The Role of Puyo Subdistrict Administrative Organization in Managing Village Water Supply Issues: A Case Study of Kok Sue Da Village, Puyo Subdistrict, Su-ngai Kolok District, Narathiwat Province

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Abstract.
This article aims to 1) analyze the role and responsibilities of the Puyo Subdistrict Administrative Organization (SAO) in managing the water supply issues of Kok Sue Da Village, 2) identify problems and obstacles in the SAO's management of the water supply, and 3) propose guidelines for improving the management of village water supply systems. This is a qualitative study using semi-structured interviews, document reviews, observation, and data collection from 10 key informants, including SAO executives and local residents. The data was analyzed using inductive summary analysis. The research found that the Puyo SAO plays a key role in managing the village water supply system, including establishing village committees, allocating budgets, and fostering cooperation among relevant agencies. However, several issues were identified: the village water committee lacked a clear structure, and the budget allocated for water supply management was insufficient to address the problems. Additionally, residents disposed of waste in water sources, causing debris to clog the water pump, which reduced pumping efficiency. The water also became contaminated with waste-related pollutants, resulting in cloudy and red-colored water. The study proposes several recommendations: strengthening the infrastructure of the water supply system, clarifying the structure and responsibilities of the village water committee, ensuring adequate budget allocation for water management, and engaging local communities in discussing water supply issues and solutions.

Keywords: Role, Responsibilities, Problem Management, Village Water Supply

1. Introduction
1.1 Justification
This research aims to study the role of the Puyo Subdistrict Administrative Organization (SAO) in managing the water supply issues of Kok Sue Daeng Village, Su-ngai Kolok District, Narathiwat Province. The study is significant in addressing water system problems in rural areas of Thailand. Despite the government's efforts to implement rural water supply projects since 1977, issues such as inadequate infrastructure, water contamination, and budget constraints persist, impacting service delivery (Department of Water Resources, 2018). Previous studies have highlighted the crucial role of local administrative organizations in solving water supply issues through effective management and coordination with relevant agencies (Office of the National Water Resources, 2021). However, water quality problems

continue in some rural areas, including Kok Sue Daeng Village, where tap water remains unsafe for consumption. This research seeks to fill this knowledge gap by analyzing local water management and proposing sustainable solutions for improving rural water supply systems in Thailand (Pu Yoa Subdistrict Administrative Organization, 2024). The study focuses on Puyo Subdistrict, a rural area facing challenges in accessing clean water, with residents of Kok Sue Daeng Village often encountering murky and contaminated water, insufficient budgets, and geographical limitations. Through field surveys and in-depth interviews with key stakeholders, the research aims to offer a comprehensive understanding of the local water management challenges. The main objective is to analyze the SAO's role, identify problems and obstacles, and suggest ways to improve the village's water supply management. The findings will contribute to both academic knowledge and practical solutions for rural water management in Thailand.

1.2 Research Objective

1. To study the role and responsibilities of the Puyo Subdistrict Administrative Organization (SAO) in managing the water supply issues of Kok Sue Daeng Village.
2. To study the problems and obstacles in the management of the village water supply by the Puyo Subdistrict Administrative Organization.
3. To study potential strategies or recommendations for improving the management of the village water supply in Kok Sue Daeng.

2. Methods

This research adopts a qualitative research approach, focusing on exploring and understanding the experiences, feelings, and perspectives of individuals. It relies on textual data obtained from semi-structured interviews and observations to gain in-depth insights. The data analysis uses an inductive method to build theories or concepts based on the collected data, rather than testing existing theories. The main goal is to understand the meaning and context of the phenomenon being studied, emphasizing the specific context over general conclusions (Chai Photisita, 2006)

The researcher began by reviewing relevant concepts, theories, and research methodologies, using qualitative research methods through in-depth interviews to gather data that aligns with the research objectives (Supang Chanthawanish, 2010). Data collection was divided into three types as follows:

1. In-Depth Interviews: Focused on asking key questions to draw out deep and relevant information that aligns with the research topic.
2. Probing: A technique of asking follow-up questions to stimulate detailed responses and uncover deeper insights.
3. Key Informant Interviews: Focused on interviewing individuals with specialized knowledge and deep insight into the topic to gather comprehensive data.

The key informants for this research included 10 individuals involved in or affected by the management of village water supply issues, comprising:

1. The Mayor of Puyo Subdistrict Administrative Organization (1 person)
2. The Secretary of Puyo Subdistrict Administrative Organization (1 person)
3. A member of the Puyo Subdistrict Administrative Organization Council (1 person)
4. The Village Head or Assistant Village Head of Kok Sue Daeng (1 person)

5. Residents of Kok Sue Daeng Village (6 people)

For data collection, the researcher analyzed the role of the Puyo Subdistrict Administrative Organization in managing the water supply issues in Kok Sue Daeng Village, using qualitative methods. The key data sources include:

1. Primary Data: Data directly collected by the researcher from the field or individuals through in-depth interviews, primarily using open-ended questions and interviewing key informants. Interviews were conducted in person, or by phone if necessary.
2. Secondary Data: Data obtained from external sources, such as academic documents, books, articles, theses, and related research, used to support and analyze the research.

Data analysis was conducted using analytic induction, which involves interpreting and drawing conclusions from empirical data or observable phenomena (Euamphon Linjaeroen, 2012). This method gathers facts and data from various smaller components and then synthesizes them into a general conclusion that can comprehensively explain the smaller data segments.

3. Result

Objective 1 The research findings revealed that the Puyo Subdistrict Administrative Organization (SAO) plays a crucial role in allocating budgets to develop the water supply system in the area. The focus is on repairing and maintaining equipment to ensure the stability of the system and meet the water demand of the community. The SAO is also responsible for monitoring water quality by conducting inspections and coordinating with relevant agencies, such as the Department of Water Resources and public health authorities, to ensure regular water quality checks. However, the persistent issue of discolored and dirty water continues to affect public satisfaction, even though raw water is processed through filtration and sedimentation. The water quality has not been improved effectively due to a lack of timely monitoring and problem-solving. The SAO must urgently address these issues by systematically assessing and evaluating the situation in the area, allocating budgets for repairs and maintenance, and coordinating with government agencies for additional financial and technical support. Continuous on-site water quality monitoring is essential to provide transparent and up-to-date information to the public. Furthermore, the SAO should encourage community participation in maintaining household water quality and the water system within the community by raising awareness on efficient water usage and involving residents in reporting any issues to enable prompt resolution, thus reducing the impact on daily life.

Objective 2 The research findings show that the management of the village water supply faces several challenges, particularly the lack of budget for improving and repairing infrastructure, such as deteriorating water pipes and filtration equipment, as well as the poor quality of raw water contaminated with high turbidity. As a result, the produced tap water is not clean and safe for consumption. This issue has persisted for over a decade, despite efforts to address it through budget allocation and empowering the village water committee to carry out repairs within 24 hours. However, these efforts have only provided temporary fixes, leaving residents to resolve the problem on their own, such as by digging wells or installing water filters. Additional factors affecting water supply management include aging infrastructure, environmental fluctuations, and insufficient financial and human resources, which delay development and improvements, making it difficult to meet the community's needs effectively.

Objective 3 The research findings suggest that improving the management of the village water supply to enhance its efficiency should focus on continuous investment in infrastructure. This includes allocating additional budgets for upgrading pipes, machinery, and establishing sustainable water reserves, such as reservoirs or rainwater harvesting systems. Regular inspections and repairs of water filtration systems, storage tanks, and water pipes are necessary to reduce the risk of malfunctions. Establishing a dedicated team of experts to manage the water system around the clock, along with support from relevant agencies, such as the National Water Resources Office, will be vital in securing funds for repairs and infrastructure development. Moreover, controlling water quality, raising public awareness about efficient water usage, and involving the community in water system development will help ensure long-term security and sustainability. Maintenance of water filtration systems and transparent management of water quality issues will foster public trust and encourage full community support.

Discussion

The research findings reveal that the Pouyo Subdistrict Administrative Organization (SAO) plays a crucial role in managing the village water supply system, particularly through budget allocation for maintenance and repair. This aligns with the research by Mana Hasama et al. (2024), which emphasizes the success factors in local government water management, such as sufficient raw water sources, skilled personnel, and support from village committees knowledgeable in water systems. However, challenges arise in areas without existing water systems, where a lack of water sources, space, and technical staff hampers the effectiveness of water supply management. Relevant laws such as the Subdistrict Council and Subdistrict Administrative Organization Act B.E. 2537 and the Water Resources Act B.E. 2561 mandate local authorities to ensure water provision for consumption and agriculture, but the lack of proper oversight and accountability, as discussed by Cohen (1979), highlights the gap between prescribed and actual roles, which can lead to water quality issues.

Moreover, the study identifies key obstacles such as financial constraints and inadequate management as significant challenges in the effective delivery of water services. Despite legal provisions requiring local governments to ensure clean water, issues such as water contamination, including turbidity and rust, persist. These findings resonate with research by Samarn Jai-Tia et al. (2022), which found water quality problems during drought periods. Addressing these issues requires an integrated approach involving infrastructure investment, community participation, and appropriate allocation of resources. The research also suggests that consistent maintenance, collaboration across agencies, and a structured approach to resource management are vital to ensure long-term sustainability and efficiency in village water supply systems (Wila-wan Rapee-pisarn, 2007).

3. Conclusion

In conclusion, the research underscores the pivotal role of the Puyo Subdistrict Administrative Organization (SAO) in managing the water supply issues of Kok Sue Daeng Village. Despite its efforts to allocate budgets for system repairs and ensure water quality monitoring, significant challenges remain, such as inadequate infrastructure, financial constraints, and poor-quality raw water. These issues have resulted in the continuous production of unsafe drinking water, forcing residents to resort to self-supplied solutions like wells and water filters. The study highlights the need for sustained investment in infrastructure, timely repairs, and enhanced coordination with relevant agencies. Additionally, fostering community

participation, improving water management practices, and ensuring regular maintenance are essential for long-term, sustainable improvements in water supply systems. Addressing these challenges through comprehensive, community-inclusive strategies will contribute to better water quality and more reliable services for rural areas in Thailand.

Acknowledgment

The research report was successfully completed due to the support of various individuals who generously provided valuable information, suggestions for correcting deficiencies, advice, opinions, and encouragement, all of which contributed to the improvement and successful completion of this report. Special thanks are extended to the executive team and the local community of Koksue Da Village for their cooperation in answering questions, which was integral to the successful completion of this research. Finally, the research team expresses its gratitude to Lecturer Boriboon Chalong (Lecturer in Political Science Research Methodology), Dr. Yaowaluk Chawbanpho (Research Advisor), Assistant Professor Pol.Lt.Col. Dr. Waipoj Kulasai, Assistant Professor Dr. Thuwathida Suwannarat, and Lecturer Khwanta Benjakhan at the Faculty of Political Science and Public Administration, Suan Sunandha Rajabhat University, for their invaluable support in data collection and conducting interviews. Their recognition of the importance of this research and encouragement in promoting studies on village water supply management will serve as a guideline for planning, development, and improvement in addressing the issue of village water supply management.

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