

Fostering community engagement in small dam removal: Participatory approaches for restoration in the Alviela River, Portugal

L'engagement communautaire dans la suppression des
barrages: Approches participatives pour la restauration de la
rivière Alviela, Portugal

Maria Alba (1), Ana Catarina Miranda (2), Lígia Vaz de Figueiredo (2), Susana Batel (1), Maria Assunção Gato (3)

mmfab@iscte-iul.pt; catarina.miranda@gmail.com; ligiafvaz@gmail.com;
susana.batel@iscte-iul.pt; maria.gato@iscte-iul.pt

1. Instituto Universitário de Lisboa (ISCTE-IUL), Cis-IUL, Lisboa, Portugal
2. GEOTA – Grupo de Estudos de Ordenamento de Território e Ambiente, Portugal
3. Instituto Universitário de Lisboa (ISCTE-IUL), Dinâmia-CET, Lisboa, Portugal

RÉSUMÉ

Notre projet se concentre sur l'engagement communautaire dans un processus de suppression de barrages sur la rivière Alviela, au Portugal, visant à lutter contre le changement climatique et à améliorer la connectivité fluviale. Selon la littérature, l'implication précoce des communautés riveraines dans les processus de restauration écologique, tels que la suppression de barrages, est essentielle pour une gestion des rivières efficace, équitable et juste. Pour cela, nous avons mis en œuvre une approche qualitative participative et multi-méthodes structurée autour de trois objectifs principaux: (1) Incorporer les savoirs locaux - s'assurer que les décisions soient adaptées au contexte spécifique de la rivière Alviela et alignées avec les connaissances et préoccupations des habitants locaux; (2) Explorer les perspectives locales - recueillir les souvenirs communautaires et analyser les rôles sociaux et culturels de la rivière Alviela tels que perçus par ses habitants, en intégrant les relations entre les personnes et leur environnement—comme l'identité et l'attachement—et en veillant à renforcer ces liens tout au long du processus de suppression des barrages; (3) Partager des connaissances de manière efficace - diffuser des connaissances scientifiques et formelles sur des sujets tels que le changement climatique, la connectivité fluviale et la restauration écologique, avec un accent particulier sur le rôle de la suppression de barrages, dans un langage accessible et adapté à la communauté. Nous abordons également les défis liés au développement et à la co-construction de ce processus dans une communauté qui a historiquement concentré ses efforts sur d'autres questions pressantes de restauration écologique, notamment la pollution. Bien que nous reconnaissons les difficultés inhérentes à la participation publique dans des processus transformateurs comme la restauration fluviale, nous concluons que l'engagement communautaire est essentiel pour garantir le succès et la pertinence des initiatives de suppression de barrages.

ABSTRACT

Our project focuses on community engagement in a process of small dam removal in the Alviela River, Portugal, to tackle climate change and improve river connectivity. Engaging riparian communities early in ecological restoration processes, such as small dam removal, is essential for effective, equitable and just river management. Therefore, we used a participatory, multi-method qualitative approach that is structured around three primary objectives: (1) incorporating local knowledge to ensure that decisions are tailored to the Alviela's specific context and aligned with the knowledge and concerns of local residents; (2) exploring local perspectives and representations by collecting community memories and analyze representations and social functions of the Alviela from the residents' point of view, integrating people-place relations, such as identity and attachment, into the process, and ensuring these relationships are fostered and maintained throughout the process of removal; and (3) meaningful knowledge sharing by disseminating in a relatable way, formal and scientific knowledge on topics such as climate change, river connectivity, ecological restoration, and specially the role of small dam removal in addressing these issues. We discuss the challenges entailed by developing and co-

constructing this process in a community where historically there has been a focus on other pressing topics regarding ecological restoration of rivers, namely pollution. Although we acknowledge the challenges associated with community participation processes, we show how they are crucial for successful and meaningful removals.

KEYWORDS

community engagement, participatory approaches, people-place bonds, river connectivity, small dam removal
engagement communautaire, approches participatives, liens personne-lieu, connectivité fluviale, suppression de barrages

Extended Abstract

There is an urgent need to intertwine scientific knowledge and community participation in river restoration initiatives. Although the European Union has issued directives that regulate river restoration—particularly regarding river connectivity and associated initiatives such as small dam removals—Portugal has yet to establish a formalized proposal for river management in this context (Belletti et al., 2018). In this regard, small dam removal is crucial for preserving river ecosystems, which rank among the richest in our planet (Reid et al 2019). In addition, these ecosystems not only address essential human needs but are also constantly at risk, primarily due to human actions (Pan et al., 2016).

Our project addresses these challenges by engaging riparian communities in the Alviela River basin, Portugal, in a participatory process to remove small dams and improve river connectivity. Research underscores that early community engagement in ecological restoration processes is essential for achieving effective, equitable and sustainable outcomes (Fox et al., 2016; Reilly et al., 2018; Vall-Casas et al., 2024). Our approach aligns with principles of co-creation and non-instrumentalized participation (Batel, 2018; Gato et al., 2014; Ryder et al., 2023), empowering affected communities as key stakeholders in the decision-making process (Benages-Albert et al., 2015).

Our community-centered strategy is structured around three primary objectives:

- (1) **Incorporating Local Knowledge** (Castro, 2021): Decisions are tailored to the specific context of the Alviela River, ensuring alignment with the knowledge and concerns of local residents.
- (2) **Exploring Local Perspectives**: We aim to collect community memories and analyze the river's social and cultural significance, integrating people-place relationships such as identity and attachment into the restoration process (Wheeler, 2014).
- (3) **Meaningful Knowledge Sharing**: Scientific knowledge on climate change, river connectivity, and ecological restoration will be transmitted in relatable and accessible ways to build community trust (Botsman, 2016; Corner et al., 2014).

Methodology

We employ a participatory, multi-method qualitative approach (Benages-Albert et al., 2015), beginning with stakeholder mapping to identify relevant local actors. This step involved cross-referencing an existing stakeholder list with insights from interviews with six local actors. Stakeholders were then categorized by priority of engagement and their roles within the process. We focused on entities such as sports and recreational organizations, as well as environmental associations. These environmental associations - which have historical ties to river restoration efforts in addressing pollution - are key collaborators in mobilizing the community. Their long-standing defence for a clean and healthy river highlights the importance of their involvement since early stages of the process.

In the next phases, we plan four participatory workshops near the Alviela River to address objectives (1) and (3), focusing on dam removal and integrating insights from stakeholder engagement. Walking/In place interviews with community members, particularly elderly residents (Alba & Batel, 2024; Napier et al., 2024), will delve into memories and representations of the river, bridging past and future perspectives (Wheeler, 2014). Findings from these interviews will contribute to the workshop design and address

objective (2).

Finally, a comprehensive survey will be developed to analyze community concerns and gather broader input on the potential for small dam removal in the Alviela River. This survey will ensure inclusivity of local voices, allowing a broader comprehension of the local context.

Broader Implications

This process seeks to demonstrate how participatory methods can align ecological restoration goals with community needs, following a model for sustainable and equitable river management (Vall-Casas et al., 2024). By combining local knowledge and values, scientific expertise, and inclusive engagement strategies, the project contributes to the broader goal of reconnecting rivers and adapting to climate change, bringing together different agents and types of knowledge to this aim. We expect that the process of community engagement developed throughout this process can then be adapted and applied to other contexts where small dam removal is important, nationally and internationally.

Challenges and Expected Outcomes

While public participation in transformative processes like river restoration through barrier removal presents challenges, research on this topic underscores the importance of building trust with local populations and key stakeholders (Germaine et al., 2021) to prevent and overcome those challenges. Implementing participatory processes that foster trust is vital for the success of these (and future) interventions. This reinforces the idea that meaningful community engagement is not merely beneficial but fundamental to achieving lasting ecological and social outcomes in river restoration.

In this presentation, we discuss the co-designed methods employed to achieve our three objectives, emphasizing the challenges posed by the historical context of the Alviela River, including pollution and institutional distrust. Additionally, we address the expected outcomes of our project, namely increased community engagement and renewed awareness of the Alviela River and the need for small dam removal.

LIST OF REFERENCES *(only for scientific papers)*

Alba, M., & Batel, S. (2024). Understanding Short and Long Mobilities Together: Place Attachment and Community Dynamics in Mouraria, Lisbon. *Journal of Community & Applied Social Psychology*, 34(6), e70003.

Batel, S. (2018). A critical discussion of research on the social acceptance of renewable energy generation and associated infrastructures and an agenda for the future. *Journal of Environmental Policy & Planning*, 20(3), 356-369.

Belletti, Barbara; Bizzi, Simone; Castelletti, Andrea; Garcia de Leaniz, Carlos; Borger, Luca; Jones, Josh; del Amo, Rosa Olivo; Segura, Gilles; Tummers, Jeroen; va der Bund, Wouter; AMBER consortium (2018). Small isn't beautiful: the impact of small barriers on longitudinal connectivity of European rivers. *Geophysical Research Abstracts*. Vol. 20, EGU2018-14377.

Benages-Albert, M., Di Masso, A., Porcel, S., Pol, E., & Vall-Casas, P. (2015). Revisiting the appropriation of space in metropolitan river corridors. *Journal of Environmental Psychology*, 42, 1-15.

Botsman, R., (2016), 'We've stopped trusting institutions and started trusting strangers' [Video], *TEDSummit*. Available at: https://www.ted.com/talks/rachel_botsman_we_ve_stopped_trusting_institutions_and_started_trusting_strangers?language=en

Castro P. A Dynamic View of Local Knowledge and Epistemic Bonds to Place: Implications for Senses of Place and the Governance of Biodiversity Conservation. In: Raymond CM, Manzo LC, Williams DR, Di Masso A, von Wirth T,

eds. *Changing Senses of Place: Navigating Global Challenges*. Cambridge University Press; 2021:259-270.

Corner, A., Markowitz, E., & Pidgeon, N. (2014). Public engagement with climate change: the role of human values. *Wiley Interdisciplinary Reviews: Climate Change*, 5(3), 411-422.

Fox, C. A., Magilligan, F. J., & Sneddon, C. S. (2016). "You kill the dam, you are killing a part of me": Dam removal and the environmental politics of river restoration. *Geoforum*, 70, 93-104.

Gato, M., Ramalhete, F., Vicente, S. & Vergheit, G. (2014). A participatory public art process in Almada: Agents and values. In Pedro Soares Neves, Daniela V. de Freitas Simões (Ed.), *Lisbon Street Art and Urban Creativity International Conference: proceedings*. Lisboa: Pedro Soares Neves.

Germaine, M. A., Drapier, L., Lespez, L., & Styler-Barry, B. (2021). How to better involve stakeholders in river restoration projects: the case of small dam removals. *River Restoration: Political, Social, and Economic Perspectives*, 147-168.

Napier, S., Neville, S., & Adams, J. (2024). Ageing in place in a rural town in Aotearoa New Zealand: A Deweyan transactional perspective. *Journal of Rural Studies*, 111, 103413.

Pan, Baozhu; Yuan, Jianping; Zhang, Xinhua; Wang, Zhaoyin; Chen, Jiao; Jinyou, Lu; Yang, Wenjun; Li, Zhiwei, Zhao, Na; Xu Mengzhen. (2016). A review of ecological restoration techniques in fluvial rivers. *International Journal of Sediment Research* (31)110–119.

Reid, A. J., Carlson, A. K., Creed, I. F., Eliason, E. J., Gell, P. A., Johnson, P. T., ... & Cooke, S. J. (2019). Emerging threats and persistent conservation challenges for freshwater biodiversity. *Biological Reviews*, 94(3), 849-873.

Reilly, K., Adamowski, J., & John, K. (2018). Participatory mapping of ecosystem services to understand stakeholders' perceptions of the future of the Mactaquac Dam, Canada. *Ecosystem Services*, 30, 107-123.

Ryder, S., Walker, C., Batel, S., Devine-Wright, H., Devine-Wright, P., & Sherry-Brennan, F. (2023). Do the ends justify the means? Problematizing social acceptance and instrumentally-driven community engagement in proposed energy projects. *Socio-Ecological Practice Research*, 5(2), 189- 204.

Vall-Casas, P., Juárez-Bourke, A., Garcia-Acosta, X., Benages-Albert, M., & Germaine, M. A. (2024). Reviewing the evidence on riparian community engagement: A conceptual framework of community-based river management. *Environmental Science & Policy*, 161, 103887.

Wheeler, R. (2014). Mining memories in a rural community: Landscape, temporality and place identity. *Journal of Rural Studies*, 36, 22-32.