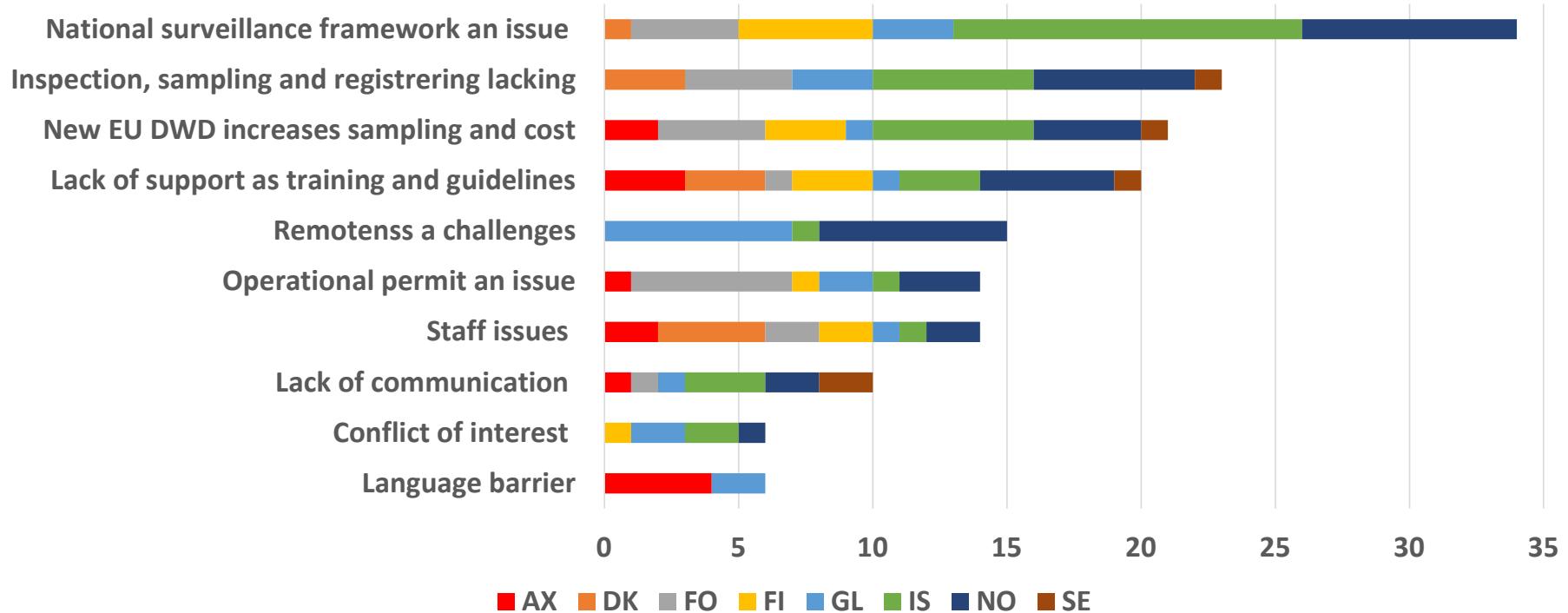
Conflict of interest

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Language barrier



# Challenges and issues in surveillance



# Challenges in surveillance appearing in the interviews



## National framework

- Not working well for small water supplies
- Divided between many ministries and when updating regulation, it concerns many laws

## Inspection, sampling and registering lacking

- Inspection sometime lacking if not done by the same
- Sampling and inspection lacking because of remoteness

## New EU DWD increases cost of sampling in small water supplies

- Åland – sampling done by accredited personnel which is expensive to get
- Iceland - it has been estimated to increase sampling cost 70%

# Challenges in surveillance appearing in the interviews



## Lack of support to the small water supplies

- Support and guidelines needed for the small supplies
- In some countries progress has been slow to issue operational permit for small water supplies

## Staff issues

- Formal training not required and available for operators
- Volunteers work as the main workforce

## Conflict of interest

- Protection of catchment of water sources was mentioned as a challenges
- Conflict between municipality and water supply on prioritizing water protection interest

# Conclusions and recommendation



- Small water supplies are the weakest link in Nordic drinking water safety
- Inspectors play a crucial yet under-resourced role in bridging the gap between regulation and local practice
- By strengthen inspectors' capacity, supporting small supplies and embracing risk-based approach the Nordic countries can ensure that all benefit equally from safe drinking water

A wide-angle photograph of a mountain range at sunset. The mountains in the background are heavily covered in snow, with the peaks catching the warm, orange glow of the setting sun. In the foreground, there is a green, grassy field with a small, dark road or path running through it. The sky is a mix of blue and orange, with some clouds. The overall atmosphere is peaceful and scenic.

Thanks