

**THE POLLUTION CHARGE FOR INDUSTRY (CALCULATION AND COLLECTION) RULES, 2001**

*[28th September, 2001]*

**S.R.O.693 (I)/2001.** - In exercise of the powers referred by section 31 of the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997), the Federal Government is pleased to make the following Rules, namely:--

**1. Short title and commencement.--** (1) These rules may be called the Pollution Charge for Industry (Calculation and Collection) Rules, 2001.

(2) They shall come into force from the 1<sup>st</sup> July 2001

**2. Definitions.--** (1) In these rules, unless there is anything repugnant in the subject or context, -

- (a) "Act" means the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997);
- (b) "Board" means the Provincial Sustainable Development Fund Board constituted under section 10 of the Act;
- (c) "Director-General" means the Director-General of the Provincial Agency;
- (d) "Guidelines" means the "Guidelines for determination of a Pollution Charge for Industry" as contained in Schedule I;
- (e) "industrial unit" means any legal entity carrying on industrial activity;
- (f) "Inspection Team" means the Inspection Team constituted under rule 5;
- (g) "pollution charge" means the pollution charge payable under sub-section (2) of section 11 of the Act;
- (h) "pollution level" means the number of pollution units per unit of production, calculated in accordance with the procedure contained in Guidelines and Schedule IV;
- (i) "pollution unit" means the quantity of pollutant which reflects its relative toxicity vis-a-vis other parameters, as specified in the Guidelines and Schedule IV; and

(j) "Schedule" means the schedule to these rules;

(2) All other words and expressions used but not defined shall have the same meanings as are assigned to them in the Act.

**3. Determination of pollution charge.--** The pollution charge payable by an industrial unit shall be determined in accordance with the Guidelines.

**4. Responsibility for calculation, reporting and payment.--** An industrial unit liable to pay the pollution charge shall itself be responsible for ensuring the correct calculation, reporting and payment of the pollution charge.

**5. Determination of pollution level .-** (1) For the purposes of determining the pollution level of an industrial unit, the Director-General shall constitute an Inspection Team comprising of,--

- (a) a representative of the Provincial Agency;
- (b) a representative of the industrial unit;
- (c) not more than two representatives each drawn from the list of any two authorized NGOs specified in Schedule II; and
- (d) a representative of a certified environmental laboratory or any other agency approved and designated by the Provincial Agency for the purposes of determination of the pollution level.

(2) The Inspection Team shall determine the pollution level of an industrial unit at least once a year in respect of discharges of effluents and waste, and emissions of air pollutants.

(3) The Inspection Team shall also determine the exemption allowed to an industrial unit as required under Schedule IV.

(4) All samples obtained by the Inspection Team shall be tested and analysed by a certified environmental laboratory.

(5) The pollution units per unit of production determined by the Inspection Team shall form the basis for calculation of the pollution charge of an industrial unit under rule 6.

**6. Calculation and payment.--** (1) The pollution charge shall be calculated by multiplying the pollution level with the actual production during the period for which the charge is to be paid, and with the applicable rate per pollution unit for the year in accordance with the rates and escalation table shown in Schedule III.

(2) The pollution charge shall be payable biannually, based on the actual production in the preceding six months.

(3) The payment of the pollution charge shall be made by deposit, against proper receipt in the Government Treasury or any branch of the National Bank of Pakistan.

(4) The industrial unit shall submit a copy of the receipt, along with details of calculation of the pollution charge in the form as set out in Schedule IV, to the Provincial Agency.

**7. Re-determination of pollution level.--** (1) If during the year an industrial unit reduces, for at least three consecutive months, the pollution units discharged by it to eighty per cent or less of the level of at least one parameter, it shall have the right to apply to the Provincial Agency for re-determination of its pollution level.

(2) The Director-General may at any time, on application from any person or suo motu and after giving an industrial unit an opportunity of being heard, have the pollution level of the industrial unit re-determined by the Inspection Team if he has reason to believe that the actual pollution units being discharged by such industrial unit in respect of any pollution parameter are twenty per cent or more than the level determined by the Inspection Team at the time of last measurement.

(3) Re-determination of the pollution charge under sub-rules (1) and (2) shall be allowed by the Provincial Agency subject to payment of the prescribed fees by the applicant specified in Schedule V.

**8. Costs of determination of pollution level .-** The industrial unit shall provide all requisite assistance at the site for the visit of the Inspection Team and shall bear all costs relating to determination of the pollution level, including the prescribed fees specified in Schedule V, and costs of sampling, testing and reporting of results:

Provided that the costs of re-determination of the pollution level on an application of any person under sub-rule (2) of rule 7 shall be deposited with the Provincial Agency when such re-determination is allowed, and shall be refunded to the applicant and charged from the industrial unit, only if the actual pollution units being discharged by such unit in respect of any parameter are determined by the Inspection Team to be twenty per cent or more than the level determined at the time of last measurement.

**9. Collection through industrial associations and Chambers of Commerce and Industry.--** (1) Subject to rule 4, where industrial units have formed an association to look after their collective interests, such association may collect the pollution charge from its member industrial units and deposit the same against proper receipt in the Government Treasury or any branch of the National Bank of Pakistan.

(2) The Chambers of Commerce and Industry at the Federal and Provincial levels shall use their good offices to ensure that all industrial units in their respective jurisdictions pay the pollution charge in accordance with these rules.

(3) All industrial associations and Chambers of Commerce and Industry shall submit a monthly report to the Board indicating the total amount of pollution charge collected by them during the previous month along with copies of the receipts of payment.

**SCHEDULE I**

*[See rule 2(1)(d)]*

**Guidelines for determination of pollution charge for Industry****Legal Basis**

Section 11 of the Environmental Protection Act, 1997, contains the following sub-sections that provide a legal basis for application of pollution charge, namely:-

(2) The Federal Government shall levy a pollution charge on any person who contravenes or fails to comply with the provisions of sub-section (1), to be calculated at such rate, and collected in accordance with such procedures as may be prescribed.

(3) Any person who pays the pollution charge levied under sub-section (2) shall not be charged with an offence with respect to that contravention or failure.

(4) The provisions of sub-section (3) shall not apply to projects, which commenced industrial activity on or after the thirtieth day of June 1994.

**Primary Considerations**

The proposed system of pollution charge has been developed to achieve a balance among the following, namely:--

1. The need for an equitable, simple and workable approach towards establishment of pollution charge.
2. The need for real progress towards making the industry environmentally friendly without jeopardizing the economic growth in the country.
3. The need of the industry to be allowed a period in which it can prepare for compliance with the National Environmental Quality Standards (NEQS).

## **Guideline**

Basic principles discussed and agreed upon in different meetings of the Environment Standards Committee (ESC) comprising representatives of FPCCI, NGOs and the Government are summarized below:

1. The level of pollution charge shall be established through a process of negotiations.
2. The level of pollution charge should initially be such that the industry should feel the impact, but should not be excessive such that the financial health of the concern is jeopardized.
3. The system should be applied uniformly across all the industrial sectors

-----

## **SCHEDULE II**

*[See rule 5(1)(c)]*

### **List of authorized NGOs**

1. International Union for Conservation of Nature and Natural Resources (IUCN) House No. 26, St. No. 87, G-6/3, Islamabad. Phone No. 051-2270686-87 Fax No. 051-2270683
2. Sustainable Development Policy Institute (SDPI) H. No. 3, UN Boulevard, Diplomatic Enclave, G/5, Islamabad. Phone No.051-2278134 Fax No.051-2278135
3. World Wide Fund (WWF) PAKISTAN Address: P.O. Box 5180, Ferozpur Road, Lahore. Phone No. 042-5862360 Fax No. 042-5862358
4. SUNGI Address: H. No.17, St. 67, G-6/4 Islamabad. Phone No. 2273272 – 2276579-89 Fax No. 2823559
5. PAIDAR Address: 64-E, Mascoco Plaza, Office no 3,1<sup>st</sup> Floor, Blue Area, Islamabad. Phone:2820359, Fax:2820379

**SCHEDULE III***[See rule 6(1)]***Pollution Charge rates and escalation table****Schedule for payment of pollution charge**

Pollution charge shall be payable on a biannual basis, calculated according to the established discharge rate per unit of production, and the actual production of the unit in the preceding six months.

**Pollution Charge Escalation:**

The following table gives the Schedule for a period of three years beginning from the July 1st, 2001:

**POLLUTION CHARGE SCHEDULE**

Period.	Annual escalation.
(1)	(2)
1st July, 2001 to 30 <sup>th</sup> June, 2002.	20% of base rate.
1st July, 2002 to 30 <sup>th</sup> June, 2003.	40% of base rate.
1st July, 2003 to 30 <sup>th</sup> June, 2004.	60% of base rate.

**SCHEDULE IV***[See rule 6(4)]***Details of calculation of Pollution Charge****PART 1****A. Pollution Charge for Liquid Effluents****Parameters Applicable for Pollution Charge and Definition of Pollution Unit**

Parameters on which pollution charges are to be applied and the definitions of the pollution units for each parameter are shown in the table below:

**TABLE**

List of selected NEQS parameters for pollution units calculation

<b>S/No.</b>	<b>Parameters.</b>	<b>1 Pollution Unit.</b>
(1)	(2)	(3)
1	COD.	50 kgs
2.	TSS.	50 kgs
3.	Oil and grease	3 kgs
4.	Mercury.	20 g
5.	Chromium.	500 g
6.	Nickel.	500 g
7.	Lead.	500 g
8.	Copper.	1000 g
9.	Cadmium.	100 g
10.	Pesticides and herbicides.	100 g

The parameters for pollution units given above were arrived at in view of the following considerations, namely: -

1. To keep the system simple and cost effective, the number of parameters should be kept at a minimum.
2. The quantity of pollutant defined as one pollution unit reflects the relative toxicity of the pollutant, and consequently the extent of damage to the environment.
3. The Federal Agency may expand the above list if deemed necessary.



### **Exemption in Pollution Units:**

Each industrial unit shall be allowed an exemption equivalent to NEQS for each parameter on which the pollution charge is applicable. The exemption is proposed in line with the spirit to the National Environmental Quality Standards.

### **METHOD OF DETERMINATION OF POLLUTION CHARGE**

#### **Determination of Pollution Level**

The pollution level in a unit or a production unit if so desired, shall be measured once a year. The measurement shall be carried out jointly in the presence of at least one representative each from the unit and the concerned EPA or agency approved by EPA. Interested NGOs shall be allowed to accompany EPAs on such visits to ensure transparency and neutrality in the process. The production of the unit during the determination period shall also be recorded to ensure that normal operational conditions of the unit prevail. Alternatively, pollution charge may also be figured out on the basis of self-monitoring reports submitted under NEQS (Self-Monitoring and Reporting by Industry) Rules, 2001, in mutual agreement with the concerned EPA.

#### **Calculation Procedure:**

1. The effluent flow of a unit shall be measured for a limited period, ranging from a minimum of a day to about a week, under normal operating conditions.
2. During this period, effluent samples shall be taken at regular intervals, ranging from once an hour to once in eight hours and the concentration of pollutant parameters of concern shall be established through laboratory analysis.
3. Net quantity of pollutant being discharged (in kg) shall be calculated by dividing the net quantity of pollutant being discharged by the amount defined as one pollution unit for the parameter under consideration.
4. Number of pollution units for each parameter shall be calculated by dividing the net quantity of pollutant being discharged by the amount defined as one pollution unit for the parameter under consideration.
5. The number of pollution units per unit of production shall be calculated by dividing the number of pollution units with production in the period during which tests were carried out.
6. Number of pollution units shall be calculated on the basis of production in the period for which pollution charges are to be paid.
7. The amount to be paid as pollution charge shall be calculated by multiplying the chargeable pollution units with the applicable rate for a pollution unit for the year. Sample calculation of pollution charge are given below:

NEQS Paramets		Recorded	Effluent levels
(1)		(2)	(3)
COD	150 mg/1	5200	mg/1
TS	150 mg/1	500	mg/1

Annual Operating Day	160 Days
Product Rate	6,000 Tons
Effluent flow rate	5,300 m <sup>3</sup> /day or 848,000 m <sup>3</sup> /year

**Calculation of Pollution Charge:**

Actual Pollution Level		Annual Pollution <sup>1</sup> Load	Net Chargeable Units
(1)		(2)	(3)
COD	15,200 mg/1	4,282,400 kg	85,648
TSS	500 mg/1	296,800 kg	5,936
		Total	91,584
Total Units chargeable	91,584 Units		
Base rate per Unit	100 Rs./Unit (For Example)		
Total Pollution charge <sup>2</sup>	Year 1	Year 2	Year 3
Rs./Year	1,831,680	3,663,360	5,495,040

1. Refer to Part I.
2. Refer to Schedule III.

## PART II

### B. Pollution Charge for Gaseous Emissions:

#### Parameters to be charged and Definition of Pollution Unit:

Parameters on which pollution charge are to be applied and the definitions of the pollution units for each parameter are given in the table below:

TABLE

Selected parameters for pollution units calculation

Parameter.	Quantity of one pollution unit.
(1)	(2)
Carbon Monoxide (CO).	400 Kg
Oxides of Nitrogen (NO <sub>x</sub> ).	200 Kg
Oxides of Sulfur (SO <sub>x</sub> ).	200 Kg
Particulate Matter (Coal).	250 Kg
Particulate Matter (Oil).	150 Kg
Particulate Matter (Cement).	100 Kg
Particulate Matter (Other Sources).	250 Kg

The definitions of pollution units given above were arrived at in view of the following, namely: -

1. The system should be simple and cost effective, and the numbers of parameters on which pollution charges are to be applied should be kept at a minimum.
2. The quantity defined as one pollution unit reflects the relative environmental impact of a specific parameter on the assimilative capacity of the surrounding air and impact on human health.

#### Exemption in Pollution Units :

Each industrial unit shall be allowed an exemption corresponding to NEQS for each parameter on which the pollution charge is applicable. The exemption proposed is in line with the exemption proposed for liquid effluents.

### APPROACH AND METHOD FOR THE DETERMINATION OF AIR POLLUTION CHARGE

### **Determination of Pollution level**

The pollution level in a unit or a production unit if so desired, shall be measured once a year. The measurement shall be carried out jointly in the presence of at least one representative each from the unit and the EPA, or an agency approved by EPA for this purpose. Interested NGOs shall be allowed to accompany EPAs on such visits to ensure transparency and neutrality in the process. All air emission measurements shall be taken under normal plant operating conditions. The industrial unit shall arrange for air emission measurement and shall bear the cost of air emission measurement. The production of the industrial unit during the determination period shall also be recorded to ensure that normal operating conditions of the unit prevail at the time of testing. The pollution charge could also be figured out on the basis of self-monitoring reports with mutual agreement of EPA.

### **Calculation Procedure:**

The following measurements are needed to calculate the quantity in kg of each pollutant being emitted namely: -

1. Flow rate of the gas in the stack or chimney in kg/hr or cubic meter/hour
2. Concentration of pollutant in the gas stream in ppm.

Calculation of gas flow rates requires extensive instrumentation, is time consuming and expensive. To address this issue, a simplified fuel based approach is proposed for the quantification of pollutant loads in gases discharged from fuel fired equipment such as boilers, kilns, furnaces and dryers. This approach allows direct quantification of gas flow rate using the amount of fuel consumed and excess air used per unit of fuel. Excess air is the amount of air used over and above the theoretical amount needed for complete burning of the fuel, and can be calculated on the basis of oxygen in the gaseous emissions. In exceptional cases, industrial units that have arrangements for continuous or online flow measurements of gas emitted may use actual flow measurements for the quantification of air emissions.

A stepwise procedure for the calculation of air pollution units from an industrial unit is given as under: -

1. The concentration of pollutant parameters of concern and oxygen in the stack gas shall be measured for a limited period, ranging from a minimum of a day to about a week, under normal operating conditions. The temperature of stack gases shall also be measured.
2. The quantity of fuel consumed and production shall be monitored during the same period.
3. The flow rate of gases shall be calculated using standard formulas, with quantity of fuel used, concentration of oxygen and temperature as inputs.
4. Net quantity of air pollutant being discharged (in kg) shall be calculated by subtracting the NEQS concentration from the measured concentration, and multiplying the net concentration in excess of NEQS with the calculated flue gas flow.

5. Number of pollution units for each parameter shall be calculated by dividing the net quantity of pollutant being discharged by the amount defined as one pollution unit for the parameter under consideration.
6. Number of pollution units per unit of production shall be calculated by dividing the number of pollution units with production in the period during which the tests were carried out.
7. Number of pollution units shall be calculated on the basis of production in the period for which pollution charges are to be paid.
8. The amount to be paid as pollution charge shall be calculated by multiplying the chargeable pollution units with the applicable rate for a pollution unit for the year.

**Pollution Charges for Non-Fuel Cases and Other Exceptions:**

For processes where fuel is not used or where it is not possible to calculate gas flow rates on the basis of fuels used, direct measurement of gas flow rates shall be required. Standard guidelines and procedures for measurement of gas flow rates shall be prescribed. The remaining calculation procedures for the number of pollution units and amount to be paid shall be the same as those for fuel related emissions.

Separate calculation procedures shall be developed for the cement industry to account for volume corrections associated with carbon dioxide produced from the calcining process.

The system of pollution charges proposed in this document shall not apply to the power industry. Standards and procedures for the power industry shall be issued separately.

**Sample Calculation of Pollution For Charge Gaseous Emission:**

NEQS parameters.	Recorded.	Emission.
(1)	(2)	(3)
Carbon Monoxide (CO)	800	mg/nm <sup>3</sup>
Oxides of Nitrogen (NO <sub>x</sub> )	400	mg/nm <sup>3</sup>
Oxides of Sulfur (SO <sub>x</sub> )	400	mg/nm <sup>3</sup>
Particulate Matter (Coal)	500	mg/nm <sup>3</sup>
Particulate Matter (Oil)	300	mg/nm <sup>3</sup>
Particulate Matter (Cement)	200	mg/nm <sup>3</sup>
Particulate Matter (other)	500	mg/nm <sup>3</sup>

Fuel Consumed Kg/year				Excess Air %	Fuel Gas Discharged. M3/Year
Bagasse	495,000,000			30	1,854,646,438
Pollutant.	Total Air Emissions (mg/Nm3).	Exemption (mg/Nm3).	Net Chargeable Emission (mg/Nm3).	Annual <sup>1</sup> Chargeable Pollution Load (kg).	Chargeable Pollution Units.
CO	1,600	800	800	1,483,717	3,709
NO <sub>x</sub>	160	400	--	--	--
SO <sub>x</sub>	--	400	--	--	--
PM	6,744	500	6,244	11,580,412	46,322

Total Chargeable Pollution Units<sup>2</sup> @ Base  
Rate 50,031 / P.U (Rs. 100/P U)

Total Pollution Charge.	Year 1	Year 2	Year 3
Rs./Year	1,000,619	2,001,238	3,001,857

**Re-Determination of Pollution Charges:**

If, during a running year, the unit attains a status (for a period of at least three consecutive months) which corresponds to eighty per cent or less of the value of at least one parameter, the unit or the production unit is entitled to apply for a fresh assessment of pollution charge. The EPA may impose a fee for such re-assessment.

<sup>1</sup> Refer to Schedule VI (B)

<sup>2</sup> Refer to Schedule III

**SCHEDULE V**

*[See rule 7(3) and rule 8]*

**Fees for determination of pollution level**

Processing fees	Rs. 5,000/-
Sample analysis fees	Rates of certified labs under Notification No. S.R.O 258(I)/2000, dated 10th February, 2000, shall be applicable.

[File No. 14(3)/98-TO-PEPC]

SAEED ATHAR,  
Section Officer

-----