

Controlling Water Pollution In Batumerah Village Ambon City

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ABSTRACT: *The main problem in this study is the management of water quality on the Batu Merah River Pollution Level. Declining water quality will reduce the usability, usufruct, productivity, carrying capacity, and carrying capacity of water sources which in turn will reduce the wealth of natural resources. The research method used was a Field Research study conducted at the Ambon City Environmental Agency and Ambon Batu village residents. Using primary and secondary data, the method of data collection is by observing, documenting and interviewing. By using descriptive analysis and by using a qualitative method that is to find a concrete picture of water quality management of the Batu Merah River Pollution Level.*

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Based on the results of the study, it can be concluded that the efforts to control the Ambon Batu Merah river water pollution carried out by the Ambon City Environmental and Waste Management Office are to increase inventory and identification of water pollutant sources, improve waste management, determine the capacity of pollution loads, increase knowledge and community participation in waste management, improve supervision of wastewater disposal, improve monitoring of river water quality.

Keywords: Control, Water Pollution, River

I. INTRODUCTION

Water is a natural resource that is very necessary for the survival of organisms.¹ Humans use water to meet various needs such as household, agricultural, industrial and others. The role of water for human life is very important, so that great attention is needed so that the quality of the water source is maintained. Water as a component of the environment will affect and be influenced by other components. Poor quality water will result in bad environmental conditions that will affect the health and safety conditions of humans and other living things. Declining water quality will reduce the usability, usufruct, productivity, carrying capacity, and carrying capacity of water sources which in turn will reduce the wealth of natural resources. The river is the most important water provider for humans. With this being the most important water provider, it has a negative impact on rivers. The negative impact that occurs in rivers is in the form of water pollution caused by human activities. Activities commonly carried out by humans include disposing of trash and disposing of industrial waste directly into the river that can have an impact on aquatic organisms. Water pollution is indicated by a decrease in quality to a certain level that causes water to not be able to function in accordance with its purpose. What is meant by a certain level above is the water quality standard that is set and serves as a benchmark to determine the occurrence of water pollution, it is also a directive about the level of water quality that will be achieved or maintained by each water pollution control work program.

various efforts to control environmental pollution in Indonesia, carried out by strengthening sanctions and expanding the range of regulations on environmental pollution with the birth of Law Number 32 of 2009 concerning Environmental Protection and Management, Government Regulation Number 82 of 2001 concerning Management of Water Quality and Water Pollution, Government Regulation Number 27 of 2012 concerning Environmental Permits, Government Regulation Number 101 of 2014 concerning Management of Hazardous and Toxic Waste, as well as other regulations concerning the control of environmental pollution.

Efforts to control water pollution are regulated in PP RI No. 82 of 2001 concerning Management of water quality and control of water pollution, in Article 1 paragraph 9 PP No. 82 of 2001 is a measure of the limit levels of living things, energy, or components that exist or must be present and / or pollutant elements that exist in water.² Water quality criteria for each class are listed in appendix PP RI No.81 of 2001.³ Article 1 point 11 PP RI No.82 of 2001 formulates the definition of water pollution, or the inclusion of living things, substances, energy, and / or other components in water by human activities, so that the quality of water drops to a certain level that causes water to not function according to its purpose. Article 1 point 12 PP RI No. 82 of 2001 formulates the definition of pollution load, namely: the amount of a pollutant element contained in water or wastewater. Article 1 point 13 formulates the definition of the capacity of the pollution load, namely: The ability of water in a water source to receive input from the pollution load without causing the water to become polluted⁴

According to Government Regulation of the Republic of Indonesia Number 82 Year 2001 regarding water quality management and water pollution control, it is stated in Article 8 that the classification and criteria for water quality are applied into 4 (four) classes,⁵ namely: a) First Class: Water intended for use can be used for raw water drink and or other purposes that require water quality that is the same as those uses, b) Class Two: Water intended can be used for water recreation facilities, freshwater fish farming, animal husbandry, water for irrigating crops and or other purposes which are the same as the uses c) Class Three: Water intended for use can be used for culturing freshwater, water husbandry to irrigate planting and or other purposes similar to these uses, d) Class Four: Water intended can be used to irrigate other crops and or other uses with these uses.

Water pollution and forms of activities carried out by humans such as disposing of waste that can mention environmental stress can have a harmful effect on individuals, populations, communities and ecosystems. Over time the community will be dominated by species that can live superior, stable and independent in it. This whole process is called succession, while communities that have achieved stability are called communities that have reached a peak or climax.⁶ There are six levels of water pollution effects in accordance with the level of danger they cause:⁷ a) Class 1: aesthetic disturbances (smell, taste, scenery), b) Class 2: disruption or damage to property, c) Class 3: disruption of animal life and plants, d) Class 4: disturbance to human health, e) Class 5: disturbance to the human reproductive system and gentica, f) Class 6: Major ecosystem damage. To prevent diseases from arising from water pollution, the quality of water bodies must be maintained in accordance with water quality standards. The water quality of the Batu Merah river can be determined by carrying out certain tests of the water. The usual tests are chemical and physical tests. Water quality can be expressed by several parameters namely physical parameters (temperature, turbidity, dissolved solids and so on), chemical parameters (PH, BOD, COD, DO).

According to Effendi Waters that have BOD values of more than 10 mg / Liter have experienced pollution.⁸ The increase in BOD value in river water from upstream to downstream shows that the Batu Merah River in Ambon has experienced pollution, especially in the downstream area. The level of water pollution in the Batu Merah river in Ambon downstream is classified as high and is classified as a bad water category. This refers to Salmin's opinion that a water with a low level of pollution and can be categorized as good water, the biochemical oxygen content (BOD) ranges from 0-10 ppm.⁹

Furthermore it is said that the presence of organic material in water can come from nature or household and industrial activities.¹⁰ COD values in uncontaminated waters are usually less than 20 mg / Liter, and waters that have high COD are undesirable for fisheries and agriculture.¹¹ Pollution does not only depend on the form of pollutants, but also depends on the intended use of the water. The entry of pollutants into the river in Batu Merah can change the physical and chemical conditions of the environment, thereby changing the diversity of river water communities. Because the species that exist in the environment are not all tolerant of the stresses of the environmental conditions, but rather have their own tolerance limits and industrial waste discharged into the river without regard to the Environmental Impact Analysis (AMDAL).

Some industries that dispose of industrial waste in places that are still used by the community such as land surface and river flow. Though the river has a vital function in relation to ecology, the river and its banks are usually a habitat that is very rich in flora and fauna as well as a barometer of the ecological conditions of the area. An unspoiled river can function as a natural place that will increase or maintain the oxygen content of water in a river. The source of water pollution is mainly caused by human activities and is triggered by population growth. Water pollution is increasing along with industrial growth. The government has determined that industrial waste cannot be released into the waters if it does not meet a standard. That is, the industry must build and operate the WWTP. But in reality, it is often violated and ignored.

II. RESEARCH METHODS

¹ Agoes Soegianto, Freshwater Ecology, (Surabaya: Publishing and Printing Center (AUP), 2010), p.44

² RI Regulation No.82 of 2001 concerning Management of Water Quality and Water Pollution Control

³ Takdir Rahmadi, Environmental Law, (PT Raja Grafindo Persada: Jakarta), p.125

⁴ Ibid, 126

⁵ PP RI No. 82 of 2001

⁶ Ibid, p.49

⁷ Agoes Soegianto, Freshwater Ecology (Surabaya: Aup Publishing and Printing Center, 2010), p.48

⁸ Effendi H, Quality Study for Water Resources and Environmental Management, Fifth Printing (Yogyakarta: Kanisuis), h. 20

⁹ Salmin, Dissolved Oxygen (Do) and Biological Oxygen Demand (BOD) as one indicator to determine the quality of the waters. ISSN 01216-1877, Osema, Volume XXX, Number 3, 2005. h. 21

¹⁰ Effendi, H. Op.cit., H. 30

¹¹ Ibid, h. 39

The method used in this study is empirical juridical research with the nature of descriptive research that uses primary and secondary data sources with library research techniques using primary legal materials, secondary legal materials and tertiary legal materials. Primary legal materials are legal materials whose contents are related to government regulations or other institutions that have authority. Secondary legal sources are materials in the form of books and other printed materials, as well as software, which are the needs of this research.

III. RESULTS AND DISCUSSION

1. The Role of the Ambon City Environmental and Waste Management Office

The Office of Environment and Waste of Ambon City is an element of implementing regional autonomy in the environmental field. The Ambon City Environment and Waste Management Agency was formed based on Ambon City Regulation Number 4 of 2016 concerning the Establishment and Composition of the Ambon City Regional Apparatus, Ambon Mayor Regulation Number 38 of 2016 concerning the Organization and Work Procedure of the Ambon City Service. Regarding the role related to the main tasks and functions that must be carried out by regional apparatus organizations as public organizations of the Ambon City waste and environmental agency that have the following basic tasks and functions: a) The task of the Ambon city environmental office has the main task of carrying out the formulation and implementation of policies in the field of environment and solid waste, b) Its function is to carry out the tasks as mentioned above, then the Ambon City environmental and waste service has functions: Formulation of technical policies on government affairs in the field of environment and waste, implementation of policies in the field of environment and waste, implementation of evaluation and reporting in the field of environment and solid waste, the implementation of Administrative Services; and the implementation of other functions provided by the Mayor in relation to his duties and functions.

Based on Ambon Mayor Regulation No. 38 of 2016 concerning the Organization and Work Procedure of the Ambon City Office consisting of:¹² 1) The Main Duties of the Ambon City Environment and Solid Waste Office carry out the preparation and implementation of policies in the field of environment and waste. 2) Ambon City Environment and Solid Waste Office Has the function: a) Formulation of technical policies on government affairs in the field of environment and waste b) Implementation of policies in the field of environment and waste c) Implementation of evaluation and reporting in the field of environment and waste d) Implementation Service Administration; and e) Performing other functions provided by the Mayor in relation to his duties and functions. 3) Organizational Structure of the Ambon City Environmental and Waste Service Office consists of: Secretariat of the Environmental and Waste Service Office covering: a) Personnel and Public Subdivision, b) Financial and Asset Subdivision, c) Planning Subdivision.

The fields consist of: 1) Environmental Management, including: a) Inventory section, management plan, environmental monitoring (RPPLH) and strategic environmental study (KLHS), b) Environmental Impact Assessment Section, and c) Maintenance Section environment and parks, 2) Waste Management, including: a) Waste reduction section, b) Waste management section, c) Transportation and waste equipment section. 3.) The Field of Environmental Pollution and Damage Control includes: a) Environmental monitoring section, b) Environmental planning and B3 waste section (Hazardous and toxic materials, c) Environmental damage section. 4) Environmental Management and Capacity Building Sector includes: a) Section for complaints and settlement of environmental disputes, b) Section for environmental law enforcement, c) Section for enhancing the capacity of environmental law. 4). The work tasks of the Office of the environment and solid waste include;

- a) Secretariat, the Secretariat has the task of assisting the head of the environmental and waste department in the formulation of policies and administrative coordination of the implementation of environmental and waste service tasks and administrative services.
- b) Head of Personnel and General Subdivision, has the task of carrying out part of the secretariat of the environmental and waste service department in preparing staffing and general policy materials in the environment and waste service department.
- c) The Head of the Sub-Division of Finance and Assets has the task of carrying out part of the duties of the secretariat of the environmental and waste department in preparing financial policy materials and regional assets in the environment and waste service department.
- d) The Head of the Planning Subdivision carries out part of the duties of the secretariat of the environmental and waste department in preparing planning policy materials, preparation of programs and activities as well as evaluation in the environment and waste service department.

The Head of the Environmental Management Division has the task of carrying out the preparation of policy materials and the coordination of sub-governmental government planning in the area of environmental management. The Section Head for inventory, management plans, environmental monitoring (RPPLH) and strategic environmental studies (KLHS) has the following tasks: 1) Inventory data and information on natural resources; 2) Preparing RPPLH documents; 3) Coordinate and synchronize the loading of RPPLH in RPJP and RPJM; 4) Monitor and evaluate the implementation of the RPPLH; 5) Determine the carrying capacity and capacity of the environment; 6) Carry out coordination of spatial planning based on carrying capacity and environmental capacity; 7) Arranging environmental economic instruments (gross domestic income (GDP) and green regional gross domestic income (GRDP), disincentive incentives mechanism, environmental funding); 8) Carry out other tasks given by the head of the field of environmental governance related to the tasks and functions.

The Head of the Environmental Impact Assessment Section has the following tasks: 1) Coordinating the preparation of environmental pollution and / or damage prevention instruments (Amdal.UKL-UPL, environmental permit, environmental audit and environmental risk analysis), 2) Assessing environmental documents (AMDAL and UKL / UPL); 3) Arranging a transparent environmental document review team (appraisal commission, expert team and consultant); and 4) Carry out other tasks given by the Head of the Division of Environmental Arrangements related to their duties and functions.

The Section Head of environmental maintenance and parks has the following tasks: 1) Implement protection of natural resources; 2) Carry out preservation of natural resources; 3) Carry out sustainable use of natural resources; 4) Carry out the reserve of natural resources; 5) Implement mitigation and adaptation measures for climate change; 6) Carry out an inventory of Greenhouse Gases (GHG) and compile profiles of GHG emissions; 7) Carry out biodiversity conservation; 8) Establish policies and implement conservation, sustainable use and control of biodiversity damage; 9) Carry out monitoring and supervision of the implementation of biodiversity conservation; and 10) Carry out other tasks given by the Head of Environmental Planning related to their duties and functions. The Head of the Waste Management Division has the task of carrying out the preparation of policy materials and coordinating the planning of sub-government affairs in the field of waste management.

The head of the waste reduction section has the following tasks: Compile district / city level waste management information, Determine waste reduction targets and priority types of waste for each specified period of time; Formulate waste reduction policies; Carry out fostering restrictions on landfill waste to producers / industries; Carry out fostering the use of raw materials for production and packaging that can be broken down by natural processes; Carry out guidance on recycling of waste; Provide waste recycling facilities; Carry out guidance on the reuse of waste from products and product packaging; and Carry out other tasks given by the Head of Waste Management in relation to their duties and functions.

Section Head of solid waste handling has the tasks: Formulating waste management policies in the city; Coordinate waste sorting and collection; Provide waste handling facilities; Carrying out levies on waste management services; Determine the location of TPS, TPST and TPA garbage; Supervise the final processing site with an open dumping disposal system; and Carry out other tasks given by the Head of Waste Management in relation to their duties and functions.

Section Head of transportation and waste equipment has the following tasks: Coordinate the transportation and final processing; Arranging the transportation of waste from TPS to TPA; To provide guidance to the transportation of municipal waste; Establish waste transportation routes / routes including public / public demand, the results of community service as well as the transportation of rubbish and sediment deposits in channels and rholes; Carry out control of spatial use of urban areas and strategic areas, compile zoning regulations as guidelines for controlling spatial use of cities and form institutions tasked with carrying out control of spatial use of cities; Carry out supervision, monitoring and evaluation of the implementation of municipal waste transportation; and Carry out other tasks given by the Head of Waste Management in relation to their duties and functions. Head of Environmental Pollution and Damage Control Division.

The Head of the Pollution and Environmental Damage Control Division has the task of carrying out the preparation of policy materials and coordinating the planning of sub-government affairs in the field of pollution control and environmental damage. The Section Head of environmental monitoring has the following tasks: Carry out water quality monitoring; Carry out air quality monitoring; Carry out soil quality monitoring; Carry out coastal and marine quality monitoring; Determine environmental quality standards; Prepare an environmental monitoring workshop (environmental laboratory), and carry out other tasks given by the Head of Environmental Pollution and Damage Control Division related to their duties and functions.

Section Head of environmental planning and B3 waste (Hazardous and toxic substances have the following tasks: Carry out the formulation of technical policies to control environmental pollution and B3 waste; Carry out guidance on the control of environmental pollution and B3 waste; Carry out monitoring of sources of institutional and non-institutional pollutants; Carry out recovery and control of pollution and pollution the environment and B3 waste; Carry out the formulation of a policy for the temporary storage of B3 waste in a district of the city, and carry out other tasks given by the Head of Environmental Pollution and Damage Control Division related to their duties and functions.

Section Head of environmental damage has the task: Determine the criteria for environmental damage; Carry out environmental damage monitoring; Carry out mitigation of environmental damage; Carry out environmental damage recovery; and Carry out other tasks given by the Head of Environmental Pollution and Damage Control Division related to their duties and functions. The head of the area of structuring and enhancing environmental capacity has the task of carrying out the preparation of policy materials and coordinating the planning of sub-government affairs in the field of structuring and enhancing environmental capacity.

The Section Head of complaints and settlement of environmental disputes has the following tasks: To formulate a policy on how to provide complaints and settle public complaints; Facilitating the receipt of complaints on businesses or activities that are not in accordance with the environmental protection and management permit; Carry out a review and verification of complaints; Make recommendations for the follow-up on the results of verification of complaints; Carry out technical guidance, monitoring and reporting of the results of follow-up complaints; Settling environmental disputes both outside the court and through the court; Carry out socialization on complaints procedures; Develop an information system for the reception of public complaints about businesses or activities that are not in accordance with the environmental protection and management permit; and Carry out other tasks given by the Head of the Division of Environmental Management and Capacity Building related to their duties and functions.

The head of the environmental law section has the following tasks: To formulate a supervisory policy for businesses and / or activities that have environmental permits and environmental protection and management permits; Carry out supervision of the recipient of environmental permits and environmental protection and management permits; Carry out follow-up supervision of recommendations on the evaluation results of the recipient of environmental permits and environmental protection and management permits; Carry out guidance and supervision of regional environmental supervisory officers; Form a coordination and monitoring team for the enforcement of civil rights; Carry out enforcement

¹² Ambon Mayor Regulation Number 38 of 2016 concerning the Organization and Work Procedures of the Ambon City Service

of individuals for violations of environmental protection and management; Carry out investigations on cases of environmental violations; and Carry out other tasks given by the Head of the Division of Environmental Management and Capacity Building related to their duties and functions.

The head of the environmental legal capacity building section has the following tasks: To formulate policies on the recognition of the existence of indigenous and tribal peoples, local wisdom or traditional knowledge and rights of local wisdom or traditional knowledge and rights of the MHA related to environmental protection and management; Carry out the identification, verification and validation and determination of recognition of the existence of indigenous peoples, local wisdom or traditional knowledge and the right of local wisdom or traditional knowledge and rights of the MHA related to environmental protection and management; Establish customary land which is the existence of the MHA, local wisdom or traditional knowledge and the right of local wisdom or traditional knowledge and rights of the MHA related to environmental protection and management; Carry out dialogical communication with the MHA; Form a committee for the recognition of indigenous and tribal peoples; Compile data and information about the MHA profile, local wisdom or traditional knowledge related to environmental protection and management; and Carry out other tasks given by the Head of the Division of Environmental Management and Capacity Building related to their duties and functions.

Referring to the duties and principal of the Ambon City Environmental and Waste Department as explained above, as a part of the public organization it is expected to be able to carry out its role by carrying out its main tasks and functions in the environmental field as stipulated in the legislation so that it can meet community expectations of the role of the environmental service in preventing and overcoming environmental problems.

2. Efforts to Control Water Pollution in the Batu Merah river in Ambon

a) Water Pollution Control

Control of environmental pollution is an effort made to prevent, overcome and restore damage to the quality of the environment caused by pollution. The high density of population housing on the banks of the Batu Merah river results in domestic and industrial waste being discharged directly into water bodies without treatment of WWTP / septic tank, which needs to be a major concern in pollution control programs. Communities around the Batumerah river need to change their behavior regarding the use of the river so that the river is no longer used as a landfill, awareness of compliance with applicable regulations, natural knowledge of waste management. Implementation of industrial waste disposal regulations should be monitored for implementation and violators sentenced. Industrial waste should be processed first with sewage treatment techniques and after meeting the quality standards for wastewater, it can be channeled into gutters or rivers. Thus a river will be created that is clean and has ecological functions.

According to local residents, DA provincial stated that 'the government had actually issued a ban not to throw garbage into the river, but the ban was not accompanied by strict sanctions, those who lived or boarding around the riverbanks were still determined to throw garbage in the river.¹³ The same thing was also conveyed by residents around the Batumerah river with provincial R. There should be strict sanctions from the state and city governments, there must be a strict warning to boarders to prohibit their residents from throwing garbage in the river, home industries around the village office. Mardika must be warned and given strict sanctions if he is still determined to dump garbage into the river.¹⁴

As a result of the bad behavior of the Batumerah community which turned the Batu Merah river into a garbage bin. Garbage is dumped into the red rock river various types of plastic waste from the community such as crackle, packaging items made of plastic and household and industrial waste. Interview with B3 Waste Pollution Control staff, Ir Margaretha Tomaso, said that river pollution occurs in the red stone because the community still uses the river as a landfill and there is direct disposal of industrial waste into the river.¹⁵ Batumerah river is currently polluted by waste and industrial waste far above the quality standards determined by the government that are regulated in environmental regulations.

A similar response from one of the residents of Provincial A from the interview results about their comfort to the environmental conditions around the Industrial factories in the red stone that we feel disturbed by the smell of rotten and yellow waste and itching and lots of mosquitoes.¹⁶ Community activities that produce domestic wastewater discharges as well as the presence of tofu and tempeh industries that dispose of their wastewater in the Batu Merah river will affect water quality. Water quality management is carried out by efforts to control water pollution, namely by efforts to maintain the function of water so that the water quality meets quality standards (Azwir, 2006). A river is said to be polluted if its water quality is not in accordance with its designation. This water quality is based on water quality standards according to river class based on Government Regulation No. 82 of 2001 concerning Management of Water quality and Water Pollution Control.

Increasing community awareness and participation in maintaining the quality of water resources by preventing river water pollution.¹⁷ This is because the condition and quality of the Batu Merah river water, is influenced by the input of wastewater discharges from the catchment area which is influenced by the behavior patterns of the surrounding community. The people in this case are residents who live near the banks of the Batu Merah river. increased coordination between agencies related to water pollution control is needed. River water pollution control strategies are prioritized on increasing the role of the community both the general public and industry in efforts to control water pollution through community-based sanitation activities.

Based on the results of an interview with the Head of the Control and Pollution and Environmental Damage in Ambon City, various water pollution control efforts that have been carried out by the Ambon City Environmental and Waste Management Office are to increase inventory and identification of water pollutant sources, improve waste management, determine load capacity pollution, increase community knowledge and participation in waste management, improve supervision of waste water disposal, improve monitoring of river water quality The same thing was also conveyed by J. Wattimena, SP Head of Regulations and Environmental Capacity Building in Ambon City that the Pollution Control and Environmental Damage Program carried out by the Ambon City Environmental and Waste Management Office, namely: Monitoring Environmental Quality, Supervising the Implementation of Environmental Policy, Clean Times Program, Increasing Community Participation in Control an environment, Socialization of legislation, Monitoring, Evaluation and Reporting.¹⁸ As well as the Role of the Department of Environment and Ambon City Solid Waste in efforts to control water pollution, namely the provision of information, the stipulation of water pollution control policies, guidance and supervision, coordination among agencies with an interest in controlling water pollution, applying the concept of community participation in the implementation of water pollution control activities.. Based on Article 20 of RI Regulation No. 82 of 2001 concerning Management of water quality and water pollution control that the Government and Provincial Governments, Regency / City Governments in accordance with their respective authorities in the context of controlling water pollution at water sources are authorized to:¹⁹ a) Determine the capacity of the pollution load ; b) Conduct an inventory and identification of pollutant sources; c) Establish wastewater requirements for soil applications; d) Establish requirements for the disposal of wastewater to water or water sources; e) Monitor water quality at water sources; and f) Monitor other factors that cause changes in water quality.

Tackling water pollution can be carried out starting from the introduction and good understanding by people's behavior. According to Prawirohartono (2000) changes in people's behavior naturally, the water ecosystem can do rehabilitation "if there is pollution of water bodies. This capability has its limits, therefore efforts must be made to prevent and overcome water pollution. To overcome water pollution, preventive efforts can be made, for example by not throwing garbage and industrial waste into rivers. The habit of throwing garbage into the river and disembarang place should be eradicated by enforcing the rules that are applied in their respective environments consequently. Waste should be disposed of at the designated place. Wastewater Disposal Permits to Water Sources or commonly known as Wastewater Disposal Permits (IPLC) to Water Sources are regulated in Government Regulation No. 82 of 2001 concerning Management of Water Quality and Water Pollution Control. Obligation of Wastewater Discharge Permits to Water Sources is a form of implementing obligations for activities / businesses to prevent and overcome water pollution, as regulated in Article 37 of Government Number 82 of 2001 concerning Management of Water Quality and Water Pollution Control. Republic of Indonesia Government Regulation No. 82 of 2001 concerning water quality management and water pollution control states that, water pollution is a change in the composition (composition) of water by human activities so that water quality becomes less or no longer able to function in accordance with its designation. Water pollution occurs when there is a material or condition (for example heat) that can cause a decrease in the quality of the water body to a certain level so that it does not meet the quality standards or cannot be used for certain purposes.

Water pollution can be caused by various things and have different characteristics such as disposal of factory waste into rivers and water pollution by garbage which can damage river ecosystems and cause flooding. The impact of water pollution can affect changes in the structure and function of river ecosystems both animals and plants. Water pollution and forms of activities carried out by humans such as disposing of waste that can cause environmental stress can have a harmful effect on individuals, populations, communities and ecosystems. Over time the community will be dominated by species that can live superior, stable and independent in it. Such a process is entirely called succession, while communities that have reached stability are called communities that have reached a peak or climax. Pollution in an ecosystem that is quite a lot will poison all the organisms that are in it that are in it. A decrease in species diversity can also be considered a sign of pollution. Sources of water pollution can be classified in:

1. A permanent source or origin from an identifiable location (point source). Fixed sources are all waste originating from sources that can be identified and easily controlled. Pollutants included in the fixed source include: a) originating from waste treatment areas, b) Runoff (runoff) from sanitation channels from urban areas, c) industry, d) livestock slaughtering places.
2. Non-permanent sources (non-point sources), non-permanent sources include waste originating from land runoff, from the atmosphere and sources that are difficult to identify and difficult to control. These pollution materials include: a) sediment runoff on land both naturally caused by human activity, b) runoff of chemicals such as fertilizers, pesticides from agricultural areas, c) sedimentation due to mining, damd) oil spills and other hazardous materials.

Based on government regulation No. 82 of 2001 concerning water quality management and water pollution control, water quality management and water pollution control activities are carried out in an integrated manner using an ecosystem approach. The integration is carried out through the stages of planning, implementation, observation and evaluation. The scope of water pollution control According to the Regulation of the Minister of Environment No. 01 of 2010 includes the inventory and identification of water

¹³ nterview, resident of Batu Merah Village on 8 August 2019

¹⁴ Interview, Batu villagers on 9 August 2019

¹⁵ Interview, Ir Margaretha Tomaso, 10 August 2019, B3 Waste Pollution Control staff

¹⁶ Interview, Batu Merah village residents on 8 August 2019

¹⁷ Interview, N. Ch. Risakota, S.Pt Head of Control and Pollution and Environmental Damage in Ambon City, August 6, 2019

¹⁸ Interview, N. Ch. Risakota, S.Pt Head of Control and Pollution and Environmental Damage in Ambon City, August 6, 2019.

¹⁹ RI Regulation No 82 of 2001 concerning Management of water quality and control of water pollution

pollutant sources, determination of the capacity of water pollution loads, determination of wastewater quality standards, stipulation of water pollution control policies, licensing, monitoring of water quality, guidance and supervision and provision of information.

Strategy is a tool to achieve the goal, efforts to control water pollution require strategic planning which includes the process of analysis, formulation and evaluation of strategies. One strategic planning model is the SWOT analysis (strengths, weaknesses, opportunities and threats). According to the strategy summary generated from the SWOT analysis can be grouped into 4 (four) categories consisting of;²⁰

1. SO Strategy: This strategy is carried out by using strengths (Strength) to take advantage of opportunities (Opportunity) which consists of: Increase the enforcement of Environmental Law based on Law Number 32 of 2009, Increase leadership commitment and the availability of environmental information in order to increase the role of Dinas Ambon City Environment in handling climate change issues and mainstreaming sustainable development.
2. ST Strategy: This strategy is carried out by using the existing strengths to face various threats, which consist of: Use the authority of the government in the field of environment to control environmental pollution / destruction as well as forest and land fires, Expand public access to information the environment which is owned by the Ambon City Environment Office to increase the role of the community in the protection / conservation of natural resources.
3. WO Strategy: This strategy is a step to minimize weaknesses to take advantage of existing opportunities; Increase the number of environmental quality monitoring tools and infrastructure and the funds available to implement environmental MSS in the city of Ambon.
4. WT Strategy: This strategy is implemented with the intention of minimizing weaknesses to reduce threats. This strategy consists of: Increasing the ability of environmental law enforcement so that it can handle the business world that violates environmental laws can be optimized, Increase infrastructure and funds available to control environmental pollution / destruction of forest and land fires.

In this SWOT analysis of pollution control indicators are used as a basis for assessing the strengths, weaknesses, opportunities and threats in the current effort to control water pollution. These indicators are determined based on the elements that influence the level of river pollution and the principles of pollution control. The elements used in this analysis are: 1) The physical condition of the river, an element that explains the current environmental condition of the river with the problems faced and the potential that exists physically, this element includes the level of water pollution. Pollution, efforts to control water pollution, is an element that explains the efforts to control water pollution that have been carried out by the government and the community, to reduce the level of water pollution; a) Monitoring water quality, b) Determination of the capacity of water pollution load, c) Determination of wastewater quality standards, d) Preparation of WWTP, e) Inventory and identification of sources of water pollution. The attitude and behavior of the community, is an element that explains the attitudes and behavior of the local community in efforts to control water pollution, both of which are both supportive and hindering the success of water pollution control including; a) Disposal of industrial waste, b) Disposal of residential waste, c) Disposal of livestock waste, d) Awareness of compliance with applicable regulations, e) Knowledge in waste treatment.

The role of the Government in efforts to control water pollution, is an element that explains the policies of the central government, provincial governments, district governments and related agencies regarding water pollution control, both supporting and inhibiting, including: a) Licensing for disposal of wastewater from water sources, b) Provision of information, c) Determination of water pollution control policies, d) Guidance and supervision, e) Coordination between agencies concerned in controlling water pollution, d) Application of the concept of community participation in the implementation of water pollution control activities. Now the condition of the Batu Merah River water is very alarming. This can be seen from the development of community activities along the Batu Merah river area and the large number of residents living along the Batu Merah river. Pollution that occurs in the Batu Merah River Basin (DAS) due to the large number of factories dumping river waste is the main cause of the decline in the quality of the Siak river water, not to mention household rubbish which more or less influences the destruction of the Batu Merah river ecosystem.

Management of water quality to the Batu Merah River Pollution Level that from the highest Batu Merah river water temperature was obtained in 2017 and the lowest in 2015; The highest pH was found in 2016 and the lowest in 2018; Highest TSS in 2015 and lowest in 2016; DO is highest in 2017 and lowest is 2018; Highest BOD in 2016 and lowest in 2015; and the highest COD in 2016 and the lowest in 2018. The water quality of the Batu Merah Ambon River from 2015 to 2018 shows a significant difference. Each measurement parameter has a difference from year to year. This is because natural activities and people experience significant changes every year.

Water quality reflects water status based on physical and chemical aspects through a periodic set of measurements. Batu Merah River is a type of periodic river that flows through the middle of Ambon city. The high activity of the people who live around the river flow causes the river to become polluted and not suitable for the community to function. In managing water quality and controlling water pollution, there are three possibilities for the intersection of authority, namely: (a) between agencies that have different main tasks and functions (tupoksi); (b) between administrative regions; and (c) between Environmental Permit giver and PPLH Permit. An important point of these three possibilities is the mechanism of coordination with agencies authorized to oversee other instruments.²¹

(a) Interaction between agencies with different main functions

Although it is not directly related to monitoring activities, it is important to understand the duties of various agencies related to water pollution control. In addition to environmental agencies under Law No. 32 of 2009, here are some agencies that have the task of influencing the control of water pollution.

Table 1
Agencies That Have Principal Tasks In Water Pollution Control

Mandate	Relevant Principal Tasks	Agencies
UU no. 11 of 1974 concerning Irrigation ("Law 11/1974")	Management of water resources (water use rights) • Drinking water supply system • Waste water and environmental drainage management systems (including sanitation) • Solid Waste • Construction of related infrastructure with water; and • Coordination of all arrangements for planning, technical planning, supervision, business, maintenance, and protection and use of water and / or water sources	Public Works
UU no. 41 of 1999 concerning Forestry ("Law 41/1999")	• Land use management • Management of conservation areas • Watershed rehabilitation	Living environment* (Now the Ministry of Environment and Forestry)
UU no. 5 of 1990 concerning Conservation of Biological Natural Resources and their Ecosystems ("Law 5/1990")	Protection of species in territorial waters • Protection of habitat in	Environmental and forestry* (Now the Ministry of Environment and Forestry)
UU no. 26 of 2007 concerning Spatial Planning (Law 26/2007)	• Arrangement and supervision of spatial planning • Implementation of spatial planning • Coordination of spatial planning across sectors, across regions and across stakeholders	Spatial
UU no. 25 of 2004 concerning Development Planning Systems (Law 25/2004)	• Coordination between development actors • Guaranteed integration, synchronization, and policy synergy between regions, between spaces and between times • Consistency of planning, budgeting, implementation and supervision • Monitoring and evaluation of the implementation of development plans	Development and Financial Planning Agency
UU no. 18 of 2008 concerning Waste Management ("Law 18/2008")	• Development and increase public awareness in waste management • Technology research and development (including local specific technology), waste reduction and handling • Facilitating, developing and implementing waste reduction, handling and utilization efforts • Provision of waste management facilities and infrastructure • Coordination between government agencies, communities and the business world so that there is solid waste management	Environment and Public Works

Source: *Guidebook for Supervision and Law Enforcement in Water Pollution*

In addition to the above agencies, there are also several other relevant agencies in the field of natural resource management, but their authority still refers to the authority above. Related sectors include: mineral and coal mining, plantations, agriculture, public infrastructure, and industry / manufacturing.

(b) Interaction between administrative regions

²⁰ Rangkuti, F. SWOT Analysis (Jakarta: Gramedia Pustaka Utama, 2006), p.20

²¹ Henri Subagiyo, Handbook for Supervision and Law Enforcement in Water Pollution, (Jakarta: Indonesia Center for Environmental Law (ICEL), 2017), p.7

In principle, the supervisory authority is inherent in the authority of the permit. However, related to planning, recovery and mitigation, authority depends on the flow of the river. The division of authority is as follows:

TABLE 2
Agencies That Have Principal Tasks In Water Pollution Control

Mandate	In the Regency / City	Inter-Regency / City	Cross-Province
Inventory and identification of water pollutant sources (Article 20 PP No. 82 of 2001)	Regent / Mayor	Governor	Minister
Water quality monitoring (Article 13 PP No. 82 of 2001)	Regent / Mayor	Governor	Minister
Determination of water class (Article 9 PP No. 82 of 2001)	Regent / Mayor	Governor	Minister
Determination of Water Quality Standards (Articles 10-12 PP No. 82 of 2001)	Regent / Mayor *	Regent / Mayor *	Regent / Mayor *
Establishment of DTBPA (Article 20 PP No. 82 of 2001)	Regent / Mayor	Governor	Minister
Determination of BMAL (Article 21 PP No. 82 of 2001)	Minister / Governor *	Minister / Governor *	Minister / Governor *
Determination of water pollution control policies	Regent / Mayor	Governor	Minister
Determination of Environmental Permit (Article 47 paragraph (1) PP No. 27 of 2012)	Regent / Mayor	Governor	Minister
Licensing (IPLC, Waste Water Utilization Permit) (Article 41 and article 36 PP No. 82 of 2001)	Regent / Mayor	Regent / Mayor	Regent / Mayor
Licensing (Injection Permit) (Permen LH No. 13 of 2007)	Minister	Minister	Minister
Guidance (for permit holders) (Article 43 PP No. 82 of 2001)	Giver of Permission	Giver of Permission	Giver of Permission
Guidance (for the community) (Article 43 paragraph (3) PP No. 82 of 2001)	Regent / Mayor	Governor	Minister
Supervision (Article 71 paragraph (1) of Law No. 32 of 2009)	Giver of Permission	Giver of Permission	Giver of Permission
Law enforcement (Article 76 paragraph (1) of Law No. 32 of 2009)	Giver of Permission	Giver of Permission	Giver of Permission
Provision of information (Article 33 PP No. 82 of 2001)	Regency / city government	Provincial government	Minister

Source: Guidebook for Supervision and Law Enforcement in Water Pollution

*) KET: The Minister establishes national water and wastewater quality standards; and the government can set stricter quality standards and / or add parameters.

***) KET: Authority to issue Environmental Permits based on the authority to issue Environmental Feasibility Decisions or UKL-UPL Recommendations.

For supervisory officials, the distribution of governmental authority in the context of controlling water pollution becomes important in terms of:²² 1) The impact of pollution is felt in a different administrative area (for example: in the downstream) with an administrative area that grants a waste water discharge permit and / or an Environmental Permit (for example: in the upstream); and, 2) Government performance in the upstream administrative region will greatly influence pollution control in the downstream (for example: related to the cumulation of pollutant sources or water discharge). In both cases, there is a possibility that complaints will be received by environmental agencies that do not have the authority to monitor polluters / sources of impact. In the event that a complaint is received by an environmental agency that does not have the authority to supervise pollutants / sources of impact, the agency submits follow-up recommendations to other work units or related agencies authorized to follow up on the complaint (see Article 25 paragraph (2) Regulation of the Minister of the Environment No P22 / MenLHK / Setjen / Set.1 / 3/2017 concerning Procedures for Managing Complaints over Suspected Pollution and / or Environmental Damage and / or Forest Damage).

(c) Interaction between the authority granting Environmental Permit and PPLH Permit

There is a difference regarding the basis for determining authority between Environmental Permits and the three types of PPLH Permits related to water pollution control (Ivalerina, 2016) that affect their supervisory authority. What is meant by these three types of PPLH permits are IPLC, Wastewater Utilization Permit, and Injection Permit.

TABLE 3
Authority to grant Environmental Permit and PPLH Permit, Procedure, Period and Reporting

Environmental Permit (PP No. 27 of 2012)	IPLC and Waste Water Utilization Permit (PP No. 82 of 2001)	Injection permission (LH Regulation No. 13 of 2007)
The authority to grant licenses is based on the authority to evaluate AMDAL / UKL-UPL and SKKLH, that is based on the type of business plan or activity and its scale / magnitude.	The authority is determined based on legislation, that is, by the Regent / Mayor.	The authority is determined based on legislation, namely by the Minister.
Must be obtained before the business operates (before there is a business license)	Obtained as part of the requirements for an Environmental Permit (after the existence of an Environmental Permit)	Obtained as part of the requirements for an Environmental Permit (after the existence of an Environmental Permit)
Valid as long as the Business License is valid	Valid for 5 (five) years and can be extended (unless otherwise specified in the Regional Regulation)	Valid for 5 (five) years and can be extended
Report every 6 (six) months	Report every 3 (three) months	Report every 6 (six) months

Source: Guidebook for Supervision and Law Enforcement in Water Pollution

In accordance with Article 72 of RI Law No. 32 of 2009, supervision is carried out on the compliance of those responsible for the business and / or activity with respect to Environmental Permits.²³ This shows that the Environmental Permit is the object of supervision. The relationship between supervision and licensing is also regulated in RI Law No. 30 of 2014 concerning Government Administration ("Law No. 30 of 2014"). Article 39 Paragraph (2) Letter b of Law no. 30 of 2014 states that the decision of a Government Agency and / or Officer is in the form of a permit if the activities to be carried out are activities that require special attention and / or comply with statutory provisions. The purpose of requiring special attention to the letter b is that every effort or activity carried out or carried out by the Citizens, in order to maintain public order, the Government Agency and / or Officer needs to give attention and supervision.²⁴ Based on these provisions it can be concluded that each decision in granting a permit requires follow-up in the form of supervision

1. Enforcement of Environmental Law

Law enforcement is an effort to uphold the norms / rules and legal values that are behind the norm. The value of law is the achievement of the condition of preservation of environmental capabilities. Enforcement of environmental law is an effort to achieve compliance with regulations and requirements in legal provisions that apply generally and individually, through supervision and determination (or threat) of administrative, criminal and civil facilities. In general, environmental law enforcement officers are categorized as: Police, prosecutors, judges, legal advisors, officials / agencies that have the authority to give permits (Ministry of Environment and Provincial, Regency and

²² Ibid, p.11

²³ RI Law No. 32 of 2009 concerning Environmental Protection and Management

²⁴ RI Law No. 30 of 2014 concerning Government Administration

City Government Agencies responsible for the environment). As well as parties related to environmental management such as Non-Governmental Organizations (NGOs), communities, entrepreneurs and the journalism.²⁵

Law enforcement as a concrete form of the application of law greatly affects the feeling of law, legal satisfaction, legal benefits, legal needs or justice individually and socially. But because law enforcement cannot be separated from the rule of law, legal actors and the environment in which the law enforcement process occurs, it is not possible to solve the problem of law enforcement if only glance at the law enforcement process, moreover it is more limited to the administration of justice.²⁶

Regarding environmental law enforcement Ninik Suparni (a member of the Indonesian prosecutors association) emphasized that environmental law enforcement is an effort to achieve compliance with regulations and requirements in general and individual legal provisions, through supervision and application in administrative, civil, criminal matters. For this reason, law enforcement can be carried out preventively, namely law enforcement efforts to prevent environmental pollution. And can also be done in a repressive manner, namely law enforcement efforts to take legal action to anyone who violates the applicable provisions.²⁷

Enforcement of environmental law is closely related to the ability of the apparatus and the community's compliance with applicable regulations. In Indonesia the regulations governing environmental protection are regulated in Law No. 32 of 2009 concerning Environmental Protection and Management. In the regulation, there are 3 ways in which law enforcement can be done in an effort to protect the environment. include: Administrative law enforcement, criminal law enforcement, and civil law enforcement.

2. Law Enforcement on Environmental Administration

Administrative law enforcement through 2 ways, namely the way of supervision and administrative sanctions. Supervision if we see in Article 71 of Law No. 32 Year 2009, namely supervision is carried out by 2 parties, namely the government and the community. The role of government oversight in Article 71 of Law No. 32 Year 2009 is stated to be carried out by the Governor, Mayor or Regent. In Article 71 number 2 of Law No. 32 of 2009 Stating that role can be delegated to the authorities. The role of the authorized official is: a) Conducting monitoring, b) Requesting information, c) Making copies of documents, d) Making notes needed, e) Entering a certain place, f) Taking photos, g) Making audio-visual recordings, h) Taking samples, i) Checking equipment, j) Checking installation, k) Stopping certain violations. While the role of the community according to Article 70 of Law No. 32 of 2009 concerning the role of the community are: a) Social oversight, b) Providing suggestions, opinions, proposals, objections, complaints, c) Submission of information and reports. The administrative sanctions according to Government Regulation No 27 of 2012 concerning Environmental Permits, namely the Regional Head (Governor, Mayor and Regent) can impose administrative sanctions to those who commit violations. Sanctions given under Article 71 PP No. 27 of 2012 concerning environmental permits are: a) Written warning, b) Government coercion, c) Suspension of environmental permit, d) Revocation of environmental permit.

3. Environmental Criminal Law Enforcement

Criminal regulation which can be the basis of law enforcement for environmental law is Law No. 32 of 2009 concerning Environmental Protection and Management. According to the provisions in the regulation, there are acts that can be criminalized by law enforcement officers. The intended legal acts are in the form of violations of the provisions stipulated in the UUPPLH. There are at least 7 provisions that can be convicted if the provisions are violated by the parties concerned. The provisions in question are: a) Provisions on quality standards, b) Provisions on genetic engineering, c) Provisions on Waste, d) Provisions on Land, e) Provisions on Environmental Permits, f) Provisions on Environmental Information

4. Environmental Civil Law Enforcement

Enforcement of environmental law in the civil field can be done as an effort to prosecute losses experienced by the community due to pollution or environmental damage and efforts to preserve environmental functions as well as effective supervision and law enforcement, so as to provide a deterrent effect on perpetrators of environmental destruction. The enforcement effort is carried out in 3 ways, namely: a) Class Action or Community Lawsuit, Class Action or community lawsuit in regulated in Article 90 of Law No. 32 Year 2009. The public has the right to file a group representative's lawsuit for its own interests or for the benefit of the community if it suffers a loss due to pollution or environmental damage. A claim can be filed if there are similarities in facts or events, the legal basis, and the types of claims between group representatives and group members. b) Organizational Rights, Organizational rights are themselves regulated in Article 92 of Law No. 32 of 2009, this right can be granted in the context of carrying out environmental protection and management responsibilities, environmental organizations have the right to file a lawsuit in the interests of preservation of environmental functions. The right to file a lawsuit is limited to demands for certain actions without any claim for compensation, except for real costs or expenses. An environmental organization can file a lawsuit if it meets the following requirements: a) In the form of a legal entity, b) Affirms in its articles of association that the organization was established for the purpose of preservation of environmental functions, c) Has carried out real activities in accordance with its articles of association for at least 2 (two) year. c) Government Lawsuit both central and regional government, Government lawsuit rights based on Article 90 of the UUPPLH, Government agencies and regional governments responsible for environmental matters have the authority to file compensation claims and certain actions against businesses or activities that cause pollution or damage the environment which results in environmental losses.

Supervision and Law Enforcement are some of the tools that can be utilized in overcoming environmental problems, including water pollution. For water pollution, especially rivers, which are not insignificant due to the contribution of businesses and/or activities, supervision and law enforcement are useful to ensure the level of compliance of those responsible for the business and / or activity. With effective supervision and law enforcement, it is expected to have a deterrent or warning effect to those responsible for the business and / or other activities so as not to repeat the same violation. In the framework of Law Number 32 Year 2009 concerning Management and Environmental Protection ("Law No. 32 Year 2009"), supervision is part of the law enforcement mechanism. The main purpose of supervision is to monitor, evaluate and determine the status of compliance with business and / or activities responsible for the laws and regulations in the field of environmental protection and management ("PPLH"), environmental licensing, as well as environmental management and monitoring obligations in environmental documents. In relation to water quality, supervision has the following important values: 1) ensuring the control of pollutants entering the water sources of certain pollutants (point sources) runs according to the permit, by complying with the required conditions; and 2) verifying the accuracy of the monitoring, monitoring and monitoring information provided by the activity and / or business in the report. Water pollution control itself is only one part of the overall water quality management framework, including efforts to prevent and control water pollution and restore water quality to ensure water quality in accordance with water quality standards. As part of the law enforcement mechanism, supervision is downstream.

IV. CONCLUSION

From the discussion that has been presented, it is seen from the implementation of control activities carried out by the Ambon City Environment and Solid Waste Department on liquid waste in the Batu Merah River watershed that is already good but not yet optimal. The community is also less aware of the awareness of preserving the environment, especially in the Batu Merah River watershed. So the strategy undertaken by the Ambon City Environmental and Waste Management Office in dealing with water pollution and water quality degradation so that river water can be utilized in accordance with its purpose and is sustainable as follows:

1. Increase inventory and identification of water pollutant sources

Inventory of sources of pollution is needed to determine the cause of the decline in water quality. This is because the source of water pollutants that will be identified will always develop from time to time depending on the dynamics of development, economic, social and cultural growth of the local community. Inventory is carried out with the aim to characterize pollutant streams in the environment, while identification is carried out to identify and classify types of pollutants, sources and locations and the effects of impacts on the environment.

2. Improving waste management

Efforts to reduce pollution of liquid waste in rivers is by managing waste before being discharged into the river. Waste management can be done by making WWTPs.

3. Determine the capacity of the pollution load

Determination of pollution capacity can be used as a material for consideration and policy in determining spatial planning, giving business licenses / activities that affect water quality both directly and indirectly. Give an environmental permit for wastewater from a water source and is used as a basis for allocating the burden obtained into water sources from various pollutant sources so that appropriate control measures can be implemented so that the specified water quality standards can be met or the target water quality can be achieved.

4. Increase community knowledge and participation in waste management

²⁵ Aditia Sapriallah, Textbook for Environmental Law, (Yogyakarta: CV. Budi Utama, 2016), First Printing, p. 110-111

²⁶ Bagir Manan, Upholding the Law A Search, in the Enforcement of Justice with justice, (Jakarta: Indonesian Advocacy Association, 2009) p.52

²⁷ Syahrul Mahmud, Indonesian Environmental Law Enforcement, p, 20

Increasing community knowledge in waste management is done by conducting socialization and training. Public awareness to maintain cleanliness and health also needs to be improved. This is necessary to prevent the community from carrying out garbage disposal in the river or using river banks as a place for garbage disposal.

5. Improve supervision of waste water disposal

Water pollution can be minimized by monitoring the disposal of river wastewater. Supervision is carried out to ensure the implementation of the requirements stated in the environmental permit for the disposal of river waste water and the technical requirements for water pollution control that are listed in the AMDAL or UKL / UPL documents. The results of the implementation of supervision can be used as a reference in developing structuring or law enforcement.

6. Improve monitoring of river water quality

Efforts to monitor river water quality can be done routinely measuring river water quality parameters and checking waste generated from industrial activities that dispose of Batu Merah river waste.

The things that can be done in conducting coaching can be in the form of: providing socialization or campaigns related to the application of legislation related to water pollution control, providing information on technical guidelines and licensing procedures related to water pollution control; or provide information regarding the application of clean technology to prevent water pollution.

REFERENCE

- 1) A. Chay. Hydrology and Management of Watersheds., Yogyakarta: Gaja Mada Press, 2004
- 2) Barus, T. A. Introduction to the Limnology Study on Inland Water Ecosystems, Medan: USU Press, 2004
- 3) Effendi H, Quality Study for Water Resources and Environmental Management, Fifth Printing, Yogyakarta: Kanisuis, 2005.
- 4) Eugene Odum P, Fundamentals of Ecology, Yogyakarta: Gajah Mada University Press, 1993.
- 5) Hanum Decomposition of Organic Material in Tofu Liquid Waste. Yogyakarta: Indonesian Islamic University. 2006
- 6) H. Ghufuran, Water Quality Management in Aquaculture, Jakarta: Rineka Cipta, 2007
- 7) Irawan, Zoer'aini Djamal, Ecosystem Ecology Principles, Environment and Conservation, Jakarta: Bumi Aksara, 2012.
- 8) Kristanto Philip, Industrial Ecology, Yogyakarta: Andi Offset, 2004
- 9) Kaswinarni, F ... "Technical Study of Tofu Industry Solid and Liquid Waste Management". Thesis. Semarang: Diponegoro University's Environmental Sciences Study Program. 2007
- 10) Mulia Ricki M., Environmental Health, Yogyakarta: Graha Science, 2005
- 11) N. H. T. Siahaan, Environmental Law and Development Ecology, Jakarta: Erlangga, 2004
- 12) Rahmadi Takdir, Environmental Law, Jakarta: PT RajaGrafindo Persada, 2000.
- 13) Soegianto Agoes, Freshwater Ecology, Surabaya: Publishing and Printing Center (AUP), 2010.
- 14) Salmin, Dissolved Oxygen (Do) and Biological Oxygen Demand (BOD) as one indicator to determine the quality of waters. ISSN 01216-1877, Osema, Volume XXX, Number 3, 2005.
- 15) Sastrawidjaya A. Tresna, Environmental Pollution, Jakarta: Rineke Cipta, 2009.
- 16) Soegianto Agoes, Freshwater Ecology, Surabaya: Aup Publishing and Printing Center, 2010.
- 17) Wardana. Characteristics of Tofu BOD (Biochemical Oxygen Demand) Waste. Yogyakarta: Indonesian Islamic University, 2004
- 18) Zulkifli and Ami, BOD (Biochemical Oxygen Demand) Value, Yogyakarta: Indonesian Islamic University, 2007
- 19) Zulkifli, Arif. Fundamentals of Environmental Sciences, Jakarta: Salemba Teknika, 2014
- 20) Law No. 32 of 2009 concerning Environmental Protection and Management RI Regulation No. 82 of 2001 concerning Management of Water Quality and Water Pollution Control.
- 21) Government Regulation No. 38 of 2011 concerning Rivers
- 22) Decree of the Minister of Environment No. 142 of 2003 regarding the Guidelines regarding the requirements and procedures for licensing and study of the disposal of wastewater into water or water sources
- 23) Regulation of the Minister of Environment No. 1 of 2010 concerning the procedures for water pollution control
- 24) PP No. 82 of 2001 concerning Management of Water Quality and Water Pollution Control
- 25) Minister of Environment Regulation No. 19 of 2008 concerning Minimum Service Standards (SPM) for the Provincial and Regency / City Environmental Areas
- 26) Minister of Environment Regulation No. 20 of 2008 concerning Technical Guidelines for Implementing District / City SPM
- 26) Minister Regulation No. 38 of 2011 concerning Rivers
- 27) Decree of the State Minister for the Environment No. 115 of 2003 concerning Determination of Water Quality Status
- 28) Minister of Public Works Regulation No. 04 / PRT / M / 2015 concerning Criteria and Determination of River Basin Areas