

## Infrastructural Rhythms – Connecting water, art, and science across boundaries

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### What was the initial situation?

The work package emerged within the framework of the project *Water Security for Whom? Social and Material Perspectives on Inequality around Multipurpose Reservoirs in Colombia (WS4W)*. Over the past five years, WS4W has investigated social-ecological inequalities in the Magdalena Basin, Colombia, particularly around hydropower infra-

structure and its impacts across the climate-water-energy-food nexus. Despite the project's interdisciplinary and international scope-spanning ethnography, hydrology, land system science, economics, history, and governance-there was a gap in terms of transdisciplinary engagement, both in the German context and in extending the reflections on Colombian rivers to other geographies.

This work package responds to that gap by initiating a participatory, transdisciplinary process that brings together researchers, artists, practitioners, and citizens from both Colombia and Germany. A central research question guiding this initiative is: *How do infrastructural processes in rivers - driven by dams, sluices, and resource demands - shape the temporalities of social and ecological relations along*

*the Magdalena and Spree Rivers?* The goal is to foster mutual learning and creative reflection on the material and social dimensions of water infrastructures.

Societally, the work package addresses the need for more inclusive and co-creative approaches to water research, particularly in the face of growing global water insecurities. Scientifically, it aims to fill a methodological and conceptual gap by integrating artistic and local knowledges with academic research. Through a series of workshops and a culminating exhibition, this initiative aims to open new pathways for collaboration and inspire future research directions on rivers against the background of the global energy transition and related processes across the climate-water-energy-food nexus.

### **What happened in the project?**

Infrastructure Rhythms designed a series of exploratory activities to facilitate transdisciplinary collaboration between researchers, artists, and practitioners from Colombia and Germany. Rooted in art-based research and embodied learning, the project emphasized creativity and sensory experience in fostering new understandings of riverine infrastructures and social-ecological dynamics.

Originally, the Colombian journalist Ginna Morelo and the German artist Maximilian Grünewald were expected to co-lead workshops. However, due to logistical constraints, their roles were not realized as initially planned. As a result, some of the initially envisioned formats were adapted, nonetheless the project retained transdisciplinary exchange as the facilitation was carried out by the core WS4W team, in collaboration with local artists and researchers.

The project began instead with a speculative workshop which was moderated by science communicator Kristin Werner, and invited stakeholders from infrastructure utilities, museums, administration, NGOs, and academia. The workshop focused on the historical narratives and “usable pasts” of infrastructure, aiming to provoke reflection on present and future decision-making. There were 16 participants. Through creative and exploratory methods, this opening session set a strong foundation for the project’s collaborative and creative formats.

In parallel, the Abraso Collective held collaborative meetings to engage with the ethnographic audiovisual material of the WS4W project. The videos, photos, and map resources served as the starting point for discussions on how social sciences engage with riverine communities. Guided by Laura Betancur Alarcon's fieldwork-based experiences as part of WS4W in the Magdalena River from 2021 to 2024, researchers and artists composed a script for a video on the “rhythms” that shaped the co-learning process between the researcher, the riverine communities, and the river during the fieldwork stay. The script details multiple temporal processes that overlap and form the ethnographic accounts, ranging from the Colombian political campaign to the extreme weather event of La Niña to the electricity generation of the dams. Abraso contributed to the development of narrative strategies, such as analogy frames and creative writing, to inspire researchers to ‘re-frame’ their work by thinking through visual images.

Furthermore, to embody those audio-visual inputs Abraso analysed Laura’s video journal, breaking down subtle details in the imagery to expand the scope of observation and understanding of the riverscape as something multilayered and full of nuances beyond the visual.

The collaboration progressed with two Berlin-based artists and journalists, Joshua Meissner and Klemens Czurda, as well as Matthias Zarama joining Abraso, Laura, and Pauline to form a team and encounter the rivers through experimental embodied methods.

**1. Harvesting the Senses:** Beginning with a Colombian coffee tasting that illustrates the connections between Colombian agriculture and Berlin's consumption, the team analyzed satellite images of the river, prepared traditional arepas while learning about different regions of the Magdalena and discussing how the river's geography relates to hydroelectric projects, seasonal farming, sediment patterns, fishing communities, and the dynamics of armed conflict.

**2. Immersing the Senses:** The team engaged in sound walks along the Spree, listening to underwater and above-water soundscapes, such as the Colombian bocachico fish. Afterwards, the team watched documentaries about both rivers, highlighting river-specific ecological and infrastructure narratives.

**3. Riverine Residencies:** The team branched out to experience the Spree river through embodied engagement—on foot, by bicycle, and through swimming. These multimodal forms offered unique entry points into riverine systems.

**4. Connecting the Senses:** The final session synthesizes the experiences and initiates collaborative outcome development which will culminate in an exhibition in October 2025.

### **What has been achieved?**

Infrastructure Rhythms generated important insights for challenging academic research on water-infrastructure relations, and enabling rethinking how art and public administration engage with scientific evidence.

The initial interactions with artists during the collaborative meetings illustrate this insight, as researchers had to identify which aspects of river research most effectively resonate with different disciplines and stakeholders. For instance, the "basin-level thinking" (Todd, 2016) framework was especially relevant, as it emphasizes the interconnectedness of a watershed across all relational dimensions. It enabled Colombian artists to situate themselves within the Magdalena basin through their personal histories and childhood experiences—connecting their individual lives to the basin even while living far away. Researchers, in turn, were challenged to consider concepts to engage non-academic audiences. Artists "shaped" these conceptual tools and their data into analogies and reflections that went beyond water, but were grounded in evidence from both hydrology and critical water studies.

Furthermore, the artists' approach helped turn the classical division of North/South. By linking tropical scenarios with European urban rivers through the common ground of science and art, the nuances, similarities, and differences between the two cases went beyond mere comparison and embraced critical thinking. The project revealed that sensing infrastructure—through sight, taste, sound, movement, and speculation—opens alternative ways of understanding socio-technical systems that are often perceived as abstract or static. For instance, through preparing food with water and flour, connections between water and sediments could be made, thereby reflecting on how infrastructure transforms sediment loads in the Magdalena River. Participants described their engagement through embodied learning as opening and shifting their awareness of the infrastructure. While the concept of rhythms remains abstract at times, it becomes graspable through the paces and patterns of movement by foot, bike, and boot.

One unexpected result was the interest among stakeholders from local administration and infrastructure utilities in the speculative methods in the first workshop. This suggests these methods

are far from “only artistic”, but can be productive spaces for rethinking institutional narratives, planning practices, and infrastructures.

### **What could happen next?**

The themes explored in this project, including art-based research, embodied and sensory engagement, and speculation, have laid the foundation for further international and transdisciplinary collaborations. Ideally, the work initiated could be deepened through further exchanges such as longer-term residencies, to further situate the work in the water- and landscapes, especially in Colombia. This would ensure further long-term impacts, as art-science collaborations should not be limited to funding time scales, which tend to shorten and condense meaningful exchanges.

Furthermore, art-science collaborations present further potential to draw a larger public audience. For example, the video developed by researchers and Abraso will be launched at Universidad Pontificia Javeriana in Colombia during the final public event of the WS4W project in October this year. By showing the video, we aim to engage university students in understanding how interdisciplinary river research can incorporate ethnographic methods and what can be gained from this approach. These artworks could potentially be presented at local museums or cultural organizations.

The collaboration with Colombian artists will continue in discussing how tropical geographies (in this case rivers) can provide a different perspective on environmental change. Specifically, we plan to continue with conversations and readings around erosion processes in coastal and riverine areas.

Further time and funding would also provide an opportunity to formalize how these sorts of transdisciplinary projects hold potential to shift academic frameworks of climate-water-energy-food systems—not only as technical structures, but also as cultural, historical, and affective landscapes. Finally, the speculative methods developed in the project could also be adapted for infrastructure planners and local administrations, offering accessible and creative ways to consider pasts, presents and futures of sustainable infrastructures.

### **Further information**

The festival Fluid Interdisciplinaries will take place from the 23-25 of October in Berlin and will serve as a platform where the completed products are showcased, allowing audiences to engage directly with the outcomes of the creative collaboration. This will include the multimodal pieces developed by the German artists—combining written text and photography, as well as the films from Abraso. Within the festival context, the pieces draw an audience from interested Berlin publics, as well as academics and artists from the organising institutions (which includes the Integrative Research Institute on Transformations of Human-Environment Systems (IRI THESys), the Centre for Cultural Techniques (ZfK), IHE Delft Institute for Water Education and the University of Montpellier). As such, the impact of Infrastructure Rhythms will be amplified through direct audience interaction, cultural exchange, and critical discussion.