



**HAL**  
open science

# Global scale approach of socio-environmental stakes and conflicts related to floodplain urbanisation

Liolia Bajemon, Lise Vaudor, Hervé Piégay

## ► To cite this version:

Liolia Bajemon, Lise Vaudor, Hervé Piégay. Global scale approach of socio-environmental stakes and conflicts related to floodplain urbanisation. *River Health: Assessment to Restoration*, Oct 2023, Varanasi, India. 2023. hal-04297279

**HAL Id: hal-04297279**

**<https://hal.science/hal-04297279v1>**

Submitted on 21 Nov 2023

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

# Global scale approach of socio-environmental stakes and conflicts related to floodplain urbanisation

L. Bajemon, L. Vaudor, H. Piégay

ENS de Lyon, CNRS UMR 5600 EVS, Lyon, France (contact: [liolia.bajemon@ens-lyon.fr](mailto:liolia.bajemon@ens-lyon.fr))

## I. Context

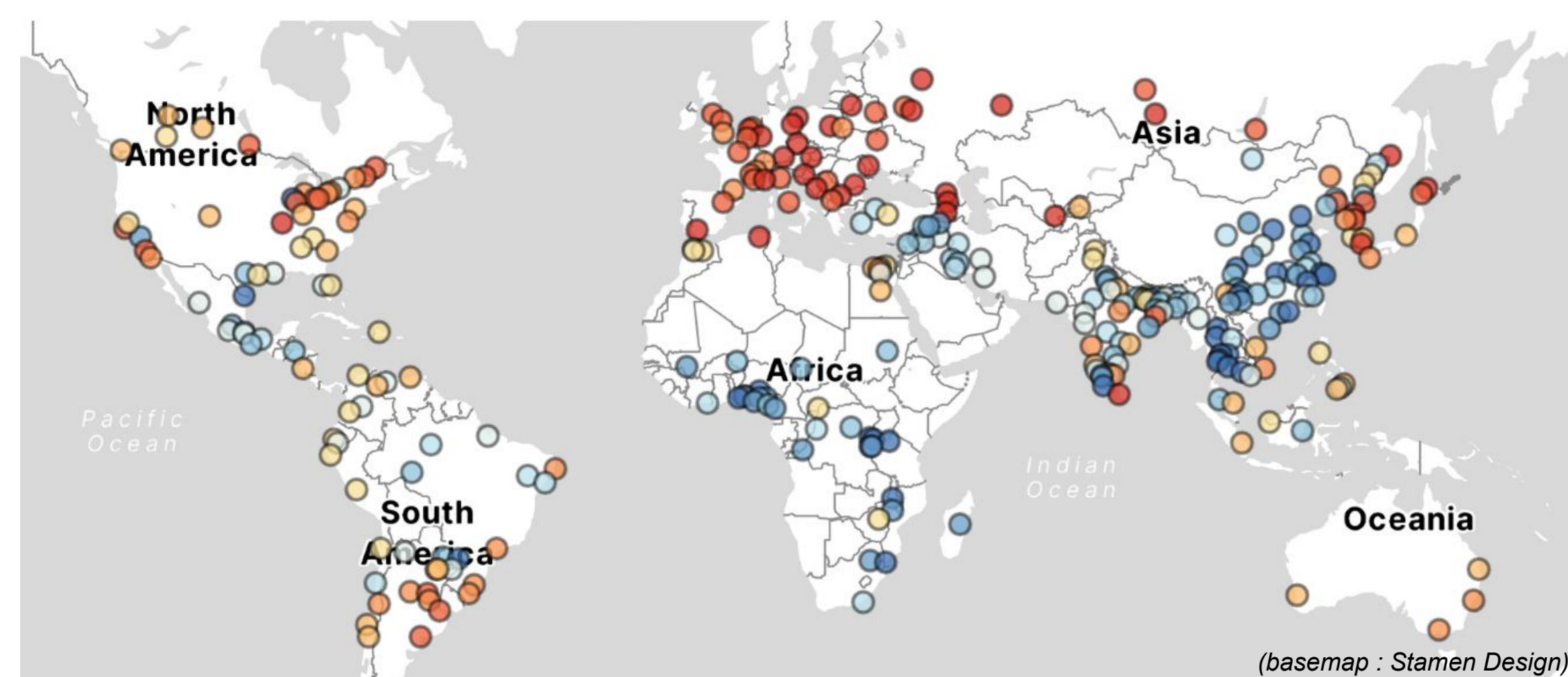
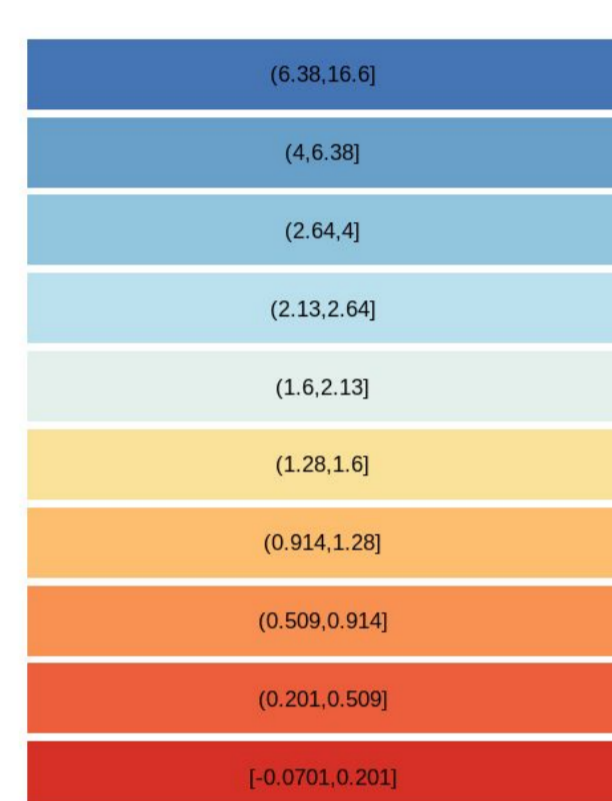
This project is part of an interdisciplinary research program GloUrb, which aims to characterize the **urbanisation process of floodplains** since the 80's.

Floodplains, which can be defined as "areas of low-lying land that are subject to inundation by lateral overflow water from rivers or lakes with which they are associated"<sup>1</sup>, are the "attractors" and "fixing" areas of such global urbanisation.

Floodplain ecosystems are simultaneously vulnerable to socio-environmental transformations and essential to their inhabitants wellness. However, the impact of floodplain urbanisation on humans has been overlooked and **understanding stakes and potential conflicts is needed to promote public debates and discuss potential solutions.**

## II. Study sites

- **300 urban agglomerations** of over 300K inhabitants that intersect rivers larger than 30-60 m
- Selection along a **gradient of demographic growth patterns**



The approx. 300 selected sites and their population growth (%) between 1980 and 2018

## III. Material & methods

- Main methodological challenge = using **remotely accessible sources**
- **Progressive selection** according to a top-down, multi-scale approach

→ **From global to local scale**

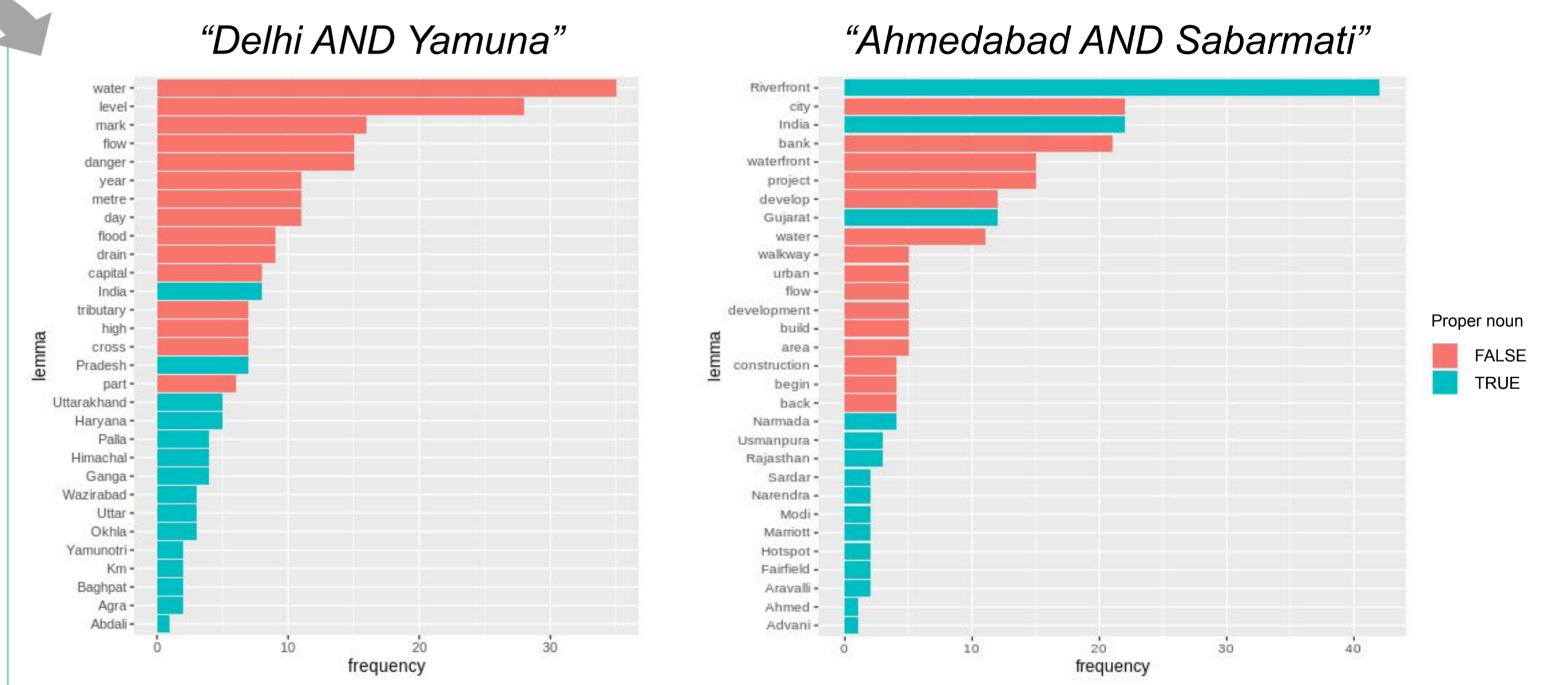
### Selection #2

50 sites

Text mining & content analysis on:

- A set of press articles and web pages (n > 15 000):

Frequency of occurrence of lemma when using the Search Engine Page Results (SERP)



- **Google reviews** (Google Reviews API) for several spatial entities in each city, including **urban riverfronts**<sup>2</sup>

→ **Confront the previously identified issues with potential problems that are discussed by social actors.**

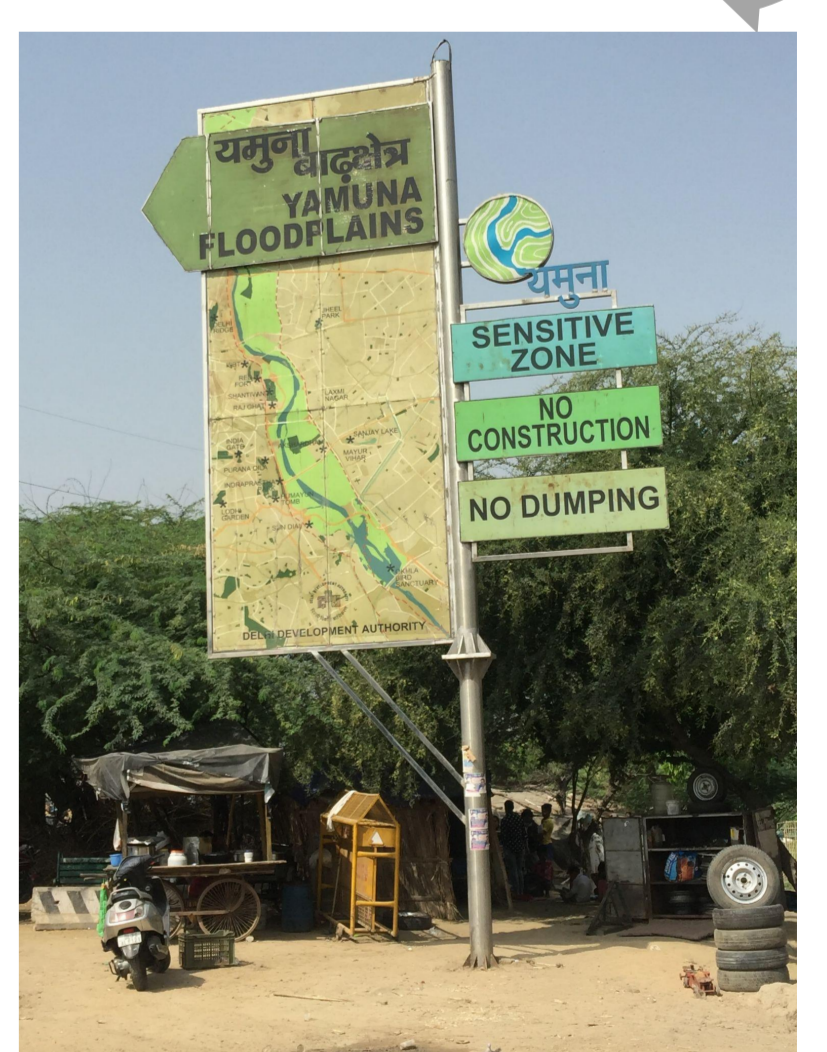
### Selection #3

3-5 sites

Selection of **conflicting situations**, which induced public debates and discourses<sup>3</sup> = **case studies.**

To identify **patterns in institutional and local actors' discourses:**

- Textometric and content analysis on **planning documents**
- **Semi-structured interviews** with people who contributed to these documents



The Yamuna Floodplain, in Delhi, a sensitive area in term of conservation

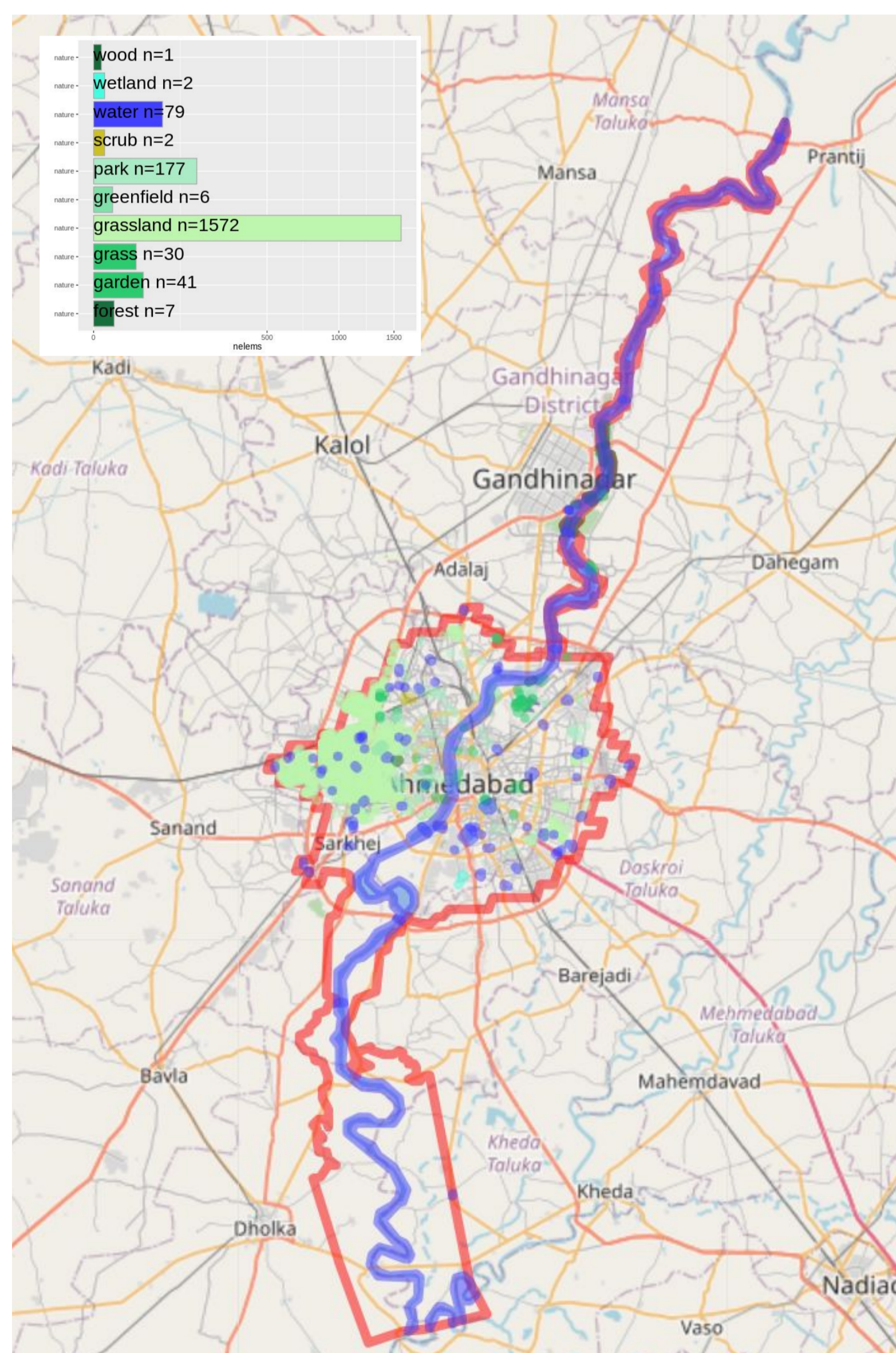
→ **Highlight tensions between the perceived space, the conceived space and the living space**

### Selection #1

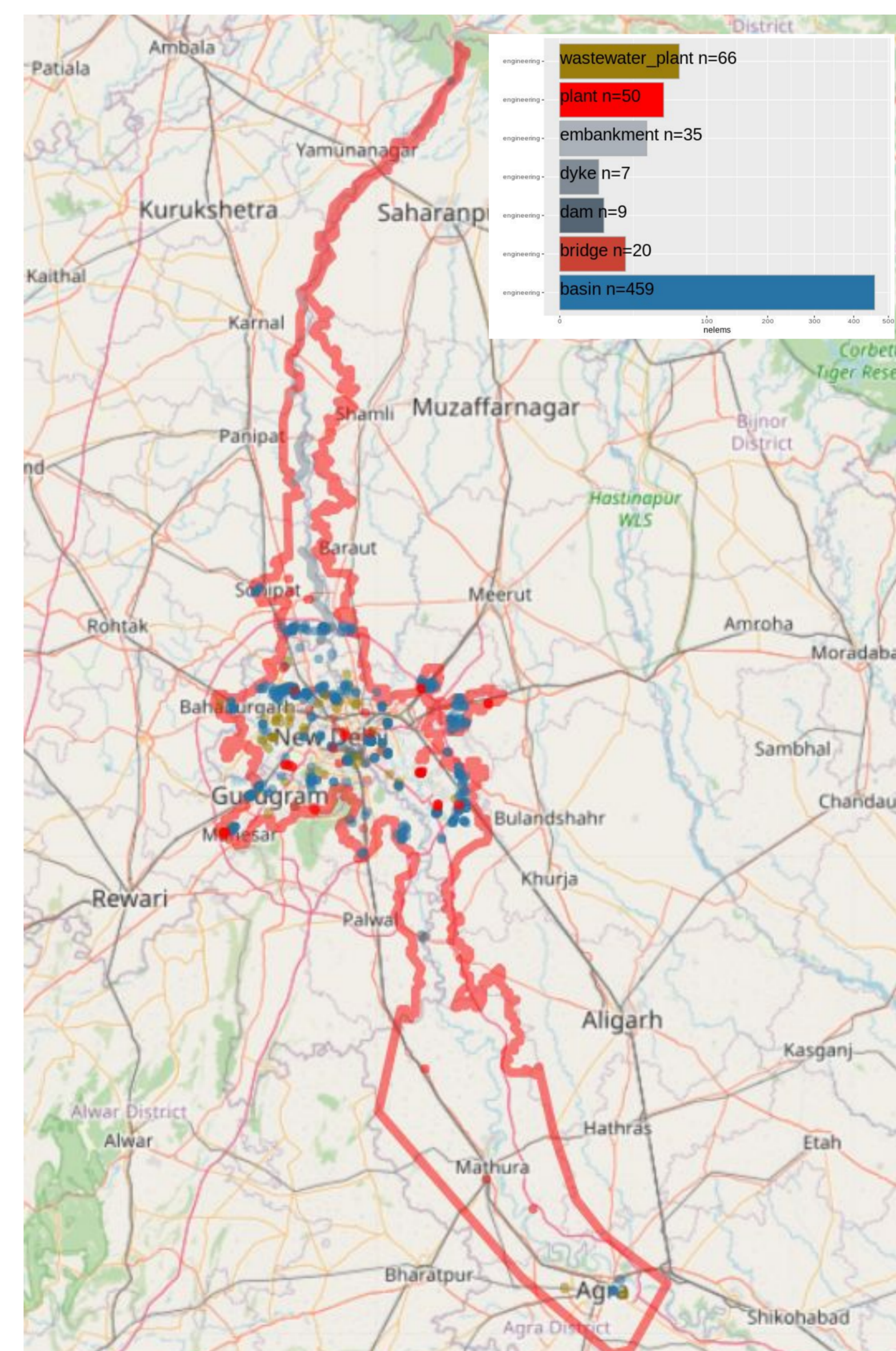
300 sites

Collection of geospatial data and attributes on :

- **OpenStreetMap (OSM)**: food production, engineering, amenities, entertainment, nature
- **Wikidata**: "dam", "powerplant", "park", "canal", "bridge", etc.



Map of Ahmedabad with OSM basemap and layer regarding natural items



Map of Delhi with OSM basemap and layer regarding engineering items

→ **Provide a global scale typology of socio-environmental issues related to floodplains**

## IV. Outcomes

- **Explore socio-environmental conflicting situations** related to **floodplain urbanisation at local to global scales**
- Understand the diversity of situations and **how urbanisation exacerbates socio-environmental stakes**
- Stimulate **public debate** on floodplain artificialisation in a context of climate change



This work is funded by the French National Research Agency (ANR) (Project GloUrb n° ANR-22-CE03-0005). It is also cofunded by the Labex IMU (ANR-10-LABX-0088) and the EUR H2O'Lyon (ANR-17-EURE-0018) of Université de Lyon, within the programme 'Investissements d'Avenir' operated by ANR.

1. Sofia, G., Roder, G., Dalla Fontana, G., & Tarolli, P. (2017). Flood dynamics in urbanised landscapes: 100 years of climate and humans' interaction. *Scientific Reports*, 7(1), 40527. <https://doi.org/10.1038/srep40527>

2. Dempsey, N., Velarde, C. L. M., Samuel, M., Bakshi, Y., & Baradi, M. (2020). From river to Riverfront: How meanings and cultural heritage change. The case of the Sabarmati Riverfront project, Ahmedabad, Gujarat. *Town Planning Review*, 91(6), 643-666. <https://doi.org/10.3828/tpv.2020.89>

3. Comby, E., Le Lay, Y.-F., & Piégay, H. (2014). How chemical pollution becomes a social problem: Risk communication and assessment through regional newspapers during the management of PCB pollutions of the Rhone River (France). *Science of The Total Environment*, 482-483, 100-115. <https://doi.org/10.1016/j.scototenv.2014.02.137>