WHOW HACKATHON

water quality & health of farm animals

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USE CASE 1:

Data reuse: Design or design and development any type of data reuse of your choice (e.g., data viz, maps, standalone applications). A set of pre-defined SPARQL queries will be made available to allow participants to query the knowledge graph and combine data according to their re-usage idea.

(1) What if we

Measure the impact that water quality have on the farm animals health

Studying the connection between water quality and the health of farm animals is crucial for ensuring the well-being of livestock and, ultimately, the quality of food products derived from these animals.

Data source

Livestock Environment Opendata

WHOW
Water
Health
Open
Knowledge

Research method

concept

01

Geolocate each livestock farm > Site (link)

02

Analyse the level of contamination of water of the livestock site > Each livestock farm has to analyse the water quality in its management. How contaminated is it?*

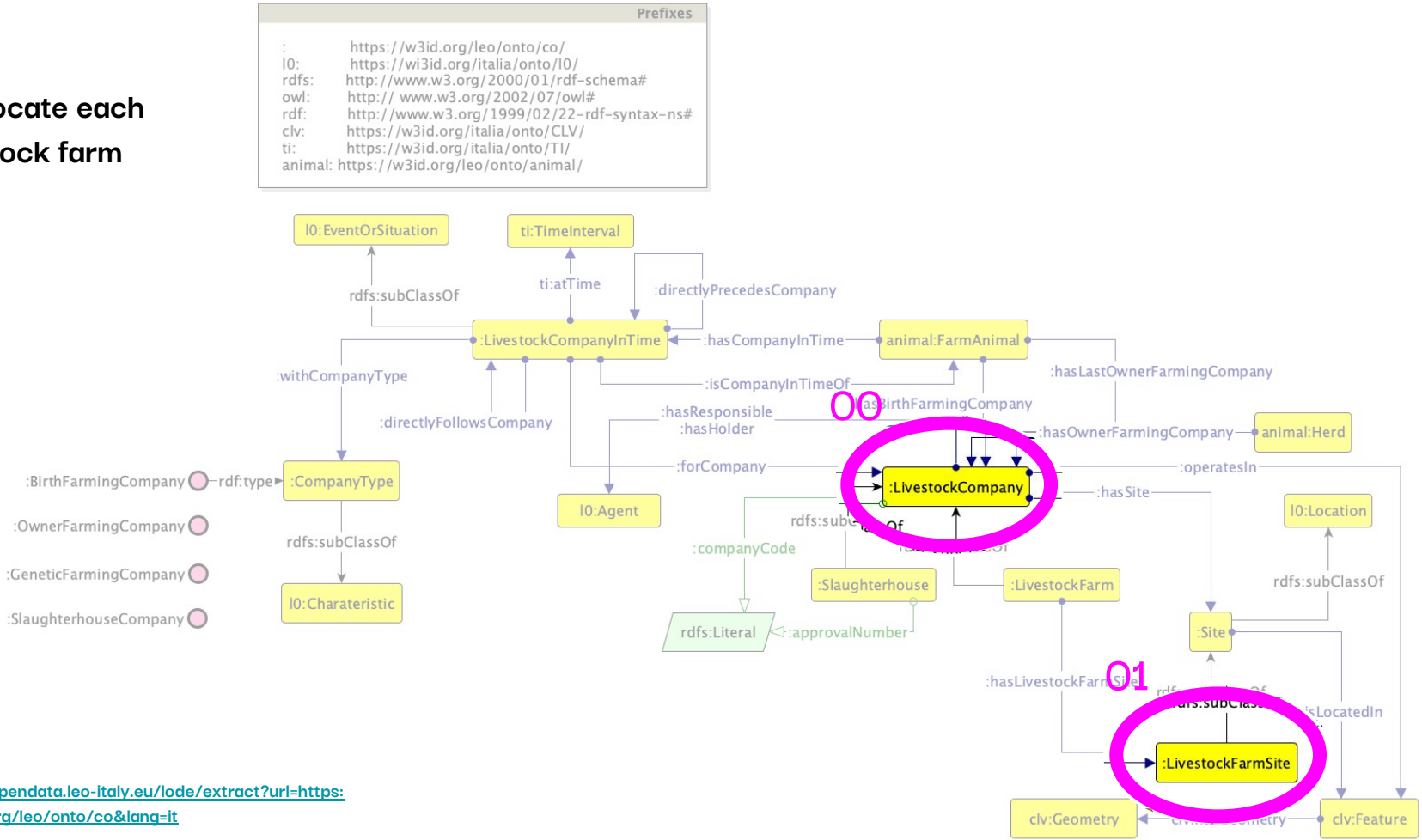
03

Correlate water quality with the animal well being > Livestock company does a health assessment on animals, analysing the presence of diseases

*ISPRA map

01

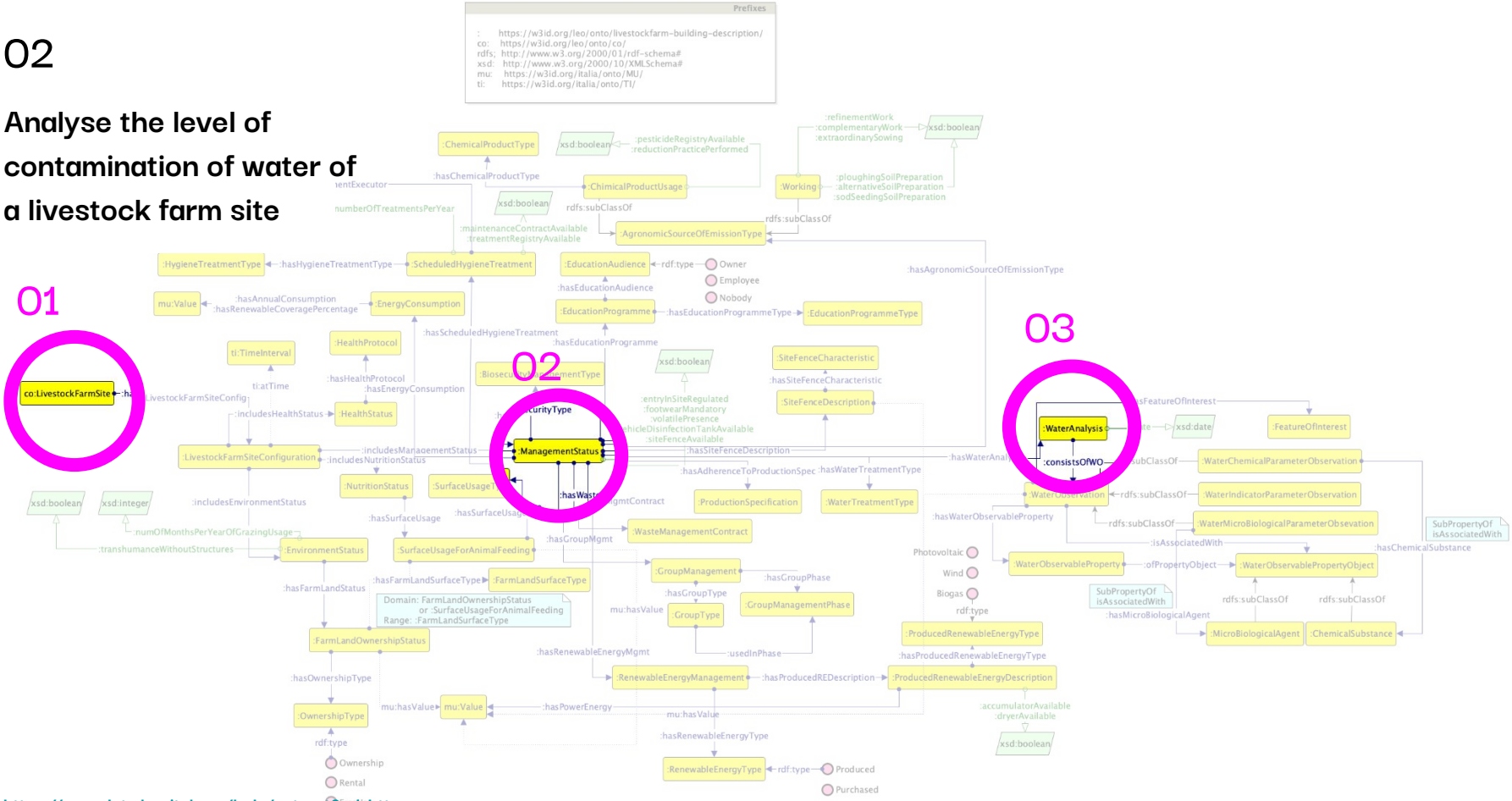
Geolocate each livestock farm



https://opendata.leo-italy.eu/lode/extract?url=https://w3id.org/leo/onto/co&lang=it

02

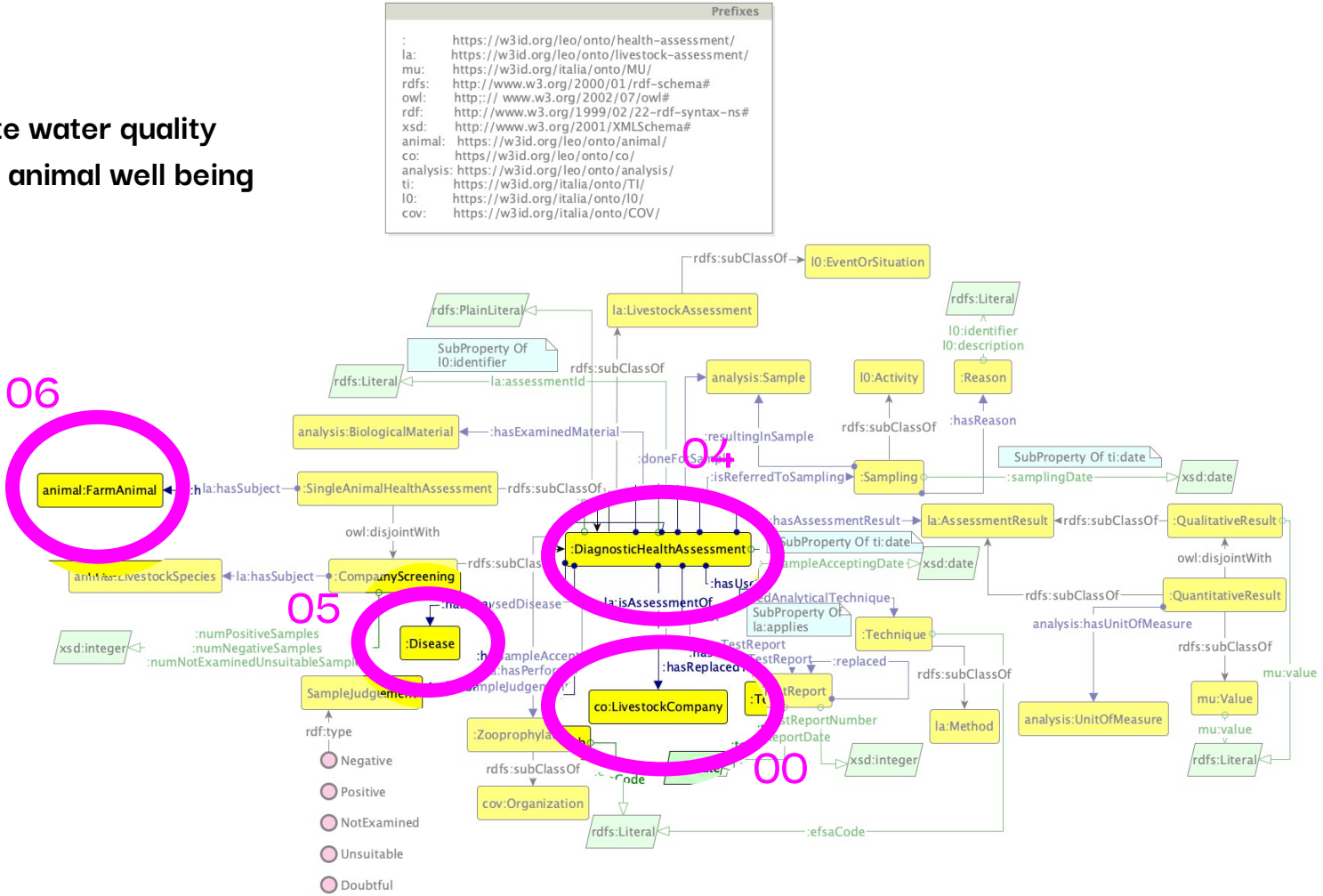
Analyse the level of contamination of water of a livestock farm site



https://opendata.leo-italy.eu/lode/extract?url=https://w3id.org/leo/onto/livestockfarm-description

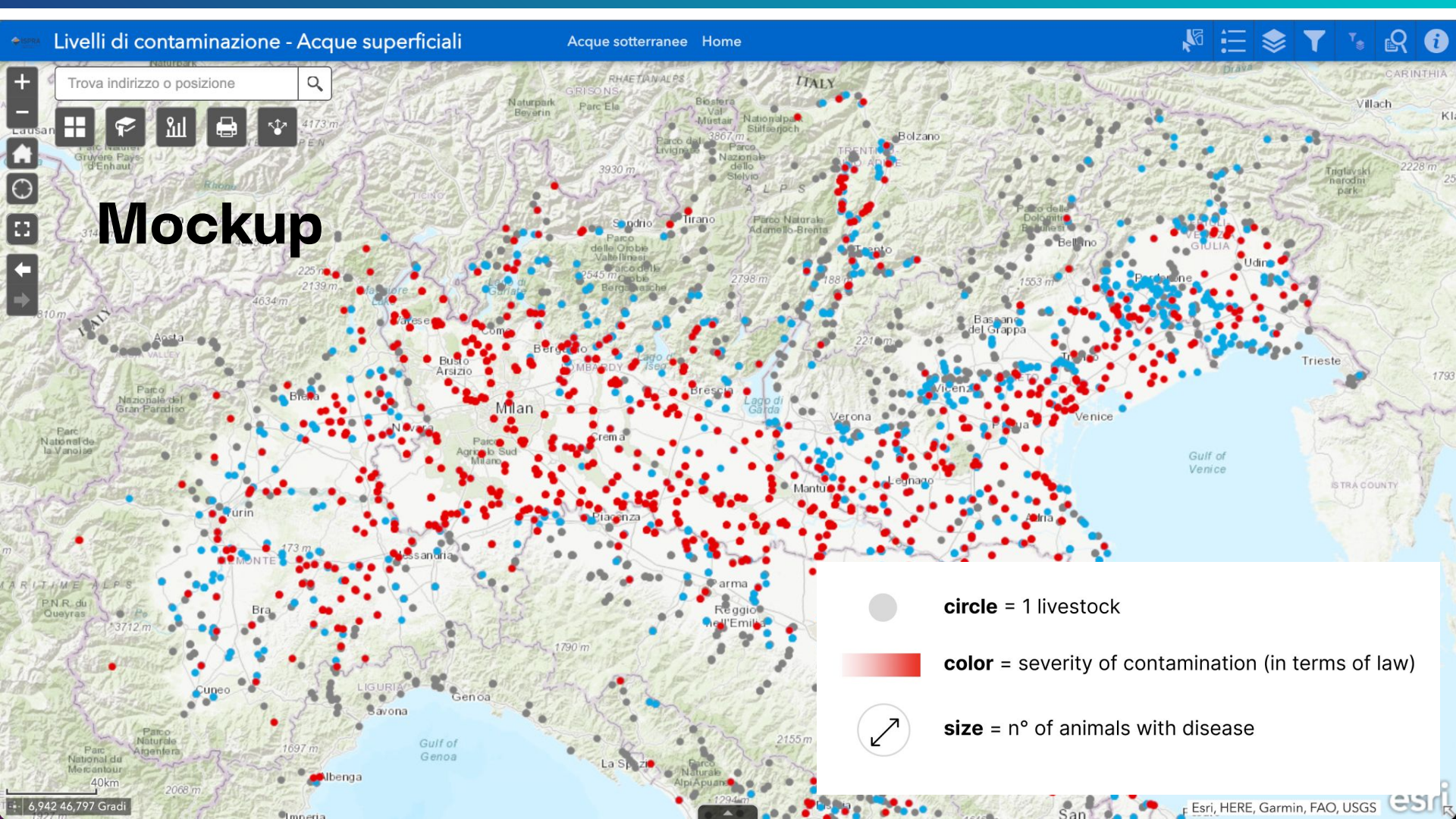
03

Correlate water quality with the animal well being



Output

Monitor the correlation between water quality and the incidence of diseases among animals, and map this relationship across the territory.


Livelli di contaminazione - Acque superficiali
Acque sotterranee
Home
Trova indirizzo o posizione
Mockup
circle = 1 livestock
color = severity of contamination (in terms of law)
size = n° of animals with disease
Milan
Venice
Trieste
Bolzano
Verona
Brescia
Bergamo
Como
Novara
Biella
Aosta
Turin
Cuneo
Bra
Alessandria
Piacenza
Parma
Reggio nell'Emilia
Mantua
Legnago
Adria
Padua
Vicenza
Trento
Bellino
Udine
Pordenone
Bassano del Grappa
Tirano
Sondrio
Genoa
Savona
Albenga
La Spezia
Gulf of Venice
Gulf of Genoa
Lago di Garda
Lago di Iseo
Lago di Garlate
Lago Maggiore
Parco Nazionale del Gran Paradiso
Parco Nazionale Argentera
Parco Naturale Adamello-Brenta
Parco Naturale Alpi Apuane
Parco Agricolo Sud Milano
Parco Nazionale dello Stelvio
Parco delle Orobie Valtellinesi
Parco delle Orobie Bergamasche
Parco delle Dolomiti Bellunesi
Parco Naturale Gruyère Pays-d'Enhaut
Parc National de la Vanoise
Parc National du Mercantour
P.N.R. du Queyras
Naturpark Beverin
Parc Ela
Biosfera Val Mustair
Nationalpark Stilfserjoch
Triglavski narodni park
Villach
Lausanne
40km
6,942 46,797 Gradi
Esri, HERE, Garmin, FAO, USGS

(2) What if we

Measure impact livestock farms on water quality?

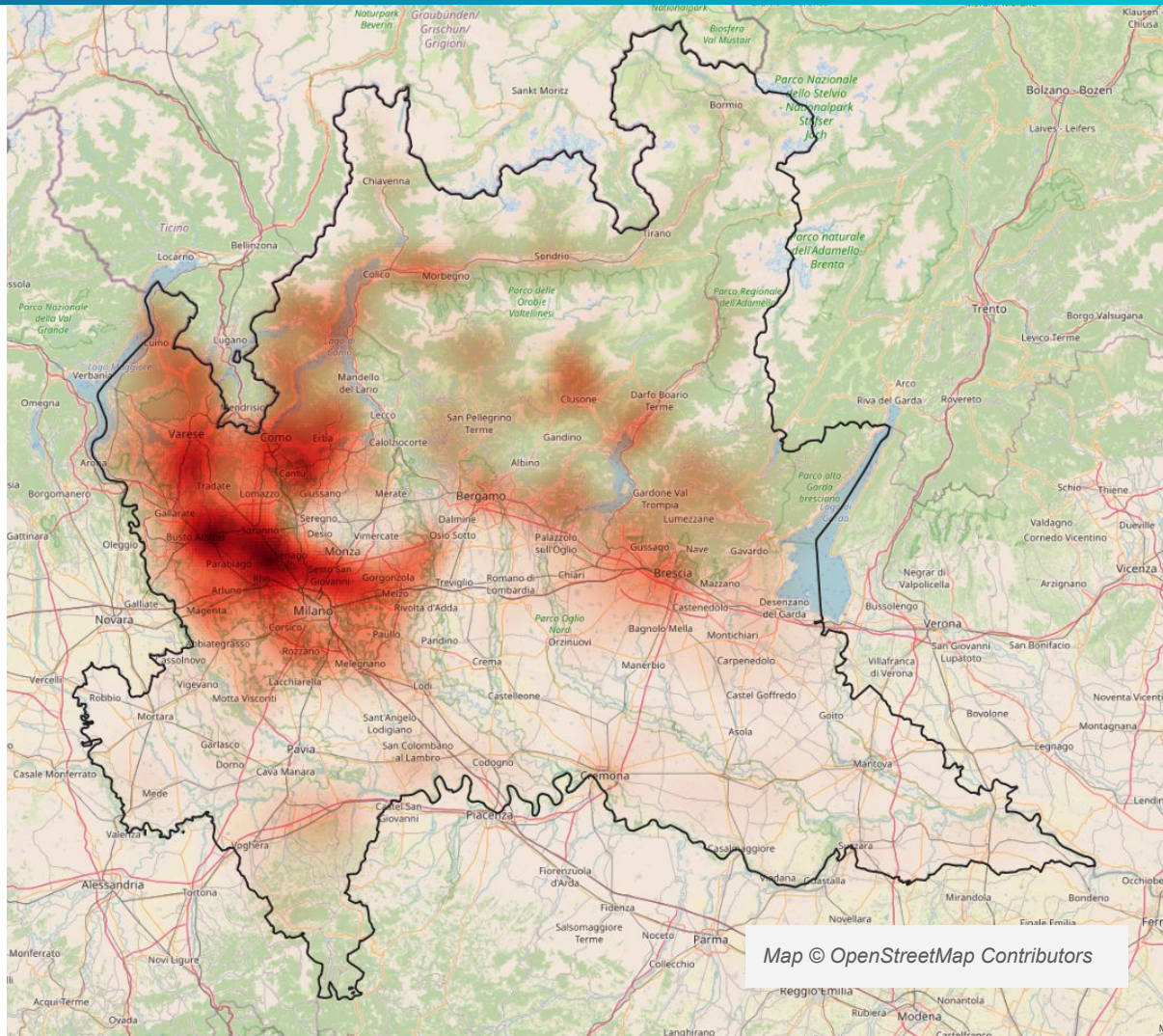
Data source

Le
Livestock Environment Opendata

WH
OW
Water
Health
Open
Knowledge

query SPARQL

```
PREFIX wm: <https://w3id.org/whow/onto/water-monitoring/>
PREFIX place: <https://w3id.org/italia/env/onto/place/>
PREFIX cs:
<https://w3id.org/whow/controlled-vocabulary/chemical-substances/>
PREFIX top: <https://w3id.org/italia/env/onto/top/>
SELECT ?samplingPoint(AVG(?value) AS ?avg_value)
WHERE
{
?samplingPoint a wm:SamplingPoint.
?waterSample wm:istakenAt ?samplingPoint.
?obsSample wm:hasObservationSample ?waterSample;
wm:hasWaterObservableProperty?
<https://w3id.org/italia/lombardia/data/observable-properties/nitra
ti>;
wm:hasResult ?result;
wm:hasWaterObservableProperty ?obsProperty.
?result top:value ?value.
}
```

avg concentration of nitrates in water (WHOW)

could be correlated with livestock farm locations