

Article

Evaluating Collective Action for Effective Land Policy Reform in Developing Country Contexts: The Construction and Validation of Dimensions and Indicators

Lin Zhou ^{1,2,*} , Walter Timo de Vries ¹ , Alexandra Panman ³, Fei Gao ^{4,5}  and Chenyu Fang ^{5,6} 

¹ Chair of Land Management, School of Engineering and Design, Technical University of Munich (TUM), 80333 Munich, Germany; wt.de-vries@tum.de

² Centre for Environment, Energy and Natural Resource Governance (CEENRG), Department of Land Economy, University of Cambridge, Cambridge CB2 3QZ, UK

³ Bartlett Development Planning Unit, University College London, London WC1H 9EZ, UK; a.panman@ucl.ac.uk

⁴ State Key Laboratory of Information Engineering in Surveying, Mapping, and Remote Sensing, Wuhan University, Wuhan 430079, China; gaofei_gis@whu.edu.cn

⁵ Department of Aerospace and Geodesy, Professorship for Big Geospatial Data Management, Technical University of Munich, 85521 Munich, Germany; chenyu.fang@tum.de or cf598@cam.ac.uk

⁶ Laboratory of Interdisciplinary Spatial Analysis (LISA), Department of Land Economy, 16-21 Silver Street, Cambridge CB3 9EP, UK

* Correspondence: lin.zhou@tum.de or lz470@cam.ac.uk

Abstract: Although land reform can be motivated by different policy objectives, it always involves the participation of many actors. Insights from New Institutional Economics suggest that individual interests that are not aligned with collective interests tend to undermine the goals of reform. This study provides a viable framework and measures for social capital, trust, and cooperation performance and their interrelationships to compensate for the existing separate analysis of these three factors and their rare application in achieving goals of collective action. We also build a strong and deepening theoretical foundation for the indicator design, providing a rich representation of social capital, trust, and cooperation performance. After being presented with variables, indicators are used to further elaborate on the variables to enhance the richness and science of the indicator design. The validation results of indicators from 12 experts and 223 respondents are to yield an average reliable coefficient as a positive sign of reliability and validity of the evaluation process with Kendall's Co-efficient of Concordance (W) through R programming. This study emphasizes the importance of collective action for sustainable land use and effective land policy reform, a topic that remains underrepresented in most land reform analyses.

Keywords: collective action; trust; land policy reform; indicators design; reliability validation



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1. Introduction

The governance of collective action dilemmas is a core topic in (new) institutional economic discourses. Hardin's 'The Tragedy of the Commons', Albert Tucker's 'Prisoner's Dilemma', and Olson's 'The Logic of Collective Action' are classic models of collective action theory [1–3]. Insights from these models demonstrate that the rational choices of individuals lead to irrational outcomes for the collective when individual and collective interests conflict. This situation is known as the collective action dilemma and is often found in land management practices, which often undermines the objectives of land policy reform. In land management practices, the self-interested behavior of participants externalizes costs to others and harms the collective and society, as well as contributing to the difficulty and inefficiency of promoting collective action for land policy reform.

Land policy reform usually starts due to problems in defining or recognizing land property rights, or an uneven distribution of benefits, which leads to deviant policy implementation [4–7]. The explanation and logic of why and how this occurs varies greatly according to different epistemic perspectives. For example, the economic perspective of focusing on the construction of property rights and transaction costs argues that property rights emerge from the economic need to optimize financial benefits and reduce economic costs [8–10]. Reforming property rights systems then becomes a question of seeking where and how costs can be reduced or saved and financial gains optimized. Instead, an ecological perspective reasons for the benefits of ecological services [11–15]. Land reform is then a re-arrangement of land use, such that ecological services can be conserved, preserved, or increased. The jurisprudential perspective prioritizes the legislation and implementation of land policy reforms so that land reform is a process of textualizing and legitimizing specific programs and projects [16,17]. The planning perspective, however, focuses on demand forecasting and restructuring, land use control, and land development protection [18–22], which means land reform becomes a process of an overall strategic layout and co-ordination of land development, use, governance, and conservation in space and time according to natural and economic conditions. Given these different perspectives, there is a need for an integrative framework, which can include the above perspectives and a behavioral/sociological perspective of land policy reform. As a public thing, governance issue [3], the collective interest (i.e., equitable and efficient sustainable land use) is considered the starting point of land policy reform, and its realization requires the participation of multiple actors.

Land reform is implemented through the interactive cooperation of policymakers, implementers, and bearers to achieve the rational choice of maximizing collective interests rather than individual interests for social equity and collective goals [23]. However, four collective action dilemmas of rent-seeking behavior, the prisoner's dilemma, free riding, and low perceived returns are present in the collective action in land policy reform [24], leading to stagnation of the reform due to high transaction costs and difficulty of implementation. This makes it worthwhile to pay attention to how to intervene in individual interest decisions for the better collective interest or how to provide incentives to avoid collective irrational outcomes.

Four key concerns can be addressed about existing scholarship on collective action in land fields. First, there is an insufficiency of literature to dissect how social capital achieves cooperation. Many collective action problems are embedded in pre-existing or ongoing network relationships between organizations or individuals, where social capital often exists in the form of intangible resources and helps achieve the goals of cooperation in that network relationships through participation and shared beliefs on norms, obligations, trustworthiness, and values [25–27]. Visualizing social capital from network relationships is important but has received little attention in land policy reform research. Second, trust plays a vital role in collective actions as it bridges the gap between social capital and cooperation and is used to ease tensions between organizations and individuals. However, only a few scholars have verified the role of trust in land policy reform, and these studies lacked a comprehensive consideration in developing trust indicators, considering only respondents' trust towards specific people in their surroundings, such as trust towards kin, known people, or cadres [28,29]. Third, the studies inevitably related to collective action are often accompanied by the terms such as cognition, strong reciprocity, resource dependence, leadership, social capital, sense of community, economic benefits, Ideology, and legitimation [30–36]. There is needed to logically incorporate these terms into an analytical framework to integrate their roles in collective action in land management. Fourth, previous research claims that while the relationship between social capital, trust, and cooperation performance does exist, a joint analysis between them has not been methodologically established in the land field [24].

This paper aims to advance progress towards an improved understanding of the dynamics of land reform, as well as the relationship between trust, social capital, and

other institutions that shape incentives in land reform, by developing a framework of indicators for quantitative analysis. Focusing on the logic of collective action, the objective of this paper is three folds: (1) clarify the main factors influencing collective action in land policy reform, (2) identify which indicators are capable of explaining these three factors (social capital, trust, cooperation performance) affecting the collective action in land policy reform, and (3) validate these complex indicators through expert assessments and field surveys. This study uses the existing literature to sort out the conceptual and theoretical evolution of these three factors and to construct indicators to evaluate the collective action in land policy reform accordingly. This inferential review aims to design a set of indicators that provide methodological guidance for future empirical analysis of the relationship between social capital, trust, and cooperation performance in collective action to support land management practices and avoid collective action dilemmas.

This paper is structured as follows. Section 2 presents the materials and methods for indicator design. Section 3 clarifies the concepts and theoretical foundations of social capital, trust, and cooperation performance, and emphasizes the role of these three elements on land policy reform. Section 4 constructs the resulting inventory of dimensions and indicators for evaluating collective action in land policy reform. Section 5 validates this set of indicators and discusses the applicability and limitations of the paper. Sections 6 and 7 briefly draws conclusions arising from the research process and further policy application.

2. Materials and Methods

2.1. Research Design

Our earlier conceptual and theoretical framework study [24] is used to provide a valuable guide to discuss the roles and relationships of social capital, trust, and cooperation performance in land policy reform. It frames the joint analysis of social capital, trust, and cooperation performance and thus guides us in identifying dimensions and indicators to evaluate collective action in land policy reform by conducting a literature search on these three elements of the framework.

2.2. Databases and Terms Search

We crossed several publication databases such as Web of Science, Google Scholar, and PutMed to obtain secondary data for this study through a literature search and to find conceptual, theoretical, and empirical evidence of social capital, trust, and cooperation performance. The search terms for social capital included but were not limited, combinations of social capital with social structure, social networks, social relationships, collective assets, strong and weak ties, and structural holes. The search terms for trust included but were not limited to, combinations of trust with risk, transaction costs, social exchange, trust attitude, and trustful behavior. The search terms for cooperation performance include, but are not limited to, combinations of cooperation performance with collective action, economic performance, social performance, risk assessment, etc. In addition to focusing on timeliness, we also looked at the role of classic literature and much-cited literature. In summary, we summarized and reviewed the literature on collective action of land policy reform, intending to identify important analytical perspectives, dimensions, variables, factors, and indicators.

2.3. Indicator Design Process

We refer to de Vaus's three-step process of indicator development of clarifying the concepts, developing the indicators, and evaluating the indicators [37]. Firstly, we separately clarified and defined social capital, trust, and cooperation performance as three determinants of effective land management and reform, which were further specified as characteristic variables in the context of the theoretical literature and decomposed into sorts of variables to express their rich connotations. The second step is to design a set of indicators that help us explain these variables referring to the specific content applicable to the land policy reform context. Finally, we relied on the opinions of experts to assess the

indicators to ensure the scientific and rigorous design of the indicators. Kendall's coefficient is then used to compare ranking results of different evaluating opinions to determine their similarities and differences. Consequently, in the following sections, we will provide a comprehensive system of indicators to support the study of collective action on land policy reform in developing country contexts and provide a quantitative basis that bridges the gap between its theoretical and empirical analysis.

3. Clarifying the Concepts of Influencing Collective Action for Effective Land Policy Reform

With reference to conceptual and theoretical models [24], this section aims to dissect the definitions and characteristics of several vital elements affecting collective action, namely social capital, trust, and cooperation performance, thus providing the literature and theoretical basis and exploring the defining variables for the indicator design for evaluating the collective action related to land policy reform.

3.1. Social Capital as a Determinant of Effective Land Management and Reform

The evolution of social capital has undergone a long journey in modern times and has developed particularly rapidly since the 1980s. This paper sifts through some of the critical perspectives on the definition of social capital listed in a timeline in Table 1 to explore the cognitive perspectives and defining variables of social capital. A brief chronology of social capital dates back as far as 1916 [38], with Hanifan providing the first clear definition of social capital in the contemporary sense [39], as he incorporates factors of goodwill, fellowship, sympathy, and social interaction into social capital. Thereafter, social capital reappeared in Jane Jacobs' book 'The death and life of great American cities' in 1961 [40], in which she emphasizes the importance of social relations and advocates their use in urban planning. Subsequently, social capital was valued by Loury as the role of social position in facilitating the acquisition of the standard human capital characteristics [41].

Since the 1980s, Bourdieu [42], and Coleman (1990) have generally accepted that structure, relations, and networks are important defining variables of social capital and provided the basis for the concept as it is understood today, but they have different perceptions. Bourdieu saw social capital as individual property dependent on class relations and focused on the uneven distribution of social resources, while Coleman conceptualized social capital as a public good and as a collective asset of the group and did not focus on inequalities resulting from differences in power and status. They all provide implications for subsequent studies. Schiff [43] focuses on the same set of resources of the social structure as Coleman, and Baker [44] sees social capital as 'the set of elements of the social structure that affects relations among people and are inputs or arguments of the production and/or utility function', and emphasizes the resources that Coleman does not distinguish and the ability to wade through the resources through membership in different social structures. In contrast to the dense networks emphasized by previous scholars, Burt [45] argues that it is the non-redundant information (called 'structural holes') that drives personal mobility, access to information and resource involvement. He is influenced by Granovetter's 'power of weak ties' [46], a term used to refer to the greater variety of resources that can be provided by indirect influences outside the immediate circle of family and close friends. Unlike Granovetter, Burt is innovative in that he argues that the important factor is not the strength of relationships but whether it is duplicative or non-redundant in the network of relationships that have been established. Nahapiet and Ghoshal, based on Granovetter's discussion of structural and relational embedding [46], distinguish three clusters or dimensions of social capital: structural, relational, and cognitive [47], with the concept singularly and directly stating actors are invested in social relationships with the motivation of expecting to gain benefits [48].

Sociological analyses of social capital are often based on the potential benefits derived from the formation of social networks and structures because of links between actors or between groups. A new perspective has been introduced by political scientists who equate

social capital with the characteristics of social organizations such as towns, cities, and states, the most representative of which is Putnam’s view that social capital refers to ‘features of social organizations, such as networks, norms, and trust that facilitate action and cooperation for mutual benefit’ [49]. For Putnam, these features are considered a combination of characteristics such that they can automatically be compared between cities, regions, and even countries. While he proposes a more specific and tangible definition, he oversimplifies complex and interrelated processes into a single or small group of factors. Portes criticizes his logical circularity of the characteristics of social organization as both cause and effect as further complicating the definition [50] and argues that social capital is an asset embedded in an individual’s relationships with others. From the perspective of self-embedding, he systematically elaborates on the concept of social capital using various theories of dynamics, motivation, and social structure.

Since the 21st century, influential definitions of social capital have generally emphasized the “power of strong ties”. This contrasts with what Granovetter and Paldam [51] posit, namely, that ‘social capital is thus a micro concept, but it may be aggregated to the national (macro) level’. Lin considers that social capital may be defined operationally as the resources embedded in social networks accessed and used by actors for actions [48]. It avoids the complexity and intangibility of the relational and cognitive dimensions, yet the difficulties remain as we explore the social structural features of access to resources.

Table 1. Different views on the definition of social capital.

Definition	Key Characteristic	Defining Variables
Social capital as “good will, fellowship, sympathy, and social interaction among the individuals and families who make up a social unit” [39] (Hanifan, 1916, p. 130).	The first clear definition of social capital in the contemporary sense	Good will, fellowship, sympathy, and social interaction
It may thus be useful to employ a concept of “social capital” to represent the consequences of social position in facilitating acquisition of the standard human capital characteristics [52] (Loury, 1977).	Social position of human capital	Social position
the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition or in other words, to membership in a group [42] (Bourdieu, 1986, p. 248).	Individual property dependent on class relations	A durable network
Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: They all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure [53] (Coleman, 1990, p. 302).	A collective asset of the group	Social structure and the individual actions within it
a resource that actors derive from specific social structures and then use to pursue their interests; it is created by changes in the relationship among actors [44] (Baker, 1990, p. 619).	Collective assets with an emphasis on resources and the ability to access them	Social structures and actor relations
the set of elements of the social structure that affects relations among people and are in- puts or arguments of the production and/or utility function [43] (Schiff, 1992, p. 161).	The set of elements of the social structure	Social structures and actor relations
Social capital is at once the resources contacts hold and the structure of contacts in a network [45] (Burt, 1992, p. 12).	Focusing on non-redundant information (structural holes)	Personal property and network structure
Social capital stands for the ability of actors to secure benefits by virtue of membership in social networks or other social structures [50] (Portes, 1995, p. 6).	The self-embedded perspective	Social network, other social structure, membership
Social capital refers to ‘features of social organizations, such as networks, norms and trust that facilitate action and cooperation for mutual benefit’ [49] (Putnam, 1995, p. 67; Putnam, 2000, p. 225).	Equating social capital with the features of social organizations from the politician’s perspective	Networks, norms, and trust

Table 1. *Cont.*

Definition	Key Characteristic	Defining Variables
“The sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” [47] (Nahapiet & Ghoshal, 1998, p. 243).	Exploring the clusters or dimensions of social capital	Three clusters or dimensions: structural, relational, and cognitive
Social capital deals with cooperation in groups and networks within groups of people [51] (Martin Paldam, 2000).	Discussing the macro and micro aspects of social capital	Cooperation and network
“Social capital may be defined operationally as the resources embedded in social networks accessed and used by actors for actions” [48] (Lin, 2001, p. 24).	Embedded relationships	Social networks

Although ‘social capital means different things to different people’ [54], current debate on social capital are two issues: individual networks or group participation; and micro or macro concepts. The collective action for land policy reform that is the focus of this paper values the reconciliation and conflict of collective and individual interests, and social capital in this context that is neither just individual networks nor just collective participation. So this paper supports the idea that social capital is defined at the micro level of the individual and then aggregated to reach the macro level [51,55]. This view sees social capital as a collective asset that strengthens the credit of individuals, with both economic and social attributes, and as a social relationship with productive efficiency. We review the development of social capital and its multiple connotations, not to obscure the role of social capital in contemporary times, but to grasp contemporary connotations and defining variables, as well as to construct a social order and governance structure for social capital.

3.2. Trust as a Determinant of Effective Land Management and Reform

In developing countries and regions where land systems are not well developed, the lack of expertise and the delay in disseminating information make it difficult for land policies to be transmitted through market mechanisms. Trust, as a medium for resource exchange and mutual cooperation, can facilitate frequent interaction and interdependence among actors, allowing them to share and transfer information. In order to understand the role of trust in collective action and how it affects land management practices for optimal collective benefit, this study summarizes how various authors describe the causes and conditions under which trust arises and its role in land management practices, in the light of social exchange theory and transaction cost theory and expressed in Figure 1 and Table 2.

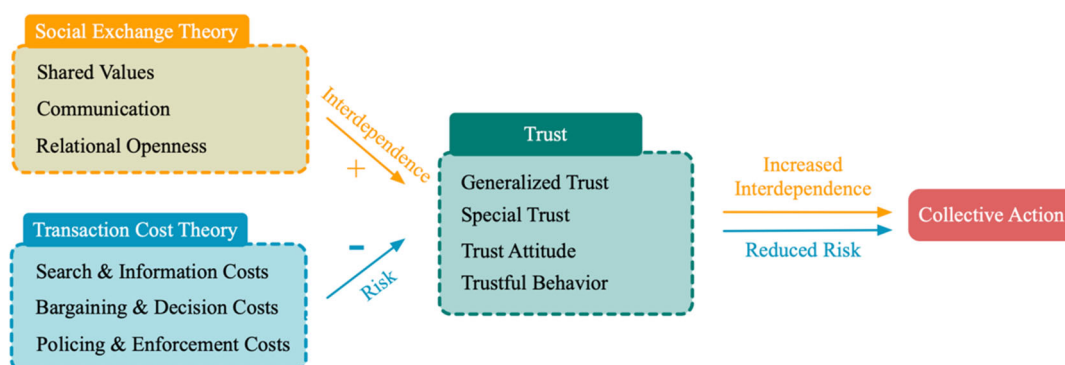


Figure 1. The path analysis on the effect of trust on collective action.

Table 2. A comparative summary of the meaning of trust in the two theories.

Theory	Main Tenets	Theory Posits on Building Trust
Social exchange theory	Exchanging valuable resources in an interactive process to achieve a balance between payoffs and benefits	Shared values, relational openness, communication
Transaction cost theory	Potential speculative behavior or betrayal in partnerships	Reducing opportunistic behavior and cooperation risks

Firstly, from the viewpoint of social exchange theory [56], a smooth implementation of land policy reform requires transactional behavior in which members, such as policymakers, landowners, and land users, exchange valuable resources in an interactive process to achieve a balance between payoffs and benefits. In this reciprocity-based economic activity, trust arises from the recognition and enactment of shared value systems and cooperative interactions, reflected by an open environment with transparent opinions and an emphasis on communication to understand the goals and values of the partners, who have a positive effect on trust [57]. Specifically, shared values are the basis for trust generation and refer to the extent to which members agree on the motivations and goals of the collaboration, which helps to make commitments and define the partnership [58]; relational openness is considered to be an important condition for relationship linkage [59], which involves not only sharing comprehensive and current information together but also sharing each other's opinions, helps to resolve disputes and adjust views and expectations on the same matter, and will facilitate the creation of trust once a partnership is established or an agreement is signed; moreover, communication is one of the elements for trust formation [60], which leads members to understand the motives and purposes of partners, their ideas about exchange behavior and to become more aware of each other's traits.

Secondly, transaction cost theory [61] suggests that transaction costs include search and information costs, bargaining and decision costs, and policing and enforcement costs. Transaction costs theory posits that trust can reduce transaction costs as it will not require monitoring, enforcement, and policing. When applied in the context of land reform in China, for example, the rural land market-based reform in China has gone through the stages of entry permit, land consolidation and development, transaction, and project construction [62]. To avoid potential speculative behavior or betrayal in short-term partnerships, trust is built through economic constraints such as contracts or equity models [59,63,64], which increase the reliability and predictability of partners' behavior, reduce opportunistic behavior, and facilitate the willingness to cooperate.

Trust is thus constructed on two basic conditions: interdependence, where collective benefits depend on others and the degree of interdependence affects the degree of trust; and risk, which refers to the potential for perceived losses by members, where increased transaction costs increase the risk of cooperation. Collective action is dependent on the provision of adequate information and complementary resources within the organization to reach and execute collective action, and the exchange of information and resources generates significant transaction costs that discourage collective action. Trust can reduce uncertainty and risk in cooperation by reducing costs and increasing interdependence [64].

While there is a consensus on the importance of trust, there are different ways in which an author defines trust in different disciplines, as trust itself involves complex factors such as individual psychological traits, relational networks, social structures, contexts, ethnicity, history, culture, as well as presuppositions of the ways of thinking of scholars in different fields. Some scholars focus on the static attributes of trust attitude such as sentiment, belief and motivation [65–69], arguing that trust is a positive expectation of others' good intentions and willingness to take risks; others focus on the dynamic dimension of trustful behavior [70,71], arguing that trust is a positive expectation of behavioral intentions arising from the performance of the object of trust.

Academic views on the connotation of trust have so far been ambiguous and divergent [72–74]. One of the most cited definition of trust is that of [66]: ‘the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party’. This view reflects a belief that trust is the willingness to take risks, and only in a risky situation can there be a demand for trust, which is suitable for the role of trust in collective action in land policy reform described in this paper. Trust can be classified according to the object of trust as generalized trust and special trust, representing trust to people in general and trust to unknown people or in particular institutions respectively [55].

Trust supports coping with uncertainty [75], reduce complexity, [76] and increase trustworthiness [77], and there is a need to strengthen trust and build cooperative relationships among members in land management practices. A comprehensive understanding of trust in terms of its definition, static and dynamic properties, and generalized and special trust allows members in land practices to build high levels of trust and promote smoother collective action. The speed of information flow affects the level of transaction costs, and a high level of trusting relationships can lead to high levels of actor communication, with people more willing to share information with others, increasing interdependence and reducing transaction costs to improve efficiency [78,79]. A highly trusting network environment will make it easier to introduce new land policies and encourage rapid and frequent innovation.

3.3. Cooperation Performance as a Determinant of Effective Land Management and Reform

The collective action in land policy reform exists four collective action dilemmas: rent-seeking behavior, the prisoner’s dilemma, free riding, and low perceived returns [24]. Social networks and repeated interactions are often considered viable solutions to the collective action dilemma [80–83]. Social networks contain social capital between individuals or groups, and the cooperation of members facilitates the circulation of social capital in social networks so that collective action can proceed smoothly [84]. Repetitive interactions are designed to solve communication problems in collective action. Even when members are fully motivated to cooperate, they still need to understand each other’s motivations and build mutual trust to avoid the possible risks of cooperation [3,85]. Trust and reciprocity formed through repeated interactions rather than altruism allow for escape from collective action dilemmas and facilitate mutual cooperation [86].

Performance is how effective cooperation is judged. Many economic models of performance measurement assume that people only seek material benefits and are not concerned with ‘social’ goals [87,88]. For example, access to finance and deliveries of coffee production has been used to measure the cooperation performance of five coffee cooperatives in Ethiopia [25]. Similarly, the extent to which members sell their coffee through the producer organization and farmer participation in the life of the producer organization is a measure of the collective outcomes of farmers’ production organizations in Uganda [86]. The direction of land reform in China is market-based allocation of land resources, and optimizing the “allocation efficiency” and “investment efficiency” of land resources is the economic goal of improving the market mechanism [89]. However, the social objectives of land reform deserve to be taken seriously. In the face of imperfect social welfare in the developing country, there appears to be increasing consensus that the social security function of rural land is an important engine driving land policy reform [90–92].

It is worth noting that successful cooperation does not imply that there are no potential risks at all. Instead, collective action may be achieved through participation or negotiation by members, influenced by the distribution of power, or it may be following traditional or customary behavior of members. The former requires equal power relations, while the latter is based on power hierarchies [93]. Some deeply-rooted democratic traditions exist through customary systems of consultation (such as in countries that strongly rely on customary systems), as evidenced by the fact that while there may be some shared

ethics in traditional or customary behavior, the dominant social norms usually result in cooperation under unequal social relations [94]. This may trigger possible pitfalls in the behavior of farmers and policymakers in public goods games under traditional authority. Second, several reasons such as the heterogeneity of members, their different goals with management in the organization, the cost of information, and the nature of collective action itself may hinder such stable outcomes [95], even if members are more inclined to show higher willingness towards social networks they trust, especially in situations of high risk and uncertainty [96–99].

4. Developing a Set of Indicators to Evaluate the Collective Action in Land Policy Reform

A universal measure of collective action may not be totally ideal given the significance of context in the processes of land policy reform, and that improving its measurement in specific circumstances still makes sense [100]. The study, relating various dimensions and indicator designs of social capital, trust, and cooperation performance is required to advance its measurement both conceptually and practically. The respondents target the bearers of land policy reform.

4.1. Constructing a Theoretical Framework for Indicator Design

This paper constructs a set of indicators for the joint analysis of social capital, trust, and cooperation performance, consisting of 47 indicators and 9 questions that can feasibly guide the in-depth analysis of collective action for land policy reform, and its specific ideas are shown in Figure 2.

The indicators of social capital are constructed on a macro-meso-micro scale and correspond to each of the three dimensions of social capital. Macro-scale indicators are designed to focus on respondents' perceptions of institutions and norms in society. The network structures constituted by actors and relations in groups and organizations are detected in meso-scale, and micro-scales focus on the impact that the attributes and traits of individuals have on collective action.

Generalized trust, special trust, trust attitude, and trustful behavior comprise the four aspects of constructed trust indicators. The overall trust of respondents is considered through generalized trust, while special trust explores respondents' trust in specific relationships, such as relatives, partners, policy implementers, and religious personnel. Trust attitude is divided into macro, meso, and micro scales to analyze each of the three types of trust, while trustful behavior is the behavioral choice of the respondent to trust or not in several specific scenarios.

Cooperation performance is an indicator constructed on the basis of three dimensions of economic performance, social performance, and risk assessment. Economic performance is the result of input-output efficiency achieved through collective action, while the focus of social performance not only on material rewards and emotional needs at the individual level, but also on social welfare and public services at the collective level. In terms of risk assessment, we assess both the overall risk of the partnership and separately the sustainable satisfaction, coordinating efforts and dependence in the future.

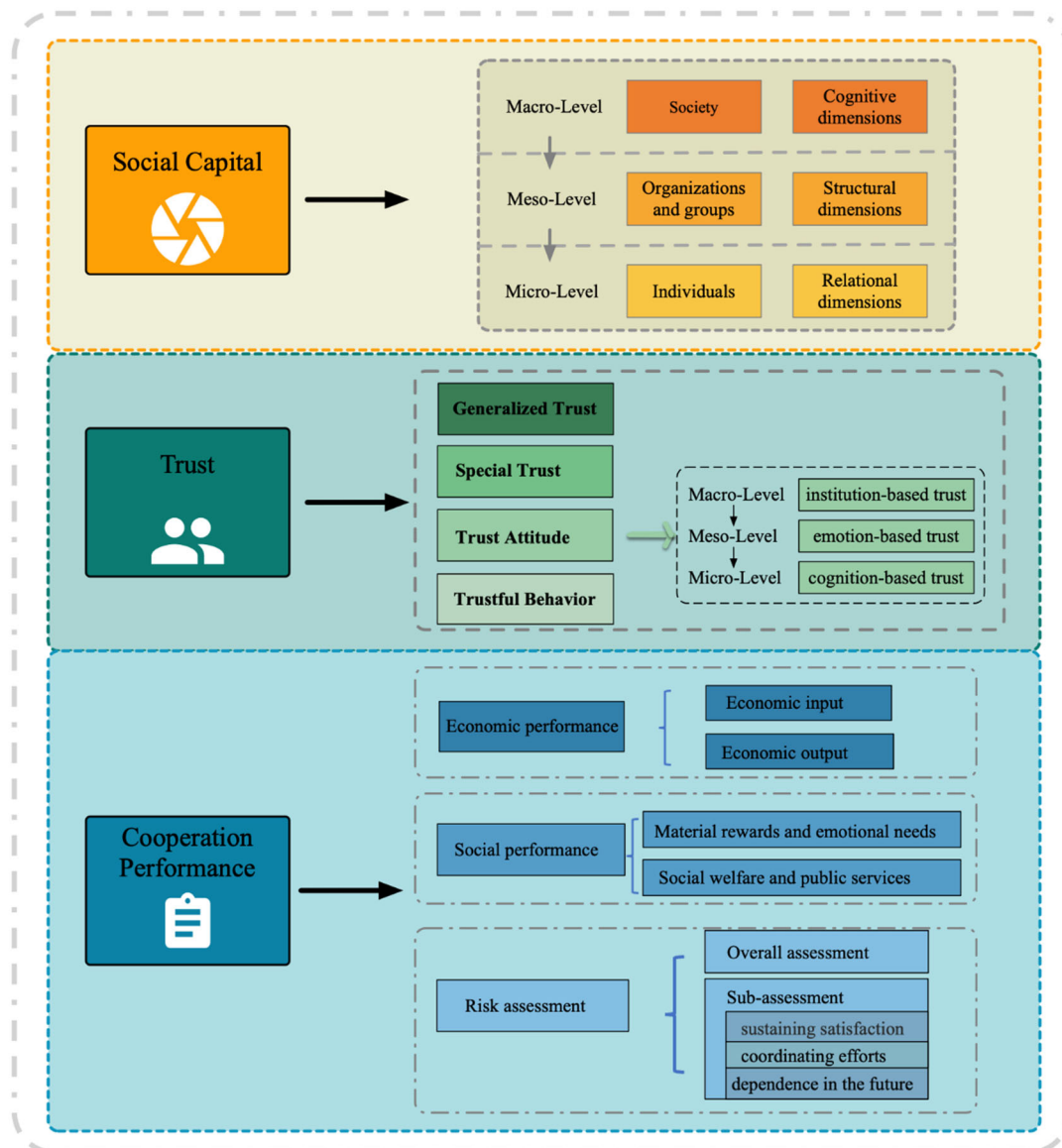


Figure 2. The theoretical framework for indicator design to evaluate the collective action in land policy reform.

4.2. Framing a Set of Indicators for Measuring Social Capital in the Land Policy Reform

‘It’s not what you know, but who you know’. is often used to describe the power of social capital. Most scholars consider social capital to be multidimensional and an umbrella term for a set of social factors. For example, Ostrom (1994, 2000) outlines (1) trust and (2) reciprocity, (3) networks and (4) rules or institutions are four essential elements of social capital [101,102]. Putnam (1995, 2000) believes that the elements of social capital such as trust and norms of reciprocity, networks, and institutions are mutually influential [49]. Grootaert (2001) analyzes three basic sets of indicators: (1) membership in associations and networks, (2) trust and adherence to norms, and (3) collective action (the result of both) [103]. It thus appears that social capital is about (1) social factors that influence human behavior, (2) social ties, and (3) behavioral norms and shared understanding.

Combining several influencing factors of social capital, we offer a paradigm for exploring social capital at three scales: macro, meso and micro. The macro scale, at the societal level, refers to the socially constructed norms and value systems that depend on the policy environment provided by the state and government agencies. The focus is on institutional norms, which can be more informative if they are effective. The meso scale relates to groups

and organizations and refers to social relations and network structures that increase the possibilities of access to resources. Different social contexts in which social relationships are embedded may create different types of network relationships, such as power networks, communication networks, kinship networks, etc. The micro-scale involves a focus on the roles and characteristics of actors in social relationships in a policy context at the individual level, where credible people can generate positively valued capital. The three macro-meso-micro scales correspond to the three dimensions of social capital, cognitive dimensions, structural dimensions, and relational dimensions.

Our previous research provides theoretical guidance for indicator design [24]. It describes that at the macro scale, the institutions and norms, and strategic goals are two variables that can measure the cognitive dimension of social capital, while the relational dimension of social capital is measured as the policy bearers' trustworthiness to policy implementers and willingness to share information at the micro scale. The structural dimension of social capital at the mesoscopic scale explores the frequency of contact between family members and others. With reference to the previous review of the theory and the perception of social capital, we further frame a set of indicators for measuring social capital in the land policy reform (Table 3) and assess them with the five-point Likert scale, ranging from totally disagree (1) to totally agree (5). The indicators in Series A help to ascertain the cognitive dimension of social capital at the macro level. Of these, indicators A1.1 measure the evaluation of policy makers by the policy bearers in the different processes of land reform policy, while indicators A2.1 and A2.2 assess the bearers' identification with the implementors' objectives and governance. Series B is used through the frequency of contact with stakeholders to identify the structural dimension of social capital at the meso level. Series C is set to describe the relational dimension of social capital at the micro level, which includes indicators C1.1–C1.8 measuring the bearers' trustworthiness (e.g., integrity, benevolence, capability, reputation) to policy implementers and indicators C2.1–C2.2 assessing the bearers' willingness to share information.

Table 3. Measurements of three dimensions of social capital.

No.	Dimension	Variable	Indicator
A1.1	Macro level: Cognitive dimension	Institutions and norms	Satisfaction with policy makers in the full life cycle of land policy reform
A2.1		Strategic goals	Identification with the objectives of land policy reform
A2.2			Identification with governance of land policy reform
B1.1	Meso level: Structural dimension	Relatives' relations and network structures	Frequency of contact with family members
B1.2		Social relations and network structures	Frequency of contact with others (e.g., neighbors, village representatives, members of organizations, members of township governments, members of county government departments, landowners)

Table 3. Cont.

No.	Dimension	Variable	Indicator	
C1.1	Micro level: Relationa dimension	Integrity	Public notification	
C1.2			Correct information provided	
C1.3			Respected views	
C1.4		Benevolence	No misguided decisions	
C1.5		Trustworthiness of policy implementers	Capability	Capacity of policy implementers to make the right decisions
C1.6				Capacity of policy implementers to complete land policy reform
C1.7		Reputation	Extensive experience or success cases	
C1.8			Professional skills of policy implementers	
C2.1			Willingness to share information	Open information

4.3. Framing a Set of Indicators for Measuring Trust in the Land Policy Reform

Trust is a social lubricant that facilitates effective socio-economic functioning by building and reconciling human relationships. The measurement of trust is supposed to be multifaceted, and through the analysis of the critical role played by trust in the previous section and the pathways it takes to influence collective action, a following set of indicators is needed to set to measure the trust in the land policy reform through asking respondents about the variable trust in a given situation, ranging from total distrust (1) to total trust (5). We propose to construct indicators of trust in four dimensions of generalized trust, special trust, trust attitude, and trustful behavior, which is conducive to gaining insight into respondents' mutual trust relationships with other relators and increasing the effectiveness of their motivation to cooperate.

First, generalized each trust is measured through Series D of Table 4. For example, a policymaker can reach a judgment about a respondent's perception of generalized trust by asking whether one would be very careful with others or would trust most people; or whether the perception exists that most people would try to take advantage of each other or whether each person treats each other fairly.

Table 4. Measurements of the generalized trust, special trust, trust attitude, and trustful behavior.

No.	Dimension	Variable	Indicator
D1	Generalized trust		To trust the community or group
D2			To assume the community or group to be trusted
E1	Special trust		Trust in special relationships (e.g., kinship, partnership, political relation, ideological relation)
F1.1	Trust attitude	Macro level: Institution-based trust	Agreement by way of a contract
F1.2			Effective provisions on rights, obligations, income distribution
F2.1			Communication capacity for policy makers
F2.2		Meso level: Emotion-based trust	Patience of policy makers
F2.3			Open discussion in the group meeting
F3.1		Micro level: Cognition-based trust	Capacity for efficient policy implementation
F3.2			No mid-adjustment commitments

Table 4. Cont.

No.	Dimension	Variable	Indicator
G1	Trustful behavior	Behavioral preferences in different contexts	Capacity to take risks in poor areas
G2			Willingness to land investment under unsecured property rights
G3			Willingness to grow new crops
G4			Willingness to borrow money to invest on land
G5			Willingness to buy lottery tickets

Second, series E constitutes indicators of special trust. Four social relationships—kinship, partnership, political, and consciousness—are welcomed to explore the extent to which respondents trusted specific actors they had different relationships within land policy reform, including parents, relatives, group members, administrative organizations, government officials, and religious.

Third, series F to G of Table 4 describes the measurement of the trust attitude. The three types of trust are associated with the three dimensions of social capital illustrated by our previous findings [24]. We also find that the three types of trust correspond at three scales, macro, meso, and micro. Institution-based trust is analyzed at the macro scale and is used to analyze the sense of security that institutional provisions and norms bring to respondents to facilitate their trusting relationship with the policy implementer. At the meso scale, emotion-based trust is used to understand the mutual relation between trust and dependency built up through frequent interactions over time. Cognition-based trust at the micro-scale focuses on the willingness to trust through the respondents' perceptions and risk assessments of the policy implementer.

Fourth, in terms of the trust performance of series H, we set up different contexts such as social environment, land system, product, investment, and speculation to infer the likelihood of trust decisions being influenced by subjective reasons such as personal characteristics through the behavioral decisions made by respondents in different contexts and respondents' personal characteristics and preferences.

4.4. Framing a Set of Indicators for Measuring Cooperation Performance in the Land Policy Reform

Based on the literature review of cooperation performance in Section 2.3, we find that the goal of economic performance is to minimize costs and improve efficiency, while social performance lies in the achievement of social goals, such as individual development and social progress. However, risk assessment is also necessary because reform inevitably brings contradictions, cooperation encounter obstacles, and assumed stable outcomes might be contestable when shaken by risk and uncertainty. So, cooperation performance has three main aspects of measuring whether excellent land management practices will be achieved: economic performance, social performance, and risk assessment, which is measured through Table 5.

The first aspect is economic performance, which lies in whether the cooperation in land policy reform has contributed to efficiency. Efficiency focuses on economic inputs and outputs, and a set of input-output efficiency indicators are selected including economic input indicators such as fixed asset investment and energy consumption, and economic output indicators such as earth give rate and rate of return on investment.

The second characteristic is social performance. Collaborative decision-making is easier to pursue only when the participants create and maintain the social goals of the collaborative process of reform practice. Social performance is measured at the individual level by exploring the material rewards and emotional needs of the actual recipients of the reforms, and at the collective level by exploring the social benefits and public services that result from the reforms. Social performance is measured at the individual level by

exploring the material rewards and emotional needs of the actual bears and at the collective level by exploring the social benefits and public services that result from the reforms.

Table 5. Measurements of cooperation performance.

No.	Dimension	Variable	Indicator
H1	Economic performance	Economic input	Fixed asset investment
H2			Energy consumption
H3		Economic output	Earth give rate
H4			Rate of return on investment
I1	Social performance	Material reward	Degree of improvement in quality of life
I2		Emotional need	Sense of security
I3		Social benefit	Changes in employment rates
I4		Public service	Changes in public infrastructure
J1	Risk assessment	Overall evaluation	Evaluation of land policy reform (well progressed or successful)
J2			Duration of the mediation process
J3		Sustaining satisfaction	Have own sustainable profit
J4			Support for land policy reform
J5		Coordinating efforts	Achievement of expected goals
J6			Fulfillment of policy bearers' expectations of reform
J7		Dependence in the future	Support for subsequent related reforms
J8			An honest and trustworthy attitude for future cooperation

The third issue is risk assessment, which is a subjective perspective on respondents' performance and the effects of collective action. It is impossible to fully assess the subsequent impacts and outcomes of land policy reform from the appearance of implementation or disruption, but it is still necessary to predict the risks associated with the reform by understanding the individual participants' assessment of the reform. Table 4 presents 8 indicators to measure the cooperation performance from the risk assessment with an overall assessment and sub-assessments. Respondents' overall assessment includes process assessment, personal evaluation, and time cost. We then sub-assessed the risk assessment in terms of sustaining satisfaction, coordinating efforts, and dependence in the future (Anderson and Narus, n.d.) and applied it to land policy reform.

5. Validating the Dimensions and Indicators of Evaluating Collective Action

The indicator design needed to be tested to verify its effectiveness with a methodological process of detecting the concordance of the indicators. The indicators are assessed by various attributes in terms of comprehensibility, clarity, measurability, and relevance. For comprehensibility, they were asked to determine if it had a clear and easily interpretable definition that could be understood by anyone. Clarity was evaluated in terms of consistent interpretation by all individuals. Measurability was gauged by the indicator's ability to generate data that could be analyzed either quantitatively or qualitatively. Relevance was measured to evaluate the indicator's capacity to represent or capture the aspects of the subject under study.

The assessments of our contributions were evaluated by 12 international experts. This process allowed us to obtain different perspectives from experts in the relevant fields or from individuals involved in land policy reform. For the selection of experts, we preferred that they work in land management, urban planning, architecture, human ensure geography, and other related fields and are from developing countries such as Morocco, Ghana, Rwanda, Iran, India, Indonesia, China, Mexico to ensure the professional and scientific

validity of their opinions. The judgments about measures of experts' attitudes to the indicators were measured on a 5-point Likert scale with criteria including comprehensibility, clarity, measurability, and relevance [104].

We apply Kendall's co-efficient of concordance (W) [105] to measure the concordance between their assessments of experts for all of the dimensions and indicators based on the consulted criteria. The closer the ranking orders of two variables, the closer Kendall's coefficient is to 1, and conversely, the less similar the ranking orders, the closer Kendall's coefficient is to -1 . In our study, if the ranking results were consistent, it would indicate a high degree of agreement among the evaluators on the importance or performance of the four criteria items of comprehensibility, clarity, measurability, and relevance. This can be seen as a positive sign of the reliability and validity of the evaluation process. Kendall's coefficient is an important statistical tool that can help us compare and choose between different evaluation indicators to better evaluate and optimize designs. The validation results generated with the package 'irr' in R programming yield a reliable coefficient in assessing the concordance level of indicators and are finally presented in Table 6.

Table 6. Kendall's co-efficient of concordance (W) for assessment of comprehensibility, clarity, measurability, and relevance by judging groups.

Criteria	Expert Judges		
	Kendall's TAU	Chi-Squared Value	<i>p</i> -Value
Comprehensibility	0.621	68.3	0.000
Clarity	0.675	74.1	0.000
Measurability	0.659	72.4	0.000
Relevance	0.741	81.5	0.000

The value of Kendall's coefficient of concordance, which ranges from 0 to 1, reveals a significant concordance ($p = 0.000 < 0.05$) between the experts for all criteria. Since the strength of the concordance increases with an increasing Kendall's value, the values in Table 6 show that a greater degree of concordance exists when the value of Kendall's tau is over 0.5. Specifically, the four inter-rater reliability indices generated from the criteria of comprehensibility, clarity, measurability, and relevance measured by experts are 0.621, 0.675, 0.659, and 0.741, respectively. Although the degree of concordance for these four criteria has not much of a difference, there was a larger concordance for relevance than the other three. The higher score in "relevance" suggests a stronger concordance between the indicator and the research topic, which leads to greater attention and emphasis on the indicator in the research and could play a more significant role in decision-making or evaluation processes.

6. Discussion

This paper reinterprets the operation of land management practices, structures the analytical orientation of collective action in land management practices, and provides the literature and theoretical basis for subsequent empirical studies. Given the importance of social capital, trust, and cooperation performance and their interrelationships, this paper firstly composes and summarizes the historical review and different views of social capital; next, it analyzes the path of the effect of trust on collective action from social exchange theory and transaction cost theory, then creatively proposes a risk cue for cooperation performance, that is, successful cooperation does not mean the absence of potential risks, and finally proposes the dimensions and indicators for evaluating collective action and validate them for reliability.

The proposed indicators are applicable in land policy reforms or in land management practices that rely on collective action characteristics in developing countries. Although these indicators are not limited by systems where land is publicly or privately owned, the focus on participatory land management and collective action-related land reform is particularly relevant for land management practitioners. This is because developing countries

tend to face similar land problems due to inadequate land systems, such as unclear land rights [106–108], unequal land distribution [109,110], effective land governance [111,112], and land use fragmentation [113–115]. In the face of the constant land disputes and conflicts, developing countries are still struggling with how to regulate their land management, yet it is difficult to cope with the fast changes in very complex land property rights and imperfect land markets, making it difficult for public sector practitioners to structure and formulate reliable policies for land governance. Moreover, the information mismatch and inequality between the government and individuals prevalently observed in these areas leads to a dominance of government authorities on the one hand and low participation of individuals during land management interventions on the other.

In this paper, we combine specific theoretical analyses to develop indicators further to measure the relationship between social capital, trust, and cooperation performance, and provide methodological guidance for subsequent empirical studies based on data collection. Collective action is currently performing the role of describing coordinated behavior in policy reform. Trust and social capital are conditions for collective action [116–121], while cooperation performance would be an outcome of certain types of behavior [98,122]. This study bridges the gap in the current research, which has no extensive debate and no established framework over how best to develop an inventory of collective action dimensions and indicators, and also lacks systematic and comprehensive indicators for guiding empirical studies in the aspect of land management practices instead of interpreting with descriptive arguments and findings from the field research. A quantitative framework can help identify important variables of collective action, which can be linked to actual land management characteristics through indicator construction, and thus guide empirical research to find ways to solve collective action dilemmas.

There are some unavoidable limitations to the indicator design in this paper. Firstly, the indicators are designed to address a targeted problem and concentrate on collective action dilemmas such as rent-seeking behavior, the prisoner's dilemma, free riding, and low perceived returns, which are prevalent in the process of land policy reform. Secondly, the indicator selection is driven by literature review and theoretical knowledge rather than data. Although we provide as exhaustive a set of indicators as possible to provide methodological guidance for empirical research, this does not mean that every indicator must be indispensable, as otherwise data acquisition may become a sometimes-daunting task. Moreover, while our indicators are designed to address specific issues without being overtly local, our study still offers ideas to address the collective action dilemma, allowing scholars to interpret or rework them. It is worth pointing out that the indicators are designed to address specific issues but not overtly local, which means that our study still offers ideas to address the collective action dilemma and is open to interpretation or revision by researchers. Thirdly, this indicator system focuses on individual micro-data, which needs to be obtained through field research rather than open-source databases in the face of different geographical and cultural backgrounds. We also cannot deny that individual choices are meaningful and that their perception of society, groups, and individuals determines the use of social resources. Fourthly, although experts have tested the set of indicators, we still need more scientific justification from more researchers through empirical studies to support our addition, amendment, and deletion of the indicators in the future.

7. Conclusions

Based on a conceptual or theoretical framework for the joint analysis of social capital, trust, and cooperation performance argued in the previous paper [24], this study designs a set of well-established indicators constructed from the extensive literature and related theory about measuring social capital, trust, and cooperation performance with a narrative review approach, thus providing the methodological guidance for the empirical study of collective action on land policy reform.

The novelty of this study is that by focusing on the context of collective action in land policy reform, it provides the viable framework and measures for social capital, trust,

and cooperation performance and their interrelationships to compensate for the existing separate analysis of these three factors and their rare application in the discipline of land management. Although these indicators may not claim to capture the complexity of collective action in land management entirely, they build a quantitative platform for studying the interaction of social capital on trust as well as trust on cooperation performance, which is essential for the successful implementation of land system reform. Secondly, we also build a strong and deepening theoretical foundation for the indicator design through a literature and theory review, providing a rich representation of social capital, trust, and cooperation performance. After being presented with a series of variables, we use indicators and questions to further elaborate on the variables to enhance the richness and science of the indicator design. In addition, the indicator design can be applied to a wide range of land policy reforms or land management practices with collective action dilemmas, not limited by the level of economic development or land ownership system.

This study is far-reaching because it achieves four key objectives. The first is that it provides an exhaustive overview of the definitions and characteristics of social capital, trust, and cooperation performance, based on a literature and historical review that looks at land policy reform through the lens of actor socialization. Secondly, it identifies the importance of trust, creates an important relationship with social capital and cooperation performance, and builds a mutual link between these three. The third objective was to develop a logical framework for the indicators, conceptualizing social capital, trust, and cooperation performance into variables that would form the basis for the indicator design. Last but not least, it designs a set of indicators to provide methodological guidance for empirical research on the collective action dilemma of land policy reform. However, this study also has its shortcoming. Data collection for the set of indicators is proposed to be conducted through micro-research, but due to staff and geographical constraints, there may be a need for a more geographically broad data representation to capture all our variables of interest.

In the follow-up study, we aim to explore the application of these indicators to the case study in developing countries. This set of indicators is only the beginning of a new research dimension by introducing a joint analysis of social capital, trust, and cooperation performance concerning the theoretical framework of previous studies to the study of land policy reform. Future research should explore how and when collective action functions effectively through the application of this set of indicators in empirical research. Further empirical research is needed to identify trust as an explicit objective and parameter in land management practice, which would be a breakthrough to address the dilemma of collective action and better avoidance of coercive policy interventions and unequal social relations.

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