



WATERPROOFING DATA

Engaging stakeholders in sustainable flood risk governance for urban resilience (Sep/2018-Jun/2022)



Research question and approach

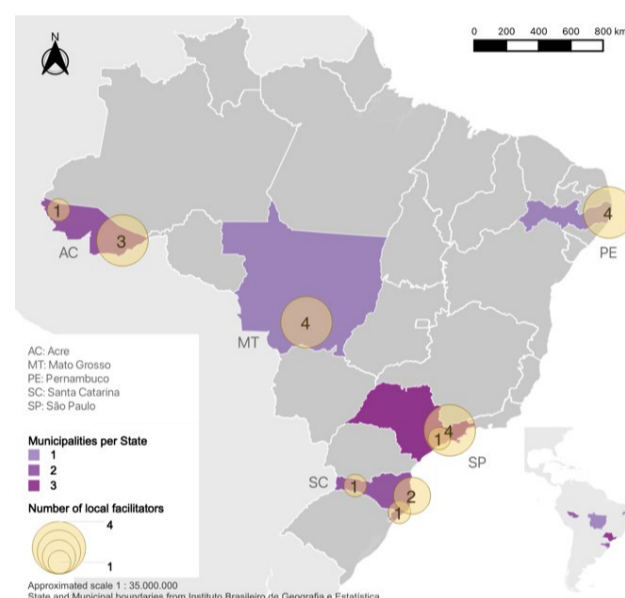
Research Question

How to rethink flood data production and flow to enable transformations to build sustainable, flood resilient communities?

Research Team & Study Sites

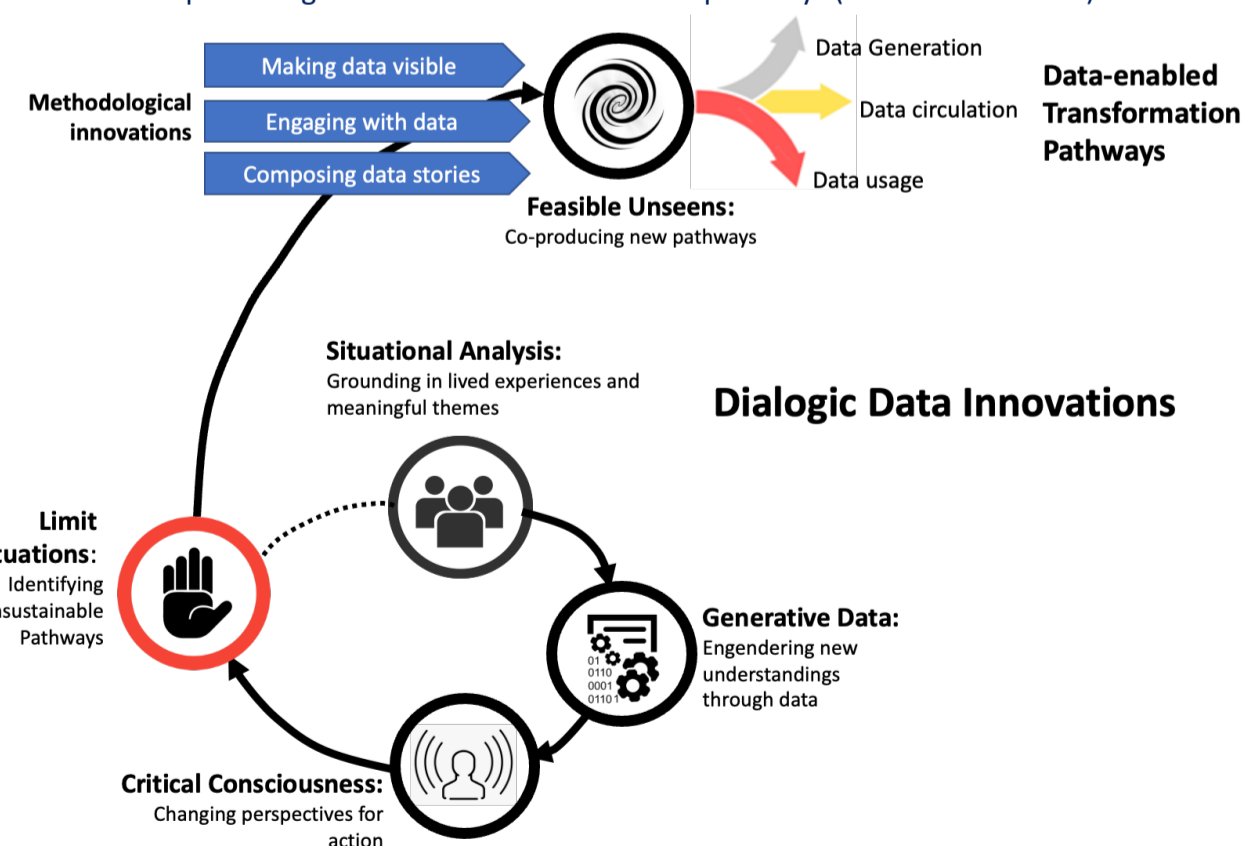
Transdisciplinarity: a multidisciplinary research team spanning social sciences, humanities and physical sciences located in three countries (Brazil, Germany, UK) has co-created and co-evaluated an approach with flood risk management professionals, local government officials, local researchers, university students, as well as community members and school students living in underserved, flood-prone neighbourhoods in Brazil.

Study sites: Starting with two cities – São Paulo (SP) and Rio Branco (AC) - project activities were expanded through a process of ‘pollination’ with local facilitators in 9 municipalities located in five Brazilian states.



Dialogic approach to co-producing data innovations for transformations to sustainability

Drawing on Paulo Freire, the approach starts with grounded understandings of current situations to identify data artefacts and practices that matter (generative data), promote critical reflection of “limit-situations” and co-producing data-enabled transformation pathways (“feasible unseens”).

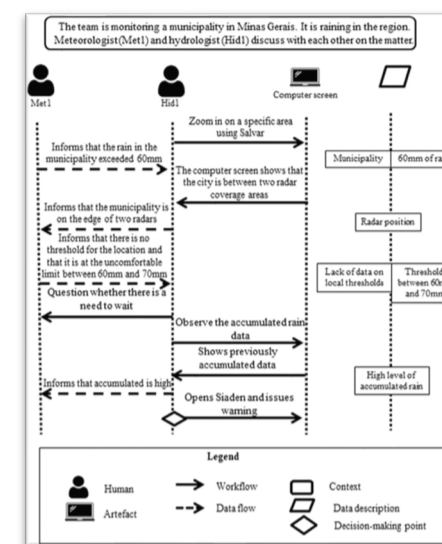


Innovative methods for transformations to sustainability

Making data visible: from data inventories to data diaries

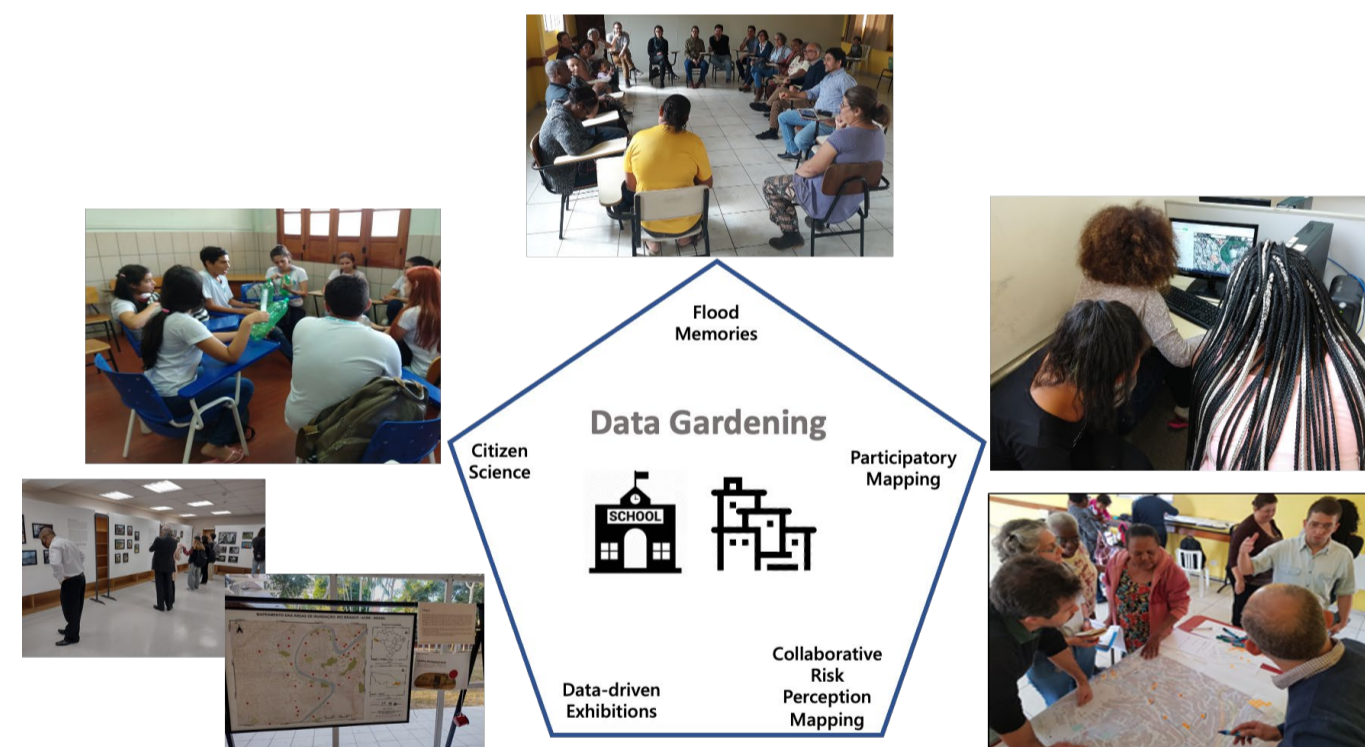
Making visible was an attempt to gain an in-depth understanding of the datasets and data practices related to flooding in concrete settings.

The **data diary** moves away from dominant forms of portraying data such as data inventories (e.g., lists of datasets and their link to formal decision-making organisational processes), to a thick description of the informal, day-to-day interactions between people, roles, datasets, physical devices, etc. This resulted in descriptions that seek to reproduce diverse ways of seeing and knowing data in the situation rooms of our partner flood monitoring centres



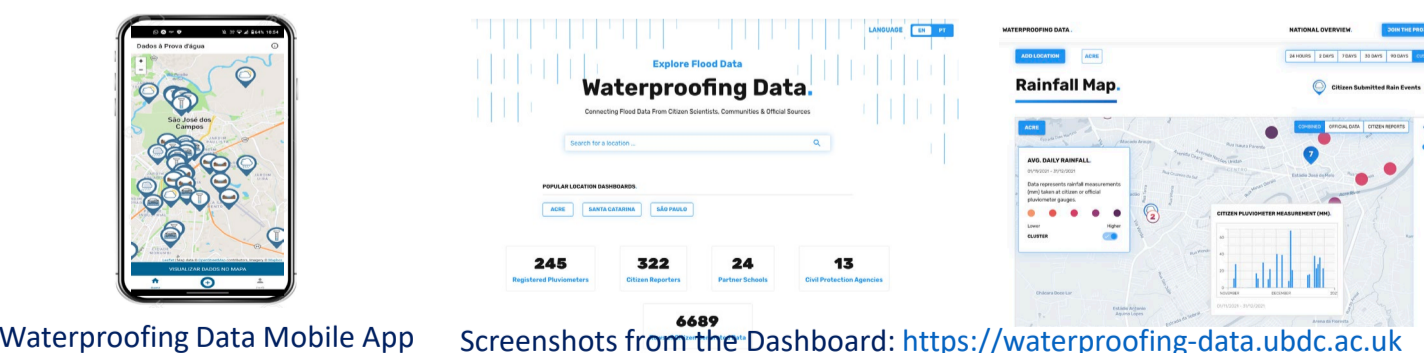
Engaging with data: from data gathering to data gardening

Communities in disadvantaged neighbourhoods in Rio Branco and São Paulo were engaged to co-produce new understandings of flooding and generate new data. **Data gardening** uses a combination of methods to move away from instrumental “data gathering” to emphasise the need to nurture and cultivate social processes which also empower participants to transformative social learning.



Sharing data stories: from integration to diffraction

Participatory software design engaged end-users and adopted a **diffraction** approach to avoid not to impose a single integration schema that flattens out different underlying ontological assumptions and worldviews. Our data generation and visualization software tools depict place-based visual data stories to enable reflection and action through the contrast between the several flood-related data sources.



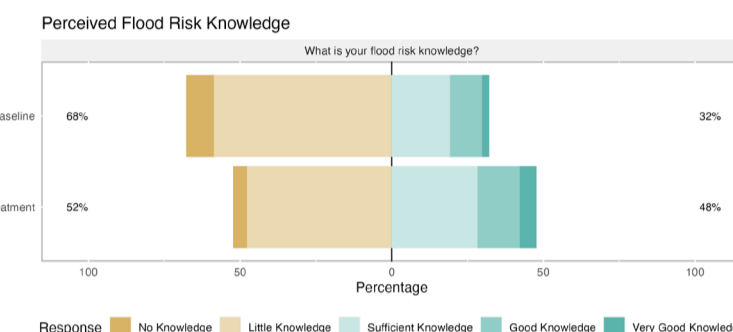
Results: data-enabled transformation pathways

Transformative Pathways through Data Generation

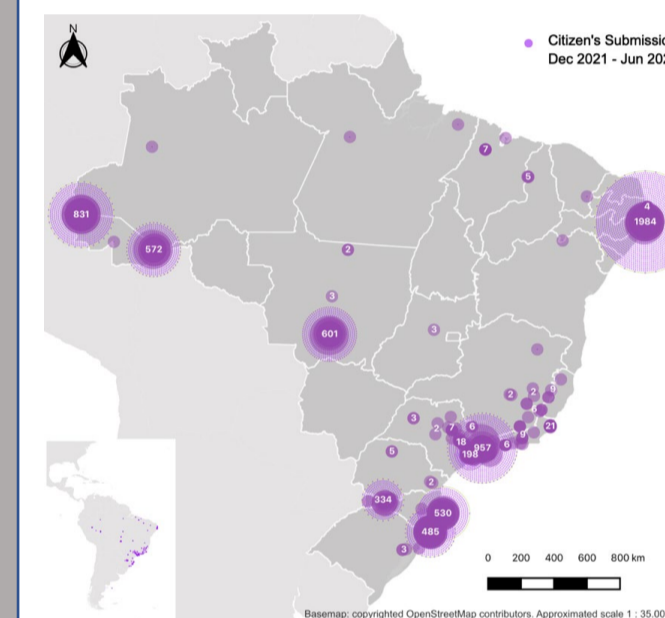
We expand the perspective on the role of data in sustainability transformation by evidencing six pathways:

1. Metalingual: Improved flood knowledge and critical perception of flood risks by people living in vulnerable situations, enables community-based risk reduction initiatives and advocacy.

2. Expressive: Empowerment of “invisible” social groups to voice their personal and collective emotive connections to social and environmental phenomena.



Transformative Pathways through Data Circulation



3. Conactive: Changes in people's perspective, leading from apathy to engaged praxis (reflection and action) of various social groups in disaster preparedness and risk reduction activities.

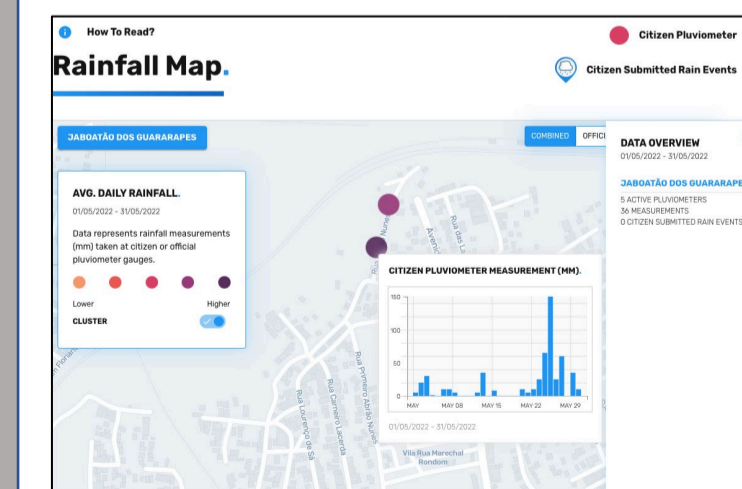
4. Phatic: Actors' recognition and expansion of the network in flood management broadens the stakeholders and perspectives active in flood risk governance, making it more inclusive and equitable.

Citizen-generated data submitted to the Waterproofing Data Platform went beyond initial study areas

Transformative Pathways through Data Usage

5. Referential: Citizen-generated data can inform local government action for flood resilience planning and decision-making, making it more representative and just.

6. Poetic: Data and data practices can be used as artistic manifestations to motivate people to transform perspectives and behaviours through reflection and action for flood resilience.



“We had damages and houses affected in the areas of the project, but no victims because people left their homes at the early warnings.” (Civil Defence Agent, June 2022)

The Waterproofing Data mobile app has been used to record daily rainfall before intense rains in the Recife Metropolitan area (Pernambuco) in May 2022.

Project Partners



Contact and further information

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