Government Regulation Number 20/1990 on Control of Water Pollution

The President of the Republic of Indonesia

Considering:

a. that water is a natural resource which is vital for the livelihood of people, and that it is necessary to maintain its quality, so that it may be beneficial for the livelihood of mankind and other living organism;

b. that in order that the benefits of water may be enjoyed continuously and consistenly at the necessary level of quality, it shall be necessary to control pollution of the water;

c. that with regard to the above, it is considered necessary to issue a Government Regulation on the Control of Water Pollution.

In View of:

1. Article 5 paragraph (2) of the 1945 Constitution;
2. Act Number 9 of the Year 1960 concerning the Principles of Health (State Gazette of the Year 1960 Number 131 , Addition to the State Gazette Number 2063);
3. Act Number 2 of the Year 1960 concerning Hygiene (State Gazette of the Year 1966 Number 22, Addition to the State Gazette Number 2084);
4. Act Number 11 of the Year 1974 concerning Water Works (State Gazette of the Year 1974 Number 65, Addition to the State Gazette Number 3037):
5. Act Number 5 of the Year 1974 concerning the Principles of Regional Governments (State Gazette of the Year 1974 Number 38 , Addition to the State Gazette Number 3037);
6. Act Number 4 of the Year 1982 concerning the Principles of the Management of the Living Environment (State Gazette of the Year 1982 Number 12, Addition to the State Gazette Number 3215);
7. Act Number 5 of the Year 1984 concerning Industries (State Gazette of the Year 1984 Number 22, Addition to the State Gazette Number 3274);
8. Act Number 9 of the Year 1985 concerning Fisheries (State Gazette of the Year 1985 Number 37, Addition to the State Gazette Number 2063);
9. Government Regulation Number 22 of the year 1982 concerning Water Management (State Gazette of the Year 1986 Number 37, Addition to the State Gazette Number 3225);
10. Government Regulation Number 29 of the year 1986 concerning Analysis of Impact on the Environment (State Gazette of the Year 1986 Number 42, Addition to the State Gazette Number 3338);

Has decided to issue: A Government Regulation Concerning the Control of Water Pollution

CHAPTER I - GENERAL PROVISIONS

Article 1

The following definitions are adopted in this Government Regulation;

1. **Water** means all the water that is present in or is derived from water sources, and is found the surface of the ground, not Including water that is present below the surface of the soil, or sea water;
2. **Pollution of water** means anything and everything that has entered into the water, i.e. living organisms, materials, energy and/or other components that have entered into water by human activities, that cause the deterioration of the quality of water to a certain level, and that pursuant to its function, causes water to no longer meet its function:
3. **Control** means efforts to prevent and/or control and/or restore;
4. **Water Quality Standards** shall mean the limit or concentration of any organism, material, energy, or other components and/or the tolerable pollutant level existing in a particular water source, pursuant to the designated uses of the water as designated herein;
5. **Pollution load** means the measure of a pollution parameter that indicates the total pollution amount in a given unit of time;
6. The **capacity to assimilate pollution load** means the capacity of the water source to absorb to a pollution load without causing the quality of the water to decrease to less than the water quality standard established for the beneficial use of the water;
7. **Effluent quality standard** means the limit of the content and the amount of pollution parameters that are carried in effluent from certain types of activities and which shall be removed;
8. The **Minister** means, the Minister assigned to manage the living environment.

CHAPTER II - INVENTORY OF QUALITY AND QUANTITY OF WATER

Article 2

The Provincial Governor shall for the purpose of exercising control of water pollution, appoint in his province the technical authority which shall make inventories of the quality and quantity of water.

Article 3

1. The Governor of a Province shall determine priorities in the execution of making inventories of the quality and quantity of water;

2 If a water source flows through or represents the boundary between, two of more Provinces, the priority as mentioned in paragraph (1) shall be determined by the Governors of the respective Provinces under the coordination of the Minister.

Article 4

1. Water and quantity data shall be prepared and documented by the technical authority that is responsible for the management of the living environment in the region;

2. The quality and quantity data as mentioned in paragraph (1) shall be processed by the technical authority concerned and at least once a year, a report shall be submitted to the Minister and the Governor

of the Province concerned.

Article 5

1. The Provincial Governor shall identity sources of water pollution;

2. Pursuant to the results of the identification as mentioned in paragraph 1, the Governor of the province concerned, shall determine measures for the control of water pollution.

Article 6

Water quality and quantity data as mentioned in Article 4, may be used for the following purposes:

a. as the basis for considerations concerning water uses and water quality standards of the water sources concerned;

b. as the basis for calculations on the carrying capacity for pollution loads in reference to pre-determined uses of the water sources;

c. as the basis for evaluation of the level of water pollution.

CHAPTER III - CATEGORIES OF WATER

Article 7

1. The categories of water pursuant to their uses, have been determined as follows:

Category A: Water that may be used directly as drinking water without any previous treatment:

Category B: Water that may be used as raw water for drinking water;

Category C: Water that is may be used for fisheries and for livestock;

Category D: Water that may be used for agricultural purposes and may also be utilized for small business in cities, industries, and hydro-electric electric generation.

2. Expanded beneficial uses of water outside the categories mentioned in paragraph 1 may also be determined with this Goverment Regulation.

Article 8

1. The water quality standards as mentioned in Article 7 are determined as shown in the Appendix of this Government Regulation:

2. Additional parameters and standards for parameters mentioned in the water quality standards described in paragraph 1, may be determined with this Government Regulation:

3. The evaluation of water quality related to parameters that are not mentioned in the water quality standards mentioned in paragraph 1 shall be carried out by scientifically considering function and the use of the water.

Article 9

The analitycal methods for every parameter referred to in water quality standards and effluent standards, shall be determined by the Minister.

Article 10

1. The Provincial Governor shall:

a. Pursuant to the categories of water mentioned in Article 7 paragraph 1, determine the beneficial use of water;

b. Pursuant to the use of water as mentioned in paragraph a above, determine the water quality standards.

2. The beneficial water uses and water quality standards. for water which is, flows trought, or forms the boundaries of two or more Provinces are determined by the Governors of the Provinces involved, with coordination by the Minister.

3 Tile beneficial water uses and the water quality standards that are subordinate to the authority of certain management boards as mentioned in Act No. 11 of the year 1974 concerning water works, shall be determined by the Minister who is responsible for the aforesaid water works, after consultation with the Minister.

Article 11

If the quality of the water is lower than the water quality standards according to the category already determined, the Provincial Governor shall establish a program designed to raise the quality of water.

Article 12

If the quality of water meets the water quality standards according to the category already determined, the Provincial Governor shall establish a program designed to raise the level of the aforesaid Water use Category.

CHAPTER IV - CONTROL EFFORTS

Article 13

1. The Provincial Governor shall exercise control of water pollution in his province;

2. The control of pollution of water sources that are present in or are flowing through one or more provinces, shall be exercised by the Governor of the Province concerned, after consultation with the Minister.

Article 14

The Provincial Governor shall determine the capability to assimilate pollution loads.

Article 15

1. The Minister shall, after consultation with other Ministers and/or with the Heads of involved non-departmental institutions, determine the effluent quality standards;

2. In order to protect the quality of water. the Provincial Governor may, after consultation with the Minister, establish standards that are stricter than the effluent quality standards mentioned in paragraph 1.

Article 16

The ambient water quality standards, the capability to assimilate pollution loads, and the liquid waste quality standards, shall be regularly reviewed; at least once in every five years.

Article 17

1. Every person or body who/that discharges liquid waste shall be obliged to comply with the standards for the quality of liquid waste, as determined in the permit to discharge liquid waste that is issued to the aforesaid person/body;

2. Every person or body who/that discharges liquid waste as determined in the permit to discharge waste, is prohibited to dilute the aforesaid liquid waste.

Article 18

The discharge of waste that contains radioactive materials shall, after consultation with the Minister, be managed by the Head of the Government authority responsible in the field of atomic power.

Article 19

Discharge of liquid waste to the land may, pursuant to the results of research, be executed only with a permit from the Minister.

Article 20

The person responsible for the activity shall construct discharge channels for the discharge of liquid waste to facilitate sampling and measurement of the flow of liquid waste in an area outside the area of the aforesaid actifities.

Article 21

1. The person who discharges liquid waste into water shall be charged with the payment of retribution;

2. The procedure and the amount of retribution shall be determined in a Regulation of the Province concerned (Provincial Regulation).

Article 22

In cases where a Regional Government makes available a location, discharge channels and/or waste treatment facilities, the Regional Government may collect retribution.

Article 23

Efforts to control water pollution caused by effluent or other materials which are not discharged through channels constructed for waste discharge and/or that do not enter water sources at specific points of entry (i.e. non-point sources) shall be determined by the Minister, or, after consultation with the Minister, by non-departemental government institutions concerned.

Article 24

The Provincial Governors shall determine and announce water sources and channels that are found to be polluted and hazardous to public safety.

CHAPTER V - THE ISSUE OF LICENSES

Article 25

The effluent quality standards of effluent that is permitted to be discharged into water from a specific activity, shall be established by the Provincial Go-vernor, pursuant to the effluent quality standards as mentioned in Article 15.

Article 26

1. The discharge of liquid waste to water shall be allowed by a permit issued by the provincial Governor;

2. The permit as mentioned in paragraph 1 shall be included in the license of the Hinderance Ordinance;

3. The permit to dischartge liquid waste included in the Hinderance Ordinance permit as described in paragraph 2, shall mention the following:

a. the type of production, the production volume, and the water requirements for production;

b. the quality and quantity of liquid waste and/or other material that is permitted to be discharged into water and the frequency of the discharge;

c. the exact location of the discharge channels for liquid waste;

d. the sources of water being used in the production process and/ or for other activities. as well as the amount and the quality of this water;

e. prohibition to dilute liquid waste;

f. plans and procedures for handling emergency situations.

Article 27

1. The discharge of household domestic waste shall be regulated by a Regional Regulation;

2. The discharge of liquid waste into the sea shall be regulated by a separate regulation.

Article 28

1. Pursuant to Government Regulation Number 29 of the Year 1986 concerning Environmental Impacts Analysis for activities which must prepare an analysis of environmental impacts, the terms of reference and the obligations included in the environmental management plan and in the environmental monitoring plan for the aforesaid activity, shall also be included as a condition and obligation for the permit of the Hinderance Ordinance permit issued for the aforesaid activity;

2. If the environmental Impacts analysis for an activity requires an effluent quality limit that is more strict than the effluent quality standard as mentioned in Article 15, then the effluent quality standard as required by the Environmental Impact Analysis shall be used.

CHAPTER VI - SURVEILLANCE AND MONITORING

Article 29

1. Every person who knows of, or who suspects, the occurrence of water pollution, shall have the right to report it to:

a. the Provincial Governor the nearest Regional Government, or

b. the Head of the Regional Police or the nearest police post.

2. The nearest Regional Government agency which receives a report of the occurrence of water pollution shall be obliged to report it immediatelly to the Provincial Governor concerned;

3. The nearest Police agency that receives a report of the occurrence of water pollution shall be obliged to report it immediately to the Head of the Regional Police concerned for investigation.

4. The Provincial Governor shall immediately examine the report of the occurrence of water pollution;

5. If the result of the investigation, as mentioned in paragraph 4, proves the occurrence of water pollution, the Provincial Governor concerned shall immediately take, or order, action to cope with and/or prevent the spreading of the pollution.

Article 30

1. Surveillance of the quality of water shall be carried out by the Provincial Governor concerned;

2. The Provincial Governor concerned, may appoint a regional authority to carry out the surveillance as mentioned in paragraph 1;

3. Within the surveillance function, as mentioned in paragraph 1, are:

a. monitoring and evaluation of effluent quality standards at the locations that have been determined;

b. monitoring and evaluation of changes in the quality of water;

c. collecting and evaluation of data related to water pollution;

d. evaluation of reports on discharge of liquid waste and on analysis that have been performed by the person responsible for the activities.

4. Surveillance shall be conducted regularly and at any time that it is considered necessary;

5. If the results of the surveillance shows that water pollution has occurred, the Provincial Governor concerned shall issue instruction to tackle and/or to prevent spreading of the pollution;

6. The Provincial Governor concerned shall report the results of the Surveillance of the water quality to the Minister and to order related Ministers;

7. The Provincial Governor concerned shall determine the surveillance procedures for his province.

Article 31

1. Within the framework of executing the assignment as mentioned in Article 30 paragraph 2, the official authority is authorized to;

a. enter the environment of the source of pollution;

b. examine the performance of waste treatment equipment or other equipment required to prevent pollution of the environment;

c. take samples of the wastes;

d. request information on the quality and quantity of liquid waste, including information on the manufacturing processes.

Every person of responsibility who is is involved in the activities is obligated to;

a. permit the official, as mentioned in paragraph 1, to enter into the work environment, and is obliged to assist the official carry out his assignment;

b. provide on request, true information, verbally or in writing.

Article 32

1. Each person of responsibility who is involved in the activities is obliged to submit to the Provincial Governor concerned;

a. reports on effluent discharge and the results of analysis at least once every 6 (six) months

b. a statement that the submitted report constitutes a true report which represents the quality of liquid waste that has actually been discharged.

2. Guidelines and procedures for the reports shall be established by the Provincial Governor concerned or by the authority appointed for this purpose.

Article 33

1. If the effluent discharge constitutes a violation of the provisions of the effluent quality standards, as mentioned in Article 15, the Provincial Governor shall issue a warning letter to the responsible person to meet the terms of the effluent quality standard within a specified time period;

2. If, at the end of the time period, as determined in paragraph 1, the effluent does not yet meet the effluent quality standards, the Provincial Governor concerned shall revoke the permit to disharge liquid waste.

Article 34

1. The Minister shall, pursuant to the control of water pollution, appoint a laboratory at the Central Government level;

2. The Provincial Governor concerned shall, pursuant to surveillance and monitoring of water pollution, appoint a laboratory in his province, to conduct water quality and effluent quality analysis.

CHAPTER VII - FINANCING

Article 35

1. The costs of making inventories of the quality and quantity of water, as mentioned in Article 2, shall be charged to the budget of the region.

2. The costs of surveillance of water pollution shall be charged to the budget of each region.

Article 36

1. The costs of prevention, handling, and restoring of polluted water caused by an activity shall be charged to the party responsible for the aforesaid activity;

2. If the party responsible for the aforesaid activity fails to execute the handling of water pollution, as mentioned in paragraph 1 or does not execute it properly, the Provincial Governor concerned may execute the handling, or issue instructions to execute the handling, of the aforesaid water pollution on behalf of the party responsible for the aforesaid activity;

3. If he considers it necessary, the Bupati/Walikotamadya (City Mayor), or Head of a Level II Area, may on behalf of the Provincial Governor concerned, take measures, as mentioned in paragraph 2, and charge the costs to the party responsible for the aforesaid activity.

CHAPTER VIII - SANCTIONS

Article 37

1. Administrative measures of the Bupati/Walikota Madya Level II Area shall be applied to whomsoever violates the provisions of Article 17, Article 19, Article 20 and Article 32 of this Government Regulation;

2. The administrative measures, as mentioned in paragraph 1 shall not exclude the possibility of applying other legal measures

CHAPTER IX - TRANSITION

Article 38

If for a certain type of activity the effluent standard as mentioned in article 15 has not yet been determined, the standards for effluent that may be discharged into water shall, after consultation with the Minister be determined by the Provincial Governor.

Article 39

If, at the date of the enactment of this Government Regulation the standards for effluent that may be discharged into water have already been established for a certain activity, and this standard is more strict than the standard as mentioned in Article 15, then the effluent standard that has already been determined shall apply to the aforesaid activity.

Article 40

If, at the date of the enactment of this Government Regulation, the effluent quality standards that have already been established for a certain activity are less strict than the standards for that activity, as mentioned in article 15, the effluent standards for the aforesaid activity shall be adjusted to the effluent standards as mentioned in Article 5 within one year of the enactment of this Government Regulation.

Article 41

Current activities shall have obtained a permit to discharge liquid waste from the Provincial Governor, within one year of the enactment of this Government Regulation.

Article 42

1. If at the date of the enactment of this Government Regulation, the categorization of water according to its purpose as mentioned in Article 7 of this Government Regulation, has not yet been determined, the category of water for the aforesaid body of water shall be declared as Category B Water, until the Provincial Governor issues a further decree based on the provisions of Article 10 of this Government Regulation;

2. A water body, as mentioned in paragraph 1 of this Article, shall be determined to be Category A, if:

a. it meets the quality standards of Category A, as mentioned in Article 7 of this Government Regulation, or

b. is located within the area of a Protected forest, or

c. is located near a spring

CLOSING PROVISIONS

Article 43

This Government Regulation comes into force on the date of its enactment. In order that every person shall be informed there of, instruction have been issued to have its enactment published in the State Gazette.

Issued In Jakarta on 5 June 1990

The President of the Republic of Indonesia
(signed) Soeharto

enacted in Jakarta on 5 June 1990

Minister/Secretary of State of the Republic of Indonesia
(signed) Moerdiono

State Gazette of the Republic of Indonesia of the year 1990 Number 24

APPENDIX

1. Criteria of Water Quality Category A

No	Parameter	Unit	Max Concentration	Notes
	Physical			
1	Ordor	---	---	Ordorless
2	Total Dissolved Solid Substances (TDS)	mg/L	1000	
3	Turbidity	NTU Scale	5	
4	Taste	---	---	Tasteless
5	Temperatur	ºC	Air Temperatur ± 3ºC	
6	Colou	TCU Scale	15	
	Chemical **a. Inorganic Chemicals**			

1	Mercury	mg/L	0,001	
2	Alumunium	mg/L	0,2	
3	Arsenic	mg/L	0,05	
4	Barium	mg/L	1,0	
5	Iron	mg/L	0,3	
6	Fluoride	mg/L	0,5	
7	Cadmium	mg/L	0,005	
8	$CaCO_3$ Hardness	mg/L	500	
9	Chlorida	mg/L	250	
10	Chromium (Hexavalen)	mg/L	0,05	
11	Manganse	mg/L	0,1	
12	Sodium	mg/L	200	
13	Nitrate, as N	mg/L	10	
14	Nitrite, as N	mg/L	1,0	
15	Silver	mg/L	0,05	
16	pH	---	6,5 - 8,5	Minimum and Maximum limits
17	Selenium	mg/L	0,01	
18	Zinc	mg/L	5	
19	Cyanide	mg/L	0,1	
20	Suphade	mg/L	400	
21	Sulfide as H_2S	mg/L	0,05	
22	Cooper	mg/L	1,0	
23	Lead	mg/L	0,05	
	b. Organic Chemical			
1	Aldrin dan dieldrin	mg/L	0,0007	
2	Benzene	mg/L	0,01	
3	Benzo(a) Pyrene	mg/L	0,00001	
4	Chlordane (total isomer)	mg/L	0,0003	
5	Chlorofom	mg/L	0,03	
6	2,4-D	mg/L	0,10	
7	DDT	mg/L	0,03	
8	Detergent	mg/L	0,5	
9	1,2-Dichloroethane	mg/L	0,01	
10	1,1-Dicloroethane	mg/L	0,0003	
11	Heptachtor and Hepta chlorepoxide	mg/L	0,003	
12	Hexachlorobenzene	mg/L	0,00001	
13	Lindane	mg/L	0,004	
14	Methoxychlor	mg/L	0,03	
15	Pentachlorophenol	mg/L	0,01	
16	Total Pesticide	mg/L	0,1	
17	2,4,6-Trichlorophenol	mg/L	0,01	
18	Organic Substances ($KMnO_4$)	mg/L	10	
	Micro Biologycal			
1	Faecal Colliform Bacteria	Total per 100 ml	0	
2	Total Colliform Bacteria	Total per 100 ml	3	
	Radio Activity			
1	Gross Alpha Activity	Bq/l	0,1	
2	Gross Beta Actifity	Bq/l	1,0	

Particulars:
mg = miligram
ml = mililiter
l = liter
Bq = Bequerel
NTU = Nephalometric Turbidity Units
TCU = True Colour Units
Heavy metals are as dissolved metals

2. Criteria of Water Quality Category B

No	Parameter	Unit	Max Concentration	Notes
	Phiysical			
1	Temperature	ºC	Normal Water temperature	
2	Dissolved solid Substances	mg/l	1000	
	Chemical **a. Inorganic Chemicals**			
1	Mercury	mg/L	0,001	
2	Free Ammonia	mg/L	0,5	
3	Arsenic	mg/L	0,05	
4	Barium	mg/L	1	
5	Iron	mg/L	5	
6	Fluoride	mg/L	1,5	
7	Cadmium	mg/L	0,018	
8	Chlorida	mg/L	600	
9	Chromium, (Hexavalent)	mg/L	0,05	
10	Manganese	mg/L	0,5	
11	Nitrate, as N	mg/L	10	
12	Nitrite, as N	mg/L	1	
13	Dissolved Oxygen (DO)	mg/L	---	Surface water is recommended to be higher than or at least 6

14	pH	mg/L	5 - 9	
15	Selenium	mg/L	0,01	
16	Zinc	mg/L	5	
17	Cyanida	mg/L	0,1	
18	Sulphate	mg/L	400	
19	Sulphide, as H_2S	mg/L	0,1	
20	Copper	mg/L	1	
21	Lead	mg/L	0,1	
	b. Organic Chemical			
1	Aldrin dan dieldrin	mg/L	0,017	
2	Chlordane	mg/L	0,003	
3	DDT	mg/L	0,042	
4	Endrin	mg/L	0,001	
5	Phenol	mg/L	0,002	
6	Heptachlor and Heptachlor epixide	mg/L	0,018	
7	Carbon Chloroform extract	mg/L	0,5	
8	Lindane	mg/L	0,056	
9	Mehoxychlor	mg/L	0,0035	
10	Oil and Grease	mg/L	nil	
11	Organophosphate & Carbamate	mg/L	0,1	
12	PCB	mg/L	nil	
13	Methylene Blue Active Substance (surfactant)	mg/L	0,5	
14	Toxaphene	mg/L	0,005	
	Micro Biologycal			
1	Faecal Colliform	Total per 100 ml	2000	
2	Total Colliform	Total per 100 ml	10,000	
	Radio Activity			
1	Gross Alpha Activity	Bq/l	0,1	
2	Gross Beta Actifity	Bq/l	1,0	

Particulars:mg = miligram
ml = mililiter
Bq = Bequerel
Heavy metals are as dissolved metals

3. Criteria of Water Quality Category C

No	Parameter	Unit	Max Concentration	Notes
	Physical			
1	Temperature	ºC	normal water temperature ±3ºC	
2	Dissolved Solid Substances	mg/L	1000	
	Chemical **a. Inorganic Chemicals**			
1	Mercury	mg/L	0,002	
2	Free Ammonia	mg/L	0,02	
3	Arsenic	mg/L	1	
4	Fluoride	mg/L	1,5	
5	Cadmium	mg/L	0,01	
6	Free Cholorine	mg/L	0,003	
7	Chromium (Hexavalen)	mg/L	0,05	
8	Nitrite, as N	mg/L	0,06	
9	Dissolved Oxygen (DO)	mgL	---	Higher than 3 is required
10	pH	---	6 - 9	
11	Selenium	mg/L	0,05	
12	Zinc	mg/L	0,02	
13	Cyanida	mg/L	0,02	
14	Sulfide as H_2S	mg/L	0,002	
15	Copper	mg/L	0,02	
16	Lead	mg/L	0,03	
	b. Organic Chemical			
1	BHC	mg/L	0,21	
2	DDT	mg/L	0,002	
3	Endrine	mg/L	0,004	
4	Phenol	mg/L	0,001	
5	Oil and Graese	mg/L	1	
6	Organophosphate & Carbamate	mg/L	0,1	
7	Methylene Blue Active Substace (surfactan)	mg/L	0,2	
	Radio Activity			
1	Gross Alpha activity	Bq/L	0,1	
2	Gross Beta activity	Bq/L	1,0	

Particulars:mg = miligram
ml = mililiter
l = liter
Bq = Bequerel
Heavy metals are as dissolved metals

4. Criteria of Water Quality Category D

	Parameter	Unit	Max Concentration	Notes
	Physical			
	Electrical Conductivity	umhos/cm (25ºC)	2250	Depending o species of vegetation. Maximum capacity is fo tolerant spec
	Temperature	ºC	normal water tempertur	According to local conditio
	Dissolved Solid Substances	mg/L	2000	Depending o spedies of vegetation.

				Maximum Capacity if fo tolerant spec
	Chemical **a. Inorganic Chemical**			
	Mercury	mg/L	0,005	
	Arsenic	mg/L	1	
	Baron	mg/L	1	
	Cadmium	mg/L	0,01	
	Cobalt	mg/L	1	
	Chromium (Hexavalen)	mg/L	0,003	
	Manganese	%	60	
	Na (alkali salt)	mg/L	0,06	
	Nickel			
	pH			
	Selenium			
	Zinc			
	Sodium Absorptio Ratio (SAR)			Depending o species of vegetation. Maximum capacity is fo tolerant.
	Copper			
	Lead			
	Residual Sodium Carbonate (RSC)			Maximum 1.2 for sensitive sensitive species; Maximum 2,5 for lese sens species.
	Radio Activity			
	Gross Alpha activity	Bq/L	0,1	
	Gross Beta activity	Bq/L	1,0	

Particulars:--- = not required
ug = microgam
mg = miligram
ml = mililiter
l= liter
umho = micromhos
Bq = Bequerel
Heavy metals are as dissolved metals

CLARIFICATION OF GOVERNMENT REGULATION NUMBER 20 OF 1990

A. GENERAL REMARKS

Water represents a natural resource that is a vital requirement for the livelihood of people and shall therefore be protected so that its benefits for the living and livelihood of mankind and other living creatures may be enjoyed continuosly and consistenly. This means that the utilization of water for various purposes shall be carried out wisely in consideration of the interests of present and future generations.

In order that the benefits of water of a desired quality may be enjoyed continuosly and consistenly, the control of water pollution is of vital importance. The control of water pollution constitutes one aspects of the management of the living environment.

1. Water pollution means the deterioration of water to a level which causes the water to no longer function pursuant to its purpose. This means that it is necessary to establish water quality standards as a measurement device to determine whether or not water pollution has already occurred and also as a measurement device for the utillization of water. It shall be understood that what meant by water pollution and water quality standards, is that these two subject matters shall always be related to the purpose (utilization) of water. Water quality standards represent a specific level of quality that is required for a certain purpose, and as well provides direction and guidance for the control of water pollution

   By determining the water quality standards for respective purposes and by observing the condition of the water, it is possible to calculate the polluiton load that may be assimilated by the receiving water, so that respecting it's function, it still meets the terms for its beneficial use. This pollution load constitutes the capacity of receiving water (Which has had its beneficial use determined for assimilating pollution.

2. Act No. 4 of the year 1982 concerning the Principles of Management of the Environment provides that the protection of the living environment shall be based on the provisions of current laws that refer to environmental quality standards. These environmental standards may differ for different environments, areas and times considering differences of purposes.

   Furthermore, Act number 4 of the Year 1982 requires that besides the right of every person to a clean and healthy living environment, every person has an obligation to protect, handle and repair damage to, and restore pollution of the living environment. The Act Number 5 the Year 1984 on Industrial Matters, requires that every industrial company shall make efforts to achieve balance and conservation of natural resources and to make efforts to prevent damage to, and pollution of, the living environment caused by industrial activities of the company concerned.

   Negative impacts caused by certain industrial activities may be in the form of disturbances, damage and hazard to the health and safety of communities and the environment; and in the form of water pollution. Water polluiton may increase negative effects on public health. Act number 9 of the Year 1960 on the Principles of Health provides that every citizen shall have the right to the highest possible level of health. This means that the living environment shall meet appropriate health standards. The purpose of this Goverment Regulation is to reach the goals as mentioned in the aforesaid Acts. This Government Regulation is also closely related to implementation of Government Regulation Number 29 of the Year 1986 regarding the Analysis of Environmental impacts.

3. The control of water pollution includes the following activities:

   a. making inventories of the quality and quantity of water sources pursuant to regional water works systems;

   b. determination of categories of water sources according to the beneficial use of the water, water quality standards for the aforesaid categories; and effluent quality standards and maximum pollution loads for each type of activity;

   c. determination of the quality of effluent that may be discharged to water sources by every activity, and the issuance of permits to discharget waste;

d. monitoring changes in water source and evaluation of the monitoring results;

e. supervision of the procedure of water pollution control regulations, including the procedures regarding liquidwaste and law enforcement.

B. ARTICLE BY ARTICLE

Article 1

The terms defined in this article are intended to provide a consistent understanding between this Government Regulation and its implementation.

1. The definition for the meaning of water is as defined in Article 1, subsection 3 of Act number 11 of 1974 on Water-works. In this Government Regulation the term **water**, is limited to the water that is present on the surface of the ground. It is based on the consideration that the approach to the control of water pollution above ground differs from the approach to control pollution of groundwater and sea water.

2. This definition is derived from the meaning of environmental polluiton as it defined in Article 1 subsection 7 of Act Number 4 of 1982 on the Basic Provision for the Management of the Living Environment.

3. Self-explanatory.

4. This definition is derived from the meaning of environmental quality standard as it is defined in article 6 of Act Number 4 of 1982 on Basic Provisions for the Management of the Living Environment.

   Tolerable level in this definition, means the limit or the concentration of the pollution parameter in water in its natural state and based on a scientific evaluation such that it still function in accordance with its beneficial uses.

   The water quality standard represents the basic for the protection of water and the criteria for water pollution as mentioned in Article 15 and the clarification of Article 15 of Act Number 4 1982 on the Basic Provisions for the Management of the living Environment.

5. Pollution load is expressed in units of pollutant amounts, usually as units of weight, or for flowing water or effluent, expressed in untis of a pollution parameter per unit of time. Pollution load may be determined by measuring the content of pollution parameter the volume of flow of the water concerned.

   The value of the aforessaid pollution liad shall be calculated by multiplying the concentration and the volume amount of flow after the volume units have been adjusted.

   A sample calculation:

   Measurements show a concentration of suspended solids of 1 mg/liter and an effluent flow of 10 m^3/minute.

   The flow rate after adjustment to common units of is: 10 x 1000 liter/ minute(1 m^3 = 1000 liter) .

   The pollution load of suspended solids in the aforesaid effluent is:

   = 10 x 1000 (liter/minute) x 1 (mg/liter)
   = 10,000 mg/minute = 10 gram/minute.

6. The capacity to assimilate pollution shall be determined using certain techniques and methods based on the conditions of quality and quantity of the water and the water quality standards for a particular water source.

   The capacity to absorb the pollution load may be used as the basis for consideration for issuance of permits for the discharge of wastes into water sources; if the pollution load of the discharged waste exceeds the capacity to absorb the water pollution in a particular water source, there is a high possibility that the water may be polluted.

7. What is meant by 'tolerable level," in the definition of this meaning is administrative and is based on rational calculations.

8. Self-explanatory

Article 2

What is meant in this article by technical authority is determined by virtue of current laws and regulations.

The making of inventories of water quality and quantity are needed to determine the condition of water and the tendency for change in the water source pursuant to water quality management and water pollution control.

Water quality is determined by its characteristics and the concentration of living organisms, materials, or energy, and other components contained in the water. The quality of the water is expressed in semis of water quality parameters. For instance; pH, color, temperature, conductivity, concentrations of chemical substances, concentrations of bacteria, etc.

The quantity of water is represented by the amount or the volume of flow of water in the water source.

Article 3

Paragraph 1: Self-explanatory

Paragraph 2: The term source of water in this paragraph has the same meaning as is meant with source, of water in Act Number 11 of 1974 on Water and Waterworks such as, rivers, lakes and swamps.

Article 4

Paragraph 1: Self-explanatory

Paragraph 2: The reports that shall be submitted represent the results of data processing conducted by the technical authority. The reports shall cover data analiysis, water quality and water quantity conditions and trends, sources of pollution, summary, remarks, and recommendations.

Article 5

Paragraph 1: The purpose of the identification of pollution sources is to know the activities that have the potential to pollute water and also the types and amounts of pollution.

Paragraph 2: The purpose of measures to control pollution and sources of pollution includes meeting the effluent quality standards, so that the receiving water concerned meets the desired water quality standards.

Article 6

Self-explanatory

Article 7

Paragraph 1: Self-explanatory

Paragraph 2: What is meant by expanded beneficial use categories is deriving water uses outside the uses that have been determined in Article 7 paragraph 1 of this Government Regulation.

Article 8

Paragraph 1: Self-explanatory

Paragraph 2: Self-explanatory

Paragraph 3: Scientific evaluation shall be required if it is assumed that a parameter has not been covered or is inadequately covered in the water quality standards

Article 9

The purpose of defining the analytical method is to use the same methods for measuring and evaluating pollution parameters in water quality standards effluent quality standards.

Article 10

Paragraph 1: Because the uses of water and water quality standards are related to public interest, the purpose and category of each water source shall be determined by the Provincial Governors. If water quality does not meet the criteria that are required for its desired usage; its category may not be adjusted to the aforesaid quality condition. In this case, a program will be needed, so as to have the quality of water meet the quality criteria of its desired use.

Paragraph 2: Self-explanatory

Paragraph 3: What is meant in this paragraph is a management board such as an authority or a similar boards.

Article 11

The purpose of the aforesaid improvement program is to improve the quality of water to reach the level of the desired use category within a given period, or to raise the water quality a higher level.

Article 12

What is meant with raising the purpose is to have the water concerned included in a higher category of water quality standards.

Article 13

Paragraph 1: Self-explanatory

Paragraph 2: If a water source represents the boundary of the Governors concerned shall prior to determining the pollution control measures, consult with the Minister, so as to arrive at an integrated pollution control program for the aforesaid water source.

Article 14

The capacity to absorb a pollution load may be used as a basis for consideration to issue a permit to discharge liquid waste into water sources.

Information on the capacity to absorb a pollution load shall be open to the public.

Article 15

Paragraph 1: Effluent quality standards shall be determined for each type of activity, for example liquid waste from the fertilizer industri, tapioca, palm-oil, etc. Effluent quality standards and by guidelines for standards shall be accompanied by guidelines for application.

Paragraph 2: Taking into consideration that water conditions and level of waste treatment technology differ from location to location, the Governor may establish effluent quality standards that are more strict, within the framework of pollution control for his province.

Article 16

Water quality standards are influenced by developments. Effluent standards are based on technologies that may change due to new developments. The capacity to absorb a pollution load is influenced by established water quality standards and the condition of the water sourse. For these reasons, it will be necessary to regularly review water quality standards and effluent quality standards. It is reasonable to review the aforesaid standards once in every live years.

Article 17

Paragraph 1: Effluent quality standards limit the concentration and the pollution load that may be discharged into water sources.

Effluent quality standards shall apply to discharge of waste into fresh water and into sea water.

Paragraph 2: Diluting liquid waste does not reduce the pollution load, but only enlarges the volume of liquid waste and reduces the concentration of the pollutant in the effluent. In this case, dilution also includes mixing discharged cooling water with the flow of discharged liquid waste.

Article 18

Self-explanatory

Article 19

Discharging liquid waste on the surface on the ground may cause pollution of the soil and of ground water. Liquid waste may be treated with certain technologies by discharging it on the surface of the ground, for example with a technology known as **spray irrigation**. However an investigation shall be required to determine whether the practice will cause pollution or damage to the environment.

Article 20

The sampling location shall equipped with facilities that allow the interested parties to take samples from waste channels and to measure the volume of effluent flow. These facilities, for examlpe, include access, control tanks, pressure cocks for liquid waste under pressure, etc.

Article 21

Paragraph 1: Self-explanatory

Paragraph 2: Self-explanatory

Article 22

Retribution shall only be collected by the Regional Government fromusers of effluent treatment equipment provided by the Regional Government, and the amount of retribution shall be determined by reference to current regulations.

The discharge or treatment of waste may be carried out by the Regional Government itself, or it may delegate its authority to a private company.

Article 23

In this article, water pollution caused by liquid waste or other materials that are not discharged through channels, is for example, water pollution caused by polluting materials that have been carried by rainwater or erosion, or from agriculture pesticides and fertilizer entering the water (i.e non-point sources).

Article 24

What is meant by water sources that constitute hazards to public safety, include water that contains hazardous toxic chemicals such as toxic metals. This announcement is meant to prevent the use of the aforesaid water source that may endanger public health and safety. It may be temporarily used while the control is exercised.

Article 25

Self-explanatory

Article 26

Paragraph 1: Self-explanatory

Paragraph 2: The permit issued by virtue of the Hinderance Ordinance refers to the permit to discharge liquid waste issued by the Provincial Governor.

Paragraph 3: What is meant by an emergency situation is a situation under operational conditions where the pollution load is far higher than the normal pollution level. For this situation, the party responsible shall make available the equipment and procedures to control the aforesaid situation, for example provision of a temporary catch-basin for temporary storage of liquid waste produced during the emergency situation, for further processing so as to meet the effluent standards that are mentioned in the permit.

Article 27

Paragraph 1: Self-explanatory

Paragraph 2: Self-explanatory

Article 28

Paragraph 1: Self-explanatory

Paragraph 2: The study of Analysis of Environmental Impacts (EIA) may show that the amount of liquid waste at a given activity, it discharged, may cause water pollution.

It may happen that the results of the EIA show that for the activity mentioned above , the effluent quality standards should be stricter than the established effluent standards.

Article 29

Paragraph 1: The purpose of this paragraph is to provide an explanation that every person may report the occurrence of environmental pollution and should know the procedure to report pollution.

Paragraph 2: Self-explanatory

Paragraph 3: A police officer in his duty as investigator shall be assigned to investigate whether there are criminal elements in the pollution case that has been reported to him.

Paragraph 4: Self-explanatory

Paragraph 5: The measures mentioned may include prohibiting the entry of liquid waste from its source, and/or to localize the pollution.

Article 30

Paragraph 1: Self-explanatory

Paragraph 2: If, at the date of enactment of this Governmant Regulation, no technical authority yet exists in the area reserved for the special assigment, the Provincial Governor may appoint another authority in his Province.

Paragraph 3: Self-explanatory

Paragraph 4: Self-explanatory

Paragraph 5: Self-explanatory

Paragraph 6: Self -explanatory

Paragraph 7: The work procedures determined by the Governor include identity cards, surveillance work orders, etc.

Article 31

Paragraph 1: The officer in charge who enters the area of the pollution source , shall among other things , examine the performance of the waste treatment equipment, take samples of waste, and examine the waste discharge channels.

Paragraph 2: The responsible party that obstructs or does not permit the officer in charge to conduct his assignment as mentioned in Article 30 paragraph (2), may be charged under the provisions of criminal law by virtue of Article 216 of the Criminal Code. Entering the work environment means to ensure that the officer in charge may proceed immediately to the location of his assignment.

Article 32

Paragraph 1: The statement of truth in the report shall be signed by the responsible party and/or known by the owner or the party responsible for the company.

Paragraph 2: Self-explanatory

Article 33

Paragraph 1: Self-explanatory

Paragraph 2: Self-explanatory

Article 34

Paragraph 1: Self-explanatory

Paragraph 2: The purpose of appointment of a laboratory by the Governor is to ensure that reliable data from analyses of the waste quality and quantity is obtained.

Article 35

Paragraph 1: Self-explanatory

Paragraph 2: Self-explanatory

Article 36

Paragraph 1: Self-explanatory

Paragraph 2: Self-explanatory

Paragraph 3: What is meant by **considered necessary** is a situation that requires immediate measures to prevent the spreading of pollution.

Article 37

Paragraph 1: The form of administrative measures, as mentioned in this paragraph, include withdrawal of the permit to discharge waste, temporary suspension of activities, sealing of all waste discharge channels, or other measures provided in the permit.

Paragraph 2: Self-explanatory

Article 38

Self-explanatory

Article 39

Self-explanatory

Article 40

Self-explanatory

Article 41

Self-explanatory

Article 42

Paragraph 1: Self-explanatory

Paragraph 2: Self-explanatory

Article 43

Self-explanatory

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