

Maintenance Strategy in Regional Water Supply Companies in West Java Province, Indonesia

Ria Arifianti*
Universitas Padjadjaran

Sam'un Jaja Raharja
Universitas Padjadjaran

— *Review of* —
**Integrative
Business &
Economics**
— *Research* —

ABSTRACT

Regional water supply companies (PDAM) are state-owned companies in the field of water management. They are spread all over regions of Indonesia. One of them is in West Java Province. West Java Province has a problem in the number of households without access to drinking water. The problem is also related to poor water quality. This research uses a descriptive method to provide a systematic, factual, and accurate description of a policy for operating strategy implemented by PDAM. This research engages a qualitative approach to obtain comprehensive, holistic, and meaningful data. The data collection techniques used in this research are: literature review, observation, and interview. Maintenance strategy has been done well by PDAM in West Java Province. The maintenance done is related to two elements. First, it is related to the quality of water or maintenance process. It deals with cleaning process. Secondly, it is related to employees. The employee element deals with compensation and employee's skills. One of the skills is maintaining relationship with customers. However, in reality, the biggest effort in maintenance is in water quality. The suggestion given to PDAM is foregrounding thoroughness in maintenance especially in the quality of water. Before the water is delivered to customers, PDAM should check the purity of water. The other suggestions are socializing society to keep their environment and coordinating between PDAM and particular institutions.

Keywords: PDAM, Maintenance, Quality

1. INTRODUCTION

Water is the most important thing for human life. Pure water is needed by human. In every country, water is highly needed to serve public society. It is due to increasing number of residents that leads to increasing number of the need of pure water.

The access for safe drinking water in Indonesia in 2013 was 67.73%. It means there were one third of Indonesian residents that have not been able to access drinking water safely. If it is compared to 100% Indonesia Universal Access Plan in 2019 then this problem is categorized as the heaviest one. From the whole available drinking water access, around 17.9% of drinking water were accessed through piping network system while 97% from 17.9% were served by PDAM. In 2013, particularly for West Java Province, it had 64.39% coverage of safe drinking water access. It means 35.61% households in West Java Province had not accessed safe drinking water.

Therefore, there has to be an action in fulfilling the need of pure water. That action can be done by the state-owned company namely Regional Water Supply Company (PDAM). This has to be done because the government has full authorization in this industry. In other words, the water is owned by the state not individually.

The pure water supply system done by PDAM is engaging piping system. The piping system is directed to resident's houses to distribute pure water. The coverage of piping system service in West Java Province is around 13.5%, 17.9% in big cities, and 5.7% in villages. Thus, if it is compared to national coverage then the coverage in West Java Province is relatively lower including in piping system access. It means the level of drinking water access problem in West Java Province is relatively low especially in piping system access. This problem is getting worse if there is a calculation of the number of households that have not accessed safe drinking water. From 20.63 million of people who have not accessed safe drinking water, there are 4.16 million or 20.15% of people are in West Java Province. This is the biggest number in Indonesia.

Besides, Regional Water Supply Company (PDAM) also manages the main material of drinking water as a protection to water quality situated in the parameter of water quality used as the material of drinking water. Less attention from people in protecting environment is one of reasons that is able to cause disaster for future generation (Nurhidayah, M. Senja Sutio Prihadi, 2012).

In a line with the condition, then, water is the most needed by people. Increasing number of resident and population density, enlarging urban area, developing technology, culture, and industry, decreasing environment support, and lacking of conservative area affect water scale (S., Bellafolikani, 2013: 2).

In this case, it is necessary to find strategies in solving the problem. One of the strategies is maintenance strategy.

Maintenance strategy is a series of activity to maintain equipment and system in proper condition to work. This is related to the equipment used to filter or to keep a good quality of water.

In fact, most complaints are conveyed by customers. First, it is related to service. The customers of PDAM complain about the service given by PDAM. Often, the water stream is not distributed smoothly as well.

Secondly, many complaints are about the water quality. The customers complain about dirty, brownish, and smelled water. The water of PDAM is often turbid. Even sometimes, the water from PDAM is mingled with wiggler and small worm. It happens if the water is kept in tub for three days. They complain about them when raining season. All of the inconveniences really bother the customers.

Based on the background explained above, the writer intends to conduct a research about the maintenance strategy in PDAM in West Java Province.

2. LITERATURE REVIEW

According to Heizer and Render (2006), maintenance is "all activities involved in keeping equipment system in working order". Next, Sofjan Assauri (2004: 95) states that maintenance can be defined as activities to maintain, keep, fix, adjust, or change facilities and manufacture equipment if it is necessary. So that, there will be a satisfying operating situation based on what has been planned.

A good maintenance system will lose the system variability. The maintenance tactics are:

- a. applying and improving preventive maintenance; and
- b. improving ability or speed improvement.

Maintenance purpose is to maintain system's ability while controlling cost. A good maintenance and reliability strategy needs employees' involvement and tidy

procedures. Decision has to be made in the level of reliability and stability wanted by a company.

To measure the success of maintenance management, there are two elements that need to be decided. They are employees' involvement and maintenance procedures.

Employee factor in maintenance can be seen from the information the employees get, compensation they earn as their forcing motivation, and synergy power they need to perform. As an effort to improve information and skill mastering in relation to maintenance activities, management can engage a few things, namely:

- *Information exchange.* Through creating a conducive situation, for instance data bank (procedure bank) that consists of data and procedures about the maintenance of the whole types of machine in manufacturing system.
- *Skill training.* For employees who do not have certain skills, a company can choose either sending them to some sort of training center or holding a training in the company through on job training.

Meanwhile, for machine maintenance procedures, the factor that needs to be concerned is cleaning and oiling procedures. Cleaning process aims at avoiding corrosion and stuck machine due to dirt. This process has to be done routinely. Oiling process is done in order to reduce the occurrence of direct friction of machine material, to cool machine heat in certain condition, and to lengthen the machine age.

3. RESEARCH METHODOLOGY

This research uses a descriptive method to provide a systematic, factual, and accurate description or view of the policy for maintenance strategy implemented by PDAM. This approach is consistent with what has been suggested by Aaker David A., V. Kumar, and George S. Day (2004: 71—73). This research engages a qualitative approach to obtain comprehensive, holistic, and meaningful data.

The data collection techniques used in this research are as follows:

1. Literature review

To complete primary data, the writers gathered secondary data from literature review. The secondary data collection was done by reviewing textbooks and other supporting relevant publications, such as journals and data analysis result from PDAM in West Java Province.

2. Observation

The shelter and water treatment situation of PDAM in West Java Province was directly observed.

3. Interview

First of all, the writers asked customers questions concerning their complaints or the problems that they encountered when they were using the water treatment from PDAM. Secondly, interviews were arranged with the Head of Research and Development of PDAM. The interviews lasted for three hours.

4. RESULT AND DISCUSSION

Maintenance is all activities needed to maintain or to fix a system or product so that the system or product can operate as expected. In a company where the production processes have been run automatically, machine maintenance becomes very significant because once there is breakdown on the machine, the loss caused by hampered production is getting bigger.

Maintenance is related to water quality and supplier equipment. In this case, it deals with customers' water pump as well. Maintenance is performed by cleaning pipes so that the water distributed is purer. On the other hand, if customers' water pump has damage then it will be change soon. This is to ease water distribution.

PDAM in Sukabumi City does maintenance that deals with the quality of water and employees. To be able to get pure water, PDAM performs several steps of maintenance such as filtering, planting, and maintaining plants around upstream and throughout river stream.

In relation to water source maintenance, PDAM Tirta Jati Cirebon District performs maintenance for:

1. water spring, by reforestation (tree cultivation around the environment of water source) done by TNGC where society forum and local government and PDAM who become the initiators;
2. river, by deepening river and fixing waterway done by General Tasks Agency (based on President Regulation); and
3. well, by securing well with fence and reforestation around well environment.

If the water pumps owned by the customers are broken then they can get a new one. This service is one of forms of maintenance for customers.

Water treatment cannot be separated from water quality maintenance. The way of maintenance is divided into two ways: internally and externally. Internal maintenance is related to water quality. Some ways that have been done are water maintenance for all water sources by draining reservoir, back washing pipes, draining installment of treatment units, spreading chemical material like PAC (poly aluminum chloride) and chlorine, and examining water by health agency.

A stuck or hampered production system due to machine breakdown can cause loss for the company. It is caused by wasted time the machine get fixed. It may also deal with a higher restoration cost than machine maintenance cost.

In PDAM internal operational activities, it will occur when there is restoration in water pipes or when the water pipes are leak or broken. However, in the process of pipe maintenance, there will be distraction for PDAM in distributing water to customers.

Moreover, when the water is being distributed to customers, there are obstacles such as dirty or smelled water and different scale of water. They are due to the water distributed through pipes is possibly exposed by sunlight or a customer who disobeys by siphoning water using pump.

Siphoning causes different scale of water obtained by the other customers who do not use water pump. The other impact is that the water siphoned will contain dirt or mud. In fact, the water distributed by PDAM to customers is highly huge.

PDAM must perform maintenance on environment as well because it is related to the water quality that needs to be distributed to customers. Bad, smelled, and dirty quality of water may be caused by water pollution from manufacture or rubbish dumped by people to a river.

Maintenance element is related to employee. It deals with the information the employees get, the skills they have, the compensation they earn as their forcing motivation, and synergy power they need to perform.

In developing skills, usually PDAM does training for its employees for instance, operator training for installment of drinking water treatment officer. It aims at improving service for customers.

In maintaining communication with customers, maintenance of customer is performed by the branches of PDAM by keeping a good communication with customers such as when reading measurement, customers paying bills, and when responding and following up complaint and denunciation in quick time.

Maintenance to customers needs to be done in relation to customer satisfaction itself. If customers are not satisfied, there will be a place for communication between customers and PDAM.

PDAM highly responds every customer's complaint. It is evident that all complaints, information, or suggestion about PDAM can be gathered and be delivered to 24 hours call center at (0251-8324111) or email at pdam.pel@pdamkotabogor.go.id or website on www.pdamkotabogor.go.id. About customer satisfaction toward PDAM, it can be seen from that survey that PDAM product obtains score 78.56 (satisfied/very good) while PDAM service obtains score 72.20 (satisfied/very good).

PDAM Tirta Pakuan Bogor City got 9,434 complaints conveyed through social media (Facebook and Twitter), call center, website, and email during January—14th September 2015. From that number, 8,509 of them have been handled very well by PDAM team through taking swift action that worked 24 hours in the field. It means 90% complaints have been handled through swift action for PDAM Bogor City customers. The rest of 10% or 925 complaints were on progress due to building some infrastructures.

During the last nine months, the customers of PDAM Bogor City conveyed 163 complaints through Twitter account @PDAMKotaBogor. Social media Facebook of PDAM Bogor City did not miss from complaints by the customers. Facebook account "PDAM Kota Bogor" has recorded eleven complaints from customers. Before utilizing social media, PDAM has empowered customer's complaint service through call center at 0251-8324111. During January—14th September 2015, the call center team has handled a thousand complaints in a month or thirty five complaints in a day. The customers also utilized customer's complaint through official website of PDAM Bogor City, www.pdamkotabogor.go.id and email pdam.pel@pdamkotabogor.go.id. It was recorded that 254 complaints has been encountered through those channels.

Beside the external maintenance with customers, PDAM needs to maintain its relationship with related institutions. It is related to water stream that passes the institutions, for instance forest organization (Perhutani) and etc.

Sometimes, each institution has a right or an authorization to own water. So that, it harms PDAM. Water is supposed to be owned, organized, and managed by the state and there is no right nor authorization for related institutions to own the water.

5. CONCLUSION

Maintenance strategy has been performed well by PDAM West Java Province. The maintenance deals with two elements. The first one is related to water quality or maintenance process. It deals with cleaning. The second one is related to employees. The employee element deals with compensation and their skills. One of the skills is maintaining relationship with customers.

Even though in reality, there is still problem related to water quality on the maintenance. It is due to the water that streams through pipes is exposed by sunlight or due to many customers that use water pump to siphon so that the dirt or mud may be carried. It also causes imbalance of water scale for the customers who do not use water pump.

6. SUGGESTIONS

1. PDAM should be more thorough in maintaining water quality. The water that will be distributed to customers needs to be checked for its purity.
2. There should be socialization to people to keep their environment. It can be by an announcement to throw garbage into its place.
3. PDAM should improve communication between institutions related to water management.

REFERENCES

- [1] Aaker, David A., V. Kumar, George S. Day. 2004. *Marketing Research, 7th Edition*. John Wiley & Sons: New York, pg. 71-73.
- [2] Heizer, Jay. Barry Render. 2006. *Operation Management, 7th Edition*. New Jersey :Person Education.
- [3] Nurhidayah, M. Senja Sutio Prihadi, 2012., Pengaruh Kualitas Pelayanan Terhadap Kepuasan Pelanggan Pada PDAM Bandarmasih Wilayah Banjarmasin Timur. *Jurnal Manajemen dan Akuntansi*. Vol. 13 No. 1 Banjarmasin.
- [4] S., Bellafolikani, 2013. *Merentas Jalan Menuju Jaminan Layanan Air Minum, Teruntai Dalam Kiprah Eksekutif PDAM*. Badan Pendukung Pengembangan Sistem Penyediaan Air Minum (BPPSPAM). Jakarta
- [5] Sofjan Assauri. 2004, *Manajemen dan Operasi*, Lembaga Penerbitan FEUI, JakartaYork: Irwin Mc Graw-Hill.