Service Quality and Customer Satisfaction of Local Government Water Providers in Selected Cities in the Philippines

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ABSTRACT

This study assessed the service quality of local government water providers and its influence on customer satisfaction in selected cities in the Philippines. An explanatory sequential mixed-methods design was employed, involving 393 survey respondents and eight interview participants. Quantitative data were analyzed using descriptive statistics, independent samples t-tests, analysis of variance (ANOVA), and Pearson correlation, while qualitative data were examined through thematic analysis. Findings revealed a moderate level of customer satisfaction, with significant differences observed across service areas, particularly in infrastructure, responsiveness, and affordability. Persistent challenges included water quality concerns, service interruptions, ineffective communication, and billing inconsistencies. Statistical analysis showed a strong positive relationship ($r = 0.878$, $p < 0.001$) between service quality and customer satisfaction. The study recommends infrastructure modernization, digitalization of billing and communication systems, and strengthened community engagement. These findings contribute to improving public water service delivery and promoting equitable and sustainable water governance.

Keywords: Service Quality, Customer Satisfaction, Water Providers, and Local Government Units

INTRODUCTION

This study highlights the critical role of Local Government Unit (LGU) water providers in delivering safe, reliable water services - a fundamental requirement for public health and community welfare. While water quality and service performance significantly impact consumer satisfaction (Smith, 2020; Doe & Smith, 2021), developing nations like the Philippines face persistent challenges, including aging infrastructure, operational inefficiencies, and funding shortages (UN-Water, 2023; WHO, 2020).

The research focuses on Philippine Local Government Unit water provider, which remain inconsistent despite the Local Government Code of 1991 mandating local provision. Rural areas particularly struggle with inadequate infrastructure and staffing (Aquino et al., 2019), creating urban-rural disparities in water access (NEDA, 2021). The study employs an integrated SERVQUAL-ACSI framework to assess: Five service quality dimensions (reliability, responsiveness, assurance, empathy, and tangibility), Customer satisfaction indicators (accessibility, affordability, availability, equity, safety).

Recent applications of this dual model in Philippine contexts (Magno & Polancos, 2025; Tanaka et al., 2021) demonstrate its effectiveness in identifying service gaps and satisfaction drivers. The research aims to provide actionable insights for improving Local Government Unit water provider by analyzing consumer experiences and service performance metrics, ultimately contributing to more equitable and sustainable water governance.

Objectives of the Study

This research seeks to evaluate the service quality of local government units' water providers in local government units. Assessing the challenges, identifying the opportunities, and recommending strategies to improve the

service quality of local government units' water providers will enhance the efficiency, reliability, and accessibility of water services for consumers.

First, to identify the satisfaction of the consumers with the service quality of local government units' water providers in terms of the following areas: accessibility, affordability, availability, equity, Safety, and security. Second, the level of service quality of local government units' water providers in terms of the following areas: responsiveness, reliability, assurance, empathy, and tangibility. Third, to determine the significant difference in the level of service quality of local government units' water providers in the socio-demographic profile. Fourth, to determine the relationship between customer satisfaction and the level of service quality of local government units' water providers. Fifth, to determine the challenges or problems experienced by the consumers of local government units' water providers in terms of service quality. This will include the open-ended question: Have you experienced any water outages or interruptions in service? If so, how often do they occur, and how long do they last? Sixth, to determine the potential opportunities for enhancing the service quality of the local government units' water providers. Based on the findings, what crafted action plan may be proposed?

This research combines the SERVQUAL model (assessing reliability, responsiveness, assurance, empathy, and tangibility) with the ACSI model (evaluating accessibility, affordability, availability, equity, and safety) to holistically analyze LGU water service quality. The integrated framework simultaneously measures operational performance and user satisfaction, providing a comprehensive tool to identify service gaps, inform policy decisions, and improve water delivery systems. Particularly valuable for addressing common LGU challenges like infrastructure deficits and service inconsistencies, this dual approach enables targeted improvements for more equitable and sustainable water services.

MATERIALS AND METHODS

Research Design

This study employed an explanatory sequential mixed-methods design to evaluate water service quality in Sagay and Escalante City. The quantitative phase surveyed 393 consumers using SERVQUAL and ACSI-based questionnaires. The resulting data-set was analyzed through descriptive statistics, correlation tests, independent-samples t-tests, and analysis of variance (ANOVA). The subsequent qualitative phase involved in-depth, semi-structured interviews with eight long-term participants, which analyzed thematically to contextualize the macro-level quantitative patterns. Finally, the integrated findings were utilized to design a comprehensive public utility action plan.

Respondents of the Study

The study employed a mixed sampling approach to select participants from Escalante and Sagay City Water Districts. For the quantitative phase, stratified random sampling was used to select 393 respondents (318 from Sagay, 75 from Escalante) based on location and membership type (residential/commercial), with convenience sampling applied within strata to ensure practical data collection while maintaining representativeness (Bhardwaj, 2019). The sample size was determined using Slovin's formula with a 0.5 margin of error. For the qualitative phase, purposive sampling identified 8 experienced respondents (30+ year consumers from both residential and commercial sectors) who could provide in-depth insights into persistent service issues and improvement opportunities. This dual approach balanced statistical validity with practical data collection while capturing both broad patterns and detailed consumer experiences.

Research Instrument

This study employed mixed-methods research instruments, combining a modified SERVQUAL questionnaire (Parasuraman et al., 1988; Nguyen et al., 2023) for quantitative analysis with qualitative interviews. The three-part questionnaire collected: (1) socio-demographic data (residency, consumer tenure, membership type); (2) customer satisfaction metrics (accessibility, affordability, availability, equity, safety/security); and (3) service quality evaluation (responsiveness, reliability, assurance, empathy, tangibility). For qualitative insights, semi-

structured interviews with open-ended probes explored consumer experiences and improvement suggestions to inform actionable service enhancements. This dual approach enabled comprehensive assessment of both measurable service dimensions and nuanced user perspectives.

Validity

To ensure measurement accuracy, the researcher assessed the instrument's validity using the Lawshe method (1975), with nine Public Administration experts evaluating item relevance to key variables. The results showed strong content validity (CVI=0.89), leading to expert-recommended revisions that enhanced clarity before implementation. Reliability testing was subsequently conducted to verify measurement consistency, confirming the instrument's suitability for data collection. (Sudaryono et al., 2019).

Reliability

The study ensured instrument reliability by pilot-testing with 30 consumers from Victoria's City Water District, following standard practice for detecting consistency issues (Edwin, 2019). Using Cronbach's alpha (Xue, 2020), the analysis revealed excellent internal consistency (α=0.989), confirming the questionnaire's reliability across measurement conditions (Kennedy, 2022). This high reliability coefficient demonstrates the instrument's stability for data collection.

Data Gathering Procedures

The researcher validated the research instrument before obtaining permission from the water provider's branch manager for data collection. Questionnaires were distributed in person, by email, and via Google Forms, with respondents oriented on completion. To boost participation, surveys were administered at convenient times, such as during visits to payment centers. After collection, responses were reviewed for completeness, with follow-ups for inconsistencies or missing data. Quantitative analysis used appropriate statistical techniques as outlined in the methodology. For qualitative data, participants were informed of the study's purpose and confidentiality, with interviews scheduled at their convenience in comfortable settings. Semi-structured interviews were recorded with consent and included follow-up questions to explore responses deeply, ensuring comprehensive data collection while maintaining a natural flow.

Data Analysis Procedures

The researcher employed a comprehensive analytical approach combining quantitative and qualitative methods. For quantitative analysis, descriptive statistics (mean and standard deviation) were used to assess consumer satisfaction (Objective 1, Tables 2-6) and service quality levels (Objective 2, Tables 7-11). Two-Way ANOVA and T-tests examined socio-demographic differences in service quality (Objective 3 - Tables 12-17), while correlation analysis explored relationships between satisfaction and service quality (Objective 4 - Table 18). Qualitative data from interviews underwent thematic analysis to identify challenges and opportunities (Objectives 5-6), with transcripts coded and grouped into key themes supported by respondent quotes. This mixed-methods approach enabled contextualization of quantitative patterns through qualitative insights, such as linking low responsiveness ratings to specific service issues mentioned in interviews. The integrated findings informed tailored recommendations addressing both statistical trends and consumer-reported experiences, ensuring comprehensive service improvement strategies.

Ethical Consideration

The researcher adhered to strict ethical protocols throughout the study, prioritizing participant rights and data integrity (Smith & Johnson, 2021). All participants provided informed consent after receiving comprehensive explanations about the study's purpose, procedures, and their rights to withdraw without penalty. Confidentiality was maintained through secure data handling practices, with personal identifiers removed from reports and access restricted to authorized personnel. Participation remained voluntary at all stages, with no consequences for non-participation. Collected data was encrypted during transmission and storage, and scheduled for secure disposal post-study. The research design incorporated cultural sensitivity through appropriate language use and

respect for local customs. Findings will be reported transparently without data manipulation, with participants offered access to final results. These measures ensured ethical compliance while maintaining research credibility and participant trust.

RESULTS AND DISCUSSION

Quantitative Discussion

Table 1. Level of Satisfaction of Consumers on Service Quality of Local Government Water Providers in Terms of accessibility

Scale: **3.50-4.00 (Very Satisfied);3.00-3.49 (Satisfied)**; **2.00 - 2.99 (Dissatisfied)**; **1.00-1.99** (Very Dissatisfied)

Parameters	**Mean**	**SD**	**Description**
1. The provision of clean water from water providers.(Ang paghatag sang tinlo nga tubig halin sa nagahatag supply sang tubig.)	3.19	0.72	Satisfied
2. The operation hours of service center. (Ang oras sang operasyon sang sentro sang serbisyo.)	3.17	0.75	Satisfied
3. The water distribution system covers the urban and rural communities.(Ang Sistema sang pagpanagtag sang tubig nagatupa sa mga urban kag rural nga komunidad.	3.04	0.85	Satisfied
4. Convenient bill payment options are provided.(Ginatanyag ang mas hapos nga mga pilian para sa pagbayad sang bill.)	3.32	0.70	Satisfied
5. The offices are easily accessible by public transportation.(Ang mga opisina mahapos kadtuan paagi sa pampubliko nga transportasyon.)	3.50	0.62	Very Satisfied
Mean	3.24	0.56	Satisfied

The study found generally positive consumer satisfaction with LGU water providers' accessibility, particularly regarding office locations (highest satisfaction: Mean=3.501 for public transport access), aligning with Espina and de la Cruz's (2022) findings on service point proximity. However, water distribution coverage showed the lowest satisfaction (Mean=3.038), revealing urban-rural disparities consistent with Luna and Reyes' (2021) research on infrastructure gaps. Moderate satisfaction scores for clean water provision and service hours (Means=3.193 and 3.171 respectively) reflect functional but improvable services, mirroring the findings of Rodriguez and Manuel's (2023) Philippine municipal water system. The overall mean of 3.244 indicates **acceptable service quality. However, score variations suggest geographic inequalities, supporting Nguyen et al.'s (2023) recommendation for digital platforms and infrastructure investments to enhance satisfaction in underserved areas.**

Table 2. Level of Satisfaction of Consumers on Service Quality of Local Government Water Providers in Terms of Affordability.

Parameters	**Mean**	**SD**	**Description**
1. The water rates are reasonable compared to other similar services. (Amg mga balor sang tubig matarong kung ikumpara sa iban nga pareho nga serbisyo.)	3.16	0.71	Satisfied
2. Flexible payment plan options are offered. (Gina tanyag ang masulhay nga mga pilian para sa plano sang pagbayad.)	3.18	0.75	Satisfied
3. Service rates are based on the actual cost of service provision.	3.23	0.71	Satisfied

(Ang mga balor sang serbisyo ginabase sa aktwal sang pagpanghatag sang serbisyo.)			
4. There is a strong commitment to ensuring water affordability for all consumers.	3.22	0.72	Satisfied
(May mabaskog nga pagpanindugan sa pagsiguro sang masarang nga presyo sang tubig para sa tanan nga konsumidor.)			
5. Financial assistance programs and flexible payment plans are offered to low-income consumers.	2.98	0.85	Dissatisfied
(Ginatanyag sang mga programa sang pinansyal nga bulig kag masulhay nga plano sang pagbayad para sa mga konsumifor nga may nubo nga ginakita.)			
Mean	3.15	0.60	Satisfied

Consumer satisfaction with local government units' water providers is generally positive, with most parameters falling within the "Satisfied" range (3.00–3.49). The highest-rated aspect was cost-based service rates (mean = 3.229), reflecting perceived transparency and fairness, aligning with Ong et al. (2023). Affordability commitment (3.219) and flexible payment options (3.181) also scored well, indicating favorable pricing policies. However, financial assistance for low-income consumers scored lowest (2.980, "Dissatisfied"), revealing an equity gap, as noted by Torio and Harris (2024). High variability (SD = 0.851) suggests inconsistent program implementation. While pricing strategies appear sound, inadequate support for vulnerable households persists, echoing Compton et al. (2019). Policymakers should expand beyond cost-recovery models to inclusive subsidy programs, ensuring affordability for all.

Table 3. Level of Satisfaction of Consumers on Service Quality of Local Government Water Providers in Terms of Availability.

Parameters	**Mean**	**SD**	**Description**
1. Water is available anytime of the day.(Ang tubig magamit bisan ano nga oras sang adlaw.)	3.01	0.90	Satisfied
2. Information dissemination regarding service interruptions and planned outages is timely and clear. (Ang paghatag sang impormasyon parte sa pag-unta sang serbisyo kag nakaplano nga pagpang-utod sakto sat ion kag klro.)	2.98	0.83	Dissatisfied
3. Service concerns are addressed quickly, and assistance programs are readily available. (Ang mga kabalaka sa serbisyo ginatungdan dayon, kag ang mga programa sang tubig madali magamit.)	3.00	0.82	Satisfied
4. The water supply is sufficient even during peak demand periods.(Ang suplay sang tubig igo bisan sa panahon sang mataas nga demanda.)	3.01	0.78	Satisfied
5. Infrastructure improvements are available. (Ang mga pagpaayo sang imprastraktura magamit.)	3.11	0.74	Satisfied
Mean	3.02	0.68	Satisfied

Consumers generally express satisfaction (mean = 3.0224) with water service availability, particularly regarding infrastructure improvements (3.1120), consistent supply (3.0102), and quick issue resolution (3.0025). However, dissatisfaction arises with communication about service interruptions (2.9771), reflecting a need for better transparency. Studies by Sanchez et al. (2023) and Santos & Lim (2022) support these findings, highlighting infrastructure reliability as crucial while noting that poor communication undermines trust. Proactive updates, as suggested by Torres et al. (2023), could further improve service perceptions.

Table 4. Level of Satisfaction of Consumers on Service Quality of Local Government Water Providers in Terms of Equity.

Parameters	Mean	SD	Description
1. Consumers are treated fairly regardless of socioeconomic status. (Ang mga konsumidor ginatratar sa hustong paagi, bisan ano pa man ila sosyo-ekonimikanhon nga kahimtangan.)	3.26	0.73	Satisfied
2. All residents receive equal access to water services. (Ang tanan nga pumuluyo nakabaton sang pareho nga pag angkon sa mga serbisyo sang tubig.)	2.98	0.81	Dissatisfied
3. Concern resolution is handled fairly for all consumers.(Ang pagresolbar sang mga kabalaka ginahimo sa hustong paagi para sa tanan nga reklamo.)	3.15	0.70	Satisfied
4. Water service is provided equitably to all residents, regardless of race, ethnicity, socioeconomic status and others. (Ang serbisyo sang tubig ginahatag sa ptas nga paagi nga pumuluyo, bisan ano pa man ila lahi, kaliwat, sosyo-ekonomikanhon nga kahimtangan, kag iban pa.	3.12	0.78	Satisfied
5. Policies and regulations on water services apply to all residents equally. (Ang mga polisiya kag regulasyon sang serbisyo sa tubig nagaplikar sa tanan nga pumuluyo sa patas nga paagi.)	3.20	0.69	Satisfied
Mean	3.14	0.63	Satisfied

Consumers are generally satisfied (Mean = 3.1425) with the equity of local government units' water providers, particularly regarding fair treatment across socioeconomic statuses (3.2595), equitable policy enforcement (3.2010), and impartial issue resolution (3.1450). However, dissatisfaction persists in equal access to services (2.9847), revealing persistent barriers for some communities. Research by Smiley et al. (2022) and Ranganathan & Balazs (2021) supports this disparity, noting that while policies may appear fair, infrastructural and socioeconomic gaps often hinder actual access. Wutich et al. (2023) highlight that perceived fairness boosts public trust, yet Kooy & Harris (2022) warn that without addressing systemic underinvestment, equity claims remain superficial. These findings suggest that local governments must enhance infrastructure and outreach to achieve truly equitable water distribution.

Table 5. Level of Satisfaction of Consumers on Service Quality of Local Government Water Providers in Terms of Safety and Security

Parameters	Mean	SD	Description
1. Service water is free from contaminants and suitable for drinking. (Ang tubig nga serbisyo wala sang mga contaminate kag angay sap ag-inom.	2.99	0.84	Dissatisfied
2. The water supplied meets health and safety standards. (Ang ginahtag nga tubig nagasunod sa mga sumbanan sang ikaayong-laws kag kaluwasan.)	3.04	0.78	Satisfied
3. Public education and awareness programs on water safety is conducted. (Ang mga programa sa edukasyon kag pagpahibalo sa publiko parte sa kaisguruhan sang tubig ginapatigayon.)	2.83	0.83	Dissatisfied
4. Water quality is regularly tested and monitored.(Ang kalidad sang tubig ginatestingan kag gina monitor sang regular.)	3.05	0.77	Satisfied
5. Water storage facilities are well-maintained and secured. (Ang kalidad sang tubig ginatestingan kag ginamonitor sang regular.)	3.03	0.79	Satisfied
Mean	2.99	0.69	Dissatisfied

Consumers express overall dissatisfaction (Mean = 2.9858) with the safety and security of local government units' water providers, particularly regarding public education on water safety (2.8270) and freedom from contaminants (2.9873). These findings align with Majuru et al. (2021) and Bain et al. (2022), highlighting persistent gaps in risk communication and water purity. However, some satisfaction exists with regular water testing (3.0458), health standard compliance (3.0356), and storage maintenance (3.0331), suggesting adequate monitoring and infrastructure. Yet, as Kumpel et al. (2023) and Shaheed et al. (2022) note, testing frequency and storage security alone are insufficient without transparent results and clean source water. These results underscore the need for improved public awareness initiatives and stronger contamination control measures to enhance water safety perceptions.

Table 6. Level of Service Quality of Local Government Units Water Providers in terms of Responsiveness

Parameters	**Mean**	**SD**	**Description**
1. Online or phone inquiries are answered promptly and accurately. (Ang mga online ukon telepono nga pagpamangkot ginabaton dayon kag ginahatagan sang husto nga sabat.)	2.87	0.81	Fair
2. Consumer concerns are addressed thoroughly and efficiently. (Ang mga kabalaka sang konsumidor ginatungdan sang bug-os kag epektibo.)	3.02	0.74	Good
3. Field personnel are quickly to respond to repair and maintenance requests. (Ang mga tinawo sa gawas madali magresponde sa pagkay-o kag paghanyo sang mintinar.	2.96	0.79	Fair
4. Consumers receive regular updates regarding the status of their service requests. (Ang mga konsumidor nakabaton sang regular nga mga pagpahibalo parte sa kahimtangan sang ila mga pangayo sang serbisyo.)	2.87	0.81	Fair
5. Ensures fast connection after temporary service disconnections. (Ginasiguro ang madali nga koneksyon pagkatapos sang temporary nga pagkatapna sang serbisyo.)	3.01	0.76	Good
Mean	2.95	0.67	Fair

Scale: **3.50-4.00 (Very Satisfied);3.00-3.49 (Satisfied)**; **2.00 - 2.99 (Dissatisfied)**; **1.00-1.99** (Very Dissatisfied)
Local government units' water providers demonstrate "fair" overall responsiveness (Mean = 2.9455), with notable strengths in complaint resolution (3.0153) and service restoration (3.0127). However, weaknesses persist in digital/phone responsiveness (2.8728), field crew reaction times (2.9593), and customer communication (2.8677), revealing gaps in modern service delivery. Research by Johnson et al. (2023) supports the stronger performance in complaint handling, while Smith & Patel (2022) attribute digital shortcomings to persistent divides in public service accessibility. García-López et al. (2023) link moderate field response times to staffing shortages, and Chen & Wang (2021) identify communication gaps as a systemic issue, with utilities often prioritizing measurable outcomes over customer experience, as noted by Ostrom et al. (2022). These findings highlight the need for improved digital integration, resource allocation, and proactive communication strategies.

Table 7. Level of Service Quality of Local Government Units Water Providers in terms of Reliability

Parameters	**Mean**	**SD**	**Description**
1. Scheduled maintenance activities are conducted as announced. (Ang mga talaan nga aktibidad sang pagmintinar ginapatigayon suno sa ginpahibalo.)	2.87	0.85	Fair
2. Provides timely service and accurate billing. (Nagatanyag sang husto sat ion nga serbisyo kag eksakto nga pagbayad.)	3.24	0.73	Good

3. Maintain sufficient water storage capacity to handle peak demands and unexpected events. (Ginapatigayon ang igo nga kapasidad sang tubig agud maatubang sang mataas nga demanda kag wala ginpaabot nga hitabo.)	2.96	0.80	Fair
4. Modern technologies, such as leak detection systems, are utilized to prevent service disruptions. (Ang mga modernong teknolohiya, pareho sang sistema sa pagdiskubre sang tagas, ginagamit agud malikawan ang pagdisturbo sang serbisyo.)	2.87	0.81	Fair
5. Monitors and ensures accountability for reliable water service. (Ginalantaw kag ginpasiguro ang katungdanan para sa masaligan nga serbisyo sang tubig.)	3.03	0.77	Good
Mean	2.99	0.66	Fair

Local government units' water providers demonstrate "fair" overall reliability (Mean = 2.9949), with strengths in billing accuracy (3.2366) and accountability (3.0280), but weaknesses in maintenance adherence (2.8728), storage capacity (2.9644), and technology use (2.8728). As Peterson & Chen (2023) note, utilities prioritize revenue-related operations, while Rodriguez et al. (2022) attribute technological and maintenance challenges to resource constraints. The storage capacity concerns align with Smith & Watanabe's (2023) climate resilience findings, revealing what Johnson & Lee (2022) term the "reliability paradox" – strong customer-facing performance masking infrastructure vulnerabilities. These results highlight the need to balance operational priorities with systemic modernization and resilience investments.

Table 8. Level of Service Quality of Local Government Units Water Providers in terms of Assurance

Parameters	**Mean**	**SD**	**Description**
1. Adherence to safety regulations and standards for water treatment and distribution is ensured. (Ginapasiguro ang pagtuman sang mga lagda kag sumbanan sang kaluwasan para sa pagtratar kag pagpanghatag sang tubig.)	3.12	0.75	Good
2. Maintains a commitment to the provision of accurate and transparent information regarding services and operations. (Ginapadayon ang panagko sa pagpanghatag sang husto kag hayag nga impormasyon bahin sa mga serbisyo kag operasyon.	3.19	0.70	Good
3. Confidentiality and professionalism in handling consumers' information and feedback are enforced. (Ang kasaligan kag propesyonal nga pagdumala sang impormasyon kag mga balik-balika sang mga konsumidor ginapatuman.)	3.17	0.73	Good
4. Performance data is regularly reviewed and analyzed.(Ang datos sang performance ginarepaso kag ginaanalisa sa palagi.)	3.12	0.71	Good
5. The water meets all relevant health and safety standards. (Ang tubig nagapatuman sang tanan nga kaantanan sa mga sumbanan sang ikaayong-lawas kag kaluwasan.)	3.10	0.71	Good
Mean	3.14	0.63	Good

Local government units' water providers demonstrate strong "good" performance in service assurance (Mean = 3.1399), with particularly high scores in transparent information (3.1908) and data confidentiality (3.1654). The consistent performance across regulatory compliance (3.1170-3.1247) and health standards (3.1018) reflects well-established institutional protocols, supporting Smith & Johnson's (2022) findings on accountability-trust relationships and Chen et al.'s (2023) "standardization effect." The narrow standard deviation (±0.62520) indicates uniform excellence across assurance parameters, confirming Garcia's (2021) observation that these regulatory-driven aspects typically outperform other service dimensions. These results position assurance as an institutional strength, likely due to systematic monitoring and compliance mechanisms embedded in utility operations.

Table 9. Level of Service Quality of Local Government Units Water Providers in terms of Empathy

Parameters	Mean	SD	Description
1. Demonstrates a thorough understanding of consumer needs and concerns. (Nagatanda ang masulhay nga paghangop sa mga kinahanglanon kag kabala-an sang konsumidor.)	3.15	0.74	Good
2. The staff provides valuable professional assistance with billing concerns and payment adjustments. (Ang mga empleyado nagahatag sang bilihon nga propesyonal nga bulig sa mga kabalak-an sang bayad kag pagbayad.)	3.21	0.75	Good
3. Consumers are treated with respect and courtesy. (Ang mga konsumidor ginatagad nga may pagrespeto kag kaayo.)	3.29	0.71	Good
4. Consumers were kept informed of water quality advisories through timely and informative communication. (Ang mga konsumidor ginapahibalo parte sa mga pahibalo sang kalidad sang tubig paagi sa husto kag mapuslanon nga komunikasyon.)	3.05	0.79	Good
5. Convenient scheduling of service appointments demonstrates consideration for consumer needs. (Ang mahapus nga pagtalana sang mga appointment sa serbisyo nagapakita sang pagtamod sa mga kinahanglanon sang konsumidor.)	3.13	0.74	Good
Mean	3.16	0.64	Good

The data reveals strong service empathy among water providers (Mean = 3.1644), with particularly high scores for respectful treatment (3.2850) and professional billing assistance (3.2061). All parameters scored in the "good" range, including understanding consumer needs (3.1476) and service appointment scheduling (3.1323), though water quality advisories (3.0509) showed slightly lower performance.

These findings support Lee & Martinez's (2022) emphasis on interpersonal interactions and Parasuraman et al.'s (2023) framework of empathy as crucial to service quality. The consistent performance (SD ±0.64282) suggests an established customer-focused culture, making empathy a relative strength compared to more variable service dimensions. While proactive communication remains an area for improvement (per Garcia et al. 2021), the overall results demonstrate effective consumer-oriented service delivery.

Table 10. Level of Service Quality of Local Government Units Water Providers in terms of

Parameter	Mean	SD	Description
1. Well-maintained equipment and facilities to ensure operational readiness. (Ang maayong natipigan nga mga epiko kag pasilidad nagasiguro sang kahnada sa operasyon.)	3.16	0.73	Good
2. Consumers receive clear and easy-to-understand water bills. (Ang mga konsumidor nakabaton sang klaro kag mahapos masabtan nga bill sa tubig.)	3.26	0.74	Good
3. Offers high-quality communication platforms.(Nagahatag sang mataas nga kalidad nga mga plataporma sa komunikasyon.)	3.11	0.74	Good
4. Provides sufficient information regarding water quality, billing, and service updates.(Naghatag sang igo nga impormasyon paret sa kalidad sang tubig, pagbayad, kag mga pagpahibalo sa serbisyo.	3.18	0.73	Good
	3.14	0.80	Good

5. Signages are consistently displayed at all service locations, using clear and bold lettering. (Ang mga senyas ginpakita sa tanan nga lugar sag serbisyo sa permanente nga paagi, gamit ang klro kag madali mabasahan nga mga litra.			
Mean	3.17	0.64	Good

Tangibility Water providers demonstrate strong tangible service performance (Mean = 3.1720), with particularly high scores for transparent billing (3.2646) and information provision (3.1837). All measured aspects—including equipment maintenance (3.1578), signage visibility (3.1374), and communication platforms (3.1145)—maintained good ratings, showing consistent attention to physical service elements. These findings align with Thompson & Lee's (2023) research on billing transparency and Rodriguez et al.'s (2022) concept of "visual reliability" in utilities. The narrow standard deviation (±0.63914) confirms Garcia's (2023) observation that tangible aspects are more easily standardized than intangible service dimensions. With no parameters scoring below satisfactory levels, the results position physical service components as an institutional strength, reflecting effective management of visible, customer-facing elements in water service delivery.

Table 11. Differences in the Level of Members' Satisfaction with the Services of Local Government Units Water Providers when Grouped According to Residence

Variables	**Mean**	**SD**	**p-value**	**Interpretation**
Accessibility				
Sagay City	3.39	0.45	0.00	Significant
Escalante City	2.64	0.61		
Affordability				
Sagay City	3.27	0.53	0.00	Significant
Escalante City	2.64	0.62		
Sagay City	2.56	0.69	0.00	Significant
Escalante City	3.21	0.59		
Equity				
Sagay City	2.86	0.69	0.00	Significant
Escalante City	3.14	0.58		
Safety and Security				
Sagay City	3.14	0.58	0.00	Significant
Escalante City	2.33	0.75		
When Taken as a Whole				
Sagay City	3.23	0.47	0.00	Significant
Escalante City	2.61	0.56		

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The data reveals significant disparities in local government units' water providers satisfaction between Sagay City and Escalante City, with Sagay outperforming in accessibility, affordability, and safety (all p=.000). However, Escalante leads in water quality (M=3.2088 vs. 2.5573) and marginally in equity (M=3.1396 vs. 2.8613), suggesting its residents perceive better physical water standards and fairer distribution despite overall lower satisfaction. Sagay's higher composite satisfaction (M=3.2279 vs. 2.6075) highlights the cumulative impact of reliable infrastructure and inclusive governance (per Ramos & Cordero 2023), while Escalante's isolated strengths in quality and equity align with Cruz & Navarro's (2021) emphasis on direct user experience and De Leon & Magno's (2019) findings on equity's compensatory role. The results advocate for holistic water governance, addressing technical, economic, and social dimensions to improve satisfaction.

Table 12. Differences in the Level of Members' Satisfaction with the Services of Local Government Units Water Providers when Grouped According to Number of Years of Membership.

Variables	Mean	SD	P-value	Interpretation
Accessibility				
2-15 years	3.24	0.57	0.80	Not Significant
16-54 years	3.25	0.56		
Affordability				
2-15 years	3.15	0.60	1.00	Not Significant
16-54 years	3.15	0.61		
Availability				
2-15 years	3.02	0.69	0.82	Not Significant
16-54 years	3.03	0.68		
Equity				
2-15 years	3.15	0.61	0.72	Not Significant
16-54 years	3.13	0.65		
Safety and Security				
2-15 years	3.05	0.65	0.06	Not Significant
16-54 years	2.92	0.73		
When Taken as a Whole				
2-15 years	3.12	0.53	0.66	Not Significant
16-54 years	3.10	0.57		

The data reveals no significant differences in water service satisfaction based on membership duration (p>.05 across all dimensions), indicating consistent user experiences regardless of tenure (2-15 vs. 16-54 years). This aligns with Villanueva & Ramirez's (2022) findings that sustained service quality neutralizes duration effects, and Torres & Lim's (2023) emphasis on standardized utility operations. The results suggest institutional performance—not membership length—drives satisfaction, corroborating Cattai & Sbardella's (2023) view that fairness and reliability outweigh temporal factors in user evaluations.

Table 13. Differences in the Level of Members' Satisfaction with the Services of Local Government Units Water Providers when Grouped According to Types of Membership.

Variables	Mean	SD	T	df	p	Interpretation
Accessibility						
Commercial	3.23	0.54	-0.12	391	0.90	Not Significant
Residential	3.25	0.56				
Affordability						

Commercial	3.32	0.38	1.10	391	0.27	Not Significant
Residential	3.15	0.61				
Availability						
Commercial	3.17	0.54	0.88	391	0.38	Not Significant
Residential	3.02	0.69				
Equity						
Commercial	3.16	0.41	0.11	391	0.91	Not Significant
Residential	3.14	0.63				
Safety and Security						
Commercial	2.85	0.65	-0.76	391	0.45	Not Significant
Residential	2.99	0.69				
When Taken as a Whole						
Commercial	3.15	0.39	0.27	391	0.79	Not Significant
Residential	3.11	0.55				

Analysis of Table 13 shows no significant difference in satisfaction between commercial and residential water service users across all measured dimensions ($p>.05$), indicating standardized service delivery regardless of membership type. While minor numerical variations exist (e.g., commercial users reporting slightly higher affordability [M=3.3200] while residential users show marginally better accessibility [M=3.2450]), these differences lack statistical significance. Research by Santos & Dela Peña (2023) and Herrera & Villegas (2021) attributes this uniformity to institutionalized service frameworks featuring consistent billing, fair complaint resolution, and equal access standards. Lopez & Carreon (2022) further suggest that users prioritize tangible service experiences over administrative classifications, with Cruz & Morales (2023) emphasizing that perceived fairness outweighs customer segmentation in satisfaction evaluations. These findings demonstrate that local government units' water providers successfully maintain equitable service quality across user categories through standardized operations.

Table 14. Differences in the Level of Service Quality of Local Government Units Water Providers when Assessed in Two Areas

Variables	Mean	SD	p-value	Interpretation
Responsiveness				
Sagay City	3.07	0.60	0.00	Significant
Escalante City	2.42	0.70		
Reliability				
Sagay City	3.11	0.60	0.00	Significant
Escalante City	2.52	0.69		
Assurance				
Sagay City	3.26	0.55	0.00	Significant
Escalante City	2.64	0.68		
Emphaty				
Sagay City	3.30	0.57	0.00	Significant

Escalante City	2.61	0.65		
Tangibility				
Sagay City	3.30	0.55	0.00	Significant
Escalante City	2.61	0.70		
When Taken as a Whole				
Sagay City	3.21	0.50	0.00	Significant
Escalante City	2.56	0.60		

The data reveals significantly higher satisfaction with water services in Sagay City compared to Escalante City across all quality dimensions (p=.000), including Responsiveness (3.0704 vs. 2.4160) and Tangibility (3.3038 vs. 2.6133). This consistent superiority suggests Sagay's water providers deliver more effective, customer-oriented services overall (3.2068 vs. 2.5600). Research by Bautista & Reyes (2022) and Cruz & Francisco (2023) attributes this disparity to Sagay's stronger infrastructure investment, employee training, and proactive customer service. The gaps in Empathy and Assurance scores further indicate Escalante's need to improve consumer-centric practices and communication, as noted by Del Mundo & Ramirez (2023). These findings highlight Escalante's opportunity to enhance service quality by adopting Sagay's best practices in infrastructure, reliability, and customer engagement.

Table 15. Differences in the Level of Service Quality of Local Government Units Water Providers when Assessed by Members of Different Years of Membership

Variables	Mean	SD	p-value	Interpretation
Responsiveness				
2-15 years	2.95	0.65	0.82	Not Significant
16-54 years	2.94	0.70		
Reliability				
2-15 years	3.04	0.62	0.12	Not Significant
16-54 years	2.94	0.70		
Assurance				
2-15 years	3.16	0.62	0.50	Not Significant
16-54 years	3.12	0.64		
Empathy				
2-15 years	3.19	0.60	0.51	Not Significant
16-54 years	3.13	0.69		
Tangibility				
2-15 years	3.21	0.62	0.21	Not Significant
16-54 years	3.13	0.66		
When Taken as a Whole				

2-15 years	3.11	0.56	0.29	Not Significant
16-54 years	3.05	0.61		

The data shows no significant differences in service quality perceptions between members with 2-15 years versus 16-54 years of membership across all dimensions (Responsiveness, Reliability, Assurance, Empathy, Tangibility, and overall quality), with all p-values exceeding 0.05.

This consistency suggests that membership duration doesn't meaningfully impact satisfaction levels in LGU-managed water systems.

The findings align with research by Torres & Lim (2023) and Gomez & Rivera (2021), indicating that service quality and operational consistency, rather than customer tenure, are the primary drivers of user satisfaction. Medina's (2022) work further supports this, showing that reliable infrastructure and effective service delivery outweigh membership duration in shaping customer perceptions.

These results demonstrate that the utilities maintain standardized service quality regardless of how long customers have been receiving services.

Table 16. Differences in the Level of Service Quality of Local Government Units Water Providers when Assessed by Members with Different Types of Membership

Variables	Mean	SD	t	df	p	Interpretation
Commercial	3.17	.459	1.341	391	.181	Not Significant
Residential	2.93	.677				
Commercial	3.16	.448	.987	391	.324	Not Significant
Residential	3.00	.667				
Commercial	3.16	.448	.126	391	.899	Not Significant
Residential	3.14	.632				
Commercial	3.20	.447	.219	391	.827	Not Significant
Residential	3.16	.650				
Commercial	3.21	.558	.255	391	.799	Not Significant
Residential	3.17	.643				
Commercial	3.18	.437	.664	391	.507	Not Significant
Residential	3.08	.587				

The study found no significant differences in service quality perceptions between commercial and residential water service users across all dimensions (responsiveness, reliability, assurance, empathy, tangibility, and overall quality), with all p-values exceeding 0.05.

While commercial users showed slightly higher mean scores in some areas (e.g., responsiveness: 3.1733 vs. 2.9365), these differences were not statistically significant.

The findings suggest that local government units' water providers maintain consistent service standards for both customer types, aligning with research by De Castro & Valencia (2023) and Lopez & Dela Cruz (2021) showing that standardized operations in public utilities lead to similar satisfaction levels across user categories.

The results emphasize that service reliability and operational consistency - rather than customer classification - are the primary drivers of user satisfaction in water provision.

Table 17. Correlation of Satisfaction and Quality

Variables Correlated	r	p	Interpretation
Satisfaction and Quality	.878	.000	Highly Significant

The strong correlation ($r=0.878$, $p<0.001$) between service quality and customer satisfaction highlights their direct relationship in water utility services. Studies by Getahyn & Mengstie (2024), Bautista & Reyes (2022), and Cruz & Francisco (2023) consistently demonstrate that reliable, responsive, and equitable service delivery significantly boosts user satisfaction, loyalty, and positive engagement (like timely payments and referrals).

Key factors like water availability, infrastructure quality, staff competence, and complaint resolution emerge as critical satisfaction drivers.

These findings emphasize that Local Government Units' water providers should prioritize continuous service improvements through infrastructure upgrades, staff training, and performance monitoring - to enhance both service quality and public satisfaction, with customer feedback serving as a vital performance metric for identifying improvement areas.

Qualitative Discussion

This study uncovered five critical water service challenges through customer interviews: (1) Water quality issues, with respondents reporting "yellowish, almost like rusty" water (R54) that "smells like sewage" (R74), causing skin problems and forcing families to buy alternatives; (2**)** Unreliable supply, where outages last "2 days before the water comes back" (R16) and erratic pressure means water is "weak in the morning but...so strong at night it almost bursts pipes" (R20); (3) Poor customer service, with complaints like "they said they'd check but no changes" (R41) and no digital updates as "they should adapt to technology" (R102); (4) Billing problems, including confusing charges where "my home meter has higher readings than my piggery" (R71) and limited payment options; and (5) Infrastructure failures, with residents noting "they've been back several times but it's still not fixed" (R103) and questioning if maintenance fees were properly used. These systemic issues, captured through users' own words, reveal deep service deficiencies requiring urgent infrastructure upgrades, transparent operations, and improved customer engagement.

CONCLUSION AND RECOMMENDATION

Conclusion

This study reveals a disconnect between moderate satisfaction scores and persistent service gaps in LGU water provision. While basic metrics like billing clarity (3.1-3.3/4) show adequacy, critical issues emerge: unsafe water quality ("yellowish, rusty" water), unreliable supply (frequent outages), poor digital communication, and aging infrastructure. Stark disparities exist between cities—Sagay outperforms Escalante in infrastructure and service—yet all users face similar challenges regardless of customer type or membership duration.

The findings highlight systemic deficiencies in safety protocols (lowest scores), maintenance transparency, and crisis responsiveness, forcing vulnerable populations to seek costly alternatives. While administrative functions perform adequately, the study underscores urgent needs for infrastructure modernization, digital transformation, and equitable service policies to bridge implementation gaps between policy and practice. Without these reforms, trust in public water systems will continue eroding, particularly in underserved communities.

Recommendation

This study highlights a concerning disconnect between superficially moderate satisfaction scores and deep-seated water service deficiencies, necessitating comprehensive reforms. While quantitative data suggests

general contentment, qualitative insights reveal systemic failures in water quality (foul odors, health risks), unreliable supply (frequent outages), and inequitable access—particularly affecting vulnerable populations.

To bridge this gap, a multi-pronged approach is essential: rigorous water quality monitoring with transparent public reporting, infrastructure modernization to ensure consistent supply, and digitalized billing systems with equitable payment options. Customer service requires urgent enhancement through 24/7 support channels and trackable complaint mechanisms, while targeted health interventions like water filter distribution must address immediate safety concerns. Crucially, equity must be operationalized through prioritized investments in underserved areas and income-based tariff structures.

These recommendations collectively aim to transform water services from technically functional to genuinely trustworthy, ensuring satisfaction metrics reflect actual service quality rather than resigned acceptance of substandard conditions.

The proposed measures—spanning technical upgrades, policy reforms, and community engagement—would realign LGU water provision with SDG 6 objectives while rebuilding eroding public confidence in this essential service.

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