

Mechanisms of China–Laos Cross-Border Water Resources Cooperation: A Security Community Perspective

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Abstract: *This study examines China–Laos water resources cooperation through the lens of security community theory developed by Emanuel Adler and Michael Barnett, focusing on the formation of cooperation, sustained interaction, and the deepening of bilateral relations. The findings show that China–Laos water resources cooperation has developed into a relatively stable form of functional cooperation, accompanied by social learning and closer bilateral ties through sustained interaction. However, the available evidence remains insufficient to demonstrate that stable mutual trust and a shared identity have been established. China–Laos water relations should therefore be understood as an ongoing process of development.*

Keywords: China–Laos water resources cooperation; Security community; Social learning; Mutual trust.

1. Introduction

Transboundary water resources are inherently transnational, as water use by upstream and downstream states can affect one another. Water-related issues therefore constitute important subjects of interstate cooperation and coordination. Climate change and basin development have further increased the uncertainty surrounding transboundary water governance.

The Lancang–Mekong River Basin connects China with several countries in Southeast Asia, and water-related issues are closely linked to energy, agriculture, disaster prevention and mitigation, and ecological protection, creating sustained demand for cooperation among basin countries. China and Laos are both located within this basin and have cooperated for many years in water resources management, technical exchange, and disaster prevention and mitigation.

Yet continued cooperation does not necessarily imply a corresponding transformation in the bilateral relationship. As cooperation deepens, do technical exchanges, personnel contacts, and institutional linkages move the relationship from functional cooperation toward more stable mutual trust and shared understandings? This study examines this question through the case of China–Laos water resources cooperation.

1.1 Literature Review

Existing studies of transboundary water resources cooperation have mainly examined the conditions under which cooperation emerges and the mechanisms through which it is governed. They show that

climate change, water stress, domestic governance capacity, and interstate relations can all influence the formation of cooperation, while transboundary water cooperation also displays clear features of networking and continuity. Chinese scholarship has developed extensive discussions of international water law, water diplomacy, water security, and water interests, and has gradually extended the analysis to the construction of basin communities.

Research on the Lancang–Mekong River Basin has focused mainly on water security, regional cooperation, and the evolution of water-security orders. Some studies examine the Lancang–Mekong water-security order through long-term interactions between water conflicts and cooperation, while others propose a phased trajectory in which Lancang–Mekong water-security governance develops from interest balancing and regional mechanisms toward a water-security community [1][2]. These studies provide an important basis for understanding long-term changes in Lancang–Mekong water resources cooperation.

Research on security communities has further emphasized interstate interaction, norm socialization, mutual trust, and collective identity, while gradually moving from static institutional analysis toward attention to processes of practice [3]. This literature provides a useful theoretical basis for examining whether water resources cooperation can generate deeper changes in interstate relations. Zheng Xianwu reviewed the development of security community theory and noted that the work of Adler and Michael Barnett further developed an analytical framework covering the conditions for security community formation, structural and process variables, trust, and collective identity.

Existing studies have separately examined the formation of transboundary water cooperation, Lancang–Mekong water-security governance, and the formation of security communities. However, how long-term interaction within bilateral China–Laos water resources cooperation affects the nature of the relationship still deserves closer examination. Accordingly, this study focuses on changes in the bilateral relationship during long-term water resources cooperation and asks whether such cooperation is moving from functional cooperation toward more stable mutual trust and shared understandings.

1.2 Theoretical Perspective and Research Approach

This study uses the security community theory developed by Emanuel Adler and Michael Barnett as its analytical framework. The theory understands the formation of a security community as a gradual process and analyzes it at three levels: precipitating conditions bring states closer and encourage policy coordination; structural factors and process factors such as transactions, international organizations, and social learning further promote interstate interaction; on the basis of sustained, positive, and reciprocal interaction among these factors, the relationship may develop toward trust and collective identity [4].

Accordingly, the study does not treat the formation of a security community as a binary outcome. Instead, it examines changes in the relationship produced by long-term China–Laos water resources cooperation. The analysis proceeds through three dimensions—cooperation formation, sustained interaction, and relational change—with particular attention to whether technical exchange, personnel contacts, and institutional linkages are moving the relationship from functional cooperation toward more stable mutual trust and shared understandings.

1.3 Research Methods and Data Sources

The study adopts a case-study approach, using China–Laos water resources cooperation as the main

case. It traces the development of cooperation by drawing on academic studies, official documents, and interview materials. Official documents are used to identify institutional arrangements and concrete practices; academic literature supplements the theoretical and regional perspectives; and interview materials help illuminate interaction processes that are difficult to capture in public documents.

In analyzing the materials, the study combines documentary analysis and process analysis. The case is examined as a long-term process of interaction and interpreted through security community theory in terms of cooperation formation, sustained interaction, and changes in the bilateral relationship. Because the study focuses on changes in the relationship, it does not primarily seek to count cooperation projects; instead, it examines how different forms of cooperation gradually create sustained channels of interaction.

2. Security Community Theory and Analytical Framework

2.1 Theoretical Foundations of Security Community

The concept of a “security community” is central to explaining peaceful relations among states in international relations. In the 1950s, scholars including Karl W. Deutsch conducted systematic research on how stable peaceful relations could emerge among states, using the North Atlantic area as their empirical case. In 1957 they published *Political Community and the North Atlantic Area: International Organization in the Light of Historical Experience*, laying an important theoretical foundation for subsequent scholarship on security communities [5].

Deutsch and his colleagues did not understand a security community simply as a condition in which war is absent. They emphasized that members of a community develop stable expectations of peaceful relations with one another and believe that common social problems can be resolved peacefully. In their formulation, a security community is a “group of people” that has achieved integration. Its core lies in a relatively durable “sense of community,” through which members come to believe that disputes can be managed through institutionalized procedures rather than large-scale material force.[5, pp. 31–32, 37–38] In this sense, a security community concerns not a specific cooperation project itself, but whether states have developed a stable relational structure and corresponding expectations of behavior.

Deutsch and his colleagues further distinguished between an “amalgamated security community” and a “pluralistic security community.” The former involves previously independent political units formally merging into a common government, whereas the latter develops community relations while preserving their legal and political independence. [5, pp. 83–85] For China and Laos, where sovereignty and political independence remain fundamental, the relevant analytical category is the pluralistic security community. The study therefore does not examine whether China and Laos have formed a common government, but whether sustained cooperation under conditions of continued national independence has produced more stable interaction and expectations of peaceful cooperation.

The significance of Deutsch’s theory lies in extending the explanation of peaceful interstate relations beyond power and deterrence to social communication and community relations. In his account, broad and sustained communication among states can foster a sense of community and gradually develop mutual understandings and expectations of behavior. Once community relations become consolidated, the way members manage disagreements also changes, with a stronger tendency to resolve them through peaceful and institutionalized means. [6, pp. 5–6]

This understanding suggests that a security community is not a static condition but a process-oriented

form of interstate relations. Sustained exchange, communication, and social ties can gradually change states' perceptions, patterns of behavior, and interaction over a long period. Accordingly, security community theory can be used not only to determine whether conflict exists, but also to analyze how interstate cooperative relations gradually emerge, stabilize, and deepen.

From this perspective, a security community is not synonymous with international cooperation in the ordinary sense. Ordinary cooperation may be driven by short-term interests, project needs, or specific policy objectives, whereas a security community involves a more fundamental transformation in interstate relations: through sustained interaction, states develop relatively stable expectations about one another's future behavior and increasingly dense social linkages for addressing common problems. These insights provided an important basis for the subsequent development of security community theory.

2.2 Development of Security Community Theory and the "Three-Tier" Model

Since the 1990s, Emanuel Adler and Michael Barnett have revisited the concept of security community on the basis of Deutsch's research and incorporated it into a constructivist perspective. Whereas Deutsch primarily emphasized the empirical conditions and social communication associated with community formation, Adler and Barnett placed greater emphasis on the process of community formation and on how interstate interaction, social learning, and institutionalized relations gradually promote deeper community relations [6].

Adler and Barnett argue that security communities are not produced by a single factor, but emerge through the joint effects of multiple structural and process factors. These include structural factors such as power and ideas, as well as process factors such as transactions and interaction among states, international organizations, and social learning. At the same time, values, norms, symbols, and social identity constitute important social foundations for security community formation [6].

This theoretical development shifted the focus of security community research. Scholars no longer simply ask whether a region has formed a security community; they also ask why and how a security community emerges and how far it has developed. This perspective is particularly relevant to the study of China–Laos cross-border water resources cooperation. China–Laos water resources cooperation is not a one-time policy arrangement. Rather, it has gradually generated data exchange, personnel training, technical cooperation, basin planning, and interdepartmental coordination. The case is therefore better examined as a process of community formation rather than as a fixed institutional outcome.

On this basis, Adler and Barnett proposed the "three-tier" framework for analyzing the formation of security communities. The framework seeks to explain how states can move from initial cooperation toward deeper community relations [4, pp. 30–37].

The first tier consists of precipitating conditions. This tier explains why states begin to move closer and coordinate their policies. Adler and Barnett include technological, demographic, economic, and environmental changes, new interpretations of social reality, and external threats in this tier. Such factors can encourage states to expand face-to-face interaction, dialogue, and cooperation and thus provide a starting point for subsequent community formation [4, pp. 30–37].

The second tier consists of process variables and structural variables. Process variables include communication, organizations, and social learning, while structural variables include power and knowledge.[4, pp. 37–49] This constitutes the most dynamic stage of the security community formation

process. Sustained interaction among states entails not only exchanges of information and resources but may also bring deeper understanding of one another's ways of acting, policy ideas, and social practices. Organizations provide more stable institutional channels for continuing interaction, while social learning may lead participants to adjust prior understandings and gradually develop new interpretations of behavior.

The third tier consists of mutual trust and collective identity. Adler and Barnett argue that positive, dynamic, and reciprocal interactions among the structural and process variables in the second tier can promote the development of mutual trust and collective identity and, in turn, create reliable expectations of peaceful change [4, pp. 49–58]. The third tier is therefore not simply a “result of cooperation”; rather, it indicates that cooperative processes are beginning to reshape interstate relations at a deeper level.

The security community formation process developed by Adler and Barnett can therefore be summarized as follows: precipitating conditions that bring states closer → interaction, organization, and social learning → mutual trust and collective identity → more stable expectations of peaceful relations. The importance of this model lies in the fact that it does not treat security community as a completed outcome. Instead, it provides a theoretical pathway for examining gradual changes in interstate relations. Even when a case has not reached the status of a mature security community, its degree of interaction, institutionalization, and social learning can still be examined to determine whether it is developing toward more stable community relations.

2.3 Analytical Framework and Applicability

Security community theory is applicable to China–Laos cross-border water resources cooperation because the cooperation has a clear interstate dimension. Cross-border water resources cooperation involves hydrological information, basin planning, flood and drought management, and technical exchange. Its operation does not depend solely on domestic policy arrangements within one state, but requires sustained information exchange, technical coordination, and communication among states and their relevant agencies. Cross-border water cooperation is therefore both a resource-cooperation issue and a problem of interstate relations.

At the same time, China–Laos water cooperation has developed a basis for sustained interaction. Working materials from the Ministry of Water Resources of China and the Lao Ministry of Natural Resources and Environment show that since the two sides signed a bilateral memorandum of understanding in 2014, they have continued to strengthen communication and coordination and have cooperated in water resources development and utilization, hydrological information, disaster prevention and mitigation, capacity building, and personnel exchange [7]. This indicates that China–Laos water cooperation has developed into a sustained bilateral relationship rather than remaining limited to one-off projects.

Moreover, some China–Laos cross-border water resources projects have moved beyond purely material inputs. For example, the Lao National Water Resources Information Center project included the construction of systems for information collection, transmission, and processing as well as training for professional and managerial personnel; during implementation, surveys of the water-resource conditions of the Mekong mainstream and major tributaries in Laos were also conducted and relevant plans were developed [8]. The comprehensive planning projects for key rivers in Laos likewise deepened China–Laos water cooperation through basin surveys, planning, and technical consultation [9].

The applicability of security community theory therefore does not depend on assuming that China and Laos have already formed a security community. Rather, the theory provides a relational and process-oriented perspective for examining whether sustained interaction, institutionalized cooperation, and social learning have generated changes in the bilateral relationship, particularly in terms of mutual trust and deeper community relations.

The first tier is used to analyze the basic conditions underlying sustained China–Laos cross-border water resources cooperation, namely the factors that bring the two sides closer and create the need for cooperation. The second tier constitutes the main focus of the empirical analysis, examining the three processes of interaction, organization, and social learning. Information exchange, personnel contacts, and technical cooperation are used to observe the continuity of interaction; bilateral interdepartmental cooperation and related cooperative mechanisms are used to examine the degree of institutionalization; and training, experience exchange, and the learning and adjustment of water-management practices are used to observe social learning. The third tier focuses on mutual trust and deeper community relations. Drawing on bilateral official documents, project materials, and interviews with Lao water-sector officials, the study evaluates empirical signs of trust formation and their limits. The overall analysis follows the path of cooperation foundations → interaction, organization, and social learning → changes in mutual trust and community relations, in order to explain how far China–Laos cross-border water resources cooperation has progressed, how specific cooperative practices affect bilateral relations, and why the transformation of cooperation into deeper community relations remains limited.

3. Evolution of China–Laos Cross-Border Water Resources Cooperation

3.1 Origins of Cooperation and Agenda Formation

In Adler and Barnett's "three-tier" model of security community formation, sustained cooperation begins with precipitating conditions. Such conditions do not mean that cooperation has already occurred; rather, they refer to changes in technology, economics, the environment, and related interpretations of new problems that encourage states to expand interaction, dialogue, and cooperation.[4, pp. 30–37] Accordingly, examining the origins of China–Laos cross-border water resources cooperation requires more than identifying the "first water project"; it requires identifying the conditions that gradually turned transboundary water issues into matters requiring joint attention.

An important condition surrounding China–Laos water resources cooperation is that the use of shared waters by the two countries can generate cross-border effects. The 2012 Agreement between the Government of the People's Republic of China and the Government of the Lao People's Democratic Republic on the Agreement on the Management of the Border Regime includes a dedicated chapter on "boundary waters." It provides that the two sides should, on the basis of equality and mutual benefit, mutual respect for each other's interests, and efforts to avoid causing losses to the other side, consult on the protection and utilization of boundary waters. It also provides for consultation over dams, sluices, hydropower projects, and water uses that may alter river flows or produce significant effects on the other side [10]. This is more than a general border-management arrangement; it constitutes an institutional response to the practical possibility that water-related actions by one side may affect the other. From the perspective of the first tier of the theory, the transboundary effects associated with shared waters created a concrete basis for developing a need for cooperation. Once water use extends beyond the internal affairs of a single country, the external effects of unilateral action create a need for consultation.

This need for cooperation did not emerge in isolation. After the normalization of China–Laos relations in 1989, bilateral relations continued to develop. In 2000, the two sides proposed establishing a long-term, stable, good-neighborly, and mutually trusting comprehensive cooperative relationship, and in 2006 they further emphasized the role of cooperative mechanisms and the strengthening of cooperation across fields [11][12]. These materials do not in themselves demonstrate that water resources cooperation had already emerged and should therefore not be directly treated as precipitating conditions in the first tier. They did, however, create a relatively stable political and institutional environment through which transboundary water issues could enter the bilateral cooperation agenda. The development of bilateral relations does not itself equal a demand for water resources cooperation, but it provided relatively stable relational conditions for consultation and cooperation on specific issues.

Water resources issues subsequently acquired a clearer position on the bilateral agenda. In 2013, China's Ministry of Environmental Protection and the Lao Ministry of Natural Resources and Environment signed a memorandum of understanding on environmental protection cooperation, and the two sides began to strengthen cooperation in this field. In the same year, a China–Laos joint statement further listed "water resources and environment" among the ten priority areas for cooperation. Viewed merely as an expansion in the number of cooperation documents, this may appear to be an enlargement of the cooperation agenda. From the perspective of the first tier, however, the more important change was that existing problems within the shared basin and shared waters were formally incorporated into the bilateral cooperation agenda. The transboundary character of the issue was reinterpreted at the policy level and transformed into an issue to be addressed through cooperation. This represents an important step in the transformation of precipitating conditions into cooperative demand within the security community formation process.

The origins of China–Laos water resources cooperation are therefore better understood as a gradual process rather than the result of a single triggering event. Mutual effects associated with shared waters constituted a practical condition; existing bilateral relations created an environment for addressing such issues; and institutional attention to water resources and the environment gradually gave transboundary water issues a clear bilateral agenda position. From the perspective of the first tier, the key feature of China–Laos cross-border water resources cooperation lies in the emergence and institutionalization of cooperative demand rather than in the launch of particular projects. The mutual effects of transboundary water resources created the need to address relevant problems jointly, while bilateral relations and the institutional environment provided conditions for incorporating that need into formal cooperation. How this demand was subsequently transformed into sustained communication, institutionalized cooperation, and social learning belongs to the second tier of security community formation.

3.2 Sustained Interaction and Social Learning

The previous stage concerned how transboundary water issues entered the China–Laos cooperation agenda. Once concrete cooperation began, the key questions were whether interaction remained sustained and whether it changed the way cooperation was organized and conducted. In Adler and Barnett's three-tier model, the second tier is mainly composed of process variables such as communication, organization, and social learning.[4, pp. 37–49] China–Laos water resources cooperation should therefore not be assessed simply by counting projects. More important is whether the two sides have established channels of interaction that can be sustained over time and whether these contacts have gradually moved from general communication toward joint work on common problems.

The continuity of China–Laos water resources cooperation is first evident in the fact that cooperation

did not remain at the level of isolated contacts but repeatedly generated subsequent arrangements for interaction. In 2015, China and Laos jointly conducted a Lancang–Mekong fisheries law-enforcement operation and a fish restocking activity for the first time; in 2016, they conducted another joint action involving relevant departments, local governments, law-enforcement personnel, and local communities from both countries. Chinese authorities described the cooperation as a new model for the joint management and conservation of aquatic biological resources and the aquatic ecological environment of the Lancang–Mekong [13]. In 2017, the two sides again conducted joint law enforcement and fish restocking. These successive forms of cooperation were not simply repetitions; they extended and adjusted earlier forms of cooperation. From the perspective of interaction, their recurrence demonstrates the continuity of interstate relations more clearly than a one-time meeting or project agreement.

This continuity did not stop when a specific cooperation activity ended. In 2017, China and Laos signed cooperation documents concerning the Lao National Water Resources Information Center and comprehensive planning for key rivers in Laos, and water resources cooperation entered a more specialized stage of project implementation. The information center project included hydrological monitoring, information collection and transmission, and professional training, while implementation also involved field surveys and data collection [8]. After the center became operational in 2018, the two sides continued communication on interdepartmental cooperation, water-management experience exchange, and follow-up cooperation and developed new cooperative intentions. These concrete projects were therefore not endpoints of the relationship, but nodes from which new forms of professional interaction could continue to develop.

The form of cooperation also changed. Early joint actions focused more on carrying out specific tasks together, while cooperation in hydrological monitoring and basin planning required the two sides to exchange information continuously, discuss technical issues, and advance work jointly around the same objects. The comprehensive planning projects for the Nam Ou and Nam Ngum river basins involved basin surveys, problem identification, and integrated planning. Compared with simple information transmission, such cooperation required different actors to maintain contact over a longer period and coordinate their understandings and technical plans during the work process. Interaction therefore shifted gradually from “contact on a particular matter” to “working together on a common problem,” giving cooperation greater continuity.

This continuity also received relatively stable institutional support. In 2023, the water authorities of China and Laos held a working meeting. China proposed further deepening cooperation in water resources and noted that the two ministries had strengthened communication and coordination on the basis of the bilateral memorandum of understanding signed in 2014 and the Lancang–Mekong cooperation mechanism; the two sides also discussed continuing cooperation projects and renewing the memorandum of understanding. The China–Laos Action Plan for Building a Community with a Shared Future (2024–2028), released the same year, again incorporated water resources cooperation under both bilateral and Lancang–Mekong mechanisms into future cooperation arrangements, covering water resources development and utilization, hydrological information, disaster prevention and mitigation, capacity building, and personnel training [14]. In 2024, the Vice Minister of China’s Ministry of Water Resources visited Laos to coordinate implementation of the new five-year action plan and deepen bilateral water resources cooperation; the visit also included inspections of water resources and water-supply projects [15]. By 2026, a new joint statement between China and Laos continued to identify water resources planning, integrated management, flood and drought disaster management, hydrological monitoring, rural safe drinking water, and capacity building as areas for further cooperation [16].

In temporal terms, China–Laos water resources cooperation has therefore displayed clear continuity. It

has not been confined to several projects around 2017, but has continued alongside bilateral departmental mechanisms, personnel exchanges, and new cooperation arrangements. The agenda itself has also shown continuity: water resources development and utilization, hydrological information, disaster prevention and mitigation, and capacity building have recurred at different stages while acquiring new content as forms of cooperation changed. “Sustained interaction” does not simply mean that the two sides engage in an activity once every few years; rather, it means that the cooperative relationship continuously generates new contacts and new issues for cooperation.

Sustained contact has also generated exchanges of knowledge and experience. Interviews with Lao water-sector officials indicate that the two sides had exchanged experience and practices in water resources management at an early stage and conducted consultation and information sharing through meetings. Lao officials continue to participate regularly in water resources management training organized by China. Interviewees also noted that China has provided long-term technical and financial support and sent relevant personnel to China for exchange and learning [27]. These materials show that cooperation has extended beyond equipment, engineering, and funding into exchanges of water-management knowledge and practical experience.

From the perspective of Adler and Barnett’s theory, this process can be understood as the emergence of social learning within the second tier. Social learning is not equivalent to one side simply providing training, nor can it be inferred from the number of training sessions alone. Existing interviews confirm that the two sides exchange experience and practices and that Lao officials have opportunities to encounter, learn from, and draw on relevant Chinese experience. However, the available evidence is insufficient to determine to what extent such experience has been absorbed and transformed into stable working practices within Laos. In this case, social learning is more appropriately understood as an ongoing process of experiential contact and knowledge exchange generated through sustained interaction.

The continuity of China–Laos water resources cooperation therefore consists of more than the fact that cooperation has “never stopped.” Over time, the actors involved, forms of contact, and contents of cooperation have all changed. Joint actions created settings for direct interaction; professional projects moved interaction into sustained technical and planning processes; departmental mechanisms enabled those contacts to continue into subsequent arrangements; and personnel training and experience exchange brought cooperation into the sphere of knowledge. Together, these changes constitute a process of deepening cooperation and correspond relatively clearly to the communication, organization, and social learning variables in the second tier of security community theory.

3.3 Trust and Collective Identity

Adler and Barnett place mutual trust and collective identity in the third tier of security community formation. Unlike the second tier, which focuses on communication, organization, and social learning, the third tier concerns whether sustained interaction begins to transform the relationship itself, generating relatively stable mutual expectations and gradually producing collective identity.[4, pp. 49–58] Examining the third tier of China–Laos water resources cooperation therefore cannot rely simply on the duration of cooperation or the number of projects; it requires evidence that long-term cooperation has generated mutual trust and a form of collective identity that extends beyond specific transactions.

The available materials indicate that China–Laos water resources cooperation has contributed to the gradual development of bilateral ties. When the Lao National Water Resources Information Center became operational in 2018, Lao officials repeatedly expressed positive assessments of the equipment,

technical personnel support, and personnel training provided by China and expressed a desire to strengthen water cooperation further. At the 2023 working meeting between the Chinese and Lao water authorities, the Lao side again expressed appreciation for the long-term assistance and support provided by China's Ministry of Water Resources to Laos's water sector and expressed the desire to continue receiving support in water resources development and utilization, hydrological information, disaster prevention and mitigation, and capacity building [7]. These statements suggest that long-term cooperation has generated a degree of recognition and a relatively clear willingness to continue cooperation.

Recognition of cooperation, however, is not the same as mutual trust in the theoretical sense. Trust within a security community is not limited to positive evaluations of existing cooperation; it also implies that the two sides develop relatively stable expectations about one another's behavior through sustained interaction. What can be observed more clearly in the present materials is familiarity and closer bilateral ties resulting from long-term cooperation, while direct evidence that "mutual trust has already formed" remains limited.

This distinction is particularly visible in water-information cooperation. A Lao water-sector official stated that the two sides have long exchanged information on water resources management and flood and drought disaster prevention through meetings, training, and seminars, but that Lao water information and resource systems have not yet been interconnected with the data systems of relevant Chinese institutions, and formal consultations on bilateral data sharing have not yet been conducted; cooperation remains primarily at the technical level of exchange and sharing of views [18]. This indicates that a sustained cooperative relationship has been established, but that in specific professional areas the two sides have not yet reached a condition in which information can be shared stably without further negotiation. The available evidence is therefore better suited to demonstrating a practical foundation for trust formation than to concluding that mature mutual trust has already been established.

Personnel exchange and experience sharing provide another indication of relational change. The interviewed official stated that China and Laos had engaged in two-way exchanges of experience and practices in water resources management during the early stages of cooperation and held consultations and information sharing through meetings. Lao officials continue to participate regularly in China-organized water resources management training, and relevant personnel have traveled to China for exchange and learning [17]. Long-term and repeated personnel contacts enable the two sides to learn more about each other's working methods, professional capacities, and habits of cooperation. For security communities, such sustained social contact is important because trust is not the outcome of a one-time political commitment, but a relational condition gradually formed through long-term interaction. Based on the available interview materials, what can be confirmed is familiarity, experience exchange, and sustained cooperation; these are not yet sufficient to demonstrate that such factors have been transformed into stable mutual trust.

Collective identity is more complicated. At the top political level of China-Laos relations, there is already strong community-oriented language. A 2016 joint statement described the two countries as sharing ideals and beliefs, having closely linked destinies, and pursuing similar development paths, and characterized their relationship in terms of a strategically significant community with a shared future [18]. The latest joint statement in 2026 further proposed building an "all-weather China-Laos community with a shared future in the new era" and continued to advance cooperation in water resources planning, integrated management, hydrological monitoring, and capacity building [16]. At the level of overall bilateral relations, therefore, community-oriented discourse has clear political significance.

However, community identification at the political level cannot be equated directly with the formation of collective identity in the water resources cooperation domain. When discussing the China–Laos community with a shared future, the interviewed official understood it as a diplomatic and political concept, noting that the expression mainly appears in leaders’ meetings, the signing of cooperation agreements, official meetings, and the launch of major projects. By contrast, in concrete water resources cooperation, the language used most directly continues to concern water resources management, training, data exchange, and project cooperation. Community identity in overall bilateral relations therefore has a clear political expression, but the available evidence is insufficient to determine whether it has already been transformed into a shared identity within the water resources cooperation field.

This suggests that third-tier relational change in China–Laos water resources cooperation currently has a layered character. Long-term interaction and personnel exchange have produced a relatively stable cooperative relationship and positive assessments of the value of cooperation, while at the level of overall interstate relations, the community with a shared future has become an established political expression. Yet within the specific field of water resources cooperation, evidence directly demonstrating the establishment of stable mutual trust and a shared identity remains limited. A more cautious judgment is that China–Laos water resources cooperation has shown some signs of development toward the third tier, but these signs are not sufficient to demonstrate that mutual trust and collective identity have been fully formed.

From the perspective of security community theory, this finding is significant.

4. Analysis of the Mechanisms of China–Laos Cross-Border Water Resources Cooperation

China–Laos water resources cooperation is not a temporary arrangement formed in the short term. The two sides have developed sustained technical exchange, personnel training, hydrological monitoring, and disaster response around water governance, and these interactions are connected with energy, infrastructure, and Lancang–Mekong regional cooperation. According to Adler and Barnett’s account of security communities, interstate relations can develop from the emergence of initial conditions, through transactions, organization, and social learning, toward mutual trust and collective identity. From this perspective, China–Laos water resources cooperation has developed a relatively clear foundation of sustained interaction, but cooperation itself does not mean that the two sides have completed a deeper transformation toward a security community.

4.1 Drivers and Operational Foundations

This continuity has clear practical foundations. China’s engagement in Laos has covered infrastructure, energy, mining, agriculture, and special economic zones and has become closely connected with Laos’s development process. DiCarlo and Lu note that China has become an important investor and creditor for Laos and that the long-term presence of Chinese capital and enterprises in infrastructure and energy has moved China–Laos relations beyond isolated project-based cooperation [19]. Water resources cooperation is therefore not an isolated sectoral issue, but is connected with Laos’s energy development, agricultural production, flood and drought management, and infrastructure construction.

The same relationship can be observed in Lao official statements. In 2020, the Lao Minister of Natural Resources and Environment, when discussing Lancang–Mekong water resources cooperation, linked water resources development with food security, energy, infrastructure, disaster prevention and

mitigation, and economic development, and referred to China–Laos cooperation in hydrological monitoring, water resources planning, and personnel training. The statement also noted Lao visits to China to inspect the Yangtze and Yellow Rivers, the Three Gorges Project, and the South-to-North Water Transfer Project and emphasized learning from China’s water-governance experience [20]. This indicates that China–Laos water resources cooperation is grounded in relatively stable practical demand and has a basis for repeated and expanding interaction.

4.2 Sustained Interaction and Relational Transformation

The issue therefore merits further discussion. The continuation of cooperation does not mean that the two sides have already developed a shared understanding in the sense required by a security community. Functional cooperation initially addresses concrete matters such as water utilization, flood and drought management, information access, and technical capacity building. The relational condition required by a security community goes further: it concerns whether the two sides gradually develop stable expectations about one another’s behavior and a certain degree of shared identity. An increasing number of cooperation activities does not therefore mean that mutual trust and collective identity will emerge at the same pace.

The study by Kuik and Rosli on China–Laos infrastructure cooperation provides a useful point of comparison. Based on fieldwork and interviews conducted in several areas of Laos in 2022, they found a marked unevenness in Laos’s host-country agency in cooperation with China. Laos can actively propose cooperation ideas and promote projects in accordance with its development goals, but once negotiations and implementation begin, its ability to adjust cooperation conditions and influence final outcomes becomes more constrained. They also point out that the substitutability of external partners and Laos’s own domestic capacity influence this room for agency [21]. Although this study does not directly focus on water resources cooperation, it highlights the need to distinguish between “continued cooperation” and “complete convergence of interests.” A state may continue cooperation on the basis of development needs, material benefits, and long-term interests while retaining its own policy objectives and displaying different degrees of agency across issues and stages. The continuation of China–Laos water cooperation can therefore demonstrate stable practical demand, but it cannot by itself establish that the two sides have developed fully convergent security perceptions.

4.3 Limits to Deeper Cooperation

Information cooperation provides a further illustration of this layered relationship. The Mekong Basin has developed relatively clear regional mechanisms for hydrological information cooperation, and China and the Mekong River Commission have long maintained arrangements for hydrological data exchange, with related cooperation expanding further after 2020. At the same time, Laos has developed national water resources information capacity, and Chinese assistance contributed to the establishment of the Lao National Water Resources Information Center. These materials indicate that cross-border water resources cooperation is not occurring in an institutional vacuum.

There is nevertheless a distinction between regional mechanisms and bilateral institutional arrangements. Hydrological information exchange through the Mekong River Commission provides a platform for regional communication, but it does not mean that the specific institutional arrangements among individual countries are fully interconnected. Combined with the interview evidence used in this study, this suggests that China and Laos still have room to improve the interconnection of water-information systems and formal bilateral data-sharing arrangements. The issue is not simply whether the two sides cooperate, but whether cooperative mechanisms operating at different levels can actually

be connected. Regional mechanisms can reduce some information asymmetries and provide institutional platforms for long-term interaction, but they do not automatically translate into deep integration across all bilateral matters.

China–Laos water relations should therefore not be understood as a simple linear progression from “contact” to “community.” Common water-resource problems encourage cooperation; sustained cooperation generates personnel interaction, experience sharing, and institutional linkages; and these processes can provide conditions for trust accumulation. The third tier of security community formation, however, requires more stable mutual expectations and a deeper shared identity. Cooperation itself is an important foundation of this process, but it is not the endpoint.

China–Laos water relations are better understood as an evolving form of functional cooperation. The two sides have established a relatively stable basis for interaction, and the cooperation network continues to expand. Interest coordination, room for national agency, and linkages among institutions operating at different levels constitute important variables shaping the future development of the relationship. The available evidence adequately demonstrates continuity in China–Laos water resources cooperation, but these interactions are not sufficient on their own to establish that stable mutual trust and a shared identity, in the sense required by a security community, have already formed in the water-resources field.

Whether China–Laos water relations will move further in this direction depends not simply on whether the number of cooperation projects continues to increase, but more importantly on whether sustained interaction can gradually generate stable expectations of behavior and further consolidate into a shared understanding of common water security. Its further development therefore needs to be assessed through subsequent cooperation practices.

Funding:

This research was supported by the 2026 Guangxi Postgraduate Education Innovation Program, “Research on the Practical Mechanisms of China–Laos Cross-Border Water Security Cooperation from the Perspective of Security Community” (Project No. YCSW2026336).

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