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# Memikirkan Kembali Dimensi Kelembagaan PDAM dalam Penyediaan Air Bersih di Kota Dumai

## *Rethinking the Institutional Dimension of PDAM on Clean Water Supply in Dumai City*

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**Abstrak:** Keterbatasan air bersih di Kota Dumai sudah berlangsung selama puluhan tahun. PDAM Tirta Dumai Bersemai selaku pihak yang bertugas menyediakan air bersih dituntut untuk memiliki performa baik agar distribusi air bersih merata kepada seluruh masyarakat. Namun PDAM menghadapi banyak tantangan untuk mewujudkan tujuan tersebut. Tantangan berupa keterbatasan dana, sumber daya manusia, dan faktor lingkungan berpengaruh hingga kinerjanya dikatakan belum maksimal. PDAM pernah hampir bangkrut di tahun 2016, berusaha bangkit di tahun 2018-2020 dengan melakukan berbagai upaya. Tulisan ini dimaksudkan untuk menjelaskan keberhasilan PDAM dalam menyediakan air bersih. Keberhasilan dimaknai bukan sebagai penyediaan air bersih yang merata kepada seluruh masyarakat, tetapi lebih kepada keberhasilan melewati masa bangkrut. Penelitian ini dilakukan dengan metode kualitatif dengan pengumpulan data melalui wawancara dan dokumentasi. Hasil dari lapangan kemudian dianalisis yang menghasilkan temuan sebagai berikut. Pertama, PDAM mampu terlibat dalam berbagai skema penyediaan air bersih seperti SPAM NUWS, KPBU dan Durolis. Keterlibatan ini menunjukkan kepercayaan para pihak terhadap kinerja PDAM. Kedua, Perbaikan kinerja PDAM tidak terlepas dari perbaikan manajemen internal PDAM. Perbaikan dimensi kelembagaan PDAM menjadi kunci kebangkitan PDAM. Kepemimpinan direktur utama PDAM periode pertama dan kedua menunjukkan perubahan signifikan. Sehingga ke depan, kepemimpinan PDAM harus didasarkan pada pengetahuan, informasi, dan pengalaman yang mumpuni dalam mengurus pengelolaan air bersih.

**Kata Kunci:** *PDAM, Air Bersih, Dimensi Kelembagaan, Kepemimpinan*

***Abstract:*** *The scarcity of clean water in Dumai City has been going on for decades. PDAM Tirta Dumai Bersemai is required to have good performance so that the distribution of clean water is evenly distributed to all people. However, PDAM faces many challenges in achieving this goal. Challenges in the form of limited funds, human resources, and influential environmental factors so that performance is said to be not optimal. PDAM almost went bankrupt in 2016, trying to get up in 2018-2020 by making various efforts. This paper is intended to explain the success of PDAM in providing clean water. Success is interpreted not as an equal supply of clean water to all people but rather as success in getting through a period of bankruptcy. This research was conducted using qualitative methods by collecting data through interviews and documentation. The field results were then analyzed, resulting in the following findings. First, PDAM can be involved in various clean water supply schemes such as SPAM NUWS, PPP, and Durolis. This involvement shows the trust of the parties in the PDAM's performance. Second, improvements in PDAM performance are inseparable from improvements in PDAM's internal management. Improvement of PDAM's institutional dimension is the key to PDAM's revival. The leadership of the first and second periods of the principal director of PDAM showed significant changes. So that in the future, PDAM leadership must be based on qualified knowledge, information, and experience in managing clean water.*

***Keywords*****:** *PDAM, Clean Water, Institutional Dimension, Leadership*

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## Introduction

The wealth of resources in urban areas should be used for the welfare of urban residents, not exploited by the owners of capital (Harirah, 2019). However, in reality, power relations are often unequal, cities' commercialization results in city residents' marginalization. The scarcity of water resources will eventually lead to competition for access to water distribution (Hakim et al., 2017; Tarigan et al., 2013). Not only in Dumai, the struggle for access to clean water among urban residents also occurs in big cities such as Yogyakarta and Bali (Warren, 2000). Contests over access to clean water in Yogyakarta arose with the campaigns Jogja Asat (Jogja is drought) and "Jogja ora Didol" (Jogja is not for sale). Clean water is contested between city residents and various industries such as hotels and apartments, which impacts residents' wells drying up. Finally, city residents are alienated from access to water and, at the same time, have limited space to participate (de Souza, 2006; Purcell, 2002). Likewise, in Bali, water consumption is so large that it is used for hotels and tourist activities. Tourism activity is closely related to the motive for capital expansion in the tourism industry (Cole, 2012).

Research on the limitations of clean water is not new because there have been many previous studies (Hatmoko et al., 2013; Kunu, 2013; Martha, 2017). So far, studies that discuss alternative problems for PDAMs to face the water crisis (Valentino, 2013), sectoral egoism in managing water (Mardimin, 2014), and water quality in industrial areas (Hapsari, 2015). Water management contains a political economy dimension. The process of managing and distributing resources includes who will benefit from the direction of these resources (Zwarteveen et al., 2017). There is a triadic concept: the relationship between power, money, and water (Erik Swyngedouw, 2004). Inequality of access to clean water cannot be reduced to a natural and technical problem. Inequality is the result of the dynamics of power relations. Urbanization of water occurs through its metabolic processes mediated by "politics," just as the water interacts with social functions. The method of water metabolism is not only related to water itself but also related to the circulation of money and capital (Erik Swyngedouw, 2004). Social relations and power dynamics will affect the distribution of water. The relationship between humans and water can be represented as the relationship between social groups and the state, often reproducing unequal conditions. This metabolism will ultimately determine who has the right to exploit resources, how to change nature, and what impact it will have (Astuti, 2017). This research will focus on the institutional dimensions that have a major influence on PDAM management amidst the unique challenges faced in the City of Dumai.

Regarding the rights to the city, figures such as Lefebvre and Harvey described that the citizens would obtain their rights determined by the resistance and struggle for the claim over the rights to the city itself. City residents need to be aware of design alternatives and be actively involved in producing urban space. The result of the struggle for the right to the city is urban growth, where the area is formed for the meeting, connectedness, play, difference, and novelty (Purcell, 2002). But unfortunately, not all city residents have the awareness to fight for their rights, including what happened in Dumai City. Dumai has been in a water crisis for decades, but there has never been a social movement. The townspeople seem to have agreed and are sincere with the situation that "Dumai is indeed difficult for clean water."

Water is one of the sources of human life, and its availability is limited. For that reason, water is contested for access to its existence (OECD, 2016). Various factors cause the weakness of water management, rapidly increasing water demand, and the potential for limping availability (Prihatin, 2015). Water crises often occur due to human activities; there are at least two causes of water crises, namely land use and water management, that are not well integrated and mutilation of water management. The management of these water resources is largely determined by institutional arrangements, not left to the market. The water crisis is certainly related to supply and demand. This means that if the available water is limited but the demand

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for water is very large, scarcity will appear. The problem is that commercial water use is more expansive, thus ignoring non-commercial communities (Hakim et al., 2017).

PDAM, one of the region's clean water providers, is responsible for distributing clean water. As the implementer of the Dumai City Drinking Water Supply System, PDAM Tirta Dumai Bersemai must be innovative in presenting water for the needs of the people of Dumai City. PDAM's task is no longer straightforward, namely maintaining sustainability and increasing the added value of water. As BUMD, PDAM has three critical missions, namely:

1. Providing public services
2. As a source of local revenue
3. Agents driving regional economic growth

The problem of clean water distribution in Dumai City is not evenly distributed. In addition to the problematic availability of water, the imbalance of power relations between city residents and the needs of the industrial sector is one of the factors in the distribution of clean water in Dumai City (Harirah et al., 2022). The City of Dumai developed into seven sub-districts, namely Dumai Kota, Dumai Selatan, Bukit Kapur, West Dumai, Medang Kampai, East Dumai, and Sungai Sembilan districts. However, the distribution of clean water is not evenly distributed throughout the sub-districts, and even the distribution tends to decrease, as shown in Figure 1:


**Figure 1. Clean Water Distribution in 2020**
Source: PDAM Tirta Dumai Bersemai Technical Report 2020

Based on its performance value, PDAM Tirta Dumai Seed is included in the "sick" classification with a score of 1.86. However, from PDAM's poor performance and improper distribution of clean water, PDAM has tried to rise from bankruptcy. During the leadership period of the PDAM's principal director in 2014-2018, PDAM experienced a difficult time after changing its status to become PRUMDAM. Internal problems and corporate leadership have significantly influenced PDAM management amidst various limitations. As a BUMD that also seeks profits, PDAM suffers losses, so it cannot pay employee salaries. In 2016, 40 employees quit, a total of seventy employees. PDAM lost many workers, so PDAM Tirta Dumai Bersemai headed for a failed condition in 2017.

In addition to some employees who quit or resigned in 2016, the PDAM also has debt problems that arise due to the problematic internal governance of PDAM Tirta Dumai Bersemai. The first period of leadership of PDAM Tirta Dumai Bersemai left debts to third parties of Rp2 billion plus employee salary debt of 800 million rupiahs (the result of an interview with the head of general administration). This condition indicates that there has been

mismanagement within PDAM Tirta Dumai Bersemai. So, it is only natural that the problem of the difficulty of obtaining clean water in Dumai City cannot be adequately resolved.

Based on the explanation above, this paper will describe the rise of PDAM Tirta Dumai Bersemai after its bankruptcy in 2017. PDAM's success will be framed in improving its institutional dimensions. Even though it still shows performance in the "sick" category and the distribution of clean water is still uneven, there have been significant changes that have been made by the PDAM so that it currently manages various clean water supply programs.

## Method

This qualitative research prioritizes inductive logic, where categorization is born from the researcher's encounters with informants in the field or the data found. The qualitative approach was chosen because it will present a process of filtering data or valuable information about a situation in certain conditions, aspects, or fields in the object's life (Hardani et al., 2015). According to Gubrium and Hostlein (1992), the qualitative method examines everyday life's qualities that cover a wide range, from life's actions and narratives to its sign, circumstances, and sense of reality.

Through a case study approach, this research attempts to describe, explain and analyze phenomena, events, activities, beliefs, perceptions, and thoughts individually and in groups. In this study, various data were collected related to the subject matter previously described. The data will be collected with careful observation, including detailed contextual descriptions, in-depth interview results, and document analysis results. The data collected is studied as an integrated unit, and the case study must be characterized as exploratory and descriptive research. The research data consists of primary data and secondary data. Primary data is obtained directly from research informants through the interview process, which is used as the object of research. The information was obtained from the results of in-depth interviews with the informant. The informants were selected using a purposive sampling technique, namely by conducting interviews with parties who were considered to have information related to the research for the informants, the main director of PDAM Tirta Dumai Bersemai, administrative and financial staff of PDAM Tirta Dumai Bersemai, Supervisory Board of PDAM Tirta Dumai Bersemai, Head of Human Settlement Division of the Dumai City PUPR Service. Research informants are people who are sources of data in the study. Research documents are included in the secondary data type. Secondary data is obtained from authorized institutions or agencies, news from newspapers, and other related documents.

This research was conducted through observation techniques, in-depth interviews, and documentation. The last thing that was done was data analysis of substantive and formal findings. The data of this study consisted of primary data and secondary data. Data analysis in qualitative research is carried out using 3 (three) techniques, namely first, data reduction, data presentation according to the theory used, and drawing conclusions obtained and analyzed using relevant approaches (Imam Gunawan, 2013).

## Findings and Discussion

### PDAM involvement in the Clean Water Supply Project

It is crucial to rethink the institutional aspect of PDAM Tirta Dumai Bersemai's clean water management. The main external challenge is the availability of raw water sources whose quality fluctuates. The city of Dumai is predominantly peat soil with a depth of up to 3 m. It makes the water in Dumai City need extra processing to meet the community's clean water needs. The condition of groundwater in Dumai City is not suitable for drinking water. Water from dug wells or drilled wells with a depth of 1-2 meters is not in good condition. Changes in the quality of raw water sources will affect the use of processing materials.

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The source of raw water used by the Existing SPAM of Dumai City is the surface water of the Mosque River. The flow of plain water is carried out using a pump system from the source to the reservoir and then to the customer. The Water Treatment Plant (IPA) has a capacity of 40 L/second. However, the Sungai Masjid IPA is no longer operating due to damage and has been replaced with the Sudirman IPA through a 16.2-kilometer transmission network. The following shows a map of the existing PDAM water distribution services in Figure 2:

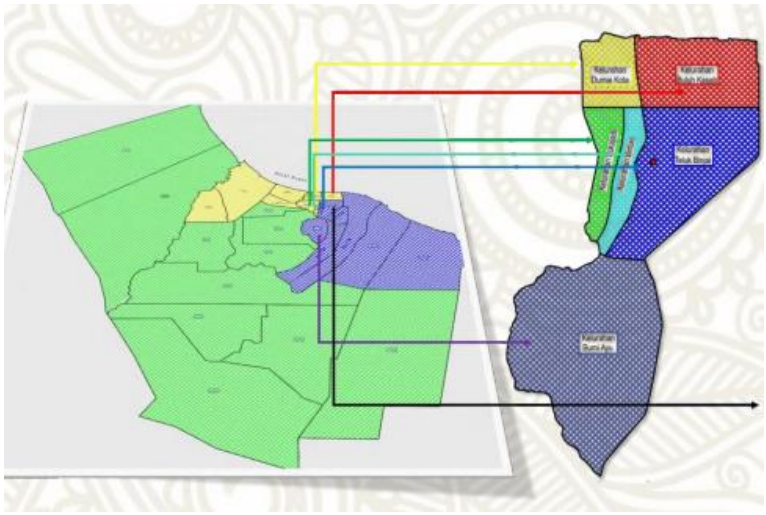

**Figure 2. Existing Service Map**
Source: KAP Audit for Fiscal Year 2020

From the map above, the water supply system in Dumai City does not yet cover all sub-districts. More details can be presented in Table 1:

**Table 1. Clean Water Distribution in Dumai City**

| Subdistrict | Number of Villages | Served Village | Total population | Number of Subscription Connections |
|---|---|---|---|---|
| Bukit Kapur | 5 | 0 | 47.565 | 0 |
| Medang Kampai | 4 | 0 | 12.351 | 0 |
| Sungai Sembilan | 5 | 0 | 33.909 | 0 |
| Dumai Barat | 4 | 2 | 44.119 | 150 |
| Dumai Selatan | 5 | 1 | 55.523 | 42 |
| Dumai Timur | 5 | 3 | 66.435 | 614 |
| Dumai Kota | 5 | 3 | 48.910 | 471 |

Source: KAP Audit for Fiscal Year 2020

Table 1 shows Bukit Kapur, Medang Kampai, and Sungai Sembilan sub-districts are sub-districts that PDAM's clean water services have not touched. West Dumai District has 150 subscription connections serving 750 people, and the percentage of service coverage is 1.69% of the total population of the sub-district. Dumai Selatan District has 42 subscription connections serving 210 people, and the service coverage rate is only around 0.38%. Then, East Dumai District has 614 subscription connections to help 3,070 people with a service coverage of 4.62%. Finally, Dumai Kota District has 471 subscription connections for 2,355 people, with a service percentage of 4.81%. Judging from the service coverage rate, PDAM Tirta Dumai Bersemai has not been able to provide services that satisfy the community.

Compared with the previous leadership period, the conditions above are conditions of improvement. After the Main Director of PDAM Tirta Dumai Bersemai's replacement in 2018, there have been improvements and improvements to the company's performance. It must be admitted that turning bankrupt and not operating is not an easy thing to do. Even though the balance sheet and performance values are still in a "sick" condition, the company is moving in a better direction. PDAM Tirta Dumai Bersemai has begun to improve by rearranging the bureaucracy, technical, operational, and HR management, and the company's finances. In conditions of PDAM uncertainty in managing clean water services, PDAM can convince third parties to handle clean water supply programs.

At the end of 2019, PDAM succeeded in convincing the Ministry of Public Works and Human Settlement and the World Bank regarding managing the SPAM Water Supply Market System. Since then, PDAM has begun to take notice and carry out various types of government-business partnerships (PPP). We realized water treatment using the latest technology, nano filters, a year later through the World Bank's National Water Supply Program (NUWS) grant program. The SPAM National Urban Water Supply (NUWS) program, the SPAM Public Private Partnership (KPBU), and the SPAM Dumai-Rohil-Bengkalis (DUROLIS), which are regional SPAMs from 3 different districts, namely Dumai-Rokan Hilir and Bengkalis.

**National Urban Water Supply Framework (NUWAS)**

One of the national programs to support urban water supply development with investment financing is NUWAS. This program is intended to accelerate the program's implementation to expand service coverage and increase regional capacity, namely local governments and PDAMs, in implementing sustainable SPAMs. Within the NUWAS framework, the assistance provided to Regional Governments/PDAMs consists of non-physical assistance such as technical assistance and capacity building as well as physical assistance in the form of infrastructure investment, the type and amount of which are adjusted to regional capacity. A technical service and capacity-building program will be provided before the buy is implemented. However, not all Regency/City Governments can become NUWS project participants. Regencies/cities that can become NUWS Project priorities are PDAMs involved in drinking water programs from other donors or local governments that are included in the strategic development area of special economic zones, tourism, and so on.

PDAM Tirta Dumai Bersemai was selected to be one of the NUWS project participants. PDAM's success in obtaining NUWS funding was one of the turning points for the rise of PDAM Tirta Dumai Bersemai. Based on the results of interviews with the main director of the PDAM, the NUWS SPAM project in Dumai City has a capacity of 50 L/second with a project value of 42.6 M. PDAM Tirta Dumai Bersemai is the first to use Hollow Fiber Nano Filtration (HFNF) technology in Indonesia. Output This project will serve eight sub-districts with beneficiaries of 4,000 house connections.

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**Government Cooperation with Business Entities (PPP)**

The limitations of the APBD make the government required to develop various funding alternatives, one of which is using a development cooperation scheme with the private sector or what is known as government and business entity cooperation (PPP). The Dumai City SPAM PPP Project has a capacity of 450 l/second with a project value of 489 billion rupiahs in twenty-five years.

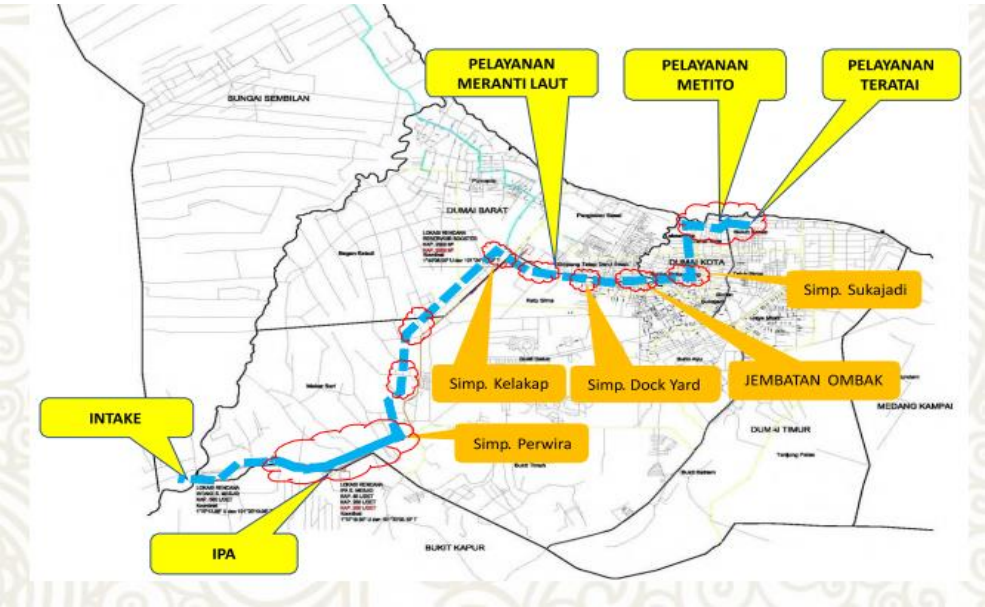


**Figure 3. PPP SPAM Work Progress**
Source: KAP Audit for Fiscal Year 2020

Durolis Regional SPAM (Dumai-Rokan Hilir-Bengkalis)

Regional SPAM planning is contained in the Business Plan of PDAM Tirta Dumai Berasemai. Regional SPAM is an alternative to improve efficient water services and establish cooperation between regions. In addition, the Regional SPAM is intended to help districts/cities with limited funds increase their attractiveness to investors. The Durolis Regional SPAM (Dumai-Rokan Hilir-Bengkalis) is supported by the availability of an alternative water source with a reasonably large discharge, namely the Rokan River. The person in charge of this project is the Provincial Government of Riau to prevent ownership conflicts from occurring because it will be used by three different districts/cities. The Durolis regional SPAM is targeted to benefit 40,000 house connections in Dumai City.

**Improvement of PDAM Tirta Dumai Bersemai Management**

The rise of PDAM Tirta Dumai Bersemai is inseparable from the figure of Agus Adnan as the company's principal director, who has served since early 2018. He is experienced in managing PDAMs, which he has worked on while on duty in Tarakan. Based on that experience, he later became the principal director of PDAM Tirta Dumai Bersemai, elected through a fit and proper test mechanism conducted by the City Government of Dumai. Agus Adnan's experience while managing PDAM in Tarakan is expected to be able to solve the problem of clean water demand in Dumai City. It has been proven so far by lobbying the Central Government and the World Bank and rationalizing the clean water program offered by PDAM Tirta Dumai Bersemai to fulfill clean water.

Constraints from internal is the cost of electricity resulting in operating and production costs being relatively high. Currently, PDAM still depends on third parties in terms of production. Other obstacles are the company's lack of optimal marketing, the installation of house connections constrained by soil conditions, and the absence of information management with an integrated system.

Essential lessons from clean water management in PDAM Tirta Dumai Bersemai show that the institutional aspect's strength will greatly influence an organization's performance. Factors of knowledge, experience, and information owned by the principal director of the PDAM show changes. Rising from bankruptcy amid limited funds, human resources, and environmental conditions requires the strength of a leader's strategy. Therefore, this paper recommends rethinking the institutional aspects of PDAM strengthening. As a party with a big responsibility to provide clean water needs, PDAM should pay attention to the quality of human resources to support the performance of the principal director. PDAM's leadership capacity can take advantage of the status of an industrial city as a selling power in obtaining various funding schemes at the national and international levels.

## Conclusion

Information, knowledge, strategies, and policies from the principal director affect the PDAM's performance of the PDAM. The challenge of the geographical condition of the City of Dumai, which has peat soil, requires technical understanding so that water distribution has minimal problems that the experience and knowledge of the principal director influence the policies taken. PDAM leadership with a less linear knowledge base for the 2014-2017 period resulted in a stagnant and almost failed PDAM condition. After the principal director's change, PDAM improved with more experience and knowledge. The "sick" category still attached to the current performance value of PDAM Tirta Dumai Bersemai is a transitional state from a near-death condition. New hope began to appear when the Main Director of PDAM Tirta Dumai was able to take advantage of Dumai's potential as an industrial city as an attraction to attract investors in obtaining national-level SPAM schemes and even world bank grants at the end of 2019. Therefore, strengthening the institutional aspect is essential to face various challenges to clean water supply in Dumai City.

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