



Rooting Transdisciplinarity in Research and Higher Education Institutions through communities of practice: Insights from El Colegio de la Frontera Sur, Mexico

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Rooting Transdisciplinarity in Research and Higher Education Institutions through communities of practice: Insights from El Colegio de la Frontera Sur, Mexico

Abstract: In the face of today's multiple crises, transdisciplinarity has established itself as a key paradigm for transforming both scientific practice and driving social change. However, despite its growing relevance, its integration into research and higher education institutions is progressing slowly. Among the structural barriers are a lack of institutional support, rigid structures, limited implementation capacity, and a lack of collaboration among different societal actors. Furthermore, it is essential that science policies adopt collaborative and multiscale approaches, giving greater visibility to the proposals and contexts of countries in the Global South. In this article, we analyse an initiative to strengthen transdisciplinarity and other collaborative research approaches, carried out between 2022 and 2025 at El Colegio de la Frontera Sur, a public research centre in Mexico. This initiative involved the systematisation and exchange of collaborative research experiences, resulting in the publication of a book and the creation of a community of practice, which has driven various processes of training, engagement, communication, and transformation within academic structures. In this article, we analyse the scope, methodological strategies and conditions that either strengthen or hinder such processes, as inspiration for generating collaborative, self-managed and shared-leadership

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processes within academia that embed transdisciplinarity. The findings highlight the importance of building on existing experiences within institutions, developing an understanding of transdisciplinarity and devising methodologies rooted in specific contexts, and establishing communities of practice as platforms for carrying out multidimensional collective actions necessary to transform institutional logics in research and higher education centres, and beyond.

Keywords: Collaborative research, Communities of practice, Systematisation of experiences, Transformation.

*We envisage a world where silence overcomes the ego and respect guides our encounters.
A vibrant and diverse network, with roots in the earth and branches open to the world,
where every voice counts, and every difference adds value.*

*We dream of green hills, clean rivers and native maize growing with dignity.
With fires burning that transform, with children at the centre,
indigenous women speaking out and young generations engaging without fear.
Here, we do not compete: we collaborate. We do not merely produce knowledge: we care for life.*

*What was once a utopia is beginning to become part of everyday life:
caring, listening, restoring, sharing.
Because when hope is woven collectively, it takes root. And everything that has roots blossoms.*

Collective Utopia: Red Tejiendo Pulsos, 2024–2025

Introduction

Amid the multiple crises confronting society, collaboration between diverse forms of knowledge, practices, values, and powers from different sectors is crucial in bringing about the necessary transformations towards more sustainable and just worlds (Rudhumbu et al. 2017). This implies not only dialogue and collaboration between disciplines (interdisciplinarity), but also among the diverse actors in society (transdisciplinarity). In this regard, transdisciplinarity has become in literature and practice a collaborative approach aimed at achieving a paradigm shift, reconfiguring the hegemonic modes of knowledge construction and public policy formulation in modern societies (Harris et al. 2024). This paradigm, which challenges society's disciplinary and sectoral boundaries, proposes the development of new ways of thinking, perceiving, valuing, acting and relating to the world (Lang et al., 2012).

In this context, higher education institutions (HEIs) are regarded as drivers of transdisciplinarity, as they bring together education, research, interactive dialogue, the analysis of problems, the design of alternatives and the construction of imaginaries of other possible worlds (Salgado-Escobar & Aguilar-Fernández, 2021). Furthermore, HEIs play a fundamental role in training professionals capable of generating alternatives to address current challenges (Amelink & Nicewonger, 2025; Harris et al., 2024). However, historically, universities have fragmented realities into increasingly specialized areas of analysis, which has reinforced the separation between disciplines and created barriers to communication and thinking. This hyper-specialization has complicated not only the understanding of complex issues, but also the development of effective strategies for change in practice and the holistic training of professionals (Harris et al., 2024).

Although transdisciplinarity has been gaining ground in research and education recently, its implementation faces significant challenges of a historical, psychological, organizational, economic, institutional and cultural nature (Salgado-Escobar & Aguilar-Fernández, 2021). These barriers stem not only from the rigidity and inertia of academic structures, but also from the institutional logics that shape them. These logics, understood as sets of cultural symbols and material practices—historically shaped and socially constructed—guide organisation, the creation of values, the reproduction of experiences, and give meaning to everyday activity (Thornton et al., 2012, cited in Harris et al., 2024).

Harris et al. (2024) propose the concept of *tensions* to emphasize the forces and pressures between two paradigms that are inherent in a transformation of the dominant institutional logics. Among the tensions identified are: the lack of recognition of transdisciplinarity and its specific needs; resistance to change in academic structures based on disciplinary departments, funding systems, assessment, and administration; a lack of capacity for collaborative work; and segmentation between people from different fields of knowledge (Hensler et al., 2024). Added to this is the complexity inherent in collaboration between diverse actors, shaped by differing interests, timelines, values, and power relations.

Another factor that has hindered the incorporation of transdisciplinarity into academic institutions in countries of the Global South is the asymmetry with the economic, sociocultural and political contexts in which it emerged, primarily in the Global North. From a decolonial perspective, it has been argued that transdisciplinarity runs the risk of reproducing Eurocentric epistemological logics by prioritising conceptual frameworks, academic languages and criteria for validating knowledge from those academic traditions (Streck, 2021; Hoyos Ensuncho, 2023), thereby rendering local paradigms, approaches, and methods—such as Participatory Action Research (PAR)—invisible (Fals Borda, 2015). This tension is exacerbated by the fact that many institutions tend to adopt evaluation models and systems derived

from these contexts as a strategy to gain greater international legitimacy (Salazar et al., 2024; Maringe and Chiramba, 2023). Consequently, discourses on transdisciplinarity are incorporated without fundamentally transforming academic practices, teaching models and methods, or how institutions relate to social actors and their territories.

For this reason, it is necessary to speak not of a single transdisciplinarity, but of *situated transdisciplinarity*: rooted in the histories and knowledge of the Global South and embraced as political, ethical and decolonial commitments, which priorities epistemic justice and the knowledge of indigenous peoples, peasant communities and other historically marginalized actors. Maringe and Chiramba (2023) point out that transdisciplinarity and decoloniality share important theoretical foundations, such as the recognition of a multiverse of situated knowledge, rather than the claim of the universality of knowledge; a multifaceted view of reality, beyond scientific rationality; and a commitment to values of equity and democracy. However, transdisciplinarity does not always acknowledge the injustices between systems of knowledge, nor the power relations that reproduce dominant structures.

Whilst there is an urgent need to consolidate transdisciplinary approaches within academic, social and governmental institutions, changes in this direction are slow and a disciplinary and positivist paradigm persists (Lang et al., 2012). A review of recent literature shows that, despite growing interest, most efforts focus on isolated courses or programmes with a transdisciplinary approach and questioning structural barriers within HEI, whilst proposals for transforming institutional logics are almost absent (Salgado-Escobar & Aguilar-Fernández, 2021). Furthermore, publications on the topic continues to be concentrated in the Global North, with few proposals originating from the Global South. Moreover, Amelink and Nicewonger (2025) emphasize the need for dynamic and agile approaches capable of transforming institutional culture and infrastructure towards transdisciplinarity and of analysing their effectiveness. It is therefore becoming increasingly urgent to develop and examine strategies and experiences aimed at integrating decolonial transdisciplinarity into research and HEI from the Global South.

To drive institutional transformation, a multi-stakeholder and multiscale approach is required, one that allows for simultaneous intervention across different academic spheres—research, teaching, engagement and administration—and thus addresses the web of existing barriers. Within this framework, transdisciplinary communities of practice can serve as platforms for transformation (Amelink and Nicewonger, 2025). These are defined as ‘groups of people who share a concern or a passion for something they do and learn to do it better by interacting regularly’ (Wenger, 1998:11). Communities of practice, as relational configurations, can facilitate participation, shared responsibility and the construction of collective identities geared towards organisational change (Amelink and Nicewonger, 2025). Shared leadership, understood as a management model based on the dynamic distribution of

responsibilities, influence, and decision-making power among academic staff, students, and members of participating communities (Pearce & Conger, 2003), enables not only the improvement of research processes, but also the transformation of the power relations that underpin them (Uhl-Bien et al., 2007). This strengthens legitimacy, trust among participants and the collective capacity to manage tensions (Pearce, 2004).

In this article, we analyse the strategies, challenges, and lessons learnt from a process of strengthening and articulating transdisciplinary initiatives and other collaborative research approaches. These were carried out between 2022 and 2025 at El Colegio de la Frontera Sur (ECOSUR), a public research centre whose core pillars are knowledge generation, the training of professionals through specialised postgraduate programmes, and engagement with local communities in southern Mexico. We approach this process, which we have named '*Collective synergies towards transdisciplinarity*', from the perspective of communities of practice and shared leadership. To this end, we carried out collaborative research with focused on systematising collective experiences. We take transdisciplinarity as a unifying framework for reflection; however, we place the term 'collaborative research' at the centre of our work, as a broader field that also encompasses other paradigms such as PAR.

Drawing on this collectively produced and interdisciplinary reflection by coordinators, facilitators, and participants of the experience (locus of enunciation in Annex 1), we present the methodological strategies implemented, together with their achievements and limitations. Not as replicable recipes, but as inspiration to foster participatory processes that sow the seeds of transdisciplinarity through collaborative, self-managed, and shared leadership approaches. To this end, in Section 2 we describe the context, the experience, and the action research methodology. In Section 3, we present the results of the systematisation of experiences across the following areas: 3.1) impacts, 3.2) methodology and strategies, and 3.3) conditions that favour or hinder the integration of transdisciplinarity. In Section 4, we discuss the findings, focusing on: 4.1) the importance of a decentralised strategy for communities of practice with shared leadership, and 4.2) the methodological elements that have been key to the development of the experience. Finally, in Section 5, we conclude by highlighting the contributions, challenges, and lessons learned from this experience.

Context and systematisation of collective experiences

Background: ECOSUR as a pioneering institution in inter- and multidisciplinary research

ECOSUR is one of the 26 public research centres forming part of the System of Public Research Centres under the Mexican Federal Government's Ministry of Science, Technology, Humanities, and Innovation. It operates through five units (Campeche, Chetumal, San Cristóbal de Las Casas, Tapachula, and Villahermosa) and a regional office (Mérida), spread across five states in south-eastern Mexico. Academically, it is organized into eight departments comprising 26 academic groups dedicated to socio-environmental research and offers postgraduate programmes with an interdisciplinary focus. This institutional structure, together with its track record in multidisciplinary research and collaboration with communities and local stakeholders (Saldívar Moreno & Vera Rodríguez, 2017), provides favourable conditions for embedding transdisciplinary paradigms.

It was established in 1994 following the transformation of the Centre for Ecological Research in the South-East (CIES), founded in 1974 in Chiapas. Its creation responded to the need to broaden the institution's regional and thematic scope and to consolidate a scientific agenda focused on the socio-environmental issues of Mexico's southern border. As a research centre, ECOSUR differs from many other HEIs in that scientific research, both basic and applied, is central to its mandate. Teaching and academic training are also fundamental to its mission, but are primarily delivered through specialised postgraduate programmes closely integrated with research. A distinctive feature of ECOSUR has been its institutional mandate to link knowledge generation with community engagement, recognizing the ecological, social and cultural complexity of the region. This institutional mission entailed the need to move beyond strictly disciplinary approaches towards holistic approaches and dialogue across multiple fields of knowledge. However, the evolution towards inter- and subsequently transdisciplinary approaches was not solely the result of formal guidelines, but of cumulative processes driven by research teams committed to communities.

From the late 1990s onwards, various projects focused on the peasant agricultural sector began to challenge conventional models of technology transfer and to explore alternatives based on the recognition of local knowledge, drawing on participatory methodologies and the 'Field Schools' (Barrera et al., 1999). Subsequently, multi-year funding schemes such as the Institutional Fund for Regional Promotion of Scientific, Technological and Innovation Development (FORDECYT, Spanish acronym), and more recently the National Research and Advocacy Projects (PRONAI, Spanish acronym) within various strategic national programmes, have ensured the continuity of projects that have faced resource constraints. Over the following decades, various

groups and networks have emerged and become established, deepening these collaborative efforts with social organisations in the states of Chiapas, Quintana Roo, Campeche, and Tabasco (Parra Vázquez et al., 2020; Guerrero Jiménez et al., 2024; Hensler et al., 2024). These include the Research Group on Coffee-Growing Areas (Barrera et al., 2016), the School Gardens Network (Acosta, 2024), the Transdisciplinary Laboratory for Sustainability (Tenorio et al., 2017), and the research group Studies on the Maya and Nature (Estrada-Lugo et al., 2020).

The process: Collective synergies towards transdisciplinarity

ECOSUR's 2021 Annual Work Plan proposed organizing a seminar on inter- and transdisciplinarity, aimed at exchanging research experiences and methodologies. This initiative marked the starting point of the process carried out between 2021 and 2025, which we systematise in this article. Figure 1 presents the timeline of the process, structured around the four key stages described below.

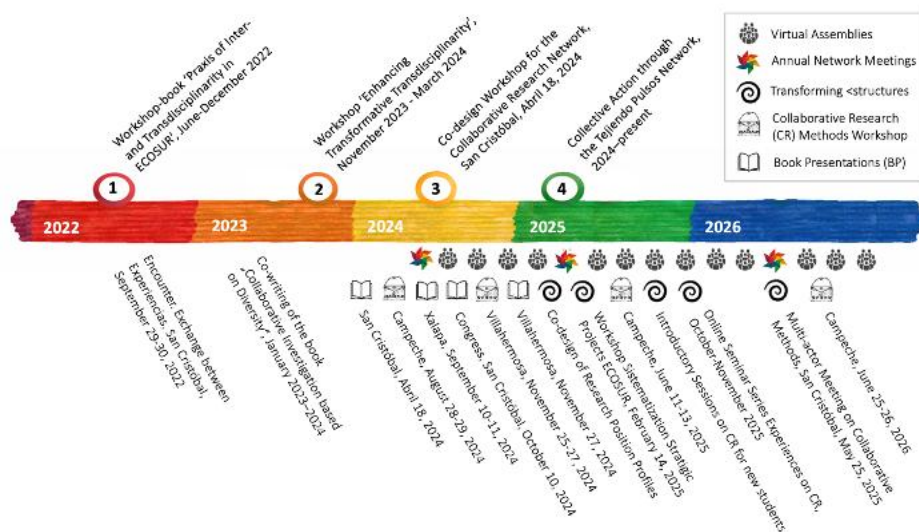


Figure 1. Timeline of the process of establishing the 'Tejiendo Pulsos' Collaborative Research Network community of practice. Note: CR = Collaborative Research.

This process began with the (1) workshop-book *‘Praxis of Inter- and Transdisciplinarity in ECOSUR’*, held between June and December 2022, to recognise, systematise and analyse the experience accumulated by research collectives and groups in multi-stakeholder collaborative processes, which would be published in a book. Thirty-seven participants linked to 21 research projects took part via nine fortnightly virtual sessions and one face-to-face meeting (Figure 2-A). The workshop was structured into four cycles: 1) mapping the diversity of collaborative research approaches and creating a common language; 2) co-developing the methodology for systematising experiences and its implementation; 3) collective exchange and analysis of experiences; and 4) identifying the challenges and opportunities for transdisciplinarity within the institution (Hensler et al., 2024). Following the workshop, the book *“Collaborative Research through Diversity: Experiences and Reflections in Southern Mexico”* (Hensler et al., 2024) was published, presenting the systematisation of 11 experiences, as well as an analysis of the challenges and opportunities for collaborative research at ECOSUR. The process involved peer review of the participating experiences and collective writing (Hensler et al., 2024), which deepened reflection and reinforced the desire to form a collaborative network.



Figure 2. Collage of key moments in the process: Face-to-face meeting for the workshop-book in San Cristóbal de Las Casas, 29–30 September 2022 (top left); Founding meeting of the ‘Tejiendo Pulsos’ Network, San Cristóbal de Las Casas, 18 April 2024 (top right); Launch of the book “Collaborative Research through Diversity”, San Cristóbal de Las Casas, 18 April 2024 (bottom left); and Annual Meeting of the ‘Tejiendo Pulsos’ Network, Palenque, 8–9 April 2025 (bottom right).

In response to the identified need to explore the transformative potential of transdisciplinarity and to reopen the call for applications so that more people could join this initiative, the (2) workshop ‘Enhancing Transformative Transdisciplinarity’ was held from 30 November 2023 to 21 March 2024 (Figure 2-B). The aim was to build capacity and develop tools so that those who design and implement transdisciplinary projects could enhance the transformative potential of these processes. Forty-seven people took part in three online and one in-person session.

The workshop concluded with the (3) “Co-design Workshop for the Collaborative Research Network”, held in person in San Cristóbal de Las Casas with 30 participants. At this meeting, we collaboratively designed the “Tejiendo Pulsos Collaborative Research Network”, using the collective planning methodology based on Utopias (Hensler et al., 2021). As a result, we defined the vision, mission, objectives, values, and structure (Figure 3). Subsequently, we began a phase of (4) Collective Action through the Tejiendo Pulsos Network with a polycentric organisation, shared leadership, virtual assemblies, and the first joint activities, thereby forming a community of practice.

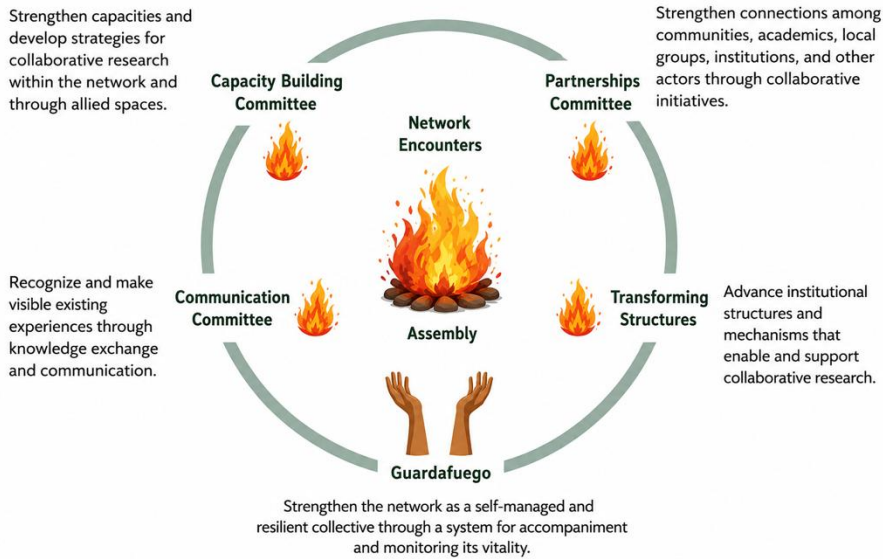


Figure 3. Polycentric organisation of the Tejiendo Pulsos Collaborative Research Network.
Source: Author's own work.

The process was carried out using a collaborative action research approach, understood as a horizontal dynamic of co-construction based on reflective dialogue between different forms of knowledge and practices, with a view to jointly generating knowledge and collective actions geared towards shared objectives (Hensler, 2023). This is a type of action research that emphasises collaboration as a form of participation based on shared responsibility, shared leadership and communities of practice. The invitation to take part in the various processes was extended to ECOSUR staff and project collaborators. It is noteworthy that 67 % of participants were women, and that nearly 20 % of ECOSUR's academic staff from all units and various roles (researchers, technical staff, institutional management, postdoctoral researchers, students, and collaborators) took part (Figure 4), representing a wide diversity of disciplines, departments, and roles within ECOSUR.

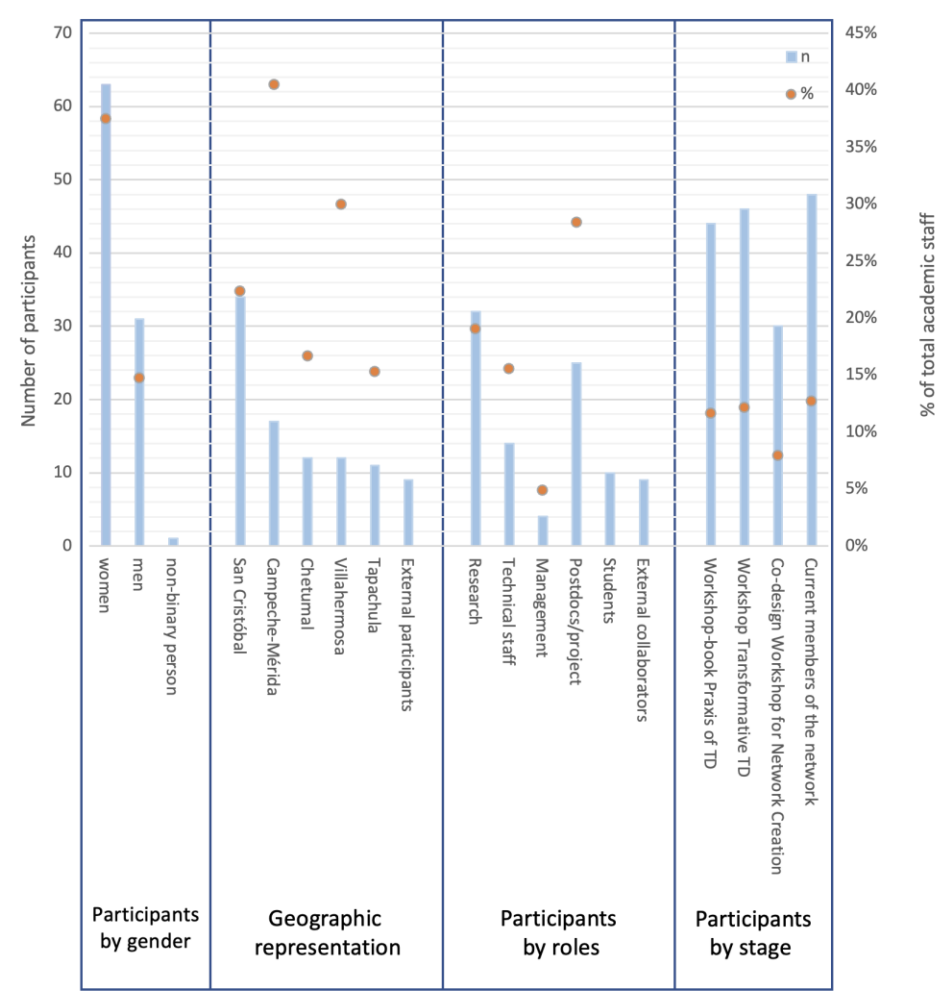


Figure 4. Participation in the various experiences that make up the ‘Collective Synergies towards Transdisciplinarity’ process, by gender and location. (Source: compiled by the authors based on records). Note: TD = Transdisciplinarity.

Methodology for the collective systematisation of experiences

For this article, we carried out a collective systematisation of experiences, which constitutes a “process of reflection and critical interpretation of practice and from within practice, carried out based on the reconstruction and organisation of the

objective and subjective factors that have played a part in the experience, to extract lessons learnt and share them” (Jara, 2011: 67). This systematisation aimed to analyse the process to strengthen collaborative research within a HEI, focusing on the following areas of analysis: 1) the impact of the experience, 2) methods and strategies, and 3) conditions that facilitate or hinder the implementation of transdisciplinarity (Table 1).

Table 1. Matrix for the systematisation of collective experience (Source: authors' own work).

Areas of analysis	Guiding questions	Categories of analysis	Source of information
Impact	What learning has this generated for the participants?	Personal contributions	Final form, evaluations
	What significant actions have emerged from the process?	Projects and academic practice	Timeline, record, field, form
	What changes and improvements have been made within the institutions (perception)?	Institutional strengthening	Final form and interview
	What contributions can be made to the theory and practice of collaborative research?	Theoretical and practical	Final form, book presentations
Methods and strategies	What have been the key elements of the overall process design? What role did the systematisation of experiences, art and creativity play in the process?	Strategies and methods	Final form, evaluations, timeline
	Which methods have helped to build a transformative process, and in what way?	Continuity	Final form, evaluations, participant observation
	Which proposals and strategies did we identify as key to strengthening transdisciplinarity?	Future visions / proposals	Final form, participant observation

Conditions and challenges	Which characteristics of ECOSUR have facilitated the establishment of transdisciplinarity?	Favourable conditions	Final form, timeline, interviews
	What barriers and limitations have we encountered in promoting transdisciplinarity within the HEI ?	Challenges and barriers to transformation	Final form, annual evaluation Network, participant observation

We continuously record information and document the historical progression through anonymous evaluation forms, group evaluation exercises, recordings of key moments and participant observation. In addition, we carried out a subsequent collective analysis which included individual reflection via a process evaluation form (March 2025; Annex 3), the joint creation of a timeline (April 2025), and a focus group (January 2026) involving 12 participants. The decision to write this article was agreed upon at a general assembly (January 2025), and the call for contributions was open to all participants. In Annex 2, we detail the different stages, sources of information and participant profiles.

Among the limitations of the research, it should be noted that the analysis presented reflects perceptions at a specific point within a dynamic and evolving process. Given that the Network is a fledgling initiative, its transformative potential will be assessed more clearly in the coming years. Moreover, we couldn't include the perspectives of those who have observed or participated tangentially in the process from outside academia, nor of those who chose not to participate. Participation by the student community in the research was also limited.

Results of the systematisation: impacts, methodological strategies, and limitations

Impacts of the experience: Strengthening transdisciplinary foundations

Overall, the predominant perception was that the process was very relevant or quite relevant, with participants highlighting its contributions at a personal and institutional level, to research projects and, to a lesser extent, to theory. Participants

emphasized the comprehensive nature of the contributions: *“The experience was very relevant to me as a person and to my research projects. It provided me with theoretical insights into concepts and methods of collaborative research. I was also able to apply them to my own project.”* (E12). Furthermore, they mentioned other contributions such as *“the weaving of meaningful relationships”*, collaboration between groups, as well as the inspiration and the opportunity to find *“a safe space to experiment with other ways of conducting research”* (E16).

Contributions to the institution

Although the process is still in its early stages, most participants identified positive contributions for ECOSUR. The capacity for collaborative research has been strengthened through the creation of a community of practice aimed at coordinating efforts, promoting changes to institutional structures and driving new initiatives. Furthermore, the experience has helped to foster a more conducive culture to this approach. As one participant noted: *“I believe we are on the way to establishing a tradition of collaborative transformative work, going beyond the efforts already being made at ECOSUR”* (E11). Opportunities for intra-institutional coordination have also been created, facilitating the development of new projects. In the words of another participant: *“All these activities have provided opportunities to meet different people from the ECOSUR community. Given the way ECOSUR is structured into departments, specialisms and units, it was practically impossible for us to cross paths. These initiatives open up an institutional mechanism to address institutional coordination”* (E8). Furthermore, it has enabled the recognition of the experiences with a collaborative approach in ECOSUR, strengthening the organisation’s standing and inspiring other institutions. Finally, the creation of spaces for critical reflection has begun to permeate various institutional spheres: *“There was undoubtedly a ripple effect on the practice and re-evaluation of research. Many spaces for reflection and critical analysis were opened up; that generates an impact”* (E3).

On the timeline, we conclude that *“transdisciplinarity was positioned within the institution and is filtering into different areas”* (Timeline 2025). After four years of this experience and two years of the Network’s operation, tangible impacts are beginning to be observed at ECOSUR (Table 2).

Table 2. Achievements of the experience and the Tejiendo Pulsos Collaborative Research Network.

Area	Achievements
Structural changes	- The Network as a multi-stakeholder platform and community of practice. - Profiles for new academic research posts at ECOSUR now include skills in collaborative research (CR), influencing future recruitment drives for research and technical staff. - Call for proposals to fund Institutional Strategic Collaborative Research Projects (ESIIC), which includes systematisation as an institutionalised tool. - Transdisciplinarity established as a priority at ECOSUR (e.g. the institutional programme now includes CR as a strategic objective and the ad hoc design of indicators to assess performance) - In the PhD programme, research practices have been expanded to government, civil society organisations, companies, and community groups. - Processes using similar methodologies have been initiated in projects linked to ECOSUR and even at another university.
Capacity building	- Participation in CR at research seminars across all campuses. - Members of the network have received training, and some are already practising CR or applying participatory tools. - Establishment of new spaces and formats for learning about CR, incorporating the voices of traditional knowledge holders. - The systematisation of experiences has been adapted for various contexts. - The Network as a learning community on CR for diverse profiles. - Spaces for critical reflection on science have been consolidated and permeated to academic groups.

Raising the profile of collaborative research experiences	- Creation of platforms for disseminating experiences (book, short videos, webinar). - Building a collective identity of CR within the Network. - Recognition of the Network as a coordinated actor promoting CR. - A perception that CR has become more tangible and widespread. - Generates recognition of ECOSUR for its track record in community collaboration.
Linking and coordination	- Intra-institutional coordination among those carrying out the CR. - A point of contact for communities to request support (in its early stages). - Decentralising transdisciplinary initiatives within ECOSUR and linking the various units.

Personal contributions: feelings, learnings and other transformations

Beyond the expected learnings on approaches and methodologies for collaborative research, for many participants it has been a transformative experience in various ways (Table 3). A key theme is a renewed sense of hope and inspiration after having experienced alternative academic models that place collaboration at the centre. A sense of identity, community, and belonging has also emerged, fostering confidence and a degree of support to carry out collaborative research, despite the criticism. *“Taking part in the network from the workshop onwards has allowed me to reflect on the fact that I am part of a vast orchestration and that even a slight movement on my part will resonate elsewhere. I therefore perceive this notion of interconnection and how powerful it is to be part of an organisation whose members share a common vision”* (E11). Personal changes are also identified, such as strengthened collaborative skills, greater critical awareness, and influence on professional practice and everyday life. The consolidation of shared leadership enables people in the early stages of their scientific careers to take ownership of strategic decisions.

Table 3. Participants' perceptions of the impacts of the process. Source: compiled by the authors.

Personal impact	Description	Quote
Inspiration and hope	The experience offered a glimpse into alternative academic models where collaboration takes centre stage, which is stimulating and motivating.	"It is refreshing to know that there are other possible ways of conducting research centred on people and nature." (E9)
Identity and a sense of belonging	It is empowering to feel part of a larger movement with people who share the same values and aspirations	"I feel better 'equipped' and more confident to undertake collaborative research." (E12)
Satisfaction and gratitude	The process generates positive emotions (joy, pride, connection, etc.) and satisfaction with the work and its impact	"I feel a great sense of gratitude; the experience exceeded my expectations and, together, we transformed a space for exchange into a network that brings about structural change." (E14)
Shared leadership	This collective effort has enabled new leaders and stakeholders who had not previously been active in this area to emerge, creating opportunities for intergenerational dialogue.	"I used to be pushing for change everywhere at Ecosur. Now I realise I can take a step back because the new generation is doing it better." (E10)
Adopting methods and concepts	Methodologies, concepts, and strategies for collaborative research are incorporated into professional practice.	"I pack a whole host of tools into my backpack to apply my knowledge in the field." (E2)

Openness and Sensitivity to Diversity	The perspective is broadened to encompass the diversity of approaches to science, and power dynamics are brought to light.	"I have identified the mechanisms through which I exercise my epistemological power and have learned to soften my interactions and allow myself to listen sensitively to other ways of understanding." (E11)
Attitudes and Values for Collaboration	Developing active listening, patience, tolerance, self-reflection, humility, and more mindful communication.	"I've learned to listen, to learn from others, to be tolerant, and to be more assertive in my comments. I've also learned to manage my frustration" (E2)
Professional Practice	These learnings are integrated into teaching, thesis supervision, and research, transforming everyday practice.	"I incorporated many of these materials and activities into my courses, as well as into my role as a graduate thesis advisor and my research." (E8)

Contributions to projects and academic work

Most participants (17 out of 19) identified an impact on their projects or professional experience, which depended on the stage of the research and each individual's personal circumstances. One of the most frequently cited benefits (N=5) was the strengthening of the groups themselves through fostering reflection and self-criticism, which helped to change dynamics. Others noted that they were able to strengthen their projects indirectly through their learnings (N=4). For those who did not have an ongoing research project, it enabled them to enhance their teaching (N=2); they were encouraged to submit new research projects with a collaborative approach (N=2); and others noted that it benefited their work across the board by promoting a more collaborative approach (N=2). Furthermore, it inspired other initiatives through the experience gained (N=2), and in one case it enabled greater support from others to bring about institutional change.

Contributions to the theory of transdisciplinarity and collaborative research

The development of theory, methodologies and institutional analysis grounded in context and from a Global South perspective has emerged as a positive aspect of the process. In particular, the formulation of a distinct definition of transdisciplinarity that highlights its socio-political dimension (published in Hensler et al. 2024) has been significant, as noted by (E14): *“It is key to be able to reinterpret transdisciplinarity from the perspectives of the Global South; therefore, reinterpretation based on experiences and with a focus on justice is relevant.”* Another significant contribution was the generation of *“evidence grounded in transdisciplinary practice and participatory action research in Latin American contexts”* (E15). Among the advances, we identified co-generated methodologies, the formation of a community of learning and practice within the framework of the Tejiendo Pulsos Network, as well as the analysis of experiences and barriers within academia (Mesa-Jurado et al. 2024). The Network has distinguished itself by putting transdisciplinarity into practice, as one participant put it: *“We go on and on about participation, but there’s no clarity on how it’s actually being approached. Within the Network, there is a responsibility to identify ethical and methodological principles and theoretical foundations that will strengthen what we call transdisciplinarity”* (E19).

Methods and strategies for creating transdisciplinary communities of practice

Among the participants, there was a very positive perception of the methodology for fostering collective synergies, and embedding transdisciplinarity (Table 4). Feedback on the methodological design shows that the process was perceived as a comprehensive learning experience. The participatory format, based on the co-definition of systematisation axes, group work and the integration of creative and affective practices, made it possible to combine methodological rigour with an openness to the ‘feel-thinking’³, which fostered collective ownership. Facilitation has been a key element in sustaining the process; particularly because of its ability to integrate diverse contributions, encourage continuous participation without centralising leadership, and guide the construction of a collective vision. Furthermore, participants

³ The terms ‘sentipensar’ and ‘sentipensamiento’ are described by the Colombian sociologist Orlando Fals Borda (1984) as the living principle of the riverine and swamp communities of Colombia’s Caribbean coast. They imply the art of living based on thinking with both heart and mind (Escobar, 2016).

highlighted the consistency of putting the collaborative approach into practice through the methodologies employed, while also incorporating art, creativity and utopian visions, and placing affective relationships at the centre. In addition, sustained follow-up together with the generation of tangible outcomes—such as the publication of the book and the consolidation of the network—combined with a favourable institutional and political climate, fostered a sense of progress and reinforced the significance of the process. Taken together, the coherence between structure, balanced participation, relational care and a shared vision fostered the emergence of a collaborative community of practice that puts the principles of transdisciplinarity into practice.

Table 4. Key elements in the development of the experience. Source: Compiled by the authors based on participants’ perceptions questionnaire 2025).

Category	Description	Quote
Format and Structure	A participatory approach featuring a variety of dynamic activities that involve co-designing objectives, small-group work, and creative tools.	“The design was intended to allow us to share not only the ‘technical’ aspects but also our feelings and thoughts—in a very cooperative, warm, and creative way.” (E15)
Facilitation	Agile, patient, humble, and supportive facilitation, with clarity regarding the process and the ability to integrate diversity into deep dialogue and agreements.	“I was struck by the creative, dynamic, and sensitive facilitation process; I believe that was undoubtedly a key element in opening up dialogue and reflection in an engaging and profound way.” (E3)
Participation and Shared Leadership	Flexible participation and an effort to distribute shared responsibilities, avoid centralization, and strengthen collective capacities.	“A significant effort has been made to involve different people in sharing the development of content, activities, and the organisation of meetings.” (E7)

Tangible Results	Producing concrete results that strengthen ownership of the process and create meaning	“I loved seeing that there are tangible results that represent us, such as the book and the formation of the network.” (E8)
Perseverance and Group Commitment	Ongoing support throughout a process—beyond isolated workshops—that builds a sense of community.	“There isn’t a facilitator as such, but rather a group of people committed to the process and its perseverance” (E17).
In-Person Gatherings	Coming together to talk, play, and co-create in order to deepen our exchanges and build emotional bonds.	“In-person gatherings have always been very enriching and have enriched our way of thinking and feeling.” (E16)

When analysing the significant moments highlighted by the participants and the timeline, the following milestones stand out: the face-to-face meetings and workshops, the creative and body-based methodologies, the book “*Collaborative Research through Diversity*”, and the formation of the Network as a community of practice with a collective identity.

In an institution such as ECOSUR, with a presence across different sites, and during the pandemic, online engagement became a key tool for building connections between territories, albeit with obvious limitations. Face-to-face sessions were identified as fundamental for fostering a sense of belonging, collective identity and emotional bonds; we even observed “*greater commitment following the face-to-face meetings*” (Timeline 2025). In the words of one participant: “*All the activities during the meeting and the book launch left me feeling delighted and re-energized to carry on. Filled with collaborative energy, and equipped with new tools*” (E8). Another participant highlighted: “*Having workshops was a catalyst and also an inspiration to keep the fire burning*” (E15). Furthermore, we observed that those who did not take part in the meetings had a less profound engagement with the process.

The co-design workshop to establish the Network was particularly significant for many people because of the opportunity it provided to dream: “*an important event*

that should not be missed was the 'future' activity, contributing from personal utopias to shape the group utopia" (E11), as well as facilitating "collective decision-making", "putting collaboration into practice" and "learning new methodologies". Furthermore, the workshops on Collaborative Research Methods organised by the Network enabled us to learn from one another: "I learnt many tools that I have been able to use and adapt in workshops, classes and other settings" (E16), "to invite more people to join the Network organically" (E14), "to strengthen our commitment to the Network's objectives" (Timeline 2025) and to build motivation for putting these ideas into practice.

In general, the most significant moments were linked to creative methodologies (examples in Figure 5) that integrated physicality, sensitivity, joy, enjoyment, and the construction of collective meaning. These spaces strengthened emotional bonds and generated a sense of progress in a process of transformation. The results suggest that what motivated the participants went beyond instrumental rationality, emerging in moments of breaking away from conventional forms of academic interaction, which allowed us to look at, listen to and recognise one another as people. Art and playful activities proved fundamental according to the participants' perceptions (13 out of 17 considered them very relevant and 4, quite relevant). In the experiences analysed, the capacity of the various participatory artistic practices to: 1) foster (self-)exploration and holistic communication that enabled us to get to know one another better; 2) generate motivation, meaning and a collective identity in an atmosphere of joy and trust; 3) integrate diverse forms of knowledge, facilitating multi-stakeholder collaboration and collective learning; and 4) foster creativity for socio-ecological transformation, given their disruptive potential in the face of dominant ways of thinking and acting.



„I was really moved by the "Theater of the Oppressed" activity, where we shared with the group an experience of injustice we had faced in academia and then acted out the story together as if we were sculptures, before transforming it.“ (E5)

„As a group, we set out to accomplish the mission of inserting a stick into a bottle. On the first attempt, some leaders emerged, but that didn't help solve the challenge; a different kind of teamwork was needed to achieve the goal. That exercise was very transformative for me.“ (E3)



„It was very meaningful to be able to leave the book cover at the offering site, because it embodies a long-term effort. It always gives a sense of accomplishment, which—since it's a collective effort—is especially gratifying.“ (E7)

„I carry the utopia exercise in my heart; every participant in my group shared their gifts, talents, and aspirations without hesitation. It allowed each person to reveal intimate aspects of their present and future lives.“ (E11)



„I was moved by the narrative of the Stone Soup, especially given the context of haste, limited time, and closed minds that information overload forces upon us. Realizing that with just a few simple ingredients, when well combined, we can create something that nourishes our minds and hearts, and that also transforms us.“ (E8)

Figure 5. Significant moments highlighting the importance of holistic methodologies.

Another key moment was the collective creation of the book, which resulted from systematising our experiences and enabled us to achieve a tangible outcome in a short space of time, giving the process both identity and visibility. *“Let’s keep weaving together, just as we did with the book. Witnessing things that generate tangible results because that inspires us, fosters greater collaboration, dynamism and trust, as we get to know one another, interact, listen to one another and recognise one another”* (Timeline, 2025). The systematisation of experiences also facilitated the building of networks and coordination between projects, not just between people: *“That book is not the academic product in itself, but the experience of everything we have set in motion in the territories where we work. We represent teams of 40 or 30 people who are doing things in the territories beyond academia. Thus, the network is a network of networks”* (Timeline 2025). The book launches were particularly moving, as they celebrated collective achievements and gathered diverse feedback, with the contributions of community members being especially significant; they expressed their gratitude for the opportunity to participate and for the self-critical reflection on the academic processes.

Among the methodological limitations mentioned were the challenges posed by time constraints and participation, the virtual nature of the process, and the difficulty in accessing ECOSUR’s institutional online platform. The pace of the process was perceived as very slow by some and very fast by others, alongside feelings of pressure or guilt at being unable to participate more fully due to a lack of time. Furthermore, there has been a desire to involve more people in general, from communities and groups, a task which is still in its early stages. Another factor has been the gender distribution of participants, as attendance has been predominantly by women (Figure 4), who have also taken on a more active role in the network’s activities.

Collaborative activities, particularly those that are creative and physical, have proved challenging for some people, as the level of interaction can be difficult for more introverted personalities, as well as the ‘discomfort’ that may arise from the way these activities link personal feelings and lives with the academic sphere. In the words of participants: *“It has shaken me up on several occasions, in a positive sense”* (E4) and *“It’s been fun; however, for me, as I’m not very creative, it was sometimes a bit stressful”* (E2). Furthermore, it is challenging to learn new methodologies and integrate them with the dominant ones, as one participant points out: *“It’s uncomfortable that, apparently, network-based work is very healthy, whilst returning to the quantitative, competitive reality of performance expectations feels like a return to a very bitter, fictional reality”* (E11).

Conditions that favour or hinder the institutionalisation of transdisciplinarity

No process takes root in barren ground; minimum conditions are always required that significantly influence its development. Within this framework, we have identified a series of distinctive features that set ECOSUR apart from other research centres and HEI, and which, according to the collective perception, have favored the development of this process. Among these, a long-standing tradition of collaboration and social work with communities stands out, as does an institutional openness and awareness of these approaches. Added to this is the diversity of profiles and disciplines that converge within the institution, which has facilitated multidisciplinary work. Furthermore, its socio-environmental approach, geared towards solving complex problems, has created conditions conducive to collaboration. The institution's medium size, its geographical distribution, and its thematic and epistemological diversity have fostered dynamics of internal coordination. Also, significant is the institution's willingness to change over time, expressed in its *'ability to take stock and say, "Well, we've been going for 30 years now, so what's next for us?"'* (E19), which demonstrates an openness to critically reviewing its history and redefining its horizons. Finally, a socio-political commitment stands out, accompanied by a critical perspective towards hegemonic concepts, such as that of *development*.

However, we also identified significant institutional, structural and cultural barriers and limitations that hinder these processes. A primary limitation is the institutional architecture and academic evaluation systems, which continue to prioritise traditional disciplinary outcomes, particularly publications in indexed journals and individual or hierarchical authorship. This creates an atmosphere of academic competition and discourages transdisciplinary processes, which require more time for collaboration and produce results that are difficult to translate into conventional academic indicators (White-Hancock, 2023). Secondly, disciplinary inertia and hierarchical leadership styles persist in some ECOSUR departments, inherited both from the classical academic model and from management practices common in Latin American contexts. Consequently, postdoctoral researchers, technical staff and students who wish to promote more collaborative approaches are constrained by power dynamics. This is compounded by another epistemological and training barrier. Not all researchers have the training, methodological tools or willingness to work in contexts of knowledge co-production. Furthermore, a characteristic of transdisciplinarity is

challenging disciplinary boundaries, relinquishing control over research, and accepting uncertainty (Mejía et al., 2024), which is generating resistance, particularly among those with established academic careers.

Moreover, there are challenges inherent in collaboration between a diverse range of stakeholders—from community members and civil society organisations to businesses and public officials—including their interests, values, collaborative cultures and timeframes. The latter is particularly challenging, as the demand for rapid, actionable results in the realm of public policy or research projects contrasts with the lengthy timeframes required by transdisciplinarity and community-based processes. This can lead to frustration or superficial participatory processes, in which the inclusion of external stakeholders is more symbolic than substantive (White-Hancock, 2023). Furthermore, we identified a general sense of overload in society, and specifically within academia: *“I feel we are overwhelmed by tasks, activities, and commitments that may have impacted the time devoted to the experience, and may even jeopardise the continuity of the network and other collaborative processes”* (E15). The heavy administrative burden generated by excessive bureaucracy and the management of funding reduces the time and energy needed to sustain complex collective processes. Finally, internal fragmentation between research units and projects complicates coordination between like-minded individuals and projects.

These barriers manifested as tensions between institutional logics when implementing the initiative to embed transdisciplinarity. Although a very positive perception of the process generally prevails (9 out of 17 people did not identify any negative impact or risk), some people referred to the difficulty in changing when there is resistance or little affinity with working groups, and when it goes against the dominant academic logic. This is in line with the comments made by another participant: *“The problem is that my working group is not familiar with this methodology, and I notice a disparity in progress; as a result, it is effortless for projects to collapse and fail to reach a successful conclusion. I believe that everything to do with ‘collaboration’ has been very beneficial to my scientific work. Unfortunately, in regulatory terms, these approaches are penalised in performance appraisals”* (E11). We have even observed that people who follow disciplinary paradigms have felt challenged, threatened and forced to change their way of conducting research, with the risk of creating a perception that these are exclusionary processes – a form of resistance inherent in the tensions involved in changes to institutional logic.

These barriers have been present throughout the experience; they have been identified and analysed, and strategies to transform them have been identified, which generates

“great hope that this experience will gradually break down these barriers” (E5). Indeed, some members of the Network feel that the process of forming a community of practice comprising a diverse range of people from different units, research groups, age groups and backgrounds, within a structure geared towards horizontal organisation and participatory dynamics, has, to some extent, helped to overcome some of these barriers.

Transforming institutional approaches through communities of practice

Institutionalisation of transdisciplinarity through gradual processes of shared leadership and a bottom-up approach

This systematisation process demonstrated that embedding transdisciplinarity requires multiscale processes and shared leadership driven by horizontal collaboration, the creation of open and safe spaces, the strengthening of relationships based on trust, and the development of shared dreams and motivations (Pearce, 2004). This approach enables us to address the tensions generated by a paradigm shift and to drive simultaneous changes across different dimensions of institutional logic (personal, relational, structural and practical) (Harris et al., 2024). In our experience, the coordination and systematisation of previous experiences, and the formation of a community of practice have created favorable conditions for structural and cultural transformations aimed at strengthening collaborative research. In this way, the experience demonstrates a possible path for embedding transdisciplinarity in research and HEIs from a collaborative and situated perspective, developed from the bottom up. It also proposes a holistic approach that recognises the need for a cross-cutting transformation of interpersonal relationships, institutional priorities and the underlying logics that sustain them. In doing so, it goes beyond conventional approaches centred on isolated programs, vertical institutionalisation or the mere identification of barriers that hinder change, as noted by Salgado-Escobar and Aguilar-Fernández (2021).

The formation of a network as a transdisciplinary community of practice confirms its capacity to mobilise organisational structures through coordination between actors, social learning and shared practice (Amelink and Nicewonger, 2025; Wenger, 1998).

Rooted in the socio-political and cultural context of south-eastern Mexico, it also incorporates aspects such as justice, the questioning of power, reciprocity, horizontal

structures, methodological creativity, epistemological plurality and culturally rooted concepts, as well as forms of collective organisation inspired by the organisational experience of rural communities. Although the experience has not explicitly positioned itself as decolonial, these are aspects that resonate with this approach and practice, which seeks to challenge and transform the dominant ways in which knowledge is validated and reproduced. We frame the experience from a Global South Perspective, not only because of its geographical location in contexts of historical marginalisation, but also because it co-constructs a critical understanding of transdisciplinarity based on territorial knowledge, promotes dialogue among knowledge systems, recognises power relations and is committed to socio-environmental justice. To this end, it was important to start from the recognition that many practices of multi-actor collaboration and joint construction of knowledge already existed; and by systematising and sharing these experiences, we were able to develop a conceptual and methodological framework for a just transdisciplinarity and to establish a deeply rooted network to promote transformations in institutional approaches and research practices.

This experience is underpinned by collaboration as a form of participation geared towards horizontality, shared responsibility and shared leadership within flexible frameworks that respect the diversity of its members, their schedules, and their capabilities. Thus, the Network has become not only a platform for incubating ideas and collective action, but also a laboratory for experimenting with collaborative processes and methodologies. By encouraging proactive participation, with multiple levels and forms of involvement (Amelink and Nicewonger, 2025), a large number of members have taken on various roles of responsibility (power) and been involved in reaching consensual agreements, breaking with traditions and vertical structures in favour of more equitable forms of power distribution (Pearce, 2004). Some key strategies have included the formation of a steering group (Villasante, 2015) with a genuine interest in fostering dialogue, organising meetings and dedicating time and energy, as well as the explicit allocation of diverse resources, since collaborative processes cannot be sustained by goodwill alone (Giraldo et al., 2024). The involvement of a facilitator with extensive experience in collaborative processes enabled spaces for reflection, analyse concepts, co-design methodologies and the nurturing of collective dynamics. Added to this were various forms of support – postdoctoral researchers, professional services, personal contributions towards activities – and, in a less visible but fundamental way, the time dedicated by individuals

to committees, assemblies, and meetings. These elements helped to forge shared leadership capable of ensuring the process's continuity.

Horizontal interaction has created cracks in academic hierarchies, transforming the Network into a laboratory for collective leadership, which has energised teamwork (Pain, 2011), strengthened proactivity and consolidated a shared vision (Pearce, 2004). Participation, attentive listening and collaboration across different levels generate new local and regional possibilities, given ECOSUR's geographical distribution and its multi-stakeholder participation. As Pearce & Conger (2003) point out, group effectiveness is enhanced when leadership roles are fluid and emerge as needed, rather than being fixed by formal appointments. By decentralising authority away from the 'principal investigator', other actors take on strategic decision-making, thereby reducing power asymmetries and institutionalising a collective shared responsibility that is essential for the sustainability of transdisciplinary research.

Another key aspect is epistemic and relational care—tasks that have historically been feminised and, as a result, are often rendered invisible and undervalued (Carrasco, 2009). A just transdiscipline (Hensler et al., 2025) promotes balanced participation with a critical gender perspective, affirming the centrality of care in human relationships within the workplace as well. This fosters the restoration of healthy processes among those engaged in scientific activities from a decolonial health perspective (Gutiérrez-Márquez, 2025) and contributes not only to an improved organisational climate but also to a greater capacity to adapt to contextual changes, thereby promoting the flourishing of both the team and the organisation (Ortiz, 2025). Thus, the participatory processes undertaken not only bring together a wide diversity of disciplines and perspectives, but go further: they pave the way for the co-construction of a culture of care in the workplace, which is particularly relevant given the environmental, sociocultural and historical complexity of the Latin American context.

Transdisciplinarity is regarded as a bridge to social transformation, and the experience gained from this work points to pathways for fostering personal, group and institutional change (Pain, 2011). This change is made possible by the initiatives of sensitive leaders who, from strategic and multi-scale positions, drive academia and its administrative, organisational and cultural structures forward, without overlooking the need to reorient the national scientific research apparatus (Hernández Pérez, 2019). Although experiences of collaborative work dating back to the 1970s, such as

CIES, and from the 1990s, such as ECOSUR, demonstrate fertile ground for collaboration with local actors on Mexico's southern border, these lessons have remained, to a large extent, confined to certain academic groups and had not managed to permeate the institution as a whole, its structures and organisational logic. Some participants noted that *"certain academic groups seemed very distant to us"*, *"I have never experienced anything like what I have encountered in the network"* and that *"once we got to know one another, collaborations arose naturally"*.

Transdisciplinarity has been proposed as a pathway towards capacity-building, adaptation, renewal and resilience, as well as for strengthening a culture of collaboration in science (Uhl-Bien et al., 2007). At ECOSUR, its institutionalisation has taken place gradually through various initiatives, as illustrated by 'seed' projects such as the 'Multidisciplinary and Cross-cutting Projects' programme (2015–2018), 'Institutional Strategic Multidisciplinary Research Projects' (2023–2024) and 'Institutional Strategic Collaborative Research Projects' (2025–2026), which have helped to nurture and formalise the collaborative component with social actors, whilst also incorporating processes for systematising experiences. These programmes have stimulated creative work, active participation and the practice of shared leadership among students, postdoctoral researchers and women – academic stakeholders who are generally under-represented. This feature is key, as intergenerational transition and the renewal of energy and working teams foster generative leadership in the process of maturing situated collaborative experiences (Pearce, 2004).

Pathways to meaningfully embedding transdisciplinarity: 'sentipensar', artistic practices and the systematisation of collective experiences

The reflections and learnings discussed so far are the result of methodological strategies characterised by the articulation of diverse ways of knowing and engaging in dialogue. Within this diversity, areas of knowledge or disciplines emerge that construct languages and ways of working, as well as individuals with diverse backgrounds, interests, and motivations that give rise to points of convergence, divergence, contradictions and collective learning; co-constructing from this diversity presents epistemological and methodological challenges characteristic of transdisciplinarity (Merçon, 2022).

In the face of these challenges, we have identified three significant elements that inspire transdisciplinary processes: 1) 'sentipensar', 2) the arts, utopias and creativity, and 3) the systematisation and exchange of collective experiences. These elements, among

others, have served as methodological pathways that enable the integration of diversity, the construction of alternative ways of knowing and engaging in dialogue, and, consequently, the strengthening of bonds of trust, empathy and collective identity. Furthermore, it emphasises the importance of reinventing transdisciplinary methodologies from a decolonial and Global South perspective (Vilsmaier et al., 2024), drawing on contributions from Popular Education, the IAP, the Theatre of the Oppressed, and the pedagogies of questioning, artistic and decolonial approaches, as well as the teachings of the peoples and communities of the South.

Moving towards collaborative research involves adopting different ways of engaging with reality; in other words, reclaiming integrated ways of ‘feeling-thinking’ (Fals Borda, 2015). This endeavour is not limited to changing the content, but rather to changing the terms in which we dialogue, to question who generates knowledge, from where, why and for what purpose (Mignolo, 2010). This endeavour is also an invitation to rekindle the ‘desire to know’ – in the words of Paulo Freire (2005) – epistemological curiosity and the human vocation to become more and to grow through dialogue and praxis, that is, collective reflection and action. Among the many strategies that enable this, we recognise the role of memory, intuition, horizontal dialogue, imagination, hope, emotions, bodies and lived experiences as elements of ‘sentipensar’ that foster transdisciplinarity imbued with meaning(s). The integration of these elements in different ways and at different times has facilitated participation in both virtual and face-to-face contexts, where dialogue, agreements, and collective care have enabled the group’s processes and goals to continue. It highlights the importance of face-to-face meetings, where ‘sentipensar’ becomes more tangible, fostering a sense of community, commitment and participation, as well as enhancing individual, group (within committees) and community potential. Some key elements were the ‘circle of the word’ at the beginning of each session, narratives, ritual, festivities and celebrations, play and art, among others.

Exploring collaborative research processes based on the arts and creativity enables dialogue between different forms of knowledge and values, as well as encouraging participation (Hensler et al., 2021; Calderón García, 2015). Practices such as participatory theatre, collective drawing, the use of metaphors, music, and physical movement allows reflections that would not emerge without the inclusion of these forms of expressing ideas, feelings, and expectations. Likewise, the collective construction of utopias has been important for integrating different objectives and

turning hope into action, committed to a more just academia (Hensler et al., 2021; Freire, 2005). In this way, we rediscovered creative and artistic aspects that are not usually present in scientific practice, and we built our own forms of organisation and collaborative research, fostering identity and a sense of belonging—key elements of communities of practice (Wenger, 1995). This integration of other forms of expression and co-creation extended into other areas of our work, enriching us with ideas and experiences.

The systematisation of experiences enables us to identify, capture and evaluate collective learning (Jara, 2011). By understanding previous trajectories and fostering dialogue between people with diverse roles and profiles, it enhances reflection and exchange. It served as a reflective process in which shared leadership becomes visible, is critically analysed and given new meaning, enabling an understanding of how collaborative practices transform both research processes and the power relations that underpin them (Uhl-Bien et al., 2007). In this regard, the systematisation and exchange of experiences not only facilitated ways of presenting and understanding the diversity of approaches and methodologies in collaborative research. It also enabled the identification of common ground, diverse strategies for addressing similar issues, and the recognition of aspects that had not been considered. Consequently, it has functioned like a fungal rhizome that facilitates the taking root of transdisciplinarity, as the collective spaces for reflection and action gave rise to a structure that facilitates monitoring, participation and the distribution of tasks.

These participatory, creative and decolonial approaches have also had effects that go beyond the network's objectives, opening up spaces at an institutional level that allow new topics and working strategies to be addressed. Several people described these spaces as 'safe', reflecting the need to continue transforming relationships and connections that are perceived as 'insecure' within academia. At the same time, these reflections highlight the tensions and limitations that are deeply rooted in traditional forms of research and academic collaboration. In this sense, this experience demonstrates that it is possible to transform certain dynamics, roles and structures, thereby enabling collaboration to be conceived in broader and more inclusive terms.

Lessons for further embedding transdisciplinarity

An analysis of this experience provides an understanding of the scope of collective, creative strategies rooted in communities of practice with shared leadership, aimed at transforming institutional logics and other barriers within HEIs to facilitate

the integration of transdisciplinarity. Although ECOSUR is a unique case—with a history of social engagement with regional stakeholders stretching back decades, which may not be replicable in other contexts—it offers an insight into multidimensional, bottom-up transformation, as well as methodological principles and strategies that can help create favorable conditions for embedding transdisciplinarity in other institutional settings.

To enhance collaborative research from a bottom-up strategy, it is essential to build on existing experiences and to listen – a central practice of decoloniality and the pedagogies of the South (Yedaide, 2016). Before proposing methodologies or organisational changes, it is necessary to acknowledge the institutional history, its hierarchies, tensions, resources, and limitations. Listening enables the design of workshops in line with specific disciplinary, generational and territorial diversity (Ocaña, 2018), generating situated transdisciplinarity—that is, those rooted in the trajectories, knowledge, cultures, and logics of each context. In this regard, the systematisation of collective experiences has demonstrated its potential as a tool for the exchange of experiences, collective reflection and the development of consensus-based strategies to embed transdisciplinarity.

The strategy of creating a community of practice within the multi-stakeholder network ‘Tejiendo Pulsos’ has made it possible to coordinate people interested in collaborative research and to carry out collective actions on different scales and in different dimensions simultaneously, overcoming the barriers linked to the rigidity and inertia of academic structures and institutional logics. Although structural challenges linked to academic evaluation systems, the persistence of hierarchical and organisational structures, the lack of willingness to collaborate, the difficulties inherent in collaboration across diverse groups, as well as administrative and bureaucratic constraints and a lack of resources, it has been possible to drive changes in personal attitudes, relationships, structures and practices, and to identify cracks in the theoretical understanding that allow transforming institutional logics.

Regarding the methodological findings for the creation and sustainment of communities of practice, we highlight the integration of ways of feeling and thinking as a strategy for collective care and for cultivating affective relationships and safe environments; the exploration of diverse methodologies—including the arts, utopias, and creativity—to expand transformative potential; the implementation of processes of systematisation and self-critical reflection as an ongoing part of the process, offering

opportunities for learning and continuous improvement; and the development of our methodologies that respond to the sociocultural contexts and needs of each process and experience. In this sense, sowing transdisciplinarity with meaning involves transforming not only methodologies, but also how we relate to one another and re-create practices and knowledge.

It is important to recognise that these processes often unfold against the tide. We seek to transform structures which, at the same time, impose limitations. In some cases, there were reactions of explicit rejection, or even disinterest or annoyance, towards methodologies that challenged entrenched practices. Resistance can be interpreted as a defence against a sense of threat: the fear that disciplinary boundaries will lose their value or that new ways of working will displace established career paths. Institutional transformation rarely occurs in times of calm; it tends to emerge at points of friction (García Herrera, 2015). The recommendation is not to avoid conflict, but to build bridges so that diverse positions can coexist and engage in dialogue. It helps to understand that discomfort and resistance can be part of the tensions inherent in changes to institutional logics (Harris et al., 2024). In this sense, fostering institutional transformation requires patience and sensitivity: it is not imposed, but supported.

Finally, it is necessary to acknowledge certain limitations and opportunities for further research. Whilst transdisciplinarity brings together multiple forms of knowledge—both academic and non-academic—the process analysed here took place primarily within the academic institution. Although it drew on experiences of community-based work, the coordination and systematisation phase did not directly involve non-academic actors in the strategic reflection. Furthermore, several of the outputs produced, such as the collective book, adhered to traditional academic formats. This highlights the persistence of frameworks for legitimising knowledge and points to the need to move towards other languages, mechanisms and spaces for co-production that broaden participation beyond the institutional sphere. Furthermore, it will be important to analyse the implementation of similar processes in other contexts to confirm their scope, recognise limitations and broaden the theoretical and practical understanding of the transformation of institutional logics towards transdisciplinarity.

Establishing transdisciplinary processes requires situated listening, the reflective exchange of experiences, the creation of communities of practice capable of sustaining processes of transformation, collaborative methodologies specific to each context, adequate resources, and a willingness to embrace the discomfort inherent in changing institutional logics. It also requires progressively broadening the frameworks for participation and knowledge creation, so that transdisciplinarity is not limited to an

internal transformation of the academic field, but moves towards deeper forms of co-production beyond the institution. Rather than implementing a model, the aim is to create the conditions for each institution to recognise its seeds and support their growth in its own unique ways and at its own pace.

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Appendix

Appendix 1. Locus of enunciation of the article's authors

Name	Academic background	Town, Department	Length of service at ECOSUR	Transdisciplinary experience	Role
Ariane Dor	Discipline: Bachelor's degree in Organismal Biology; Master's degree in Population and Behavioural Biology; PhD in Ecology and Sustainable Development	Tapachula, Chiapas – Arthropod Ecology and Pest Management	Since 2005. PhD student (2005–2008), postdoctoral researcher (2012–2014) and researcher in Mexico (2014 to present)	Limited experience: coordinator of a multidisciplinary project and a collaborative research project.	Origin: France. I have been living in Mexico since 2005. A biologist by training and vocation; I view living beings as interdependent components of a socio-ecological system. This perspective guides my interest in integrating multiple viewpoints to propose contextualised and effective solutions.
Adriana Alvarado Arcia, female, aged 44	Geological Engineer from the Central University of Venezuela, Master's degree in Natural Resource Sciences	San Cristóbal de Las Casas, Chiapas. Department of Health, Academic	Master's student (2012–2014), PhD student (2020–2025).	I took my first steps in transdisciplinary research alongside the formation of the Tejiendo Pulsos Network.	Born in Venezuela. I left my country for Mexico, seeking a different way of learning, and I learnt to 'unlearn'. I see myself as someone with multiple research interests, spanning a wide range of diverse fields. I took

Name	Academic background	Town, Department	Length of service at ECOSUR	Transdisciplinary experience	Role
	and Rural Development, and PhD in Ecology and Sustainable Development.	Group on Environmental Health			part in the workshop ' <i>Strategies for promoting transdisciplinary research towards transformation</i> ' and subsequently joined the Communication, Outreach and Firewatch committees of the Tejiendo Pulsos Network. Through this experience, I have learnt about the key elements of transdisciplinary research: active listening, respect for other people's 'sentipensar' (a blend of feeling and thinking), patience, collaboration, and the systematisation of experiences.

Name	Academic background	Town, Department	Length of service at ECOSUR	Transdisciplinary experience	Role
Alma Beatriz Grajeda Jiménez woman, aged 61	I studied for a bachelor's degree in International Relations, a master's degree in Education, another master's degree in Economics, and a PhD in Agricultural Higher Education Sciences	I am currently the Outreach Manager at the Campeche Unit, and I spent four years as General Outreach Coordinator and Head of the Liaison Office at the PCTY in Mérida	In October 2019, I joined ECOSUR as General Outreach Coordinator.	My greatest experience has been in the classroom, as my multidisciplinary background has helped me to understand and promote transdisciplinarity as a means of generating and coordinating projects and business plans that we can view from different perspectives to strengthen processes	My approach is grounded in an interdisciplinary background that shapes my analytical and systemic perspective. My experience as a teacher for over twenty years has reinforced my commitment to education, scientific outreach and the construction of knowledge with social relevance. Being born in Guadalajara and having lived in various Mexican states since childhood has given me a strong ability to adapt, cultural openness and an aptitude for building networks and friendships. I recognise in myself skills in organisation, marketing and public relations, as well as a steadfast commitment to continuing to learn and share knowledge.

Name	Academic background	Town, Department	Length of service at ECOSUR	Transdisciplinary experience	Role
Birgit Schmook, aged 64	Master's degree in Agricultural Sciences, Diploma in Rural Development, and a strong interdisciplinary focus during my PhD in Geography	Chetumal; I have worked in several departments and am currently at TAO	Since 1997, starting as an Associate Researcher 'A'	I have some experience in various international and inter-institutional interdisciplinary research projects, as well as in participating in and coordinating projects of national scope.	Background: German. My (epistemological) position is rooted from a critical perspective that brings together human geography and political ecology, and conceives of territory as a historical and social construct shaped by power relations. From this perspective, I understand socio-environmental processes as situated dynamics that must be analysed across multiple scales and bodies of knowledge.
Carlos Noé Alejandro Hernández Hernández	PhD in Organisational Leadership, MSc in Natural Resources and Rural Development	Tapachula, Coordinator of Academic Processes.	In current post since 2007.	Multidisciplinary background in engineering, natural sciences and administrative sciences. In practice, I have gradually assimilated	Born and educated in Guadalajara, in western Mexico; my adult and professional life has been spent in south-eastern Mexico. I have spent almost 20 years working alongside committees that evaluate research work and, more recently, institutional strategic planning.

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				transdisciplinarity as a professional and epistemological stance through this process.	
Claudia Monzón Alvarado woman, mother, aged 43	Biologist, Master of Science in Natural Resources and Rural Development PhD in Geography	Campeche, Sustainable Management of Catchment Areas and Coastal Zones	10 years	Experience in co-designing tools for multi-stakeholder dialogue, including participatory mapping and participatory modelling. She has contributed to the co-design of the serious game TerrAgro and to teaching on a master's course on transdisciplinarity.	Born in Guatemala, educated at Ecosur (Master's degree). I received a disciplinary background in biology and an education focused on contextualisation and critical interpretation, which shaped a reflective relationship with knowledge. My PhD in geography in the Global North broadened my theoretical framework—which was primarily Anglo-Saxon in origin—through the lens of political ecology. My career has navigated tensions between discipline and reflexivity, North/South, and understanding/advocacy. I focus on the critical analysis of society–nature

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					relations, acknowledging privilege and embracing reflexivity as an ongoing methodological practice.
Dolores Molina-Rosales	PhD, Master's and Bachelor's degrees in Social Anthropology	Campeche, Campeche. Department of Sustainability Sciences		From 2009 to 2013, I coordinated the ANUIES Gender Studies Network for the South-South-East Region. Since 2015, I have focused my efforts on CONACYT's Thematic Network on Gender, Society and the Environment.	Researcher specialising in Environmental Anthropology and Gender. I am interested in analysing how women and men relate to their environment, particularly in situations where access to natural resources and healthcare is restricted. I consider collaboration with colleagues from other disciplines to be essential, which is why in recent years I have conducted research alongside biologists, agronomists, physical anthropologists, doctors and economists.

Name	Academic background	Town, Department	Length of service at ECOSUR	Transdisciplinary experience	Role
Hans van der Wal transcultural white grandfather, aged 69	Master's degree: Plant Science; PhD: Agricultural Ecology and Natural Resource Conservation	Villahermosa, Tabasco	Since 2002	Collaborative work with local groups in the mountains of Guerrero (85–89); Oaxaca (89–95); Campeche (2002–2005); Tabasco (2005–2026), where I coordinated the PRONAI energy democratisation programme (2021–2025)	Origin: Friesland, the Netherlands. I witnessed first-hand the transition from small-scale farming (where the cows had names) to industrial agriculture in my homeland. This influenced my decision to become an agroecologist, and over time, as I came to understand local contexts in Mexico – where I have been working since 1985 – I became increasingly fascinated by the field. Over the years, I have increasingly focused on the need to generate and combine knowledge from different disciplines and with local stakeholder groups to address the major challenges of social inequalities and the impacts of climate change on productive activities and the daily lives of rural families in south-eastern Mexico.

Name	Academic background	Town, Department	Length of service at ECOSUR	Transdisciplinary experience	Role
Héctor Nicolás Roldán Rueda	Economist, Master of Science in Natural Resources and Rural Development and PhD in Ecology.	Chetumal. Research Group on Cultural Processes and the Social Construction of Alternatives. Department of Society and Culture	5 years	More than experience, I have interests and motivations that guide me in developing strategies to integrate, engage in dialogue, learn and discover other ways of seeing and understanding the world—the worlds around us.	I am Colombian and have been living in Mexico for 13 years. I enjoy listening to people when they talk about their memories, recollections, and tastes. I enjoy conversations in the kitchen or out in the countryside. I really like asking people about their stories and experiences—the everyday things that give meaning to life. I enjoy spaces for collective learning, such as classes or workshops, where ideas circulate and are nurtured. I like cooking and sharing food.
Irene Sánchez Moreno. I am a 52-year-old woman	I hold a degree in Biology, a PhD in Biomedical Sciences, specialising in BioNeuroEmotion, and have undertaken	Health Department of the San Cristóbal Unit at ECOSUR.	I started working here in 2011, but spent five years collaborating on other initiatives. I returned to my	For the past 13 years, I have been supporting people through processes of personal and family system	I am Mexican with Purépecha roots. Throughout my professional career, I have gone beyond orthodox knowledge, yet my family upbringing has guided me to recognise the contributions of

Name	Academic background	Town, Department	Length of service at ECOSUR	Transdisciplinary experience	Role
and mother.	various therapeutic training courses in disease management and healthcare.		role at ECOSUR in 2021.	transformation, with the aim of addressing illnesses, symptoms, and interpersonal and existential conflicts.	different forms of indigenous wisdom in understanding the connections with health and the care for life proposed by the sciences of complexity and the ideologies of the Global South.
Juan Francisco Barrera Gaytán	Agricultural engineer and parasitologist, MSc in Agricultural Parasitology, PhD in Applied Entomology	Tapachula Unit, Chiapas, Mexico. Department of Arthropod Ecology and Pest Management	43 years (since the days of CIES in 1983, an institution that became ECOSUR in 1994)	I have taken part in several projects where the academic teams have comprised specialists in agricultural, environmental and social sciences. To ensure we were on the same page, we have had to develop shared vocabularies, undergo training through workshops on inter- and transdisciplinary	I was born in northern Mexico, where I spent my first 18 years. After completing my master's degree, at the age of 25, my wife and I went to work at CIES (the predecessor of ECOSUR) in Tapachula. I began researching coffee pests, a topic I have continued to investigate to this day, but around 20 years ago I began research aimed at tackling pests from a holistic perspective. My involvement in inter- and transdisciplinary projects has provided me with concepts and methods that have enabled me to develop and strengthen a new

Name	Academic background	Town, Department	Length of service at ECOSUR	Transdisciplinary experience	Role
				concepts and methods, and jointly define objectives, methodologies and the drafting of documents.	paradigm in plant protection: Holistic Pest Management. Furthermore, I have always been interested in science communication as a means of sharing my research with the wider public because I think I've always enjoyed writing stories.
Loni Hensler female 37 years old	Multidisciplinary: Bachelor's degree in Economics and Philosophy; Master's degree in Environmental Sciences and Education; PhD in Sustainability Sciences	Villahermosa, Tabasco Sustainability Sciences	Since 2022 as a consultant and since 2024 as a postdoctoral researcher	With extensive experience dating back to her studies, she has supported various multi-stakeholder processes for territorial stewardship and provides training in methodology and facilitation relating to Transdisciplinarity	Origin: German. She came to know ECOSUR through this experience. She facilitated both workshops and helped coordinate a large part of the initiative. Member of the Capacity-Building Committee and a 'Guardafuego' in the Tejiendo Pulsos Network. She dreams of an academic world rooted in communities, based on a plurality of knowledge, and generating utopian visions, research and action plans for

Name	Academic background	Town, Department	Length of service at ECOSUR	Transdisciplinary experience	Role
				and Participatory Action Research across different regions.	a fairer, more dignified and sustainable world. Participatory arts, play and theatre are an integral part of her work.
M. Azahara Mesa-Jurado Woman, mother of two children, aged 44	Multidisciplinary background: Agricultural Engineer, Master's in Management of Agricultural Cooperatives and PhD in Agricultural, Food, Natural Resources and Rural Development Sciences and Technologies	Villahermosa Unit, Department of Sustainability Sciences	15 years as a researcher	For the past 9 years, I have been involved in various inter- and transdisciplinary projects in rural and urban contexts, focusing on exploring the value of nature and transforming food systems to make them more sustainable and equitable. I incorporate art-based tools into my academic work.	I am Spanish, originally from a rural, mining region in southern Spain, and I have been living in Mexico for fifteen years. My training as an agricultural engineer and my postgraduate studies were shaped by the productivist and economic frameworks typical of the Global North. I recognise my position of privilege and the colonial legacies that underpin that training. Through my work in Mexico, in dialogue with peasant and indigenous communities, I began a process of self-reflection that led me to recognise the limitations of instrumental approaches and to engage with epistemologies that

Name	Academic background	Town, Department	Length of service at ECOSUR	Transdisciplinary experience	Role
					place interdependence, the commons, and care at the centre. I do not conceive of scientific endeavour in terms of individuality, but rather as a relational, situated and collective process, underpinned by ethical and political responsibilities. From this standpoint, I strive for a more horizontal, decolonial and socially engaged academia, one that places life at the centre and embraces reflexivity as an integral part of knowledge.
Rosa Elba Hernandez Cruz	Multidisciplinary background. Bachelor's degree in Tourism. Master's degree in Rural Development and	Department of Agriculture, Society and Environment. San Cristóbal Unit	Academic staff member since 2003	I began my work in the outreach department, with the aim of fostering collaborations between ECOSUR	I come from an ejido in Chiapas, from a farming family, with maternal roots in the Mam indigenous group. I subscribe to critical theories and believe that knowledge is constructed with

Name	Academic background	Town, Department	Length of service at ECOSUR	Transdisciplinary experience	Role
	PhD in Environmental Management with a specialisation in the anthropology of food			and various stakeholders along the southern border through training, advocacy projects and dissemination. I have been working in the research department since 2012.	collaborators through relationships of trust. To achieve this, I use participatory methodologies as tools for mediation.

Appendix 2. Registration methods and participant profiles

Type of registration	Event / date	Participants
Recordings of virtual sessions	Book workshop and transformative transdisciplinary workshop	Participants in each of the sessions (Figure 1)
Book workshop evaluation format and evaluation session	Final book workshop session, 7 December 2022 (virtual)	Participants in each of the sessions (Figure 1)

Evaluation format for the Transformative Transdisciplinarity workshop	Final workshop-book session, 21 March 2024 (online)	Participants in each of the sessions (Figure 1)
Recordings of book presentations featuring participants’ testimonials	2 presentations in San Cristóbal, 1 in Xalapa and 1 in Villahermosa	20 book commentators, including authors and other key stakeholders
Minutes and recordings from the First Meeting of the Tejiendo Pulsos Network	First Meeting of the Tejiendo Pulsos Network, April 2024 in San Cristóbal	30 people, mainly from academic circles
Minutes and recordings of the Second Meeting of the Tejiendo Pulsos Network,	Second Meeting of the Tejiendo Pulsos Network, April 2025 in Palenque	26 people; mainly from academia, 2 people from other sectors
Comprehensive experience evaluation form (supplemented by an interview)	Throughout February 2025, online	17 people considered; the incentive was a prize draw for a book
Recording and testimonials on the collective interpretation workshop dashboard	14 January 2026, online	15 people; mainly from academic circles

Appendix 3. Source of direct quotations from questionnaires or interviews and profile of interviewees via questionnaire and live interviews

Cod e	Name	Unit	Profile	Book works hop	Book writin g	Transf ormati ve TD Works hop	Netw ork Forma tion Meeti ng	Tejien do Pulsos Netw ork
E1	Adriana del Valle Alvarado Arcia	San Cristóbal	PhD student (now a graduate)				x	x
E2	Alma Beatriz Grajeda Jiménez	Campeche – Mérida	Institutional management: outreach coordinator			x	x	x
E3	Amayrani Meza Jiménez	San Cristóbal	Researcher for Mexico	x	x			x
E4	Ariane Dor	Tapachula	Researcher			x	x	x
E5	Betsabe Guillen Pasillas	San Cristóbal	PhD student (now a graduate)	x	x		x	x
E6	Birgit Schmook	Chetumal	Researcher	x	x	x	x	x

E7	Carlos Noé Alejandro Hernández Hernández	Tapachula	Institutional management:	x	x	x	x	x
E8	Claudia Monzón	Campeche	Researcher for Mexico	x	x	x	x	x
E9	Johannes Cornelis Van Der Wal	Villahermo sa	Researcher	x	x	x		
E10	Helda Morales	San Cristóbal	Researcher	x	x	x	x	x
E11	Irene Sánchez Moreno	San Cristóbal	Researcher			x	x	x
E12	Juan Francisco Barrera Gaytán	Tapachula	Researcher	x	x	x		
E13	Dolores Ofelia Molineo Rosales	Campeche	Researcher	x	x	x	x	x
E14	Loni Hensler	Villahermo sa	Postdoctoral researcher	x	x	x	x	x

E15	M. Azahara Mesa-Jurado	Villahermosa	Researcher (General Academic Coordinator since 2024)	x	x	x	x	x
E16	Nicolás Roldán Rueda	Chetumal	Research technician	x	x	x	x	x
E17	Rosa Hernandez	San Cristóbal	Research Assistant			x	x	x
E18	Antonio Saldivar	San Cristóbal	Researcher / Director-General				x	x

Note: Overview of participation: Of the 17 participants, half are Ecosur research staff (9), a quarter are technical staff (4) and the remainder are students (3), researchers from across Mexico (3) and those in management roles (2). The age range is between 30 and 70 years, with a balanced distribution across age groups, and representatives from all Ecosur units. Most participants have a lot (7) to a great deal (3) of experience in collaborative research, whilst the remainder have little (6); only one person considers themselves to have moderate experience. Most (12) took part of both workshops, the meeting to establish the network, and some of the network's meetings and/or activities; four people played an organisational and facilitating role. Most are part of the Network (14), whilst three would like to join but have been unable to do so due to time constraints. All the network's committees are represented (2–4 people).