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SOCIOECONOMIC DYNAMICS AND WILLINGNESS TO PAY FOR WATER SUBSCRIPTION DECISIONS IN PEKANBARU

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ABSTRACT

High quality drinking water is an essential need for public health and welfare. In Pekanbaru city, clean water supply efforts through the Pekanbaru-Kampar. Drinking Water Supply System (SPAM) which continues to be developed by local government to meet the needs of water suitable for consumption. However, public interest, particularly among potential customers, in SPAM services still varies. This research aims to analyze the socio-economic dynamics of the community and their relationship with willingness to pay (WTP) on the decision to subscribe to water services provided by the Drinking Water Company (PAM) Pekanbaru City. The background of this research is based on the low penetration rate of household clean water services despite the increasing need for access to potable water. Using a qualitative approach and case study method, data was collected through in-depth interviews, observations, and documentation of residents from various socioeconomic backgrounds in the Pekanbaru-Kampar SPAM service area. The results of the research indicate that factors such as household income, education level, perception of service quality, previous experience with water services, and social norms in the surrounding environment significantly influence the community's decision to subscribe. In addition, it was found that willingness to pay is not only influenced by financial capability but also by trust in the service provider institution and perceptions of the value of water as a public necessity. This research recommends community-based approaches and increased service transparency as strategies to enhance customer participation. This research is expected to contribute to the development of more inclusive and equitable clean water policies and promote sustainable development in the public service sector.

Keywords*: Socioeconomics, willingness to pay, PAM water, Pekanbaru, public services.*

INTRODUCTION

Clean water is an essential human need that is non-substitutable, meaning it cannot be replaced by other commodities. The World Health Organization (WHO) emphasizes that access to clean water is a fundamental human right. In Indonesia, the fulfilment of clean water need is one of the priorities of sustainable development, reflected in the government's efforts through the Drinking Water Supply System (SPAM) project implemented by both the central and local governments. However, there are still many areas that are not well served, one of which is the Pekanbaru City.

Pekanbaru, as the capital of Riau Province, is a city with rapid economic growth and urbanization. This raises new challenges in the provision of basic services, one of which is access to clean water through the Regional Drinking Water Company (PAM/PDAM). Based

on data from the Pekanbaru City Statistics Agency (BPS) (2023), only around 45% of households are active PAM customers, while the rest still rely on boreholes or surface water, the quality of which often does not meet health standards.

This condition indicates a gap between service provision and the level of demand, which is not optimal. Therefore, it is important to identify the factors that influence the decision to subscribe to PAM water, especially in the context of socioeconomic conditions and willingness to pay (WTP). According to Fauzi and Yuliana (2021), the community's WTP for public services is greatly influenced by their perception of benefits, service quality, income level, and trust in the service provider institution.

Several studies have shown that the obstacles to subscribing to PAM water are not only due to technical factors such as pipeline networks or distribution networks, but also due to social, cultural, and economic factors. A research by Dewi and Handayani (2020) in Yogyakarta showed that even though PAM services have reached certain areas, the community remains reluctant to subscribe because they feel that water from wells is cheaper and of acceptable quality. Another research by Susanti et al. (2022) in Palembang City found that low levels of education and a lack of information about the benefits of PAM water led to low subscription rates.

Within the framework of behavioral economics theory, willingness to pay reflects the subjective value that individuals assign to a good or service. In the case of clean water services, this value is strongly influenced by personal experience, knowledge, and social pressure from the environment. For example, if the majority of neighbors in an area use boreholes and have a negative perception of PAM (e.g., due to cloudy water or non-transparent billing), individuals tend to follow the mindset of their community. This aligns with Ajzen's (1991) theory of planned behavior, which states that subjective norms influence individual decision-making behavior.

In addition, in a qualitative research approach conducted by Suryani (2022) in Sleman Regency, it was found that the public's perception of the "value" of clean water is more determined by experience than economic logic. For example, most residents do not mind paying high prices to buy gallon water or pump water from wells with electric pumps, but consider PAM tariffs as a burden. This shows an imbalance in value perceptions that needs to be better understood by service providers.

From a socioeconomic perspective, Pekanbaru has a diverse community profile. Data from the Pekanbaru Regional Development Planning Agency (Bappeda) (2022) shows that income gap between sub-districts is quite high. In some suburban areas, poverty levels are still quite significant, with household incomes below the City Minimum Wage. This certainly affects people's ability and willingness to access paid services such as piped water (PAM water). In addition, perceptions of local government effectiveness also affect trust in the quality of public services.

This research aims to analyze the socio-economic dynamics that influence people's willingness to pay for PAM water services in Pekanbaru City. A qualitative approach was chosen to deeply explore residents' perceptions, values, and experiences as active

participants. This research will use in-depth interviews, participatory observation, and documentation as primary data sources. Thus, this research is expected to provide a comprehensive understanding of the factors influencing decisions to subscribe to PAM water services, not only from the economic perspective but also from social and cultural dimensions.

Furthermore, this research will refer to similar studies that have been conducted in various regions as comparative material. For example, a research by Damanik (2021) in Medan showed that the success of increasing PAM customers is highly dependent on the social communication approach taken by the provider. In that research, direct outreach programs to the community and the involvement of local community leaders successfully improved positive perceptions of clean water services.

Practically, the results of this research are expected to provide applicable recommendations for the Pekanbaru city government and the local PAM to design more effective and inclusive clean water service strategies. By understanding the socio-economic dynamics and willingness to pay of the community, policy interventions can be contextually adjusted, such as through cross-subsidy programs, progressive tariff systems, educational campaigns, or strengthening community-based services.

Finally, this research also has an academic contribution in enriching the literature on clean water studies in developing urban areas in Indonesia. So far, most research on clean water has been technical or quantitative in nature. The qualitative approach used in this research provides a new, more humanistic perspective, showing how consumer decisions are shaped by the interaction between socioeconomic structures, local culture, and service provider institutions.

Given the complexity and interrelated factors, it is important for all parties involved in clean water supply to not only focus on the technical and infrastructure aspects but also understand the socio-economic and psychological factors that shape people's willingness to pay among the community. Only through a holistic approach, the challenges in providing clean water services in Pekanbaru can be addressed in a sustainable and equitable manner.

LITERATURE REVIEW

1. The Concept of Willingness to Pay (WTP) in Public Services

The concept of willingness to pay (WTP) is an economic approach to measuring the value that individuals place on a good or service. Hanemann (1991) defines WTP as the maximum amount of money that individuals are willing to pay to obtain benefits or avoid losses. In the context of clean water services, WTP reflects the community's perceived value of the benefits, safety, and convenience of the water provided.

Whittington et al. (1990) through a contingency research in Haiti showed that even though public water services are available, subjective value and affordability are the main factors in the community's decision to use these services. Tapsuwan, Brennan, & Ingram

(2007) found that preferences for safe and sustainable water increase if the community has had negative experiences with previous water sources.

2. Socioeconomic Factors in Water Subscription Decisions

Various studies indicate that socio-economic factors such as income, education, and employment status significantly influence communities' decisions to use PAM water (Nauges & van den Berg, 2009). Pattanayak et al. (2005) state that economic constraints and limited access to information cause low-income households to prefer alternative water sources such as wells, despite their poor quality. Rachmawati (2019) in a research in Surabaya found that families with formal education and employment are more likely to subscribe to PAM water than marginalized groups. This is also supported by data from Subekti & Pratama (2021), who state that service quality and financial capacity influence customer loyalty to PDAM in Semarang.

3. Perception of Service Quality and Institutional Trust

The quality of public services is not only viewed from a technical perspective, but also from the perspective of customer perception of the services received. Levi & Stoker (2000) state that trust in public institutions greatly determines citizen participation in public service programs, including clean water. In the case of water services, perceptions of water clarity, flow continuity, and meter reading accuracy are the most commonly used quality indicators (Subekti & Pratama, 2021). If these perceptions are negative, they will reduce people's willingness to pay, regardless of their economic conditions (Altaf et al., 1993).

4. Social Norms and Community Influence

Ajzen (1991) in the Theory of Planned Behavior states that subjective norms from the surrounding environment will influence a person's intention to perform an action. In this context, if the community tends to use wells and does not trust PAM, individuals are also likely to follow this pattern, even if they are economically capable. Nauges & Whittington (2010) argue that negative collective experiences with PAM services create stigma that spreads throughout the community, reducing interest in subscribing, even if service quality has improved.

5. Relevant Studies in Urban Areas of Indonesia

Research in several major cities in Indonesia shows similar trends. Dewi & Handayani (2020) state that residents on the outskirts of Yogyakarta City continue to use wells because PAM tariffs are considered expensive and not commensurate with the quality of service. Damanik (2021), through a research in Medan, concluded that social communication and community-based approaches can increase public trust and participation in PAM water services. In addition, a research by Fauzi & Yuliana (2021) shows

that public education and service transparency have a significant impact on increasing WTP in several cities in Indonesia.

METHODOLOGY

This research uses a qualitative research method. According to Zulkarmain (2021), qualitative research is a type of research aimed at achieving a deep understanding of phenomena experienced by research subjects, such as actors, perceptions, motivations, and actions, in a holistic manner. This research was conducted through verbal descriptions that paid particular attention to the natural context, using a variety of scientific methods. Assyakurrohim et al. (2022) describe qualitative research as a research method that uses a scientific approach to explore a phenomenon by describing data and facts through the comprehensive use of words regarding the research subjects. Meanwhile, Fadli (2021) explains that the qualitative approach involves researchers in making knowledge claims that originate from a constructivist perspective or an advocacy/participatory perspective, or possibly both. The constructivist perspective refers to an understanding of the multiple meanings of individual experiences that are socially and historically constructed, with the aim of developing theories or patterns. Meanwhile, the advocacy/participatory perspective emphasizes political nature, issue orientation, collaboration, or change orientation. Based on this, it can be concluded that qualitative research means seeking the depth of existing phenomena, connecting them with existing theories, and then drawing conclusions from both. Qualitative research can be conducted through interviews, observations, document reviews, case studies, and group discussions.

a) Research Design

Research design is the planning and procedural stage of research that encompasses broad assumptions to detailed methods in data collection and analysis (Creswell, 2013). The research design significantly influences the research methods that will be used. In this research, the research design was carried out through six stages: identifying the problem, conducting a literature review, collecting data, analyzing data, and interpreting the research results. The research process is summarized in the figure below.

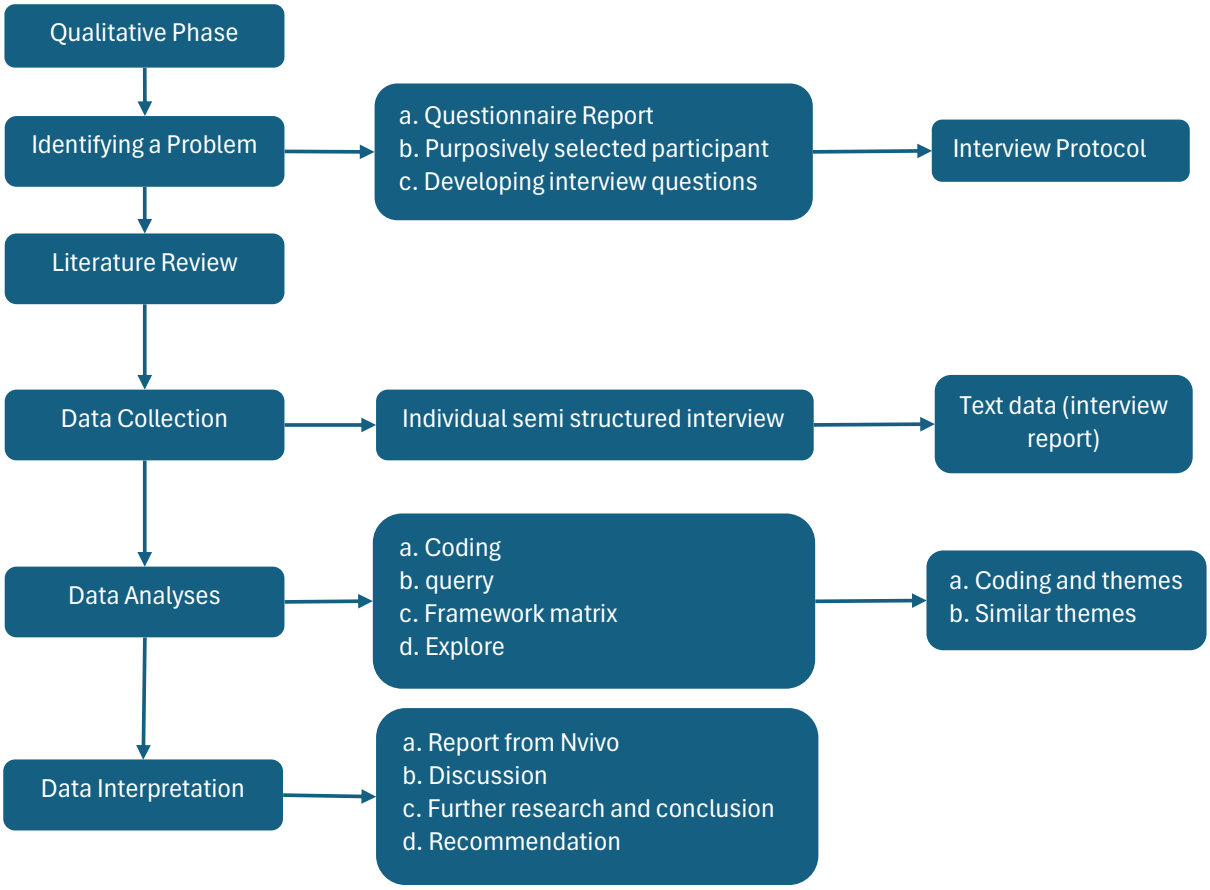

Figure 1. Research Flow Chart

b) Research Object

The research object taken in this research is data sourced from interviews with people who are potential customers in Pekanbaru City and Kampar Regency. These two areas are covered by the nearest regional water company. Interviews were used to verify interest in subscribing to SPAM water. This subject was chosen by the author due to the current phenomenon. According to the 2024 State-Owned Water Company Performance Executive Summary compiled by the Ministry of Public Works, domestic water consumption by SPAM users in Pekanbaru Province is only around 14.65%. This is also supported by the results of a questionnaire distributed by the company, which showed that domestic respondents interested in connecting to PDAM water supply accounted for approximately 37.6%, comprising 29.4% from Pekanbaru City and 45.8% from Kampar Regency. The domestic respondents referred to are those for household needs. The willingness to connect among domestic respondents in Kampar Regency is higher than that of respondents in Pekanbaru City. This aligns with the current water source conditions, where residents in the Kampar Regency service area face greater issues with water quality (odour, colour, and taste) compared to residents in the Pekanbaru City service area.

c) Types and Sources of Data

In this research, the author used primary data in conducting the research. Primary data is data obtained directly from the original source through collection techniques such as interviews, questionnaires, and observations (Sugiyono, 2019). According to Kothari C.R (2004), primary data is fresh and original data collected directly by the researcher for specific purposes. The primary data used in this research is the results of interviews with 5 (five) participants representing all participants in the questionnaire. The participants are domestic customers located in five subdistricts in two areas around the SPAM location, namely Pekanbaru City and Kampar Regency. The Pekanbaru City area consists of three subdistricts, namely Tampan Subdistrict, Marpoyan Damai Subdistrict, and Bukit Raya Subdistrict. Meanwhile, the Kampar Regency area consists of two subdistricts, namely Tambang Subdistrict and Siak Hulu Subdistrict.

d) Research Instruments and Data Collection Techniques

This research uses several instruments for data collection. The instruments used are interview questions consisting of several questions about:

1. Participant identity
2. Water sources currently used to meet daily needs.
3. Opinions about SPAM water sources.
4. Interest in subscribing to SPAM.
5. Opinions about SPAM water.
6. Reasons for not being interested in subscribing to SPAM water.
7. Factors influencing the decision to subscribe to SPAM water.
8. Expectations and suggestions regarding SPAM services, including government support.

The primary focus in qualitative instruments is the researcher themselves. Therefore, in this qualitative research, the researcher can conclude answers to the research questions by employing a computer-based software approach, supported by software that assists the researcher in analyzing data to obtain data interpretation.

The researcher used the phenomenology technique to explore participants' experiences regarding the phenomenon of disinterest in subscribing to SPAM water. Using NVivo 12 software, five participant interviews were analyzed using thematic analysis. The researcher used NVivo 12 as an analytical tool to help classify, manage, and organize the collected data. The researchers then analyzed the data using an interpretive approach to understand the meanings, patterns, and relationships that emerged from the data. Detailed steps were required to carry out this approach. From the thematic analysis, the researchers identified several topics to be analyzed using NVivo 12.

This research methodology approach allows researchers to gain an in-depth understanding of the experiences and meanings associated with the community's interest in subscribing to SPAM water using primary data. The results of this research are also expected to provide useful recommendations for the government, PDAM, and SPAM

companies to increase the number of customers by developing effective policies and marketing strategies in SPAM water management.

RESULTS

This research used interview results to obtain a more in-depth picture and explanation of participants' preferences and experiences regarding their interest in using SPAM water. The participants in the interviews consisted of 5 (five) residents living in the vicinity of the SPAM Pekanbaru service area, representing 5 (five) sub-districts located in two areas around the SPAM location, namely the City of Pekanbaru and Kampar Regency. The Pekanbaru City area consist of three sub-districts, namely Tampan Sub-district, Marpoyan Damai Sub-district, and Bukit Raya Sub-district. Meanwhile, the Kampar Regency area consists of two districts: Tambang District and Siak Hulu District. Qualitative data analysis, which involved participants' responses to open-ended questions prepared by the researcher, was conducted using the Nvivo 12 application. Data analysis begins with an analysis of the frequency of word occurrence or word cloud, as shown in the image below. Word cloud is a visualization of a collection of words that are often mentioned. The function of the word cloud is to make it easier for you to read data about what other people often talk about in media articles. For words that are printed with large sizes it means that the word is the word that appears the most during the interview and vice versa, the smallest word is the word that rarely appears in the research.

Before data processing in the Nvivo 12 application, data coding was first carried out. The purpose of this data coding is to analyze qualitative data by identifying and grouping parts of the data that corresponded to the research questions so that it is easier for researchers to understand. The results of the coding analysis revealed 14 important topics: availability of SPAM networks, unavailability of SPAM networks, high prices, quality assurance, registration methods, socialization, cost transparency, location, employment, interest in registration, good water sources, and poor water sources. The researcher then narrowed the topics down to six: SPAM networks, complaints, location, employment, customer registration, and water sources, considering topic redundancy. For example, SPAM network availability and SPAM network unavailability can be combined into one topic, namely SPAM network; registration methods, high prices, quality assurance, socialization, and cost transparency can be combined into one topic, namely complaints; and good water sources and poor water sources can be combined into one topic, namely water sources. Based on the grouping of each topic and analyzed using the Nvivo 12 application, the following word cloud is generated.

Figure 2. *Word Cloud*

Based on the figure above, it can be seen that the words that frequently appear and are discussed in the interviews are water (103 times), SPAM (86 times), quality (31 times), soil (25 times), subscription (21 times), and price (12 times). This is consistent with the discussion in the study that currently all participants still use groundwater and have not subscribed to SPAM water. In Addition, the main reason participants are not interested in subscribing to SPAM water were concern about the quality of SPAM water and price considerations. This was conveyed by almost all participants that by subscribing to SPAM water, they would incur additional costs each month. This finding differs from the findings of Frengki Harim Ronaldo Ottu et al (2022), who stated in their research that the demand for water from PDAM generated by SPAM companies is not influenced by PDAM water tariffs. This is reasonable because considering that regardless of the PDAM water tariff, when compared to the absence of costs for using groundwater, residents still prefer to use unpaid water. The use of SPAM water will begin to be considered by the community if the quality and quantity of available groundwater are unsuitable for use to meet daily needs.

Based on the Executive Summary of the Performance of Public Water Utilities in 2024, over the past five years, the number of public water utilities whose performance is assessed has increased significantly. This is because in 2020, there were 387 public water utilities, which increased to 394 public water utilities in 2024. The performance evaluation results of the 394 water supply BUMDs across Indonesia in 2024 show that 258 BUMDs have healthy performance, 96 water supply BUMDs have less healthy performance, and 40 water supply BUMDs have poor performance. This means that 35% of water supply BUMDs need to improve their performance. However, the performance of water supply BUMDs with good performance only saw an average increase of 0.93%. The performance

of water supply BUMDs depends on the amount of revenue received. The more customers a water supply BUMD has, the higher the potential revenue it can receive[1].
In addition to price issues, participants had other concerns about subscribing to SPAM water. These concerns included the availability and continuity of SPAM water and the low quality of SPAM water. For example, if SPAM water did not flow due to a lack of raw water availability, SPAM would also be unable to meet participants' water needs.

CONCLUSION

Through the Nvivo 12 tool, it can be seen that during interviews with several participants to find out the interest in subscribing to SPAM water, the words that often appear are quality and price. These findings shows that the quality of SPAM water and the price of subscribing to SPAM water are frequently discussed when talking about interest in subscribing to SPAM water. Meanwhile, other findings showed that participants' concerns about subscribing to SPAM water were the availability and continuity of SPAM water. In Addition, participants will be interested in using SPAM water if there is support from government. Therefore, we recommend several strategies to the government, PDAM, and SPAM companies to increase interest in subscribing to SPAM water, as follows:

1. Massive socialization to the surrounding community

   The most important socialization is the socialization of the advantages of using SPAM water use and the impacts of groundwater use. Currently, the government has regulations on the impacts of groundwater use, as outlined in Law No. 17 of 2019 on Water Resources, Government Regulation No. 43 of 2008 on Groundwater, and Ministry of Energy and Mineral Resources Regulation No. 16 of 2012 on Guidelines for Groundwater Conservation. These regulations state that the use of groundwater must consider the environmental carrying capacity and storage capacity to prevent environmental damage. Excessive use of groundwater is also explained to have impacts such as land subsidence, seawater intrusion, and ecosystem damage. With the regulation in place, what must now be improved are socialization activities to convey the contents of the regulation.

   The next socialization is related to subscription procedures, including SPAM water subscription prices and SPAM water quality. People who already understand the impact of groundwater use and the importance of using SPAM water, must be provided with procedures for registering a subscription so that the interest in subscribing is still large.

2. Quality Assurance and Continuity of SPAM Water

   Many people are reluctant to use SPAM water because there is no guarantee of the quality and continuity of the SPAM water used. Colored and smelly SPAM water and water outages during use are still a concern for the community. The government has issued Regulation of the Minister of Health No. 2 of 2023 concerning SPAM water quality

[1] Executive Summary Kinerja BUMD Air Minum Tahun 2024.2025. Kementerian Pekerjaan Umum.

requirements, so that currently PDAM and SPAM companies must be able to convince the public and provide a guarantee that the quality is met according to these regulations to the public.

3. Regulation of the Use of Groundwater and Water from SPAM

Currently, the lack of SPAM water customers is because people still use groundwater. The free use of groundwater causes people to prefer groundwater over paid SPAM water. Therefore, the most important thing is government support such as regulations or government policies to reduce the use of groundwater such as the imposition of groundwater usage tariffs that are more expensive than the use of SPAM water or more extreme regulations regarding the prohibition of using groundwater and the obligation to use water from SPAM.

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