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RESEARCH ARTICLE

Halfway Through the UN Decade: Taking Stock of Social-Ecological Restoration

Social cohesion in restoration landscapes: The case of Rwanda

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Abstract

1. Ecosystem restoration is recognized as a strategy for addressing landscape degradation. In contexts where ecological degradation overlaps with the deterioration of social cohesion, restoration must also contribute to rebuilding social ties alongside restoring ecosystems. However, social cohesion lacks a standardized framework, resulting in varied conceptions, particularly in post-conflict contexts like Rwanda. The overarching aim of this study is to examine how restoration intersects with social cohesion.
2. We conducted a systematic literature review to explore how social cohesion is conceptualized in Rwanda, and a world café workshop and semi-structured interviews to gather insights from local actors regarding their understanding of social cohesion and the spaces and opportunities within ecosystem restoration initiatives that contribute to social cohesion rebuilding.
3. We found that social cohesion is best understood as the degree of social integration, characterized by shared identity, values, norms and a common vision, all manifesting through collective well-being and positive social relations, such as trust and cooperation, not just among citizens but also between citizens and the state. Our findings also revealed that ecosystem restoration is associated with resource competition, marginalization of some community members, social inequalities and conflicts. At the same time, ecosystem restoration initiatives created social spaces, including project meetings, farmer groups, savings groups, exposure visits, community work, community assemblies and parents' evenings, all of which support ecosystem restoration implementation while rebuilding social cohesion. We also found opportunities in ecosystem restoration, such as capacity building, supportive government programmes, partnerships, community mediators, extension officers, youth volunteers and access to resources that both facilitated ecosystem restoration and strengthened social cohesion.

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4. In post-conflict contexts, social cohesion should not be confined exclusively to social relations, as these are often eroded by conflicts, but should comprehensively encompass social integration, shared norms and values, an inclusive identity, a collective vision and overall well-being. Our findings offer timely insights into advancing the UN Decade on ecosystem restoration by emphasizing the incorporation of social dimensions into ecosystem restoration interventions to enhance outcomes. Locally responsive and community-based ecosystem restoration approaches have far bigger impacts on society, well beyond ecology or livelihoods.
5. The UN Decade on ecosystem restoration should focus on socially transformative approaches for effective ecosystem restoration and for rebuilding social cohesion in post-conflict settings.

KEYWORDS
collective well-being, ecosystem restoration, governance, land use, social integration, social relations, social spaces, social-ecological transformation

1 | INTRODUCTION

Ecosystem restoration has become a central priority in the global environmental policy agenda (Frietsch et al., 2024). This is particularly highlighted by the United Nations Decade on Ecosystem Restoration (hereafter the 'UN Decade'), which calls to prevent, halt and reverse the degradation of ecosystems worldwide (UNEP & FAO, 2021). The UN Decade recognizes that ecosystem restoration is both a biophysical and social process and seeks to engage diverse stakeholders while building necessary capacities for restoration. It encourages supportive policies, development of financing mechanisms to restore nature and improve livelihoods (Aronson et al., 2020; UNEP & FAO, 2021). Therefore, ecosystem restoration is now increasingly understood as a social-ecological process, shaped by institutional arrangements, power relations and community dynamics (Frietsch et al., 2024; Nsikani et al., 2023).

In response to growing calls to better integrate social dimensions into ecosystem restoration, concepts such as equity (Löfqvist et al., 2023; Wells et al., 2021) and participation (da Silva et al., 2025; Mekuria et al., 2025) have gained increasing prominence in ecosystem restoration design. This is particularly important in contexts of post-conflict settings, where ecosystem degradation often intersects with the erosion of social ties. In such settings, ecosystem restoration requires a transformative approach that repairs both ecosystems and community relations (Aguiar et al., 2021; Löfqvist et al., 2023). We argue that achieving this transformation calls for moving beyond simplified, one-size-fits-all approaches towards more comprehensive and context-sensitive strategies that address the specific challenges of socially fragmented societies. Failing to account for these social realities risks reinforcing existing inequalities and generating new social tensions (Aguiar et al., 2021; Jensen & Lonergan, 2012; Löfqvist et al., 2023). In this study, we adopt Martin's (2017, p. 3) framing of ecosystem restoration as '*the process of assisting the recovery of a degraded, damaged, or destroyed ecosystem to reflect values regarded as inherent in the ecosystem and to provide goods and services that people value*'. Yet we argue that putting this concept into practice is often complicated by competing values, unequal power relations and historical grievances that influence whose priorities are recognized, and whose benefits are realized (Clay, 2019; Frietsch et al., 2024).

Despite growing emphasis on the social dimensions of ecosystem restoration, limited attention has been paid to how ecosystem restoration can be designed to foster social cohesion as a foundational condition for enabling collective action and sustained engagement in ecosystem restoration processes (Barnaud & Muradian, 2024; Ceccon, 2023; McFarlane et al., 2024; Ullah, 2024). Social cohesion refers to the ties or the '*glue*' that holds societies together (Leininger et al., 2021, p. 2) and is rooted in Durkheim's belief that it is essential for a functioning society (Longhofer & Winchester, 2016). Over time, social cohesion evolved into a strategic framework for addressing the complex social, environmental and economic challenges of contemporary society (Bauloz et al., 2019; Murphy, 2012). It aligns closely with Agenda 2030's emphasis on not just inclusive growth but also peaceful and just societies (Hope Sr, 2020; Sisk, 2020). Social cohesion enables the minimum level of peaceful coexistence required for interactions across people and groups, thereby creating incentives for collective action (Lefko-Everett, 2016). At the same time, the intersection of ecosystem restoration and social cohesion is complex and bidirectional: ecosystem restoration can potentially either strengthen or weaken social cohesion, while weaker social cohesion can undermine ecosystem restoration effectiveness and limit participants' commitment (Bio Boné et al., 2025; Idrissou et al., 2011; Löfqvist et al., 2023; Ullah, 2024). While acknowledging this complexity and need to research, for this study, we

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focus only on ecosystem restoration that strengthens social cohesion. This shall contribute towards improved societal outcomes of ecosystem restoration; an outcome still understudied and marginalized in practice (Frietsch et al., 2026; Hernandez-Montilla et al., 2026; Martin et al., 2025).

Despite its growing policy relevance, social cohesion faces two key challenges: the absence of a universally agreed upon conceptual framework and a global decline (Chan et al., 2006). Some scholarship attempted to establish a universal concept of social cohesion that is applicable across contexts and disciplines (Delhey et al., 2023). Within these efforts, Jenson (1998) laid important groundwork by identifying belonging, participation, inclusion, recognition and legitimacy as core dimensions. Building from a policy perspective, Maxwell (1996) emphasized shared values, reduced socioeconomic disparities and a collective sense of purpose. While conceptually not congruent, social cohesion is sometimes used interchangeably with social capital (Claridge, 2020; Cloete, 2014), which refers to networks, norms and trust that facilitate coordination and cooperation for mutual benefit (Colletta & Cullen, 2002), dependent on social cohesion (Dayton-Johnson, 2003; Prandini & Villani, 2025) or as a subset of social cohesion (Kawachi & Berkman, 2000; Kearns & Forrest, 2000; Klein, 2011). Thus, social capital can be understood as an integral and crucial part of social cohesion (Kamande & Musonerwa, 2022). Chan et al. (2006, p. 290) advanced a widely cited definition, framing social cohesion as '*a state of affairs concerning the interactions, both vertical and horizontal, among members of society, characterized by a set of attitudes and norms*'. Various researchers demonstrated how social cohesion is deteriorating due to various global issues such as increasing insecurity, poverty, inequality, social exclusion and environmental degradation (Jeannotte, 2000; Snower, 1997). Across Africa in general (Jackson, 2002) and East Africa in particular, these issues, aggravated by political instability, civil war, and conflicts, have eroded social bonds (Elfaqih, 2024; Kim & Mkutu, 2024). For instance, ethnic divisions, militias in countries, like Ethiopia, have fractured communal ties (Adugna & Gezahegne, 2024; Gebiso, 2023), while Gen Z protests in Kenya and the government's violent crackdown on the protests deepened the divide between youth and state (Mureithi, 2025).

Rwanda presents a particularly compelling case for exploring these dynamics, illustrating how ecosystem degradation and social cohesion are deeply intertwined (Clay, 2019; Kanyamibwa, 1998; Nat, 2000; Nyseth Brehm, 2017; Plumptre et al., 2001). Rwanda's landscape reflects both severe environmental degradation and a history of profound social rupture (Uvin, 2003). Evidence suggests that environmental stressors such as deforestation, land and water scarcity and soil fertility decline interacted with socioeconomic inequalities to weaken social cohesion prior to the genocide against the Tutsi in 1994 (Mohamed, 2003; Moodley et al., 2010; Newbury, 1998; Verpoorten, 2012). During this period, reduced agricultural productivity, widespread poverty and declining exchange networks eroded social capital and mutual assistance (Nat, 2000), while the genocide itself ruined trust and the norms necessary for cooperation and collective action (Colletta & Cullen, 2000; Colletta & Cullen, 2002; Nyseth Brehm, 2017). In the post-genocide period, rebuilding social cohesion has become a central pillar of the national policy and development efforts (Corry, 2012). Institutions such as the National Unity and Reconciliation Commission (NURC) have been established and emphasized trust, tolerance, interaction, solidarity, conviviality and friendship (NURC, 2010, 2020; Sentama, 2022). Government development partners have also prioritized psychological healing and norm-based approaches to rebuild social ties (Jansen et al., 2024; Ratzmann, 2018). While these efforts are valuable, scholars argued that they often overlook key indicators of social cohesion, including group identity, intergroup solidarity, interethnic friendships, political participation and inequalities in land access and services (Clark, 2010; Foa, 2011; Mohamed, 2003; Ratzmann, 2018). Focusing primarily on psychological healing also limits understanding of how social cohesion relates to broader social-ecological processes.

At the same time, Rwanda has embarked on ambitious ecosystem restoration initiatives aimed at restoring 80% of its land while enhancing livelihoods (Nash et al., 2020). These efforts have created spaces where social cohesion emerged as a critical force in shaping both communities and ecosystems through collaborative actions. This provides a unique opportunity to examine how ecosystem restoration can function not only as an environmental intervention but also as a social space for rebuilding social cohesion. Drawing on Lefebvre's concept, social space can be understood as socially produced relations and structures (Elliott, 2013) that enable participants to connect, interact, and potentially reconcile. Such spaces can foster participants' connections and interactions, reconciliation, learning, and participation, enabling cooperation and strengthening a sense of belonging (Gutierrez et al., 2023; Spatscheck & Wolf-Ostermann, 2009). However, ecosystem restoration can also exacerbate divisions if shaped by unequal power relations, limited funding or exclusionary practices (Jensen & Lonergan, 2013; Slayi et al., 2024).

The overarching aim of this study is to analyse how social cohesion intersects with ecosystem restoration in Rwanda. Specific objectives are (a) to examine how social cohesion is defined in existing literature and understood by local actors; (b) to assess the extent to which local understandings of social cohesion map onto those reported in the literature; and (c) to identify the spaces and opportunities within ecosystem restoration that enhance social cohesion. Two questions guided this research: What is social cohesion and its associated indicators in the Rwandan context? What opportunities and spaces within ecosystem restoration initiatives enable it? Methodologically, we employed a mixed qualitative method approach to address these questions, combining a systematic literature review with a large group discussion forum (World Café) and individual interviews. The findings contribute to the existing body of knowledge on social cohesion conceptualization and enhance understanding of potential pathways for linking ecosystem restoration activities with the social dimensions. This, in turn, can support policymakers and practitioners in designing and implementing more inclusive policies and approaches.

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2 | METHODOLOGY

2.1 | Case study

This study was conducted in Rwanda, focusing on the Rutsiro and Ngororero districts in the Western Province. Rwanda has undergone periods of political instability, civil conflict and deep ethnic division, culminating in the 1994 genocide against the Tutsi (Colletta & Cullen, 2002). Between 1994 and 2000, Western Rwanda in particular experienced a refugees' influx, militia activities and significant biodiversity loss (Arakwiye et al., 2021; Kanyamibwa, 1998; Ordway, 2015), making this region one of the most severely affected social-ecologically in the country. The region is predominantly rural, hilly, and highly erosion prone, with most residents relying on subsistence agriculture. In Rutsiro, 73% of land (48,143 ha) is erosion-prone, with the majority used for seasonal crops (58%), while forests (16%), tea plantations (11%), mining (<1%) and built-up areas (14%) cover the rest (Macháček, 2020). Residents depend primarily on subsistence farming and, to a lesser extent, mining, making them highly vulnerable to environmental conditions (Macháček, 2020). Ngororero is among the country's poorest districts, with 85% of its land (58,003 ha) classified as highly erosion prone (RWB & IUCN, 2022). Further, most residents rely on subsistence farming, while mining provides income for a small share of the population. For the in-depth study, data were collected in Shyembe, Rwamiyaga and Gisunzu (Rutsiro), and Kabuga, Kagarama and Bereshi (Ngororero) (Figure 1). These sites were selected because they host diverse ecosystem restoration approaches and a high concentration of ecosystem restoration actors. We were guided by district officials in the selection of these villages, making them well-suited for examining how social cohesion intersects with ecosystem in Western Rwanda.

2.2 | Literature review

To understand the scope of social cohesion and its indicators in Rwanda, a scoping review was conducted utilizing a carefully selected set of keywords (Table 1), allowing us to identify relevant open access journal articles and grey literature (e.g. government reports). Studies were screened and selected according to predefined inclusion and exclusion criteria (Figure 2). At the title and abstract level, articles were included if social cohesion appeared in the title or subtitle, were written in English, published from 1994 onward and covered the period following the genocide against the Tutsi. However, the Rwanda Reconciliation Barometer was included despite not mentioning social cohesion, due to its strong policy relevance. The grey literature helped provide insights into the Rwandan government's social cohesion policy. Abstracts were further assessed to determine whether they discussed indicators of social cohesion and explicitly linked them to the social cohesion concept. Studies were excluded if they did not mention social cohesion in the title, were not in English, or if indicators were discussed without a clear conceptual linkage to social cohesion. Theses, dissertations, essays, websites, blogs and newspaper pages were also excluded from the review. While the exclusion of freely available theses and dissertations could be a limitation to our study, they were excluded to ensure consistency in quality and adherence to peer-review standards (Ringsten et al., 2025) and minimize the risk of duplication as some of these theses (e.g. PhD theses) are often later published (McKeown & Mir, 2021; von Elm et al., 2004). At the full text eligibility stage, studies were included if they explicitly discussed social cohesion within the context of Rwanda, East Africa, or Africa more broadly, or at the global level, and provided a clear connection to Rwanda. From October 2nd to December 22nd, 2024, we searched SCOPUS, Web of Science (WoS), and Google Scholar (GS) using Publish or Perish 8 software (Callanga et al., 2024; Sanchez-Acedo et al., 2024) to retrieve both peer-reviewed and grey literature (Figure 1). Additional sources included reports from UNECA, German Institute of Development and Sustainability (IDOS), and NURC, a technical report from the German Center for Integration and Migration Research (DeZIM), a paper from the Journal of African Conflicts and Peace Studies (JACAPs), and a UNDP discussion paper. Search strings were formatted for advanced query searches utilizing field tags, including 'Article title', 'Abstract' and 'Keywords'. The Boolean operator OR was employed to cover the most used synonyms within the research field, while the operator AND was used to link different sets of search queries. This approach was consistent across WoS and SCOPUS, whereas a modified string was utilized for GS (Table 1). After the identification stage, documents were imported into Excel for further handling and management.

2.3 | World café workshop

To initiate discussions on the concept of social cohesion, two workshops (February 4–5, 2025) were organized using the Kinyarwanda language (the local language) in Rutsiro and Ngororero District. Each workshop lasted 150 min. After signing the consent form, a total of 80 individuals participated in the workshops, consisting of farmers, lead farmers (LFs), representatives from local non-governmental organizations (LNGOs), government officials (Gov) and company representatives. Participants comprised, in Rutsiro, 24 females and 16 males; in Ngororero, 21 females and 19 males. Farmers were most represented (53), of whom 33 were employed as agricultural workers, with 47 participants aged between 36 and 65 years. Fifty participants had completed at least primary education (Table 2). Workshop discussions followed World Café methodology (Brown, 2010). The World Café methodology is particularly well suited for exploring complex themes, not just obtaining feedback from large and diverse stakeholder groups, but also validating results, especially when used in combination with complementary methods such as individual interviews or surveys (Fouché & Light, 2011; Löhr et al., 2020). Participants sit in a café-like setting, at tables in small groups of five, with paper tablecloths provided for note-taking. The setting is designed to foster a relaxed and engaging atmosphere, complemented by snacks, water and other refreshments. This arrangement supports

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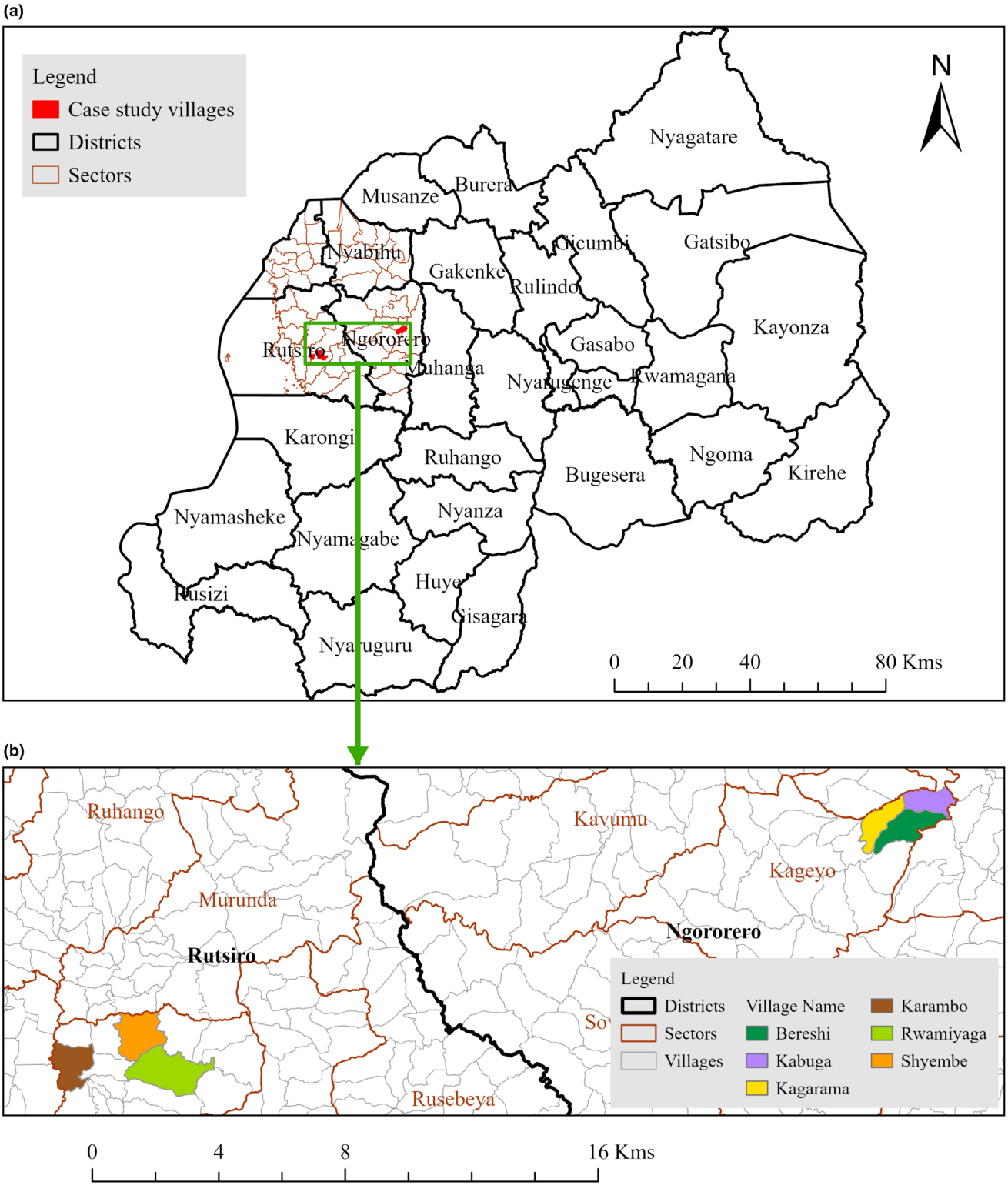

FIGURE 1 Map of the study area. (a) Study area in Rwanda; (b) zoomed villages in the study area where data collection was conducted.

intimate dialogue, structured inquiry, cross-pollination of ideas and innovative thinking. The method involves multiple rounds of discussions focused on key questions. Participants rotate between tables after a set period of time, allowing them to engage with new individuals, build on earlier conversations and introduce fresh perspectives. This dynamic format enables the exchange of diverse insights and the generation of new ideas (Brown, 2010). To ensure data accuracy and completeness, each table is assigned an enumerator (the host) to assist with note-taking. In this case, audio-recording devices were used to document group discussions. After the discussion rounds, a

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TABLE 1 Search strings for different search queries.

Search query	Strings/keywords	
	Scopus/WOS	Google Scholar
Social cohesion conceptual meaning	(“social cohesion" OR "social capital" OR "cohesive society" OR "reconciliation”) AND (definition OR meaning OR concept OR perception OR understanding) AND (“Rwanda" OR "East Africa" OR "Sub-Saharan Africa")	Social cohesion in Rwanda
Social cohesion indicators	(“social cohesion”) AND Rwanda AND (indicators Or trust OR cooperation OR inclusion OR identity OR belonging OR solidarity OR "social capital" OR "social networks" OR "norms and values" OR "reconciliation" OR "social distance" OR "friendship" OR "equality" OR "unity" OR "participation" OR "interactions" OR "wellbeing" OR "socializing” OR” indicator)	Social cohesion indicators in Rwanda

'harvesting' session was held to share and consolidate key findings. This process allows participants in a plenary setting to identify areas of convergence and divergence in their perspectives.

2.4 | Semi-structured interviews

Semi-structured interviews (SSIs) were conducted from February 6 to March 7, 2025, to explore participants' understanding of social cohesion. SSIs are effective for examining complex concepts as they promote dialogue and critical reflection, allowing for deeper insights into insider perspectives (Galletta & Cross, 2013; Junnier, 2024; Striepe, 2021). In particular, this method can provide a safe space for people to raise issues that they would not feel comfortable talking about in a bigger group (Nomnian, 2009). Purposive sampling was used to target participants involved in ecosystem restoration activities from six villages in both case study districts, but different from those who participated in the workshops, to enlarge the overall sample size. Stratified sampling was applied to a diverse representation of participants based on age, gender, education and employment status. With the collaboration and support of local leaders and community networks, this strategy helped ensure diverse perspectives were included across key socio-demographic and livelihood characteristics. During the identification process, we cross-checked recommendations and sought less prominent voices, including those with less socioeconomic power, to avoid reliance on elite or highly visible actors. A total of 100 farmers, all at least 21 years old and practicing ecosystem restoration, were interviewed from Rwamiyaga, Karambo and Shyembe villages in Rutsiro District (30 female and 20 male), and Kabuga, Bereshi and Kagarama in Ngororero District (29 female and 21 male). Most participants had achieved primary education (79), while 75 described themselves as agricultural workers, with 37 practicing ecosystem restoration between 5 and 10 years. The interview guideline was translated into Kinyarwanda to gather participants' understanding of social cohesion and its indicators, as well as spaces and opportunities in ecosystem restoration that contribute to it. Interviews lasted about 90 min each and were conducted by a team of four experienced local enumerators, accompanied by note-taking and audio recordings. Participation was voluntary, based on informed consent, and the opportunity was given to stop at any point. Given the sensitive nature of our research in the given context, confidentiality was ensured for all interviewees and data was used only in an aggregated or anonymized form.

2.5 | Data analysis

After all recorded workshop and interview data were translated from Kinyarwanda to English, it was then imported into MAXQDA. A thematic analysis was conducted (Kuckartz & Rädiker, 2019; Terry et al., 2017), whereby codes were developed inductively from the data, meaning they emerged directly from the content of the text segments rather than being pre-determined (Oliveira et al., 2016; Rogers, 2018). This methodology aims to identify emerging themes rather than impose preconceived theories following a data-driven approach. The analysis commenced with a thorough familiarization with the interview transcripts within the MAXQDA interface. Following this, recurring patterns and themes related to the meaning and indicators of social cohesion, guided by the research questions, were identified through iterative reading and open coding. These text segments were assigned descriptive, data-driven codes and then organized into categories representing the key dimensions of social cohesion (parent codes) and their emerging indicators (sub-codes). Memos were assigned to a specific transcript section for capturing reflections and insights. The unit of analysis comprised text segments, one or more consecutive words or sentences. These categories were then applied to similar text segments from interviews or workshop data: next, recurring codes and patterns were integrated into broader themes. Code and document maps were visualized to facilitate the analysis and understand the relationships

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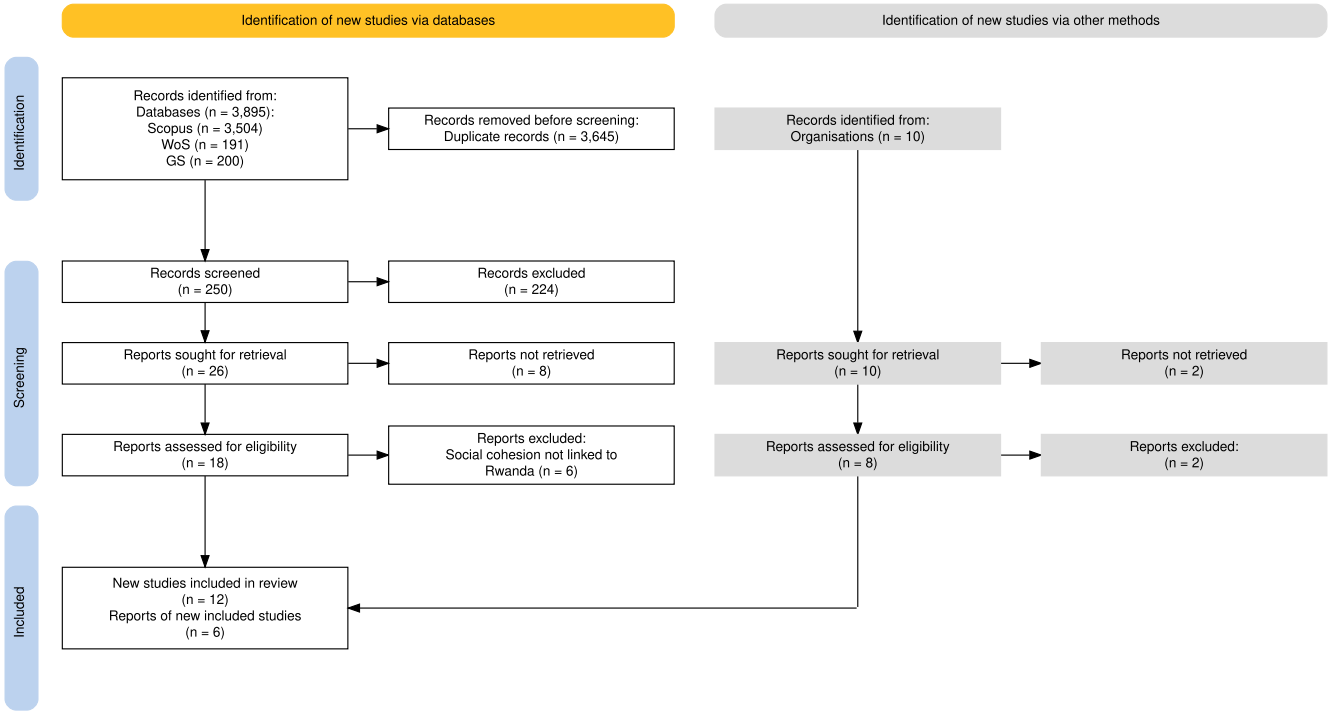

FIGURE 2 PRISMA Flow chart (Organizations mentioned in the chart: UNECA, IDOS, DeZIM, JACAPs, UNDP & NURC).

among themes. The synthesized interpretation of the data revealed significant meaning and indicators related to social cohesion.

Ultimately, we employed an abductive analytical approach to merge literature with our empirical findings (Timmermans & Tavory, 2012; Vila-Henninger et al., 2024). This involved an iterative process of comparing empirically derived themes with established concepts in the literature, with the intent of refining, extending, or, in some cases, challenging existing understandings of social cohesion. For example, while literature often emphasizes national identity aligning with the Rwandan government narrative, our empirical findings revealed both social and national identities, which we included within the dimension of inclusive identity and shared vision.

3 | RESULTS

3.1 | Concepts of social cohesion: Findings from literature

The concept of social cohesion in Rwanda is defined in diverse ways across studies (Table 3), with its indicators likewise varying considerably from one study to another (Appendix Table A1). Leininger et al. (2021) defined social cohesion as the vertical and horizontal relationships among individuals and the state that hold society together, characterized by trust, inclusive identity and cooperation for the common good. While Sentama (2017) adopted a similar framework, Dahlmanns (2025) critiqued such conceptions as overly western-centric for emphasizing indicators such as institutional trust, thereby overlooking Rwanda's specific sociocultural context. The author argued that social cohesion is deeply rooted in Rwandan traditional norms and values, particularly those grounded in culture and kinship. Similarly, Wortmann-Kolundžija (2023) viewed social cohesion as embedded in the Rwandan philosophy of being, encompassing *Muntu* (intelligent human beings), *Kintu* (non-human entities), *Hantu* (place and time) and *Kuntu* (modes of existence).

In terms of indicators, a total of 66 were identified (Table A1). Cooperation was the most cited indicator, followed by trust, peaceful coexistence and equality. Several studies asserted that cooperation is a core indicator of social cohesion (Colletta & Cullen, 2002; Fajth et al., 2019; Leininger et al., 2021; Lordos et al., 2021; Ratzmann, 2018; Sentama, 2017; UNECA, 2016). Leininger et al. (2021) distinguished cooperation across groups and with the state, noting that it signifies social cohesion only when aimed at the common good. However, Sentama (2017) argued that in post-genocide Rwanda, cooperation between survivors and perpetrators through cooperatives fostered cohesion by bridging individual and group relations. Similarly, Colletta and Cullen (2002) confirmed that social cohesion is indicated by the density and nature of organizations and networks (both vertical and horizontal) alongside the commitment and responsibility of the members to these groups. At the same time, the propensity for cooperation and exchange (material, labour, ritualistic and informational) also serves as a proxy for trust.

Trust emerged as the second most prominent indicator of social cohesion in Rwanda (Colletta & Cullen, 2002; Dahlmanns, 2025; Fajth et al., 2019; Lefko-Everett, 2016; Leininger et al., 2021; NURC, 2020; Sentama, 2017; UNECA, 2016). From a policy perspective, NURC highlighted trust as a central indicator of SC in post-genocide Rwanda. As stated in NURC (2020, p. 20), '*the more values*

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TABLE 2 World Café workshop participants' characteristics (disaggregated by gender).

	Age category			Respondents' roles					Education						
Gender	36–65	21–35	65-over	Fm	LF	LNGO	Gov	PS	Pr.	S	SS	No	T	V	Total
F	32	13	0	34	8	1	1	1	27	7	10	0	0	1	45
M	24	7	4	19	10	2	3	1	23	3	5	2	2	0	35
Total	56	20	4	53	18	3	4	2	50	10	15	2	2	1	80

Employment status per gender								
Gender	AW	U	SE	FW	IW	JS	NJ	R
F	17	13	5	6	3	0	1	0
M	16	5	5	2	5	1	0	1
Total	33	18	10	8	8	1	1	1

Abbreviations: AW, agriculture worker; Fm, farmer; FW, formal worker; Gov, government; IW, informal worker; JS, job seeker; LF, lead farmer; LNGO, local NGO; NJ, not a jobseeker; No, no education; Pr, primary; PS, private sector; R, retired; S, secondary; SE, self-employed; SS, some secondary; T, tertiary; U, unemployed; V, vocational.

of trust, respect, tolerance, and positive social interactions and friendship are present among citizens, the more reconciliation is likely to occur'. Trust was also deeply rooted in traditional conceptions of social cohesion and continued to play this role in post-genocide Rwanda, particularly through dialogue between survivors and perpetrators, resulting in forgiveness and shared experiences (Dahlmanns, 2025). However, trust extends beyond reconciliation, with a distinction between bonding trust, which is related to one's ties with immediate family, neighbours and identity group, and bridging trust, which is the ability to trust those outside these circles (Leininger et al., 2021). Trust is vital for resolving collective action problems and allowing communities to advance together (UNECA, 2016).

Peaceful coexistence was documented in various studies (Colletta & Cullen, 2000; Dahlmanns, 2025; Lordos et al., 2021; Ratzmann, 2018; Sentama, 2017). The 1994 Rwandan ethnic-based conflict was an indicator of social cohesion erosion (Colletta & Cullen, 2000). To address this, the post-genocide government introduced *imidugudu* (villages) to reintegrate refugees and promote peace among ethnically rival groups. At the community level, peaceful coexistence was reflected in cooperative enterprises with members from different ethnic backgrounds across the country (Lordos et al., 2021; Sentama, 2017). At the institutional level, NURC was established to promote peace and manage conflicts between different ethnic groups after the genocide. Ultimately, peaceful coexistence among individuals of different ethnic backgrounds is a fundamental building block of social cohesion (UNECA, 2016).

Evidence from multiple studies (Colletta & Cullen, 2002; Corry, 2012; Idres, 2016; Lefko-Everett, 2016; Ratzmann, 2018; Sentama, 2017; UNECA, 2016) highlighted inequality as a key indicator of social cohesion. Inequality fosters perceptions of unfairness and undermines trust, while limiting solidarity and civic participation (UNECA, 2016). It affects not only the poorest but also society, threatening cohesion, restricting social mobility and fuelling tensions that can lead to unrest and instability. When a large portion of the population is marginalized, it is difficult to consider society as socially cohesive. Inequality, among other factors, also signals weak social cohesion (Colletta & Cullen, 2002). Rwanda has seen some progress in reducing gender inequality (UNECA, 2016) and highlighted extreme poverty reduction and inequality in its social cohesion policy (Corry, 2012). However, socioeconomic equality remained inadequately addressed by government and civil society efforts (Ratzmann, 2018). A comprehensive social cohesion framework should include indicators of equality, such as poverty, education, employment, access to housing, land, health services and social protection, disaggregated by population groups or socioeconomic class, along with political dimensions (Ratzmann, 2018).

3.2 | Local understandings of social cohesion

There is no single term in Kinyarwanda (the local language) that directly signifies social cohesion. During the workshop and interviews, actors described the concept in diverse ways. Based on these definitions, the thematic analysis identified a total of 33 indicators from the SSIs and 25 from the workshop, of which 13 overlapped (Figure 3b; Appendix Table A1). The indicators identified were grouped into five dimensions: (i) social integration; (ii) social relations; (iii) shared norms and values; (iv) inclusive identity and shared vision; and (v) collective well-being.

In their conceptions, local actors defined social cohesion by emphasizing either a single indicator or the interlinkages among multiple indicators. For example, for one respondent, '*social cohesion means peaceful coexistence and unity among people*', (SHY13), while for Respondent KRB2 '*social cohesion stands for not harming my neighbor, avoiding conflicts, reconciling when one has wronged another, and not hindering neighboring restoration activities*'. Similarly, for Respondent KBG8, '*social cohesion is mutual understanding, a conflict-free society, peaceful households, and a strong sense of community where individuals can rely on one another*'. During the workshop in Ngororero District, the group G1NV emphasized: '*social cohesion*

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TABLE 3 Social cohesion conceptions.

Article title	Social cohesion conceptions	References
Social cohesion in restoration landscapes: the case of Rwanda	Social cohesion is best understood as the degree of social integration, characterized by shared identity, values, norms and a common vision, and manifesting through collective well-being and positive social relations, such as trust and cooperation, both among citizens and between citizens and the state	This study
Social cohesion in post-genocide Rwanda: Local (Re) conceptions beyond global definitions	Social cohesion is deeply rooted in local conceptions and revolves around '*culture*' and '*kinship*' rather than just institutional trust and cooperation	Dahlmanns (2025)
Contextualizing social cohesion: An overview of concepts in Africa	'*Rwanda philosophy of being*': Bantu people's metaphysical categories. These categories include Ntuis, which can be further divided into four categories: Muntu, Kintu, Hantu and Kuntu. Muntu refers to human beings with intelligence, while Kintu includes non-human beings or things that cannot act independently. Hantu refers to place and time, Kuntu refers to modality or the mode of being	Wortmann-Kolundžija (2023)
Determinants of social cohesion: Cross-country evidence	Adopted the social cohesion concept developed by Leininger et al. (2021)	Walle (2022)
Social cohesion: A new definition and a proposal for its measurement in Africa	Social cohesion refers to the vertical and horizontal relations among members of society and the state that hold society together. Social cohesion is characterized by a set of attitudes and behavioural manifestations that includes trust, an inclusive identity and cooperation for the common good	Leininger et al. (2021)
Societal healing in Rwanda: Towards a multisystemic framework for mental health, social cohesion, and sustainable livelihoods among survivors and perpetrators of the genocide against the Tutsi	Social cohesion correlates with health outcomes, income deprivation and low social cohesion with poor mental health (adopted from Fone et al., 2007; Bruhn, 2009)	Lordos et al. (2021)
Rwanda reconciliation barometer 2020	Social cohesion is characterized by people working together to address the issues that they face in a manner that respects each other's views and dignity	NURC (2020)
Social cohesion through cooperative contact: A theoretical perspective	A state of affairs concerning both the vertical and the horizontal interactions among members of society, characterized by a set of attitudes and norms that includes trust, a sense of belonging, and the willingness to participate and help. The behavioural manifestations are also included (quoted from NURC, 2008, p. 26)	Sentama (2017)
Is local social cohesion influenced by hosting refugees? The case of Congolese refugees in Rwanda	Elements commonly used to describe a cohesive society include a principle of inclusivity, cooperation, a sense of belonging, trust and overall strong, positive relationships. Low cohesion in a society, on the other hand, can be characterized by social tension and/or fragmentation, conflict as well as negative feelings (e.g. resentment, anxiety, perceptions of threat) among community members (adopted Guay, 2015; OECD, 2011; Stanley, 2003)	Fajth et al. (2019)
Understanding social cohesion in the Rwandan context	Belonging, interpersonal trust and common values; all are the 'glue that bonds society together'	Ratzmann (2018)
Towards a measurement of social cohesion for Africa	Social cohesion is characterized as an 'elusive concept–easier to recognize by its absence than by any definition'. According to the UNDP (2009, p. 14), social cohesion has two main dimensions: first, reducing disparities, inequalities and social exclusion; and second, strengthening social relations, interactions and ties. It also involves 'tolerance of, and respect for diversity (in terms of religion, ethnicity, economic situation, political preferences, sexuality, gender and age), both institutionally and individually'. When societies lack cohesion, the results may include 'increased social tension, violent crime, targeting of minorities, human rights violations, and, ultimately, violent conflict'	Lefko-Everett (2016)

(Continues)

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TABLE 3 (Continued)

Article title	Social cohesion conceptions	References
Social cohesion in Eastern Africa	A '*cohesive society*' works towards the well-being of all its members, fights exclusion and marginalization, creates a sense of belonging, promotes trust, and offers its members the opportunity of upward mobility (Adopted from Organisation for Economic Co-operation and Development [OECD], 2011, p. 51). Stronger social cohesion is associated with better economic outcomes, more rapid social development, more resilient democratic institutions and less crime	UNECA (2016)
Building social cohesion in post-conflict situations.	The capacity of a society to ensure the well-being of all its members, minimizing disparities and avoiding marginalization, managing differences and divisions as well as ensuring the means of achieving welfare for all members (adopted the Council of Europe's definition)	Idres (2016)
Teachers as agents of change: Promoting peacebuilding and social cohesion in schools in Rwanda	Negotiation, problem solving, collaboration and critical thinking, as well as attitudes like empathy, tolerance and compassion	Rubagiza et al. (2016)
Is it ethnic fractionalization or social exclusion which affects social cohesion?	The extent to which communities are harmonious and connected	Staveren and Pervaiz (2017)
Social cohesion and economic growth: An empirical investigation	A phenomenon of togetherness in a society	Pervaiz and Chaudhary (2015)
Social cohesion definition, measurement and developments	The belief held by citizens of a given nation-state that they share a moral community, which enables them to trust each other	Larsen (2014)
Policy framework for social cohesion	The framework focuses on national unity and reconciliation, poverty reduction through inclusive economic development and social inclusion	Corry (2012)
Social capital and social cohesion: case studies from Cambodia and Rwanda	The density and nature of organizations and networks (both vertical and horizontal), and members' levels of commitment and responsibility to these groups	Colletta & Cullen (2002)

is fundamentally reflected in the absence of conflicts', whereas group G4R from Rutsiro's workshop equated social cohesion with a peaceful community. Overall, peaceful coexistence, community harmony, mutual assistance, unity and solidarity were the most reported as core indicators of social cohesion under the social integration dimension.

Local actors also defined social cohesion in terms of social relations. For instance, during the interviews, Respondent SHY10 emphasized that '*SC is cooperation between community members'*. Group G4RV stressed the same view during the workshop in Rutsiro, stating that '*social cohesion is working cooperatively in savings and credit associations, farmer agricultural extension groups, and Friends of Nature, with shared goals and active participation by all members'*. Yet another respondent highlighted that when people communicate, they understand each other, which prevents mistrust (BRS6). In this regard, another correspondent remarked that '*social cohesion is about having no mistrust and fostering cooperation' (KGR2)*. At last, Respondent SHY2 underscored trust as the foundation upon which social relations are built, noting that '*trust is the basis of cooperation and communication, and thus a fundamental indicator of social cohesion'*. In sum, cooperation, mutual understanding, and communication were the indicators most frequently reported by local actors under the social relations dimension of social cohesion.

Local actors also consistently defined social cohesion in terms of shared norms and values. According to Respondent KGR10, social cohesion is the degree of integrity and moral uprightness upheld among community members. Respondent KBG5 associated integrity with equity, noting that '*social cohesion entails integrity in the equitable distribution of resources within households and across the nation'*. For KRB32, integrity manifests in the restraint of greed, fostering harmony and reducing disputes within the community. During the workshop in Rutsiro, Group GVR1 noted that '*social cohesion means committing to the laws of the country, government development programs, such as ecosystem restoration, and to social rules, which foster strong bonds both among citizens and between citizens and the state'*. Similarly, Respondent KGR6 described social cohesion as '*adherence to civic responsibilities'*, while for BRS17 '*social cohesion is about committing to social rules and participating in civic activities'*. Thus, integrity and civic engagement, both key norms and values, emerged as the two most frequently reported indicators of social cohesion.

The dimension of inclusive identity encompasses both national and social identity and a shared vision. For example, BRS1 described social cohesion as *'a feeling of belonging within the community and free from any conflict'*. At the same time, KRB14 noted that '*social cohesion means Rwandanness and being a Rwandan who collaborates with fellow citizens'*. KRB16 associated Rwandanness with a sense of belonging for every citizen within the country's development vision. Respondent RWM1 highlighted that government responsiveness to citizen concerns fosters an inclusive national identity, which they linked to the meaning of social cohesion. In defining social cohesion, Respondent RWM3 emphasized inclusive identity and a shared

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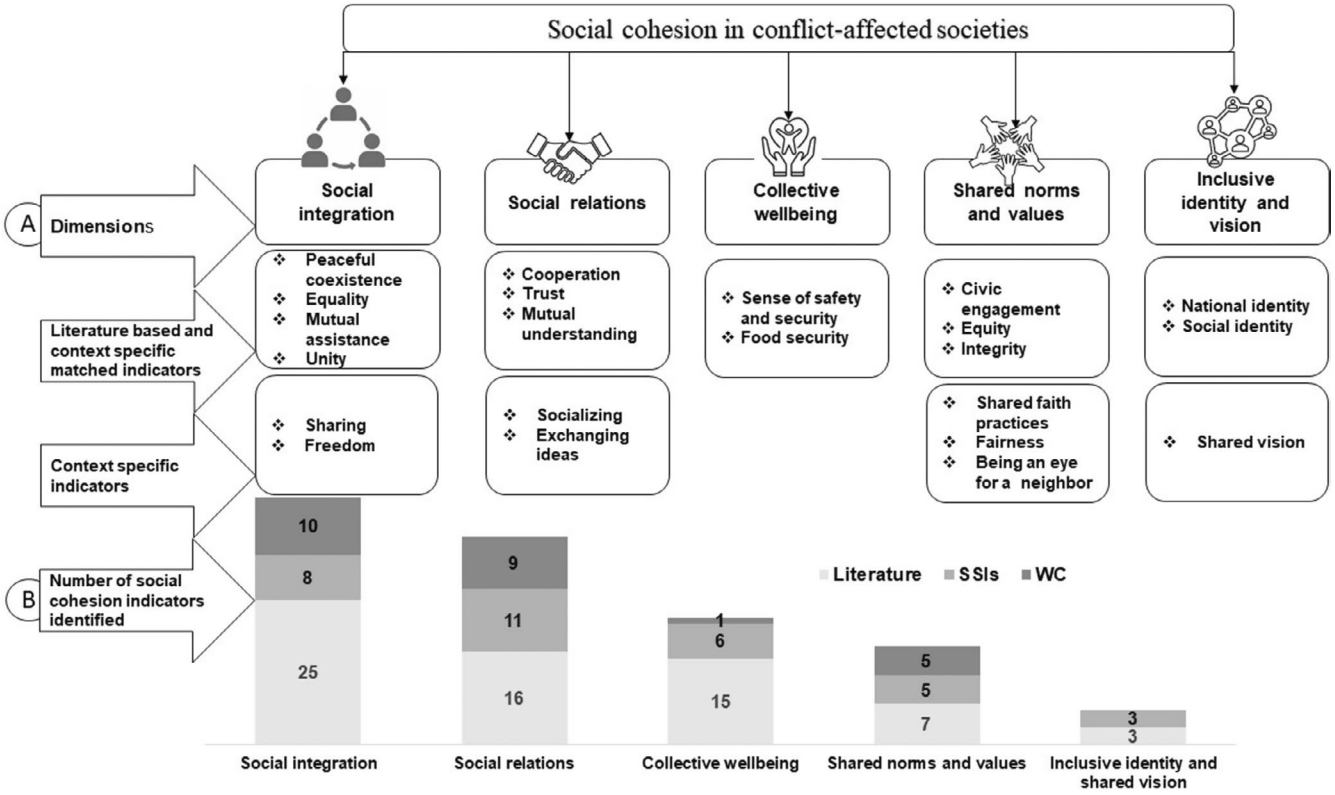

FIGURE 3 Social cohesion concept map (full list of indicators see Table A1).

vision based on collaborative development between citizens and the state. Similarly, RWM1 noted that a shared vision, active participation and inclusivity free from ethnic discrimination are essential for a cohesive society.

Lastly, local actors defined social cohesion in terms of the collective well-being indicators. For instance, Respondent RWM5 described social cohesion in terms of feeling safe and secure with everyone in the village. In contrast, respondent KGR10 associated social cohesion with the absence of illness. However, another respondent stated that '*social cohesion means… having enough food to sustain my family and our community*' (RWM9). For another respondent (BRS13), the development of infrastructure, such as tarmac roads, enhances access to various services. This improvement facilitates the delivery of tree seedlings, making them more accessible to villagers. As a result, it helps reduce seedling theft and associated conflicts within the village, ultimately fostering better relationships among the villagers. Yet another stressed that empowered community members, for instance about best restoration practices, have fewer land-related disputes (SHY3). Overall, participants linked collective well-being and, thus, social cohesion to feelings of safety, food security, improved infrastructure and an empowered community.

In conclusion, the local actors' understandings of social cohesion are synthesized into social integration, social relations, shared norms and values, inclusive identity and shared vision, as well as collective well-being (Figure 3). From these perspectives, we conclude that social cohesion is best understood as *the degree of social integration, characterized by shared identity, values, norms, and a common vision, that manifests through collective well-being and positive social relations, such as trust and cooperation, both among citizens and between citizens and the state*. To sum up, a sense of safety, food security, infrastructure development and community empowerment emerged from local actors' conceptions of social cohesion.

3.3 | Mapping local onto literature identified indicators of social cohesion

When comparing our respondents' insights with existing social cohesion literature, notable differences emerge in both the number and nature of identified indicators (Figure 3b; Appendix Table A1). Within the social integration dimension, peaceful coexistence, equality, mutual assistance and unity matched both indicators from local insights and literature. While local actors viewed peaceful coexistence as a distinct indicator of social cohesion, Colletta and Cullen (2002) treat it alongside mutual assistance, among others, as social capital, a subset of social cohesion. Likewise, for these authors, inequality/equity is treated as a single indicator, whereas local actors distinguished the two. While unity in the literature is often linked to reconciliation (NURC, 2010, 2020; Wielenga, 2017), local actors associate it with solidarity and mutual support, as illustrated by SHY5's statement: '*social cohesion means living in harmony with neighbours, helping one another, and standing in solidarity with those around you*'. Interestingly, freedom,

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described by respondents as the ability to express one's ideas without fear of repression, and sharing, such as the exchange of materials and tools among community members, are indicators uniquely identified by respondents that are absent from literature.

Cooperation, trust and mutual understanding appeared in both respondents' perspectives and the literature (Figure 3a). However, while Leininger et al. (2021), argue that cooperation as an indicator of social cohesion should serve the common good, local actors did not emphasize this aspect, as reflected in KBG16's statement: '*social cohesion is about working together, socializing with others, and supporting one another*'. Likewise, although the literature distinguishes between vertical and horizontal trust (Colletta & Cullen, 2002; Leininger et al., 2021), local actors primarily described trust as occurring among citizens, illustrated by KGR13's statement: '*social cohesion means mutual understanding among community members, living harmoniously with neighbours, engaging in constructive dialogue, and trusting one another*'. This resonates to some extent with NURC (2010, 2020)'s trust description as a characteristic of reconciled citizens. Notably, socializing, as noted in KBG16's statement, and the exchange of ideas are absent from the literature. For Respondent KGR3, the exchange of ideas is linked to a conflict-free community and described as an indicator of a reconciled community.

While both our study participants and the literature recognized civic engagement, equity and integrity, other indicators, such as shared faith practices, fairness and a shared vision, emerged uniquely from the local perspectives (Figure 3a). For Respondent KRB9, social cohesion is reflected in sharing the same christian beliefs, which in turn fosters tolerance and collaboration within the community. In contrast, Respondent BRS3 described integrity as a community-binding value that strengthens trust and social bonds. During the workshop, Group GNV highlighted fairness in the equitable distribution of village aid from partners, noting that it helped prevent conflicts and maintain community harmony. Equally, national and social identity are reflected both in local actors' conceptions of social cohesion and in the literature. However, local actors introduced a new indicator: '*kuba ijisho rya mugenzi wawe*', literally '*being an eye for your neighbor*', which is absent from the existing literature. This traditional state-endorsed national value promotes societal safety and civic responsibility by encouraging the prevention, mitigation and reporting of crimes within one's neighbourhood. Finally, participants emphasized that a shared vision between the community and government not only unites the community but also forms the basis for civic engagement.

3.4 | How social cohesion is linked to restoration: Local actors' perspectives

3.4.1 | Ecosystem restoration and social cohesion: Synergies and negative feedback

Our analysis identified both negative and positive effects of ecosystem restoration on social cohesion (and vice versa) and shows that context matters. Thus, ecosystem restoration can weaken or strengthen social cohesion depending on how and where ecosystem restoration is planned and implemented; and at the same time the level of social cohesion can also impact on ecosystem restoration success (Figure 3). Some interviewees described how limited availability and spatial distribution of resources, such as tree seedlings and other materials, drive competition among households. Those located near tarmac roads were perceived as having a relative advantage due to easier access to nurseries, transport and restoration materials and tools, as nurseries are often established in more accessible areas. In contrast, households in far remote areas reported feeling spatially marginalized due to limited access to restoration inputs and benefits, reinforcing socioeconomic inequalities. At the same time, some respondents noted that barriers to resource access, coupled with unequal distribution of support (financial, extension services and material) from implementing partners, increase competition, limit their human capacity and motivation to engage in ecosystem restoration and reinforce marginalization. Moreover, the limited agency, reflected in some community members' minimal influence over decisions like nursery locations, tree species selection and terracing sites, further contributed to socioeconomic inequalities. These dynamics, alongside limited compensation for the time and resources invested in preparing land for restoration and limited competence in best ecosystem restoration practices, reinforced competition, inequalities and conflicts and ultimately weakened both social cohesion and restoration outcomes.

Conversely, other respondents noted how ecosystem restoration strengthened social cohesion while also enhancing community commitment, ownership, inclusiveness, collective stewardship and restoration effectiveness. In this regard, our analysis found that income from restoration activities, such as wood products and crop harvest, helps community members pay school fees and access health insurance, improving the sense of belonging among financially marginalized groups and restoration's ownership. Some respondents expressed pride in fulfilling social expectations and actively participating in community life, supported by income from restoration activities, while being able to invest back in restoration. Again, others reported how ecosystem restoration enhanced local resilience and social interactions and solidarity through sharing resources, labour and skills exchange, strengthening social ties and integration. They explained how restoration produces sharing, particularly between households with different crop harvesting schedules or in response to shocks such as heavy rains or delayed rainfall, was becoming a common practice among some families. Overall, these practices contributed towards social relations, reinforced collective wellbeing and shared norms, and enhanced community commitment to ecosystem restoration and collective stewardship, ultimately strengthening social cohesion and improving ecosystem restoration effectiveness (Figure 4).

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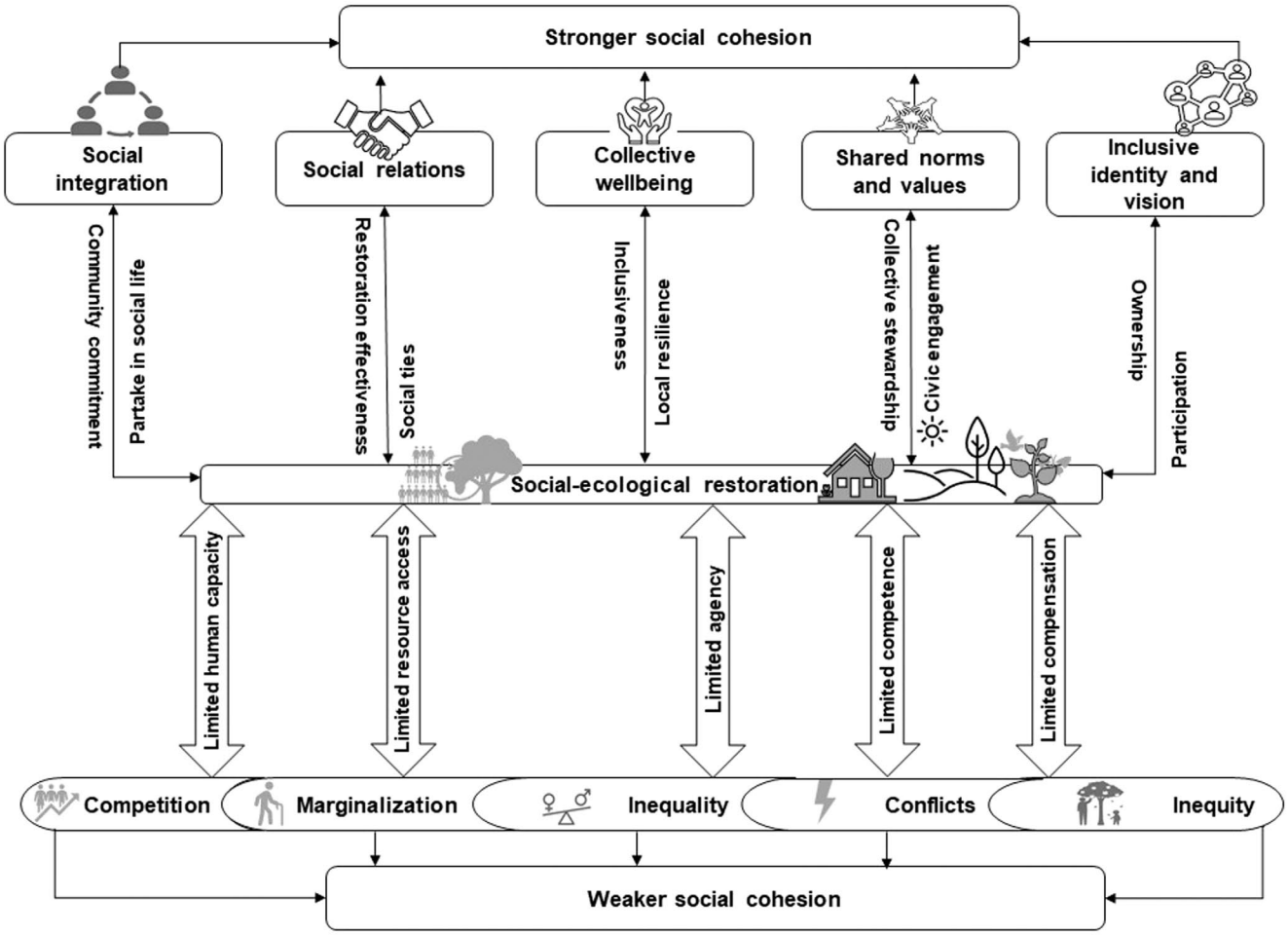

FIGURE 4 Interplay of ecosystem restoration and social cohesion. ⟺ bidirectional effects; ⟷ left side text: Social cohesion effects on social-ecological restoration and right side text: Social-ecological restoration effects on social cohesion; ⟶ one direction effects.

3.4.2 | Restoration as a space to foster social cohesion

During the workshops, respondents identified eight overlapping social spaces in both districts created or sustained through restoration activities (Figure 4). These include Savings and Credit Groups (SCGs) established by Tubura and Friends of Nature Associations (FNAs) created by the Albertine Rift Conservation Society (ARCOS), the two largest NGOs supporting ecosystem restoration work. The remaining six social spaces in both communities comprise (i) community work; (ii) parents' evenings; (iii) community assemblies; (iv) government meetings; (v) partner restoration meetings; and (vi) farmer extension group meetings, Rutsiro reported a ninth space: exposure visits.

The SCGs served as social credit checks, enabling members to secure financing for agricultural inputs like seeds and fertilizer while providing training in ecosystem restoration activities, such as tree planting. Similarly, FNAs support ARCO's work through capacity building and tree planting in line with ARCO's mission, '*To Build a Sustainable Future for Nature and People through the Promotion of Collaborative Actions*'. Together, SCGs and FNAs have evolved into social networks that provide a framework for connectedness while fostering cooperation and trust among members. Moreover, these networks promoted peaceful relations and community harmony. As a workshop participant noted, '*The group fosters good relations within the village. For instance, if I have a disagreement with another villager and we are members of the same group, we must first settle our differences before continuing our cooperative restoration activities. Otherwise, the group cannot operate effectively*'.

Alongside NGO-established platforms, government-led social spaces such as *Umuganda* (community work), *Inteko z'abaturage* (community assemblies) and *Umugoroba w'ababyeyi* (parents' evening forum), although originally not created for ecosystem restoration, now embed restoration-related activities and play a vital role in fostering community cohesion. *Umuganda*, a state-mandated monthly community workday, brings residents together to plant trees, control erosion and build homes for vulnerable households. Beyond these practical tasks, it serves as a forum for resolving disputes over land, water use and agroforestry practices. In doing so, *Umuganda* not only reinforces civic engagement as well as cooperation between citizens and the state, but also strengthens trust and promotes peaceful, harmonious relations among villagers. As respondent BRS23 remarked, '*Umuganda not only helps us engage on issues within our village but also helps us cultivate good*

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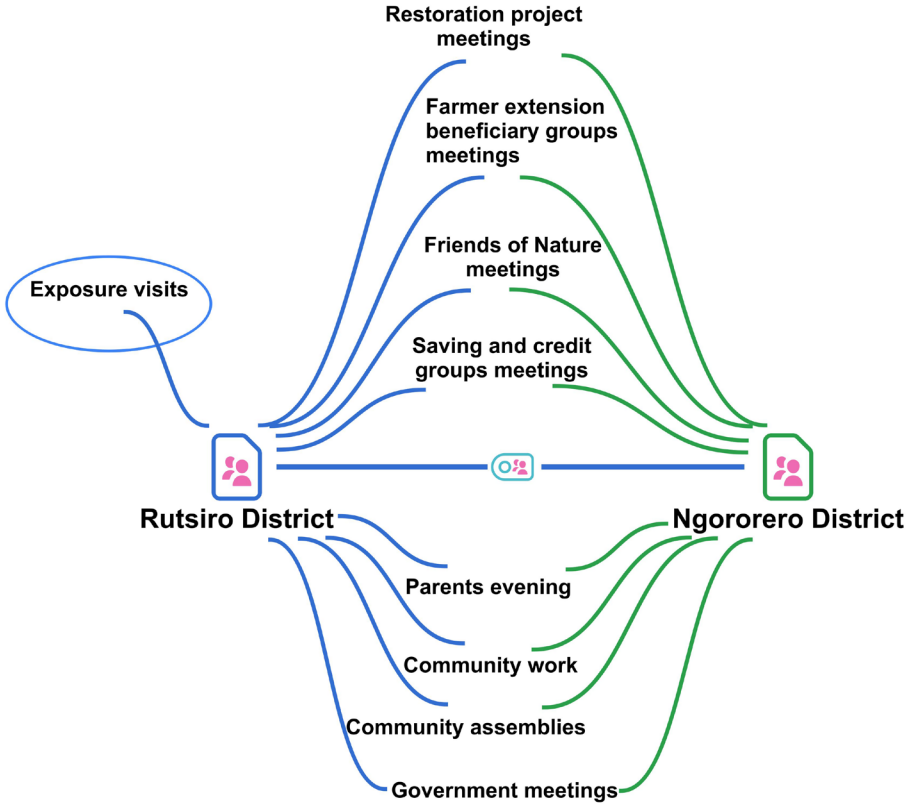

FIGURE 5 Restoration-related spaces that foster social cohesion.

relationships'. By supporting marginalized groups, *Umuganda* further promotes inclusivity, solidarity and mutual support.

Community assemblies, held monthly on Tuesdays, provide a platform for discussing government programmes and addressing local concerns. Respondents noted that during these meetings, government representatives engage directly with citizens on activities such as selecting beneficiaries for ecosystem restoration projects, terracing construction, as well as distributing tree seedlings and agricultural inputs. These interactions promote accountability and strengthen trust between the government and communities. Similarly, the parents' evening functions as a traditional, family oriented forum for social development and conflict resolution. It tackles family issues such as relationship tensions, land rights and land use, facilitating dialogue between spouses while also promoting gender equity and peaceful family relations. Moreover, collaboration, accountability and civic engagement are facilitated by the occasional government-community meeting as well as partners' and project introduction meeting sessions. These work to deepen the trust between citizens and the state. Respondents concluded that both parents' evenings and community assemblies reinforce community harmony, while government meetings uphold accountability (Figure 5).

3.4.3 | Restoration-related opportunities that foster social cohesion

Respondents identified restoration-related opportunities (Figure 5) that promote social cohesion through various means, particularly by supporting the existence and functioning of the aforementioned social spaces. Across both districts, common enablers (Figure 5, bold lines) include ecosystem restoration partners, agricultural extension facilitators, availability of land, capacity-building programmes, youth volunteers and community mediators. Additionally, there are *Ubudehe* (a traditional practice of community mutual assistance through which residents collaborate to plan and implement anti-poverty initiatives with government support) programmes, *Girinka* (One Cow per Family initiative), government extension services and effective leadership. Proximity to tarmac road was a unique opportunity in Ngorororo, whereas access to tree seedlings and stable climate were specific to Rutsiro (Figure 5 encircled).

Respondents noted that partners, such as ARCOS and Tubura, provide opportunities not only for ecosystem restoration but also for strengthening social cohesion within their communities. During the workshop, respondents explained that the presence of these partners facilitated the formation of farmer groups, such as FNAs and SCGs. At the same time, the inclusion of a capacity-building component into ecosystem restoration projects enabled group members to connect through regular meetings, fostering cooperation, building trust and, ultimately, enhancing social cohesion. Capacity building also indirectly helped prevent disputes related to land use and management. As one person explained during the workshop, *'Knowing how to control erosion on my farm prevents water runoff onto my neighbours' plots, thereby preventing misunderstandings and potential disputes' (GRV)*. At the same time, respondents emphasized that the availability of land is fundamental for implementing ecosystem

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restoration activities. However, in some cases of land scarcity, ecosystem restoration can sometimes cause severe intra-family tensions, particularly when household heads prioritize ecosystem restoration over children's inheritance. During the workshop, one person stressed that '*In extreme cases, land disputes have led to violent conflicts within families*' (GRV).

Government programmes such as *Ubudehe*, *Girinka* (One Cow per Family), and agricultural extension services were also identified by respondents as ecosystem restoration-related opportunities that foster social cohesion (Figure 6). Under *Ubudehe*, each village selects two poor families and, with the help of trained volunteers, jointly develop strategies to lift them out of poverty. Still under this programme, the selected poorest households are often prioritized for employment in terracing and other land restoration activities. In doing so, this programme enhances socioeconomic equality efforts, civic participation, mutual assistance, collaboration and trust. One respondent explained that *Ubudehe*'s participatory and inclusive nature strengthens social integration, collective well-being, and sense of belonging within the society (GNV).

The *Girinka* programme provides cattle to poor households to reduce poverty and malnutrition through milk production. It supports ecosystem restoration in multiple ways while fostering social cohesion. To qualify, a candidate must own less than 0.75 hectares of land, control soil erosion or commit to anti-erosion measures, maintain pastureland, as well as practice water harvesting and conservation. Additionally, the candidate possesses compost pits, demonstrates care for the environment, and actively participates in community development and good governance activities. The cattle's dung is used to fertilize crops and trees, thus linking the programme to ecosystem restoration. Overall, *Girinka* promotes collective well-being and social integration by reducing poverty and income inequality while enhancing community collaboration, interaction and institutional trust.

Lastly, government extension officers and youth volunteers facilitate the implementation of ecosystem restoration programmes and social spaces, such as government meetings. They bring community members together during training sessions and restoration activities, promoting mutual support, cooperation, and knowledge exchange. Equally, community mediators address land-related disputes, enhancing social harmony and cohesion. Respondents also highlighted that these initiatives are made possible by effective government leadership, which serves as a key enabler for bringing ecosystem restoration efforts directly to the community level. Furthermore, respondents identified a stable climate and access to tarmac roads as important ecosystem restoration enablers and, consequently, indirect opportunities for enhancing social cohesion. Predictable weather ensures seedlings and planted trees thrive, supporting consistent participation in restoration activities. Road access facilitates mobility, input delivery and interactions with ecosystem restoration actors. Together, these opportunities facilitate participation in collective efforts and cooperation, thereby strengthening social networks and a sense of collective belonging.

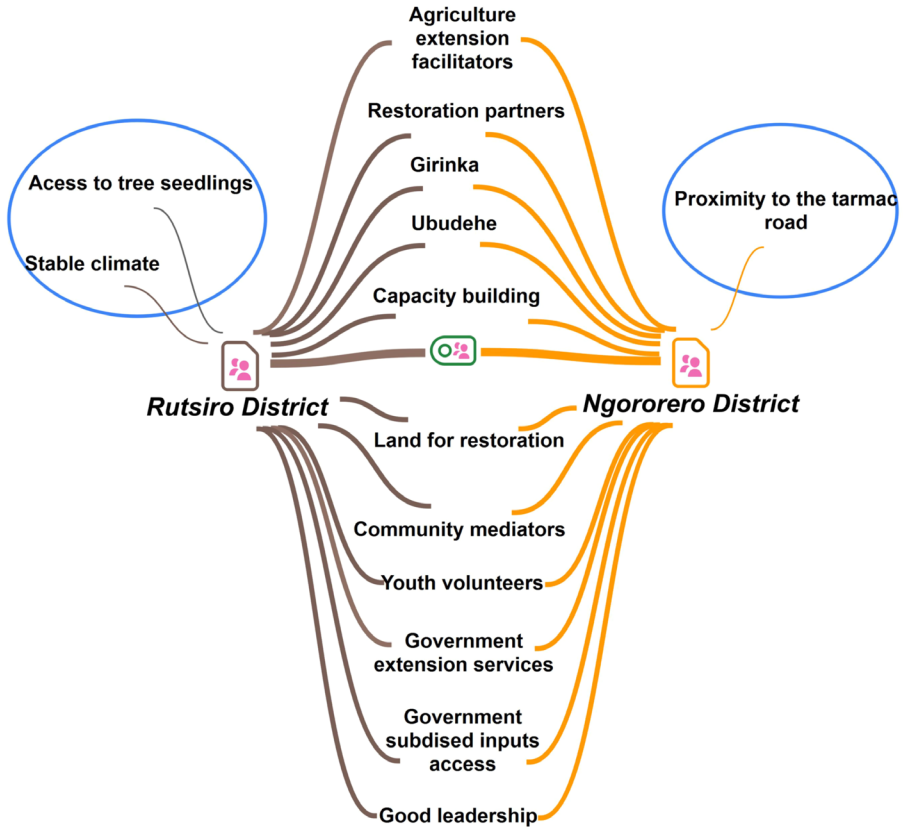

FIGURE 6 Restoration-related opportunities that foster social cohesion.

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4 | DISCUSSION

4.1 | Rethinking social cohesion in conflict-affected societies

Our conception of social cohesion rests on five interdependent dimensions: social integration, social relations, shared norms and values, collective well-being and inclusive identity with a shared vision. From respondents' perspectives, social cohesion was primarily understood through social integration, reflected in peaceful coexistence, community harmony and equality; elements also emphasized in previous studies (Corry, 2012; Idres, 2016; Ratzmann, 2018; UNECA, 2016). Social cohesion was further described in terms of social relations, particularly cooperation and trust, as highlighted by both local actors and existing literature (Colletta & Cullen, 2002; Sentama, 2017). Respondents also linked social cohesion with material well-being, especially food security, consistent with prior evidence (Lordos et al., 2021; UNECA, 2016). Inclusive identity and shared norms and values likewise emerged as key dimensions, recognized by both local actors and earlier studies (Colletta & Cullen, 2002; Dahlmanns, 2025; Idres, 2016; Leininger et al., 2021; Ratzmann, 2018). Overall, both our findings and the literature indicate that social integration serves as the cornerstone of the social cohesion framework in conflict-affected societies.

Social integration is linked to the re-establishment of positive social relations and collective well-being (Lordos et al., 2021; Ratzmann, 2018; Sentama, 2009, 2017). It is also associated with the development of inclusive identity and reinforcement of shared norms and values (Breidahl et al., 2018; Colletta & Cullen, 2002; Dahlmanns, 2025; Hu & Cheung, 2024; Rimé et al., 2011). Evidence from post-conflict contexts highlights that restoring social bonds and inclusion is a prerequisite for rebuilding social cohesion (Colletta & Cullen, 2002; Jayakody et al., 2022). Social integration understood as individuals' participation in social relations and activities (Kısar Koramaz, 2014), fosters collective engagement and helps, bridge divisions created by violence and marginalization (Colletta & Cullen, 2000; Sentama, 2017). It enables individuals and groups to identify with a shared social system, reinforcing norms and mutual respect necessary for coexistence (Schwinn, 2023). By strengthening trust, cooperation and coordination (Cilliers et al., 2016; Deitelhoff & Schmelzle, 2023; Vervisch & Titeca, 2010;), social integration supports collective well-being and reflects the strength of the social fabric (Appau et al., 2019; Delhey et al., 2023).

Unlike many existing conceptions of social cohesion, which emphasize social relations (Aruqaj, 2023), social cohesion in conflict-affected societies, such as Rwanda, requires a broader perspective. In settings where the social fabric has been severely eroded, social networks, trust and cooperation are dismantled (Colletta & Cullen, 2002), social cohesion cannot be understood solely through the lens of social relations. Rather, it must be viewed as a multidimensional construct that integrates elements altogether, bind the society. Variations in the degree of integration across social groups shape social relations differently (Kısar Koramaz, 2014), underscoring the need for multiple, interconnected elements. Accordingly, no single dimension can fully capture social cohesion (Langer et al., 2017). Guided by this rationale, our framework captures multiple facets of social cohesion, with each dimension contributing uniquely to the whole. Together, these dimensions form a balanced and meaningful framework capable of holding conflict-affected societies together.

Finally, we argue that stronger cohesion extends also beyond social integration, shared identity, norms and values, but also depends on social resilience (Bio Boné et al., 2025) and society's capacities to live with pluralism (Ghouse, 2022; Jenson, 2019; Yumatle, 2015), difference as well as managing disagreements constructively (Deitelhoff & Schmelzle, 2023; Nikolko, 2024). This perspective is supported by Löhr et al. (2022) and Bio Boné et al. (2025), who emphasized the role of local agency through participatory spaces and dialogue for knowledge exchange. Such spaces strengthen social relations, promote integration of conflicting individuals and groups and support inclusion. Additionally, building negotiation capacity enables actors to pursue peaceful solutions, fostering trust and mutual understanding, which contribute to adaptive, non-violent responses to conflicts, while enhancing equity, improving dialogue and reducing the risks of violence (Löhr et al., 2022).

4.2 | Restoring ecosystems while rebuilding societal cohesion

Traditionally, ecosystem restoration focuses on recovering degraded, damaged or destroyed ecosystems [Gann et al. (2019, p. S7) based on SER (2004)]. While rewilding emphasizes restoring natural processes and food webs (Carver et al., 2021) and reclamation targets severely degraded ecosystems by establishing habitats, populations and communities that resemble their natural counterparts (Gerwing et al., 2022), both aim for the recovery of ecosystems following anthropogenic activities (Mutillod et al., 2024). All three approaches remain fundamentally technical in nature. However, in post-conflict contexts like Rwanda, ecosystem restoration aiming for long-term outcomes cannot be reduced to technical terms alone. Ecosystem degradation in Rwanda is tied to past political instability, poor governance, civil war, ethnic divisions, resource scarcity and social inequalities, which contributed to both ecosystem degradation and the erosion of social cohesion (Kanyamibwa, 1998). Previous studies argued that ecosystem restoration can strengthen social cohesion, thereby contributing to peacebuilding, particularly in contexts where conflicts and weakened social cohesion intersect (Afolabi & Donkor, 2021; Aiken, 2008; Goredema, 2025; Löhr et al., 2022; Quiroga et al., 2024). Hence, we argue that achieving long-term ecosystem restoration outcomes in Rwanda and similar contexts requires addressing land degradation through approaches that also rebuild social cohesion.

We found a profound intersection between ecosystem restoration and social cohesion, with ecosystem restoration serving as both a venue and a catalyst for fostering community bonds. From a social space perspective, we identified eight spaces established

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or strengthened through ecosystem restoration activities that bolster community cohesion. SCGs and FNAs have evolved into social networks that promote cooperation, trust and mutual support. This aligns with previous studies in Rwanda, where coffee cooperatives formed by genocide survivors and former perpetrators contributed to rebuilding social ties (Sentama, 2017), while reconciliation villages enhanced collective well-being (Lordos et al., 2021). From other post-conflict contexts, ecosystem restoration contributed not only to ecological gains but also to the strengthening of community cohesion (Gagnon & Ravindran, 2023; Quiroga et al., 2024). However, while our findings showed that social integration was pivotal in addressing land degradation and rebuilding social cohesion (Corry, 2012), land scarcity, inadequate restoration practices and inputs, resource competition, social inequalities, elite capture, which often trigger community conflicts, continued to threaten cohesion, even in projects promoting social integration. A recent study in Rwanda also documented weaker vertical cohesion between the state and citizens than horizontal, linked to top-down decision-making and the exclusion of citizens from restoration decision-making platforms across local to national scales (Ndagijimana et al., 2026). Still, we argue that well-planned restoration offers an opportunity to strengthen marginalized communities, highlighting that cohesion relies on agency, conflict management, negotiation power and reparations (Haider, 2011; Löhr et al., 2022; Smith et al., 2025; Vonhm, 2025).

4.3 | Implications for the UN decade on ecosystem restoration

As the UN Decade reaches its midpoint, our findings offer timely insights into advancing its agenda. In historically divided contexts like Rwanda, land degradation is a deeply socioecological issue, meaning restoration must respond to these realities to succeed. This echoes work by previous studies that degradation is embedded in ecological, cultural and socioeconomic systems shaped by history, requiring context-specific restoration design (Löfqvist et al., 2023; Mansourian et al., 2025; Nelson et al., 2024). Our findings demonstrate that ecosystem restoration can support social integration and positive social relations in post-conflict settings, aligning with Principle 8 of the UN Decade, which calls for context appropriate interventions. Respondents also linked restoration with well-being and a shared vision, both key dimensions of social cohesion and outcomes of effective restoration. This mirrors findings from Frietsch et al. (2024) in Western Rwanda, where respondents also stressed that restoration must enhance human well-being to be locally meaningful. Overall, our findings reinforce Principles 2, 4 and 7 of the UN Decade, emphasizing ecosystem restoration that advances the SDGs, benefits people and nature, and builds on a shared vision.

Ecosystem restoration as a social space, particularly restoration capacity building through farmer-based organizations such as SCGs and FNAs, facilitated knowledge exchange and strengthened positive social relations, especially cooperation, trust and peaceful coexistence. This mirrors previous findings showing that agricultural programmes implemented through cooperatives in post-genocide Rwanda rebuilt trust and cooperation among members of formerly antagonistic groups (Sentama, 2009, 2017), as well as gender equality (Meador & O'Brien, 2019). Beyond Rwanda, it is reported that community-based restoration initiatives in Pakistan reduced conflicts and improved social cohesion (Ullah, 2024). To some extent, our findings also align with Principle 6 of the UN Decade agenda, which emphasizes knowledge integration in restoration initiatives (Frietsch et al., 2024). Thus, the failure to account for social aspects means ecosystem restoration efforts are unlikely to succeed (Höhl et al., 2020; Stanturf, 2021).

Given Rwanda's history of conflict, ethnic divisions and land-related family disputes, our findings highlight the importance of integrating social dimensions and capacity building into ecosystem restoration interventions to reduce risks of failure. Specifically, integrating household level land use planning into capacity-building efforts could help prevent occasional intra-family conflicts arising from ecosystem restoration and family inheritance trade-offs, considering land scarcity. Finally, community mediators, assemblies and parents' evenings offer promising pathways for resolving land-related tensions, especially in land scarce settings. While community mediators sometimes make decisions perceived as unsatisfactory due to limited legal expertise (Mutisi, 2012), still other studies praised their contribution to resolving land-related family conflicts while also restoring peace, unity and reconciliation in the communities (Bognitz, 2018; Tangwe et al., 2023). Thus, these traditional mechanisms underscore the value of integrating social dimensions into ecosystem restoration initiatives and provide practical lessons for the UN Decade on managing ecosystem restoration-related conflicts.

In line with the UN Decade's emphasis on socially transformative approaches (Fischer et al., 2021; Tedesco et al., 2023), our study offers evidence to inform such efforts in similar post-conflict settings. Programmes like Ubudehe, Girinka and Umuganda illustrate how ecosystem restoration can advance poverty reduction, enhance inequality reduction efforts and strengthen collective action. Our findings also concur with previous studies about integrated approaches to achieve multiple synergistic restoration objectives rather than isolated projects for the UN Decade to be locally relevant in Rwanda (Frietsch et al., 2024), consistent also with Principle 3's call for diverse and synergistic measures. Respondents highlighted strong government support, effective partnerships and adequate human capacity as opportunities enabling integrated ecosystem restoration, reflecting Rwanda's ambitious ecosystem restoration pledge (Nash et al., 2020) as well. While these traditional programmes offer valuable lessons, critics note that some initiatives, such as Umuganda, were historically politicized and used to advance state narratives (Bonnier et al., 2015). Such dynamics may limit citizens' freedom of participation and open dialogue, key elements of social cohesion and risk undermining Principles 7.1 and 8.2 of the UN Decade, which emphasize shared visions and alignment with local needs (FAO et al., 2023).

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5 | CONCLUSIONS

Ecosystem restoration in Rwanda brings together communities, institutions and NGOs to restore degraded landscapes while fostering social ties, collective action, and, ultimately, social cohesion. Designed as a space and opportunity for social integration, rebuilding positive social relations, strengthening shared norms and values, promoting an inclusive identity and shared vision, as well as enhancing collective well-being, ecosystem restoration can ultimately rebuild social cohesion. However, ecosystem restoration can also trigger land and resource-related competition and conflicts, thereby exacerbating marginalization and social inequalities, ultimately weakening social cohesion. These adverse dynamics, in turn, limit ecosystem restoration effectiveness and community commitment. Given that existing social cohesion frameworks provide limited analytical grounding linking ecosystem restoration to social cohesion in post-conflict settings, our findings suggest that, in such contexts, social cohesion is best understood through the lens of social integration, which offers a foundation for rebuilding social relations eroded by past conflicts. Accordingly, in post-conflict settings, ecosystem restoration initiatives should be designed not only to achieve ecological goals but also to restore social ties. Locally responsive and community-based ecosystem restoration approaches have far bigger impacts on society, well beyond ecology or livelihoods. In this way, ecosystem restoration can contribute meaningfully to the UN Decade's principles on social transformation. Future research should pay greater attention to how to strengthen people's agency and negotiation capacities to address land and resource-related conflicts.

AUTHOR CONTRIBUTIONS

Katharina Löhr secured the funding. Valery Ndagijimana conducted the data collection and analysis. The methodology was designed by Valery Ndagijimana, Katharina Löhr and Michael Weinhardt. Valery Ndagijimana drafted the original manuscript, while Katharina Löhr, Michael Weinhardt and Stefan Sieber made substantial contributions to subsequent revisions and provided final approval for publication.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest to disclose.

DATA AVAILABILITY STATEMENT

All anonymized data on which this study is based are publicly archived at: https://doi.org/10.5281/zenodo.20117995.

ETHICS STATEMENT

Ethical approval was granted through the research permit, which was issued by the National Council of Science and Technology of Rwanda (NCST/482/0188/2024). All participants provided written informed consent before participating in the study.

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APPENDIX

TABLE A1 Social cohesion indicators (full list).

Dimension	Indicator	Scoping (ref)	WC		SSIs (freq.)
			Ngororero	Rutsiro	
Social integration	Peaceful coexistence	Corry (2012), Rubagiza et al. (2016), UNECA (2016), Sentama (2017), Ratzmann (2018), Fajth et al. (2019) and Lordos et al. (2021)	✓	✓	49
	Social harmony	Ratzmann (2018)	✗	✗	36
	Mutual assistance	Corry (2012), Sentama (2017) and Ratzmann (2018)	✓	✓	32
	Unity	Corry (2012) and Dahlmanns (2025)	✓	✓	22
	Sharing	✗	✓	✓	11
	Solidarity	Corry (2012), Sentama (2017) and Ratzmann (2018)	✓	✓	11
	Equity	UNECA (2016), Ratzmann (2018) and Dahlmanns (2025)	✗	✓	9
	Tolerance	Idres (2016), Lefko-Everett (2016), Rubagiza et al. (2016), Ratzmann (2018), NURC (2020) and Lordos et al. (2021)	✗	✗	6
	Reconciliation	Corry (2012), Lordos et al. (2021), and Ratzmann (2018)	✓	✗	4
	Forgiveness	Sentama (2017) and Lordos et al. (2021)	✗	✓	4
	Social security	Corry (2012)	✗	✗	✗
	Sanitary services and water access		✗	✗	✗
	Social protection		✗	✗	✗
	Health services access	Corry (2012), UNECA (2016) and Ratzmann (2018)	✗	✗	✗
	Educational access	Corry (2012), Idres (2016), UNECA (2016) and Ratzmann (2018)	✗	✗	✗
	Housing access	Corry (2012) and Ratzmann (2018)	✗	✗	✗
	Land access and ownership	Ratzmann (2018)	✗	✗	✗
	Human rights	Idres (2016) and Ratzmann (2018)	✗	✗	✗
	Justice	Corry (2012) and Ratzmann (2018)	✗	✗	✗
	Diversity acceptance	Idres (2016), UNECA (2016) and Ratzmann (2018)	✗	✗	✗
	Interdependence	Sentama (2017)	✗	✗	✗
	Equity	Colletta and Cullen (2002), Idres (2016) and Sentama (2017)	✗	✗	✗
	Equality	Colletta and Cullen (2002), Corry (2012), Staveren and Pervaiz (2017), Idres (2016), Lefko-Everett (2016), UNECA (2016), Sentama (2017) and Ratzmann (2018)	✓	✓	✗
	Social distance	NURC (2020)	✗	✗	✗
	Community reintegration	Corry (2012) and Lordos et al. (2021)	✗	✗	✗
	Employment & income	Ratzmann (2018), Fajth et al. (2019) and Lordos et al. (2021)	✗	✗	✗
	Poverty (rate)	Corry (2012), UNECA (2016), Ratzmann (2018) and Lordos et al. (2021)	✗	✗	✗
	Freedom	✗	✓	✗	✗

(Continues)

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TABLE A1 (Continued)

Dimension	Indicator	Scoping (ref)	WC		SSIs (freq.)
			Ngororero	Rutsiro	
Social relations	Cooperation	Colletta and Cullen (2002), Pervaiz and Chaudhary (2015), UNECA (2016), Sentama (2017), Ratzmann (2018), Fajth et al. (2019), Leininger et al. (2021) and Lordos et al. (2021)	✓	✓	25
	Mutual understanding	Sentama (2017) and Ratzmann (2018)	✓	✗	17
	Communication	Wortmann-Kolundžija (2023), Sentama (2017), Fajth et al. (2017)	✗	✗	12
	Socializing		✗	✗	7
	Trust	Colletta and Cullen (2002), Larsen (2014), Lefko-Everett (2016), UNECA (2016), Fajth et al. (2017), Sentama (2017), Ratzmann (2018), NURC (2020), Leininger et al. (2021), Lordos et al. (2021) and Walle (2022)	✓	✗	6
	Love each other	Ratzmann (2018)	✓	✓	6
	Interaction	Wortmann-Kolundžija (2023) and Sentama (2017).	✗	✗	4
	Complementarity	Ratzmann (2018)	✓	✗	3
	Social networks		✗	✓	3
	Interdependence		✗	✗	✗
	Empathy	Rubagiza et al. (2016) and Ratzmann (2018)	✗	✓	1
	Openness	Colletta and Cullen (2002), Sentama (2017) and Ratzmann (2018)	✓	✗	✗
	Conviviality	Sentama (2017) and NURC (2020)	✗	✗	✗
	Friendship	Sentama (2017) and NURC (2020)	✗	✗	✗
	Mutual respect	NURC (2020) and Lordos et al. (2021)	✓	✓	✗
	Connectedness	Sentama (2017), Ratzmann (2018), Wortmann-Kolundžija (2023) and Dahlmanns (2025)	✗	✓	✗
	Exchange of ideas	✗	✓	✓	✗
Collective well-being	Sense of safety and security	Ratzmann (2018), Fajth et al. (2019), Lordos et al. (2021) and Walle (2022).	✗	✗	15
	Food security	Corry (2012) and UNECA (2016).	✗	✗	4
	Community development	UNECA (2016)	✗	✗	4
	Community empowerment	Corry (2012), Rubagiza et al. (2016) and Lordos et al. (2021).	✗	✗	3
	Collective action	Corry (2012)	✗	✓	1
	Democratic state	Colletta and Cullen (2002)	✗	✗	✗
	Demographic pressure	UNECA (2016)	✗	✗	✗
	Law and order	Colletta and Cullen (2002), UNECA (2016) and Ratzmann (2018)	✗	✗	✗
	Conflicts	UNECA (2016)	✗	✗	✗
	Human Development Index	UNECA (2016)	✗	✗	✗
	Accountable governance	Corry (2012), Lefko-Everett (2016) and UNECA (2016).	✗	✗	✗
	Inclusion	Colletta and Cullen (2002), Corry (2012), Idres (2016), UNECA (2016), Ratzmann (2018) and Walle (2022).	✗	✗	✗
	Crimes	UNECA (2016)	✗	✗	✗
	Substance abuse		✗	✗	✗
	Service delivery		✗	✗	✗

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TABLE A1 (Continued)

Dimension	Indicator	Scoping (ref)	WC		SSIs (freq.)
			Ngororero	Rutsiro	
Shared norms and values	Integrity	Dahlmanns (2025)	✓	✓	14
	Civic engagement/ activism	Corry (2012), Idres (2016), UNECA (2016), Sentama (2017), Lordos et al. (2021) and Walle (2022)	✗	✓	13
	Shared faith practices	✗	✗	✓	1
	Honesty	Sentama (2017)	✗	✗	✗
	Nobility	Dahlmanns (2025)	✗	✗	✗
	Heroism		✗	✗	✗
	Excellence		✗	✗	2
	Patriotism		✗	✗	✗
	Fairness	✗	✓	✗	✗
	Peer monitoring		✗	✓	✗
Inclusive identity and shared vision	Shared vision	✗	✗	✗	5
	National identity	Idres (2016) and Leininger et al. (2021)	✗	✗	4
	Participation	Pervaiz and Chaudhary (2015), Ratzmann (2018), Lefko-Everett (2016), Sentama (2017) and Walle (2022)	✗	✗	1
	Social identity	Leininger et al. (2021)	✗	✗	1

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