Development of Community Participation Mechanisms in Mountain Water Supply Management for Agriculture and Household Consumption in Ban Tat Ton Community, Na Fai Sub-district, Mueang District, Chaiyaphum Province

Cattaleya Navesat
Faculty of Liberal Arts and Science, Chaiyaphum Rajabhat University, Thailand
Email: tontawan18@gmail.com

Received: September 30, 2026	Revised: October 30, 2026	Accepted: November 14, 2026

Abstract
This research aimed to study the current situation and water resource problems, develop community participation mechanisms for mountain water supply management, and propose sustainable water management guidelines in Ban Tat Ton Community, Na Fai Subdistrict, Mueang District, Chaiyaphum Province. Although this area possesses natural abundance and readily available mountain water resources, in practice, it faces problems regarding a lack of efficient management systems and strong community participation, leading to disparities in water allocation and infrastructure maintenance, especially during the dry season. The researcher employed Participatory Action Research (PAR) with a sample group of 30 community members through brainstorming processes and public forums to build consensus. The study revealed that the core solution lies in shifting the community's role from a service recipient to a "resource manager." Therefore, the researcher proposed a management mechanism emphasizing a 5-step participatory learning process: 1) participatory problem study to comprehensively analyze system weaknesses; 2) joint strategic planning; 3) implementation according to the set plan; 4) continuous monitoring and evaluation; and 5) establishment of a preventive maintenance system. The results indicate that these 5 steps help raise awareness and foster a sense of ownership over common resources, resulting in more transparent and equitable water management, leading to the long-term sustainability of water sources for agriculture and consumption. Furthermore, this developed management model serves as an important prototype for other communities with similar contexts to enhance water security and quality of life through a genuine participatory process.
Keywords: Community participation, Water management, Mountain water supply

Introduction

Reliable access to water supports household well-being, agricultural livelihoods, and sustainable economic and social development. Thailand's *National Strategy 2018–2037* identifies water security as a national development priority, and the revised *20-Year Water Resources Management Master Plan* translates that priority into objectives for household water supply, water availability for production, and the conservation and restoration of aquatic ecosystems. The master plan emphasizes integrated river basin management and participation across sectors (*National Strategy 2018–2037*, 2018; Office of the National Water Resources, 2024). For communities that depend on mountain water supply systems, implementing these objectives requires maintaining local infrastructure and coordinating how available water is allocated. Ban Tat Ton, located in Na Fai Subdistrict, Mueang Chaiyaphum District, Chaiyaphum Province, lies in a headwater area with perennial mountain streams. Despite this natural endowment, the community has experienced recurring shortages of water for household use and agriculture, particularly during the dry season. The study's initial assessment identified several contributing factors alongside seasonal reductions in water availability. Irregular maintenance allowed sediment to accumulate and leaks to persist in the pipeline network, reducing the amount of water reaching users. Unclear allocation rules and limited coordination also contributed to unequal access between households at the upper and lower ends of the distribution network, creating tensions among water users.

The community's shared water supply can be understood as a common-pool resource because restricting access is difficult and water withdrawn by one user reduces the amount available to others. Ostrom (1990) explains how resource users can govern shared resources over time by establishing rules suited to local conditions, involving users in decisions about those rules, and monitoring compliance through arrangements accountable to the users. In Ban Tat Ton, this perspective directs attention to how households agree on allocation during periods of scarcity, assign responsibility for pipeline maintenance, and address disputes over access.

Citation: Nawiset, K. (2026). Development of Community Participation Mechanisms in Mountain Water Supply Management for Agriculture and Household Consumption in Ban Tat Ton Community, Na Fai Sub-district, Mueang District, Chaiyaphum Province. International Journal of Development Administration Research, 9 (4), 47-56.

To examine how residents can take an active role in managing the mountain water supply, this study applies Cohen and Uphoff's (1980) framework for rural development participation. The framework distinguishes four forms of participation: decision-making, implementation, benefits, and evaluation. In this study, these forms correspond to residents' involvement in setting water-use and maintenance priorities, carrying out agreed activities, sharing the benefits of improved water access, and reviewing how well the system serves households across the distribution network.

The study examines existing water-use practices and supply problems, develops a mechanism for community participation, and proposes guidelines for the sustainable management of Ban Tat Ton's mountain water supply. Through participatory action research, it connects national water security objectives with local decisions about allocation, maintenance, and oversight. The proposed model is intended to support more equitable water access and strengthen the community's capacity to respond collectively to seasonal shortages and climate variability. It may also inform similar efforts in communities with comparable water sources, infrastructure, and governance arrangements.

Research Objectives

1. To examine the current conditions, water resource problems, water utilization, and water supply systems of the Ban Tat Ton community.
2. To develop community participation in the management of water sources for agricultural and domestic consumption.
3. To identify guidelines for developing sustainable water resource management within the community.

Literature Review

Community Management of Mountain Water Supply Systems

In rural communities that rely on mountain streams, a single piped network may serve both household and agricultural needs. Service reliability depends on the amount of water available at the source, the condition of the distribution network, and the rules that govern withdrawals when demand exceeds supply. Whaley and Cleaver (2017) argue that assessing rural water systems requires attention to the interaction between infrastructure, local institutions, and wider governance arrangements. For a mountain water supply system, this means examining whether the network delivers water reliably across seasons, which households are affected by interruptions, and how users and local authorities respond when problems arise.

Research in northern Thailand also illustrates the importance of considering water quality alongside access. In the communities studied by Sudsandee et al. (2020), mountain water supplies were the principal source of drinking water, and microbiological testing identified contamination in the samples collected. These findings concern the communities included in that study. Their relevance to Ban Tat Ton is that the availability of water for household use and its suitability for drinking are distinct aspects of service performance.

Common-Pool Resources and Local Water Governance

Ostrom's (1990) common-pool resource theory explains the collective action problems that arise when excluding users is difficult and one person's use reduces the amount available to others. For Ban Tat Ton, the theory helps distinguish the governance of water withdrawals from the management of the infrastructure that delivers the water. Allocation rules address who may draw water, when, and under what conditions. Maintenance arrangements determine who inspects the network, reports blockages or leaks, and contributes labor or funds for repairs. Both sets of arrangements influence how much water reaches households at different points in the network.

Ostrom (1990) identifies several features of durable self-governance, including clearly defined users and resource boundaries, rules adapted to local conditions, opportunities for users to revise those rules, accountable monitoring, and accessible mechanisms for resolving disputes. Applied to Ban Tat Ton, these principles raise practical questions about whether households at the lower end of the network have a voice

Citation: Nawiset, K. (2026). Development of Community Participation Mechanisms in Mountain Water Supply Management for Agriculture and Household Consumption in Ban Tat Ton Community, Na Fai Sub-district, Mueang District, Chaiyaphum Province. International Journal of Development Administration Research, 9 (4), 47-56.

in allocation decisions, whether users consider maintenance contributions fair, and how complaints about unequal access are handled.

Dimensions of Community Participation in Water Management

Cohen and Uphoff (1980) distinguish four forms of participation in rural development: participation in decision-making, implementation, benefits, and evaluation. In community water management, **decision-making** involves identifying problems and agreeing on allocation and maintenance priorities. **Implementation** concerns how residents, committee members, and other stakeholders carry out agreed tasks, such as inspecting pipelines or organizing repairs. **Participation in benefits** concerns who gains from a more reliable supply and how those gains are distributed among households and agricultural users. **Evaluation** involves reviewing whether the arrangements work, identifying who continues to experience shortages, and revising practices in response.

The framework also directs attention to who participates and what influence they exercise. In Ban Tat Ton, attendance at a village meeting provides one indication of involvement. The analysis also considers whose concerns inform allocation rules, who bears the costs of maintenance, and whether households experiencing recurrent shortages can influence subsequent decisions. Examining participation across these dimensions links the process of making decisions to the distribution of responsibilities and benefits.

Institutional Support and Sustainability

A systematic review of successful community-managed rural water supplies by Hutchings et al. (2015) identified collective initiative, effective leadership, and institutional transparency as recurring features. Many successful cases also received sustained external support through technical advice, financing, or management assistance. Whaley and Cleaver (2017) similarly emphasize that community management operates within a wider institutional setting that shapes access to authority and resources. Together, these studies suggest that the sustainability of a village water supply depends on how routine local responsibilities are coordinated with support for problems that exceed the community's technical or financial capacity.

This relationship is relevant to Thailand's revised *20-Year Water Resources Management Master Plan*, which emphasizes participation across sectors and addresses water for household use, water for production, and ecosystem conservation (Office of the National Water Resources, 2024). At the village level, the policy provides a basis for examining how water users, community committees, and local authorities can coordinate allocation, preventive maintenance, and responses to seasonal shortages.

Synthesis and Research Gap

The literature provides complementary explanations for the performance of community-managed water systems. Common-pool resource theory explains how users establish and sustain collective rules. Participation theory helps identify whose views inform those rules, who implements them, and who benefits. Rural water supply research shows how technical conditions and institutional support shape what communities can sustain. The question for Ban Tat Ton is how residents can put these elements into practice when one mountain water supply system serves both households and farms, and access varies across the distribution network. The present study uses participatory action research to examine existing water-use and management practices, develop a community participation mechanism with local stakeholders, and formulate guidelines for equitable allocation and preventive maintenance.

Research Methodology

This research employed a qualitative research methodology to build an in-depth understanding of the social structure and community problems. The operation was divided into 3 phases as follows:

Phase 1: Survey and Problem Analysis: Studied the physical conditions of the mountain water supply system and the water utilization behavior of the community.

Phase 2: Development of Participatory Mechanisms: Integrated the four "social engineer" skills (analytical thinking, communication, collaboration, and innovation creation) to drive knowledge-exchange forums.

Citation: Nawiset, K. (2026). Development of Community Participation Mechanisms in Mountain Water Supply Management for Agriculture and Household Consumption in Ban Tat Ton Community, Na Fai Sub-district, Mueang District, Chaiyaphum Province. International Journal of Development Administration Research, 9 (4), 47-56.

Phase 3: Formulation of Sustainability Guidelines: Conducted focus group meetings to draft policy recommendations.

Target Groups and Stakeholders

Table 1 The researcher used a purposive sampling technique to select 30 participants, as detailed in the table below:

Sample Group Type	Quantity (Persons)	Role in Research
Community leader representatives	5	Provide policy information and management authority
Local scholars	3	Provide information on local wisdom and the history of water sources
Stakeholders / General citizens	22	Reflect actual usage problems and participate in rule-setting
Total	30	

Additionally, in Phase 3, the researcher selected specialized representatives to validate the operational guidelines, consisting of 1 community representative, 1 leader representative, and 1 water management expert.

Instruments and Quality Control

Instruments: Comprising current condition surveys, an in-depth interview guide focusing on community problem analysis, and focus groups.

Instrument Quality: Content validity was examined by 3 experts to determine the Item-Objective Congruence (IOC) index.

Data Analysis

Content Analysis: Categorizing data obtained from interviews and observations to identify main themes and development guidelines.

Triangulation: Comparing data obtained from different sources (e.g., comparing data from village leader interviews with data from actual farming users) to confirm the reliability and accuracy of the data.

Descriptive Analysis: Presenting the study results in an academic narrative format, summarizing key points derived from the group processes.

Conceptual Framework

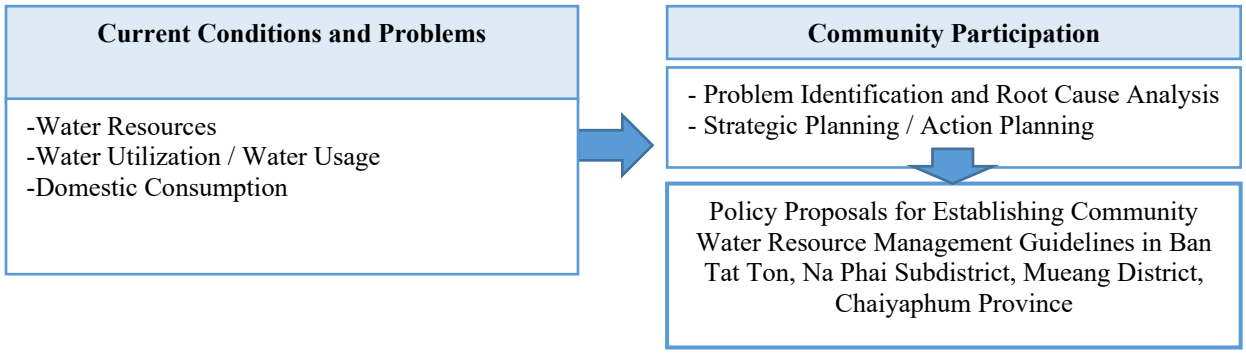


Figure 1: Conceptual Framework of the Research

Citation: Nawiset, K. (2026). Development of Community Participation Mechanisms in Mountain Water Supply Management for Agriculture and Household Consumption in Ban Tat Ton Community, Na Fai Sub-district, Mueang District, Chaiyaphum Province. International Journal of Development Administration Research, 9 (4), 47-56.

Research Results

Based on the study, the key findings are as follows: From the implementation of Participatory Action Research (PAR) in the Ban Tat Ton community, Na Phai Subdistrict, Mueang District, Chaiyaphum Province, the researcher can summarize the study results in chronological order according to the evolution of problems and their solutions as follows: In the initial stage of the research, the researcher conducted a baseline situation analysis and found that although the Ban Tat Ton community is a headwater area with high physical abundance, the community's mountain tap water management system had fallen into a "management vacuum." The identified problems were complex and overlapped in three dimensions. Starting with physical issues, the water pipeline system lacked maintenance according to its lifespan, resulting in accumulated leakage points and sediment blockage, which directly affected water quality and caused insufficient water flow distribution. In addition, there were structural management problems characterized by a lack of clear rules or agreements on water usage, leading to unequal water consumption between upstream and downstream households. This sparked social conflicts and distrust within the community. All these factors caused the community's water infrastructure to deteriorate faster than it should have. Moving into the participatory action research process, the researcher utilized a 5-step participatory learning mechanism as a key tool to drive change. It began with a participatory problem study that allowed villagers to see the big picture of the water system through joint participatory mapping. This process shifted their status from isolated water users to active observers of the real problems. It then led to strategic planning, where the community collaborated to establish "village rules" and set up a new water management committee to provide concrete representation and accountability. During the implementation phase, the community demonstrated adaptive capacity by establishing a proactive maintenance volunteer group. This allowed minor damages to be resolved quickly without waiting for external support, marking a major turning point that showed a transition from relying on the government to self-reliance. Furthermore, during the monitoring and evaluation stage through water lesson-learned forums, the researcher found that this process not only helped solve water issues but also served as a neutral communication platform that eased various conflicts and built stronger social capital. Transparency in the management of the maintenance fund, achieved through reporting in public forums, instilled confidence in the villagers and made them more willing to cooperate in preventive maintenance. In conclusion, the research results indicate empirical changes in 3 main aspects: First: Significantly increased efficiency resulting from a more stable water system and a reduced water loss rate. Second: Community resilience, driven by villagers developing a strong sense of ownership over the water sources and infrastructure. Third: Sustainability, achieved as the community is able to establish a revolving financial system for maintenance by themselves. These elements confirm that solving water resource problems cannot be achieved through technical improvements alone; rather, it requires a participatory mechanism that provides opportunities for the community to think, plan, and act together to ensure long-term water security for the Ban Tat Ton community.

Discussion

The findings from Ban Tat Ton show how residents began to take responsibility for allocating water, maintaining the distribution network, and overseeing the maintenance fund. The discussion examines these changes through four themes: common-pool resource management, dimensions of participation, social capital, and the role of public agencies in sustaining community-managed water services.

1. Effectiveness of Common-Pool Resource Management

In Ban Tat Ton, unclear allocation rules and limited coordination had contributed to unequal access between households at the upper and lower ends of the distribution network. The participatory process gave residents an opportunity to agree on village water-use rules and establish a water management committee. These arrangements clarified how allocation decisions would be made and where residents could raise concerns about shortages or unequal access. The village rules thus provided a shared basis for addressing competing demands for household and agricultural water.

This finding is consistent with Ostrom’s (1990) account of how users can govern common-pool resources through rules suited to local conditions, opportunities to shape those rules, and monitoring that is

Citation: Nawiset, K. (2026). Development of Community Participation Mechanisms in Mountain Water Supply Management for Agriculture and Household Consumption in Ban Tat Ton Community, Na Fai Sub-district, Mueang District, Chaiyaphum Province. International Journal of Development Administration Research, 9 (4), 47-56.

accountable to users. A review by Cox et al. (2010) found broad empirical support for these institutional principles across different resource settings. In Ban Tat Ton, the practical value of the rules lay in giving households a way to address allocation problems collectively while assigning responsibility for the infrastructure on which access depended. The findings indicate that these arrangements helped ease tensions during the study. Their durability will depend on whether households continue to regard the rules as fair and whether the committee can revise them as seasonal supply and demand change.

2. Dimensions of Participation

The five-step mechanism comprised participatory problem assessment, joint strategic planning, implementation, monitoring and evaluation, and preventive maintenance. It illustrates how Cohen and Uphoff's (1980) four dimensions of participation can be applied to a village water supply. Residents participated in **decision-making** when they mapped problems, set priorities, and agreed on water-use rules. They participated in **implementation** through the volunteer group that inspected the network and addressed minor damage. **Participation in benefits** concerns how improvements in service reach households and farms at different points in the network. Residents participated in **evaluation** through review forums where they discussed allocation problems, maintenance work, and the status of the maintenance fund.

Reed (2008) emphasizes early involvement, clear objectives, and the integration of local knowledge into environmental decision-making. In Ban Tat Ton, participatory mapping allowed residents to relate their experience of shortages to conditions elsewhere in the network. The volunteer group then gave them a defined role in maintaining the system. These activities help explain the sense of ownership reported in the study. Participation in benefits still warrants attention because a more stable supply across the network can coexist with recurring shortages at its lower end. Household experiences during the dry season therefore provide a practical basis for evaluating how equitably the benefits are distributed.

3. Building Social Capital Through the Learning Process

The public forums and review meetings enabled households at the upper and lower ends of the network to compare their experiences of water shortages. Discussing the distribution network together helped participants understand how withdrawals, sediment blockages, and leaks could affect users elsewhere in the system. Public reporting on the maintenance fund also gave residents a way to see how their contributions were being used. The study linked these practices to greater trust and a stronger willingness to cooperate in preventive maintenance.

Pretty (2003) explains how trust and shared expectations can encourage people to invest time and resources in collective action. Hutchings et al. (2015) likewise identified collective initiative and institutional transparency among recurring features of successful community-managed rural water services. In Ban Tat Ton, these ideas help explain why the forums mattered for routine management. Residents could raise concerns about water access, review how maintenance funds were used, and agree on actions that required cooperation across the network. These practices may help the community respond to seasonal shortages and budget constraints. Their contribution to resilience over multiple dry seasons remains to be assessed.

4. Policy Implications and Paradigm Shift

The Ban Tat Ton case shows how infrastructure problems and governance problems can reinforce each other. Leaks and sediment blockages reduced the water reaching users, while unclear responsibilities delayed maintenance and complicated allocation. Whaley and Cleaver (2017) similarly argue that rural water service performance depends on the interaction between infrastructure, local institutions, and wider governance arrangements. Studies of community-managed water services in African settings also show that maintenance finance and repair capacity can constrain service continuity (Chowns, 2015; Foster, 2013). These studies help explain why the role of public agencies should extend from infrastructure provision to sustained technical and institutional support.

In Ban Tat Ton, the community can organize routine inspections, carry out minor repairs, and review maintenance expenditures through public forums. Local authorities can support these activities through training, technical advice, and assistance with major repairs beyond the capacity of the volunteer group or maintenance fund. This division of responsibilities is consistent with evidence on the value of sustained

Citation: Nawiset, K. (2026). Development of Community Participation Mechanisms in Mountain Water Supply Management for Agriculture and Household Consumption in Ban Tat Ton Community, Na Fai Sub-district, Mueang District, Chaiyaphum Province. International Journal of Development Administration Research, 9 (4), 47-56.

external support for community-managed water services and with the emphasis on cross-sector participation in Thailand's revised water resources master plan (Hutchings et al., 2015; Office of the National Water Resources, 2024). The five-step mechanism offers a starting point for communities with similar supply and allocation problems. A comparison of maintenance costs, service interruptions, and access across the network over several seasons would help determine when this approach offers better value than capital-intensive alternatives.

Conclusion

The Participatory Action Research (PAR) conducted in the Ban Tat Ton community, Na Phai Subdistrict, Mueang District, Chaiyaphum Province, to develop a mountain water supply management mechanism, allows for the following summary of findings and key insights: The Transition from Problems to Sustainability through Participatory Mechanisms This research provides empirical evidence confirming that water scarcity in the Ban Tat Ton community was not caused solely by the depletion of natural resources, but by a "management vacuum" resulting from the absence of strong rules and cohesion among community members. The development of a 5 - step participatory learning management mechanism (problem analysis, planning, implementation, monitoring and evaluation, and maintenance) has proven to be the most effective tool for addressing these issues. It has concretely transformed the role of villagers from "passive recipients" into "active resource managers."

Knowledge and Discovered Theories

The key findings from this research indicate that the local management of common-pool resources can only succeed when the community can create a "common space" for communication and establish mutual agreements (community by-laws) on their own. These rules, derived from participation, are not merely regulations but function as a "social contract" that fosters a sense of ownership. This results in transparency, accountability, and a significant reduction in water allocation conflicts. Furthermore, the study demonstrates that social capital is the primary factor that makes water management systems resilient and capable of overcoming technical and budgetary obstacles more effectively than relying solely on external mechanisms.

Applied Recommendations and Future Directions

This research delivers a "water management model" that is ready for scalability in other areas with similar contexts. The core requirement for sustainability is for local authorities to shift their role from "commanders" to "facilitators" who focus on strengthening community mechanisms to ensure long-term viability. Ultimately, the mountain water supply management at Ban Tat Ton is not merely a success in securing water for consumption and agriculture; it is a victory for the social learning process that elevates trust and unity within the community. This serves as the most solid foundation for grassroots empowerment and acts as an exemplary model of sustainable water resource management driven by the local people themselves.

Key Research Contributions

The Participatory Action Research (PAR) on the development of mountain water supply management mechanisms in the Ban Tat Ton community, Na Phai Subdistrict, Mueang District, Chaiyaphum Province, has yielded significant new knowledge in both theoretical and practical dimensions. These contributions can be synthesized into the following key points:

1. The 5-Step Participatory Water Management Model

This research introduces a systematic process that bridges field-based problem analysis with continuous implementation. The model consists of: 1) Participatory Problem Study, 2) Joint Strategic Planning, 3) Implementation, 4) Monitoring and Evaluation, and 5) Preventive Maintenance. This framework serves as a proven prototype that can be applied to other communities in mountainous contexts facing similar water management challenges.

2. Paradigm Shift from Recipient to Resource Manager

Citation: Nawiset, K. (2026). Development of Community Participation Mechanisms in Mountain Water Supply Management for Agriculture and Household Consumption in Ban Tat Ton Community, Na Fai Sub-district, Mueang District, Chaiyaphum Province. International Journal of Development Administration Research, 9 (4), 47-56.

The study highlights that the sustainability of common-pool resources can only be achieved by unlocking the "social vacuum." This is accomplished by shifting the community's status from "passive government service recipients" to "active resource managers." This transition is driven by the collaborative drafting of community by-laws and the establishment of a self-governing water management committee to oversee operations independently.

3. Public Space for Social Capital and Transparency

Another key insight is that public forums and "lesson-learned" sessions serve as more than just data collection tools; they function as "social catalysts." These public spaces are essential for mitigating conflict, ensuring transparency in fund management, and instilling a profound sense of ownership among community members. This social cohesion is the core factor enabling the water management system to remain robust and self-sustaining in the long term.

Recommendations

Based on the participatory action research on the development of mountain water supply management mechanisms in the Ban Tat Ton community, Na Phai Subdistrict, Mueang District, Chaiyaphum Province, the researcher proposes the following recommendations for practical implementation and future development:

Recommendations for Practice

Continuous Promotion and Review of Community Rules: The Ban Tat Ton community and the water management committee should hold meetings to review the "community by-laws" at least once a year. This is to update conditions or maintenance fee rates in line with economic conditions and raw water volumes that may fluctuate seasonally. Proactive communication processes should be established for new residents who have recently moved into the area or households that have just begun utilizing the water system, ensuring they are aware of and strictly comply with the established rules. Enhancing the Role of Local Administrative Organizations: The Na Phai Subdistrict Administrative Organization or relevant local agencies should shift their role from sole infrastructure supporters to "facilitators and technical mentors." This includes supporting skills training for community technicians in repairing large water pipelines and helping water user groups secure a clear legal status. Local authorities should provide backup support in cases of severe damage beyond the capacity of the community fund, such as natural disasters or landslides destroying main pipeline routes. Ensuring Transparency and Proactive Water Fund Management: The village committee should maintain a system of transparently reporting the financial status of the mountain water supply maintenance fund through public forums. This builds trust and minimizes criticism, which is crucial for encouraging members to continuously pay their contributions. An emergency reserve budget should be allocated within the fund for unexpected pipe bursts or sudden damages, enabling rapid problem-solving without having to wait for government budgetary procedures.

Recommendations for Future Research

Study on Climate Change Impacts: Further research should be conducted from an environmental science perspective regarding rainfall volumes and raw mountain water flow rates under climate variability. This will help forecast long-term water availability and plan reserve water usage in advance. Integration of Information Technology with Community Water Management: Studies should explore the application of modern technologies—such as smart water level sensors in storage tanks or leak alert applications—integrated with community wisdom and participatory mechanisms. This will enhance accuracy and reduce the physical burden of walking to inspect water pipeline routes. Expansion of Comparative Studies in Other Contexts: The 5-step participatory mechanism model should be piloted and evaluated in other watershed areas with ethnic diversity or land-law limitations (such as national reserved forests or national parks) to test the model's flexibility and adaptability to different social contexts.

Citation: Nawiset, K. (2026). Development of Community Participation Mechanisms in Mountain Water Supply Management for Agriculture and Household Consumption in Ban Tat Ton Community, Na Fai Sub-district, Mueang District, Chaiyaphum Province. International Journal of Development Administration Research, 9 (4), 47-56.

References

Chowns, E. (2015). Is community management an efficient and effective model of public service delivery? Lessons from the rural water supply sector in Malawi. *Public Administration and Development, 35*(4), 263–276. https://doi.org/10.1002/pad.1737

Cohen, J. M., & Uphoff, N. T. (1980). Participation's place in rural development: Seeking clarity through specificity. *World Development, 8*(3), 213–235. https://doi.org/10.1016/0305-750X(80)90011-X

Cox, M., Arnold, G., & Villamayor Tomás, S. (2010). A review of design principles for community-based natural resource management. *Ecology and Society, 15*(4), Article 38. https://doi.org/10.5751/ES-03704-150438

Foster, T. (2013). Predictors of sustainability for community-managed handpumps in sub-Saharan Africa: Evidence from Liberia, Sierra Leone, and Uganda. *Environmental Science & Technology, 47*(21), 12037–12046. https://doi.org/10.1021/es402086n

Hutchings, P., Chan, M. Y., Cuadrado, L., Ezbakhe, F., Mesa, B., Tamekawa, C., & Franceys, R. (2015). A systematic review of success factors in the community management of rural water supplies over the past 30 years. *Water Policy, 17*(5), 963–983. https://doi.org/10.2166/wp.2015.128

National strategy 2018–2037. (2018). https://www.nesdc.go.th/wordpress/wp-content/uploads/2025/05/02-National-Strategy-2018-2037.pdf

Office of the National Water Resources. (2024). *Phaen maebot kan borihan chatkan sapphayakon nam 20 pi (prapprung chuang thi 1 Pho. So. 2566–2580)* [20-year water resources management master plan (first revision, 2023–2037)]. https://ratchakitcha.soc.go.th/documents/39773.pdf

Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press. https://doi.org/10.1017/CBO9780511807763

Pretty, J. (2003). Social capital and the collective management of resources. *Science, 302*(5652), 1912–1914. https://doi.org/10.1126/science.1090847

Reed, M. S. (2008). Stakeholder participation for environmental management: A literature review. *Biological Conservation, 141*(10), 2417–2431. https://doi.org/10.1016/j.biocon.2008.07.014

Sudsandee, S., Fakkaew, K., Keawdounglek, V., Laor, P., Worakhunpiset, S., & Apidechkul, T. (2020). Drinking water investigation of hill tribes: A case study in Northern Thailand. *International Journal of Environmental Research and Public Health, 17*(5), Article 1698. https://doi.org/10.3390/ijerph17051698

Whaley, L., & Cleaver, F. (2017). Can 'functionality' save the community management model of rural water supply? *Water Resources and Rural Development, 9*, 56–66. https://doi.org/10.1016/j.wrr.2017.04.001

Citation: Nawiset, K. (2026). Development of Community Participation Mechanisms in Mountain Water Supply Management for Agriculture and Household Consumption in Ban Tat Ton Community, Na Fai Sub-district, Mueang District, Chaiyaphum Province. International Journal of Development Administration Research, 9 (4), 47-56.