CHAPTER III

FINDING AND ANALYSIS

The programs planned by the Bekasi City Environmental Agency are under a national program called PROKASIH *(Program Kali Bersih)* or an abbreviation of the Clean River Program. The Ministry of Environment and under it is supported by the Environmental Agency making innovative programs in environmental management, one of which is PROKASIH. This program is the answer to the concerns of citizens who think that communities surrounding the watersheds have an improper life. It is expected to be able to increase the quantity and quality of river water in various ways, such as reducing the volume of waste pollution that flow into the river. This is a problem of rivers in big cities in Indonesia because the water of the river is considered as an alternative, and is now contaminated by waste. In accordance with the RPJMD of Bekasi City in 2013 - 2018, one of the seven strategic issues of the Bekasi City is managing the city, the quality of the settlements, and the environment of Bekasi City. PROKASIH was implemented with different programs or activities in each City/Regency.

This chapter describes the findings and analysis to answer the formulated problems presented in the first chapter of this research. This chapter is discussed about the programs that are held by the Bekasi Environmental Agency in order to manage the water pollution of Bekasi River. Based on the theory used by researchers, there are four indicators that measure the evaluation of a program, namely Context, Input, Process and Output. The researcher discusses per indicator.

A. Context

Based on the theory that was used, context evaluation includes an analysis of the problems underlying the formation of the program. Context evaluation also contains an analysis of the strengths and weaknesses of certain objects. According to Stufflebeam cited in (Muryadi, 2017), context evaluation becomes an institutional focus that identifies opportunities and assesses needs. A need is drawn from disparity view, reality and ideality. Context evaluation provides information for decision makers in planning a program to be carried out. In this variable, the researcher used Goals and Background as the indicators of the research.

1. Goals

This indicator describes the vision and mission of a government work unit. Vision and mission can be a measure of employee motivation. With the same vision and mission, it can be a measure of the success of a program (Muryadi, 2017). In this study, the researcher used the vision and mission of the Bekasi Environmental Agency and compared to the vision and mission of the RPJMD of Bekasi City. In addition to the RPJMD of Bekasi City, the vision and mission are elaborated with the vision and mission of the Bekasi city government.

1.1 The Vision and Mission of Environmental Agency in Managing Water Pollution

In the evaluation theory that is used, Context is used to describe the goals of the subject and also the background of the problem. One of the parameters chosen is the vision and mission of the Bekasi City Environmental Agency. The vision of the Department of Environment is "*Bekasi Kota yang nyaman, hijau, bersih, dan berbudaya lingkungan*" translated as "Bekasi City is a comfortable, green, clean

and cultured city". This vision is in line with the vision of the Bekasi City which contains of "Bekasi Maju, Sejahtera and Ihsan" and describes the conditions of Bekasi City, namely, *Bekasi Maju, Bekasi Sejahtera, and Bekasi Ihsan*. In the Bekasi Forward point, it describes the development of the Bekasi City and the lives of dynamic, innovative and creative citizens who are supported by the provision of infrastructure and facilities as the embodiment of an advanced City. One of the infrastructures and facilities mentioned is ease of access to get clean water for daily needs. Bekasi River is one of the water sources used by residents who live in the surrounding the river.

This vision also coincides with the mission written in the RPJMD of Bekasi City in 2013 - 2018. There is a second mission that says to build the infrastructure and facilities that are in harmony with the dynamics and growth of the city. This mission means that infrastructure development aimed at fulfilling the complete physical basis of the city environment for a decent, healthy, safe and comfortable life; fulfillment of urban facilities to support the implementation and development of social, cultural, and economic life as well as the fulfillment of utilities for the service of city residents. This mission also aimed at directing the development of improved and harmonious infrastructures and facilities, to fulfill the lives of dynamic, innovative, creative city residents by paying attention to the principles of environmental management, control and preservation in creating a sustainable, growing and developing city. This environmental management was then poured into the mission of the Environmental Agency. The mission of the environmental service was previously written in Chapter II.

One of the missions of the Environment Agency is to improve environmental management by monitoring, controlling environmental pollution and enforcing environmental law. PROKASIH itself aims to reduce waste and also reduce pollution that occurs in Bekasi River.

2. Background

This indicator explains the reason or background why the program should be implemented. Background identifies the situations that become the problems (Muryadi, 2017). In this indicator, the researcher uses the types of pollution and the water quality of Bekasi River as the parameters.

2.1 The Types of Pollution in Bekasi River

According to Mr. Khaniefudin, as one of the staff in Environmental Agency, the main problem experienced by Kali Bekasi is originating from the upstream of the river where most pollution comes from Bogor Regency. Mr. Khaniefudin also explained that in 2018, there were three companies that were sealed and prohibited from operating or carrying out production activities. One reason is the large number of factories or industries that were built along the Cileungsi River. With the large amount of industrial waste produced from the upstream of Bekasi River, it impacted on the quality of Bekasi River water. The majority of the waste produced at the Cileungsi River was industrial waste. On the other hand, along Cikeas River was filled with residential area. Domestic waste dominated the water quality of Cikeas River.

> "Because most industries are located on the banks of the Cileungsi River and Bekasi River. Meanwhile Cikeas river is dominated by residential areas. We, DLH, still focused on solving industrial wastes that are business entities because they are more easily directed"

In addition to the waste problem which is the main factor, Bekasi River also had another problem in the form of shipment of solid waste from upstream. This plastic waste problem had an impact on the quality of Bekasi River water. During the rainy season, there were many shipments of river waste from upstream that clog the river at the Koja Dam. The form of waste is in the form of wood, bamboo, plastic waste, mattresses. This was also made clear by Mr. Yadi Sunaryo, as one of the residents in the Koja Dam area. According to Mr. Yadi Sunaryo, in addition to the shipment of garbage, many motorbike riders carrying garbage passed through the Koja Dam, and then dumped garbage in to the Dam. The other informants also

stated that every rainy season, garbage piled up under the Dam, so it inhibited the flow of River.

Picture 3. 1 The Picture of Koja Dam on 19 Desember 2018

Source: downloaded from https://news.detik.com/berita/d-4350188/bendungan-koja-bekasi-dipenuhi-sampah, accessed on 19 July 2019

Picture 3. 2 The Current Condition of Koja Dam on 13 June 2019

Source: Photo retrieved from Bekasi Environmental Agency Documentation, accessed on 19 July 2019

2.2 Quality of Water in Bekasi River throughout 2016 - 2018

In order to know the quality of the water in Bekasi River, there are a laboratory test that was done twice in a year. There are eight sample test points of Bekasi River water quality, namely:

- Kali Bekasi Cipendawa,
- PT. Howsanindo,
- Kp. Bojong Menteng Street,
- Kemang Pramata Bridge,
- Lotte Mart Bridge
- PDAM Poncol Irrigation Bridge,
- Pasar Proyek Bridge,
- Pucung Bay Bridge.

However, based on the RPJMD of Bekasi City in 2013 - 2018, the Cipendawa Bridge was chosen as the testing ground or point for samples of Bekasi River water quality. The taking of this point is based on the meeting point from Cileungsi River and Cikeas River, so the Cipendawa Bridge is the sampling point for laboratory tests. The data from laboratory tests on river water samples arre analyzed using the calculation of the Pollution Index according to the Decree of the Minister of Environment Number 115 of 2003 concerning Guidelines for Determining the Status of Water Quality. The status of water quality was the level of water quality conditions that indicated polluted conditions or good conditions in a water source within a certain time by comparing the specified water quality standard. This index states as a Pollution Index (aforementioned PI) that is used to

determine the level of pollution relative to permitted water quality parameters. This index has a concept that is different from the Water Quality Index.

Pollution index or PI (aforementioned PI) is determined for an allocation, and then it can be developed for several purposes for all parts of the body of water or part of a river. The management of water quality on the basis of the Pollution Index can provide input for decision makers to be able to assess the quality of water bodies for all purposes and take measures to improve quality if there is a decrease in quality due to the presence of polluting compounds. PI includes various groups of quality parameters that are independent and meaningful.

Based on the Government Regulation Number 82 of 2001 concerning water quality management and water pollution control, there are two types of parameters intended for class II. These parameters are:

- Physical Parameters: Temperature, Total Suspended Solid (TTS), and Total Dissolved Solid (TDS).
- Chemical Parameters: pH, DO, COD, Chloride, Iron, Hexavalent Chrome Metal, Phosphate, Cobalt, Nitrite, and Free Chlorine.

However, the pollution index was counted only from a few parameters, as follows (Dinas Lingkungan Hidup Kota Bekasi, 2018):

Table 3. 1 Parameters of Pollution Index in 2016 - 2018

Parameters	2016 (mg/L)		2017 (mg/L)		2018 (mg/L)	
	Periode I	Periode II	Periode I	Periode II	Periode I	Periode II
Total Suspended Solid (TSS)	297	6	184	3,04	130	292
Dissolved Oxygen (DO)	6,12	2,02	4,75	2,86	5,46	1,5
Chemical Oxygen Demand (COD)	12,80	11,038	39,28	16,13	12,9	72,28
Biological Oxygen Demand (BOD)	3,1	4,2	3,29	6	5	9
Total Phosphate	0,067	0,052	0,086	0,043	0,049	0,077
Fecal Coli	93	13	25	75	50	120
Total Coliform	1000	542	350	550	1300	850

Source: Data retrieved from *Laporan Akhir Pengujian Kualitas Air Sungai* of 2016 – 2018

- TSS

  The table above of TSS result in Bekasi River of Year 2016 – 2018. The table above showed the TSS number which has decreased every year. TSS is an influential factor in the Bekasi River pollution index because the more dissolved solids will produce a large pollution index number. TSS showed that there was waste that has not been dissolved, so it is still solid. Usually, if the water times look cloudy, the TSS showed a very large number.

- DO

  Dissolved Oxygen (DO) needed by all living bodies for breathing, metabolic processes or exchange of substances which produce energy for growth and breeding. In addition, oxygen is also needed for the oxidation of organic and inorganic materials in aerobic processes. In the chart below, DO numbers increase and rise quite significantly.

- COD

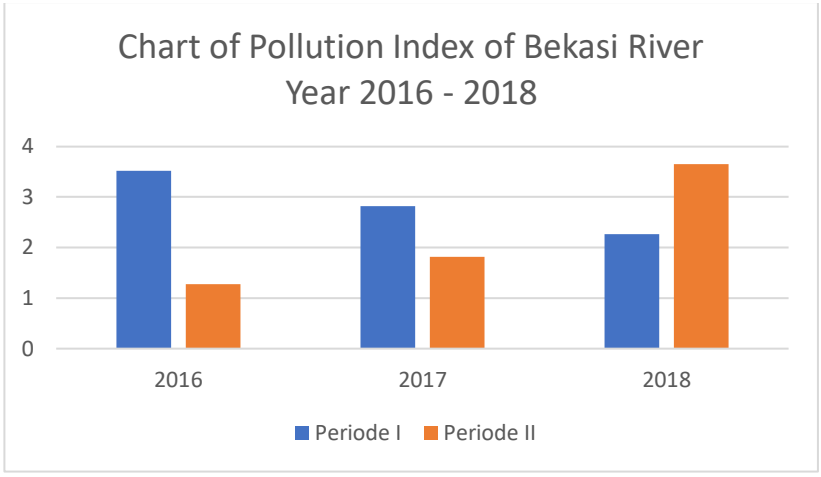
  Chemical Oxygen Demand (COD) is the amount of oxygen needed, so the waste material in the water can be oxidized through chemical reactions. COD tests usually produce higher oxygen demand than BOD because many materials that are stable to biological reactions can be oxidized. The table above showed a decrease in COD figures in 2018 in Bekasi River. In 2017, COD showed a number of 39.28 mg/L and in 2018 the test result showed 12.9 mg/L, this showed a drastic decline.

- BOD

  To break down organic material, dissolved oxygen is needed. Microorganisms living in oxygenated waters use dissolved oxygen to oxidatively degrade the organic compounds, releasing energy which is used for growth and reproductions. There was an increase number from 2017 to 2018 from 3,29 mg/L up to 5 mg/L.

The parameters explained above draws the conclusion of the Pollution Index. The following is the graph of the Bekasi River Pollution Index throughout 2016 - 2018 at the sample point of the Cipendawa Bridge.

Graphic 3. 1 The Chart of Pollution Index of Bekasi River Year 2016 - 2018



Source: Final Report on River Water Quality Monitoring in Bekasi City of 2016 -2018

Pollution Index has a classification. The classifications of the Pollution Index values are:

- $0 \leq PI \leq 1,0$ = quality standards
- $1,0 < PI \leq 5,0$ = mildly polluted
- $5,0 < PI \leq 10$ = moderate polluted
- $PI > 10$ = heavily polluted

In 2016, testing was carried out in April - May. Based on graphic 3.1 in 2016 in the first and second periods, the testing of Bekasi River water each showed the Pollution Index rate of 3,52 and 1,27. In accordance with the Decree of the Minister of Environment No. 115 In 2003, the chart of 3,52 showed a mild pollution. Whereas, a significant increase occurred in the first period in 2017 which showed a figure of 2,82 where moderate pollutants showed. However, the decline in numbers occurred in period II of 2017. The chart in period II showed a value of

1,82, a decrease in numbers and a change in the category of Bekasi River water quality. This could be influenced by the weather seasons in Bekasi City. In the rainy season the volume of water tend to have an influential increase and plays an important role in the dissolution of wasted waste. The situation is seen from 2018. The difference is thin and there is no significant decline in the quality of Bekasi River water.

> "Indeed, when the dry season lasted in 2018, it was found in Bogor, a pipe that was built under the river Cileungsi River, a sewerage channel from an industry, and the case was already settled by the Ministry of Environment. Because of the long dry season, so it seems that there is a channel at the bottom of the Cileungsi River, when the new dry season looks like there is a channel"

B. Input

Input evaluation includes the personal analysis that connected with the uses of the available sources such as human resource, the facilities, and also the budget allocation of the programs. This variable aims to guide the strategy of the program in specifying the procedural design (Muryadi, 2017). Indicators that are used in this variable are the human resources, adequate technologies, and also the budget allocation of the programs.

1. Human Resources in Managing the Water Pollution of Bekasi River

Human resource played a significant role in the implementation of a program. Human resource has the significant role in achieving the objective of the program. The problem that arises in the implementation of a program was not come only from the working tools only but it can also come from the human resources.

Thus, human resources played an important role in the implementation of a program.

1.1 The Quantity of Human Resources in Managing the Water Pollution of Bekasi River

The garbage problems were described in the first variable was completed by the *Tim Katak*. *Tim Katak* is formed is under the auspices of the Environmental Agency. *Tim Katak* is included in the field of environmental pollution. *Tim Katak* consists of 32 members. *Tim Katak* serves to clean up physical waste such as plastic waste, trash mattresses, wood waste, and bamboo waste. In addition, the *Tim Katak* can also be a facilitator for the laboratory of Bekasi environmental agency located in Kayuringin to take samples when Bekasi River water starts showing symptoms of pollution. The PROKASIH implementation was also carried out by *Tim Katak*. Every six months, the program programs included in PROKASIH are carried out. Mr. Mansyur S.IP, as the chief of the *Tim Katak*, explained that the *Tim Katak* was lacking personnel. This is due to the garbage that inhibits the Koja Dam area which is a garbage subscriber. Besides the handling of the garbage, there were six other programs that *Tim Katak* should took a part in managing the pollution of Bekasi River. Mr. Mansyur estimated that if the members of *Tim Katak* are added, the programs in Bekasi Environmental Agency could be handled at the maximum capacity, especially the handling of garbage in the Koja Dam.

> "This should have at least 100 personnel for the *Tim Katak*, because if it is only 32 members, it was not covered. Usually with 32 members, we are able to clean it within a week. If it was added, we can work much faster, two or three days, so it saves more time. However then again, to recuit more

members has not been approved because this agency also has a lot of expenditure so it might be allocated to other things that are more priority"

This was also confirmed by Mr. Agus as a member of the *Tim Katak* who felt that there should have been additional members, so the problem of cleaning garbage could be handled properly and effectively. Meanwhile, Mr. Mas Sriwati as Head of the Environmental Pollution and Damage Control Division stated that the addition of members of the *Tim Katak* was not yet granted because of the limited funds provided (Sunaryo, 2018).

Picture 3. 3 Mr. Mansyur with *Tim Katak* taken on 17 June 2019 at 11.35 AM

Source Photo by researcher

1.2 The Quality of Human Resources in Managing the Water Pollution of Bekasi River

The quality of the staff in the Bekasi environmental agency was considered at the right proportion. According to the organization structure, the staff is

positioned in the right tasks and functions in the structure. Suitability in this case is based on the educational background of the staff. For example, in the field of pollution control and environmental damage, on average, most of the staffs have the science education background. This can support the quality of staff in the environmental service. The right background will support the implementation of water pollution management programs in Bekasi River.

As for the member of Tim Katak, the average educational background is high school graduates. However, Tim Katak can work optimally to clean the Koja Dam which needs more attention to clean up domestic waste that is blocking the river flow. This was confirmed by Mr. Mansyur S.IP as chief of the Tim Katak.

> "we work for 24/7 days. It means that we worked everyday, from Monday to Sunday. There is a work shift that we have set, like some kind of schedule. There are three work shifts with 11 members each. Therefore, we propose to add more members so we will be able to divide the work shifts and work more efficiently."

In addition to the educational background of the staff, the Government also provided in-house training for the laboratory staff of Bekasi Environmental Agency. In-house training included sampling techniques, the testing of ambient air parameter, and verification method. There was an in-house training that held on 12 of July 2017 in the environmental laboratory building in Kayuringin Jaya Sub-District, Bekasi City.

Picture 3. 4 The In-house Training of Environmental Laboratory Staff of Bekasi Environmental Agency

Source: Downloaded from https://dlh.bekasikota.go.id/isi/detail/WEPGC8D-kVo5bweIQkygTbNCcCDCKR0j84QFAqbVin1N5VUTILue_PfvMdyXq2pWDkESRphDt69SAtp5ge-9AQ accessed on 19 July 2019

Picture 3. 5 Researcher with *Tim Katak*, Mr. Mansyur, S.IP (Chief of *Tim Katak*), and Mr. Dudi (Chief of *Forum Masyarakat Pecinta Kali Bekasi)*

Source: Photo by Researcher

2. The Adequate Facilities in Managing Water Pollution of Bekasi River

Besides having human resources, other factor could be significant in the variable wass the availability of the tools or the facilities that were provided in order to implement the program (Muryadi, 2017). The facilities or the tools were seen by the quantity and also the quality. In this indicator, the researcher used the availability of laboratory equipment, surveillance camera and also the transportation as the parameters of this indicator.

2.1 Laboratory Quality in Testing the Water Quality of Bekasi River

In addition to the human resources factor that met, the program run if it has adequate facilities or accommodations such as the media and also lab equipment in terms of water quality testing. With testing frequency, the quality of the lab equipment itself is a priority because it will affect the results of the tested Bekasi River water quality. Based on the final report on the testing of river water quality, laboratory equipment needed is sufficient, such as sampling equipment and laboratory equipment for storing samples. Determining the type of sampling tool is very important to get a representative sample. The following is the completeness of the laboratory equipment based on the Final Report of River Water Quality Monitoring and Monitoring in Bekasi City 2017:

a. A simple sampling tool in the form of an ordinary bottle or plastic bucket used directly on the surface of the water and ordinary bottles given ballast used at certain depths.
b. Horizontal local sampling tools used to take samples in rivers or where water flows at a certain depth, for example of this tool is the Wohlenberg type.

c. An upright local sampling tool is used to take samples at locations where the water is calm or the flow is very slow, such as in lakes, reservoirs and river mouths at certain depths, for example this tool is the Ruttner type.
d. Sampling tool at integrated depth for inspection of suspended solids or to obtain samples representing all layers of water, for example this tool is a type of USDH.
e. Ropes or mines of sufficient length for each river depth.

The weaknesses in environmental laboratories were not opening quality and quantity reports that were available in environmental laboratories. This uncompleteness is a question in accordance with the findings of researcher. The researcher found that the problem impaded the implementation of the program from the Bekasi Environmental Agency was transparency in terms of written reports that should be accessed easily. Despite the shortcomings in the case of a written report, UPTD environmental laboratory was one of the accredited and registered environmental laboratory of the Environment and Forestry Standardization Center.

The accreditation obtained before is valid until 26 of February 2023. According to the registration letter that was issued by the Environment and Forestry Standardization Center of Indonesia, the Environmental Laboratory of Bekasi Environmental Agency was registered and approved by the minstry to conduct the tests. It represents the capaility of an environmental laboratory to conduct the test in water quality although the laboratory was not able to conduct the test in soil. This was confirmed by Ms. Ir. Nonny as the chief of Environmental Laboratory that owned by Bekasi Environmental Agency. Ms. Ir. Nonny explained that they were

able to test the water in the rivers and also test the air quality within Bekasi City, but the laboratory was not able to conduct a soil quality test.

2.2 Surveilance camera in Supervising the Debit and Quality of the Water

It is expected for Bekasi environmental Agency to have a surveillance camera in order to supervise the debit of the water o supervising the greywater disposal by some industrial factories along the Bekasi River in the year of 2016 and 2017. On october 2018, there was an inauguration of the CCTV installation which was carried out in conjunction with the agenda of the discussion forum with the theme *"Hidup Aman dan Nyaman Bersama Sungai"* which was held on Saturday, October 13, 2018 at Jatiasih Sub-district, Bekasi City. The installation of this surveillance camera is a product in cooperating with local communities *Komunitas Pecinta Cileungsi-Cikeas* (KP2C). The main function of the installation is as an early warning system of flooding thread. There are four locations to put the surveilance camera. Three cameras are installed in Bogor Regency and one was installed in the “Zero Point”. “Zero Point” is the meeting point of Cikeas River and Cileungsi River that was located in Pondok Gede Permai. The camera was not able to control the quality of the water yet but it was not possible in the future.

Picture 3. 6 The Survey in Installing the Cameras conducted in 24th of July 2018

Source: Photo retrieved from https://komunitas-kp2c.blogspot.com/2018/07/survey-rencana-pemasangan-cctv-kp2c.html accessed on 20 July 2019

Picture 3. 7 Forum Discussion themed *"Hidup Aman dan Nyaman Bersama Sungai"* held on 12 October 2018

Source: Photo retrieved from http://www.ayobekasi.net/read/2018/10/12/1763/cctv-pantau-banjir-dan-kualitas-air-sungai-di-bekasi accessed on 20 July 2019

2.3 The Availability of Transportations in Managing Water Pollution of Bekasi River

The transportation used by the *Tim Katak* in handling the pollution of the Bekasi River is a ship. The ship provided by the government is made of fiber. At present the active ship accommodates the *Tim Katak* to clean up Bekasi River as much as three pieces which can accommodate approximately 10 members of the *Tim Katak*. The boats are strolling along the Bekasi River and also transports garbage that has accumulated in Koja Dam. Moreover, the boats also function become the transport for the Environmental Laboratory to take some samples in testing the water quality.

In 2016, 2017 to 2018, there was no additional fiber boats given by the government. However, in 2018, there was a donation of one garbage carrier from the international organization One Earth – One Ocean, but no realization had been received by Tim Katak. This was confirmed by Mr. Mansyur who stated that Tim Katak only used 3 fiber ships, and there were no additional ships until as of June 2019.

Picture 3. 8 Fiber Boats was used to stroll the Bekasi river by One Earth One Ocean with Mr. Tri Adhianto, the Vice Mayor of Bekasi City

Source: Photo retrieved from https://jakarta.tribunnews.com/2019/05/21/kapal-pembersih-bakal-atasi-sampah-kali-bekasi

3. Budget Allocation in Managing the Water Pollution of Bekasi River

Budget plan or budget allocation is a plan prepared systematically, which includes all organizational activities, which are expressed in financial units, and are valid for a future period. The budgeting stage is very important because the budget that is not oriented on organizational performance can ruin the plans that have been prepared. The budget is a managerial plan for action to facilitate the achievement of organizational goals. In this indicator, the researcher used the availability of the funds and the annual budget plan throughout 2016 – 2018 as the measurements.

3.1 The Availability of funds in Managing Water Pollution in Bekasi River

The addition of the *Tim Katak* has not been approved due to lack of adequate funds. Funding and the sources of funds become one of the indicators in this variable. The sources of funds to implement the programs are retrieved from the *Anggaran Pendapatan dan Belanja* Daerah (Aforementioned APBD) or translated

as the Regional Revenue and Expenditure Budget. The incomes from APBD come from three types of income. According to *Peraturan Daerah* of Bekasi City Number 01 year 2017 (p.1), there are locally-generated revenue (*Pendapatan Asli Daerah*), Balance Fund (*Dana Perimbangan*), and the other legitimate income such as financial assistance from the provinces. Besides functioning as a report for the allocation, APBD also has function as the report for expenditure and there are two types of expenditure in each agency. The types of expenditure are direct expenditure and indirect expenditure. The direct expenditure includes staff expenditures, goods/services expenditure, and stock expenditure. In the programs of managing the pollution of Bekasi River, the funds came purely from APBD. One of the weakness in terms of the fund. With the length of Bekasi River, it had connected between two cities/regency in which the provincial government should take responsibility in managing the pollution especially in the terms of budget allocations. By supporting in the budget allocation, the program could be implemented maximally. This was approved by Mr. Mansyur as the chief of *Tim Katak* where funded from APBD and the *Tim Katak* was not able to add more member because of the limitation of the budget allocation itself.

3.2 Annual Budget Allocation of 2016 – 2018 in Managing Water Pollution of Bekasi River

Table 3. 2 Table of Budget Allocation of 2016 - 2018

No	Programs and Activities	Budget Allocation of 2016 (IDR)	Budget Allocation of 2017 (IDR)	Budget Allocation of 2018 (IDR)
1	Laboratory Activities	720.000.000	500.000.000	500.000.000
2	The Cleaning of Solid Waste in Bekasi River	270.000.000	275.000.000	99.000.000
3	Monitoring of the quality of the water	300.000.000	260.000.000	240.000.000
4	Assessment of *Dokumen Kajian Lingkungan Hidup*	135.000.000	200.000.000	85.820.000
5	Implementation of Environmental Management Oversight in Businesses	135.000.000	200.000.000	135.000.000
6	Handling Follow-Up Public Complaints	75.000.000	100.000.000	97.690.000
Total		1.500.000.000	1.535.000.000	1.157.510.000

In 2016 to 2017, there was an increase in the budget received by the Bekasi Environmental Agency. The budget that was increased was in the several programs, except in the program of laboratory activities. The decreasing of budget was around 220.000.000 IDR. This decreasing of budget usually motivated by the urgency of the program and also it reflected by the report in the last year (2015). According to the APBD, in 2016 there was a laboratory reaccreditation in the environmental laboratory of Bekasi Environmental Agency. The urgency was considered priority, this was also claimed by Mrs. Ridha Farida Ghazali as one of the staffs in the environmental laboratory of Bekasi Environmental Agency. Mrs. Ridha explained that there was an agenda in reaccrediting the environmental laboratory in 2016 and that explained the difference budget in 2016 and 2017. The major and significant

difference came from the year 2017 up to 2018, where the differences were around 400.000.000 IDR in total.

The differences that occurs in the year of 2017 up to 2018 is motivated by the maximizing of the budget allocation in the previous year. It could also be motivated by the priority of the program in a year. According to RPJMD of Bekasi City, in the year of 2018, the priority of Bekasi government was to conduct the education services, health services, and other social services. Therefore, in the year of 2017 and 2018, the infrastructure development and environmental improvement were not classified as a priority.

C. Process

The process variable is divided into several indicators such as Planning, Implementation, monitoring and evaluation. The following paragraph is a brief explanation of the program implemented by the Bekasi Environmental Agency in managing the water pollution of the Bekasi River.

- The Cleaning of Solid Waste in Bekasi River

This is an activity of taking rubbish or weeds or solid waste in the Bekasi River. Garbage that is located and inhibited the flow of Bekasi River also affects the water quality of Bekasi River and is one of the contributors to the existing pollution. Technically, the field work is done by 35 personnel from the *Tim Katak*. The program is carried out daily. The cleaning is done manually and using boats made from fiber to facilitate personnel to move waste from the river to the nearest landfill. The nearest landfill is *Sumur Batu* Landfill.

Supervision and monitoring of companies or industries that exist between the Cileungsi River and Bekasi River. The dominant industry is on the outskirts of Cileungsi River and Bekasi River. Bekasi environmental agency focuses on industrial waste due to the ease of coaching that will be carried out on actors or business entities. In addition, the business entities also have an obligation to have an WWTP (abbreviation of Wastewater Treatment Plant) as one of the requirements for establishing the factory or industry. There are sanctions that are imposed for several companies that violate. In 2018, there were three companies that had been sealed due to violations that did not comply with regulations. These companies had stopped operating. Sealing of companies or business entities was not done at once. There were several stages carried out by Bekasi Environmental Agency, one of which was the holding of guidance and warning letters issued by Bekasi Environmental Agency. This was also confirmed by Mr. Suhendra and is explained that many companies did not pay enough attention to the requirements set by the environmental service such as the fulfillment of environmental assessment documents which had to be reported every six months to be re-evaluated by the Department of the Environment, especially in the field of environmental pollution.

One of the requirements that are needed in the industrial sectors is the building of an installement of waste treatment plant. The example of the installation was provided by the agency in order to be followed by the indutries. The scheme was provided in front of the office of Bekasi Environmental Agency. Bekasi Environmental Agency provided scheme for a simple business or industries such as a restaurant waste treatment plant or a tempe tofu industrial waste processing plant.

Picture 3. 9 Waste Treatment Installation Plant provided by Bekasi Environmental Agency

Source: Photos taken by Researcher 12 June 2019 at 11.14 AM

Bekasi Environmental Agency focused on to the solve the problem rather than controlling the source of the problem such as controlling the community surround the river. It could be seen from the list of the program, there was only a program that focused on mitigation activities and preventing pollution at Bekasi River. The program was called *Swapantau Pengelolaan.*

Swapantau Pengolaan was one of the reports that must be included for analysis by the Bekasi Environmental Agency. The report was in the form of figures from the results of air tests, results of clean water tests and waste generated. *Swapantau* was accepted and classified according to the business entity owned. After that, the data would be processed by staff in the field of environmental pollution. The results were conceptualized for comparison with applicable regulations. There was an obligation for businesses to test the wastewater produced once a month to be tested. Business operators were also obliged to report the results of these tests within a period of six months. If the results were found that it was exceed the provisions, the Bekasi environmental agency would impose sanctions in the form of warning letter.

Surat Tindak Lanjut (aforementioned warning letter) sent by Bekasi environmental agency to companies who violated the terms or when Bekasi environmental agency finds results from the lab that exceed the requirements set by Bekasi environmental agency. The letter contained a warning letter for businesses to carry out routine testing. There was a time limit of two weeks for business actors to respond to the warning letter. Next, Bekasi environmental agency would hold an abrupt field supervision. Field supervision was carried out if there was no responds

within two weeks after the notice. The implementation of this activity was carried out without warning by staff under the field of environmental pollution.

Besides having prevention programs, Bekasi environmental agency also held a guidance for those companies. This program was carried out by the Bekasi environmental agency aimed at companies or business entities who did not understand the processing of the waste generated. Moreover, coaching was also carried out to companies or business entities that often violate the rules or are not compliant with the Office of the Environment regarding the management of waste generated. There are ratings for companies or business entities. The ranks of companies are mentioned as follows:

- Gold – The authority is only by the ministry of Environment and Forestry
- Green – The authority is only by the ministry of Environment and Forestry
- Blue – Standard rate
- Red – Alert rate
- Black – Bad rate

In addition to the industrial waste that come from the factories, the water of Bekasi river also concentrated with other substance from the domestic waste. Domestic waste come from the houses or residents who live surrounding the river. It can also come from the laundry or car wash. Bekasi environmental agency had implemented a socialization program. This program was intended for home industries that are not yet incorporated businesses such as the Laundry and Steam Motor / Car wash business. This activity is carried out in sub-districts as an example

of East Bekasi District. This activity was facilitated by the sub-district. The purpose of this activity was to convey information about the processing of liquid waste with simple tools so that it can be applied by home business actors who are not yet incorporated.

1. Planning

Planning begins with the decision of targets and objectives and also interprets errors that may occur in the process of implementing the program. In this indicator, the researcher used the expenditure of the program as the measurement of the research and it could be seen from the use of expenditure and compared to the budget allocation that had been previously determined

1.1 Expenditure of the program in Managing Water Pollution of Bekasi River in 2016 - 2018

In this indicator, one of the measurements that were used by the researcher is the conformity and the budget achievements of the programs. This indicator is seen through the annual budget plan of Bekasi environmental agency throughout 2016 – 2018. The data in the following tables are shown from *Laporan Keterangan Pertanggungjawaban* of Bekasi City.

Table 3. 3 Budget Allocation and Expenditure of 2016

No	Programs and Activities	Budget Allocation of 2016 (IDR)	Budget Expenditure	
			IDR.	%
1	Laboratory Activities	720.000.000 IDR	-	-
2	The Cleaning of Solid Waste in Bekasi River	270.000.000 IDR	-	-
3	Monitoring of the quality of the water	300.000.000 IDR	-	-
4	Assessment of *Dokumen Kajian Lingkungan Hidup*	135.000.000 IDR	-	-
5	Implementation of Environmental Management Oversight in Businesses	135.000.000	-	-
6	Handling Follow-Up Public Complaints	75.000.000 IDR	-	-
Total		1.500.000.000 IDR	-	-

Source: Data retrieved from *Peraturan Daerah* number 10 Year 2016 regarding *Perubahan Anggaran Pendapatan dan Belanja Daerah Kota Bekasi*

There are six programs that were implemented in a row from 2016 to 2018. These programs have different budgets and there are ups and downs in the provision of the budget. The increase that occurred in 2016 to 2017 was not too significant, but in 2018 there was a decrease in the budget. The budgeting that occurs is due to the development of river quality. Although the increasing amount in 2017, the problem occurred in the report of 2016. The written report of 2016 was not able to be retrieved because of the lack of transparency within the agency. The data was retrieved from *Peraturan Daerah* number 10 Year 2016 regarding the changes of APBD in the Year 2016.

Table 3. 4 Budget Allocation and Expenditure of 2017

No	Programs and Activities	Budget Allocation of 2017 (IDR)	Budget Expenditure	
			IDR.	%
1	Laboratory Activities	500.000.000 IDR	476.005.512 IDR	95,20%
2	The Cleaning of Solid Waste in Bekasi River	275.000.000 IDR	241.050.000 IDR	87,65%
3	Monitoring of the quality of the water	260.000.000 IDR	247.722.000 IDR	95,27%
4	Assessment of *Dokumen Kajian Lingkungan Hidup*	200.000.000 IDR	178.349.652 IDR	89,17%
5	Implementation of Environmental Management Oversight in Businesses	200.000.000 IDR	188.848.750 IDR	94,42%
6	Handling Follow-Up Public Complaints	100.000.000 IDR	63.550.000 IDR	63,55%
Total		1.535.000.000 IDR	1.395.525.914 IDR	90,91%

Source: Data retrieved from Peraturan Daerah number 01 Year 2017 regarding Anggaran Pendapatan dan Belanja Daerah Kota Bekasi

Table 3. 5 Budget Allocation and Expenditure of 2018

No	Programs and Activities	Budget Plan of 2018 (IDR)	Budget Expenditure	
			IDR.	%
1	Laboratory Activities	500.000.000 IDR	243.192.399 IDR	48,64%
2	The Cleaning of Solid Waste in Bekasi River	99.000.000 IDR	6.178.756 IDR	6,24%
3	Monitoring of the quality of the water	240.000.000 IDR	45.600.000 IDR	19%
4	Assessment of *Dokumen Kajian Lingkungan Hidup*	85.820.000 IDR	49.340.000 IDR	57,49%
5	Implementation of Environmental Management Oversight in Businesses	135.000.000 IDR	-	-
6	Handling Follow-Up Public Complaints	97.690.000 IDR	36.800.000 IDR	37,67%
Total		1.157.510.000 IDR	381.111.155 IDR	32,92%

Source: Data retrieved from Peraturan Daerah number 18 Year 2018 regarding Anggaran Pendapatan dan Belanja Daerah Kota Bekasi

The decrease in the budget of 2018 was 400,000,000 million rupiah. However, the 2018 budget was not maximally used with the uses budget of 32.92%. The achievements in 2018, was inversely proportional to 2017. In 2017, the budget used was 90.91% out of 100% was used for pollution and environmental damage control programs. Apart from the declining achievements listed in table 2018, there was one program that had no realization. This happened because the time was not right to run. In addition, the problem faced when implementing the program is the problem of lack of human resources and not only practical workers but staff in the office itself. This was also explained by Mr. Suhendra as the head of Field of Environmental Pollution and Damage Control.

> "If it is to take individual supervision, it will take a long time, this is due to the lack of staff. In the field of Environmental Pollution, there are only 15 staff "

The running of the program was determined by these two main factors, human resources and the budget plan. These two factors were linked to each other. In this case, the budget plan could not be used optimally due to the lack of existing human resources while the existing human resources demand to add more personnel. The most optimal expenditure was done in 2017 with the uses of 90,91% of the budget allocation that were given.

2. Implementation

The program implementation is the process when the program is run with the using and managing the input maximally to implement the program well. The process in implementing the programs, it can be worked or failed, and it depends on the factor that can support or detain the program. In this indicator, the researcher used cooperation with communities and also the public participation as the measurement.

2.1 Cooperation with Communities or Organization in Managing Water Pollution of Bekasi River

Due to the lacking in human resources, the implementation of the programs also had participation from several communities or organizations such as *Komunitas Peduli Cileungsi – Cikeas* (aforementioned as KP2C). First, the cooperation itself was not officially partnered. *Tim Katak* was the one that had an unofficial cooperation with KP2C. In this matter, Bekasi River is a meeting point

between Cileungsi River and Cikeas River. KP2C was centered in Cileungsi River The task of the KP2C was to notify that there was an increase in the flow of water sent from Cileungsi River. This increase in water debit affected the quality and quantity of Bekasi River water. Then, Bekasi environmental agency was agreed to be partnered with KP2C. This partnership was developed by the two sides brought its own benefits for the *Tim Kata* due to operational and technical assistance.

Picture 3. 10 Partnership of Bekasi Environmental Agency and KP2C

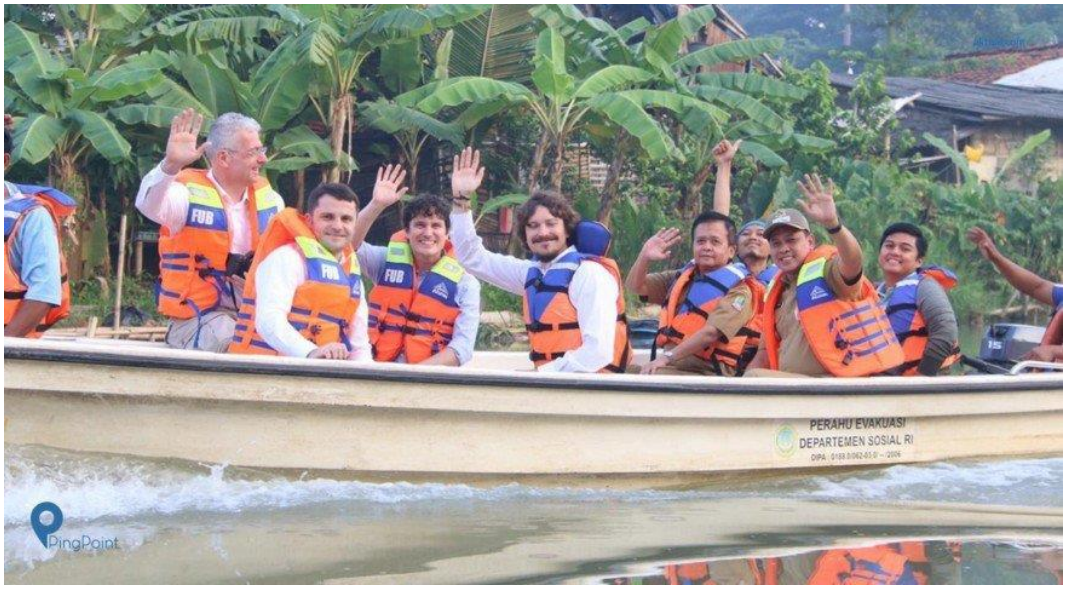
Source: taken on 6 September 2018
http://www.kp2c.org/kp2c-dinas-lh-bekasi-bermitra/

In addition to the local community, Bekasi environmental agency also received visits and assistance from international organizations, namely One Earth One Ocean (OEOO) and GreenCycle. This organization determine the development and application of the concept, because water throughout the world should be free from plastic, oil and pollutant waste. In addition, this association is involved in the fields of oil purification, microplastics, research, education, and documentation

about marine waste, both nationally and internationally, to achieve changes in human behavior related to waste (plastic) in the long run.

One Earth One Ocean has also become an official partner of the UN #CleanSeas Environmental campaign. The launching of #CleanSeas in February 2017 also involved the government, the general public, civil society and the private sector in the struggle against plastic waste.

Picture 3. 11 Vice Mayor of Bekasi with the One Earth One Ocean Organization tracked Bekasi River



Source: retrieved from https://www.bekasikota.go.id/detail/wakil-wali-kota-bekasi-telusuri-kali-bekasi-bersama-one-earth-one-ocean-dan-greencycle

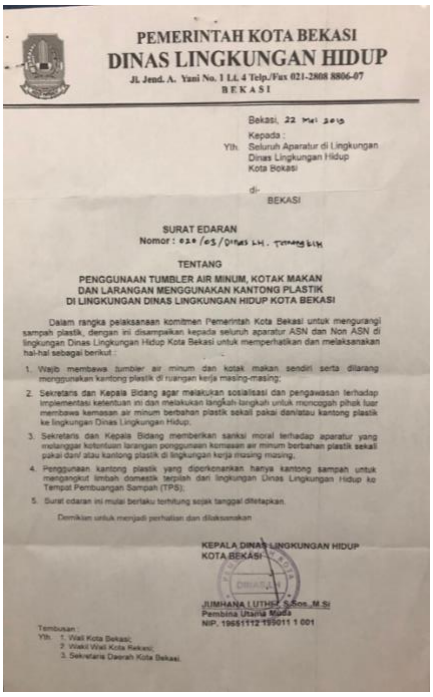
In this case, the institute assesses cooperation with the Bekasi City Government to aid clean the river from garbage. GreenCycle funds One Earth One Ocean as the party that owns the river cleaning technology from the garbage. This collaboration also involves Waste4Change as a local partner who helps the Bekasi City Government with technical assistance. Waste4change itself is a social

entrepreneurship that provides solutions to waste problems, with the principle of behavior change and responsible management with a mission to realize the Indonesian people who are responsible for their waste.

One Earth One Ocean and GreenCycle were very impressed with the seriousness of the Bekasi City Government in overcoming the waste problem in the Bekasi City, with the direct involvement of the Deputy Mayor of Bekasi who accompanied the survey of the locations that had piled up a lot of garbage along the Bekasi River. For them, it was proof of the seriousness of the Bekasi City leaders to make improvements for the sake of the region and the community.

The openness of Bekasi Environmental Agency and Bekasi Government was a proof that the government was very serious in implementing water pollution management programs in the Bekasi River. Beside the openness, Bekasi Environmental Agency also showed a supporting movement by release a warrant to use a tumbler, bring their own lunch box and also banned the uses of single-used plastic. It can be concluded that Bekasi Environmental Agency also encourage its staff and also within its agency to reduce the uses of single-use plastic in the area of Bekasi Environmental Agency office.

Picture 3. 12 Warrant of Bekasi Environmental Agency to ban the uses of single-used Plastic



PEMERINTAH KOTA BEKASI
DINAS LINGKUNGAN HIDUP
Jl. Jend. A. Yani No. 1 Lt. 4 Telp./Fax 021-2808 8806-07
BEKASI

Bekasi, 22 Mei 2019

Kepada :
Yth. Seluruh Aparatur di Lingkungan Dinas Lingkungan Hidup Kota Bekasi

di-
BEKASI

SURAT EDARAN
Nomor : 030/05/Dinas LH. Tentang Lkh

TENTANG
PENGGUNAAN TUMBLER AIR MINUM, KOTAK MAKAN DAN LARANGAN MENGGUNAKAN KANTONG PLASTIK DI LINGKUNGAN DINAS LINGKUNGAN HIDUP KOTA BEKASI

Dalam rangka pelaksanaan komitmen Pemerintah Kota Bekasi untuk mengurangi sampah plastik, dengan ini disampaikan kepada seluruh aparatur ASN dan Non ASN di lingkungan Dinas Lingkungan Hidup Kota Bekasi untuk memperhatikan dan melaksanakan hal-hal sebagai berikut :

1. Wajib membawa tumbler air minum dan kotak makan sendiri serta dilarang menggunakan kantong plastik di ruangan kerja masing-masing;
2. Sekretaris dan Kepala Bidang agar melakukan sosialisasi dan pengawasan terhadap implementasi ketentuan ini dan melakukan langkah-langkah untuk mencegah pihak luar membawa kemasan air minum berbahan plastik sekali pakai dan/atau kantong plastik ke lingkungan Dinas Lingkungan Hidup;
3. Sekretaris dan Kepala Bidang memberikan sanksi moral terhadap aparatur yang melanggar ketentuan larangan penggunaan kemasan air minum berbahan plastik sekali pakai dan/ atau kantong plastik di lingkungan kerja masing masing;
4. Penggunaan kantong plastik yang diperkenankan hanya kantong sampah untuk mengangkut limbah domestik terpilah dari lingkungan Dinas Lingkungan Hidup ke Tempat Pembuangan Sampah (TPS);
5. Surat edaran ini mulai berlaku terhitung sejak tanggal ditetapkan.

Demikian untuk menjadi perhatian dan dilaksanakan

KEPALA DINAS LINGKUNGAN HIDUP
KOTA BEKASI

JUMHANA LUTHFI, S.Sos., M.Si
Pembina Utama Muda
NIP. 19651112 199011 1 001

Tembusan :
Yth. 1. Wali Kota Bekasi;
2. Wakil Wali Kota Bekasi;
3. Sekretaris Daerah Kota Bekasi.

Source: Photo taken by Researcher in 12 June 2019 at 11.14 AM

In addition, Bekasi Environmental Agency also worked with several international community or organizational. This was supported by the findings of researchers in which Bekasi Environmental Agency got some assistance or aids by organizational organization. This means that the Bekasi River pollution problem has brought wide international attention. However, this problem did not bring the attention that should be given by the West Java Provincial Government. This was also supported by Mr. Masyur S.IP as chairman of the *Tim Katak*.

> "it is unfortunate that this polluted river has not brought attention from the province government. Bekasi River is connected throughout two cities or regencies which involves the upper government."

This was supported by the source of fund. The programs were funded from *Anggaran Pendapatan dan Belanja Daerah* (*APBD)* translated as Regional Income and expenditure budget. Whereas, the problem of Bekasi River has connected one city and one regency in the West Java Province.

2.2 Community Participation of Community in Managing Water Pollution of Bekasi River

Besides the lack of attention from the upper government, this problem also brought not much participation of the residents especially those who live surrounding the river.

On the previous variable, it was explained that one of the factors in affecting the quality of the river comes from the household solid waste. Besides the industrial waste, domestical waste also affected the quality of the water and was not only from the form of liquid but also in the form of solid waste such as plastic waste. The plastic wastes mainly came from Cikeas River by the residents who lived surround the area. This was also stated by Mr. Jumhana Lutfi as the previous head of Bekasi Environmental Agency. He was stated that there are a lot of citizens who litters in the river. This also contributed to the Bekasi environmental Agency conducting Operation Catching Hands or abbreviated as OTT.

Picture 3. 13 Bekasi Environmental Agency carries out *Operasi Tangkap Tangan*

Source: retrieved from Bekasi Environmental Agency Official Website (https://dlh.bekasikota.go.id/isi/detail/8_rZM31sHn8ADnJFv2W6M77VIYVZXbaORbWj55lPlu6CgGgMluTHgAaG6xS6aY4yQ0cl8WLRmBFm8vo4puyw_w) Accessed on 21 July 2019

The picture was retrieved from the official website of Bekasi Environmental Agency. *Operasi Tangkap Tangan* or OTT was implemented on September 2, 2018 and was located in Baru Street Underpass *Kelurahan* Durenjaya, Bekasi City.

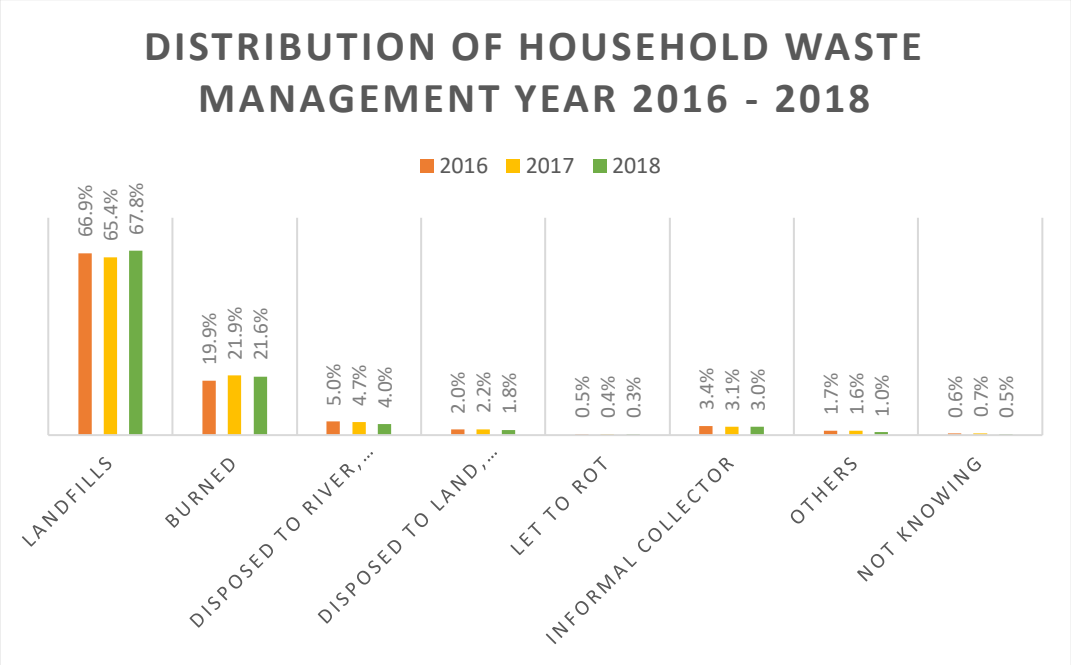
3. Monitoring

Monitoring is an activity that is intended to provide information about the factors that inhibit and also support the running of a program (Mahmudi, 2011). In this indicator, the researcer used the challenges factor and the supporting factor as the measurement of the research.

3.1 Challenges in Implementing the Programs of Bekasi Environmental Agency

The lack of public participation brought the government attempt to change the perspective of the public regarding the function of a river, especially Bekasi River. The resident tends to see a river as a garbage dump. This was supported by the number of the distribution of household waste management in Bekasi City year 2016 – 2018. The data was retrieved from *Laporan Akhir Pengujian Kualitas Air Sungai*.

Graphic 3. 2 The Distribution of Household Waste Management of Bekasi Year 2016 - 2018



The data showed that the public participation was deficient as the people tend to see a river as a garbage dump. This habit affected in the quality of the water and became the scourge of the citizen who live surrounding the river. According to Mrs. Bio Inten as one of the staff of Environmental capacity building, the

perceptions of the citizen were formed due to the position of Bekasi River that was behind the housing. Indirectly, the position of the house or the settlement changed the perceptions and people tend not to see the main function of Bekasi River. In addition to implement OTT, the government was trying to change the perception of the people by building *Hutan Bamboe*.

3.2 Supporting Factor in Implementing the Programs of Bekasi Environmental Agency

The plan to change people perspective was done in two stages. The initial stage is to build and add several *Bank Sampah* throughout Bekasi City. *Bank Sampah* is a place to sort out and recycle the household waste such as plastics. *Bank Sampah* also teaches the citizens in composting the waste. With the addition of new *Bank Sampah*, this aims to add some knowledge for the citizen in sorting out their wastes such as in organic waste or non-organic waste. In addition, this also aims to increase public awareness of the generated household waste. With the active role of the community, the community is expected to reduce solid waste. As of 2018, there are 1,030 *Bank Sampah* spread throughout Bekasi City (Al-Fajri, 2018).

Although with 1.030 units of *Bank Sampah,* there were only 211 units that were actively produce compost and sorting out household wastes. While the other 819 units of *Bank Sampah* were not worked maximally. Although the work was not done maximally, the existence of *Bank Sampah* in Bekasi City had increased by 39 units. According to Mr. Sugiono as the Head of Environmental Management and Capacity Building Division, this had a positive impact on the community. According to the interviewees, in 2018 public awareness would increase and many

people would learn from the *Bank Sampah* by sorting out organic and non-organic waste. The involvement of youth groups (*Karang* Taruna) and community organizations in each sub-district also helped the operation of the *Bank Sampah* when the program was held throughout the *RW*. This was also supported by the number distribution of household waste management data in 2018 which has begun to decline compared to the previous year. The data in 2018 showed that community participation was improving.

Furthermore, the Government tries to change people's perception by building tourist attractions that can be enjoyed by various groups, namely the *Hutan Bamboe*. This tourist attraction was established in early 2018, and it is located right on the edge of Bekasi River. Although it was established in February 2018, the *Hutan Bamboe* was inaugurated in November 2018. The establishment of the *Hutan Bamboe* originated from the innovations of the surrounding community, so visitors or the surrounding community could increase their empathy for caring for cleanliness and getting used to dispose of trash in its place. Along with the establishment of the *Hutan Bamboe*, the Bekasi environmental Agency also formed *Forum Masyarkat Pecinta Kali Bekasi* (aforementioned FMPKB).

The establishment of this forum aims to manage and protect the *Hutan Bamboe*. *Hutan Bamboe* is also the center of the *Tim Katak*. Initially, the management of the *Hutan Bamboe* was managed by FMPKB with the *Tim Katak*, but over time the *Hutan Bamboe* could be managed independently by FMPKB. The *Hutan Bamboe* has adequate facilities and to attract visitors; FMPKB also makes several photo spots and also rents out space or rents boats for visitors who want to surround the Bekasi River via waterways. This program was welcomed by the

surrounding community and also attracted visitors from various regions. In addition to changing people's perception, *Hutan Bamboe* was created to overcome the problem of bamboo waste that inhibits the Koja Dam. Bamboo trash is made into souvenirs or made for decoration photo spots in the *Hutan Bamboe*.

Picture 3. 14 The Visit of Bekasi Mayor, Dr. H. Rahmad Effendi to Hutan Bamboe on November 2018

Source: retrieved from https://www.bekasikota.go.id/detail/wali-kota-nikmati-sejuknya-hutan-bambu

Hutan Bamboe also helps citizens in the aspect of economy. This was confirmed by Mr. Wahyu Susanto as one of the sellers of food and drinks in the *Hutan Bamboe*. Mr. Susanto said that since the inauguration of the *Hutan Bamboe* tour, many visitors have come even on weekdays. Mr. Susanto also said that his income per day could reach three hundred thousand rupiah. In addition to food and beverage exploration, visitors also use the waterway to become one of the facilities in the *Hutan Bamboe*. FMPKB utilizes waterways by renting out existing ships.

Hutan Bamboe tourist attraction is free of charge. FMPKB utilizes financial donations and boat rentals to become a source of funds for the management of the *Hutan Bamboe*.

Hutan Bamboe is one of the factors that supports the program of the Bekasi Environmental Agency to deal with pollution of the Bekasi River. The direct connections from the *Hutan Bamboe* tourist attractions can make the community play an active role in maintaining these attractions and reduce the volume in producing household solid or liquid waste. Community participation as the challenge factor has now turned into a supporting factor for the Bekasi Environmental Agency to actively create programs to deal with water pollution in the Bekasi River.

Picture 3. 15 The Current Condition of *Hutan Bamboe* taken on 17 June 2019

Source: Photo by researcher taken at *Hutan Bamboe*

4. Evaluation

Evaluation acts as a process for examining a program based on certain standards of value with the aim of making the right decision. Evaluation is also defined as an activity to determine the level of success or achievement of objectives based on planning (Mahmudi, 2011). In this indicator, the researcher used the availability of the reports in evaluation the program as the measurement.

4.1 Availability of the Reports in Evaluating the Program in Managing the Water Pollution of Bekasi River.

One indicator used in this variable is the availability of the accountability report. Transparency is one of the outcomes of democratizing process driven not only by committed leadership, but also by the participation of and contention among groups and interests in society. As a government official, Bekasi Environmental Agency should be able to make the information available. A transparent government makes it clear what is being done, how and why the actions take place, who is involved and by what standards decisions are made. In this case, the researcher found that lack of transparency, especially in terms of the budget was crucial for all governments. Transparency is an indicator of the seriousness of the government in implementing a program. The disadvantage of the Bekasi Environmental Agency wass transparency in terms of written reports. There were several reports which are not published directly by the Bekasi Environmental Agency, such as the Final Report on Water Quality Testing and also the results of tests from the Environmental Laboratory.

Laporan Keterangan Pertanggungjawaban can be obtained online through the official website of the Bekasi City BAPPEDA

(www.Bappeda.bekasikota.go.id). However, there were no written reports for 2016. In addition to shortcomings of the reports, Bekasi Environmental Agency also lacked in terms of detailed use of the budget. In general, the financial realization report was contained in the Statement of Accountability that was issued annually but details of the information of the budget are not included. This incompleteness affects the evaluation of the program to be carried out. The report could not be seen which budget can be maximized. For example, in the realization of the 2018 budget (table 3.4), it only used 32.92% of the total allocated budget. In addition, there was a program which was not implemented in 2018 even though the budget had been given as much as 135,000,000 IDR and there was no details on how the budget was finally allocated.

D. Product

Product evaluation is a set of judgement outcomes in relation with context, input, and process which interpreted into the services or the goods that are provided. Product evaluation measures the target achievements and consturing the result that was achieved. The result from the analysis will be the conclusion (Muryadi, 2017). In this variable, the researcher used the impact of the program after it was implemented.

1. Impact of the Program

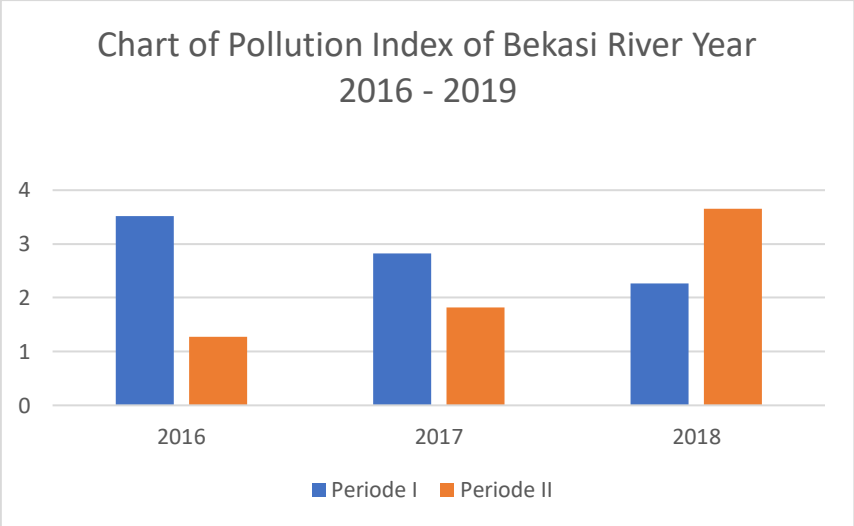
This variable explains the impact of the implementation of the Bekasi Environmental Agency programs. There are several indicators such as changes in the Bekasi River water quality after the program is applied. In addition, the Bekasi River has also become one of the water sources for the Regional Water Company

(aforementioned as PDAM) or translated as local water company. The indicator to be used is the quantity of clean water produced by the PDAM. In addition to the indicator mentioned before, the changes in community participation is also one indicator in this variable.

1.1 Changes in Water Quality of Bekasi River in 2019

One of the main indicators used in this research is the quality of water that showed whether or it was not polluted. The parameter that were used in the previous variable is the pollution index. The pollution index was also used by the Bekasi Environmental Agency to measure water quality in the Bekasi River, based on Government Regulation Number 82 year 2001. The impact of the implementation of the Bekasi Environmental Agency program was the decrease in the pollution index number in 2019.

Graphic 3. 3 Chart of Pollution Index of Bekasi River Year 2016 – 2018



Source: Final Report on River Water Quality Monitoring in Bekasi City

When compared between the first period and the second period, from 2016 to 2018, the first period showed a decrease in the number of PI. Meanwhile, in the second period the PI figure tend to rose. The increase in PI numbers in 2017 and 2018 shows a very significant increase in numbers although there is a significant increase in the number, in the pollution classification based on Government Regulation Number 82 of 2001 Bekasi River is still included as "Mildly Polluted"

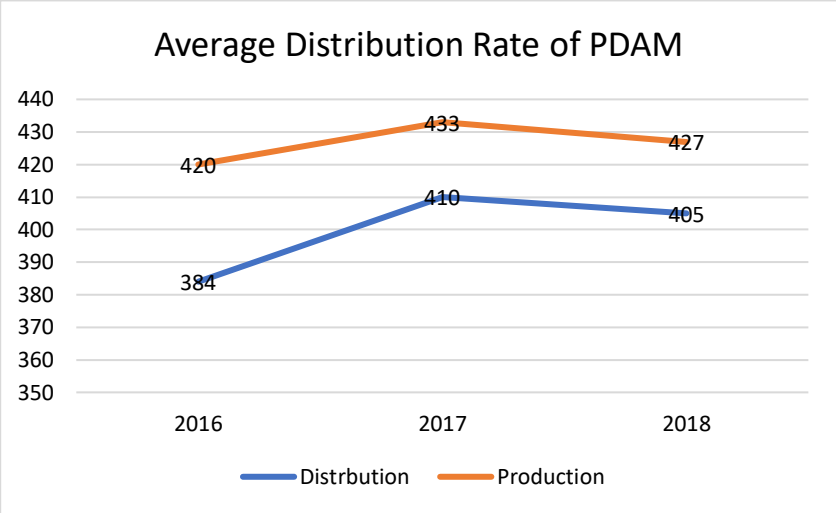
1.2 The Increasing Number of PDAM Membership

One of the uses of Bekasi River is being a source of water from PDAM Tirta Patriot. One of the parameters was taken from the previous research is the quality and discharge of water produced by the Local Water Company (aforementioned PDAM). PDAM is one of the BUMD owned by the Bekasi City. The PDAM itself offers clean water needs for the Bekasi City area, some of which are the North Bekasi and West Bekasi regions. The PDAM was started by joining the Bekasi City Environment Agency in 2004 and there was an increase in the demand for clean water in the Bekasi City Area. The PDAM changed its function and held its own administration. Data retrieval from the PDAM is because Bekasi River is one of the sources for taking water that is treated and produced by the PDAM. Some other channels that are used as water sources are the Kalimalang channel.

With the occurrence of water pollution in the Bekasi River, of course the quality and quantity of production from the PDAM would be affected, especially in the quantity of clean water production. This was also conveyed by one of the staffs from the field of PDAM technicians, Mr. Deri Setyawan. Mr. Deri Setyawan that the Bekasi River water quality greatly affected production problems, as in October

2018 the PDAM production had been stopped due to the deteriorating quality. The stopping of this production process was due to a mixture of water from Bekasi River and the Kalimalang Canal. This mixing occurred to reduce the concentration of waste contained in Bekasi River water. This process had been carried out for a long time and it was used to overcome the turbidity or poor water quality to be used. This was also explained by Mr. Uci Indra Wijaya as the publicist of PDAM Tirta Patriot that the reduction that occurred in October 2018 was 50% of the total normally produced by the PDAM. The pollution that occured in Bekasi River affects the quality and quantity of PDAM Tirta Patriot production.

Graphic 3. 4 The Average Production and Distribution Number of PDAM Tirta Patriot Year 2016 - 2018



Source: retrieved from *Laporan Bidang Teknik Bagian Production* Periode 2016 – 2018

However, this did not cause the membership of the PDAM to decrease. Even though the quality and quantity were lacking, PDAM customers continued to grow, and continued to use clean water services. This was also revealed by Muhammad

Faisal, a resident of the Jakasampurna Village, West Bekasi Subdistrict who used the PDAM Tirta Patriot clean water service. Faisal uses that there are benefits to being a PDAM member. Faisal also felt a number of complaints such as the quality of water obtained and also the quantity that was very limited at a certain time.

In the year of 2016, the membership of PDAM was 28,044. This figure continues to surge from year to year. An increase in 1,299 membership occurred in 2017. Membership in 2018 showed the number 30,824 who actively used PDAM services. These figures continued to surge in line with the demand for clean water services at the Bekasi City level.

The most of customer were reluctant to decide on clean water services with the PDAM due to various considerations. One that was taken into consideration in economic term, was the main factor of the customer. Because of its establishment since 2004, there were only 5,071 inactive customers. This could be caused by several things such as customers were unable to pay bills for 3 months. When viewed from membership that continues to surge, it could be said that the customers of PDAM did not increase despite the lacking in quality and the service.

Table 3. 6 Brief Description of Variables and Indicators

Context	Goals	This indicator uses the vision and mission of Bekasi Environmental Agency in how well the vision was envisioned in a terms of the program.
	Background	In this indicator, the background became the reasons why the program was planned in the first place. It uses the types and also the quality of water of Bekasi River.
Input	Human Resources	In the human resources, the researcher uses the quality and quantity of the staff under the jurisdiction of Bekasi Environmental Agency. Human resources considered play an important role in implementing the programs.
	Adequate Facilities	In adequate facilities, there are medias that can supported the implementation of the programs such as cameras, transportation and laboratory tools.
	Budget Allocation	This indicator uses the source of budget allocation and also the list of budgets allocations in 2016 -2018.
Process	Planning	Uses the expenditure of the budget and compare it to the allocation of 2016 – 2018 in order to see the realization of the uses of budget allocation.
	Implementation	This indicator uses the cooperation with organization and the public participation while implementing the programs as the parameters.
	Monitoring	Uses the challenges and also supporting factors as the parameters while monitoring the programs as the parameters.
	Evaluation	The availability of the written report as the parameter of evaluating the programs as the parameters.
Product	Impact of the Program	In this indicator, it defines the impact after the program had been implemented. The indicator uses the changes in water and also the increasing number of *PDAM* membership as the parameters.