



Effective participation in a sustainability transition that leaves no one behind

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ARTICLE INFO

Keywords:

Sustainability
Transitions
Effective participation
Case studies
Participatory, methodology

ABSTRACT

This paper explores the potential of participatory legal research approaches to address the challenges associated with sustainability transitions. Examining research projects conducted in collaboration with Indigenous communities from Peru and Brazil, the paper details the participatory methods adopted in each case study and subsequently demonstrates the effectiveness of these participatory and co-created research approaches in tackling sustainability issues. The active engagement of Indigenous communities, in the research design and implementation process was found to generate context-specific knowledge and foster a sense of ownership and shared responsibility. The findings suggest that a participatory and co-created research approach can provide a way forward to achieving effective, transformative solutions in the context of sustainability transitions.

1. Introduction

1.1. Background

Transitioning to sustainable practices, norms, and governance models requires an advanced theoretical framework in environmental governance.¹ In this study, we endeavour to address the challenges of sustainability transition(s)² by presenting an overview of an innovative

approach to legal research, which represents a significant departure from conventional environmental law methods based on doctrinal analysis and case law commentaries.³ In our article, we focus exclusively on the challenges that the transition to sustainability presents for social sciences research, and more specifically for law. The shift toward sustainable environmental governance demands significant advancement in researchers' understanding of legal framework as relational.⁴ Relationality in legal framework focuses on the connections between human

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¹ Böhme, J., Walsh, Z. & Wamsler, C. (2022) Sustainable lifestyles: towards a relational approach. *Sustain Sci* 17, 2063–2076. <https://doi.org/10.1007/s11625-022-01117-y>; EEA Briefing No 18/2023 available at <https://www.eea.europa.eu/publications/the-case-for-public-participation> last access January 2024.

² For the scope of this paper, we refer to sustainability transition(s) as the multi-step process aimed at achieving long-term social, economic, and environmental sustainability. In this paper, we choose not to analyze the controversial aspects of sustainability. Instead, we concentrate on our approach to addressing the challenges encountered in transitioning towards a common future for all. For a critical analysis of the concept of sustainability through participation seen Poto, M. P. (2023), *Sustainability Through Participation: Critical Reflections on the Epistemic Adequacy of the Western Legal Approach to Square the Circle and Grant a Common Future for All*, in Peters B. Lohse E. (ed. by), *Sustainability Through Participation? Legal Perspectives*, Brill, pp. 491–519.

³ Scotford, E. (2017). *Environmental principles and the evolution of environmental law*. Bloomsbury Publishing.

⁴ Macpherson, E. (2022). Can Western water law become more 'relational'? A survey of comparative laws affecting water across Australasia and the Americas. *Journal of the Royal Society of New Zealand*, 53(3), 395–424. <https://doi.org/10.1080/03036758.2022.2143383>

societies and the biophysical environment, and therefore imposes a reflection on the need to develop effective legal approaches that protects both.⁵ In our previous research, we present an evolutionary path of participation, examining its role as a fundamental right, a tool for enabling human rights, a meaningful response to sustainability challenges, and a methodological approach to addressing these challenges from a knowledge-based perspective.⁶ This comprehensive study on the development of participation in law has led us to develop a legal methodological approach that underscores the importance of participation and inclusivity in the knowledge-creation process, which we refer to as "effective participation." Our concept of "effective participation" builds on, but also moves beyond, Sherry Arnstein's ladder of participation.⁷ This comprehensive study on the development of participation in environmental law⁸ has led us to develop a legal methodological approach that underscores the importance of participation and inclusivity in the knowledge-creation process, which we refer to as "effective participation."⁹ This new model aims to overcome the limitations of Arnstein's ladder, which categorizes levels of participation in a hierarchical structure, often criticized for focusing more on the form rather than the substance of participation. Our vision of effective participation emphasizes a deeper and more meaningful engagement, where all voices have a real and tangible impact on decisions and policies. In this way, we aspire to a form of participation that not only informs but actively transforms existing power structures for greater equity and social justice. Our methodological approach is predicated on three dimensions of participation identified in our past research collaborations. The three dimensions of participation include the epistemological, wherein participation serves as a foundational element of environmental governance with procedural and substantive implications¹⁰; the ecological, wherein participation serves to re-establish the connections within the ecosystem¹¹; and the methodological, wherein participation informs innovative approaches to environmental legal research.¹² Moreover, in

our multidimensional legal methodology, effective participation serves as the guiding principle. This guiding principle helps integrate elements of participatory action research (PAR), Indigenous methodology, and critical legal research. We applied this integrated, multidimensional approach in collaboration with Indigenous communities in Peru (Kichwa and Kukama Indigenous People) and Mato Grosso, Brazil (Chiquitano Indigenous People), with the aim to create participatory and inclusive environmental solutions that are informed by a diverse range of perspectives.¹³ In this way, our methodological approach facilitates collaboration and meets the legal objective of establishing effective environmental participation (as mentioned above). It is foreseeable that applying a participatory methodology in the field of environmental law can lead to substantive changes in two critical areas: firstly, in the domain of human rights, including the rights to a healthy environment and clean water (as illustrated in the case of Peru in [Section 3.2](#)); and secondly, in the domain of nature's rights, such as the right of water to be protected, resulting in obligations on humans to safeguard it (as illustrated in the case of Brazil in [Section 3.3](#)). Subsequently, our methodological approach is rights-based, contributing to the implementation and compliance with human and participatory rights. Granted the use of participatory methods are fairly commonplace in environmental governance and policy studies however, the recognition of such methods and their integration into legal research have been relatively limited.¹⁴ In this article we contend that participatory and co-created methodological approaches are key to unlocking effective participation and, facilitating the requisite shifts in knowledge creation within legal research for sustainability transitions.

1.2. A research approach rooted in participation

As introduced earlier in this article, the concept of participation has evolved from the acknowledgement of participation as a procedural right in environmental decision-making processes to its status as a right to actively contribute to the formation of knowledge systems.¹⁵ In the context of environmental governance, procedural environmental rights refer to the legal recognition of individuals or communities to participate in decision-making processes that affect the environment.¹⁶ These rights emerged as a response to the need for public involvement in

⁵ Biermann, F., Campe, S., & Jacob, K. (2004). Knowledge for the sustainability transition and the challenge for social science—an introduction. In Proceedings of the 2002 Berlin conference on the human dimensions of global environmental change "Knowledge for the Sustainability Transition. The Challenge for Social Science". Global Governance Project, Amsterdam, Berlin, Potsdam and Oldenburg, p. 3.

⁶ Poto M. P. (2022), *Environmental Law and Governance: The Helicoidal Pathway of Participation* a study of a nature-based model inspired by the Arctic, the Ocean, and Indigenous Views Giappichelli, Torino, ISBN/EAN 978-88-921-2225-3, pp. 1–241.

⁷ Arnstein S. R. (1969) A ladder of citizenship participation, *Journal of the American Institute of Planners*, 26, p.216.

⁸ Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Århus Convention). (1998). United Nations Economic Commission for Europe <https://unece.org/DAM/env/pp/documents/cep43e.pdf>.

⁹ See the letter of the law, e.g. Århus Convention, art. 6, para 1 and 3.

¹⁰ On the evolution of participation from the ladder metaphor of Sherry R. Arnstein (1969), see Poto, M. P. (2016), Some methodological help to classify participatory rights: ladders, wheels and the spoke-hub paradigm, in Poto, M. P. (2016), *Participatory rights of Indigenous peoples: the virtuous example of the Arctic region*, ELM; Arnstein S. R. (1969) A ladder of citizenship participation, *Journal of the American Institute of Planners*, 26, p.216.

¹¹ Poto M. P. (2022), *Environmental Law and Governance: The Helicoidal Pathway of Participation* a study of a nature-based model inspired by the Arctic, the Ocean, and Indigenous Views Giappichelli, Torino, ISBN/EAN 978-88-921-2225-3, p. 25.

¹² Poto, M. P. (2022), *Environmental Law and Governance: The Helicoidal Pathway of Participation* a study of a nature-based model inspired by the Arctic, the Ocean, and Indigenous Views Giappichelli, Torino, ISBN/EAN 978-88-921-2225-3, pp. 1–241.

¹³ On PAR as a part of legal methodology see Poto, M., Porrone A., Hayden-Nygren J. (2023): Knowledge co-creation as a methodological approach: participatory approaches to environmental legal research in Lohse, Poto, Coproduction of knowledge in Climate Governance, Berliner Wissenschafts-Verlag, ISBN 978-3-8305-5538-4, pp. 27–55; on PAR within the sustainable development discourse see Keahey, J. (2021). Sustainable development and participatory action research: a systematic review. *Systemic Practice and Action Research*, 34(3), 291–306; Wittmayer, Julia M., and Niko Schöpke. "Action, research and participation: roles of researchers in sustainability transitions." *Sustainability science* 9 (2014): 483–496.

¹⁴ Holifield, R., Porter, M., & Walker, G. (2010). Spaces of Environmental Justice: Frameworks for Critical Engagement. *Antipode*, 41(4), 591–612; Bradlow, D. D., & Fennell, L. A. (2003). Ecological Entitlements: Regulatory and Legal Responses to Loss of Biodiversity. *Ecology Law Quarterly*, 30(1), 175–225.

¹⁵ Poto, M. P. (2022). *Environmental Law and Governance: the helicoidal pathway of participation. A study of a nature-based model inspired by the Arctic, the Ocean, and Indigenous Views* (pp. 1–241). Giappichelli

¹⁶ Ibidem.

environmental matters given that environmental issues have widespread repercussions on society.¹⁷ Examples of procedural environmental rights include the right to access environmental information, the right to public participation in decision-making, and the right to access justice in environmental matters.¹⁸ In previous studies, we observe how the evolution of participation has followed a helicoidal structure, in essence, the concept of participation has been further developed and implemented in reoccurring instances and multiple contexts. In particular, we observed how the evolutionary path of participation has led to the construction of a nature-centred environmental governance model that recognizes the importance of involving stakeholders in decision-making processes and then progressively in the co-creation of knowledge systems.¹⁹ This approach emphasize the inclusion of diverse perspectives, local and Indigenous knowledge, and collaborative problem-solving. Subsequently, the notion of participation extends beyond its legal framework and has been integrated into research methodologies.²⁰ Researchers have recognized the transformative value of including stakeholders, such as communities, NGOs, and affected individuals, in the research process to increase the relevance, quality, and applicability of research outcomes.²¹ This integration is often referred to as participatory (or) action research (PAR), whereby stakeholders actively participate in the research design, data collection, analysis, and dissemination of findings.²² By incorporating participatory approaches within legal research, and in general, responding to the call for action research for socio-ecological and regulatory transformation, researchers themselves can foster an inclusive, culturally aware, and equitable scientific research process.²³ This shift toward effective participation in legal research strengthens the body of knowledge on sustainability and furthermore addresses sustainability challenges from diverse perspectives.

1.3. Research question and areas of investigation

This paper addresses the central question - how do participatory approaches in legal research and the co-creation of knowledge contribute to the development of effective participation and a

¹⁷ A rights-based approach to participation stemmed from the Rio Declaration in 1992, 30 and due to the influence and evolution of administrative law, environmental rights have become one of the guarantees or pillars of good environmental governance. Lazarus, R. J. (2023). *The making of environmental law*. University of Chicago Press; Gellers, J. C., & Jeffords, C. (2018). *Toward environmental democracy? Procedural environmental rights and environmental justice*. *Global Environmental Politics*, 18(1), 99–121; Peters, B. (2018). *Unpacking the diversity of procedural environmental rights: the European Convention on Human Rights and the Aarhus Convention*. *Journal of Environmental Law*, 30(1), 1–27.

¹⁸ Lohse, E. J., Poto, M.P., & Parola, G. (Eds.). (2015). *Participatory rights in the environmental decision-making process and the implementation of the Aarhus Convention: a comparative perspective* (Vol. 205). Duncker & Humblot.

¹⁹ Lohse E. J., Poto M. P. (2022) *Coproduction of knowledge in Climate Governance*, Berliner Wissenschafts-Verlag, 2022, ISBN 978-3-8305-5538-4

²⁰ Lohse E. J., Poto M. P. (2022) cit.

²¹ Lohse, E. J., Poto, M. P., Campos, C., Duglio, S., Engst, M., Fischer, M., Gänzle, R., Hayden-Nygren, J., Kuhlmann, D., Lawrenz, I., Morrison, A., Owens, A., Panieri, G., Parola, G., Porrone, A., Schafmeister, P., Ströher, A., & Weidelt, T. (2023). *An Innovative Partnership and Methods for Knowledge Co-Production in Water Governance. The case study of the Gesso Stura Natural Park*. *Septentrio Reports*, (1). <https://doi.org/10.7557/7.7092>

²² Cornish, F., Breton, N., Moreno-Tabarez, U., Delgado, J., Rua, M., de-Graft Aikins, A., & Hodgetts, D. (2023). *Participatory action research. Nature Reviews Methods Primers*, 3(1), 34.

²³ Bradbury, H., Waddell, S., O'Brien, K., Apgar, M., Teehanke, B., & Fazey, I. (2019). *A call to action research for transformations: The times demand it*. *Action Research*, 17(1), 3–10

transformative shift in knowledge systems that facilitates sustainability transitions? ²⁴ To answer the research question, we conduct an analysis of three distinct research methods, namely participatory action research,²⁵ Indigenous methodology,²⁶ and critical legal research,²⁷ and demonstrate how these methods have been applied in research projects contributing to effective environmental participation. Specifically, we examine their applicability and relevance in local contexts, focusing on the Kichwa and Kukama Indigenous communities from Peru,²⁸ and the Chiquitano People from Mato Grosso, Brazil.²⁹ The common thread throughout our preliminary findings is that three identified categories of co-created approaches to research all directly contributed to facilitating sustainability transitions. The three categories included community members and environmental rights bearers in legal research efforts.

In the following sections, we introduce how participation is tied to and can advance sustainability transitions, synthesize the general reasoning for its adoption, and put forth recommendations for public participation that emerge from the perspectives of environmental legal research. We proceed by presenting the methodology adopted in our projects and discussing the central elements of participatory action research (PAR). We further explore the development needs of co-created PAR projects within the broader context of environmental law and sustainability research. Finally, the last section of the paper provides several conclusions regarding the efficacy of participatory research in addressing challenges related to sustainability transitions.

2. Material and methods

2.1. Context of the research

The research in both studies aimed to achieve effective participation as stated in the letter of the law (Århus Agreement, 1998), through meaningful engagement of all involved parties in environmental governance. In the first case, which examined how international law can respond to the situation of the human right to water (HRW) in watersheds affected by the hydrocarbon industry in Peru, the main finding was that a combination of participatory research methods is necessary to elicit the emic conception of the human right to water and to compare it with the international legal formulation. In the second case, focusing on how to co-create a model for water governance in Brazil, we shared the co-creation results from participatory approaches to research, requiring

²⁴ Huttunen, S., Ojanen, M., Ott, A., & Saarikoski, H. (2022). *What about citizens? A literature review of citizen engagement in sustainability transitions research*. *Energy Research & Social Science*, 91, 102714.

²⁵ Hagan, M. (2020). *Legal Design as a Thing: A Theory of Change and a Set of Methods to Craft a Human-Centered Legal System*. *Design Issues*, 36(3), 3–15; Yang, Q., Wong, R. Y., Gilbert, T., Hagan, M. D., Jackson, S., Junginger, S., & Zimmerman, J. (2023, April). *Designing Technology and Policy Simultaneously: Towards A Research Agenda and New Practice*. In *Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems* (pp. 1–6).

²⁶ Napoleon, V. (2012). *Thinking about Indigenous legal orders*. In *Dialogues on human rights and legal pluralism* (pp. 229–245). Dordrecht: Springer Netherlands; Smith, C., Diver, S., & Reed, R. (2023). *Advancing Indigenous futures with two-eyed seeing: Strategies for restoration and repair through collaborative research*. *Environment and Planning F*, 26349825221142292.

²⁷ Hagan, M. (2020). *Legal Design as a Thing: A Theory of Change and a Set of Methods to Craft a Human-Centered Legal System*. *Design Issues*, 36(3), 3–15; Yang, Q., Wong, R. Y., Gilbert, T., Hagan, M. D., Jackson, S., Junginger, S., & Zimmerman, J. (2023, April). *Designing Technology and Policy Simultaneously: Towards A Research Agenda and New Practice*. In *Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems* (pp. 1–6).

²⁸ See further section 4.4.

²⁹ <https://en.uit.no/project/ecocare> last access January 2nd, 2024.

a multi-step process based on trust-building. More specifically, the research was conducted through participatory initiatives with Indigenous communities in the Northern Amazon, Peru, encompassing Kichwa and Kukama groups, and Mato Grosso, Brazil, involving the Chiquitano Indigenous People. The research team engaged in extensive fieldwork, adopting a participatory approach throughout, based on conversations, interviews, research group works, workshops. For a synoptic overview of the two cases, the empirical materials and research methods adopted, refer to 3.4 Discussion.

2.2. Empirical materials

Empirical materials utilized in Peru included focus group interviews and semi-structured individual interviews both of which explored the environmental assessments from the Kichwa and Kukama knowledge systems. Field expeditions were carried out in direct collaboration with Indigenous leaders to map watersheds, assess water quality, and understand the multifield impact of oil production. Indigenous leaders actively participated in mapping exercises, water quality observations, and assessments of oil spill-affected areas. The participating Indigenous communities informed the researchers of the significance of bio-indicators as evidence of hydrocarbon contamination during field expeditions.

In Brazil, the researchers participated in two projects with the Chiquitano Indigenous People, where education and research groups were formed and contributed to the development of legal documents, books, video-documentaries, workshops and media content. Co-created materials on environmental participation and river protection were developed in collaboration with school pupils, teachers, and community members. The research process also included the creation of co-authored video documentaries which depict the development of environmental participatory processes.

2.3. Research methods

The research presented in this paper used the following methods:

A) Participatory Action Co-Created Research (PAR)

This approach, rooted in legal creativity, visual law, and legal design, emphasizes active collaboration with Indigenous communities. The researchers worked closely with the participating communities to co-create solutions and insights, in the context of environmental assessments and legal considerations.

B) Critical Legal Research (CLR)

In our case studies, we apply CLR to critically analyse legal frameworks and their implications on Indigenous rights and environmental protection. CLR allows for an in-depth examination of existing legal structures, identifying potential knowledge gaps or areas requiring reform.

C) Indigenous Research Methodology with the Method of Two-Eyed Seeing

This method integrates Indigenous perspectives and traditional knowledge into the research process. The researchers embraced a holistic approach, recognizing the importance of understanding legal issues through both Indigenous and academic lenses.

Subsections 2.4–2.6 elaborate on the three methods, while Section 3 is dedicated to the exploration of how the three methods were applied in our empirical legal research within the two case studies.

2.4. Participatory action, co-created research (PAR)

Building upon our expertise in designing participatory approaches to legal research through co-creation with Indigenous and local

communities, our research approach adopts PAR.³⁰ PAR integrates participatory research methods with the tools of legal design and visual law. Legal design is an innovative application of design thinking within the field of law, harnessing visual creativity and digital tools such as virtual platforms, online whiteboards, and mind mapping.³¹ Visual law, an outcome of the legal design process, visually conveys rights, responsibilities, and judicial processes. The integration of legal design, visual law, and PAR thus enables the collaborative co-designing of documents, products, services, spaces, policies, and laws, addressing systemic challenges faced by various Indigenous, local, and other communities engaged in the participatory co-creation process.³² By incorporating interdisciplinary and multicultural perspectives of diverse groups, this approach can foster collaboration among stakeholders (community members, cultural mediators, researchers, activists, teachers and learners) in decision-making processes through workshops and co-design sessions.³³ Through the active involvement of community members at every stage of the project, PAR promotes an erudite understanding of the participating communities' perceptions of environmental governance model case studies and justice-related issues. This collaborative approach goes beyond legal preparation, further aiming to raise socio-environmental rights awareness, empower communities, and engage relevant actors in decision-making processes. The aim in applying PAR in legal research and governance matters is to foster community resilience, build sustainable partnerships, and advocate for systemic changes to effectively address the environmental challenges faced by the communities involved.³⁴ Our approach to PAR carries significant legal implications due to our collaborative method of co-creating legal documents. Through this approach, the addressees of the legal documents, become the protagonists of the document itself. Through merging legal design and visual law with PAR the addressees were able to craft their own version of documentation; in the instance of Brazil, they acted as both the voices behind the legal document and the faces of the challenge to their water rights. In the field work in Mato Grosso, this represents an ideal implementation of participatory rights through the co-creation of the agreement in a visual format. The overall objective of the PAR approach applied in our research has been to foster innovative solutions and promote an inclusive, equitable and efficacious legal system that addresses pressing environmental issues.³⁵

2.5. Critical legal research (CLR)

Critical legal research (CLR) is an approach to research and analysis of law that goes beyond the scope and *foci* of the conventional dogmatic legal research methodology.³⁶ Whereas dogmatic legal research uses normative legal materials to clarify and assess the meaning and

³⁰ Poto, M. P., Porrone, A., Hayden-Nygren, J. (2022) Knowledge co-creation as a methodological approach: participatory approaches to environmental legal research in Lohse E. J., Poto M. P., Coproduction of knowledge in Climate Governance, Berliner Wissenschafts-Verlag, 2022, ISBN 978-3-8305-5538-4.

³¹ On the stages of legal design applied in our research projects see Parola, G., Muquissai, S., Poto, M. P. (2022). A co-created project of Legal Design and Visual Law applied to International Environmental Law: transformation of the Escazú Agreement and Environmental Access Rights into visual materials for and with the Chiquitano People in LOHSE, POTO, Coproduction of knowledge in Climate Governance, Berliner Wissenschafts-Verlag, 2022, ISBN 978-3-8305-5538-4.

³² Parola, G., Poto, M. P. (2022) Tarumã, waters that speak, cit.

³³ Parola, G., Poto, M. P. (2022) Tarumã, waters that speak, cit.

³⁴ Chowkwanyun, M. (2023). Environmental Justice: Where It Has Been, and Where It Might Be Going. Annual Review of Public Health, 44, 93–111.

³⁵ Parola, G., Poto, M. P. (2022) Tarumã, waters that speak, cit.; Chilisa, B. (2019). Indigenous research methodologies. Sage publications.

³⁶ Bunbury, S., & Philippopoulos-Mihalopoulos, A. (2023). The Law School Degree Show: law, materiality, decolonization and authentic assessment. The Law Teacher, 1–14.

significance of the rule of law, i.e. the systematization and interpretation of the valid legal norms in question, CLR aims to probe and challenge existing legal frameworks, norms, and power structures. This type of research is applied to investigate underlying assumptions, biases, and inequalities within the law and its application. A growing body of literature argues that CLR has the potential to capture the substantive articulation and restatement of laws that reflect human and nature rights.³⁷ By critically examining legal provisions, case law, and legal principles, researchers can identify and articulate laws that protect and promote these rights. This involves scrutinizing legal texts, judicial decisions, and legal doctrines to discover possible gaps, inconsistencies, or limitations in the legal framework. Moreover, critical legal research enables the development of community-specific research questions.³⁸ Instead of imposing a predefined research agenda, this approach involves engaging with communities directly affected by the research topic. Through the act of involving community members in the research process, researchers can identify and address the specific legal concerns, challenges, and aspirations of those communities to redress the issues. Analysing scientific data and cases is another component of critical legal research. By examining scientific studies, empirical data, and relevant cases, researchers can gain an erudite understanding of the scientific underpinnings and practical implications in order to support evidence-based legal arguments. The process of critical legal research lends itself to the creation of a synthesized body of law around the research topic. The CLR process involves applying a critical lens to law, by examining legal doctrines, principles, and precedents to develop a coherent legal framework that addresses the specific research question or problem. The analysis of various legal sources, including statutes, regulations, treaties, and case law enables researchers to establish an exhaustive understanding of the legal landscape related to the research topic. This synthesized body of law can then be used as a basis for legal analysis, argumentation, and advocacy.³⁹ Lastly, critical legal research involves applying and evaluating the implementation of the research results. This step focuses on assessing the real-world impact and effectiveness of the proposed legal solutions, for example, researchers may design environmental impact assessments (EIAs) which include community participation beyond the scoping stage. By engaging with policymakers, legal practitioners, and affected communities, researchers can evaluate how the synthesized body of law has been implemented and whether its implementation has achieved the intended objectives.⁴⁰ This evaluation helps to identify areas for improvement, informs future research projects and legal reforms, and contributes to the ongoing development of legal frameworks and practices.⁴¹

2.6. Indigenous research methodology with the method of the Two-Eyed seeing

Two-Eyed Seeing is an Indigenous research methodology, highly relevant to PAR, that can be used to help implement sustainability transition. Two-Eyed Seeing was developed by Mi'kmaq Elder Albert

Marshall and his colleagues in 2004.⁴² Two-Eyed Seeing is based on the concept of integrating Indigenous knowledge and Western scientific knowledge to create an integrated and balanced approach to legal research. In the context of Two-Eyed Seeing, the term "seeing" refers to perceiving and understanding the world.⁴³ The imagery of "two eyes" symbolizes the merging of two knowledge systems, Indigenous and Western, to gain a more comprehensive, culturally inclusive understanding of research topics.⁴⁴ Two-Eyed seeing can be applied throughout various stages of the research process. First, it can be utilized to frame research questions. Indigenous knowledge and perspectives are to be incorporated alongside scientific methods, allowing for the formulation of research questions that are culturally relevant and address the specific needs and interests of Indigenous communities. Second, Two-Eyed seeing can guide the collection of data. It recognizes that knowledge can be obtained through multiple ways of knowing, including oral traditions, storytelling, observations, and scientific methods. Researchers adhering to this methodology aim to gather data using a combination of Indigenous approaches and standardized methodologies of Western science.⁴⁵ Finally, Two-Eyed Seeing informs the analysis of research results. Indigenous knowledge systems and Western scientific approaches are integrated to analyse and interpret the data. This multiperspective analysis aims to uncover connections, patterns, and insights that may not be apparent when using a perspective from a singular academic discipline. By combining different ways of knowing, researchers can develop a more nuanced understanding of the research findings. The use and recognition of Two-Eyed Seeing reflects a commitment to decolonizing research practices and promoting knowledge co-creation.⁴⁶ This method highlights the importance of Indigenous perspectives, knowledge, and self-determination in shaping research agendas, outcomes, and environmental practices.

Significantly, focusing on Indigenous knowledge within participatory research methodologies serves multiple important functions. Our research endeavours find that the method of Two-Eyed Seeing both facilitates effective participation and addresses rights-based challenges by delivering robust solutions for the sustainability transition. The acknowledgement of Indigenous peoples insights and philosophies, such as their cosmologies, helps to rectify the historical marginalization of Indigenous perspectives.⁴⁷ Within the context of legal research, integrating PAR with Indigenous methodologies can help affirm Indigenous peoples rights to protection, participation, inclusion, knowledge, justice,

⁴² Bartlett, C., Marshall, M., & Marshall, A. (2012). Two-eyed seeing and other lessons learned within a co-learning journey of bringing together Indigenous and mainstream knowledges and ways of knowing. *Journal of Environmental Studies and Sciences*, 2, 331–340.

⁴³ See further Poto, M. P. (2022) *Environmental Law and Governance: The Helicoidal Pathway of Participation a study of a nature-based model inspired by the Arctic, the Ocean, and Indigenous Views* Giappichelli, Torino, ISBN/EAN 978-88-921-2225-3, pp. 1–241.

⁴⁴ Poto, M. P., Porrone, A., Hayden-Nygren, J. (2022) *Knowledge co-creation as a methodological approach: participatory approaches to environmental legal research* in Lohse, E. J., Poto, M. P. (2022) *Coproduction of knowledge in Climate Governance*, Berliner Wissenschafts-Verlag, ISBN 978-3-8305-5538-4.

⁴⁵ Colbourne, R., Moroz, P., Hall, C., Lendsay, K., & Anderson, R. B. (2020). Indigenous works and two eyed seeing: mapping the case for Indigenous-led research. *Qualitative Research in Organizations and Management: An International Journal*, 15(1), 68–86.

⁴⁶ Smith, C., Diver, S., & Reed, R. (2023). Advancing Indigenous futures with two-eyed seeing: Strategies for restoration and repair through collaborative research. *Environment and Planning F*, 26349825221142292; Parola, G., Poto, M. P. (2022) *Tarumã, waters that speak*, cit.

⁴⁷ Poto, M. P., Enyew, E. L., Anaya, J., Indigenous Peoples Law and Climate Change, in C. Voigt and H. C. Bugge (Eds.), *Klimarettbok*, (II edition) UiO, forthcoming, 2024.

³⁷ Unger, R. M. (2015). *The critical legal studies movement: another time, a greater task*. Verso Books; Calzadilla, P. V., & Kotzé, L. J. (2018). *Living in harmony with nature? A critical appraisal of the rights of Mother Earth in Bolivia*. *Transnational Environmental Law*, 7(3), 397–424; De Lucia, V. (2017). Beyond anthropocentrism and ecocentrism: a biopolitical reading of environmental law. *Journal of Human Rights and the Environment*, 8(2), 181–202.

³⁸ Finn, J. L. (1994). The promise of participatory research. *Journal of Progressive Human Services*, 5(2), 25–42.

³⁹ Houh, E. M., & Kalsem, K. (2015). Theorizing legal participatory action research: Critical race/feminism and participatory action research. *Qualitative Inquiry*, 21(3), 262–276.

⁴⁰ Parola, G., Poto, M. P. (2022) *Tarumã, waters that speak*, cit.

⁴¹ Kemmis, S. (2008). *Critical theory and participatory action research*. *The SAGE handbook of action research: Participative inquiry and practice*, 2(2008), 121–138.

and the right to choose their developmental paths.⁴⁸ Moreover, the integration of Indigenous, Western, and normative knowledge systems through the Two-Eyed Seeing approach promotes a research process that is both inclusive and equitable. This method respects and values Indigenous legal orders as essential components of addressing sustainability challenges, thereby leveraging the unique contributions of Indigenous knowledge to global environmental solutions.⁴⁹

3. Case studies

3.1. Lessons learned from Indigenous peoples in Peru and Brazil

The next section will describe and analyze how the participatory approaches to research conducted in collaboration with Indigenous peoples in the Northern Amazon, Peru and Mato Grosso, Brazil, offer valuable insights and provide a model for addressing environmental challenges within the context of sustainability transitions. These approaches both help bridge the gap between different knowledge systems and contribute to the development of new paradigms that prioritize inclusivity, sustainability, and the well-being of both people and the planet.

3.2. Adopting a participatory approach with the Kichwa and Kukama communities in Peru to facilitate the transition to sustainability in water governance

3.2.1. Background: the Kichwa and Kukama communities in Peru

Vista Alegre is a native community located on the banks of the Tigre River, in the district of the same name, province and region of Loreto. With 27128 ha, the Vista Alegre community consists of approximately 150 inhabitants of Kichwa descent. The Kichwa peoples have typically resided in three regions of Peru: Loreto, San Martín and Madre de Dios. Since the 1960s, the way of life of the Kichwa of the Tigre River underwent radical transformations, primarily caused by the arrival of oil companies and the establishment of religious missions.⁵⁰ Those communities near the petroleum facilities developed a pattern of dependence on oil companies that "ensured the destruction of the natives' way of life in a relatively short period of time".⁵¹ These changes have resulted in improvements in the living conditions of the Kichwa of the Pastaza and Tigre rivers. The exploitation of hydrocarbons in the region has adversely affected the community's sources of life, such as water, as oil pollution seeps into their surrounding environment. According to the 2007 national census, of the 3340 Kichwa households surveyed, 78.7 % of them were supplied with water from rivers, ditches, springs, or similar water sources.⁵² Almost 70 % of the Kichwa residents did not have sewage systems. Regarding the health of Kichwa community members, the main causes of diseases are the consumption of contaminated water,

⁴⁸ Kimmerer, Robin. *Braiding sweetgrass: Indigenous wisdom, scientific knowledge and the teachings of plants*. Milkweed editions, 2013.

⁴⁹ For an example of the adoption of two-eyed seeing in our research in the field of marine governance see Kuhn A., Poto, M. P., Hodgson, K. K., Beitel, C. M., Treffenfeldt Montoya, V., Tsiouvalas, A. *Knowledge Integration and Good Marine Governance: A Multidisciplinary Analysis and Critical Synopsis*. Human Ecology, 2021

⁵⁰ Seymour-Smith, C. (1984). *Estrategia e identidad: transformaciones en la sociedad jíbaro-peruana*. En M-Brown (ed.), *Relaciones inter-étnicas y adaptación cultural entre shuar, achuar, aguaruna y canelos quichua*. Quito: Editorial Abya-Yala.

⁵¹ Seymour-Smith, C. (1984). *Estrategia e identidad: transformaciones en la sociedad jíbaro-peruana*. En M-Brown (ed.), *Relaciones inter-étnicas y adaptación cultural entre shuar, achuar, aguaruna y canelos quichua*. Quito: Editorial Abya-Yala, p. 51.

⁵² Instituto Nacional de Estadística e Informática (2009). *Resultados definitivos de las comunidades indígenas. Censos nacionales 2007. XI de Población y VI de Vivienda. Resumen Ejecutivo*, Lima: INEI.

a direct consequence of petrogenic hydrocarbons in the Kichwa's water sources, spillage of produced water,⁵³ and the lack of an extended drinking water and sewage system.

The native community of Cuninico is one of the 59 Kukama-Kukamiria communities that were formed due to the Indigenous diaspora that resulted from Spanish colonization and bloody conflicts over the control of the exploitation of rubber, among other dangerous factors. The Kukama Indigenous people are located on the banks of the Marañón and Huallaga rivers, but there are also Kukama populations in the Lower Ucayali, Amazonas, and Lower Nanay.⁵⁴ They are organized into communities along the banks of the rivers and streams of these basins. Currently, the Kukama-Kukamiria population reaches 25,323 people. The population of Cuninico is around 600 inhabitants who occupy approximately 3190 ha of land. It is estimated that the community was founded in the 1950s. Their main activities were fishing, flood horticulture, and turtle hunting. As excellent navigators, their practices and symbolic world respond to their mastery and knowledge of rivers. As in the case of the Kichwa, the Kukama also lack of the most essential services, such as potable water and sewage or drainage systems. The Kukama's standard of living and wellbeing has worsened with growth of the hydrocarbon industry in their area and the development of an oil pipeline that has contaminated their environment thus deeply affecting their health and livelihoods. It is noteworthy to mention that permits to work in these Indigenous communities were obtained in November 2016 through their representative organizations. To work among the Kichwas, our research team talked to the leaders of FECONACO Indigenous organization, and to work among the Kukamas the team held transparent discussions the leaders of the Cuninico community.

3.2.2. Participatory research conducted with the Kichwa and Kukama Indigenous communities

In this section, we will present a compelling water governance case study from Peru led by the Kichwa and Kukama Indigenous communities. This case study not only revealed alarming social problems resulting from impeded access to safe, potable water but further allowed us to comprehend the gap between the international legal formulation of the human right to water and the local and official understandings of this right. Our research unveiled the consequences of this gap for sustainability transition, in particular within the contexts of extractive industries. This case study exemplifies how a participatory approach could facilitate a sustainability transition to try to improve water regulation. The details of the research project can serve as a blueprint for successfully implementing participatory research approaches in socially and ecologically vulnerable regions by facilitating knowledge shifts in environmental legal research.⁵⁵

Since the 1970s, oil has been extracted from Peru's Amazon rainforest and transported through a pipeline of 854 kilometres stretching from the Northeastern Amazon to the country's coastline.⁵⁶ Oil,

⁵³ Produced water is a byproduct from the exploitation of hydrocarbons (i.e. the process of extracting of oil and natural gas). Petroleum reservoirs often contain water and hydrocarbons however this produced water is saline and contains heavy metals making it unsafe for consumption or reuse. Rosell-Melé, A., Moraleda-Cibrián, N., Cartró-Sabaté, M., Colomer-Ventura, F., Mayor, P., & Orta-Martínez, M. (2018). Oil pollution in soils and sediments from the Northern Peruvian Amazon. *Science of The Total Environment*, 610, 1010–1019.

⁵⁴ Chirif, A. and Mora, C. (1976). *Atlas de comunidades nativas*. Lima: Sistema Nacional de Apoyo a la Movilización Social; Ribeiro, D. and M. Wise. (1978). *Los grupos étnicos de la Amazonia peruana. Serie Comunidades y Culturas Peruanas*. Lima: ILV, (3); Rivas, R. (2004). *El gran pescador: técnicas de pesca entre los cocama cocamilla de la Amazonia peruana*. Lima: Fondo Editorial de la Pontificia Universidad Católica del Perú.

⁵⁵ See the book: Urteaga Crovetto, P., Segura Urrunaga, F., & Sánchez Hinojosa, M. (2019) *El derecho humano al agua, los pueblos indígenas y el petróleo*, CICAJ, PUCP, ISBN: 978-612-47151-7-4.

⁵⁶ Urteaga Crovetto, P. et al., (2019).

production waters and derivatives from facilities, vessels, and the pipeline itself have increasingly polluted water sources and forests in many northern Amazon basins, particularly, the Tigre and Marañon watersheds. The Kichwa community of Vista Alegre in the Tigre River has been consistently exposed to oil pollution since the pipeline's initial development in the 1970s, while the Kukama community of Cuninico, nearby the Marañon River, has repeatedly suffered the impact of oil spills since 2014. Both Indigenous communities have faced the serious predicament of their right to water diminishing, in turn impacting their ability to safely and healthily remain in their territories.⁵⁷

3.2.2.1. Steps toward participatory research. From 2016 to 2018, a team of researchers from the Pontificia Universidad Católica del Perú and the Universidad de la Amazonia Peruana conducted legal research with the Cuninico and Vista Alegre Indigenous communities to understand the challenges to their human right to water.⁵⁸ Prior to conducting the fieldwork portion of the research project, the team undertook a thorough review of the relevant literature concerning both Indigenous groups. The team also examined the international and national legislation on water and petroleum and Indigenous law. Notably, the research team systematized the official documents, legislation, and administrative penalty procedures against Oxy and Pluspetrol oil companies.⁵⁹ After the fieldwork concluded, the team systematized and codified the interviews and wrote research reports, which were later discussed in detail with the leaders of the Indigenous communities.

The team planned several trips to observe the watersheds during the dry and rainy seasons. From October 31 to November 4 2016, the research team conducted the first fieldwork in Iquitos, the gateway city to the Northern Amazon. The team — composed of two lawyers, one anthropologist with a legal educational background, and two Indigenous undergraduate students in law and anthropology, gathered in Iquitos to interview Indigenous leaders, local authorities, and civil society organizations. During this initial fieldwork period, the team conducted 11 interviews, a total of 317 minutes of recordings and 57 pages of transcription. From January 27th to February 4th 2017, the research team conducted the second portion of fieldwork. The team travelled first to Iquitos and then 12 hours by boat to the Native Community of Cuninico where the Kukama Kukamiria people live.

3.2.2.2. Objectives of the fieldwork and activities. The objective of this fieldwork was to collect first-hand information regarding the importance of water to the community and determine the Kukama's relationship with water resources before the oil spill, the consequences of the oil spill in the Cuninico ravine, and the response of the state. The team conducted 34 interviews and provided the conditions for the Kukama community members to draw a map depicting the area affected by the oil spill. Subsequently, from April 21st to April 29th 2017, the team travelled to Cuninico to collect quantitative and qualitative primary materials through semi-structured interviews and field observation. Eight semi-structured interviews were conducted during the material collection and observation period, resulting in 289 minutes of recordings. From July 31st to August 11th 2017, the team conducted the

first fieldwork portion with the Kichwa people, at the Vista Alegre native community. The research team travelled from Lima to Iquitos and then journeyed 2 days by boat to reach the remote Kichwa community of Vista Alegre. Upon arrival in Vista Alegre, the team conducted 21 semi-structured interviews to thoroughly understand the consequences of petroleum extraction for water sources in the Kichwa territory, the importance of water as per the Kichwa worldview and the community's mechanisms of resistance against extractivism. In total, the team managed to conduct 74 structured and semi-structured interviews. The research team came to a consensus that 62 salient interviews would be selected for translation into Spanish with the help of the Indigenous research assistants.

While in the field, the research team organized and facilitated three workshops: one among the Kukama in the Cuninico community with 25 participants, another among the Kichwa in the Vista Alegre community with 22 participants, and the third and final workshop was held in Iquitos, the capital of the Loreto department. The final workshop in Iquitos hosted 71 participants from the Marañón, Itaya, Nanay, Hualaga, Morona, Pastaza, Amazonas and Tigre river basins, officials responsible for water management (GORE, OEFA and AAA) and professors from the national Universidad de la Amazonia Peruana (UNAP). Throughout all three workshops, participants identified their water sources affected by oil spills, candidly discussed their concerns resulting from the oil spills and drew maps of the affected areas to share their information with the epistemic community in Peru accurately, the relevant official authorities, and non-Indigenous members of the general public.

It is important to note that once in the field, interviews were conducted with a wide range of stakeholders including women, men, elders, and young people from the Indigenous communities, members of Indigenous organizations, non-governmental organizations, state officials and petroleum workers. All research team members used the practice of participant observation and closely coordinated with each other to organize focus groups with community members to share their experiences with their environmental, social, economic, and legal challenges. The focus groups also provided an opportunity for community members to share their life stories. It was determined that establishing a forum for community members' to share their life stories during the fieldwork process helped to create positive relationships fostering trust and respect between the researchers and community members. Additionally, through Indigenous community members' sharing their life stories, they provided essential insights into how the communities' water quality had changed over time. Throughout the entirety of the fieldwork process, the researchers adopted a participatory approach, notably in the joint efforts to map the watersheds in question. Researchers worked directly with the Indigenous leaders to conduct mapping exercises and the Indigenous leaders directly participated in the water quality observations and assessments of the impact of the oil production process.(Fig. 1)

The *comuneros*⁶⁰ continuously pointed to the importance of bio-indicators⁶¹ as evidence of hydrocarbon contamination during their participation in field expeditions with the research team to the areas

⁵⁷ Urteaga Crovetto, P. et al., (2019) cit.

⁵⁸ On the communities see also O'Callaghan-Gordo, C., Flores, J. A., Lizárraga, P., Okamoto, T., Papoulias, D. M., Barclay, F., ... & Astete, J. (2018). Oil extraction in the Amazon basin and exposure to metals in Indigenous populations. *Environmental research*, 162, 226–230.

⁵⁹ Oxy is an American oil company that operated in the Northern Peruvian Amazon from 1971 to 2000, while Pluspetrol, an Argentinean oil company, operated there from 2000 to 2020. Their negligent environmental management contributed to deeply degrading the environment and affecting Indigenous peoples in these regions.

⁶⁰ *Comuneros* are community members.

⁶¹ Some bioindicators are: smell and flavor of water, color of the water depending on the water source, clean sediments in the river and riverbanks, the presence of the Madre del Agua (Yacumama / aquatic ophidian), diversity and number of faunae, special species and balanced fauna, fauna that use the water source, low rate of human and animal morbidity, usual and adequate number of fish depending on the season (dry and flood), usual smell and size of fish, usual yields, healthy plants (size, color, number, flavor, time of growth, strength).

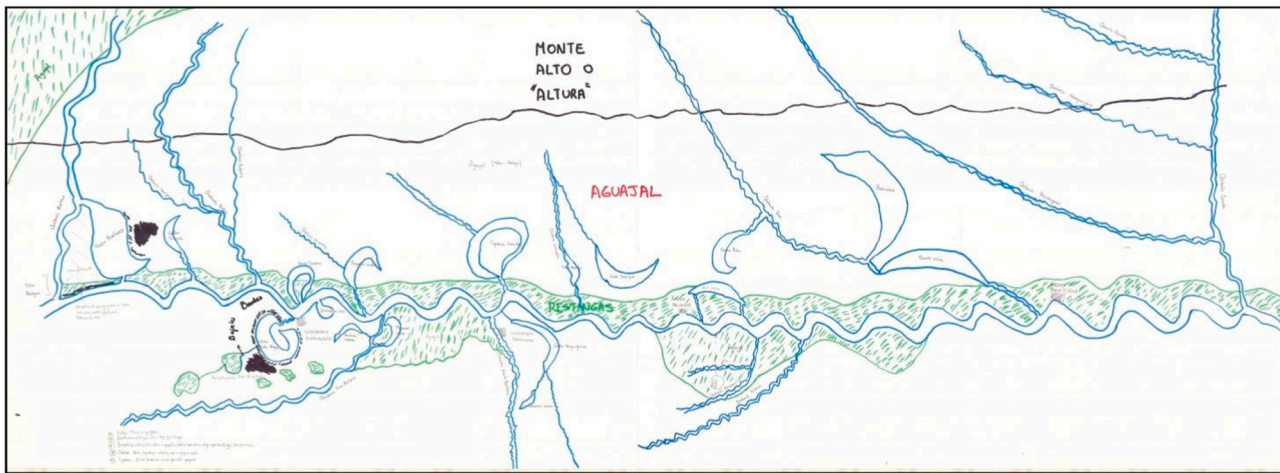


Fig. 1. Map of the water sources in the Vista Alegre community in the Tigre water basin. Source: Eduardo Sandi Tuitui, Walter Fachín Sandi, José Sandi Tuitui, Eduardo Sandi Tuitui and Orlando Chuje Aranda (2017).

affected by the oil spills.⁶² Field expeditions were critical for onsite observation, assessing the scale of pollution, and providing a unique opportunity to understand the Indigenous meaning of water and its ecological and spiritual importance within the affected communities. During a visit to a polluted area in the Vista Alegre community, a Kichwa research assistant pointed to a lake and exclaimed: “the mother of water is gone!” According to the Kichwa worldview, Yacumama is the mother of water and aquatic species.⁶³ Yacumama is a huge ophidian and is represented as a mythological creature who is in charge of the sub-aquatic world composed of non-human beings and the spirits of the ancestors.⁶⁴ As then explained by the Kichwa participants, when water is contaminated the Yacumama flees the area and all water beings follow her to beware of pollution. The Kichwa research assistant’s alarming realization that “the mother of water was gone” enabled the rest of the team to understand the ontological conception of water for Amazonian Indigenous peoples. The insights provided by Kichwa research assistants and community members during the field expeditions demonstrated the multiple dimensions that must be considered to decode a localized conception of the human right to water in particularly degraded environments. For Amazonian Indigenous communities, water is more than a resource; it is a living being that guarantees their livelihoods, their identity as Indigenous people, and the well-being of nature. The rights to life, a healthy environment, health, food, territory, and culture; all depend on water. From an emic perspective, water is equal parts interwoven with symbolic and material dimensions of local people’s lives.⁶⁵ On November 3rd, 2017, the research team officially presented the preliminary versions of the research reports to the Kichwa and Kukama representatives. The team explained the structure and content of the reports to the representatives of both communities, after which it incorporated additional information provided by the communal authorities in order to achieve a consensus on the reports’ contents.

Understanding the urgent problem of water pollution by the

⁶² See Sanborn, C., & Paredes, A. (2015). Getting it Right? Challenges to Prior Consultation in Peru. Centre for Social Responsibility in Mining Sustainable Minerals Institute, The University of Queensland, Australia.

⁶³ On this, see also Adamson, J., & Galeano, J. C. (2016). Why Bears, Yacumama (Mother of All Water Beings), and Other Transformational Beings are (Still) Good to Think. In *Ecocriticism and Indigenous Studies* (pp. 241–258). Routledge.

⁶⁴ Adamson, J. (2020). People of the Water: El Río, The Shape of Water, and the Rights of Nature. *ISLE: Interdisciplinary Studies in Literature and Environment*.

⁶⁵ Urteaga Crovetto, P. et al., (2019).

hydrocarbon industry in the tropical forest required all stakeholders to consider the basin as a territorial area. To thoroughly assess the scale of the damage to the territorial area, it was necessary to undertake ecosystem and cross-cultural approaches. The analysis of the two river basins and the state of affairs in the communities lays bare how the human right to water, which exists as a multidimensional right in Indigenous communities, has been severely affected in both the Tigre and Marañón rivers regions. In May 2018, the final research report entitled “Informe de Investigación — El Derecho Humano al Agua en la Comunidad Nativa de Cuninico (Loreto) luego del Derrame de Hidrocarburos en Junio de 2014” was delivered to commissioners of the Interamerican Commission of Human Rights (IACHR).⁶⁶ The entire reporting process, including the drafting, revisions, and presentation of the final report was based on the communities’ active participation and leadership during the research project.

Also in May of 2018, the chiefs of Vista Alegre and Cuninico communities, a lawyer from the Catholic church, and the research team participated in the 168th Session of the Interamerican Commission of Human Rights in Santo Domingo, Dominican Republic. The chiefs presented the case before the commissioners, who, in turn, exhorted the Peruvian government to take action to redress the ecological damages.⁶⁷ The research report was also used to substantiate a Petition for Compliance led by the Cuninico community. Prior to the 168th Session of the Interamerican Commission of Human Rights in Santo Domingo, on September 13, 2017, the Trial Court for Civil and Criminal Matters of Loreto – Nauta, ruled partly in favour of the Cuninico community, ordering the Ministry of Health to issue an Emergency Health Plan to address the community’s health problems caused by the petroleum

⁶⁶ The information for this report was gathered using the three methods described here: PAR, Critical Legal Research and Two-eyed seeing. In the first part, we made a scalar analysis of the international, national and local legislation on the human right to water to show the existing gap between these levels. For this legal analysis, we used the Critical Legal Research methodology. In the second part, we described the community and water sources, for which we used the PAR and the Indigenous method of Two-eyed seeing. The third part contains the emic conception of the Kichwa and Kukama people on the water and identifies the consequences of water pollution caused by hydrocarbon activities in these watersheds. For co-creating this knowledge, we used the PAR and the Two-eyed seeing method.

⁶⁷ See: https://www.oas.org/es/cidh/prensa/comunicados/2018/104_A.asp last access January 2, 2024.

spill.⁶⁸ On January 24, 2018, the Civil Court of Loreto, confirmed the ruling of the lower Court that declared Cuninico's claim partially valid.⁶⁹ Finally, in December 2020, Peru's Constitutional Court ruled against Petroperú, the national company operating the oil pipeline, and ordered it to financially compensate all the affected communities.⁷⁰ To date, the communities are still struggling with the implementation of the Court's rulings, however, these rulings are undoubtedly a significant step forward to achieving environmental justice. Based on the research report co-created by the research team and community members, a book entitled "El Derecho Humano al Agua, los Pueblos Indígenas y el Petróleo" was published in 2019.

3.2.3. The human right to water under critical legal analysis

In 2002, the United Nations Committee on Economic and Social Rights adopted General Comment No.^{of} 15 on the Right to Water (Mehta, 2014; Radonic, 2017), linking it to the realization of other individual human rights, especially dignity (Mason, Getgen, and Dalcanale, 2014; Morinville and Rodina, 2013). In 2010, the Committee's adoption of General Comment No.^{of} 15 was confirmed by the United Nations Human Rights Council (Boyd, 2011). General Comment N° 15 reflects the progress made so far and develops more broadly the content of the right of access to water, highlighting five attributes: sufficiency, healthiness, acceptability, physical accessibility, and affordability, especially with respect to personal and domestic uses. In general, these attributes refer to water as a public good or resource that is provided to individuals through an infrastructure. More explicitly, General Comment N° 15 articulates the human right to water with sanitation. Regarding Indigenous peoples, General Comment N° 15 establishes that «Parties should ensure that there is adequate access to water for subsistence farming and for securing the livelihoods of Indigenous peoples» (Mason, Getgen and Dalcanale, 2014, p. 835) and should take steps to ensure that «Indigenous peoples' access to water resources on their ancestral lands is protected from encroachment and unlawful pollution. States should provide resources for Indigenous peoples to design, deliver and control their access to water » (United Nations Economic and Social Council, 2002). Mehta (2014)⁷¹ and Harris, et al. (2015)⁷² argue that the formulation of the human right to water in international discourses has excluded the particularities of vulnerable groups such as Indigenous peoples. Indeed, despite the statement contained in General Comment N° 15, there is an ideological contestation regarding the definition of the human right to water at the local level, the basic water needs of an individual and a group, and the water uses of Indigenous peoples. The international framing of the human right to water excludes other uses and relationships between water, ecosystems, and populations such as Indigenous peoples. In the United Nations' formulation, the multidimensional

⁶⁸ The Cuninico community had the legal support of the NGO Instituto de Defensa Legal (IDL). The Petition for Compliance that the Cuninico community filed was declared partially valid by the judge who regarded inadmissible the claim that Petroperu compensate the communities along the Marañón river and provide them with safe drinking water and food. The Judge ruled that the claimants offered insufficient information on the degree of affectation of those communities to enforce the judgement, and that this specific petition should be solved in a regular judicial process to analyze the substance of the matter. See the ruling here <https://drive.google.com/file/d/1Ry4kN1tXo-XBsMMDr3Y-WyY3uJfQnAcR/view>.

⁶⁹ See the ruling here: https://drive.google.com/file/d/1ko9Qrpflyv3CzV1amvi60Cdsx_RXktA/view.

⁷⁰ See: <https://tc.gob.pe/jurisprudencia/2020/03799-2018-AC.pdf> last access July 2023.

⁷¹ Mehta, L.; Allouche, J. Nicol, A. and A. Walnycki. (2014). Global environmental justice and the right to water: The case of peri-urban Cochabamba and Delhi. *Geoforum*, 54, 158–166.

⁷² Harris, L. M., Rodina, L., & Morinville, C. (2015). Revisiting the Human Right to Water from an environmental justice lens. *Politics, Groups, and Identities*, 3(4), 660–665. <https://doi.org/10.1080/21565503.2015.1080619>

character that Indigenous peoples attribute to water is absent to the extent that its connection with food security, livelihoods, environmental protection and/or the cultural meaning given to water is not explicitly pointed out. It is arguable that in addition to showing an anthropocentric bias, the current construction of the human right to water in the International Human Rights Law has decontextualized this right. Prominent researchers in the field of political ecology have called for rethinking the human right to water in terms of context, so that it is redefined and allows for the imagining of fairer and more sustainable futures.⁷³ A number of studies have pointed to the need to "localize" human rights,⁷⁴ so that it is possible to evaluate their local meaning vis-a-vis their global legal formulation. From the perspective of Indigenous peoples, the human right to water needs to be reformulated as a collective right (Barrick, 2007; Miroso and Harris, 2012; Sultana and Loftus, 2012; Mehta, 2014; Mehta et al., 2014; Gupta et al., 2014; Perera, 2014) whereby individual uses are delineated within the scope of the community, the watershed, and the ecosystem.⁷⁵ In Peru, since 2007, the human right to water has been constitutionally recognized as an implicit fundamental right through two rulings of the Constitutional Court (File 06534–2006-PA/TC of 2006 and File 6546–2006-PA/TC of 2007). After many previously unsuccessful attempts, on June 22, 2017, Law 30588, the Constitutional Reform Law, was approved, it recognizes the right of access to water as a constitutional right.⁷⁶ The question is how this legal formulae materializes in the Amazon without pointedly addressing the link between the human right to water, the watershed and the ecosystem. Although at the normative level a group of rights ('bundle of rights') has been established in relation to water, which includes the most important dimensions of the right to water, questions arise when we «localize» these rights in the extractive Amazon context. What happens to the right to water and its connection to the ecosystem? How can the precarious conditions of the human right to water in polluted Amazonian regions be explained? How could this situation contribute to a sustainable transition?

3.2.4. Preliminary conclusions

The example of the Kichwa and Kukama communities in Peru can provide valuable insights into enacting effective water governance research and practices toward sustainable transitions through participatory action research (PAR) approaches. The legal success of these Indigenous communities in Peru showcases the importance of involving local stakeholders, particularly Indigenous peoples, in decision-making processes related to sustainability and natural resource research and management. The co-created water knowledge generated throughout the project became the basis for the national and international tribunals to decide on serious socio-environmental disputes in which the legal framework and international standards were contrasted with the actual impact of the hydrocarbon industry as informed by the affected people

⁷³ Harris, L. M., Rodina, L., & Morinville, C. (2015). Revisiting the Human Right to Water from an environmental justice lens. *Politics, Groups, and Identities*, 3(4), 660–665. <https://doi.org/10.1080/21565503.2015.1080619>

⁷⁴ De Feyter, K. (2017). "On the local relevance of human rights." In Anthony Tirado Chase (ed.), *Routledge Handbook on Human Rights and the Middle East and North Africa*, pp. 406–418. London: Routledge.

⁷⁵ Conca, K. (2005). *Governing Water: Contentious Transnational Politics and Global Institution Building*. Cambridge: MIT Press.

⁷⁶ Article 7-A of the Peruvian Constitution states: «The State recognizes the right of every person to have progressive and universal access to drinking water. The State guarantees this right by prioritizing human consumption over other uses. The State promotes the sustainable management of water, which is recognized as an essential natural resource and as such, constitutes a public good and patrimony of the Nation. Its dominion is inalienable and imprescriptible.»

themselves. The use of a PAR approach in this instance was instrumental in building community support, enhancing transparency in the research and reporting processes and eliciting cross-cultural perspectives to promote social and environmental justice.

3.3. Effective participation in co-created projects in Mato Grosso (Brazil)

3.3.1. Background: the Chiquitano People from Mato Grosso

Amid their ongoing struggle for self-determination, the Chiquitano people of Mato Grosso, Brazil, face a reality clouded by insufficient data due to underreported activities in their territories. Historically labelled by the Jesuits as "Chiquito" and later "Chiquitano," these terms were initially used as broad, homogenizing identifiers for various groups within the Jesuit missions.⁷⁷ Over time, these groups embraced "Chiquitano" as a unifying identity, which persists today.⁷⁸ In Brazil, the Chiquitano are primarily located in the state of Mato Grosso, along the border with Bolivia, within the municipalities of Vila Bela, Cáceres, and Porto Esperidião.⁷⁹ Their communities vary in size, from small clusters of five to eight families along the road from Cáceres to San Matías, to larger groups of ten to thirty families in lands sold by Inkra (the Brazilian Government structure for Agrarian Reform) and designated as 'assentamentos' or settlements.⁸⁰ Additionally, some Chiquitano reside in military garrisons on the Brazilian side of the border, where thirty to forty nuclear families live under 'permits' that allow them to inhabit and cultivate the land. A few families also reside on private farms ('fazendas') with the landowner's consent. This scattered and varied settlement pattern, coupled with the informal nature of their living arrangements, complicates the collection of accurate data and further exacerbates their challenges in achieving self-determination and securing their rights. (Fig. 2)

3.3.2. Effective participation through co-creation with the Chiquitano People

The ECO_CARE research action projects carried out in collaboration with the Chiquitano villages of Mato Grosso, Brazil, have demonstrated that the effective merger of participatory action research (utilizing legal design and visual law), critical legal research (reconceptualizing participatory rights through emotions connected to nature and people, specifically empathy, compassion, and care), and Indigenous legal research (developing a co-created legal methodology in collaboration with Indigenous communities) is a feasible, inclusive legal research project design.⁸¹ To do so, the ECO_CARE research team has engaged

⁷⁷ Blanton, J. B. (2018). *Becoming Chiquitano: Crafting Identities in the Broader Paraguayan River Basin* (Doctoral dissertation, The University of North Carolina at Chapel Hill).

⁷⁸ Muquissai, S. C.; Costa, L. R., (2021) *Inusuvóriki: Luta por Demarcação das Terras Tradicionais Chiquitano e Aldeia Vila Nova Barbecho*, in Parola, G., Poto, M. P., Costa, L. R., *Inclusão, Coexistência e Resiliência: Lições a partir do Direito Indígena*. Rio de Janeiro: Multifoco, 2021, p. 304.

⁷⁹ Moreira da Costa, J. E. F. (2006) *A Coroa Do Mundo: Religião, Território e Territorialidade Chiquitano*. Cuiabá, Brazil: Editora da Universidade Federal do Mato Grosso.

⁸⁰ Blanton, J. B. (2018). *Becoming Chiquitano: Crafting Identities in the Broader Paraguayan River Basin* (Doctoral dissertation, The University of North Carolina at Chapel Hill).

⁸¹ The project *An Exchange Program on Empathy, Compassion, and Care in Water Governance, from the Perspective of Integral Ecology – (ECO_CARE)* is funded by the Norwegian Directorate for Higher Skills and Education (HKDIR), grant number HKDIR UTF-2020/10084. The participatory action research was initiated by the project coordinators before the funding of the project, starting from 2019.

with five Chiquitano villages in Mato Grosso, for a total of more than two hundred people actively involved, via two significant participatory action projects.⁸²

To date, the application of the tripartite methodology in both ongoing projects has resulted in the co-production of knowledge that recognized, incorporated, and promoted traditional ecological knowledge and practices. This approach contributed to the identification of culturally aware solutions that respect Indigenous rights and advance sustainable water governance.⁸³ However, the Indigenous communities of Mato Grosso, in particular the Chiquitano People, continue to face chronic water scarcity. Historically dispossessed of their lands, the demarcation of lands surrounding Mato Grosso's transboundary Tarumã River has threatened the Chiquitano's access to safe, potable water. Water shortages, poor water quality, and insecure access pose major risks to the health, security, self-determination, and spiritual practices of the community. Regardless of the national level governance systems, which primarily regulated agro-industrial stakeholders, the Chiquitano People were denied their environmental procedural and access rights as per the Escazú Agreement.⁸⁴ Further complicating the matter was the limited legal knowledge and education in the impacted community.⁸⁵ After assessing all the needs, the ECO_CARE team chose to collaborate with the Chiquitano People using a participatory research approach. This collaboration led to the development and implementation of two projects.

In the first project, a robust body of research concerning the accessibility of the Escazú Agreement was established with contributions from community members and law students.⁸⁶ The Escazú Agreement is a pivotal international treaty that establishes obligations for its signatories to implement an effective system of public participation in environmental matters, explicitly including protections for environmental defenders. Notably, Art. 9 seek to protect environmental human rights

⁸² The first project on the "Escazú Agreement by the Chiquitano and for the Chiquitano" was funded by the Faculty of Law, UiT The Arctic University of Norway, the Open Access Library Funds of UiT The Arctic University of Norway, as well as the mentioned ECO_CARE funds by HKDIR UTF-2020/10084. The second project on water literacy and participation: "A Conversation Between Two Rivers: Tarumã and Tana - Tarumã waters that speak" involved school communities from the five villages, teachers, researchers and cultural mediators and was co-funded by the Faculty of Law, UiT The Arctic University of Norway, the Open Access Library Funds of UiT The Arctic University of Norway, HKDIR UTF-2020/10084, as well as by the European Geosciences Union (Public Engagement Grants 2023). For updates on these projects and connected activities and results see <https://en.uit.no/project/ecocare> last access December 29, 2023.

⁸³ Arvor, D., Daugeard, M., Tritsch, I., De Mello-Thery, N. A., Thery, H., & Dubreuil, V. (2018). Combining socioeconomic development with environmental governance in the Brazilian Amazon: The Mato Grosso agricultural frontier at a tipping point. *Environment, development and sustainability*, 20, 1–22.

⁸⁴ Parola G., Chue Muquissai S., Poto M. P. (2023) *A co-created project of Legal Design and Visual Law applied to International Environmental Law: transformation of the Escazú Agreement and Environmental Access Rights into visual materials for and with the Chiquitano People in Lohse, Poto (eds) (2023), Coproduction of knowledge in Climate Governance*, Berliner Wissenschafts-Verlag, ISBN 978-3-8305-5538-4.

⁸⁵ Ibid.

⁸⁶ UN/CEPAL, *Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean*, 2018, accessible at <https://hdl.handle.net/11362/69163>; For a thorough analysis of the entire project see Poto M. P., Parola G. (eds.) (2024) *Building Bridges For Effective Environmental Participation: The Path Of Law Co-Creation, The Chiquitano Multimodal Format for Disseminating the Escazú Agreement*, Human Rights Intervention Series, Palgrave MacMillan ISBN 978-3-031-52790-6; ISSN: 2946-5117; series electronic ISSN:2946-5125.



Fig. 2. A rare map depicting the recognized territories of the Chiquitano People. Source: Universidade Pluriétnica Indígena Aldeia Maraka'nà, 2023.

defenders (EHRDs),⁸⁷ defined as individuals, groups, or communities who play a crucial role in advocating for environmental protection and sustainable development but may face threats, attacks, or harassment due to their environmental activism.⁸⁸ Recognizing that the Chiquitano People could be classified as Earth defenders, the ECO CARE team developed strategies to ensure that the Escazú Agreement is accessible to all community members, thereby facilitating effective participation. This approach aims to empower the Chiquitano People by providing

them with the requisite tools and knowledge to actively engage in environmental governance. In compliance with Art. 9, the “Escazú Agreement by the Chiquitano and for the Chiquitano” project⁸⁹ focuses on promoting environmental education and awareness within the Mato Grosso Indigenous community regarding legal provisions that safeguard their rights and protect the environment.⁹⁰ In this regard, from 2020 to date, a robust research strand has been established by the ECO CARE project team. In total, more than two hundred and fifty community members have been involved in this research strand, as well as three

⁸⁷ Pánovics, A. (2021) The Escazú Agreement and the Protection of Environmental Human Rights Defenders. *Pecs J. Int'l & Eur. L.* (2021): 23.

⁸⁸ Pánovics, A. (2021) The Escazú Agreement and the Protection of Environmental Human Rights Defenders. *Pecs J. Int'l & Eur. L.* (2021): 23.

⁸⁹ See fn. 56.

⁹⁰ Pánovics, A. (2021). The Escazú Agreement and the Protection of Environmental Human Rights Defenders. *Pecs J. Int'l & Eur. L.*, 23.

groups of Master's students, for a total of more than three hundred and fifty project members participating in the co-creation of research and education materials. In terms of project activities, three Master's level courses are currently studying the co-creation of knowledge process involving the Chiquitano people in the host and partner institutions (Norway, Brazil, Italy), as well as two workshops per year as of 2020, and two major outreach activities and journeys of project results restitution presented in 2022 and 2023.⁹¹ This strand of research focuses on the co-development of legal and educational tools to extend and enhance the accessibility of the Escazú Agreement for earth defenders, vulnerable groups, and Indigenous people in Latin America and the Caribbean.

The project's ongoing efforts culminated in the creation of five books in English, Portuguese, and Spanish (respectively, two co-created books in English, two in Portuguese, and one in Spanish).⁹² These books contain a well-structured body of knowledge in layperson's terms delineating the co-creation process toward the realization of a version of the Escazú Agreement in the form of comics. The comics were collaboratively designed by students and Chiquitano community members. A unique project element is that the visual agreement incorporates the voices and representations of the Chiquitano community members in the storyline. The visual agreement realized as one of the project results serves as an innovative, easily accessible representation of each article within the Escazú Agreement. The Chiquitano community members were actively involved in the co-creation of the legal document, and they appear in the comics as the protagonists. The direct inclusion in the comics was generated using a programming technique that transformed the consenting community members' images into comics and explained the content of each article of the Agreement in a text bubble. The simple, visual presentation of the information has been able to foster both a broader understanding of the community's water access rights and provide a platform for their effective participation in water governance. Moreover, the relevance of each article was thoughtfully discussed by the community members during the implementation of the project further advancing the level of comprehension and ownership of the agreement.⁹³ In addition to the co-creation of books, the project includes five video documentaries which present how the research has been undertaken and the vital aspect of results restitution.⁹⁴ This series of video documentaries serves as a crucial element in the process of

restorative research, showcasing the participatory nature of the project and its impact on empowering the Chiquitano community in co-creating a visual representation of the Escazú Agreement. Through this collaborative endeavour, the project has developed a path to increase the accessibility of international environmental law and has further strengthened the sense of community ownership and empowerment in environmental governance.⁹⁵

In the second project "A Conversation Between Two Rivers: Tarumã and Tana - Tarumã waters that speak",⁹⁶ the ECO_CARE team embarked on a co-created research approach that specifically centres on water governance, with a particular emphasis on the Tarumã river.⁹⁷ This project involves a thorough exploration of Chiquitano's ecological knowledge of the river and the profound relationship that the community shares with it. The aim of this project is to craft a co-created story, wherein legal issues related to the pollution of the river are addressed through leveraging the wisdom and environmental governance practices of the Chiquitano community. The first portion of this project, running from 2020 to 2021, featured a comprehensive examination of the methodological steps adopted throughout the research process. This examination was based on an inclusive approach that incorporates participatory action research, critical legal research, and Indigenous methodology. Through the integration of these methods, the research team, composed of legal scholars (five members of which are of Chiquitano origin), law students and Chiquitano community members (five villages involved comprising more than two hundred and fifty people, of which more than one hundred and fifty are school pupils), aimed to challenge Western legal assumptions, integrate emotions connected to nature and people,⁹⁸ and protect and promote the cultural and ecological knowledge of the Chiquitano community.

The second part of the project (2022–2023) oversaw the co-creation of a story on the river challenges due to pollution, the community's lack of land demarcation and unlawful land acquisition at the hands of *fazendeiros* (farmers). This co-created story weaves together elements of Chiquitano ecological knowledge related to the river Tarumã, revealing its enormous role in the lives and overall culture of the community. This narrative addresses the numerous legal challenges arising from river pollution, focusing on the Chiquitano community's governance practices and deep understanding of the river's significance. It is of note that the project involved the active participation of the children from Chiquitano Indigenous schools (one hundred and fifty pupils, including ten young illustrators). The children illustrated the co-created story, drawing their personal connections with the river and their environment. More than fifty illustrations were included in the final work, and an

⁹¹ Chue Muquissai, S., Parola, G., & Poto, M. P. (2023). ECO_CARE Midterm Conference 2023: "Sharing of the co-created results"-journey of the ECO_CARE team: Rio de Janeiro and Chiquitano Indigenous territories of Mato Grosso, Brazil. *Septentrio Reports*, (1). <https://doi.org/10.7557/7.7345>.

⁹² Parola G., Poto M. P. (2021) (ed. by) *The Escazú Agreement in Comics with and for the Chiquitano People. A Co-Created Project of Legal Design and Visual Law*, ISBN/EAN 978-88-921-4266-4 (English version), pp. 1–80, Giappichelli, Torino; Parola G., Poto M. P. (2021) *O Acordo de Escazú Em Quadrinhos Feito Pelo e Para o Povo Chiquitano Um Projeto Co-criado de Legal Design e Visual Law* ISBN/EAN 978-88-921-4267-1 (Portuguese version), pp. 1–80, Giappichelli, Torino. As forthcoming publications, the project coordinators have worked on a completely revised version of the English book and, upon request of several Latin American scholars, including members of the Escazú Agreement Committee, also on a version in Spanish. G. PAROLA, M. P. POTO (2023), eds. *Building Bridges For Effective Environmental Participation: The Path Of Law Co-Creation, The Chiquitano Multimodal Format for Disseminating the Escazú Agreement*, submitted to Human Rights Interventions Series, Palgrave MacMillan ISBN 978-3-031-52790-6; G. PAROLA, M. P. POTO. (2023) *Tendiendo puentes hacia una participación ambiental eficaz: el camino de la co-creación en Derecho. El Formato Multimedia Chiquitano para la Difusión del Acuerdo de Escazú*, Multifoco, 2023, ISBN 9786556112558. Both books are open access and co-created with the communities involved.

⁹³ Ibid.

⁹⁴ With results restitution, we intend to return the project results co-created by the Indigenous communities. See, among others: <https://www.youtube.com/watch?v=yqNsvlac9QY> last access August 1st, 2023; <https://www.youtube.com/watch?v=IQUNOW456rk> last access August 1st, 2023.

⁹⁵ On the overall impressions of the Chiquitano people in the co-creation of the educational materials and video-documentaries see the recent report Chue Muquissai, S., Parola, G., & Poto, M. P. (2023). ECO_CARE Midterm Conference 2023: "Sharing of the co-created results"-journey of the ECO_CARE team: Rio de Janeiro and Chiquitano Indigenous territories of Mato Grosso, Brazil. *Septentrio Reports*, (1). <https://doi.org/10.7557/7.7345>

⁹⁶ See fn. 56.

⁹⁷ Even though the Tarumã River crosses the state of Mato Grosso, its precise location within the maps poses challenges due to the absence of well-defined land demarcations in the region. The ongoing process of the Chiquitano self-determination and land demarcation further complicates the accurate positioning of the river. As a result, the river's geographical representation remains dynamic and subject to continuous changes until the process of land demarcation is completed, allowing for a more definitive delineation on the maps. This project is also a way to support the enduring efforts to advocate for land demarcation and the self-determination of the Chiquitano people, initiated, among others, in legal anthropology, thanks to the research conducted by Anna Maria Ribeiro e José Eduardo Moreira da Costa, as documented by Santana, Á. C. (2016). *Línguas cruzadas, histórias que se mesclam: ações de documentação, valorização e fortalecimento da língua Chiquitano no Brasil*. Paco Editorial.

⁹⁸ In particular the highlighting the project's focus on the emotions of empathy, compassion, and care.

animated version of the first chapter was created and edited in a video documentary.⁹⁹

In conclusion, the Mato Grosso-based projects evidence how effective participation is the key driver in the implementation and monitoring of regional legal provisions, in this instance the Escazú Agreement, containing international law principles at the local level. Further, the projects demonstrate how Indigenous and local community knowledge should serve as a precondition in the design of potential legal solutions to water sustainability challenges, as exemplified in the case of the Tarumã River. In the context of this second project, “A Conversation Between Two Rivers: Tarumã and Tana - Tarumã waters that speak”, effective participation at the local level is the outcome of an international law mandate that emphasizes involving all stakeholders in decision-making processes, ultimately extending its impact to regional and local levels.

In essence, effective participation is the central axis that enables the application of an innovative research methodology to address sustainability challenges within complex socio-ecological systems. The co-created ECO_CARE projects continue to underscore the importance of embracing effective participation as a tool to propel knowledge shifts in environmental legal research.

3.4. Discussion: a synopsis of the case studies

Fig. 3. offers a synopsis of key elements addressed by the case studies in Latin America, concentrating on four comparable dimensions: Methods Used, Participants, Main Research Question, Main Outcome/Finding, and main legal documents relevant to water governance.

Specifically, in the Brazilian case study, we examine the integration of three distinct methods: critical legal analysis, Indigenous methodology, and participatory action research. This integrated approach involved participants such as the Chiquitano Indigenous People from Mato Grosso, alongside researchers and law students, to address the central research question: How can a co-created model for water governance be developed? The groups worked together toward the transformation of a legal document (the Escazú Agreement (EA)), on environmental participation into an effective tool that enables the participation of Indigenous peoples in environmental decision-making. The main outcome, a co-created legal document that empowers the Chiquitano People by recognizing their legal status, their right to be heard and to access environmental information as well as their access to justice, emerges from employing participatory research approaches. This is a multi-step process fundamentally reliant on the establishment and maintenance of trust among all parties involved.

In the Peruvian case, the methods used were the same, applied in the context of the Tigre and the Bajo Marañon basins in Loreto. The research involved a complex group of actors, including the Kichwa and Kukama Indigenous Peoples from the Tigre and Bajo Marañon basins, respectively, in Loreto, official authorities, Indigenous leaders, researchers, and different stakeholder groups. The research question focused on the role of international law in responding to the HRW in watersheds affected by the hydrocarbon industry. It became evident that a combination of participatory research methods is necessary to elicit the emic conception of the human right to water and compare it with the international legal formulation. For both cases, the main document that we analysed was the United Nations General Comment of the Right to Water or General Observation N° 15. This document was used to critically assess the significance of the human right to water in international law and compare it with the emic conception of water, especially in contexts affected by the extractive industry. Ultimately, both case studies underscore the critical role of participatory approaches in legal research, as

a sustainability-oriented methodology aiming to address the specific needs and rights of Indigenous communities. While the Brazilian and Peruvian cases share similarities in methods and focus on Indigenous participation, they diverge in their specific legal challenges and outcomes. This variance points out two important aspects of participatory legal research involving Indigenous peoples: on the one hand, it highlights the significance of adopting context-based approaches in any research involving Indigenous peoples. On the other hand, it illustrates the adaptability of participatory methods across different legal and environmental contexts, proving essential for developing inclusive and effective legal frameworks in water governance.

4. Conclusions and the way forward

In this study, we have illustrated how participatory approaches to research involving local and Indigenous communities can play a key role in the transition towards a legal research that effectively addresses sustainability challenges. Critically, participatory approaches to research provide an opportunity for dialogue and collaboration, ensuring that the perspectives and experiences of all involved parties are valued and considered, thus leaving no one behind (the core of sustainability) in the development of knowledge systems that effectively contribute to sustainability transitions. In this sense, we argue that the methods, materials, and case studies presented in this article can be adopted as ‘blueprints’ for a legal research approach that advances knowledge shifts and grants effective participation in sustainability transitions. We note that from a legal perspective, cross-fertilisation of ideas enables knowledge exchange and paradigm shifts.¹⁰⁰ And, as observed in the *incipit* of this study, from a sustainability perspective, such a shift in knowledge systems is crucial for addressing contemporary challenges. In this vein, our exploration demonstrates how centring local and Indigenous communities in the research process, not only addresses sustainability challenges but also inspires profound knowledge shifts to advance environmental justice. This shift is not just theoretical; by effectively involving all interested parties, it represents a paradigmatic change in knowledge co-creation, paving the way for more sustainable, equitable, and community-driven transitions.

Looking ahead, more studies are needed to strengthen and expand upon this approach. While our current exploration has revealed the transformative potential of an integrated methodology that has effective participation at its core, it also emphasizes the importance of context-based approaches and the need for caution against generalizing methods when dealing with diverse groups and needs. Only by acknowledging differences and analyzing context-specific outcomes can we continue to explore how these approaches can be more effectively implemented, measured, and evaluated for their role in facilitating smooth sustainability transitions. We recommend that future research initiatives delve into refining the integration of participatory approaches within sustainability research and legal methodology in general. Solidifying the role of participatory research within legal studies, coalescing with conventional methods such as doctrinal and case law analyses, is anticipated to yield long-term benefits, specifically enhancing the effectiveness of environmental governance in sustainability transitions.

Funding

Margherita Paola Poto’s research is funded by the project SECURE Novel Marine Resources for Food Security and Food Safety, UiT The Arctic University of Norway; and by the project ECO_CARE An Exchange Program on Empathy Compassion and Care in Water Governance from the Perspective of Integral Ecology (UTF/HKDIR 2020-10084).

Juliana Hayden-Nygren research is funded by the Università degli

⁹⁹ The video was created by Gabrielle Natividad, ECO_CARE team member from McMaster, 2022. <https://youtu.be/N6oiVztClJk?si=AQg6c3tOuTJ6SGUP> last access December 29, 2023.

¹⁰⁰ Young, O. (2006). Vertical interplay among scale-dependent environmental and resource regimes. *Ecology and society*, 11(1).

	Brazil	Peru
Methods used	PAR, critical legal analysis, Indigenous methodology	PAR, critical legal analysis, Indigenous methodology
Participants	Chiquitano Indigenous People from Mato Grosso; researchers, law students	Kichwa and Kukama Indigenous Peoples from the Tigre and Bajo Marañon basins, respectively, in Loreto, official authorities, indigenous leaders, researchers, civil society and industry stakeholders.
Main research question	How to co-create a model for water governance?	How can international law respond to the situation of the human right to water (HRW) in watersheds affected by the hydrocarbon industry?
Main outcome/finding	Co-creation is the result of participatory approaches to research, it requires a multi-step process based on trust-building.	A combination of participatory research methods is necessary to elicit the emic conception of the human right to water and to compare it with the international legal formulation.
Main legal documents (relevant to water governance)	The Escazú Agreement (EA), Art. 9	The United Nations General Comment of the Right to Water or General Observation N° 15

Fig. 3. Synoptic overview of the case studies in Brazil and Peru.

Studi di Torino, Department of Law, Department of Excellence 2023–2027.

Patricia Urteaga-Crovetto's research was funded by the Pontificia Universidad Católica del Perú, with the 2017 Project proposal entitled «Derecho humano al agua y consulta previa a pueblos indígenas Amazónicos: un estudio de caso comparado» (ID: 0490), and by VLIR-UOS (Belgium agency) with the South Initiatives 2016 proposal "The human right to water in the context of socio-environmental conflicts in Loreto, Peru" (ID: ZEIN2016Z194 – 75155).

CRedit authorship contribution statement

Poto Margherita Paola: Writing – original draft, Visualization, Validation, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Urteaga Crovetto Patricia:** Writing – review & editing, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Hayden-Nygren Juliana:** Writing – review & editing, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of Competing Interest

All authors involved in this manuscript declare that they have no conflict of interest related to this work. Our commitment is solely to academic integrity and the dissemination of valuable research in the field of environmental innovation and societal transitions.

Acknowledgements

Patricia Urteaga Crovetto would like to thank Frida Segura Urruñaga, the Kichwa people from the Vista Alegre community, the Kukama people from the Cuninico community, bishop Miguel Angel Cadenas and father Manolo Berjon, from the Apostolic Vicariat of Iquitos, members of the indigenous organization from the Tigre river (FECONAT), the Law Department of the Pontificia Universidad Católica del Perú, the Faculty of Law of the Universidad de la Amazonia Peruana, and colleagues from the Law and Development Research Group of the University of Antwerp,

Belgium.

Margherita Paola Poto and Juliana Hayden-Nygren would like to thank Giulia Parola, ECO_CARE Project Coordinator for Brazil, the Chiquitano villages from Mato Grosso, the Faculty of Law UiT The Arctic University of Norway and the Departments of Management and of Law of the University of Turin, Italy.

Data availability

The data that has been used is confidential.

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