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

L. Bajemon, L. Vaudor, H. Piégay

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I. Context

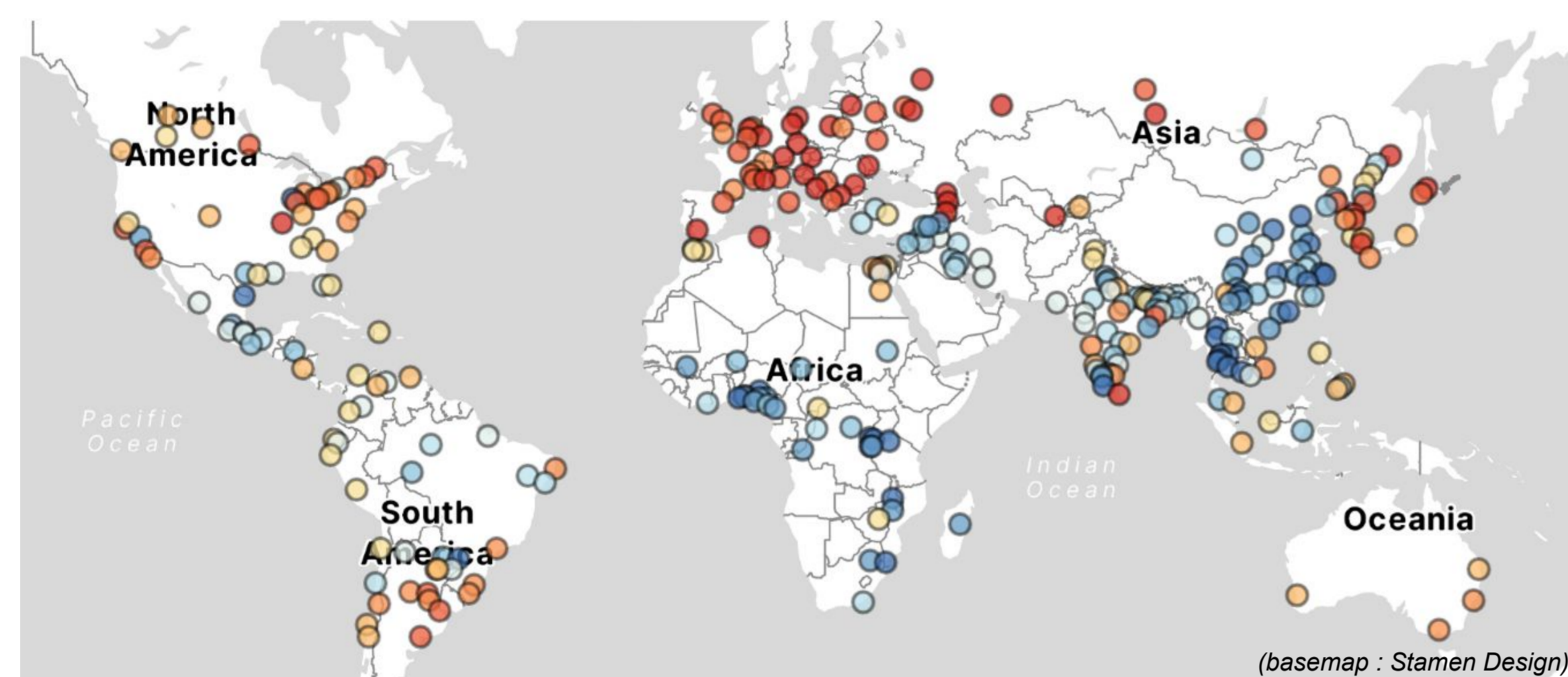
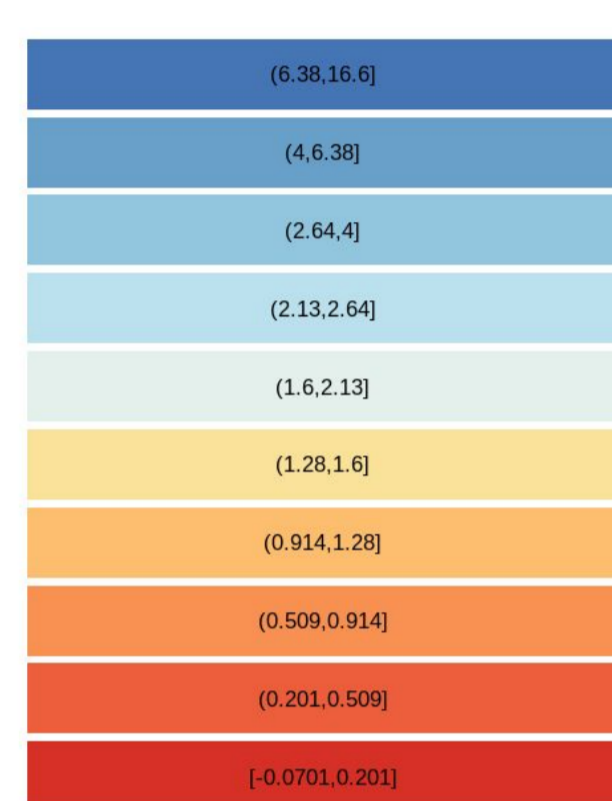
This project is part of an interdisciplinary research program GloUrb, which aims to characterize the **urbanisation process of floodplains** since the 80's.

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"¹, 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**

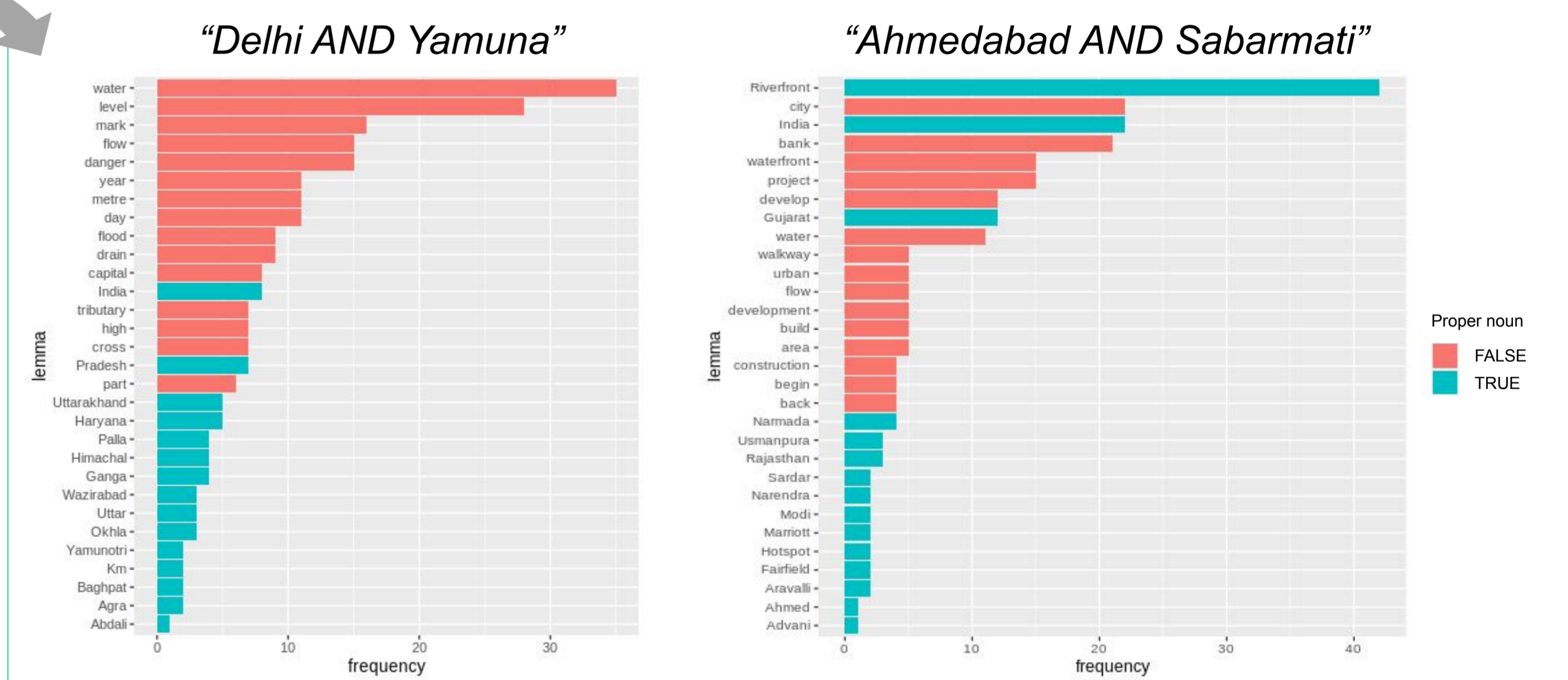
Selection #2

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**²

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

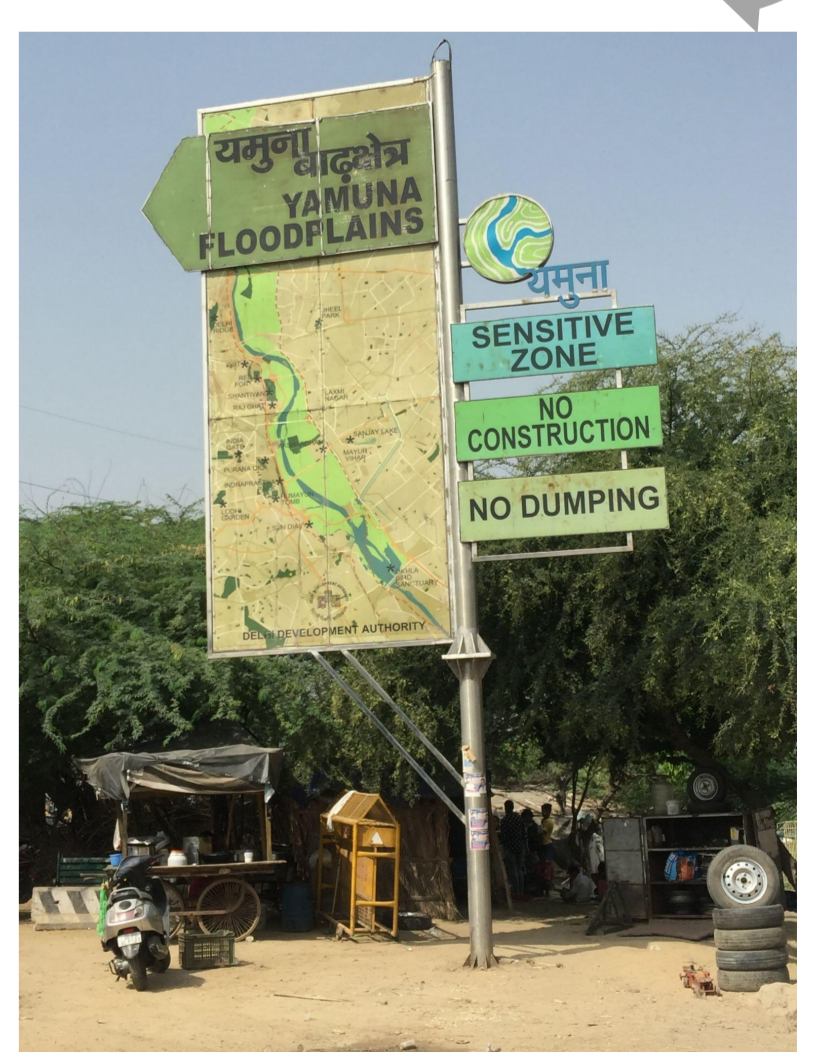
Selection #3

3-5 sites

Selection of **conflicting situations**, which induced public debates and discourses³ = **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

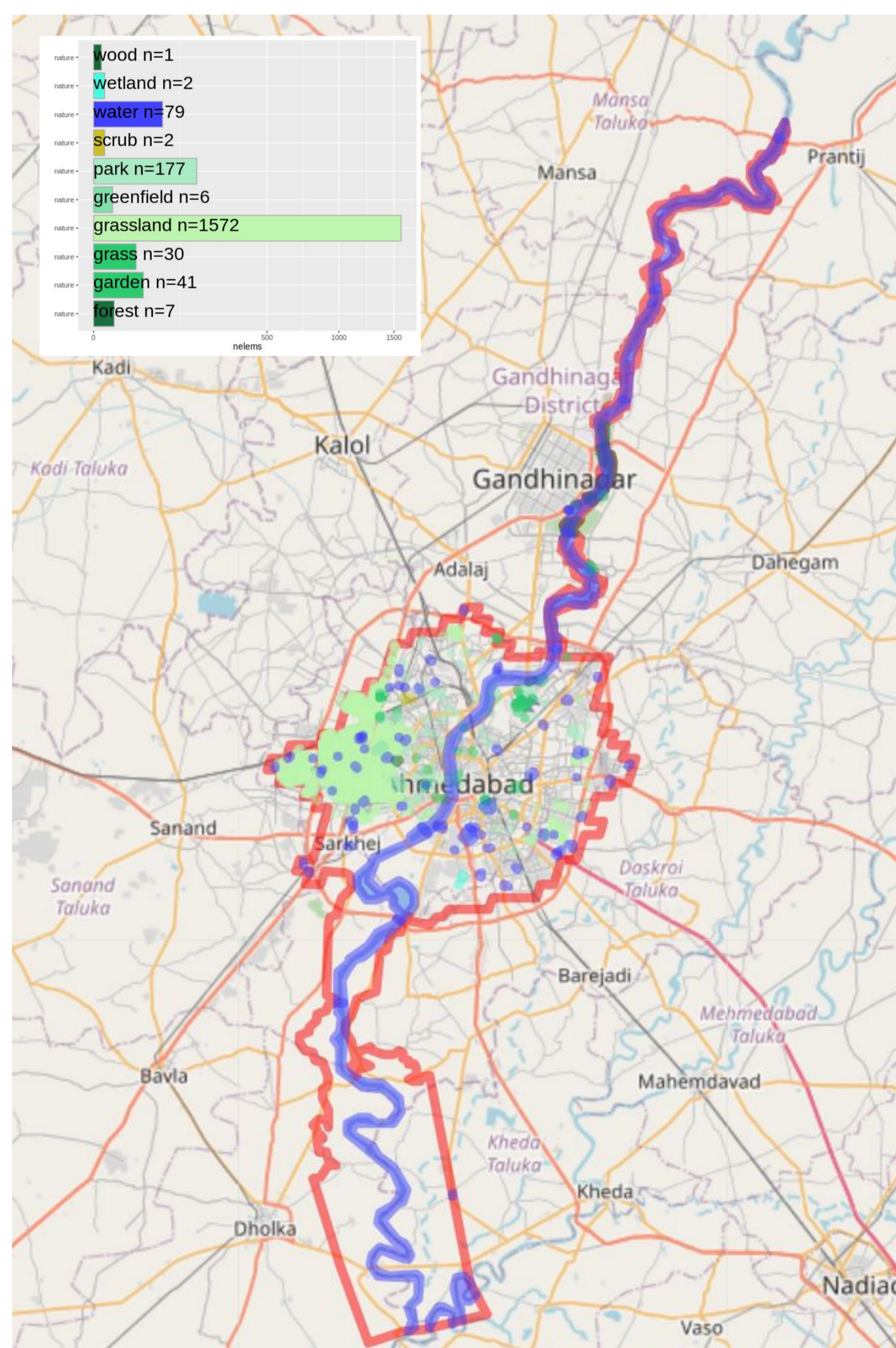
→ **Highlight tensions between the perceived space, the conceived space and the living space**

Selection #1

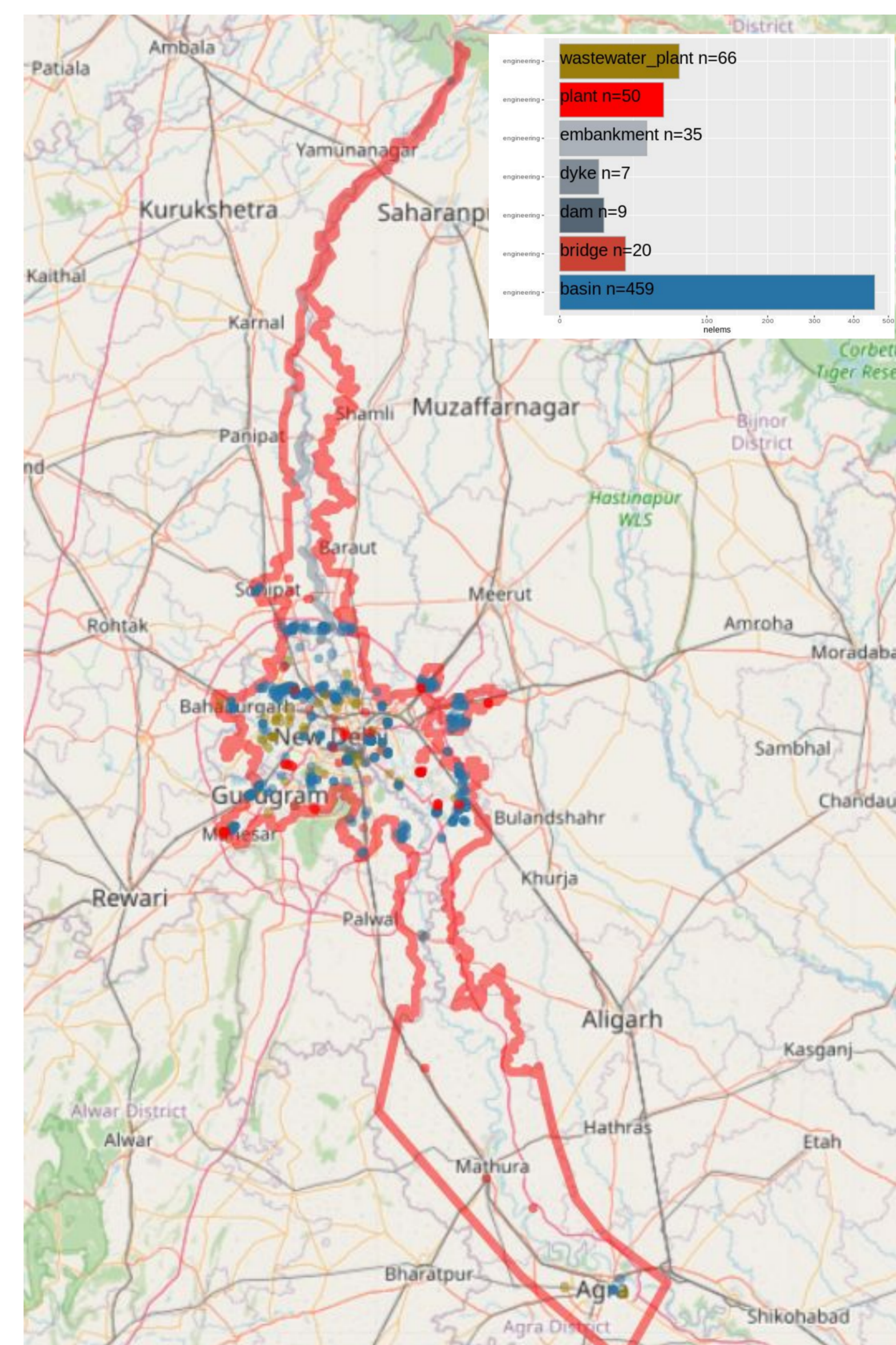
300 sites

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



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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>
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