

An Evaluation of the Effectiveness of Nkana Water and Sanitation Company Communication Strategies in Addressing Water Safety Challenges

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Abstract

The study evaluated the effectiveness of the communication strategies used by Nkana Water and Sanitation Company (NWSC) in addressing water safety challenges in Kitwe and Kalulushi districts on the Copperbelt province of Zambia following continued public outcry against the company despite its communication efforts. To achieve this objective, the study asked three questions: 1) What communication strategies are used by NWSC to communicate its water safety? 2) What type of communication messages are received by the public explaining the safety of the water supplied? and 3) What is the public's perception of Nkana Water and Sanitation Company's messages on the safety of the water supplied? The study adopted the positivism philosophy and employed a mixed-method research design where both quantitative and qualitative data were collected. The sample size for the study was 398. And 400 questionnaires were distributed to get at least 398 respondents which was obtained. Qualitative data was collected through in-depth interviews and Focus Group Discussions whereas a self-administered questionnaire was used to collect the quantitative data. Quantitative data was then analyzed using SPSS while content analysis was used for qualitative data. Qualitative data revealed that communication channels used mainly are radio messages and bulk text messages using English and Bemba as languages of communication. The main messages on water safety stated that the brown water is caused by mainly repair works on water infrastructure and sometimes turbidity in the Kafue river which is the source for the company's raw water. The company is not aware of the people's preferred channels of communication. Quantitative data confirmed that despite having a comprehensive communication plan in place with various channels, the channels used by NWSC to deliver messages to its target audience are mainly mobile phone text messages and radio announce-

ments while social media is used to a minimal extent. The study concluded that NWSC has not fully responded to the communication needs of its customers. The study recommended that the company begins to use social media as a leading communication channel, using non-technical language and to provide a feedback mechanism for its messages.

Keywords

Communication, Communication Strategies, Communication Channels, Effectiveness, Feedback, Nkana Water and Sanitation Company

1. Introduction

Water, often referred to as the essence of life, stands as an irreplaceable necessity for the existence of all living beings (Ball, 2007). In a world where global populations are steadily on the rise, so too is the demand for this invaluable resource. The significance of water becomes increasingly pronounced as these populations expand, casting the spotlight squarely upon the supply of a sufficient quantity and quality of water. In this context, the water supply and sanitation sector emerges as a focal point of concern and attention.

Today, worldwide, organizations, including water utility companies, are continuously seeking for the most effective methods for cultivating and maintaining mutual relationships with their clients. This pursuit is driven by the growing challenge of devising communication strategies that not only meet the needs of an ever-expanding client base but also strive to elevate communication to a level of excellence (Tufté & Mefalopoulos, 2009).

Communication effectiveness stands as a vital element in the success of any organization, playing a pivotal role in establishing and sustaining mutual relations between an organization and its stakeholders. In the context of water utility companies, where the stakes are particularly high given the essential nature of their services, the importance of effective communication strategies cannot be overstated. As water supply and sanitation companies grapple with these multifaceted challenges, the significance of optimizing communication strategies becomes increasingly apparent. It is against this background that this study sought to examine the effectiveness of the communication strategies used by Nkana Water and Sanitation Company in addressing water safety challenges.

Nkana Water and Sanitation Company (NWSC) was established in 1998 under the legal framework provided by the Water Supply and Sanitation Act No. 28 of 1997. This legislation grants NWSC the mandate to provide water and sewerage services in the urban and peri-urban areas of Kitwe, Kalulushi, and Chambishi, and it operates as a joint venture owned by Kitwe City Council and Kalulushi Municipal Council.

Effective communication is a cornerstone of organizational success, especially

for entities like Nkana Water Supply and Sanitation Company, which provide essential services to the public. The significance of effective communication lies in its ability to establish mutual understanding between organizations and their stakeholders, fostering trust, transparency, and satisfaction. However, Nkana Water and Sanitation Company seem to have challenges with its communication strategy. The company has been receiving negative media coverage of people complaining of receiving brown or dirty water which they fear could make them contract waterborne diseases (Manyinda, 2020). And a study by (Kabangu, 2022) reveals that there has been public dissatisfaction on water safety which has led to a reduction in the company's revenue collection as people are not willing to pay for a service they feel is not safe. In response, the company has over a period of time made efforts through various communication strategies to assure the clients that the water is safe despite the brown colour. But the public complaints and protests have persisted despite all the efforts. Further, (Kabangu, 2022) reveals that the cause of continued protests by clients over dirty water and negative media reports despite the efforts by the company to communicate over the matter remains unclear as the company sends out assurance messages on the water safety. If the situation is not addressed, the company will suffer serious image injury, lose community support and lose financial support from government and international donors which may ultimately cripple operations to a halt. Further, the public may vent their anger on company infrastructure and vandalize it (Alvesson & Sveningsson, 2015). In light of these concerns, the need for research becomes apparent. Hence, this research sought to evaluate the effectiveness of Nkana Water and Sanitation Company's communication strategies in addressing water safety challenges. By identifying gaps in its current communication approach and exploring ways to enhance its communication practices, the company can ultimately improve client satisfaction, public perception, and overall performance.

The purpose of this study was to critically examine Nkana Water and Sanitation Company's communication strategies in the context of its utility services, particularly communicating water safety challenges to help the company enhance its communication practices and ensure stakeholder trust.

2. Literature Review

In 1994, Henry Mintzberg, an iconoclastic professor of management at McGill University defined strategy as a plan, a pattern, a position, a ploy, or a maneuver intended to outwit a competitor (Mintzberg, 1994). Another scholar, John Bryson defines strategy as a pattern of purposes, policies, programs, actions, decisions, or resource allocations that define what an organization is, what it does, and why it does it (Bryson, 1995).

On the other hand, communication, according to the Communicating Water; Handbook for SADC Water Officials, is the exchange and flow of information and ideas from one person to another. The process involves a sender transmit-

ting an idea, information, or feeling to a receiver. It is said that effective communication occurs only if the receiver understands exactly the information or idea that the sender intended to transmit.

The Handbook also notes that failure to communicate by organizations is what usually results in confusion and mistrust between a water utility and its clients. It further highlights the communication process stages starting from the thought stage where the sender originates the idea, concept or feelings to the second stage where the sender transmits the message to the receiver in words or other symbols and the third stage where the receiver translates the words or symbols into a concept or information that they understand. And lastly, the feedback process is where the receiver responds to the message they have decoded. So, for one to receive feedback there is a need to ensure that when delivering your key messages your messages are communicated. The audience should also be encouraged to provide feedback after receiving the message as this helps you to evaluate the implementation of your strategy, its effectiveness, its strengths, weaknesses and how it can be improved and the strategy can be revised to ensure continued effectiveness.

Some simple feedback methods may include taking note of the number of people that attended your public meeting, television viewership numbers during the time your story was aired, or how many “hits” there were on your website news posting (Bryson, 1995).

According to the Dictionary (1989), effectiveness refers to the degree to which a purpose is achieved or the fact of producing the result that is wanted or intended or the fact of producing a successful result.

Effective communication refers to a process of exchanging or transmitting ideas, information, thoughts, knowledge, data, opinions, or messages from the sender to the receiver through a channel with a purpose that can be understood with clarity. The process of effective communication makes both the sender and the receiver satisfied. It is a cyclic process that starts with the sender and ends with the sender as the sender receives a response or feedback from the receiver. Communication can be in three forms which are verbal, non-verbal, written communication and visual communication. Effective communication brings people together and encourages the development of building trust between two parties. It helps transform a group of people or a team into an effective unit and it gets your message across and helps to establish an understanding with your listeners.

In their daily operations, Water utilities must engage with a wide range of stakeholders, including customers, the media, boards, and citizen groups. According to Bishop’s 2003 study on water utility businesses in the United States, the study found that the prevalent style of communication by water utilities frequently involves spreading unfavourable information, such as that on water source pollution and other undesirable topics. The study also states that developing efficient ways to communicate with a variety of audiences is the biggest

problem facing water providers. It further shows that the hardest topic to communicate about is water quality issues while the hardest audience to deal with is the residential consumers (Bishop, 2003).

3. Methodology

3.1. Philosophical Assumptions

This study adopts the positivism research philosophy applied because this philosophy helps to develop a scenario then analyze the scenario to make an effective conclusion (Asher & Popper, 2021). This philosophy focuses on human judgement which meets the research objectives and is most appropriate for quantitative research (Melnikovas, 2018). So in this research, the views of Nkana Water and Sanitation Company are analyzed to understand the effectiveness of the company's communication activities. This philosophy also has been followed to conduct descriptive research to ensure analytical solutions to the research problems.

3.2. Study Sites

The study was conducted in two districts of the Copperbelt province of Zambia, namely Kitwe and Kalulushi. These districts, located in the heart of the Copperbelt region, are characterized by significant mining and industrial activities.

3.3. Research Design

Research design is defined by (Sidhu, 2006) as a plan of the proposed research work which represents a compromise dictated by practical considerations.

This study employs a convergent parallel design. The Convergent parallel design allows the research to collect both quantitative and qualitative data roughly at the same time or simultaneously and examined independently. After that, the findings from the two stands are compared or merged to provide a thorough comprehension of the research questions. Using this research design allows contradictions or incongruent findings to be explained or further probed (Creswell, 2013).

3.4. Target Population

The study's target population was 72,115, the total households that are supplied with water by Nkana Water and Sanitation Company. The target population included ordinary company clients and workers covering both the high- and low-density areas.

3.5. Sample Size and Sampling Techniques

A sample is a small proportion of the population selected for the purpose of observing and analyzing information. This sample should have the characteristics, know-how and be accessible to help in the area of the study that a researcher is to investigate. According to Kombo and Tromp (2006), a sample is a small pro-

portion of the population that is selected for observation and analysis. It is a percentage of the study population consisting a specific group to whom the researcher plans to generalize the research findings. The sample size for this study was calculated using Yamane's 1967 formula, as follows.

The total population size for this research is 72,115 which is the total households serviced by Nkana Water and Sanitation Company. The sample for this study consists of 398 respondents. This has been arrived at using the Taro Yamane formula as shown below:

$$n = \frac{N}{1 + N(e)^2} \quad (1)$$

where:

n = sample size (?),

N = total population (72,115),

e = margin of error (0.05),

1 = unit (a constant).

Note: (e) = 0.05 (95% confidence level)

$$n = \frac{N}{1 + N(e \times e)}$$

$$n = \frac{72115}{1 + 72115(0.05 \times 0.05)}$$

$$n = 398$$

3.6. Sampling Design and Technique

In order to draw the required sample of 398, the study employed the probability sampling design. The study specifically used the systematic random sampling method in which each and every member of the given N population sample has an equal chance of selection (Creswell, 2013).

However, because of the nature of random sampling especially in a big population where each and every member of the population should be identified, the study decided to use the systematic selection of households by random walk in a prescribed route. In the course of this walk, households were listed in prescribed steps. For example, in the present study, every 10th household was listed until the required sample size was acquired. For a proper representation of respondents, the researcher used sampling units of different parts of Kitwe, Kalulushi and Chambishi. At household level, household heads were purposively sampled. In an event where the household head was not around, the spouse or the senior most member of the household was selected.

For the sake of FGDs, the researcher conducted 10 focus group discussions with members purposively selected based on their socio-economic characteristics, 5 in Kitwe, 3 in Kalulushi and 2 in Chambishi. The focus groups composed of between 6 - 8 heterogeneous group members. For the interviews, the researcher purposively sampled staff from the Public Relations Department from

Nkana Water and Sanitation Company as they are responsible for managing all company communications.

3.7. Research Methods

Mixed methodologies were used to collect data in this study. According to (Creswell, 2013), mixed method is described as a method which merges quantitative and qualitative data in order to provide a comprehensive analysis of the research problem, the current study collected both quantitative and qualitative data at the same time and integrated it into the interpretation of overall results.

The use of mixed methods in this study was used as it was able to counter the weaknesses of quantitative techniques by qualitative techniques, and vice versa. By mixing both quantitative and qualitative research and data, the researcher gained in-depth understanding and validation, while offsetting the weaknesses inherent to using each approach by itself. For Example the one word responses in the quantitative data were explained in the qualitative data collected for example in the questionnaires, respondents were saying they do not believe the messages given to explain the dirty water but under qualitative data respondents explained that they did not believe the messages because the company gives the same explanation if when it does not apply for example the company would say the water is brown because of turbidity in winter when there was nothing to trigger heavy water currents. Further mixed methods provided a good opportunity for triangulation such as the use of several data sources to examine the phenomenon of communication strategies used by Nkana Water Supply and Sanitation Company in the three townships under study. Triangulation allowed the researcher to identify aspects of a phenomenon more accurately by approaching it from different vantage points using different methods and techniques.

3.8. Data Collection and Research Instruments

3.8.1. Primary Data

Primary data refers to the type of data collected for the first time through direct contact with participants. Within the category of primary data was quantitative and qualitative data.

3.8.2. Qualitative Data

Qualitative data was collected by use of interviews and focus group discussions. These techniques enabled the researcher to explore the experiences of people and the company communication staff with the communication strategies used by the water utility.

3.8.3. Qualitative Data 2

In this study, structured questions were employed as the primary data collection tool. The choice of the questions were deliberate, as it allowed for a systematic and organized approach to gathering qualitative data while maintaining the flexibility required to delve into the complexities of the research topic. The ques-

tions were carefully designed to align with the research objectives and questions, ensuring that the data collected directly contributed to the study's goals. It encompassed a mix of open-ended and closed-ended questions, offering participants the opportunity to share their thoughts and experiences in their own words while also providing structured response options for certain aspects. Probing and clarification prompts were included to facilitate in-depth exploration. The questions list was pilot-tested for refinement. Through one-to-one interviews with key informants from NWSC and the community, the study aimed to capture a rich and comprehensive understanding of the research topic while adhering to ethical considerations for participant engagement and protection. The nature of interviews was in a manner that would help the researcher to get into the inside information of Nkana Water and Sanitation Company and some opinion leaders in the community.; the researcher managed to capture the behavior, gestures, reactions, emphasis, assertions and emotions of the respondents with regards to the subject of focus. These non-verbal expressions can give more accurate information than in a questionnaire. Non-verbal cues may also give messages which help in understanding the verbal response, possibly changing or reversing its meaning (Robson, 2002).

3.8.4. Quantitative Data

Quantitative data involved numerical figures and was therefore collected by use of self-administered questionnaires. The utilization of self-administered questionnaires is justified in this research due to their cost-effectiveness, ability to collect data from a large and diverse population, and the advantage of ensuring respondent anonymity, as supported by (Dillman et al., 2014). This method offers efficient data collection, standardization, and flexibility, making it an apt choice for the study's research objectives and the diverse nature of the target population.

3.8.5. Secondary Data

Secondary data refers to data that was already collected and is found in various sources such as books, media, among others. In this study, documents including company annual reports, Newsletters and bulk text messages were reviewed in order to anchor the current research into some perspectives and benefit from the already existing literature on the subject.

3.9. Data Analysis

Given that the current study had a mixed method orientation, which led to the generation of both qualitative and quantitative data, the study employed both qualitative and quantitative techniques of data analysis out of which findings merged to form the basis for the report.

Quantitative data was analyzed by using Statistical Package for Social Sciences (SPSS). This is software that allows the researcher to make sense of the data as it generates graphs, tables and relevant figures. The procedure of analysis of quan-

titative data begun with: checking questionnaires for consistency, uniformity and accuracy. This was followed by entering the data into the statistical package in readiness for processing.

For qualitative data, the study used content analysis. According to (Morgan & Kruger, 1993), content analysis is any technique for making inferences by systematically and objectively identifying special characteristics of messages. Content analysis is not one single method, but that current applications show three distinct approaches such as conventional, directed, and summative (Hsieh & Shannon, 2005). Therefore, conventional content analysis was used in this study. The commonality in these approaches is that they are used to interpret meaning from the context of data thereby embracing a naturalistic paradigm. However, their difference is imminent in coding schemes, origins of codes, and threats to trustworthiness as posited by (Hsieh & Shannon, 2005). In conventional content analysis, coding categories are derived directly from the text data. With a directed approach, analysis starts with a theory or relevant research findings as guidance for initial codes. A summative content analysis involves counting and making comparisons, usually of keywords or content, followed by the interpretation of the underlying context. The author delineate analytical procedures specific to each approach and techniques addressing trustworthiness with hypothetical examples drawn from the area of end-of-life care.

By use of Conventional Content Analysis, data from field notes and documents were the main focus in order to produce meaningful messages. The following activities were therefore undertaken in the process of qualitative data analysis:

- 1) Transcribing verbatim and organizing materials (field notes, other documents).
- 2) Developing codes and affixing them to set of notes or transcript pages.
- 3) Transforming codes into categorical labels or themes.
- 4) Examining materials to identify meaningful patterns and processes.
- 5) Identified and examined patterns were reshaped in ways that led to coherent writing of thesis.

The next stage was characterized by merging the findings from quantitative data to those of qualitative data in a manner that was systematic and meaningful. Therefore, the two ways of analyzing the data was beneficial to this study.

3.10. Validity of the Instrument

Validity is the closest proximity of a given inference, proposition, or conclusion to reality or falsity that is readily available (Cook & Campbell, 1979). A device has content validity if the measuring items in the research adequately cover the content domains or features of the measurement notion. It is not mathematically assessed, and scientists may only assess it subjectively. As a consequence, the questionnaire was exposed to peer review by the supervisor, who looked for ambiguity in the questions, leading questions, and the duration of the study to ensure the test of the validity of the findings. This aimed to expose any potential

flaws in the study instruments in order to assure the material's authenticity. Before completing the final study, the researcher made the necessary alterations to the instrument.

3.11. Theoretical Framework

Schramm (1954) came up with a communication model which defines effective communication as a cyclical flow of information from the sender to the receiver through a channel with a provision for feedback. Schramm stresses that encoding and decoding play the most important roles in the process. He says encoding initiates the process of communication by converting the thought into content while decoding ensures the message recipient interprets and understands what the sender intends to communicate. He argues that these are the two most important elements of effective communication. He also underscores the fact that communication is incomplete until the sender receives feedback from the recipient as he understands that communication is actually a two-way process between the message sender and the receiver.

Wilbur Schramm's Theory of Communication is a foundational framework that has been effectively utilized in this research to analyse, understand, and assess the communication strategies employed by Nkana Water Supply and Sanitation Company (NWSC). Schramm's theory places significant emphasis on the sender-receiver relationship and the process of encoding and decoding messages, which is essential in evaluating the effectiveness of NWSC's communication strategies. Schramm's model suggests that effective communication occurs when there is mutual understanding between the sender and receiver. In the context of NWSC, this means that the company's communication strategies should be assessed based on their ability to ensure mutual understanding between the organization and its stakeholders. The research used this theory to investigate whether the messages conveyed by NWSC are effectively encoded and decoded, leading to clear, unambiguous, and accurate communication. Schramm's theory highlights the role of feedback in the communication process, emphasizing its importance in clarifying messages and ensuring the receiver's comprehension. In the research, this aspect of the theory was essential for evaluating how NWSC incorporates feedback mechanisms into its communication strategies. It helped to assess whether the company actively seeks and responds to feedback from clients and stakeholders, and how this feedback contributes to improved communication and client satisfaction.

3.12. Conceptual Framework

The study examined the communication strategies applied by Nkana Water and Sanitation Company in line with the communication theories expounded by Harold Laswell and Wilbur Schramm who state that effective communication should comprise of the process of message generation which is transmitted by the sender to the receiver through a channel, which would be understood by the

receiver who in turn gives a feedback to the sender which the sender receives and act upon if it has been misunderstood. The process should be cyclical so that the sender and the receiver of the message are at the same level in terms of the shared information (Figure 1).

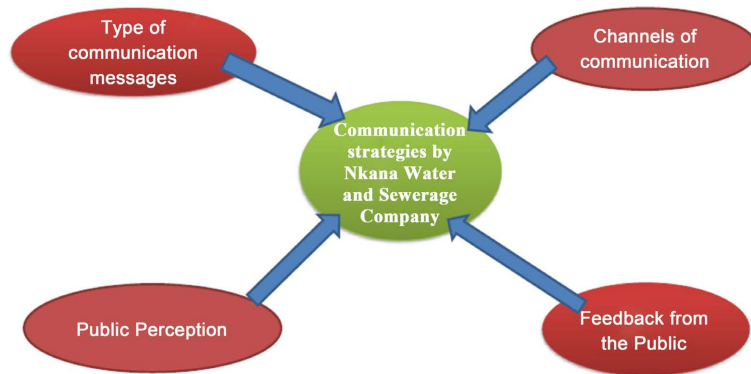


Figure 1. Adopted conceptual framework (Schramm, 1954).

So in relation to the conceptual framework sketch above, the study looks at the type of communication messages that the company sends out to see if they answer to the concerns of the public and also checks the channels of communication used if they are the most appropriate and also tries to understand whether these channels are accessible, affordable, convenient, preferred or familiar to the public because use of channels that will not be accessible to the public for any reason will disrupt the effective communication process as the message will not be received. The study further looks at how the company receives feedback from the public on shared information as that completes what is deemed as an effective communication process. This is so because without feedback the organization will not know if its messages are being understood or get people's opinions on its messages and other concerns to do with its service delivery.

4. Research Results

The qualitative data from the interviews with the Public Relations department of the company revealed that the major communication channels used by Nkana Water and Sanitation Company is mainly radio followed by mobile phone bulk text messages using English and Bemba as languages of communication.

The results also showed that the company is aware of the supplied brown or dirty water and attributes this to turbidity in the Kafue River, which is the source of its water, and sometimes repair works on water infrastructure. This is the messages given out to explain the supply of brown water. And in terms of the people's perception on the company messages and their preferred communication channels, the company is not aware of this and assumes all is well because there is no feedback mechanism to enable the public respond to company messages. These findings match with the results from the Focus Group Discussion (FGDs) which also confirmed that the company uses bulky text messages and

radio as major channels of Communication using Bemba and English as channels of communication. However the FGDs revealed that the people find the messages unclear as they are technical and sometimes the messages do not reach the target audiences as the company does not use the most accessed and preferred channels which is in this case social media and television. The FGDs also revealed that the people’s perception of the company is negative as they do not trust the messages given because reasons given sometimes are not justifiable.

Accordance to the Conceptual framework based on Wilbur Schramm and Harold Lasswell’s communication theories (Lasswell, 1948), a communication strategy is deemed to be effective based on the following parameters; message clarity, message consistency, channels appropriancy, Communication sustainability and Feedback mechanism availability. As in the study the communication strategies were evaluated based on these parameters.

4.1. Quantitative Data Findings

4.1.1. Channels of Communication Used by the Company (Figure 2)

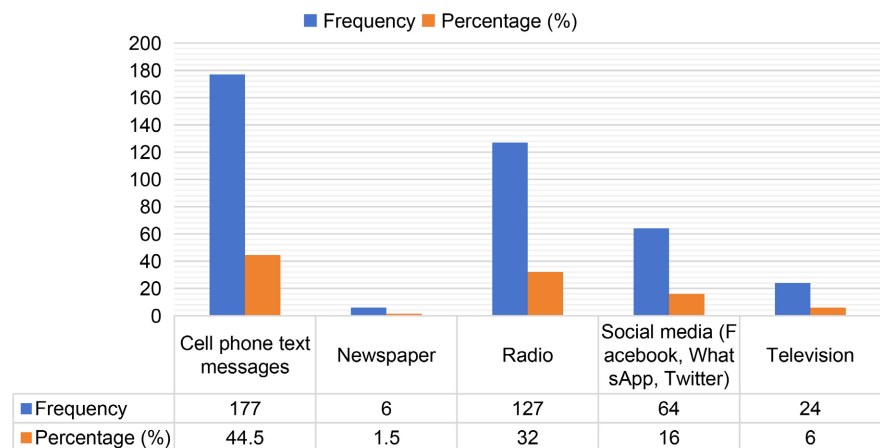


Figure 2. Channels of communication used.

4.1.2. Message Communication Effectiveness and Clarity (Figure 3)

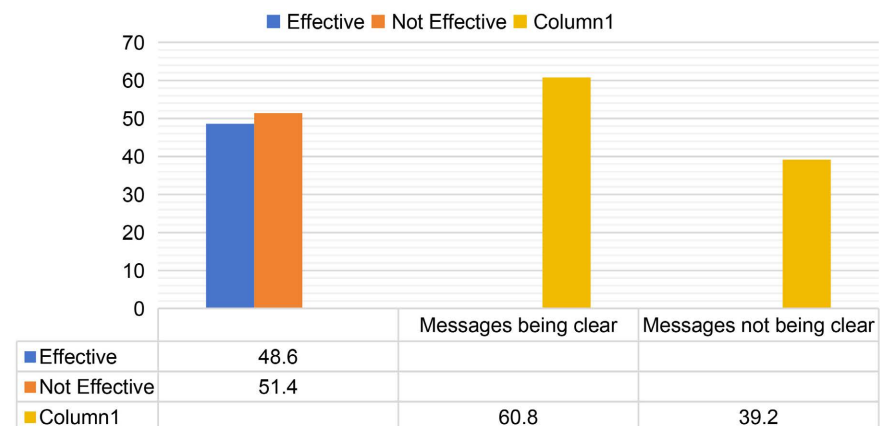


Figure 3. Message effectiveness.

4.1.3. Preferred Channels by the Public (Figure 4)

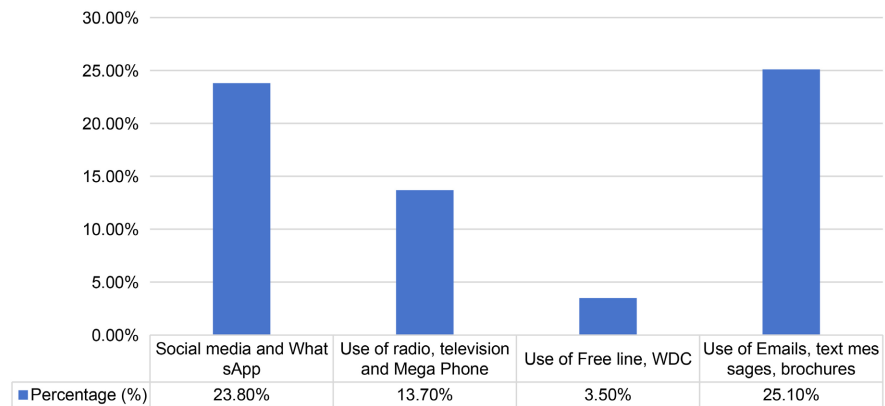


Figure 4. Preferred channels.

4.2. Statistical Data

To validate the descriptive data obtained, statistical data was also generated through conducted cross tabulations and Chi-Square tests. The message was taken as the independent variable and subjected tested to see how it is influenced by respondents' levels of Education, language of communication used and channels of communication used (Table 1).

Table 1. Cross tabulations.

		Language used to disseminate messages					Total	
		English	Bemba	Tonga	Lamba	Never give an explanation		
Level of Education	Primary	Count	9	0	0	0	1	10
		Expected Count	8.6	1.1	0.0	0.0	0.2	10.0
		% within Language used to disseminate messages	4.0%	0.0%	0.0%	0.0%	20.0%	3.8%
	Secondary	Count	45	11	1	0	3	60
		Expected Count	51.6	6.8	.2	.2	1.1	60.0
		% within Language used to disseminate messages	19.8%	36.7%	100.0%	0.0%	60.0%	22.7%
	Tertiary	Count	173	19	0	1	1	194
		Expected Count	166.8	22.0	0.7	0.7	3.7	194.0
		% within Language used to disseminate messages	76.2%	63.3%	0.0%	100.0%	20.0%	73.5%
Total	Count	227	30	1	1	5	264	
	Expected Count	227.0	30.0	1.0	1.0	5.0	264.0	
	% within Language used to disseminate messages	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

The rule of thumb states that if the P -value is less than 0.05 (5%), we reject the null hypothesis. In the Chi-square test below, the observed P -value is less than 0.05 (5%) that is 0.026. Therefore, it rejects the null hypothesis and concludes that there is a significant difference between level of education and the language used to disseminate messages to customers (Table 2).

Table 2. Chi-square tests.

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	17.445 ^a	8	0.026
Likelihood Ratio	16.128	8	0.041
Linear-by-Linear Association	8.303	1	0.004
N of Valid Cases	264		

^a10 cells (66.7%) have expected count less than 5. The minimum expected count is 0.04.

4.3. Effect of Level of Education on the Channel of Communication Used

Cross tabulation test was used to determine whether the level of education had any effect on the channel of communication used to communicate the colour of water. In the cross-tabulations, it was deemed that the differences in percentages were sufficient enough to merit the effect. From the Chi-Square test, it was concluded that the level of education affected the channel of communication used to communicate the colour of water to the customers. The results are true due to the fact that channel of communication used can be influenced by the level of education. Educated people find it easy to access information via radio, Television sets as well as the social media which may not be true for the illiterate (Table 3).

Table 3. Tabulations.

		Crosstab					Total	
		Channel of communication used to communicate the color of water						
		Cell Phone Text Messages	Radio	Television	Newspaper	Social media		
Level of Education	Primary	Count	7	1	0	0	2	10
		Expected Count	4.5	3.2	0.6	0.2	1.6	10.0
		% within Channel of communication used to communicate the color of water	5.9%	1.2%	0.0%	0.0%	4.8%	3.8%
	Secondary	Count	34	14	0	0	12	60
		Expected Count	26.8	19.1	3.6	0.9	9.5	60.0
		% within Channel of communication used to communicate the color of water	28.8%	16.7%	0.0%	0.0%	28.6%	22.7%

Continued

Tertiary	Count	77	69	16	4	28	194
	Expected Count	86.7	61.7	11.8	2.9	30.9	194.0
	% within Channel of communication used to communicate the color of water	65.3%	82.1%	100.0%	100.0%	66.7%	73.5%
Total	Count	118	84	16	4	42	264
	Expected Count	118.0	84.0	16.0	4.0	42.0	264.0
	% within Channel of Communication used to communicate the color of water	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4. Chi-square tests.

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.373 ^a	8	0.037
Likelihood Ratio	21.771	8	0.005
Linear-by-Linear Association	0.623	1	0.430
N of Valid Cases	264		

^a8 cells (53.3%) have expected count less than 5. The minimum expected count is 15.

In the Chi-square test above the observed *P*-value is less than 0.05 (5%) that is 0.742. Therefore, it failed to reject the null hypothesis and conclude that the level of education had no effect on the perception on whether the information given by the company on the colour of water was truthful or not (**Table 4**).

5. Discussion

The revelation from questionnaires that majority of the respondents did not believe that the messages explaining water turbidity in the Kafue River and repair works on water infrastructure as the cause of the brown water received indicated where 46 per cent of respondents stated that they receive the messages and trust the messages while 54 per cent received the messages and felt the messages are not true, is a source of concern which may cause conflicts between an organisation and its clients. A study in Europe, (Bejou & Palmer, 1998) states that regular communication can help to prevent the community from believing that the communication offered by the company is not true as the case is where only forty-six percent (46%) of the respondents revealed that they believed the information the company gives them is true when it supplies brown water while 54% said they did not believe the information the company gives by stating that the information was not truthful. The study reveals that well-established communication strategies, techniques and tools can help build customer satisfaction and trust. It also notes that getting timely flow of information between the water utility and its clients creates a sense of closeness, familiarity and ease in their relationship. The study further states that the communication models and practices must be based on understanding the factors that lead to reactions or attitude of

stakeholders by applying feedback methodologies like public consultation, surveys and analysis of complaints, among others.

The questionnaires also revealed that most of the customers who received the messages from the company were not able to give feedback on the received messages (76.4%) while others (23.6%) stated that they were able to give feedback. This lack of a sufficient provision for clients to give feedback to company messages negates what is termed as effective communication as propounded by Wilber Schramm who stated that the communication should be a cyclical process where the communicator should be able to get feedback from the message recipient (Schramm, 1954).

In addition, (Kanyanga, 2014) states that honest, frequent, clear, and concise communication is essential in communication strategies. The study also points out that it is important for the company to demonstrate compassion, because “no one will care what you know until they know that you care.” The study further suggests for the use of a Spokespersons and states that while many employees may have points of contact with external stakeholders, it is a good idea to assign a spokesperson for the utility as it helps if the spokesperson can convey information calmly and communicate clearly. In the case of Nkana Water and Sanitation, this can help counter the negative comments.

6. Conclusion

The results confirm that NWSC has not fully responded to the communication needs of its customers, because it is not using the most accessed communication channel, social media, as reflected in both the questionnaire responses and the Focus Group Discussions, the company uses technical language which is not understood by a large portion of clients and most clients do not believe that the messages are truthful because of the repeated same explanation given all the time. However, the company is not aware of this dissatisfaction on the ground, because it does not provide a response mechanism for its messages, and further, the company does not interact much with the clients for it to get first-hand public perception of its messages. Hence, it needs to engage more suitable forms of communication channels and approaches to reach out to a larger and wider variety of customers. The company needs to use social media platforms to reach out to a lot of customers and provide a feedback mechanism for its messages.

7. Recommendation

The company should begin to use social media as a leading channel of communication. The company should use non-technical clear messages and provide a feedback mechanism for its messages to clients for effective communication that allows for message clarification.

8. Limitations

The study did not consider the communication experiences of the water utilities

away from the mining region.

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Conflicts of Interest

The authors declare no conflicts of interest about the publication of this paper.

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