Note on calculating Rupee factor (R)

Calculation of Environmental Compensation

As per CPCB guideline Environmental Compensation is calculated using the following formula:

$EC = PI \times N \times R \times S \times LF$

PI = Pollution Index of Industrial Sector
N = No. of days of violation
R = A factor for Rupee for EC
S = Factor for scale of operation
LF = Location Factor

a. The industrial sectors have been categorized into Red, Orange and Green, based on their Pollution Index in the range of 60 to 100, 41 to 59 and 21 to 40, respectively. It was suggested that the average pollution index of 80, 50 and 30 may be taken for calculating the Environmental Compensation for Red, Orange and Green categories of industries, respectively.

b. N, number of days for which violation took place is the period between the day of violation observed/due date of direction's compliance and the day of compliance verified by CPCB/SPCB/PCC.

c. R is a factor in Rupees, which may be a minimum of 100 and maximum of 500. It is suggested to consider R as 250, as the Environmental Compensation in cases of violation.

d. S could be based on small/medium/large industry categorization, which may be 0.5 for micro or small, 1.0 for medium and 1.5 for large units.

e. LF, could be based on population of the city/town and location of the industrial unit. For the industrial unit located within municipal boundary or up to 10 km distance from the municipal boundary of the city/town, following factors (LF) may be used:

S. No.	Population* (million)	Location Factor# (LF)
1	1 to <5	1.25
2	5 to <10	1.5
3	10 and above	2.0

Calculation of Rupee Factor (R factor)

As per CPCB guideline R has to be in the range of 100 to 500 and usually taken as 250.

The R factor shall be calculated based on the Number of working days per year(No of days of violation (N_a), Category of the activity (C_r), Factor for Scale of the unit (S_r).

$$R = 100 + 21.75(N_a \times C_r \times S_r)$$

The minimum value of R may be taken as 250.

Factor for No of days of violation (N_a)

It is the number of working days ie, Number of days for which violation is observed.

Consider N_a factor as **1** up to **365 days, 2** for **365 to 730 days, 3** for **730- 1095 days** and **3.5 above 1095 days**

Na (number of working days) factor	Value
up to 365 days	1.0
365 to 730 days	2.0
730-1095 days	3.0
Above 1095 days	3.5

This N_a value is applicable only for R factor calculation

Category Score (C_r)

C_r (category score) may be taken as 0.5, 1.0 & 1.5 for Green, Orange & Red respectively.

Category	Category score (C_r)
Green	0.5
Orange	1.0
Red	1.5

S_r (Scale factor)

S_r (scale factor) may be taken as 1.0, 2.5 & 3.5 for small (< 5 crore), Medium (5-10 crore) & Large Scale (>10 crore) respectively.

Scale	Sr Factor
Small (< 5 crore)	1.0
Medium (5-10 crore)	2.5
Large (>10 crore)	3.5

Calculation of R factor for Laterite Quarries

In case of Laterite Quarries

Unauthorized operation of laterite quarries result in large scale environmental degradation. It also results large financial loss to the exchequer.

Hence severe penalties have to implemented to prevent such violations in future. Moreover the Board is at liberty to make the norms more severe. It is considered under Green Category.

Eg:-

If the laterite quarry considered is Small scale and if the number of violation days observed ie total number of working days is 320, then

$N_a = 1$, $C_r = 0.5$, $S_r = 1$

Rupee Factor (R)

$R = 100 + 21.75(N_a \times C_r \times S_r)$

$$R \text{ factor, } R = 100 + 21.75(N_a \times C_r \times S_r)$$
$$= 100 + 21.75(1 \times 0.5 \times 1)$$
$$= 100 + 10.875$$
$$= \underline{110.875}$$

The minimum value of R may be taken as 250 and hence the R factor may be taken as 250 in the above case.

CHAIRMAN