

Sanitation scoping study: Outcomes of white literature analysis and selected highlights

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Aim and objectives of the sanitation scoping study

Protocol priority 2017-2019 & 2020-2022: **Policy attention and technical efforts focus on sanitation**

Aim:

- To inventory:
 - Types of sanitation facilities, collection and treatment systems used
 - What is known about (untreated) wastewater and its fate in the environment
 - In which circumstances in the region does wastewater reuse play a role and how
- To support the identification of gaps and priorities

Objectives:

- **Exploration and mapping** of the sanitation situation and its health impacts and environmental consequences, identifying and cluster challenges in sanitation management, for the pan-European region

Through:

- White literature review for pan-European Region - [this presentation](#)
- Grey literature review with a focus on 16 countries in the region

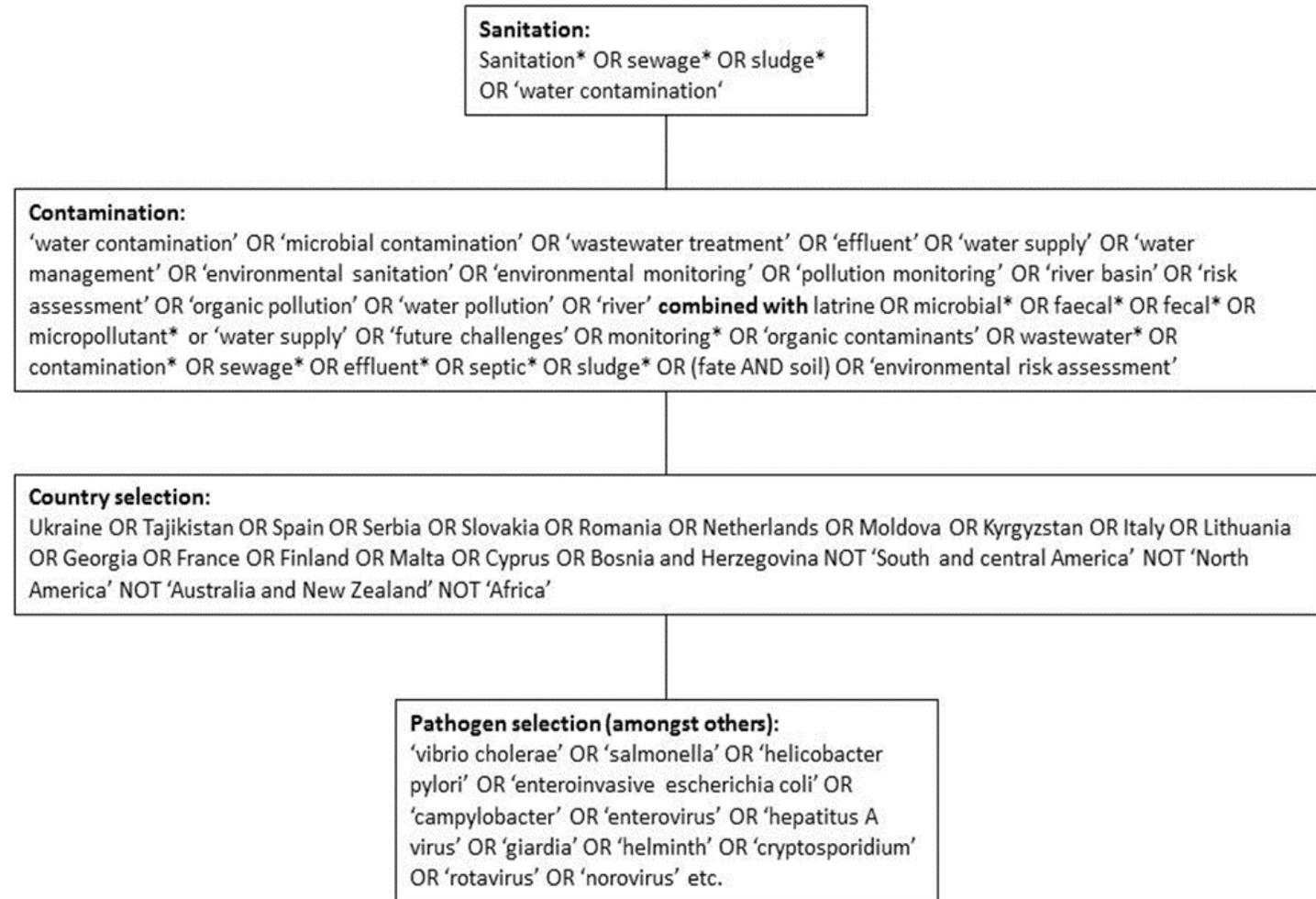


Method

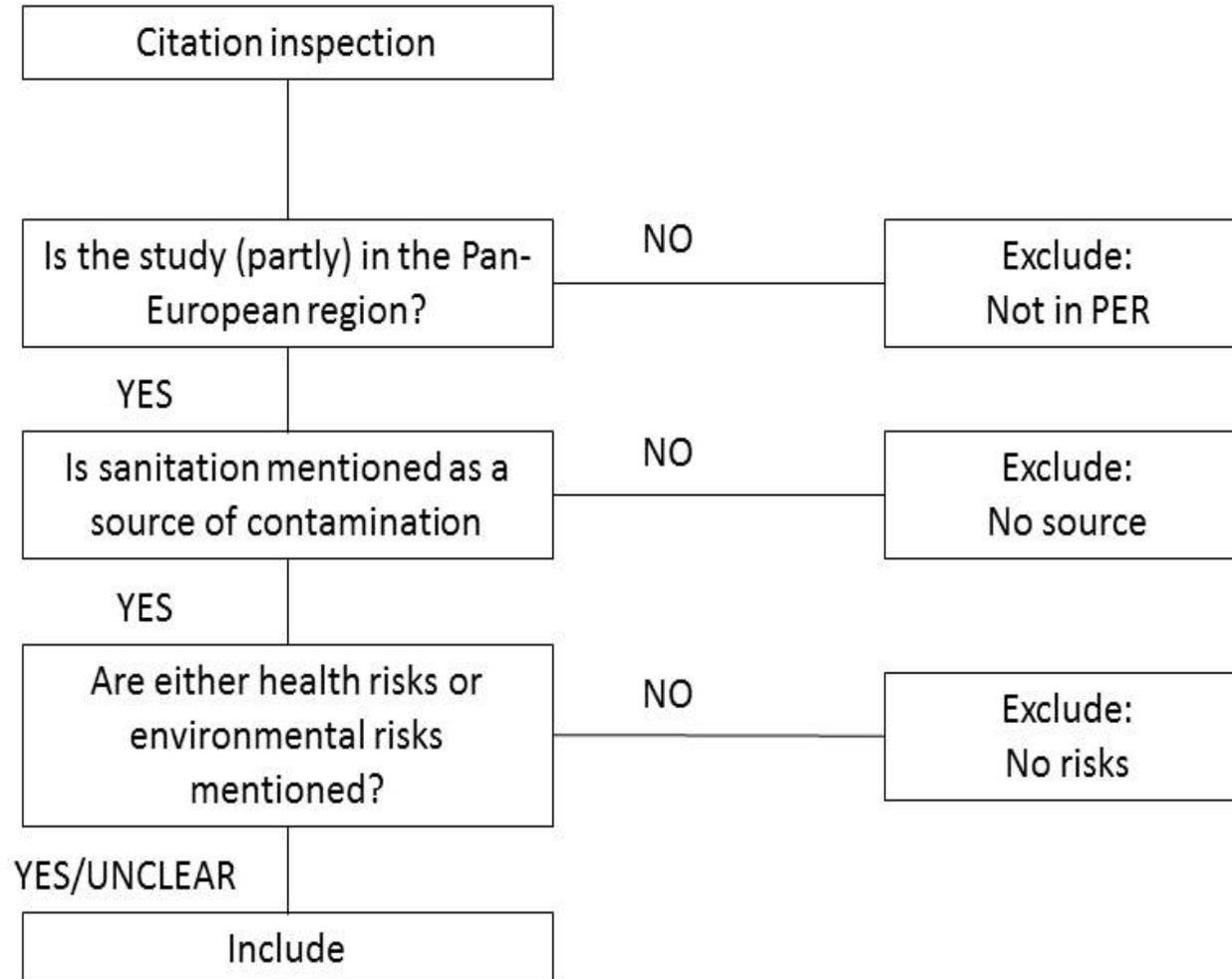
- Peer-reviewed scientific literature review
- EMBASE database keyword search in July 2018 of publications 2007-2018
- Articles in English, screened by Title, Abstract, Methods section
- Predetermined inclusion/exclusion criteria:
 - Contamination linked to sanitation practices AND
 - In the pan-European region AND
 - Mentioned human health risk and/or environmental impact/risk
- Scientific literature text mining and validation by Pattern Matching in R <https://www.r-project.org/>
- Descriptive analysis

Key word search

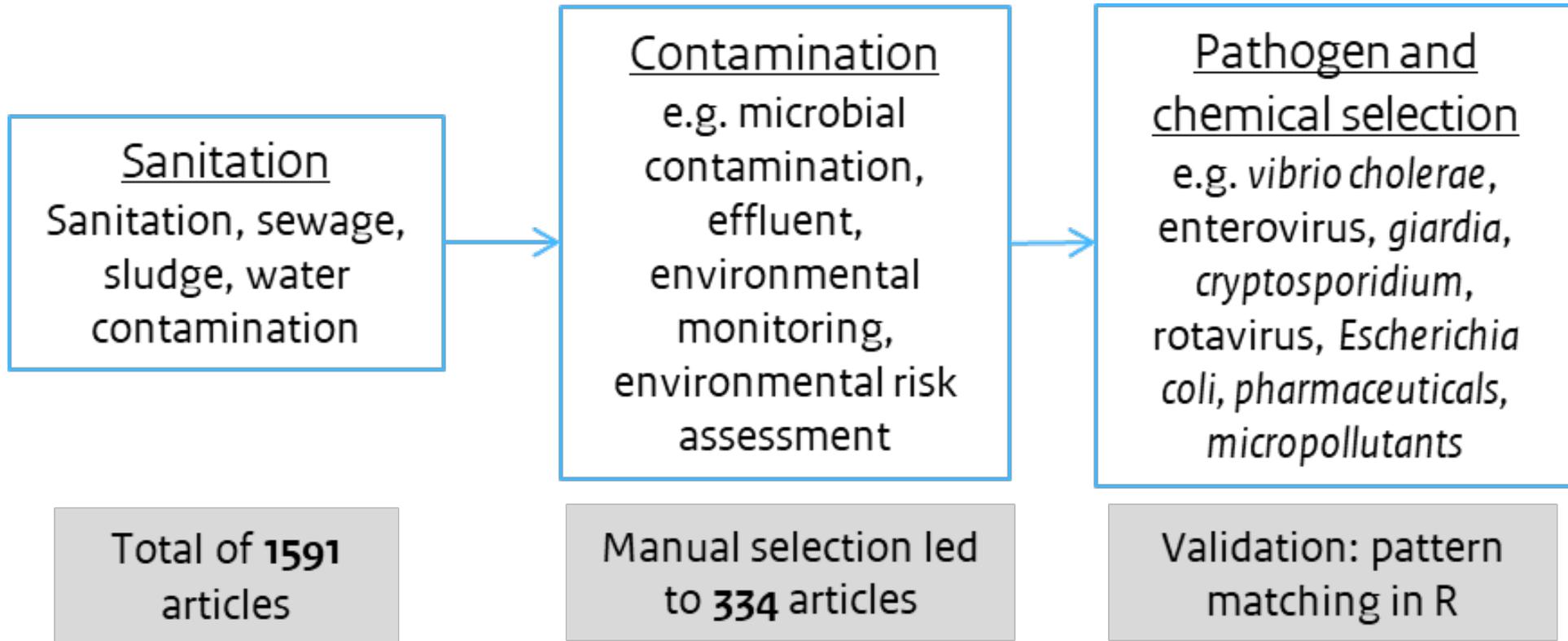
- Sanitation: **broad terms**
- Contamination: **microbial and chemical**
- Geographical selection criteria
- Refinement: **Pathogens and specific chemicals** (S&H Guidelines, Drinking water guidelines, Expert knowledge)



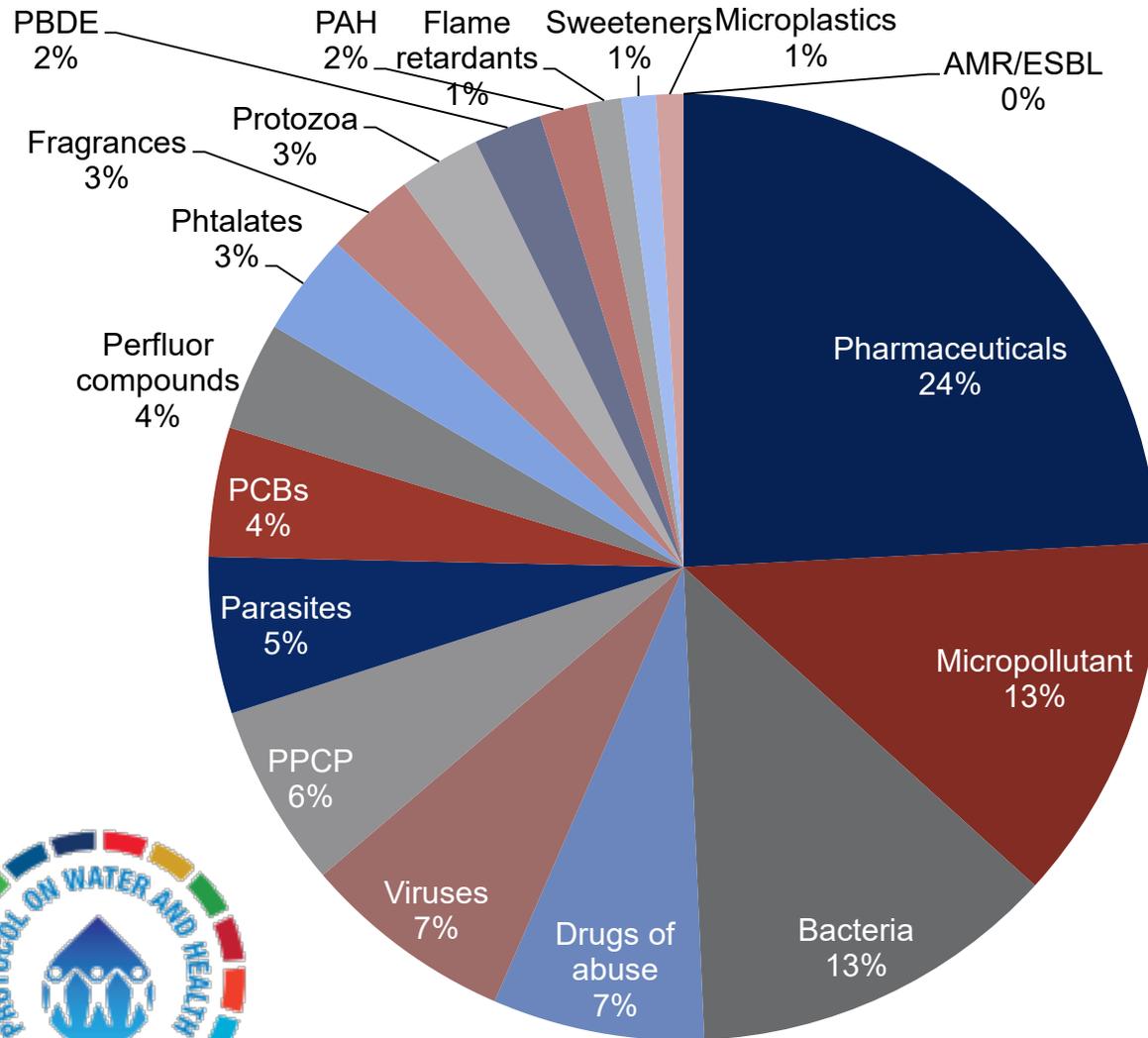
Inclusion/exclusion criteria (manual and matching)



Results: 334 papers selected



More papers on chemical than pathogen contaminants



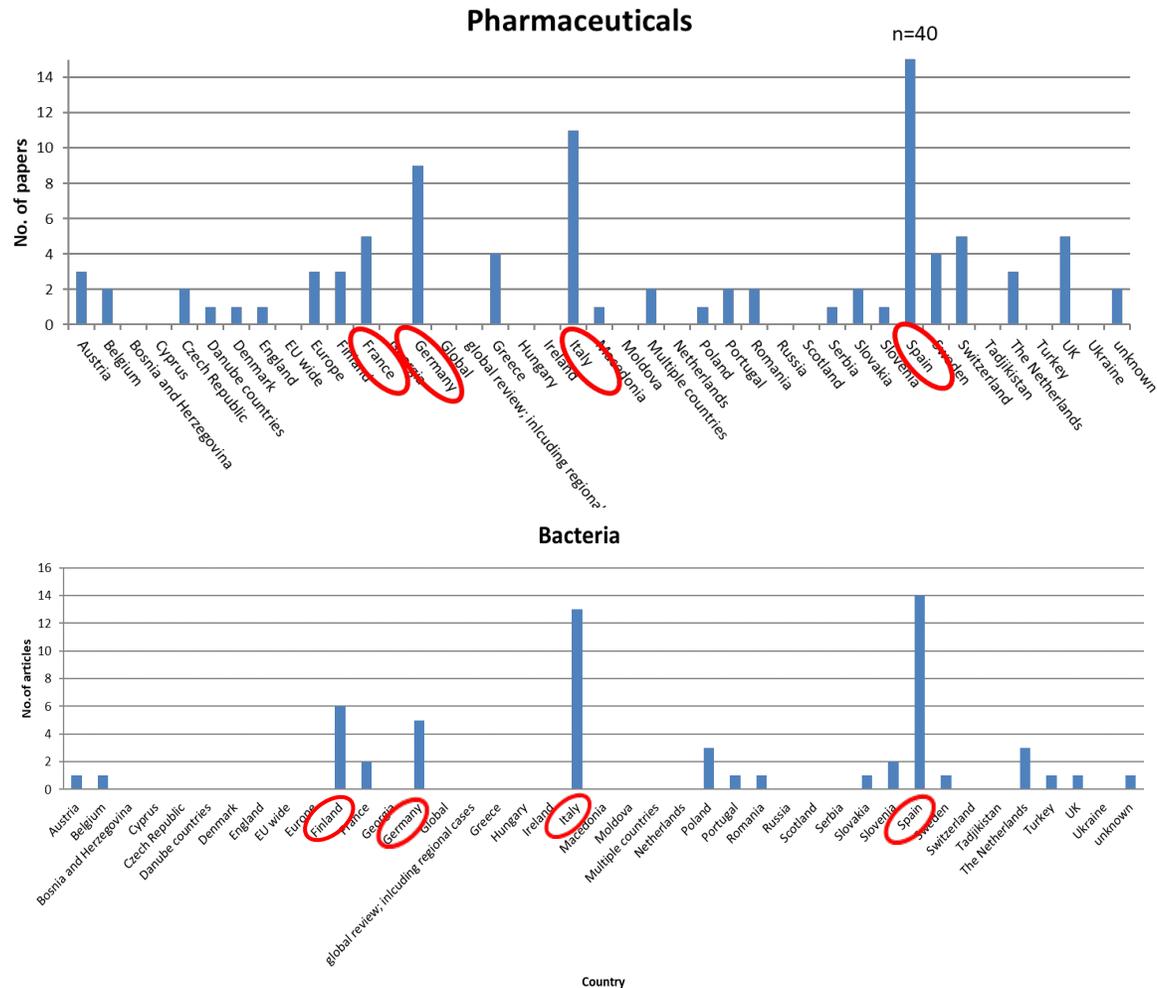
- 49% on chemical; 24% on microbiological
- Most studies on environmental impact
- Less than 3% on outbreaks or AMR attributable to sanitation
- Understudied/underpublished, but reported in grey literature

Recommendations:

- Build capacity for monitoring and surveillance of microbial water-quality and AMR
- Advocate for implementation of surveillance of water-related infectious diseases and AMR
- Raise awareness to not overlook environmental aspects in outbreak investigation and surveillance



Publications found mostly from western and southern Europe*



- Most studies from Spain, Italy, Germany, and Finland
- Studies in these areas of work get higher priority than in other countries
- For other sub-regions, information is found in the grey literature including media reports
- No general consensus on what comprises tertiary and advanced treatment

Recommendations:

- Combine knowledge from different data sources to inform sanitation priorities
- Lessons learned from western and southern European studies could inform other location-specific situations

*Subregions according to Classification by UN Statistics Division

Re-use of wastewater covered in 2% of publications

Discussion: The grey literature and Amoah *et al.* (2018) suggest widespread re-use of (treated) wastewater. This could not be found in the selection of peer-reviewed studies under this white-literature search

Recommendation:

Guidance tools on safe reuse of water exist: promote their use

- Potable reuse: Guidance for producing safe drinking water (WHO, 2017)
- WHO Guidelines for the safe use of wastewater, excreta and grey water (WHO 2006)



On-site sanitation widely used but links to its risks are sparsely published

Discussion:

Although 20% of the population in the region uses on-site sanitation according to the WHO/UNICEF Joint Monitoring Programme (JMP), links to human health risks and environmental impact were sparsely published (5% of all articles).

Recommendation:

- Raise awareness on possible health hazards from on-site sanitation
- Enhance the uptake of Sanitation Safety Planning and Water Safety Planning throughout the region, that will help controlling and maintaining the quality and quantity both of use and re-use of water.

Thank you for your attention

