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Populations Exposure to Foodborne Pollution in OHM(i)

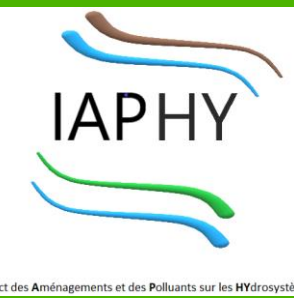
–Literature Review

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Introduction

Food plays a fundamental role in maintaining human health. It also makes it possible to reveal an identity character, specific to each socio-ecosystem studied in the Human-Environment Observatories (OHM), especially if it comes from agricultural, hunting, fishing, or traditional livestock activities. Food can also carry contamination and contribute to the exposure of populations to pollutants. At the territorial level,

this can create dilemmas for decision-makers between food security and emerging health risks. In the different observatories, food practices and sources of contamination are varied. The question is: **“Do the dietary practices of certain territories generate situations of exposure to pollutants through food that are stronger than in other territories?”**

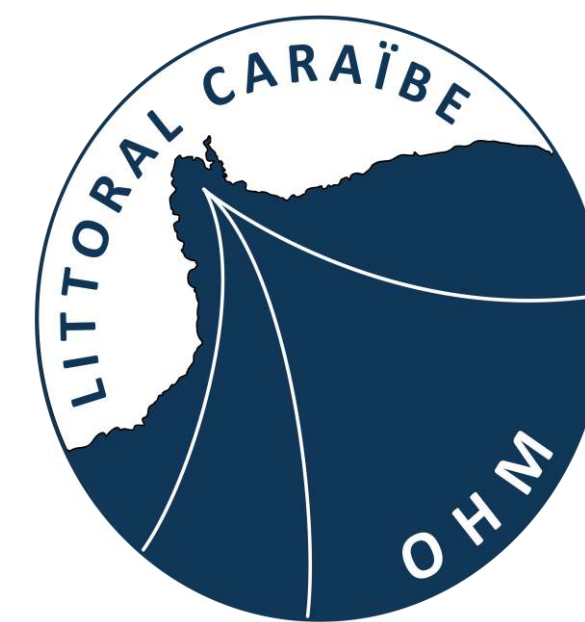
Method

1. Literature Review focusing on:

- State and type of contaminants (food and environment) in 5 OHM(i)
- Dispersion of the pollution
- Health Risk Assessment

2. Analysis and classification of the existing data

- Sources of pollution
- Environment compartments and food matrix
- Used biomarkers
- Studied populations



Results

For the OHMi Estarreja

- Chemical discharges of the Industrial Chemical Complex into the environment (soil, water, etc.)
- Transfer to the food chain level
- Assessment of the health risk

For the other OHM(i)

- The analyzes carried out targeted either a few contaminants or a few matrices (missing data for a good characterization of the risk)

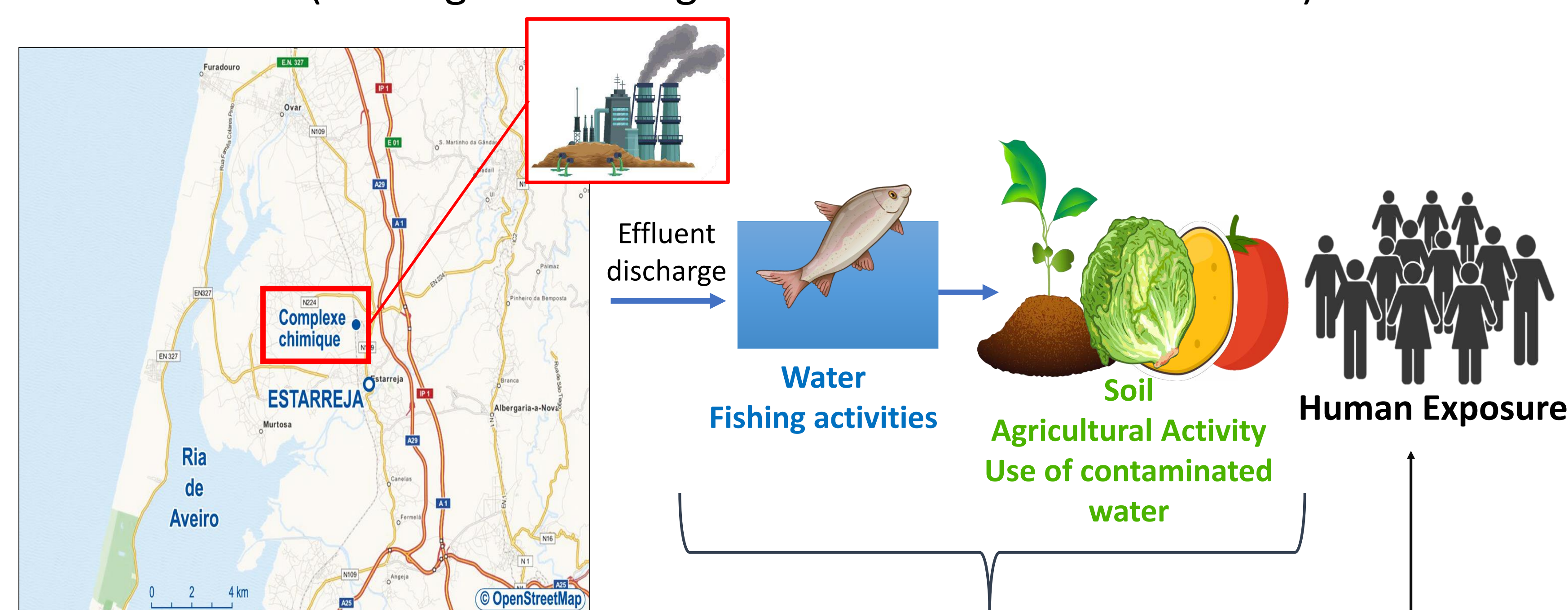


Figure 1. The schematic diagram of the phenomenon of dispersion of pollutants in the environment, foodstuffs from the source of contamination to human exposure in the OHM(i) Estarreja.

Table 1. Summary of existing knowledge of each OHM(i)*.

| OHM(i) | Disturbing Event (Date) | Type of contaminant | Matrix | Biomarkers/ Studied population |
|------------------|--|--|--|--|
| Estarreja | Adoption of virtuous practices within the CQE (1990) | Wide variety of Metallic Element Traces | Soil, Water, Vegetables, Plants, Fish | Hair, Urine, Fingernails, Blood Children, Adults |
| Nunavik | Plan Nord, i.e., Plan North (2011) | Focused on Lead (Pb), Methylmercury (MeHg), Cadmium (Cd), PCBs | Food (Country and Market Foods) | Blood, Hair, Umbilical cord blood Children, Young People, Pregnant and Childbearing-age Women, Prenatal Exposure |
| Littoral-Caraïbe | Transformation and acceleration of maritime trade (from the 1970s) | Chlordecone | Sediment, soil, Water Few studies were done on food matrix | Blood Children, Pregnant Women Marine fauna |
| Oyapock | Oyapock River Bridge (2017) | Focused on Lead (Pb) and Mercury (Hg) | Fish, Water, Manioc | Blood, Hair Children, Pregnant Women |
| Téssekéré | Great Green Wall (2008) | Microbial contamination | Water | - |

*For detailed references, scan the QR in the references section

Conclusion and perspectives

Based on this literature review, the phenomenon of the dispersion of contamination in several food matrices and the compartments of the environment was more studied for the OHM(i) Estarreja than for the other OHM(i). Work is in progress to target the matrices to be analyzed, and the sampling areas to be chosen to assess the exposure of the populations to pollution in different OHM(i).

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