

Asset Management Problems of Tanah Laut Water Utilities (Pdam) as a Low Coverage of Clean Water Service

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Abstract

The purpose of this study was to determine asset management issues related to the low coverage of clean water services. This study uses qualitative explanative methods. The unit of analysis in this study is PDAM Tanah Laut Regency. The primary data source for the study came from interviews with the Director and his staff, as well as data obtained directly from PDAM Tanah Laut Regency. While secondary data sources come from company financial reports, performance reports by BPKP, performance reports from BPPSPAM. Data analysis to identify problems using CIPP with weighting problems using AHP. The results of the analysis show that the problem of managing the assets of the PDAM Tanah Laut Regency that causes the low coverage of clean water services is dominated by the factor of company resources in the form of infrastructure (machine) and funding (money). Most of the company's production and distribution machineries are obsolete, old and damaged, thus contributing greatly to the high and low coverage of clean water services. While in terms of money, the company does not have sufficient funding capacity to conduct new procurement or heavy maintenance in overcoming the problems of the machine.

Keywords: Coverage of clean water services, infrastructure, funding.

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INTRODUCTION

Water as a vital resource for human life. The existence of water which is a public good needs to be managed properly. In this case the government appoints a business entity that handles the problem of providing clean water, namely in the form of a Regional Water Company (PDAM). The service and supply of clean water in the pipeline sector in Tanah Laut Regency is handled by PDAM Tanah Laut Regency. PDAM Tanah Laut Regency was established in 1983 as a Water Management Agency (BPAM) through a letter from the Minister of Public Works Ministry of Public Works No: 008 / KPTS / KPT / ek / 1983. In 1993, the Water Management Agency (BPAM) changed its name to a Regional Water Supply Company (PDAM) with the issuance of the Tanah Laut Regency Regulation No. 02 of 1993 concerning the Tanah Laut District Water Supply Company (PDAM).

Problems that affect the level of health and performance of PDAMs include a decrease in the scope of drinking water services, a fairly high level of water leakage, and a debt burden [1]. The need for clean water from the community is increasingly increasing where the production capacity of clean water sources tends to be relatively declining so the relevant thing to do by PDAM is to minimize the level of water loss or non-revenued water (NRW). NRW can be defined as water that can be measured and known for its magnitude but cannot be accounted for or cannot be income, but can be accounted for [2].

The evaluation results of the Supporting Agency for the Development of the Drinking Water Supply System (BPPSPAM) of the Ministry of Public Works of PDAMs throughout Indonesia in the last five years shows that the coverage of PDAM services to the people of Tanah Laut Regency is still very low and the level of water loss is quite high as presented in table 1.

Table-1: PDAM Tanah Laut Regency Performance 2011-2015

Indicator	2011	2012	2013	2014	2015	Mean
Service Coverage	7.23%	13.50%	12.11%	9.86%	10.35%	10.61%
Distribution of Water Loss	31.89%	29.56%	33.72%	26.44%	25.54%	29.23%
PDAM Health Level	Sanitary	Unsanitary	Unsanitary	Unsanitary	Unsanitary	-

Source: BPPSPAM Reports for 2013 and 2014

Table 1 shows that the service coverage of PDAM Tanah Laut Regency is still very low where on average the last five years only served 10.61% of the people of Tanah Laut Regency. Meanwhile, the rate of water loss actually shows a fairly high rate with an average of the last five years of 29.23%. This figure is still above the tolerance value of the water loss level specified in the legislation which is 20%. The two indicators are very contradictory where on one hand the service coverage is still very low, but on the other hand the PDAM Tanah Laut Regency actually wastes a lot of

water that should be used to increase service coverage to the people of Tanah Laut Regency.

The water loss rate figure in table 1 also shows that PDAM Tanah Laut Regency failed to increase water sales revenue, where on average 29.23% of the water produced was unable to be converted into revenue. On the other hand, the PDAM Tanah Laut Regency Financial Statements in the last five years have always suffered losses as presented in table 2.

Table-2: Financial Performance of PDAM Tanah Laut Regency 2011-2015

No	Year	Profit (Rp)	Debit (Rp)	Loss (Rp)
1	2011	2,193,041,723.00	3,865,092,548.00	1,672,050,825.00
2	2012	2,360,638,283.00	3,417,274,562.00	1,056,636,279.00
3	2013	2,525,047,786.00	3,841,258,123.00	1,316,210,337.00
4	2014	2,657,189,296.00	4,495,469,860.00	1,838,280,564.00
5	2015	3,011,267,671.00	4,325,572,714.00	1,314,305,043.00

Source: PDAM Tanah Laut Regency Financial Report

Reports on the Performance Audit of the Tanah Laut Regency PDAMs for fiscal years 2011 to 2015 conducted by the South Kalimantan Provincial Representative of the Financial and Development Supervisory Agency (BPKP) shows that the high level of water loss of the PDAM Tanah Laut Regency is caused by the assets, infrastructure, production, distribution, and services that are not functioning optimally. Regarding the data exposure, this article describes the problem of managing PDAM assets in Tanah Laut Regency.

METHODS

This study uses a descriptive research model with a qualitative approach with the intent to explain the cause and effect of a social phenomenon which is the object of study [3]. The analytical tool used for evaluation is the CIPP (Context - Input - Process - Product) model. Context with regard to the PDAM's goal of supporting the company's main goal of improving clean water services to the community; PDAM inputs (Water as a source of raw water; PDAM physical assets; production, distribution and service infrastructure; asset management planning/strategy including asset security and maintenance plans; Human Resources as executors; Financial resources for funding); Process with regard to PDAM asset management (procurement, operation, security, maintenance and deletion); Product related to PDAM output is clean quality water to be distributed to the public.

The study was conducted for 2 months from September to November 2016. The location of this research was PDAM Tanah Laut Regency. Primary data collection through direct data collection and interviews with the management of PDAM Tanah Laut Regency including data on asset management conditions, financial administration data, service coverage data, and

strategies for increasing the coverage of clean water services. Secondary data collection through a review of PDAM financial and performance reports from KAP, BPPSPAM, BPKP, and BPK including in the form of performance data and financial data for PDAM Tanah Laut Regency. Human Instruments in qualitative research are humans (researchers) conducted with the intention that the researcher as a tool, sensitive, and can react to any stimulus from the environment that must be estimated to have meaning or not for research [4, 5]. Therefore, researchers do not provide direct conduct at every stage of the study.

RESULTS AND DISCUSSION

Assets are an important resource for local governments. Management of regional assets properly and adequately, will get funding sources for financing development in the region [6]. Theoretically, asset management is a process of providing guidance or guidance on the procurement, use and write off of assets to produce the greatest possible benefits and manage risks and costs that may arise during the use of assets [7]. So far there are two contexts in the use of asset management, both physical and non-physical, namely the context of public organizations (government and regional) and in the context of private organizations (private business). In the context of public organizations, asset management is in principle a part of the management of government and regional finances. One important aspect supporting the success of government and regional financial management is having an effective and efficient asset management system. In this regard, there is an error in the mechanism of asset management of the Tanah Laut Regency PDAM as part of the BUMD. The results of the CIPP (Context, Product, Process, and Input evaluation) of the PDAM Tanah Laut Regency clean water supply activities are described as follows:

Context Evaluation

The main context of PDAM Tanah Laut Regency was established is to provide clean water services to the entire community of Tanah Laut Regency. PDAM Tanah Laut Regency is one of the Regional Companies owned by the Tanah Laut Regency Government which is expected to contribute to

strengthening the capital structure through the distribution of dividends to the Tanah Laut Regency Government for PDAM Tanah Laut Regency profits. The following description of the PDAM Tanah Laut Regency Performance Report in the past five years shows the following data:

Table-3: Coverage of Services in the Last 5 Years

Coverage Type	2011	2012	2013	2014	2015	Mean
Overall Coverage	7.23%	13.50%	12.11%	9.86%	10.35%	10.61%
Technical Coverage	7.47%	16.24%	16.53%	14.33%	13.06%	13.53%

Source: PDAM Performance Report for the Last 5 Years

The table above explains that there are two types of PDAM service coverage. Overall Coverage is the percentage of the population of Tanah Laut Regency that has used clean water from the PDAM compared to the total population of Tanah Laut Regency. The table shows that in the past five years, PDAM Tanah Laut Regency on average only served 10.61% of the entire population of Tanah Laut Regency.

Furthermore, technical coverage is the percentage of the population of Tanah Laut Regency that has used clean water from the PDAM compared to the total population of Tanah Laut Regency in the PDAM service area of Tanah Laut Regency, in this case the districts through which the PDAM Tanah Laut

Regency distribution pipeline is passed. The table above shows that in the last five years, PDAM Tanah Laut Regency has only been able to serve 13.53% of the population of Tanah Laut Regency on average. Until 2015, Kintap District was not yet a service area for PDAM Tanah Laut Regency. Based on the context aspect, PDAM Tanah Laut Regency should be able to serve the entire community of Tanah Laut Regency. However, the conditions above illustrate that the Tanah Laut Regency PDAM has not provided clean water services to all Tanah Laut Regency residents. Even in technical areas, the Tanah Laut Regency PDAM has not yet reached all of it. The benefits obtained by PSAM Tanah Laut Regency are described as follows:

Table-4: Financial Performance in the Last 5 Years

No	Year	Profit (Rp)	Debit (Rp)	Loss (Rp)
1	2011	2,193,041,723.00	3,865,092,548.00	1,672,050,825.00
2	2012	2,360,638,283.00	3,417,274,562.00	1,056,636,279.00
3	2013	2,525,047,786.00	3,841,258,123.00	1,316,210,337.00
4	2014	2,657,189,296.00	4,495,469,860.00	1,838,280,564.00
5	2015	3,011,267,671.00	4,325,572,714.00	1,314,305,043.00

Source: PDAM Performance Report for the Last 5 Years

The table above shows that the PDAM Tanah Laut Regency has always suffered losses in the last five years; even from the beginning the PDAM Tanah Laut Regency was never profitable. Due to the loss condition, the PDAM Tanah Laut Regency has not been able to provide dividends to the Tanah Laut Regency Government. This shows that the purpose of the PDAM Tanah Laut Regency to get profit has not been achieved yet. The two organizational objectives discussed in the context aspects above are the impact/outcome of the main product/output of the PDAM, which is sufficient clean processed water to serve the entire community of Tanah Laut Regency. After the context evaluation aspect, the next discussion of the product evaluation aspect.

Product Evaluation

The output (product) from the PDAM is clean water that is processed and of sufficient quality to be distributed to all the people of Tanah Laut Regency. The results showed that the PDAM Tanah Laut

Regency also could not produce an ideal output / product which according to the discussion in the context evaluation stated that not all the people of Tanah Laut Regency could enjoy clean water from the PDAM Tanah Laut Regency.

Process Evaluation (Value for Money - Efficiency Theory)

The main business processes of Clean Water Supply activities by PDAM are transmission/production, distribution and service activities. Basically, the process/operation stage is the stage of optimizing the use of available inputs to obtain optimal output/product, in this case PDAM Tanah Laut Regency is required to be able to maximize the available inputs (man, money, method, material, and machine) to produce the best output in this case, adequate and quality clean water for the people of Tanah Laut Regency. The process of changing inputs to output requires the principle of efficiency, where as much as possible using minimal input to obtain

maximum output. The results of the analysis of the production and distribution of clean water in 2015 showed that in terms of quantity, production and distribution of water is quite low. This is due to several aspects such as:

- There is an installed production capacity that is not utilized, that is, a production installation that has been installed but cannot be used because it is old, worn, damaged, and has decreased capacity like one IPA in BNA Pelaihari (Bajau).
- There is an idle production capacity, which is a production capacity that is ready to be used but not used due to lack of raw water quantity or heavy damage to the distribution network.
- The level of water loss (NRW) during production, i.e. the loss of water during the production or processing that is usually used for back flushing or cleaning the filter, and also because of the capacity of the distribution pipe which is smaller than the transmission pipe so that raw water comes in excess. But overflow in the reservoir because of the smaller distribution pipe capacity. This happens in the broncap during the rainy season.
- Inefficiency of Distribution Activities Water loss is divided into two, namely physical loss and non-physical loss (commercial includes water that has been consumed by customers but not paid for), and physical losses (real losses; water discharged physically, not due to weaknesses in recording/administration).

Input Evaluation

Inputs from clean water supply activities at PDAM Tanah Laut Regency include: PDAM Tanah Laut (Man) Regency employees

Inputs of clean water supply activities from the Man element are all PDAM Tanah Laut Regency employees who carry out production, distribution, service, and administration activities. Specifically with regard to controlling the level of water loss, the input of the personnel involved are the personnel of the Technical Section of the PDAM Tanah Laut Regency who (1) compiled a plan / strategy for reducing the level of water loss, including among them preparing light and heavy maintenance plans; and (2) planning / strategies that have been prepared. The number of PDAM Tanah Laut Regency employees consists of 33 permanent employees and 15 contract employees. Of the 48 employees, 3 (6%) are elementary school graduates, 5 people (10%) junior high school graduates, 34 people (71%) high school graduates, 2 people (4%) non-technical D3 graduates, and as many as 4 people (8%) had non-engineering undergraduate degrees. This shows that the formal competency of PDAM Tanah Laut Regency employees is still low which is dominated by

high school level employees. In addition, the results of the study showed that the Tanah Laut Regency PDAM also did not have employees with technical education backgrounds that supported the PDAM's core business in the supply of clean water.

Furthermore, an analysis of employees based on the length of service of permanent employees and contracts shows that as many as four people (8%) work for one year, as many as eight people (17%) work for one s.d. five years, as many as four people (8%) worked for six s.d. 10 years, as many as seven people (15%) worked for 11-15 years, and as many as 25 people (52%) had worked for more than 15 years. less appropriate. However, if PDAM management does not routinely carry out training, comparative studies, and technical guidance based on the latest problems, this will affect the quality of production and service of PDAM Tanah Laut Regency.

Company funds (Money)

The input of clean water supply activities from the Money element is the availability of funds to conduct production, distribution, service, and administration activities. Specifically related to water loss level control activities, Money input means the availability of PDAM Tanah Laut Regency funds to control water loss levels. The source of funds for PDAM Tanah Laut Regency can come from the company's internal funding sources, namely the Company's Activity and Budget Plan (RKAP). Whereas the PDAM's external funding source as presented in Chapter IV is in the form of capital investment funds from the Tanah Laut Regency Government and the Provincial Government of South Kalimantan.

The next input is Method, where PDAM Tanah Laut Regency needs work procedures/SOPs/guidelines to make the organization's operations more directed. The raw water is the main material for PDAMs in producing clean water. Raw water is taken from various water sources in the Tanah Laut Regency such as rivers, deep ground water (bore wells), waterfalls, springs, ponds, lakes.

The overall results of the CIPP evaluation are then scanned using AHP. AHP weighting is done 2 levels, namely at level 1 (Main Criteria), and level 2 (Sub-Criteria). The main criteria are CIPP (Context, Product, Process, and Input), while level 2 (sub-criteria) is an element of CIPP as can be seen in Table 5. The weighting working paper uses AHP for the above criteria and sub-criteria can be seen in Appendix 2. While the weighting results can be seen in the following table:

Table-5

CRITERIA/SUB CRITERIA			Quality		
			KU (level 1)	SK (level 2)	Total
1. CONTEXT (C)			23.15%		
	C.1	Service Coverage		60.00%	13.89%
	C.2	Profit		40.00%	9.26%
2. PRODUCT (Pt)			11.57%		
	Pt.1	Adequate Clean Water		100.00%	11.57%
3. PROCESS (Ps)			11.57%		
	Ps.1	Production Process		33.33%	3.86%
	Ps.2	Distribution Process		33.33%	3.86%
	Ps.3	Service Process		33.33%	3.86%
4. INPUT (I)			53.70%		
	I.1	Man (Employee)		16.01%	8.60%
	I.2	Money (Fund)		31.36%	16.84%
	I.3	Method (Work Procedure/Guide)		11.51%	6.18%
	I.4	Material (Raw Water)		9.76%	5.24%
	I.5	Machine (Infrastructure)		31.36%	16.84%
TOTAL			100.00%		100.00%

Based on the table above, the weighting work method using AHP with a consistency ratio of 0% is as follows:

Weighting level 1 - at the level of the main criteria

Level 1 weighting is done at level 4 main criteria (context, product, process, and input) which are compared to determine which of the main criteria are the most dominant problems affecting the performance of asset management to control the level of water loss. According to the analysis table above, the problem in the input aspect is the aspect that most influences the performance of asset management in controlling the level of water loss. Product and context factors are important in PDAM operations, but both aspects are only an impact of the efficiency of the asset management process in minimizing the level of water loss. So that the problems that arise in the product aspect are the lack of clean water produced, as well as the problems that arise in the context aspect, namely the low service coverage of PDAMs and the profit that is not achieved is the impact of problems at the process and input levels. As explained in the CIPP evaluation that problems that occur in the process factor, in this case production, distribution, and service are basically not caused by the implementation factor, but rather due to the poor resource factors. The results of the CIPP evaluation which have been weighted using AHP show that the input factor problem is the main problem faced by PDAM Tanah Laut Regency in carrying out asset management to control the level of water loss. The problem of which input factors are the most dominant influences the performance of asset management in controlling the level of water loss is further discussed in level 2 weighting.

Weighting level 2 - at the level of sub-criteria

Level 2 weighting is carried out at the level of sub-criteria, where the main criteria context has 2 sub-criteria (service coverage and profit), the main product

criteria has 1 sub-criteria (clean water generated), the main process criteria has 3 sub-criteria (production, distribution, service), and The main input criteria have 5 sub-criteria (man, money, method, material, and machine). In level 1 weighting it is known that problems in the input aspect are the dominant factors affecting the performance of asset management in an effort to increase the scope of clean water services. In the level 2 weighting on the input aspect, it can be seen that the problem of money and machine becomes the main problem of PDAM Tanah Laut Regency in organizing efficient asset management to control the level of water loss. As explained in the CIPP evaluation, where PDAM Tanah Laut Regency faces major problems, namely the production, distribution, and service infrastructure that has been heavily damaged and old/worn out so that it cannot optimally carry out production, distribution, and service to the community. These infrastructures are in dire need of heavy maintenance, even more suitable to be replaced with new infrastructure which of course requires large funding. For this, PDAM Tanah Laut Regency does not have sufficient funds to carry out heavy maintenance, let alone procure/replace new infrastructure.

CONCLUSION

The problem of PDAM Tanah Laut Regency asset management that causes the low coverage of clean water services is specifically in the process and input elements. Based on the Analytical Hierarchy Process (AHP), the dominant problem in the management of these assets is the Input factor, specifically Infrastructure (Machine) and Funding (Money). Input problems in the form of machines in PDAM Tanah Laut Regency include the condition of most of the production infrastructure (Water Treatment Installation,

Drilling Well, Broncap, Transmission Pipes, and Main Meter) and distribution (distribution pipes and distribution meters) which are outdated/damaged/old so resulting in inefficiencies in production and distribution including high physical water leakage. Whereas Input Problems in the form of Money in PDAM Tanah Laut Regency is because the company does not have the financial capacity to invest in large amounts, both to procure new infrastructure and to carry out heavy maintenance of the obsolete/damaged/old production and distribution infrastructure.

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