

**PROVISIONS
OF THE MINISTER OF INDUSTRY-HANDICRAFT
ON THE DISCHARGE OF WASTE WATER
FROM FACTORIES**

- Pursuant to the Notice No. 1675/OCCM, dated 29/11/91 on the promulgation of the Ministerial Decision on Factories.
- Based on the authority mentioned in Article 4, Article 36, point (f) of the Minister of Industry-Handicraft's Decision on Factories.

The Minister of Industry-Handicraft issues the following provisions :

**PART I
General Principles**

Article 1 - These Provisions aim at controlling the discharge of waste water from factories liable to impact on the environment, such as : water quality, health of humans and other animate objects.

Article 2 - Definition

- Waste : Any solid waste, water waste, polluted air, poisonous substances or hazardous objects, including silted waste therefrom either in solid, liquid or gas form.
- General waste water treatment : refers to the treatment systems installed in one place servicing a group of factories discharging waste water.
- Concentrate : refers to any pollution substance contained in the water discharged from factories, generally denominated in mg/l.

- Department Director : refers to the Director of the Industry-Handicraft Department.
- Decision on Factories : refers to the Decision No. 103/LH., dated 21/12/1992, of the Minister of Industry-Handicraft on Factories.
- Factory water discharge : refers to waste water which quality has been reduced from production process in factories, from washing, cleaning, boiling, freezing system or other sources, except from sanitation systems.
- Waste water discharging from factories : refers to the discharge of waste water from factories at the water discharge point of factories.
- Water discharge outlet : refers to the point where waste water is discharged from factories out of the factories' area.
- Waste water treatment system of the factory : refers to the factories' waste water treatment installed in their own premises for the treatment of the waste water produced by factories which is to be discharged.
- Public drainage canal : refers to canals or pipes installed in public areas.
- Surface water : refers to streams, sources, lakes, marshlands.
- BDO₅ : Biochemical Oxygen Demand, that is the measurement of bio-substances' quantity under the form of required oxygen for oxidation of the said substance in water by bacteria within 5 days in 20°C temperature.
- TSS : Initials of Total suspended solids, that is solid non-oxydable substances suspended in water.

PART II

Waste discharge into the environment

Article 3 : It is forbidden to discharge waste from factories into the environment, public water sources liable to cause negative impacts or direct and indirect hazards to the ecosystem and the health of humans, such as :

- 3.1 Any waste composed of solid, liquid or gas poisonous or degraded substances.
- 3.2 Any type of waste with a pH of less than 6 and above 9.5.
- 3.3 Any type of waste which size or volume would hamper the water flow, disturb the utility of water use, such as : asphalt, animal corpse, degrading waste, ashes, sand, mud, thatch, vegetable waste, metal, glass, torn fabrics, animal fur, crude oil, plastic, wood, blood, animal ash, bone, hair, paper waste or other similar products in their original forms or grounded with waste grinders or any other methods.
- 3.4 Crude oil or products distilled from oil.
- 3.5 Oil spills which may not be biologically oxidized.
- 3.6 All types of waste sending strong smells into the natural environment disturbing the neighbors.
- 3.7 All types of chemicals causing poisonous gas.
- 3.8 All types of chemicals containing nuclear activity.
- 3.9 All types of waste from paint an causing the surface water to change its color and disturbing the neighbors.
- 3.10 Waste with temperatures exceeding 40°C.

Article 4 : Concentrate standard for certain types of factories.

1. Sugar mill :

Components	Value (not exceeding)
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BOD ₅	60 mg/l
TSS	100 mg/l
pH	Between 6-9.5

2. Textile and garment factory :

Components	Value (not exceeding)
BOD ₅	40 mg/l
Phenols	1 mg/l
TSS	40 mg/l
pH	Between 6-9.5

3. Pulp and paper mill :

Pulp factory :

Components	Value (not exceeding)
BOD ₅	90 mg/l
TSS	60 mg/l
Ammonia Nitrogen	7 mg/l
Phenols	1 mg/l
pH	Between 6-9.5

Paper mill :

Components	Value (not exceeding)
BOD ₅	30 mg/l
TSS	30 mg/l

pH	Between 6-9.5
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4. Slaughterhouse :

Components	Value (not exceeding)
BOD ₅	40 mg/l
TSS	40 mg/l
Ammonia	4 mg/l
pH	Between 6-9.5

5. Other standards

General and specific standards for factories.

General :

<u>Parameter</u>	<u>Value</u>	<u>Parameter</u>	<u>Value</u>
Arsenic	0.25 mg/l	Manganese	1.0 mg/l
Barium	1.0 mg/l	Mercury	0.005 mg/l
Cadmium	0.03 mg/l	Ammonia Nitrogen	4.0 mg/l

Chrome (+6)	0.1 mg/l	Nickel	0.2 mg/l
Total Chromium	0.5 mg/l	Oil and grease	5 mg/l
Chloride	500 mg/l	pH	6-9.5
Copper	0.5 mg/l	Phenols	0.3 mg/l
Cyanide	0.10 mg/l	Phosphorous	1.0 mg/l
Fluoride	15 mg/l	Silver	0.1 mg/l
Iron	2.0 mg/l	TDS	3,500 mg/l

Lead	0.2 mg/l	TSS	30 mg/l
BOD ₅	30 mg/l	Zinc	1.0 mg/l
Free Chlorine	1.0 mg/l	Sulphide	1.0 mg/l

Specific : For factories with organic substances

Type of industry	Parameter		
	BOD ₅	TSS (not exceeding)	pH (Between)
Production of fish cans	40	50	6-9.5
Brewery	30	30	6-9.5
Flour	70	80	6-9.5
Tannery	40	40	6-9.5
Paint production	40	40	6-9.5
Pharmaceutical	40	40	6-9.5

- Factories with inorganic substances :

Iron forging with electricity

Parameter	Value (not exceeding)
TSS	30 mg/l
Cyanide	0.2 mg/l
Chrome +6	0.3 mg/l
Total Chrome	2.0 mg/l
Nickel	0.2 mg/l
Copper	1.0 mg/l
Zinc	5.0 mg/l

Total Metals	6.0 mg/l
Oil and Grease	30 mg/l
pH	Between 6-9.5

Production of batteries :

Parameter	Value (not exceeding)
Lead	0.2 mg/l
Copper	0.5 mg/l
Zinc	1 mg/l
Antimony	1 mg/l
Cadmium	0.03 mg/l
Chromium	0.5 mg/l
Nickel	1.0 mg/l
Mercury	0.005 mg/l
pH	Between 6-9.5

Article 5 : Restaurants, garages, hospitals, food processing centers with less than 10 workers :

- a. Treated waste water may be discharged into water reserves for the separation of oil, floating grease and others (except paper, plastic). The design of such reserve shall be appropriate with the conditions of use.
- b. It is forbidden to discharge waste containing viruses, solid waste into public drainage canals.

Article 6 : Grease, oil and sand sieving equipment shall be installed to control liquid waste containing substantial volume of floating grease or solid inorganic substances or inflammable waste, sand or other hazardous substances. In

retaining grease and solid waste, the factory owner shall be responsible for their disposal or discharge through appropriate methods.

PART III

Factory water waste treatment system

Article 7 : Factory owners shall install systems for the treatment of waste water originating from the production process within the factory's premises.

Article 8 : Factories possessing their own waste water treatment systems may connect them to the common waste water treatment system in accordance with these Provisions.

Article 9 : Expenses incurred for the construction and installation of waste water treatment systems shall be taken in charge by the factory owners, including the costs for inspection and waste water analysis.

Article 10 : Waste water from sanitation sources shall be separated from waste water generated from production through existing methods, such as : septic tanks, water basins or other appropriate methods.

Article 11 : Waste water treatment system shall operate and be maintained on a continuous basis for consistent highest efficiency and factory owners shall take in charge all the expenses.

Article 12 : Waste water treatment systems shall be appropriately installed with a facility to collect water sample for analysis.

PART IV

Authority of the Industrial Sector

Article 13 : Assigned factory inspectors possessing inspection cards issued by the Minister may enter all premises for inspection, observation, measurement, sample collection and waste water discharge testing in accordance with the content of these Provisions.

Article 14 : Authorized factory inspectors may gather information on factory processes pertaining to the type and source of waste water discharge.

Article 15 : When performing their duty in factories, factory inspectors shall apply the safety rules applicable in and as outlined by the factories.

Article 16 : The Department Director and Chief of the local Industry Service may order the suspension of waste water discharge from factories until such factories have brought improvements in accordance with the regulations.

Article 17 : Factory owners receiving notices on the suspension of waste water discharge shall immediately stop any discharge of waste water from their factories. In case of voluntary non-compliance to the instructions, the Department Director and Chief of local Industry Services shall apply necessary sanctions for the proper enforcement of such instructions.

Article 18 : These Provisions are effective from the day they are signed. The content of formerly issued provisions, instructions inconsistent with these Provisions are superseded and replaced by these Provisions.

Article 19 : The Department of Industry-Handicraft and local Industry Services are entrusted to provide recommendations on the proper and complete implementation of these Provisions.

Vientiane, 3 November 1994
Minister of Industry and Handicraft

Soulivong Daravong