



Why communities withdraw: A multilevel analysis of participation barriers in climate governance and sustainable development in rural China

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ABSTRACT

Rural communities in China play a pivotal role in achieving sustainable development and climate resilience, yet their participation in environmental governance remains critically low. Despite national commitments like China's 2060 carbon neutrality target, systemic barriers including centralized decision-making, socioeconomic disparities, and cultural norms hinder meaningful rural engagement. This study investigates the structural, social, and motivational factors driving community withdrawal from climate and sustainability initiatives, offering insights into pathways for more inclusive governance. Using a qualitative multilevel case study design, we conducted in-depth fieldwork in Henan Village, Tongwei County, Gansu Province, engaging participants (villagers, officials, and community leaders) through semi-structured interviews, observations, and document analysis. Thematic analysis, framed by Institutional Theory, Social Capital Theory, Self-Determination Theory, and Ecological Modernization Theory, revealed five key barriers: (1) rigid institutional structures, (2) unequal power dynamics, (3) weak motivational incentives, (4) misaligned policy-economic integration, and (5) limited re-engagement opportunities. Our findings highlight how top-down governance and eroded social trust stifle local agency, perpetuating disengagement. To counter this, we propose decentralized, polycentric models that distribute decision-making authority across multiple local and regional actors, fostering community-led initiatives. These models, supported by our fieldwork showing increased engagement in pilot decentralized programs, strengthen community autonomy, rebuild collective trust through participatory platforms, and align climate actions with rural livelihoods by integrating local economic priorities. These recommendations urge policy-makers to reimagine participatory frameworks, ensuring China's climate strategy is both equitable and effective. By centering rural voices, this study contributes to global debates on inclusive sustainability governance, offering lessons for regions facing similar participatory gaps.

1. Introduction

Addressing environmental sustainability and climate resilience has become a global priority, especially in regions where communities are highly dependent on natural resources and vulnerable to ecological change [1]. Effective governance in these areas increasingly relies on inclusive and participatory approaches that recognize local voices, cultural contexts, and diverse knowledge systems. Rural communities—often at the frontline of environmental degradation—play a pivotal role in sustainable development, yet their participation in environmental decision-making remains limited across many nations

[2].

In China, sustainable development in rural regions is shaped by a complex interplay of historical marginalization, evolving governance structures, and the growing push for participatory models [3]. Since the reform era, Deng Xiaoping's "development first" principle has prioritized industrial growth and urbanization [4]. While these policies have significantly improved economic conditions and reduced poverty, they have often come at the expense of environmental integrity and rural inclusion. As a result, many rural areas now face heightened climate-related risks, including soil erosion, water scarcity, and extreme weather events. Despite their vulnerability, rural communities remain

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largely excluded from environmental governance processes. In response, participatory approaches—such as co-production and “commoning climate adaptation”—are being promoted to bridge this gap, aiming to align economic development with ecological resilience through community-based, collaborative efforts [5].

At the international level, frameworks such as the United Nations Framework Convention on Climate Change (UNFCCC) and its National Adaptation Plans (NAPs) have shaped China’s climate policy, embedding ambitious goals—like achieving carbon neutrality by 2060—into national Five-Year Plans [6]. Nevertheless, persistent institutional inertia and regional disparities continue to obstruct effective implementation. Climate hazards, ranging from erratic rainfall to prolonged heatwaves, disproportionately affect agricultural communities, exposing a disconnect between centralized planning and local realities. Bridging this divide requires inclusive governance mechanisms that empower subnational actors, value indigenous knowledge systems, and foster bidirectional dialogue between state and society [7]. As the IPCC [8] and Hoegh-Guldberg et al. [9] underscore, the intensifying effects of climate change emphasize the urgency of rethinking climate governance frameworks.

In recent scholarship, attention has increasingly focused on the emergence of climate governance—defined as the structures, processes, and actions through which public and private actors address climate change [10,11]. In the Chinese context, climate governance is often characterized by “authoritarian environmentalism,” where top-down directives enable rapid policy execution, particularly in sectors such as renewable energy and urban reforestation [12]. While this model enhances efficiency, it frequently marginalizes local participation. Rural residents, in particular, often feel excluded due to bureaucratic complexities and sociocultural norms rooted in Confucian and Taoist traditions, which historically discourage grassroots activism.

Although many studies advocate for participatory governance to enhance policy legitimacy and effectiveness, genuine engagement remains limited in rural China. As Gilley [13], Li et al. [14], and Westman et al. [15] note, participation is frequently confined to symbolic consultation, offering little authority over meaningful decisions. Empirical evidence reinforces this pattern: elite capture pervades many participatory initiatives, as local elites dominate decision-making in poverty alleviation efforts [16], land reforms [17], and welfare programs [18]. Against this backdrop, the need for more equitable state-civil society partnerships in environmental governance grows increasingly urgent—even as the effectiveness of existing participatory mechanisms faces scrutiny.

To elucidate these complexities, a multilevel governance perspective is essential. Local governments, positioned closest to affected populations, are ideally suited to lead adaptive efforts. Yet, many confront structural challenges, including fragmented authority, insufficient funding, and unclear mandates. Overcoming these barriers requires not only decentralizing power but also fostering active roles for non-state actors and institutionalizing mechanisms for community engagement. Polycentric governance models offer a viable path forward by promoting distributed responsibility, wherein formal institutions are bolstered by informal networks and citizen-led initiatives. Encouraging community-level adaptation strategies can mitigate institutional constraints and enhance resilience at the grassroots level.

As climate justice advocates emphasize, inclusive governance depends on expanding the roles of citizens and communities in environmental decision-making [19]. Globally, participatory governance has become a foundation of sustainable development [20]. However, many of these models prioritize procedural legitimacy over deeper, discursive engagement that examines how decisions are made and who shapes them [21]. Applying these insights to rural China demands a more nuanced exploration of participation, one that transcends formal inclusion to address power dynamics, cultural norms, and community agency.

To better understand why rural communities in China often

withdraw from climate-related engagement, this study adopts a multi-level analytical framework. Drawing on Institutional Theory (INT[22]), Social Capital Theory (SCT[23] and Coleman [24]), Self-Determination Theory (SDT[25]), and Ecological Modernization Theory (EMT[26]), it investigates how structural constraints, community dynamics, and individual motivations converge to shape participation outcomes. Centralized governance, overlapping responsibilities, and limited local capacities frequently stifle authentic engagement. Meaningful reforms must therefore decentralize authority, value culturally embedded knowledge, and align policies with local experiences. Without such changes, the disparity between policy ambition and practical impact will likely endure—leaving the most vulnerable regions ill-prepared to address intensifying environmental challenges.

Although it is widely assumed that citizen participation improves environmental outcomes, empirical research focusing specifically on rural communities within semi-authoritarian contexts like China remains scarce. Global studies by Escobar [27] and Newig et al. [28] highlight the promise of participatory approaches, yet their relevance in settings marked by institutional rigidity is still underexamined. This study aims to fill that gap by analyzing the barriers to rural participation and their wider implications for climate resilience and sustainable development. By building on interdisciplinary scholarship and rigorous empirical analysis, it seeks to provide actionable insights for crafting inclusive, adaptive governance systems capable of addressing the mounting challenges of climate change in rural China.

2. Theoretical framework

This study adopts a multilevel theoretical framework that brings together INT, SCT, SDT, and EMT. While these theories have often been applied separately in previous studies, our contribution is to combine them as complementary lenses, each offering insights at a different level of analysis. At the macro and *meso* levels, INT explains the governance structures and institutional constraints that shape participation, while EMT highlights how ecological goals are embedded within economic and policy systems. Moving to the *meso* level, SCT emphasizes the importance of trust, networks, and power relations within communities, showing how these dynamics can either enable or undermine participation. At the micro level, SDT sheds light on individual motivations and psychological processes that influence whether people engage actively or withdraw from governance. These theories are not isolated; rather, they connect to form a complementary framework. INT and EMT set the stage by explaining the structural and policy environment, SCT shows how communities interpret and negotiate these broader conditions, and SDT captures the personal drivers of action or disengagement. Taken together, this integrated framework provides a more holistic explanation of rural withdrawal from climate governance. By linking institutions, community dynamics, individual motivations, and ecological policies, it offers a unified perspective on both the barriers to participation and the potential pathways for re engagement (Fig. 1).

2.1. Governance structures and institutional barriers

This study draws on INT [22] to investigate how governance systems—both formal and informal—condition collective action. Institutional arrangements, defined by rules, norms, and power structures, fundamentally shape how communities interact with sustainability initiatives. In rural China, formal institutions such as village committees dominate environmental decision-making through a top-down governance model, often bypassing grassroots input [29]. This governance style, grounded in authoritarian environmentalism, prioritizes policy efficiency at the expense of participatory inclusiveness, effectively constraining local agency.

Informal institutions, including cultural traditions rooted in Confucianism and Taoism, further reinforce these barriers by fostering hierarchical values, deference to authority, and passivity toward state-led

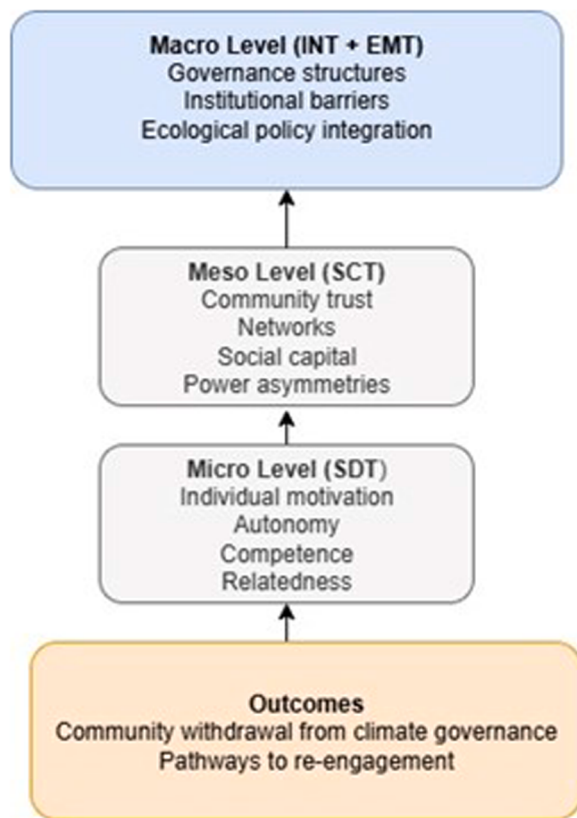


Fig. 1. A conceptual framework.

initiatives [30]. These sociocultural factors discourage citizen-led engagement, leading to a muted civic culture and acceptance of minimal community involvement.

To assess the quality and depth of participation, this study applies Arnstein's [31] Ladder of Citizen Participation, which differentiates between degrees of involvement—from manipulative consultation to empowered citizen control. Findings suggest that participation in rural China often remains at the tokenistic level—citizens may be consulted, but they lack meaningful influence. This is exacerbated by opaque governance, elite capture, and a lack of feedback mechanisms, fostering disengagement and disillusionment.

Furthermore, the concept of throughput legitimacy—the procedural dimension of democratic governance—explains how inadequate institutional design, fragmented authority, and misaligned mandates compromise the perceived fairness of participatory processes [32]. These shortcomings undermine both the effectiveness and legitimacy of climate governance, contributing to a cycle of community withdrawal.

The works of Ostrom [22] elaborated how decentralized, polycentric governance can enable communities to manage common resources effectively. However, in rural China, centralized control and limited devolution of power hinder the emergence of such systems. Ostrom's principles—such as clear boundaries, participatory rule-making, and graduated sanctions—are rarely observed, leading to poor conflict resolution, weak social learning, and lack of collective efficacy [33].

Critiques of participatory development underscore these institutional weaknesses. For example, Cooke and Kothari's [34] concept of the "new tyranny" of participation shows how so-called participatory processes can become performative, excluding local voices while claiming legitimacy. Similarly, Howard [35] highlight how expert-driven processes marginalize indigenous knowledge and erode the authenticity of engagement. In the Chinese context, participatory platforms are often designed without community input, making them instruments of control rather than empowerment.

2.2. Social capital and community dynamics

Social capital defined by Putnam [23] and Coleman [24] as networks, trust, and norms that enable coordination and cooperation forms a critical social layer in understanding participation in climate governance. In rural China, strong social ties and collective identity can theoretically enhance engagement by leveraging kinship-based solidarity and mutual obligation. However, institutional failures, modernization, and elite domination have weakened these bonds, often rendering social capital insufficient to overcome participation barriers.

The erosion of trust in village committees, as observed in this study, mirrors Putnam's assertion that declining interpersonal trust leads to civic disengagement. Village committees, rather than serving as mediators, are frequently aligned with state interests, exacerbating the perception of exclusion among residents. This dynamic fosters skepticism toward participatory programs and undercuts the willingness to collaborate in environmental initiatives. Power asymmetries, as theorized by Bourdieu [36], further reveal how social capital is not evenly distributed. Instead, it functions as a form of symbolic capital that entrenches elite privilege. Local leaders who control access to resources, information, and policy discussions effectively gatekeep participatory spaces. This exclusion perpetuates tokenistic engagement and reinforces a sense of political disempowerment.

Modernization processes such as rural outmigration, urbanization, and market integration have also weakened the informal social networks that traditionally supported collective action [37]. These structural transformations disrupt generational continuity and dilute communal identity, making it harder to mobilize around shared environmental concerns. Despite these challenges, rebuilding social capital remains essential for meaningful participation. Transparent governance, inclusive forums, and community-led initiatives can help restore trust and foster collaboration. As Evans and O'Brien [38] argue, when governance mechanisms are aligned with local values and needs, social capital can become a powerful enabler of resilience and sustainability.

Motivational Drivers and Incentives

To understand why communities engage—or fail to engage—in participatory climate governance, this study employs SDT [25]. SDT posits that human motivation is shaped by intrinsic drivers (e.g., personal values and environmental stewardship) and extrinsic incentives (e.g., economic subsidies or recognition). In rural China, intrinsic motivation is often underdeveloped due to weak environmental education, immediate survival concerns, and policies that fail to resonate with local values [39].

Cultural norms also shape motivational patterns. Confucian and Taoist ideologies—while potentially supportive of ecological harmony—tend to prioritize social order, deference, and non-confrontation, which conflict with the participatory ethos emphasized by SDT. Consequently, grassroots environmental identity remains under-articulated, and activism is seen as inappropriate or futile. Instead, participation is largely driven by extrinsic rewards, such as financial benefits from government programs. While effective in the short term, SDT warns that external rewards can undermine intrinsic motivation if they diminish autonomy or are perceived as coercive [40]. Indeed, in China's bureaucratic landscape, mandatory involvement often substitutes for voluntary engagement, resulting in compliance without commitment.

SDT's three core psychological needs (autonomy, competence, and relatedness) offer insight into potential solutions. Autonomy is thwarted by centralized governance and lack of decision-making power. Competence is undermined by limited technical skills and inadequate resources. Relatedness is weakened by social fragmentation and distrust. Addressing these deficits requires capacity-building, decentralization, and community-driven platforms that promote a sense of ownership [41]. For instance, workshops on sustainable agriculture, local monitoring programs, and knowledge-sharing events can enhance competence and build confidence [42]. Empowering village leaders to

co-design policies can enhance autonomy. Community forums that bridge generations and stakeholder groups can strengthen relatedness. Thus, SDT not only diagnoses motivational barriers but also provides practical avenues for re-engagement.

2.3. Ecological modernization and policy integration

EMT [26] suggests that environmental sustainability can be achieved through the integration of ecological goals into economic and institutional development. EMT emphasizes innovation, reflexivity, and cross-sector collaboration. In China, however, the rapid pursuit of modernization—guided by Deng Xiaoping’s “development first” strategy—has often marginalized ecological concerns in favor of economic growth. This tension is evident in rural environmental governance, where state-imposed policies are viewed as obligations rather than collective responsibilities. The centralized approach, characterized by authoritarian environmentalism, relies on technocratic solutions (e.g., reforestation or carbon trading) with limited grassroots consultation [13]. Consequently, rural residents feel alienated from sustainability programs, which are often implemented without their input or consent.

The disjunction between policy ambition and local reality undermines the collaborative spirit central to EMT. Local communities, heavily reliant on vulnerable ecosystems, are natural allies in climate adaptation—but their voices are rarely solicited. Empirical studies reveal persistent issues such as elite capture, exclusion from land reforms, and superficial participation [16,17], which erode trust and reduce local ownership of environmental initiatives. Reform requires aligning EMT’s ideals with localized governance models. Polycentric governance, as advocated by Ostrom [22], offers a promising path forward. By distributing decision-making across multiple levels—state, village, and household—such systems can accommodate diverse knowledge systems and adaptive strategies. Yet, implementation remains stymied by bureaucratic inertia, cultural constraints, and a lack of political will.

To succeed, policy integration must move beyond rhetoric toward meaningful institutional transformation: decentralization of authority, recognition of traditional ecological knowledge, and the design of incentives that resonate with local livelihoods [20]. Without such reforms, environmental governance will remain top-down and ineffective, and communities will continue to withdraw from processes they do not perceive as their own.

3. Methodology

3.1. Participants

This study employs a purposive, multilevel sampling strategy to capture the diversity of rural community experiences in climate governance. At the macro level, three rural counties in Gansu Province (Tongwei County, Pingxiang Town, and a third site to be confirmed) were selected using canonical case sampling. These areas were chosen for their socioeconomic underdevelopment, reliance on climate-sensitive agriculture, and exposure to environmental challenges such as soil erosion and water scarcity, making them representative of broader rural China dynamics. At the micro level, within-case sampling targeted Henan Village in Tongwei County as the primary site for in-depth analysis, supplemented by spot checks in adjacent communities. Participants included adults aged 18 and older, reflecting legal eligibility for civic engagement in China, and encompassed a cross-section of villagers, local officials, community leaders, and party representatives.

Although the initial plan anticipated 40–50 participants, the final sample consisted of 16 interviews because thematic saturation was reached; no new codes or themes emerged after the 16th interview. This outcome is consistent with methodological research showing that 12–16 interviews are typically sufficient for saturation in relatively homogeneous groups [43,44]. The sample was therefore adequate to capture the

main barriers to participation in this setting.

3.2. Study design

The research adopts a qualitative, multilevel case study approach, following Stake’s [45] instrumental case study methodology to explore participation barriers in a specific yet illustrative context. This design facilitates theory-building by examining rural China as a bounded system, defined by geographic, administrative, and socio-ecological boundaries. The multilevel framework analyzes interactions across scales (national policy, provincial implementation, local governance, and community dynamics) to uncover how structural and contextual factors shape participation outcomes.

3.3. Data collection and analysis

Data collection employs a triangulated approach to ensure robustness and capture the complexity of participation barriers. Primary methods include:

Semi-Structured Interviews: Conducted with 16 participants (villagers, officials, and leaders) to explore perceptions, experiences, and motivations related to climate governance. Interviews, lasting approximately 60 min, will use a guide informed by the research questions (Table 1), probing structural constraints, social dynamics, and personal incentives. To complement this, NVivo text-analysis tools (word-frequency and text-search queries) were incorporated to detect recurring patterns in participants’ language.

Field Observations: Researchers will observe community meetings, governance activities, and environmental initiatives in Henan Village to contextualize interview data and assess participation in action.

Document Analysis: Public records, policy documents (e.g., Five-Year Plans, NAPs), and local government reports will be reviewed to map the institutional and policy landscape shaping participation. Data collection will occur over a 3-month period in 2025, with fieldwork concentrated in Tongwei County. Two researchers (a doctoral student and a supervisor) will conduct interviews, supported by preparatory research into local cultural norms to minimize misinterpretation.

Data analysis will follow Braun and Clarke’s [43] six-stage thematic analysis: (1) familiarization with data, (2) generating initial codes, (3) identifying themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing a report. To enhance rigor, NVivo 12 software was used for systematic coding and data management. Two coders independently analyzed all transcripts. Inter-coder reliability (Table 2) was assessed using NVivo’s Coding Comparison Query, yielding an average Cohen’s Kappa of 0.82 (range = 0.77–0.88) and 88 % agreement indicating substantial to almost perfect reliability [46]. Discrepancies were resolved through iterative discussion, and an audit trail of coding decisions was maintained. Triangulation across interviews, field observations, and documents, as well as member checks with five participants, further strengthened validity.

Table 1
Interview questions.

No.	Questions
1	Can you provide basic demographic information (e.g., age, role in community)?
2	What challenges do you face when participating in climate or sustainability initiatives?
3	How do local governance structures (e.g., village committees) influence your involvement?
4	What motivates or discourages you from engaging in environmental decision-making?
5	How do relationships and trust within the community affect your participation?
6	What changes could improve your ability to contribute to climate governance efforts?

Table 2

Intercoder reliability results for major themes.

Major theme	Cohen's kappa	% Agreement
Rigid institutional structures	0.83	89 %
Unequal power dynamics	0.81	87 %
Weak motivational incentives	0.77	85 %
Misaligned policy–economic link	0.88	92 %
Limited re-engagement	0.80	87 %
Average	0.82	88 %

Note. Kappa values above 0.80 indicate substantial to almost perfect reliability (Landis & Koch, 1977).

3.4. Study context

Tongwei County, situated in the loess plateau's hilly and gully region, thrives on industries like grass livestock, corn, potatoes, Chinese medicinal materials, and small grains. By the end of 2021, Tongwei had 120,200 households and a registered population of 430,500, with a permanent population of 321,100. Urban residents comprised 27.43 %, marking a 0.34 % rise from the previous year. The annual birth rate stood at 9.53 ‰, with 3100 births, while the death rate was 8.49 ‰, accounting for 2700 deaths, resulting in a natural growth rate of 1.04 ‰. As shown in the Fig. 2, census data from November 2021 reported a permanent population of 323,648 [47].

3.5. Ethical considerations

Permission to conduct this study was obtained from the Ethics Committee of Xi'an International University (Appendix A). Informed consent was obtained from all participants. For those with limited literacy, the consent form was read aloud, and verbal consent was recorded with a witness present. Participants were informed of the study's objectives, procedures, potential risks, and benefits, as well as their right to withdraw at any time.

To protect confidentiality, pseudonyms were assigned, and identifying details were removed during transcription. A separate consent form was used to authorize audio recording. Data were stored in

password-protected files, accessible only to the research team. These measures ensured compliance with international ethical standards for qualitative research.

3.6. Validity and reliability

Validity involves selecting appropriate research methods to answer the research questions and provide explanations [48]. Tracy [49] emphasized that a qualitative study should provide detailed explanations to make the author's conclusions 'make sense'. The researcher used triangulation, member checks, and peer reporting to verify the findings. Reliability, referred to as consistency, is achieved when multiple researchers obtain similar results using the same coding process [50]. This study followed three strategies suggest by Cohen et al. [51] to enhance reliability: maintaining an audit trail, the investigator's position, and detailed explanations of data collection, category derivation, and decision-making throughout the inquiry.

4. Results

4.1. Demographic findings

This study included 16 participants, divided into five mutually exclusive groups according to their primary role in the village governance structure. Half were community villagers and workers (CVW; $n = 8$, 50 %), representing ordinary farmers and wage laborers. The remaining participants were evenly distributed across village committee personnel (VCP; $n = 2$, 12.5 %), communist party members (CPM; $n = 2$, 12.5 %), local community elites (LCE; $n = 2$, 12.5 %), and members of non-governance organizations (MNGO; $n = 2$, 12.5 %). This classification ensured that all major stakeholder groups in the community were represented and that each participant was assigned to only one category based on their dominant role. Although the overall sample size was modest ($N = 16$), its composition provided a balanced cross-section of perspectives from both ordinary villagers and individuals in leadership or organizational positions (Table 3).

Most participants were men ($n = 12$, 75 %), reflecting the fact that

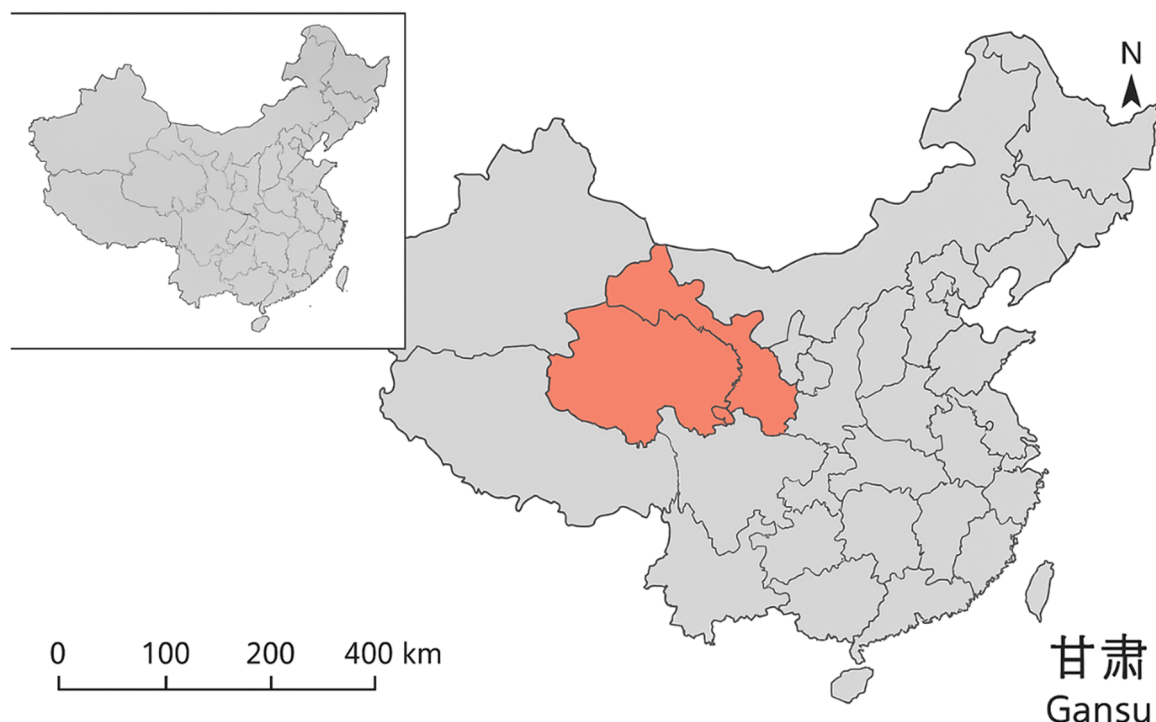


Fig. 2. Tongwei in Dingxi and Dingxi in Gansu, China.

Table 3
Informant's profile ($N = 16$).

Pseudonym	Gender	Age	Occupation	Education	Marital	Group
P ₁	Female	58	Farmer	Middle School	Married	CVW
P ₂	Male	58	Council Prime Minister	Primary School	Married	MNGO
P ₃	Female	31	Farmer	Graduate	Married	CVW
P ₄	Male	46	Worker	Middle School	Married	CVW
P ₅	Female	25	Worker	In-serve college student	Single	CVW
P ₆	Male	48	Village Committee Director	Primary School	Divorced	VCP
P ₇	Male	72	Farmer	Uneducated	Married	CVW
P ₈	Male	40	Farmer	Middle School	Married	MNGO
P ₉	Male	38	Worker	Middle School	Divorced	CVW
P ₁₀	Male	35	Enterprise manager	Graduated	Married	LCE
P ₁₁	Male	47	Merchant	Primary School	Married	CPM
P ₁₂	Male	35	Government employee	Graduated	Married	CPM
P ₁₃	Male	37	Worker	Graduated	Divorced	CVW
P ₁₄	Female	37	Business Manager	Primary School	Married	LCE
P ₁₅	Female	48	Farmer	Primary School	Married	VCP
P ₁₆	Female	33	Self-employed	Middle School	Married	CVW

Note. community villagers = CV, village committee personnel = VCP, communist party member = CPM, local community elites = LCE, members of non-governance organizations = MNGO.

men often play more visible roles in village decision-making. Ages ranged from 25 to 72 years, with the majority between 30 and 50. Most were married ($n = 13$, 81 %), and educational attainment was generally low: ten participants had completed only primary or middle school.

4.2. Emerged themes

This section synthesizes insights from interviews, identifying five interrelated themes and their subthemes, as illustrated in Fig. 3: (1) rigid institutional structures, (2) unequal power dynamics, (3) weak motivational incentives, (4) misaligned policy and economic integration, and (5) limited re-engagement opportunities. These themes collectively



Fig. 3. Emergence themes and subthemes of the data analysis.

illuminate the systemic barriers to participation in climate governance and sustainable development in rural China, revealing how structural, social, and motivational factors drive disengagement while also pointing to potential pathways for fostering more inclusive governance.

4.2.1. Rigid institutional structures

Rigid institutional structures emerged as one of the most significant barriers to participation. Consistent with INT, villagers described how authoritarian environmentalism and top-down governance restricted their agency. Decisions were made at higher levels of government, with villagers reduced to recipients of information rather than partners in deliberation. A middle-aged female farmer (P₁, 58) explained, “*Environmental governance is mandated by the government. It’s not something we get to decide or shape ourselves.*” This reflects Arnstein’s [31] lower rungs of participation, such as “informing” or “manipulation.”

Another barrier was fragmented authority across governance layers, including state offices, village committees, and local councils. This institutional complexity created overlaps and gaps in responsibilities, weakening coordination and trust. As one participant (P₉, 38) noted, “*There are too many layers... they don’t communicate.*” Poor horizontal and vertical integration not only generated confusion but also reinforced villagers’ sense of disempowerment.

Many participants also described tokenistic participation in governance processes. Even when villagers were formally invited, their involvement was ceremonial rather than substantive. A council prime minister (P₂, 58) admitted, “*It’s ceremonial, not participatory.*” Such tokenism lowered what Schmidt [52] calls throughput legitimacy—citizens’ perception that decision-making processes are inclusive, transparent, and responsive. Instead, villagers felt detached from leaders, with a self-employed woman (P₁₆, 33) emphasizing that village committees rarely engaged with communities. The result was deepening distrust and disengagement.

4.2.2. Unequal power dynamics

The second theme concerns unequal power dynamics, which undermined collective action and social cohesion. In line with SCT, the erosion of trust in village institutions pushed villagers to rely more heavily on informal networks. These alternatives, however, lacked sufficient authority to counteract entrenched power imbalances. A young farmer (P₃, 31) observed, “*Compared to the village committee, villagers are more satisfied with the council—it feels more trustworthy.*” Yet, as another participant (P₈, 40) admitted, “*Civil organizations... have more appeal, but their influence is still limited.*”

A central subtheme was elite capture and symbolic exclusion. Wealthy or influential figures disproportionately shaped decision-making, sidelining ordinary villagers. In resource allocation, elites directed funding toward projects benefiting their own networks, such as infrastructure improvements that favored wealthier households. A male worker (P₉, 38) recounted that “*funding for irrigation systems went to fields owned by connected families, leaving smaller farmers with less access.*” Similarly, a female farmer (P₁, 58) noted that village meetings often became platforms for elites to legitimize their own initiatives, with villagers’ input largely disregarded: “*They ask for our opinions, but it’s the big names who decide.*” This reflects Cooke and Kothari’s [34] critique of participatory processes as forms of “tyranny,” where elite dominance undermines equitable governance.

Elites also leveraged cultural authority and economic resources to

maintain their dominance. For instance, interviewees explained how respected businessmen or local celebrities gained credibility by financing visible public works, such as road construction, which bolstered their symbolic capital and muted dissent. As P₁₃ (37) explained, “*Because they pay for projects, people see them as leaders, even if they only serve their own interests.*” Such practices align with Bourdieu’s [36] notion of capital conversion, where economic resources are transformed into social legitimacy. A council member (P₂, 58) further acknowledged that “*the committee decides before the meeting even starts,*” showing how information was strategically controlled to prevent broader deliberation, consistent with Schmidt’s [52] concept of eroded throughput legitimacy.

In response to elite domination, villagers described several counter-strategies. Some opted for passive cooperation, attending meetings but refraining from voicing dissent to avoid conflict. Others turned to private complaints, approaching sympathetic committee members informally rather than confronting elites directly. A smaller group engaged in selective withdrawal, choosing not to participate in community initiatives they viewed as captured. For example, a young farmer (P₁₆, 33) admitted, “*I stopped going to meetings because the decisions are already made.*” These strategies mirror Scott’s [53] “*weapons of the weak,*” whereby subordinates resist domination through subtle, everyday practices rather than open confrontation.

Finally, participants noted the decline of informal networks, such as traditional “*red and white events*” (funerals, weddings, communal festivals). A senior farmer (P₇, 72) lamented, “*Those events are fading, and with them, our community ties.*” The weakening of these bonding networks further eroded social solidarity, leaving villagers more isolated and less capable of collective action in governance matters.

4.2.3. Weak motivational incentives

The third theme relates to the lack of motivational incentives for sustained engagement, which can be understood through SDT.

Participants reported weak intrinsic motivation, describing governance as an external obligation rather than a shared responsibility. A male worker (P₉, 38) reflected, “*Villagers are not very willing to participate... they don’t feel it’s their responsibility.*” This lack of ownership limited villagers’ willingness to contribute meaningfully.

Instead, participation was often driven by overreliance on extrinsic incentives, such as subsidies or financial compensation. A self-employed woman (P₁₆, 33) admitted, “*We only participate when there’s something to gain—like subsidies.*” However, this conditional involvement created dependency and eroded autonomy. Worse, coercive measures—such as threats to cancel subsidies for non-participation—exemplify how extrinsic pressure undermines genuine motivation.

The result was the suppression of autonomy, competence, and relatedness, the three basic psychological needs identified in SDT. As one farmer (P₁₅, 48) complained, “*Community governance has no direct relation to each household—why should we care?*” Without opportunities to feel effective, connected, and self-directed, villagers disengaged. Over time, this reliance on external rewards fueled apathy rather than long-term commitment.

4.2.4. Misaligned policy and economic integration

The fourth theme emphasizes the misalignment between policy directives and villagers’ economic realities. From the perspective of EMT, sustainable governance requires reconciling environmental goals with

community livelihoods. Instead, villagers described a tension between state-imposed obligations and community ownership. A female farmer (P1, 58) expressed frustration: *“Mandatory tasks are imposed by the state, not chosen by us.”* Participation was undermined when local needs were excluded from the design of environmental initiatives.

Another subtheme was the misalignment of modernization with ecological goals. Policies such as farmland-to-forest conversion were widely criticized for disrupting agricultural livelihoods. A male worker (P9, 38) reflected, *“It didn’t reflect what we actually needed.”* Such disconnects reveal how top-down modernization often prioritizes symbolic compliance with ecological targets over grassroots sustainability.

Finally, participants highlighted a lack of decentralization and local relevance. A male worker (P13, 37) explained that villagers were routinely excluded from professional planning, leaving policies poorly tailored to local contexts. Without meaningful inclusion, centralized control produced disengagement and diminished legitimacy.

4.2.5. limited re-engagement opportunities

The final theme addresses the scarcity of meaningful re-engagement opportunities, which perpetuated cycles of exclusion. First, villagers reported a crushed collective agency under centralized control, with their local knowledge dismissed by higher authorities. A farmer (P4, 46) expressed, *“We know our land and needs better than any outsider, but they treat us like ignorant children.”* This symbolic devaluation suppressed empowerment and discouraged participation. Second, villagers described fragile workarounds that perpetuate dysfunction. Temporary ceremonies and festivals were moments of symbolic unity, but these events failed to translate into substantive inclusion. As one young farmer (P3, 31) said, *“At the Lantern Festival we pretend we’re united, but tomorrow the officials will ignore us again.”*

Third, reliance on personalized trust networks highlighted the fragility of engagement. As one villager (P16, 33) explained, *“We can only work with the few officials who’ve earned our trust.”* While such personalized relationships created temporary pathways for collaboration, they were unsustainable in the absence of institutionalized accountability.

Finally, villagers described cycles of temporary wins followed by permanent exclusion. Small victories in specific projects were overshadowed by broader systemic barriers. An activist (P11, 47) summarized this frustration: *“We won small battles but keep losing the war.”* Without structural reforms, opportunities for meaningful re-engagement remained limited, entrenching patterns of withdrawal.

5. Discussion

Building on the qualitative findings, this study identifies key barriers to rural community participation in climate governance and sustainable development in Henan Village, Tongwei County, China. Grounded in INT, SCT, SDT, and EMT, the findings reveal how structural constraints, social dynamics, motivational gaps, and policy misalignment collectively limit engagement. These results contribute to broader debates on inclusive environmental governance, particularly in semi-authoritarian contexts like rural China. Similar challenges exist globally; for instance, in Bangladesh, women face restricted roles in climate decision-making [54], while Xie [55] documents constrained public participation in China’s environmental governance. These parallels underscore the wider relevance of this study’s findings.

A major barrier is rigid institutional structures, marked by

authoritarian environmentalism [56] and top-down governance. Participants reported feeling excluded from decision-making, viewing policies as externally imposed rather than co-created. Applying Arnstein’s (1969) Ladder of Citizen Participation, participation in Henan Village remains tokenistic. This lack of throughput legitimacy [32] weakens trust in village committees, which are perceived as state instruments rather than community representatives. While Ostrom’s [22] poly-centric governance model suggests decentralized systems could enhance local agency, its absence in rural China stifles participation. Fragmented authority and poor coordination consistent with global multilevel governance challenges [21] further hinder engagement.

In addition, institutional resistance within China’s semi-authoritarian context presents a further obstacle to decentralization. Bureaucratic actors may perceive decentralization as a threat to administrative control, while local officials often prioritize political loyalty and upward accountability over community needs. This dynamic creates both bureaucratic inertia and political disincentives for implementing participatory reforms, even when policies formally encourage local involvement. Understanding these institutional hurdles helps explain why decentralization remains more symbolic than substantive in practice. Institutional reforms must therefore decentralize power, clarify roles, and establish feedback mechanisms to improve legitimacy.

Additionally, eroding social capital and power imbalances deepen disengagement. Participants noted declining informal networks (e.g., cultural events, kinship ties), historically vital for collective action—a trend aligning with Putnam’s [23] theory linking weak social cohesion to civic withdrawal. Villagers preferred civil organizations over formal committees, seeking grassroots governance, yet these groups lack real authority, reinforcing top-down control. Elite capture further marginalizes ordinary residents, as local elites monopolize participatory spaces—a dynamic echoing Bourdieu’s [36] symbolic capital and Cooke and Kothari’s [34] critique of participation as “tyranny.” Similar power disparities obstruct equitable engagement in rural areas worldwide [57]. To rebuild social capital, inclusive forums must amplify marginalized voices, but cultural traditions should also be re-evaluated as potential resources for participation. For example, red- and white-event gatherings (weddings and funerals) have historically provided arenas for villagers to negotiate collective affairs, and such settings could be adapted into environmental-discussion platforms. Likewise, ecological ethics embedded in Confucian and Taoist traditions can be transformed into materials for environmental education, reinforcing community responsibility for ecological stewardship.

Weak motivational incentives, driven by underdeveloped intrinsic drivers and excessive reliance on extrinsic rewards, significantly hinder community engagement. Participants reported a lack of environmental identity, perceiving climate governance as disconnected from their daily lives. This aligns with SDT, which posits that intrinsic motivation requires autonomy, competence, and relatedness [25]. The use of coercive measures such as subsidies or penalties further undermines long-term engagement, supporting SDT’s assertion that extrinsic controls can reduce motivation [58]. Cultural norms, including Confucian deference and Taoist non-confrontation, also discourage grassroots activism, contrasting with SDT’s participatory ideals. Yet, these same traditions can be re-traditionalised to support participation if reframed positively for instance, Confucian ideas of communal duty or Taoist harmony with nature can legitimize local climate action when integrated into education and outreach efforts [59,60]. Similar motivational barriers exist globally, particularly in communities prioritizing immediate survival

over long-term environmental goals [39]. To address these gaps, interventions should focus on capacity-building and participatory platforms to foster ownership and align with local values [61].

In addition, national policies often conflict with local realities, weakening collaborative potential—a key tenet of EMT. For example, farmland-to-forest conversion programs disrupted livelihoods without community consultation, reflecting China’s “development-first” paradigm [62]. This disconnect mirrors global critiques of top-down climate solutions that ignore local knowledge [20]. While EMT advocates polycentric governance, China’s centralized system poses implementation challenges. Participants expressed frustration with state-imposed mandates, underscoring the need to integrate traditional ecological knowledge and livelihood security into policies. Comparable issues in Bangladesh [63] suggest that decentralizing authority and incentivizing local ownership are critical for effective governance.

The lack of meaningful re-engagement opportunities also reveals systemic power imbalances. Participants described eroded collective agency and unsustainable coping strategies, echoing Chen and Li’s [64] critique of expert-driven processes that marginalize local voices. Globally, participatory initiatives often mask entrenched power disparities

[65]. Reliance on personalized trust—rather than institutional accountability—further exacerbates these issues, as seen in gender-climate governance studies [66]. Reforms must institutionalize grassroots agency through co-designed policies and transparent decision-making to convert survival strategies into sustainable engagement.

This study contributes to climate governance theory in two main ways. First, it reveals the institutional complexity of participation barriers in semi authoritarian contexts, showing how centralized control, cultural norms, and elite dominance interact to constrain engagement, thereby extending INT’s application to rural governance systems. Second, it advances SCT by providing a more detailed explanation of how dynamic power relations between villagers, elites, and officials shape governance outcomes. In particular, the findings illustrate how villagers’ trust in informal networks competes with distrust in formal institutions, while elites convert economic and cultural resources into symbolic authority that excludes others from decision making. These mechanisms of trust, exclusion, and symbolic dominance demonstrate SCT’s utility for unpacking the relational dimensions of governance, moving beyond static structural accounts [28]. Together, these contributions highlight both institutional and relational dynamics, offering

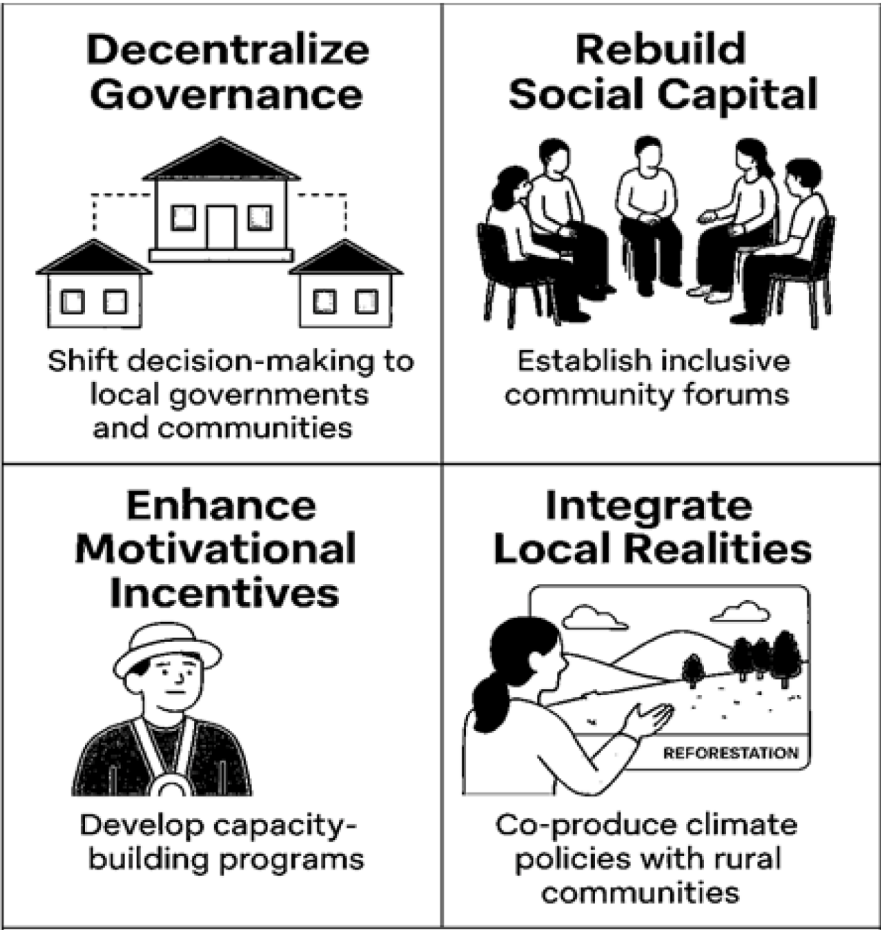


Fig. 4. Policy pathways for inclusive rural climate governance.

practical pathways for inclusive governance that integrates local traditions and strengthens accountability mechanisms.

6. Policy implications

This study demonstrates the critical need to reform rural climate governance in China through participatory and locally-adapted approaches. Our analysis identifies four key policy recommendations to enhance community engagement in sustainability initiatives. First, decentralizing governance structures by strengthening village committees' decision-making authority can increase local autonomy while maintaining alignment with national climate goals. Second, rebuilding social capital through inclusive deliberative processes and culturally-relevant activities can restore trust and collective responsibility. Third, motivation-sensitive program design should incorporate principles of SDT by supporting autonomy, competence, and relatedness through voluntary participation options and capacity building. Finally, integrating local ecological knowledge and livelihood considerations into policy design can improve the relevance and effectiveness of climate interventions.

To make these recommendations more actionable, we propose clearer policy pathways. For decentralization, pilot frameworks could begin with delegated authority in selected villages, gradually expanding based on evaluation outcomes. For rebuilding social capital, governments and NGOs could test community forums or cultural festivals as low-cost, scalable interventions. Motivation-sensitive programs could be trialed through pilot projects that provide training workshops and voluntary participation incentives, allowing for iterative adjustments before national rollout. Finally, integration of ecological knowledge could be operationalized through demonstration projects in farming communities, where traditional practices are blended with modern sustainability techniques.

These recommendations are visually summarized in Fig. 4, which presents an integrated framework for policymakers. Successful implementation should therefore follow a phased process: (1) launch pilot programs in diverse regions; (2) evaluate outcomes using participatory monitoring systems; (3) adapt strategies based on community feedback; and (4) scale up interventions nationally with flexible guidelines to accommodate regional variation. By shifting from top-down directives to community-centered governance, these strategies can bridge the participation gap and foster more equitable and resilient climate action in rural China. The proposed approach not only addresses immediate barriers to engagement but also contributes to broader theoretical discussions about inclusive environmental governance in semi-authoritarian contexts.

7. Conclusion

This study reveals how institutional, social, and motivational barriers—including centralized governance, unequal power dynamics, and misaligned modernization policies—drive rural Chinese communities' disengagement from climate governance. Findings demonstrate that top-down authoritarian environmentalism suppresses local agency, while eroding social capital and weak incentives further marginalize participation. Although villagers develop adaptive strategies, these remain unsustainable without systemic reforms. Grounded in INT, SCT, SDT, and EMT, the analysis advocates for decentralized governance that rebuilds trust, aligns policies with local needs, and empowers communities as co-creators of climate solutions. The research advances global insights on inclusive environmental governance, particularly in semi-authoritarian contexts, emphasizing that equitable sustainability

requires institutionalizing grassroots agency and redistributing decision-making power.

8. Limitations and future direction

This study has several limitations that should be acknowledged. First, the research was conducted solely in Henan Village, which restricts the generalizability of the findings. Future studies should broaden the geographical scope to include multiple villages and regions with different socioeconomic and cultural contexts. Doing so would make the conclusions more robust and widely applicable. Second, while qualitative methods offered valuable in-depth insights into local dynamics and perceptions, relying exclusively on interviews limits methodological rigor. Future research could benefit from incorporating quantitative approaches, such as large-scale surveys, to strengthen validity. A mixed-methods design would also allow for triangulation, providing a more comprehensive understanding of the barriers to participation.

Third, the aim of the sampling strategy was not statistical representativeness but theoretical generalization. Nevertheless, the sample included fewer women ($n = 4$) and showed limited variation in age and socioeconomic background. These imbalances are acknowledged as limitations, although demographic information was systematically recorded to contextualize findings. Closely related to this, the small sample size of 16 participants may not fully capture the experiences of marginalized groups such as women, youth, and ethnic minorities. Future studies should adopt more inclusive sampling strategies to ensure these voices are adequately represented and to uncover the specific challenges they face in the participation process. Finally, the cross-sectional design of this study makes it difficult to capture changes in participation over time. Because rural engagement is often shaped by seasonal agricultural cycles and long-term trust-building, longitudinal studies spanning multiple seasons or years would provide a more dynamic picture of participation patterns and evolving community-government relationships.

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Declaration of generative AI in scientific writing

During the preparation of this work the author(s) used Grok 3 in order to edit and proofread the manuscript. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the published article.

CRediT authorship contribution statement

Binqiang Jing: Methodology, Data curation. **Zeinab Zaremohzzabieh:** Software, Resources, Formal analysis. **Haslinda Abdullah:** Writing – original draft, Supervision. **Seyedali Ahrari:** Methodology, Investigation. **Sarjit S. Gill:** Visualization, Validation, Resources. **Mohd Roslan Rosnon:** Software, Formal analysis. **Aini Azeqa Ma'rof:** Software.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A: Certificate of Approval from the Institutional Ethics Committee

西安外事学院学术伦理审查表

Xi'an International University Academic Ethics Review Form

项目全称	社会生态治理促进中国甘肃农村社区参与		
Full name of the project	Social ecological governance promotes rural community participation in Gansu, China		
经费来源	自费		
Source of funds	Self-funded student		
项目负责人	景斌强		
Project leader	Jing Binqiang		
项目负责人所在单位	马来西亚博特拉大学		
The unit of the project leader	University Putra Malaysia		
	西安外事学院		
	Xi'an International University		
审查类别	持续审查	审查方式	会议审查
Review category	Continuous review	Review method	Meeting review
审查时间	2023-12-4	审查地点	西楼
Review time	December 4, 2023	Review the location	West Building
审查委员	方英武 杨坤 潘君何佩琴 杨玉峰		
Juror			
审查文件	该项目的科学性与必要性, 期望的科学获益		
Audit-review file	The scientific nature and necessity of the project, and the expected scientific benefits		
	访谈提纲		
	Interview outline		
审查意见:			
Review opinions:			
	依据中华人民共和国法律、法规、规章、规范性文件和国际准则, 以及西安外事学院受访者保护体系相关政策, 经本伦理委员会审查, 同意按照研究方案开展本项研究		
	In accordance with the laws, regulations, rules, normative documents and international standards of the People's Republic of China, as well as the relevant policies of the interviewees. protection system of Xi'an International University, and after review by this ethics committee, it was agreed to conduct this research in accordance with the research protocol		
	请遵循伦理委员会批准的方案开展研究, 保护受访者的隐私与权益		
	Please conduct research in accordance with the protocol approved by the ethics committee to protect the privacy and rights of the interviewees.		
	研究过程中若变更项目负责人, 对研究方案、知情同意书、报告表、调查问卷、招募材料等的任何修改, 请提交修正案审查申请		

If the project leader changes during the research process, please submit an amendment review application for any modifications to the research plan, informed consent form, report form, questionnaire, recruitment materials, etc

请按照相关法律法规规定以及研究方案中对于安全性事件报告计划, 及时向西安外事学院伦理委员会提交书面不良事件报告

Submitting a written adverse event report to the Ethics Committee of Xi'an University of Foreign Affairs in a timely manner in accordance with relevant laws and regulations and the safety event reporting plan in the research plan

研究者没有遵从方案开展研究, 可能对受访者的权益以及研究的科学性造成不良影响, 请提交违规事件报告

The researcher did not conduct the research in compliance with the protocol, which may have adverse effects on the rights of the interviewees and the scientific nature of the research. Please submit a violation report.

申请人暂停或提前终止研究, 请及时提交暂停/中止研究报告

If the applicant suspends or terminates the research in advance, please submit a suspension/suspension research report in a timely manner

研究如果涉及《中华人民共和国人类遗传资源管理条例》中的相关活动, 请务必遵照条例要求开展相关研究

If the research involves relevant activities in the "Regulations of the People's Republic of China on the Management of Human Genetic Resources", please be sure to carry out relevant research in compliance with the requirements of the regulations

研究结束时, 请提交结题报告

At the end of the research, submit a final report

本批件自批准之日起一年内有效, 请至少在失效日期前1个月提交持续审查申请

This approval is valid for one year from the date of approval. An application for continued review should be submitted at least one month before the expiration date.

批准日期	2023.12.4	批准时效日期	2024.12.4
Date of approval		Date of approval	
主任委员签字	方英武	签署日期	2023.12.4
Signature chairman		Signing date	

外事学院
科研处

Data availability

Data will be made available on request.

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