

Analysis of Drinking Water Supply in PDAM Tirta Kualo in Tanjung Balai City

Ruri Prihatini Lubis, Subhilhar, R. Hamdani Harahap, Fikarwin Zuska
Faculty of Social and Political Science, Universitas Sumatera Utara, Medan, Indonesia

Keywords: Drinking Water Supply, Governance, Water, Management, Sustainable Development Goals.

Abstract: PDAM Tirta Kualo as the only water supply company in Tanjung Balai city that organize the drinking water supply system to the costumers of Tanjungbalai. The local Government depute PDAM Tirta Kualo to develop and manage water supply system to the customers in Tanjung balai City . Safe water supply is an universal issues, in Tanjungbalai City aswell. Issues that faced by PDAM Tirta Kualo in implementation of drinking water supply such as, the existing distribution network only able to reach few areas of the city, the ratio of the employees compared to the ratio of costumers are unbalanced, many ilegal connections, technically the facilities and infrastructures are inadequate, including not all customers have water meter as payment measurement tools. These issues caused disruption in services and governances of drinking water supply by PDAM Tirta Kualo. This research aims to formulate a sustainable governance of drinking water supply measured through community perceptions of the services provided. The results showed the needs of improvements in corporate governance related to the adjustment of the ratio of employees to customers, improvement of the infrastructures both the distribution network and water meter procurement, as well as increasing the capacity building of the human resources to give excellent services to costumers.

1 INTRODUCTION

Safe water supply is an universal issues, in Tanjungbalai as well. Drinking water services in Tanjungbalai for its residents regulated on Regional Regulation No. 1 on November 1, 1988 were conducted by PDAM Tirta Kualo by utilizing surface water sourced from the Silau River.

The coverage services of PDAM Tirta Kualo is 71% of the people of Tanjungbalai City, based on the amount of investment that needed to treat the surface water, but with consideration that alternative drinking water sources are difficult to obtain in Tanjungbalai (Pemerintah Kota Tanjungbalai, 2018).

There are several issues in supplying safe drinking water in Tanjungbalai City, such as:

- a. Water production does not meet the requirements in terms of quality, quantity and continuity.
- b. Many customers who do not have a water meter to measure water payments.
- c. Standard Operating Procedures (SOP) has not been implemented.
- d. The number of employees are not proportional compare with the number of customers.
- e. There are many illegal customers.

- f. Non-revenue water is stil high.
- g. The debt of costumer are uncollectible and affected the operational costs.
- h. The condition of water treatment and deep wells are not good.
- i. Many leak in pipelines system.
- j. Low quality of human resources.
- k. The payment system does not use payment point online banking.
- l. The administrative system is not in accordance with the quality management procedures and ISO.
- m. The regulation of goods and services procurement is not yet implemented.
- n. The amount of corporate debt.

Based on this, it is necessary to do an analysis of the supply of drinking water by PDAM Tirta Kualo which aims to create a sustainable drinking water supply governance in the Tanjungbalai City.

2 METHOD

The unit of analysis of this study is PDAM Tirta Kualo, located in North Sumatra Province. The

focus of this research is to analyze the governance of existing clean water supply in Tanjungbalai City carried out by PDAM Tirta Kualo. This research using qualitative method. The qualitative method is a research procedure that produces descriptive data in the form of written or oral words from people and behaviors that can be translated. Descriptive qualitative methods are used to study and explain cases naturally (Creswell, 2013).

Observation technique is an activity that focuses attention on an object by using all the senses. The things observed in this study cannot be separated from the focus of the above researchers analysis of drinking water supply by PDAM Tirta Kualo in Tanjungbalai City.

3 RESULT

3.1 Overview of Tanjungbalai City

The city of Tanjungbalai is geographically located between 2 ° 58 'North Latitude and 99 ° 48' East Longitude with an area of 60,529 Km² (6,052,9 Ha), which is surrounded by the Asahan Regency Region. The boundaries of the Tanjungbalai City area are as follows: South of the Simpang Empat District. Asahan, North of Tanjungbalai District, Kab. Asahan, in the East with Sei Kepayang District, Kab. Asahan, in the west with Simpang Empat District, Kab. Asahan.

Administratively, Tanjungbalai City consists of 6 subdistricts. Based on Regional Regulation no. 6 of 2008, on August 4, 2008 concerning the Formation of Datuk Bandar Timur Subdistrict and Regional Regulation no. 3 of 2008 on February 22, 2008 concerning the Establishment of Johor Beach Village in Datuk Bandar District, the Tanjungbalai City area became 6 districts and 31 villages.

Based on the results of the 2010 Population Census, the population of Tanjungbalai City was recorded at 154,445 people, with a population density of 2,552 people per km². The highest population is in Teluk Nibung Subdistrict with 35,802 inhabitants. While the most populous population is in North Tanjungbalai District of 18,883 inhabitants per km². Furthermore, in the period 2000-2010 the population growth rate of Tanjungbalai City was 1.55 percent (Figure 1). In 2018, the population of Tanjungbalai City will be 173,302 people (BPS-Statistics of Tanjungbalai Municipality, 2018).

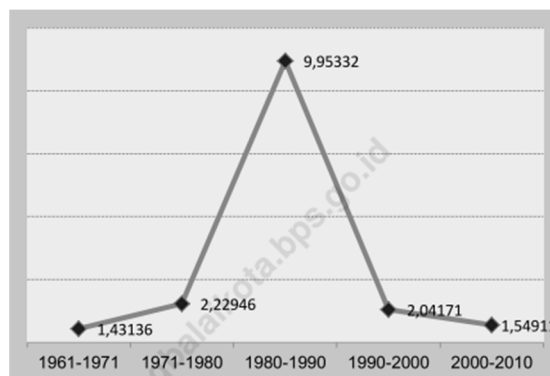


Figure 1: Population Growth Rate of Tanjungbalai City 2000 to 2010.

The population growth rate (Table 1) shows that the relatively high-growth sub-district is Datuk Bandar District (now Datuk Bandar + Datuk Bandar Timur) by 2.94 percent. The high rate of population growth in Datuk Bandar sub-district compared to other sub-districts is because Datuk Bandar and Datuk Bandar Timur sub-districts are still 1 sub-district with a very wide area, and most of the population also live in this sub-district, especially people with livelihoods agriculture. On the other hand, in some other sub-districts in the City of Tanjungbalai, the population growth rate actually decreased (minus), including South Tanjungbalai District by minus 1.76 percent and North Tanjungbalai District by minus 0.45 percent.

Table 1: Number and growth rate of population of Tanjungbalai City by District in 2000 – 2010.

District	Number of populations		Population Growth Rate/Year (%) 2000-2010
	2000	2010	
Datuk Bandar Timur	45.468	60.739	2,94
Tanjungbalai Selatan	23.089	19.330	- 1,74
Tanjungbalai Utara	16.589	15.862	- 0,45
Sei Tualang Raso	18.348	22.712	2,16
Teluk Nibung	28.944	35.802	2,15
Kota Tanjungbalai	132.438	154.445	1,55

One of the most serious population issues is the uneven distribution of population between regions, so that the density for each District is not evenly distributed. Population density is usually centered in urban center areas which generally have the facilities

needed by residents of suburban areas to do business in urban areas. In Tanjungbalai City, the largest population is in Teluk Nibung Subdistrict, which is usually said to be a suburb, but this area is an industrial and fishing landing area which is the main livelihood of the majority of Tanjungbalai City residents, even in this area the National and International Ports are located. then it is natural that in this sub-district the largest number of inhabitants live. But still there is an imbalance in population density in each district. Problems often arise due to overcrowding, especially regarding housing, health and safety. Therefore, population distribution must be a particular concern of the government in carrying out development.

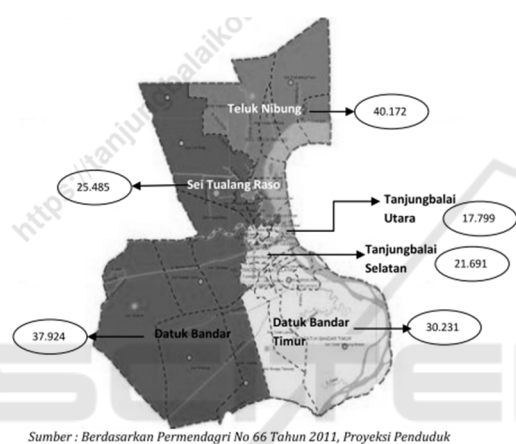


Figure 2. Population Density of Tanjungbalai City by Kecamatan 2018.

3.2 Profile of PDAM Tirta Kualo

The presence of PDAM in Indonesia as the main provider of drinking water services is made possible through law no. 5 of 1962 as a regional government-owned business entity that provides services and organizes public benefits in the field of drinking water. PDAM activities range from collecting, processing and clarifying to distributing to customers.

The drinking water supply company in Tanjungbalai City was established on January 22, 1936 under the name WATER LEIDING BEDRIJF, promulgated in Javasche Courat-No. 18. Based on the Decree of the Mayor of the Regional Head of the Kindergarten. II Tanjungbalai, on April 22, 1974 Number: 3/KDH/1974 exchanged their names and status as the Office of Drinking Water Companies. Then with the approval of the Regional House of Representatives at the Tk. II Tanjungbalai, dated 15-12-1981 number 729 / DPRD / TB / 81 and based on

mutual agreement between the Mayor of Tanjungbalai and the North Sumatra Clean Water Project, starting from October 1, 1982, his status became BPAM.

Tirta Kualo Regional Water Company (PDAM) was formed based on Regional Regulation Number: 1 dated 18 November 1988. Organization and Work Procedure of PDAM Tirta Kualo Tanjungbalai City was formed based on Tanjungbalai City Regulation No. 09 of 2009, in accordance with Minister of Internal Affairs regulations No. 2 of 2007.

3.3 Drinking Water Supply by PDAM Tirta Kualo

Based on the Decree of the Minister of Public Works No. 269/KPTS/1984 dated August 8, 1984, it was said that the implementation of the management of infrastructure and supply of clean water to the community was fair and equitable, continuously in accordance with hygiene requirements and aimed at generating additional income for the local government. Furthermore, the Decree of the Minister of Home Affairs number: 690-096 year 1994 regulates the pattern of PDAM technical guidance including having the main function of public services to the community, being able to finance itself, developing service levels, and becoming a source of PAD (Regional Original Income) for the City Tanjung Balai.

Based on data from PDAM Tirta Kualo, an overview of clean water supply by PDAM Tirta Kualo is shown in Table 2. It shows an increase in the number of residents in the City of Tanjungbalai from 2017 to 2018 amounted to 2,408 people. This resulted in an increase in the percentage of SR, which was previously 23,320%, increasing to 24,520%.

However, of the total installed water debit, PDAM Tirta Kualo did not experience an increase from the previous year, resulting in an increase in deficit deficit in water debit from the previous 29 lt / sec increased to 49 lt / sec.

Table 2: Overview of water supply by PDAM Tirta Kualo Kota Tanjungbalai.

Year	Number of populations (inhabitants)	Total House connection (inhabitants)	Percentage of House connection	Percentage of served populations	Total installed Debit (lt/sec)	Water debit needs (lt/sec)	Debit defiviency (lt/sec)
2017	169,367	116,600	23,320	68,84	360	389	29
2018	171,775	122,600	24,520	71,37	360	409	49

Source : PDAM Tirta Kualo, 2018

Table 3: Comparison of water production with water loss in PDAM Tirta Kualo in 2018.

Year	Water Productions m ³	Water distribution m ³	Water sold m ³	NRW m ³	Presentage of non revenue water (%)
2018	10.798.236	10.516.773	6.639.862	3.876.911	36,86

Source : PDAM Tirta Kualo 2018

The comparison between water production and the percentage of water loss is presented in Table 3. It shows the percentage of water loss is still relatively very high (36.86%) this is due to several factors including: 1) the number of unregistered dark connections by PDAM Tirta Kualo, 2) the unavailability of water meters that measure water usage by customers .

The obstacles faced by PDAM Tirta Kualo in the supply of clean water are also related to the human resources owned by PDAM Tirta Kualo. Data related to the human resources of PDAM Tirta Kualo is presented in Table 4.

Table 4: Total of human resources in PDAM Tirta Kualo Kota Tanjungbalai.

Position	Total (person)	(%)
Director	1	0,35
Permanent employees	249	87,99
Non permanent employees	14	4,95
Contract employees	6	2,12
Securities	8	2,83
Intern	5	1,77
JUMLAH	283	100

Source: PDAM Tirta Kualo 2018

Based on the Table 5, the comparison between the number of employees and the number of customers served are not balanced. So that the company's burden for operations and paying employees is not proportional to the company's revenue from water sales. The high level of education of employees who are mostly senior high school also hinders the services provided.

Table 5: Education level.

No.	Level Educations	Total	(%)
1	Under graduate	71	25,18
2	Diploma	10	3,55
3	Senior High School	185	65,60
4	Junior High School	9	3,19
5	Elementary School	7	2,48
TOTAL		282	100

Source: PDAM Tirta Kualo 2018

The Tirta Kualo PDAM service development program is a program that aims to increase the number of customers and improve the quality of services, such as improving the quality, quantity and continuity in the supply of clean water to the people of Tanjungbalai City. Improving the quality, quantity and continuity is one of the missions of the PDAM to be able to meet the community's need for clean water that is fit for consumption. The programs run by the PDAM in service development are as follows:

1. Recording customers who do not have a water meter and installing a water meter.
2. Conduct an assessment of the placement of employees to fit the needs and abilities of employees in improving services to the company.

In an effort to resolve the problem of providing clean water in the City of Tanjungbalai, PDAM Tirta Kualo made the following efforts:

1. Form a customer investigation team, this team is tasked with identifying and inventorying illegal customers and re-registering customers who do not have a water meter
2. Termination of illicit connections and delinquent customers

3. Arrange a new organizational structure in accordance with article 9 Permendagri Number 2 of 2007 concerning PDAM organs and staffing;
4. Implement Company Operational Standards (SOP)
5. Fit and proper test for employee placement and position
6. Billing customers' arrears in water accounts
7. Accelerated repayment of corporate debt;
8. Creating an Online Payment Program / PPOB.

Pemerintah Kota Tanjungbalai, 2018.
<https://tanjungbalaikota.go.id/agenda/pesan-wali-kota-tanjungbalai-kepada-direktur-pdam-tirta-kualo-yang-baru-pengelolaan-sumber-daya-air-dan-pemenuhan-kebutuhan-air-bersih-harus-cepat-diatasi/>

4 CONCLUSION

After conducting the research it can be concluded that the implementation of the PDAM work program has been carried out but there are still obstacles that have caused some programs to experience delays in the completion process. In its implementation, the implementation of the PDAM work program still has several inhibiting factors in its implementation, especially the problem of operational costs and inadequate water treatment and distribution conditions and the low quality of human resources. The level of service has not been maximized so the level of customer complaints is still high.

5 SUGGESTION

From the results of the research conducted, the researchers convey the following suggestions:

1. Implement the company SOP well so that it can improve service to customers.
2. Install a water meter to all customer house connections.
3. Resolve the problem of arrears in the customer's Water Account to improve company finances.
4. Reducing the employee ratio and adjusted by the number of customers.
5. Following training - training to improve the quality of employees.

REFERENCES

- BPS-Statistics Tanjungbalai Municipality, 2018. *Tanjungbalai Municipality in Figures 2018*.
- Creswell, J.W., 2013. *Research design: pendekatan kualitatif, kuantitatif, dan mixed*, Pustaka Pelajar. Yogyakarta, 3rd edition.
- PDAM Tirta Kualo, 2018. *Profil perusahaan daerah air minum (PDAM) Tirta Kualo*, Kota Tanjungbalai.