BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

IN

ORIGINAL APPLICATION NO. 435/2025

IN THE MATTER OF: -

News Item titled "Ludhiana: Dairy waste destroying STPs says Seechewal" appearing in The Hindustan Times dated 14.08.2025.

Index

Sr. No.	Particulars	Page No.
1.	**Reply** on behalf of Central Pollution Control Board (CPCB) in compliance of order dated 01.09.2025 in OA No. 435/2025.	
2.	**Annexure-I** A copy of Hon'ble NGT order dated 01.09.2025 in OA No. 435/2025.	
3.	**Annexure-II** A copy of CPCB letters dated 22.07.2021 and 23.07.2021, along with revised CPCB Guidelines.	
4.	**Annexure-III** A copy of CPCB directions dated 12.02.2025.	
5.	**Annexure-IV** A copy of MoEF&CC notification dated 13.10.2017.	
6.	**Annexure-V** A copy of the CPCB letters dated 10.10.2025 and subsequent reminder dated 11.11.2025.	
7.	**Annexure-VI** A copy of PPCB letter dated 21.11.2025.	

Filed by Adv. Atif Suhrawardy

on behalf of the Central Pollution Control Board

Place: Delhi
Dated: 26.11.2025

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

IN

ORIGINAL APPLICATION NO. 435/2025

IN THE MATTER OF: -

News Item titled "Ludhiana: Dairy waste destroying STPs says Seechewal" appearing in The Hindustan Times dated 14.08.2025.

REPLY ON BEHALF OF THE RESPONDENT NO. 4, i.e. CENTRAL POLLUTION CONTROL BOARD (CPCB)

MOST RESPECTFULLY SHOWETH:

1. That the Hon'ble National Green Tribunal, Principal Bench, New Delhi (hereinafter referred to as the "Hon'ble NGT") vide Order dated 01.09.2025 in Original Application (hereinafter referred to as "OA") No. 435 of 2025 impleaded Central Pollution Control Board (hereinafter referred to as "CPCB") as Respondent No. 4 and sought the response in the instant matter. Thereby, the reply is made in the succeeding paragraphs. A true copy of the order dated 01.09.2025, passed by this Hon'ble Tribunal, is marked and annexed as **Annexure I.**

2. That CPCB has been constituted under Section 3 of the Water (Prevention and Control of Pollution) Act, 1974 (hereinafter referred to as "Water Act, 1974"). It performs the functions under the Water Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 (hereinafter referred to as "Air Act, 1981") and the Environment (Protection) Act, 1986.

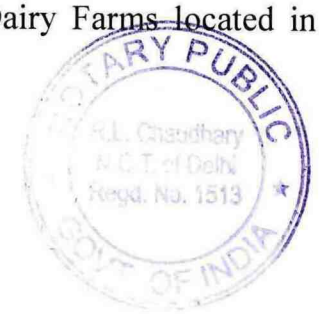
NOTARY PUBLIC
R.L. Chaudhary
N.C.T. of Delhi
Regd. No. 1513
GOVT. OF INDIA

3. That it is further submitted that State Pollution Control Boards/Pollution Control Committees (hereinafter referred to as "SPCBs/PCCs"), established under the Water Act and Air Act, are empowered to implement and enforce the provisions of these Acts within their respective territorial jurisdictions.

4. That, the present application has been registered suo-motu on the basis of the news item titled "Ludhiana: Dairy waste destroying STPs says Seechewal" appearing in The Hindustan Times dated 14.08.2025. The matter relates to the alleged severe impact of dairy waste on Sewage Treatment Plants (hereinafter referred to as "STPs") in Ludhiana, as highlighted by Rajya Sabha MP and environmentalist Balbir Singh Seechewal during his inspection of the Haibowal and Balloke facilities.As per the article, STPs are alleged to be functioning far beyond their designed capacities. The article further points out that the dairy owners are allegedly discharging cow dung directly into the sewage system.

5. That, it is humbly submitted that as per the direction of the this Hon'ble Tribunal in OA No. 46/2018; Nuggehalli Jayasimha Vs Government of NCT of Delhi, CPCB prepared the revised "Guidelines for Environmental Management of Dairy Farms and Gaushalas" in July, 2021 and circulated to all the Chief Secretary/Administrator and SPCBs/PCCs on 22.07.2021 and 23.07.2021, respectively, for implementation. True copy of the CPCB letters dated 22.07.2021 and 23.07.2021, along with revised CPCB Guidelines, are annexed as **Annexure-II.**

6. That, it is humbly submitted that the above said CPCB Guidelines stipulate the Solid Waste Management, Wastewater Management, Air Quality Management, Siting Policy and Regulatory/Monitoring Mechanism for the Dairy Farms located in Urban, Peri-urban and Rural areas to address the



associated environmental issues. The Guidelines also suggest the methods for disposal/utilisation of dung generated from Dairy Farms.

7. That, it is humbly submitted that, as per Regulatory/Monitoring Mechanism for the Dairy Farms mentioned in the aforesaid Guidelines, the concerned SPCBs/PCCs/localbodies/corporations are mandated to monitor dairy farms on a regular basis to ensure proper disposal of bovine dung and wastewater by the dairy farm owners.

8. That, it is humbly submitted that CPCB issued Directions under section 18(1)(b) of the Water (Prevention & Control of Pollution) Act, 1974 and the Air (Prevention & Control of Pollution) Act, 1981 regarding harmonization of classification of industrial sectors under Red, Orange, Green, White and Blue categories to all the SPCBs/PCCs on 12.02.2025.As per the classification of industrial sectors-2025, (i) dairy farms having more than 500 animals are categorized under Red category; (ii), Dairy farms having 101 to 500 animals are categorised under the Orange category, and (iii) Dairy farms having 15 to 100 animals are categorized under Green Category. A true copy of the CPCB directions dated 12.02.2025 is annexed as **Annexure -III.**

9. That further, it is humbly submitted that in case of any violation of environmental norms under Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, l98l and Environmental (Protection) Act, 1986 by Dairy farms concerned SPCBs/PCCs are empowered to take necessary action against polluting units.

NOTARY PUBLIC R.L. Chaudhary N.C.T. of Delhi Regd. No. 1513 GOVT. OF INDIA

10. That, it is humbly submitted that the Ministry of Environment, Forest and Climate Change (hereinafter referred to as "MoEFCC") has notified effluent discharge standards for STPs vide G.S.R. 1265(E) dated 13.10.2017, and all

the STPs operating in the country shall comply with the notified effluent discharge standards. A true copy of the MoEFCC notification dated 13.10.2017 is annexed as **Annexure - IV.**

11. That, it is humbly submitted that CPCB pursued the matter with the Punjab Pollution Control Board (hereinafter referred to as "PPCB") to provide the status and action taken report along with the status of implementation of the aforesaid Guidelines for Dairy Farms vide CPCB letters dated 10.10.2025 and subsequent reminder dated 11.11.2025.A true copy of the CPCB letters dated 10.10.2025 and subsequent reminder dated 11.11.2025 are attached as **Annexure – V.**

12. That, it is humbly submitted that in response to CPCB aforesaid letters, Regional Office-Ludhiana, PPCB, provided the reply/status report filed by PPCB in the present OA before this Hon'ble NGT on 21.11.2025. The reply submitted by PPCB is not reiterated for sake of brevity. A true copy of the PPCB letter dated 21.11.2025 is attached as **Annexure - VI**.

13. That, the Answering Respondent herein craves leave of the Hon'ble NGT to file additional reply, in future, if required.

14. That, in view of the submissions made in preceding paragraphs, the Answering Respondent, i.e. CPCB, shall abide by the orders/directions passed by the Hon'ble NGT in the instant matter.

NOTARY PUBLIC
R.L. Chaudhary
N.C.T. of Delhi
Regd. No. 1513
GOVT. OF INDIA

(Anamika Sagar)
Scientist-'E'
Central Pollution Control Board

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

IN

ORIGINAL APPLICATION NO. 435/2025

IN THE MATTER OF: -

News Item titled "Ludhiana: Dairy waste destroying STPs says Seechewal" appearing in The Hindustan Times dated 14.08.2025.

AFFIDAVIT

I, Anamika Sagar, working as Scientist 'E' in Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi, the Respondent No. 4 in the above matter, do hereby solemnly affirm, declare on oath and state as under: -

1. That I, the deponent herein, is well conversant with the facts and circumstances of the present case on the basis of the information derived from the official records, and hence, I am competent to verify, sign and swear this affidavit on behalf of the Respondent CPCB.

2. That the accompanying reply may be read part and parcel of the present affidavit.

3. That the accompanying reply has been drafted and filed under my instructions and authority, the contents thereof are true and correct based on the record maintained during the ordinary course of business of CPCB and available records and documents and the contents of the

same are read over and explained to me and are not repeated herein for the sake of brevity.

DEPONENT
अनामिका सागर / Anamika Sagar
वैज्ञानिक 'ई' / Scientist 'E'
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(M/o Environment, Forest & Climate Change, Govt. of India)
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली–110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

VERIFICATION

Verified at New Delhi on this day of 26 NOV 2025 November, 2025, that the contents above are correct and true based on the records of the case as mentioned in the day-to-day affairs of the CPCB. Nothing has been concealed therefrom or mis-stated.

NOTARY PUBLIC
R.L. Chaudhary
N.C.T. of Delhi
Regd. No. 1513
GOVT. OF INDIA

DEPONENT
अनामिका सागर / Anamika Sagar
वैज्ञानिक 'ई' / Scientist 'E'
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(M/o Environment, Forest & Climate Change, Govt. of India)
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली–110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

ATTESTED
NOTARY PUBLIC
GOVT. OF INDIA
26 NOV 2025

Annexure-I

Item No. 02 Court No. 1

BEFORE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 435/2025

News Item titled "Ludhiana: Dairy waste destroying STPs says Seechewal" appearing in The Hindustan Times dated 14.08.2025

Date of hearing: 01.09.2025

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER
HON'BLE MR. ISHWAR SINGH, EXPERT MEMBER

ORDER

1. This Original Application is registered *suo-motu* on the basis of the news item titled "Ludhiana: Dairy waste destroying STPs says Seechewal" appearing in The Hindustan Times dated 14.08.2025.

2. The matter relates to the severe impact of dairy waste on Sewage Treatment Plants (STPs) in Ludhiana, as highlighted by Rajya Sabha MP and environmentalist Balbir Singh Seechewal during his inspection of the Haibowal and Balloke facilities. As per the article, STPs are functioning far beyond their designed capacities. The article further points that the dairy owners are discharging cow dung directly into the sewage system. Also, the article highlights that there are serious illegal encroachments in the Haibowal Dairy Complex. The article mentions that the major issue is the excessive inflow of wastewater into the treatment plants. For instance, the Haibowal plant is receiving around 5 MLD (million litres per day) of water, even though its capacity is only 3.75 MLD. Similarly, the Tajpur plant has a capacity of 2.25 MLD but is receiving over 4.5 MLD. The

article further points that the smell of the cow dung in the area is so strong that it is not even possible to stand there. Further, as per the article, all the waste from the drain in the Haibowal Dairy Complex area was flowing into the Budha Nullah, including the liquid waste (urine and wash water) from nearly 60 dairies. As per the article, people in the Malwa region and even in Rajasthan are suffering from diseases like cancer, unaware that contaminated water is one of the main causes. As per the article, the treatment plants in Ludhiana were established to prevent untreated wastewater from flowing into the Budha Nullah; however, a heavy inflow of cow dung from dairies in Haibowal and Tajpur has been overwhelming these units, rendering the multi-crore installations largely ineffective. The article also points to the fact that Balloke has three Sewage Treatment Plants with capacities of 152 MLD, 105 MLD, and 60 MLD, all of which are receiving cow dung from dairies without any form of monitoring or control. Despite an expenditure of about Rs. 9 crores on the compressed biogas (CBG) plant at Haibowal, its performance remains far from satisfactory. Similarly, nearly Rs.16 crores has been spent on repairing the Balloke facilities, yet operational challenges persist. In addition, in several locations, miscreants have illegally damaged sewage pipelines and connected them directly to the drainage network, effectively bypassing treatment systems and undermining legal and environmental safeguards.

3. The above matter indicates violation of the provisions of the Water (Prevention and Control of Pollution) Act, 1974, Environment (Protection) Act, 1986 and Solid Waste Management Rules, 2016.

4. The news item raises substantial issues relating to compliance of the environmental norms and implementation of the provisions of scheduled enactment.

5. Power of the Tribunal to take up the matter *suo-motu* has been recognized by the Hon'ble Supreme Court in the matter of *"Municipal Corporation of Greater Mumbai vs. Ankita Sinha & Ors."* reported in *2021 SCC Online SC 897*.

6. Hence, we implead the following as respondents in the matter:

i. Punjab Pollution Control Board, through its Member Secretary, Head Office, Vatavaran Bhawan, Punjab Pollution Control Board, Nabha Road, Patiala;

ii. Municipal Corporation, Ludhiana, through its Commissioner, Zone-D, Saraba Nagar, Ludhiana;

iii. Department of Water Supply & Sanitation, Punjab, through its Principal Secretary, Pb Civil Sectt-2, Sector-9, Chandigarh;

iv. Central Pollution Control Board, through its Member Secretary, Parivesh Bhawan, East Arjun Nagar, Delhi-110032; and

v. Department of Animal Husbandry, Punjab, Livestock Complex, Sector 68, Sahibzada Ajit Singh Nagar (Mohali), PIN-160062

7. Issue notice to the above respondents for filing their response/reply by way of affidavit at least one week before the next date of hearing. If any respondent directly files the reply without routing it through his Advocate, then the said respondent will remain virtually present to assist the Tribunal.

8. List on 27.11.2025.

Prakash Shrivastava, CP

Dr. A. Senthil Vel, EM

Ishwar Singh, EM

September 01, 2025
Original Application No. 435/2025
R

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVT. OF INDIA

Speed Post

CPCB/IPC-IV/NGT/Dairy/2021 3904-3984

Dated: 22.07.2021

To

The Chief Secretary/Administrator
All States/UTs
(list enclosed)

Subject: Implementation of "Guidelines for Environmental Management of Dairy Farms and Gaushalas" as per order passed by Hon'ble NGT on 08.10.2020 in the matter of O.A. No. 46/2018 – reg.

Sir,

With reference to Hon'ble NGT order dated 08.10.2020 in the matter of O.A. No. 46/2018, Nuggehalli Jayasimha Vs Government of NCT of Delhi, I am directed to forward a copy of the revised "Guidelines for Environmental Management of Dairy Farms and Gaushalas" for implementation.

These Guidelines are also available on CPCB website at the following link: https://cpcb.nic.in/openpdffile.php?id=TGF0ZXN0RmlsZS8zMjZfMTYyNjUyOTM5MV9tZWRpYXBob3RvMTc1OTcucGRm.

Yours faithfully

(S.K. Gupta)
AD & Div. Head, IPC-IV

Encl.: as above

Copy to:

(i)	The Regional Directorates Central Pollution Control Board (list enclosed)	:	for information & follow-up, please.
(ii)	PS to CCB	:	for information of CCB, please.
(iii)	PS to MS	:	for information of MS, please.

(S.K. Gupta)

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
निगत NSingh
दिनांक 27/07/2021

e/c

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVT. OF INDIA

Speed Post

CPCB/IPC-IV/NGT/Dairy/2021 Dated: 23.07.2021

To

The Member Secretary
All SPCBs/ PCCs
(list enclosed)

Subject: Implementation of "Guidelines for Environmental Management of Dairy Farms and Gaushalas" as per order passed by Hon'ble NGT on 08.10.2020 in the matter of O.A. No. 46/2018 – reg.

Sir,

With reference to Hon'ble NGT order dated 08.10.2020 in the matter of O.A. No. 46/2018, Nuggehalli Jayasimha Vs Government of NCT of Delhi, I am directed to forward a copy of the revised "Guidelines for Environmental Management of Dairy Farms and Gaushalas" for implementation.

These Guidelines are also available on CPCB website at the following link:
https://cpcb.nic.in/openpdffile.php?id=TGF0ZXN0RmlsZS8zMjZfMTYyNjUyOTM5MV9tZWRpYXBob3RvMTc1OTcucGRm.

Yours faithfully

(S.K. Gupta)
AD & Div. Head IPC-IV

Encl.: as above

Copy to:

(i)	The Regional Directorates Central Pollution Control Board (list enclosed)	:	for information & follow-up, please.
(ii)	PS to CCB	:	for information of CCB, please.
(iii)	PS to MS	:	for information of MS, please.

(S.K. Gupta)

e/c

"Guidelines for Environmental Management of Dairy Farms and Gaushalas"

Central Pollution Control Board
(Ministry of Environment, Forest and Climate Change, Govt. of India)
Parivesh Bhawan, East Arjun Nagar
Delhi-110032

Revised
(July 2021)

CONTENT

1. Background

India ranks first among world's milk producing Nations since 1998 and has largest bovine population in the World. Dairying has become an important secondary source of income for millions of rural families and has assumed most important role in providing employment and income opportunities particularly for marginal farmers.

Dairy farms are establishment which in-house milching animals to produce milk for distribution or supplying milk to milk processing plants (other than own consumption).

Gaushalas are establishment which in-house weak, sick, injured, handicapped and abandoned homeless cattle/cows to rehabilitate them. Different terminology is used for Gaushalas in different states like Gosadans, Pinjrapole, etc.

As per 20th Livestock Census carried out by Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture and Farmers Welfare, in 2019, state-wise total population of bovine by sex and in urban & rural area is as follow:

Sl. No.	State/UT	Male Bovine	Female Bovine	Total Bovine in Rural Area	Total Bovine in Urban Area	Total Bovine
1.	A & N Islands	10,899	29,239	37,916	2,222	40,138
2.	Andhra Pradesh	15,73,589	92,45,997	1,03,97,667	4,21,919	1,08,19,586
3.	Arunachal Pradesh	3,06,246	4,13,583	7,03,018	16,811	7,19,829
4.	Assam	33,77,705	79,53,249	1,11,05,707	2,25,247	1,13,30,954
5.	Bihar	18,15,419	2,13,02,355	2,23,53,630	7,64,144	2,31,17,774
6.	Chandigarh	3,370	22,247	8,927	16,690	25,617
7.	Chhattisgarh	52,00,444	59,58,232	1,07,13,966	4,44,710	1,11,58,676
8.	Dadar & Nagar Haveli	27,015	13,718	39,223	1,510	40,733
9.	Daman & Diu	587	1,627	1,637	577	2,214
10.	Delhi	34,868	2,13,707	2,39,796	8,779	2,48,575
11.	Goa	18,081	69,373	78,940	8,514	87,454
12.	Gujarat	25,20,220	1,76,56,667	1,93,89,940	7,86,947	2,01,76,887
13.	Haryana	7,48,898	55,47,807	58,27,031	4,69,674	62,96,705
14.	Himachal Pradesh	4,99,630	19,76,892	24,47,638	28,884	24,76,522
15.	Jammu & Kashmir	5,45,636	27,10,666	31,55,710	1,00,592	32,56,302
16.	Jharkhand	51,33,373	74,39,992	1,21,84,691	3,88,674	1,25,73,365
17.	Karnataka	20,39,509	94,14,055	1,08,00,819	6,52,745	1,14,53,564
18.	Kerala	2,07,111	12,36,389	13,15,665	1,27,835	14,43,500
19.	Lakshadweep	785	1,724	2,509	0	2,509
20.	Madhya Pradesh	71,00,049	2,19,57,910	2,76,69,875	13,88,084	2,90,57,959
21.	Maharashtra	53,06,297	1,42,89,699	1,88,97,723	6,98,273	1,95,95,996
22.	Manipur	87,062	1,82,699	2,37,699	32,062	2,69,761
23.	Meghalaya	3,53,580	5,65,704	9,11,065	8,219	9,19,284
24.	Mizoram	15,775	35,992	38,434	13,333	51,767
25.	Nagaland	59,057	58,016	1,09,716	7,357	1,17,073
26.	Odisha	42,66,720	60,95,574	1,00,34,984	3,27,310	1,03,62,294
27.	Puducherry	4,695	69,684	57,322	17,057	74,379

28.	Punjab	3,47,572	61,99,835	60,99,440	4,47,967	65,47,407
29.	Rajasthan	30,06,285	2,46,24,661	2,65,18,272	11,12,674	2,76,30,946
30.	Sikkim	36,209	1,18,164	1,51,972	2,401	1,54,373
31.	Tamil Nadu	8,14,996	92,22,459	89,12,712	11,24,743	1,00,37,455
32.	Telangana	19,09,034	65,49,811	81,46,252	3,12,593	84,58,845
33.	Tripura	1,24,505	6,21,657	7,08,228	37,934	7,46,162
34.	Uttar Pradesh	45,52,599	4,74,83,827	4,95,30,075	25,06,351	5,20,36,426
35.	Uttarakhand	5,50,595	21,67,900	25,34,526	1,83,969	27,18,495
36.	West Bengal	44,35,306	1,52,73,592	1,91,76,146	5,32,752	1,97,08,898
All India		**5,70,33,721**	**24,67,24,703**	**29,05,38,871**	**1,32,19,553**	**30,37,58,424**

2. Categorization of Dairy Farms and Gaushalas

Dairy Farms/Gaushalas are categorised on basis of nos. of bovine animals in a Dairy/Gaushala located in urban, peri-urban & rural area.

2.1 Dairy Farms

According to inventory received from SPCBs/PCCs and it is analysed that 60-70% Dairy Farms are having upto 25 animals, 15-20% Dairy Farms are having upto 100 animals and 15-20% Dairy Farms are having more than 100 animals. Therefore, they have been categorized as small, medium & large Dairy farm, respectively. It has been analysed that 5-10%, 5-10% and 80-90% Dairy Farms located in urban, peri-urban & rural area, respectively.

2.2 Gaushalas

Similarly, inventory received from SPCBs/PCCs for Gaushalas and it is analysed that 15-20 % Gaushalas having upto 100 animals and 80-85% Gaushalas having more than 100 animals. Therefore, Gaushala having upto 100 animals, 1000 animals & more than 1000 animals can be categorized as small, medium & large Gaushala, respectively. It has been analysed that 50-55%, 5-10% and 35-45% Gaushalas located in urban, peri-urban & rural area, respectively.

3. Environmental Issues in Dairy Farms and Gaushalas

Major environmental issues of Dairy farms and Gaushalas are related to disposal of dung and urinal wastewater. Poor handling & disposal of dung and wastewater causes water pollution & odour problem. A Bovine animal, on an average, weigh 400 kg and discharges 15-20 kg/day of dung and 12-14 litres/day of urine. Solid wastes produced from Dairy farms and Gaushalas are bovine dung, feed residue, etc. which are organic and non-hazardous in nature but requires proper handling and disposal.

3.1 Dairy Farms

3.1.1 Urban & Peri-urban Area

Majority of Dairy Farms are in clusters. Issue of disposal of dung & wastewater from Dairy farms is predominant in urban & peri-urban area where it is discharged in drains, leading to clogging, which ultimately reach to and pollute rivers. These clogged drains become

breeding ground for mosquitoes creating health hazards and odour nuisance. Wastewater is generated from floor cleaning, bathing of animals, urine, etc. and disposed of without treatment into drains. Dung produces many gases/compounds such as carbon dioxide, ammonia, hydrogen sulphide, methane, etc. which emitted into atmosphere and responsible for odour.

3.1.2 Rural Area

Dairy farms located in rural area are run by small & marginal farmers which produces milk for self-consumption and excess sell in local market. Dung being utilized as a manure in field. Problem arises when dung is stored for very long time and create odour. Wastewater generated majorly from urine which is generally disposed of without treatment into land due to unpaved floor or goes to nearby drain.

3.2 Gaushalas

3.2.1 Urban & Peri-urban Area

Dung is generally stored for very long time and creating odour issues. Sometimes, it finds its way to drains also. Dung is utilised as a manure in field and also in making dung wood/dung cakes. Wastewater is generated from floor cleaning, bathing of animals, urine, etc. Bathing of animal is done occasionally & floor cleaning is done mechanically. The urine usually discharges in drain without any treatment. However, it is also utilized for medicinal uses. Therefore, wastewater generated per bovine animal from Gaushalas is comparatively lower than Dairy Farms.

3.2.2 Rural Area

Dung is being utilised as a manure in field and also used as fuel for domestic purpose. Problem arises when it stored for very long time and creating odour issues. Wastewater is generated from floor cleaning, bathing of animals, urine, etc. Bathing of animal is done occasionally & floor cleaning is done mechanically. The urine usually discharges in drain without any treatment. However, it is also utilized for medicinal uses.

4. Methods for Disposal/Utilisation of Dung

Disposal of bovine dung is biggest challenge in dairy farms and gaushalas. However, bovine dung, if effectively utilised, can be a resource of manure & energy. Bovine dung may be used for many purposes i.e. for combustion (dung wood) or for producing biogas or as soil conditioner or as fertilizers or as material for wall plastering, etc. Following methods for disposal/utilisation of solid wastes (dung) may be adopted:

a. *Composting/Vermicomposting*: Composting is a manure management practice to reduce impact on the environment. Composting is biological decomposition and stabilization of organic material. The process produces a final product that is stable, free of pathogens, reduced odours and can be applied on land as manure. Vermicomposting is method of preparing compost with use of earthworms that enriches soil quality by improving its physicochemical and biological properties. It is becoming popular as a major component of organic farming system.

b. *Biogas/Compressed biogas (CBG) production*: Biogas plants are best way to handle dung waste. Biogas is generated in process of biodegradation of organic materials under anaerobic conditions which may be utilised for cooking and power generation. Biogas plant generated digested organic manure for crops. Biogas can be processed and filled in cylinders. Bio-gas may be further purified to remove hydrogen sulphide (H_2S), carbon dioxide (CO_2) & water vapour and compressed (known as Compressed Bio Gas, CBG) which has methane (CH_4) content of more than 90% as per BIS standard IS 16087:2016. CBG has calorific value and other properties similar to CNG and hence can be utilized as green renewable fuel as replacement of CNG in automotive, industrial and commercial areas.

c. *Manufacture of dung wood or dung cake to be used as fuel*: Bovine dung can be used as fuel as a replacement of firewood. Bovine dung can be dewatered and converted to value added products such as logs, powder etc. by mechanized/semi-mechanized machines.

Following options for disposal/utilization of dung may be adopted by Dairy Farms and Gaushalas:

Sl. No.	Dairy Farms/ Gaushalas	Methods for Disposal/Utilization of Dung
1.	Small Dairy Farms	• Composting/vermicomposting, or • Manufacture of dung wood/dung cake, or • Combination of both
2.	Medium Dairy Farms	• Combination of any of three methods for disposal/utilization of dung
3.	Large Dairy Farms	• Biogas/compressed biogas production or • Combination with any of remaining method
4.	Dairy Farms in Rural Area	• Composting/vermicomposting, or • Manufacture of dung wood/dung cake
5.	Dairy Farms in Cluster	• Common Biogas/compressed biogas production, and • Any of remaining method at individual level
6.	Small & Medium Gaushalas	• Combination of any of three methods for disposal/utilization of dung
7.	Large Gaushalas	• Biogas/compressed biogas production or • Combination with any of remaining method

5. Guidelines for Waste Management in Dairy Farms

Following guidelines are framed for management of wastes from Dairy farms. These guidelines are applicable to establishment which are discharging their wastes into environment. These establishments shall also follow existing laws, rules, guidelines, directions and standard operating procedures issued by different organizations.

5.1 Guidelines for Waste Management in Dairy Farms located in Urban & Peri-urban Area

5.1.1 Solid Waste Management

Guidelines to be followed for management of solid wastes are as under:

i. Dung from floor of shed should be collected at regular interval, so as to keep floor clean. Surrounding areas should also be cleaned regularly to prevent obnoxious smell in area.
ii. Premises and its surrounding areas should be properly sanitized and disinfected, e.g. by sprinkling crushed lime.
iii. Dung & fodder residue etc. should not be washed into drains in order to avoid clogging of drains. Local bodies/corporations/SPCBs should ensure that untreated wastes are not discharged outside premises.
iv. Collected solid wastes should be stored properly for its utilization.
v. Small Dairy Farms may adopt dung for manufacture of dung wood/dung cake or composting/vermicomposting or combination of both methods for disposal/utilization of solid wastes. In case of cluster, biogas/compressed biogas production may be adopted for disposal/utilization of solid wastes in association with entrepreneurs or local dairy farmers association. Local bodies/corporations/SPCBs should facilitate Dairy farmers/entrepreneurs/NGOs in setting up of individual or common utilization facilities.
vi. Medium & Large Dairy Farms may adopt a combination of disposal/utilization methods like manufacturing of dung wood or biogas generation or vermicomposting. However, Large Dairy Farms may setup biogas/compressed biogas production facility either by themselves or in association with entrepreneurs.
vii. Domestic hazardous wastes (vaccines, vails, medicines, syringes, etc.) should be disposed as per provisions of "Solid Waste Management Rules, 2016". If they have their own medical facilities then wastes should be disposed as per provisions of "Bio-medical Waste Management Rules, 2016".

5.1.2 Wastewater Management

Guidelines for management of wastewater are as follow:

i. Water should be judiciously used for bathing of bovines and other services including floor cleaning to contain wastewater quantity to 100 litres/day/bovine.
ii. Adequate infrastructure should be provided to ensure proper handling, treatment and disposal of wastewater. They may set-up individual or common treatment facilities where in cluster. Local bodies/corporations/SPCBs should facilitate Dairy farmers/ entrepreneurs/NGOs in setting up of individual or common treatment facilities.
iii. Wastewater should be adequately treated so as to meet standards as prescribed by SPCBs/PCCs.
iv. Flooring of shed should be properly paved (impervious) with a wastewater collection system. However, floor should not be slippery in order to ensure safety of animals.

5.1.3 Air Quality Management

Guidelines for management of air quality/emissions are as follow:

i. Animal housing should be ventilated allowing sufficient supply of fresh air to remove humidity, dissipate heat and prevent build-up of gases such as methane, carbon dioxide, ammonia, etc.
ii. Good housekeeping practices like maintaining proper sanitary conditions, protecting dung from unwanted pests/insects should be followed in order to minimize odour nuisance.
iii. Floor, feeding, water and air spaces available for each animal should be adequate for standing, resting, loafing, movement, feeding, watering and ventilation. Space requirements should be provided as per Bureau of Indian Standards (BIS) (refer BIS: 12237-1987 given at **Annexure-I**).
iv. It is suggested to obtain ration advisory for improving/modifying quality and dosage of feed/forage/supplements from any of agricultural institutes/departments like Krishi Vigyan Kendra, State Dairy Department, Animal Husbandry Department, NDRI, NDDB, etc. in order to reduce enteric methane generations from livestock. It is beneficial to animal health/nutrition and reduced impact on environment.
v. Plantation of trees or green belts, wherever feasible, to provide a barrier against the spread of foul smell or noise originating from them.

5.1.4 Siting Policy

Siting criteria will be applicable for new establishment. Existing establishments should take appropriate environmental friendly practices as per Guidelines. Dairy farm shall be setup as per siting policy/guidelines of local administration and may follow criteria as below:

i. It should be located in area wherever permissible and atleast 100 meters away from residential dwellings, health centres/hospitals & schools in order to avoid odour problem,
ii. Atleast 200 meters away from water spread area of major watercourses like Lake, canal and major drinking water sources,
iii. Away from flood plain area of River and areas having shallow groundwater.
iv. Atleast 5 meters of inter-se distance between two establishments (each establishment should provide 2.5 meters from each side) for ventilation should be provided and developed green belt.

5.2 Guidelines for Waste Management in Dairy Farms located in Rural Area

5.2.1 Solid Waste Management

i. Dung should be collected & stored properly for its utilization. It should be used as compost in field or in making dung wood or vermi-compost. Biogas production may be practiced wherein cluster as a source of energy for rural area.

ii. Dung & fodder residue should not be washed into drains in order to avoid clogging of drains and surrounding areas should also be cleaned regularly to prevent obnoxious smell in area.
iii. Provisions of "Solid Waste Management Rules, 2016" should be followed for disposal of domestic hazardous wastes (vaccines, vails, medicines, syringes, etc.).

5.2.2 *Wastewater Management*

i. Water should be judiciously used to contain wastewater quantity to 100 litres/day/ bovine.
ii. Floor should be paved and wastewater should be collected and utilized for agriculture purpose. Floor should not be slippery in order to ensure safety of animals.
iii. Wastewater should be adequately treated so as to meet standards as prescribed by SPCBs/PCCs.

5.2.3 Air Quality Management

i. Animal housing should be ventilated allowing sufficient supply of fresh air to remove humidity, dissipate heat and prevent build-up of gases.
ii. Good housekeeping practices should be followed in order to minimize odour nuisance.
iii. Floor, feeding, water and air spaces available for each animal should be adequate for standing, resting, loafing, movement, feeding, watering and ventilation. Space requirements should be provided as per Bureau of Indian Standards (BIS) (refer BIS: 11799-2005 given at **Annexure-II**).
iv. It is suggested to obtain Ration advisory for improving/modifying quality and dosage of feed/forage/supplements from any of agricultural institutes/departments like Krishi Vigyan Kendra, State Dairy Department, Animal Husbandry Department, NDRI, NDDB, etc. to reduce enteric methane generations from livestock.
v. Plantation of trees or green belts, wherever feasible, to provide a barrier against spread of foul smell or noise originating from them.

5.2.4 Siting Policy

Siting criteria will be applicable for new establishment. Existing establishments should take appropriate environmental friendly practices as per Guidelines. Dairy farm shall be setup as per siting policy/guidelines of local administration.

These should be located away from residential dwellings/hospitals/schools in order to avoid odour issue as per siting norms of local administration. It should be atleast 100 meters away from water spread area of major drinking water sources in order to avoid contamination of water bodies. These should be away from flood plain areas of River and areas having shallow groundwater.

Atleast 5 meters of inter-se distance between two establishments for ventilation, this space of 5 meters (2.5 meters from each side from each unit) shall be developed for green belt.

6. Guidelines for Waste Management in Gaushalas

Following guidelines are framed for management of wastes from Gaushalas located in urban, peri-urban & rural area. These guidelines are applicable to establishment which are discharging their wastes into environment. These establishments shall also follow existing laws, rules, guidelines, directions and standard operating procedures issued by different organizations.

6.1 Solid Waste Management

Guidelines to be followed for management of solid wastes are as under:

i. Dung from floor of shed should be collected at regular interval, so as to keep floor clean. Surrounding areas should also be cleaned regularly to prevent obnoxious smell in area.
ii. Premises and its surrounding areas should be properly sanitized and disinfected, e.g. by sprinkling crushed lime.
iii. Dung & fodder residue etc. should not be washed into drains in order to avoid clogging of drains. Local bodies/corporations/SPCBs should ensure that untreated wastes are not discharged outside premises.
iv. Solid wastes should be stored properly for its utilization in dung wood manufacturing or biogas generation or vermicomposting. In case of small & medium scale Gaushalas, a combination any of methods may be adopted for utilization of dung wherein large scale Gaushalas may setup biogas generation facility at its own or in partnership with entrepreneurs.
v. Domestic hazardous wastes (vaccines, vails, medicines, syringes, etc.) should be disposed as per provisions of "Solid Waste Management Rules, 2016". If they have their own medical facilities then the wastes should be disposed as per provisions of "Bio-medical Waste Management Rules, 2016".

6.2 Wastewater Management

Guidelines for management of wastewater are as follow:

i. Water should be judiciously used for bathing of bovines and other services to contain wastewater quantity to 50 litres/day/bovine. (As water utilized by Gaushala is less in comparison to Dairy Farm due to occasional bathing & mechanized floor cleaning).
ii. Adequate infrastructure should be set-up to ensure proper handling, treatment and disposal of wastewater. Local bodies/corporations/SPCBs should facilitate Gaushala owners/ entrepreneurs/NGOs in setting up of treatment facilities.
iii. Wastewater should be adequately treated so as to meet standards as prescribed by SPCBs/PCCs or utilized for various medicinal purpose.
iv. Flooring of shed should be properly paved (impervious) with a wastewater collection system. However, floor should not be slippery in order to ensure safety of animals.

6.3 Air Quality Management

Guidelines for management of air quality/emissions are as follow:

i. Animal housing should be ventilated allowing sufficient supply of fresh air to remove humidity, dissipate heat and prevent build-up of gases.
ii. Good housekeeping practices like maintaining proper sanitary conditions, protecting dung from unwanted pests/insects should be followed in order to minimize odour nuisance.
iii. Floor, feeding, water and air spaces available for each animal should be adequate for standing, resting, loafing, movement, feeding, watering and ventilation. Space requirements should be provided as per Bureau of Indian Standards (BIS) (refer BIS: 11942-1986 given at **Annexure-III**).
iv. It is suggested to obtain Ration advisory for improving/modifying quality and dosage of feed/forage/supplements from any of agricultural institutes/departments like Krishi Vigyan Kendra, State Dairy Department, Animal Husbandry Department, NDRI, NDDB, etc. to reduce enteric methane generations from livestock.
v. Plantation of trees or green belts, wherever feasible, to provide a barrier against spread of foul smell or noise originating from them.

6.4 Siting Policy

Siting criteria will be applicable for new establishment. Existing establishments should take appropriate environmental friendly practices as per Guidelines. Gaushala shall be setup as per siting policy/guidelines of local administration.

These should be located atleast 100 meters away from residential dwellings/schools/hospitals in order to avoid odour issue and away from the water spread area of major drinking water sources. These should be away from flood plain areas of River and areas having shallow groundwater. Atleast 5 meters of inter-se distance between two establishments for ventilation, this space of 5 meters (atleast 2.5 meters from each side from each unit) shall be developed for green belt.

7. Regulatory/ Monitoring Mechanism for Dairy Farms & Gaushalas

i. Local authorities/corporations should carry out inventory of Dairy farms and Gaushalas located in their jurisdiction in inventory performa given at **Annexure-IV** and same should be updated & shared with concerned SPCB/PCC on annual basis (calendar year wise).
ii. Local bodies/municipal corporations shall publish a public notice in newspapers and on their website for registration of Dairy farms and Gaushalas as per municipal laws. Registration may be done preferably through online mode and same may be displayed at their websites.
iii. SPCBs/PCCs shall publish a public notice for Dairy farms & Gaushalas to obtain consent to establish and consent to operate under Water Act, 1974 as well as Air Act, 1981 as per the categorization of industries in Orange and Green Category, respectively.
iv. SPCBs/PCCs/local bodies/municipal corporations shall upload Environmental Guidelines on their website and also circulate to all Dairy farms and Gaushalas.

v. Concerned SPCBs/PCCs/local bodies/corporations should monitor dairy farms and gaushalas on regular basis to ensure proper disposal of bovine dung and wastewater to check compliance of environmental norms. SPCBs/PCCs will consider carrying capacity of surroundings while allowing a new establishment and laying down environmental norms.

vi. SPCBs/PCCs shall carry out environmental audit of atleast 2 Dairy farms and 2 Gaushalas, randomly selected from each district of State/UT and submit compliance and action taken report to CPCB on half yearly basis.

vii. SPCBs/PCCs shall submit status of compliance of guidelines by Dairy farms and Gaushalas located in their jurisdiction in form of report once in six months to CPCB for Audit purpose.

viii. CPCB shall carry out environmental auditing of 4 Dairy farms and 4 Gaushalas in each State/UT, randomly selected based on information received from SPCBs/PCCs on annual basis.

ix. In case of any violation of environmental norms under Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981 and Environmental (Protect) Act, 1986 by Dairy farms and Gaushalas, concerned SPCBs/PCCs should impose environmental compensation as per CPCB methodology for "Environmental Compensation to be levied on Industrial Units", for damaging the environment and in order to stop polluting activity and initiate prosecution for repeatedly polluting units.

x. SPCBs/PCCs should provide training and consultation to Gram Panchayat for implementation of guidelines in their jurisdiction. Gram Panchayat should ensure implementation of guidelines by Dairy farms and Gaushalas falling under their jurisdiction for handling and management of wastes.

xi. Hands on practical trainings on environment/waste management & treatment technologies, scientific feeding for enteric methane reduction, waste to wealth management programme, etc. should be provided to Dairy & Gaushala workers/entrepreneurs by local bodies/ SPCBs/PCCs on regular interval.

******

UDC 631·223·24·012

IS : 12237 - 1987

(Reaffirmed 2004)

Indian Standard

RECOMMENDATIONS FOR LOOSE HOUSING SYSTEM FOR ANIMALS

Livestock Structures and Equipment Sectional Committee, AFDC 17 [Ref : Doc : AFDC 17 (2816)]

1. Scope — This standard recommends the layout and constructional details of loose housing system for animals.

1.1 Various features covered in this standard are primarily meant for herd size of 50 adult cows or buffaloes.

2. Terminology — For the purpose of this standard, the following definitions shall apply.

2.1 *Loose Houst* — Animal house comprising of an open paddock or yard with a shelter having common watering and feeding facilities and in which animals are kept untied.

2.2 *Paddock or Yard* — An open area surrounded by walls, fences or rails for accommodating cattle. This area is meant to provide open air exercise to the animals.

2.3 *Shelter*—This is a covered area, normally one-third of the area of the paddock and is located in the middle or along one side of the latter. This is the area where the animals may take protection from direct sun or rain.

2.4 *Feeding Arrangements*—These comprise of common manger normally situated along the long axis of the covered area or sometimes an additional one in the open area.

2.5 *Watering Arrangements* — These comprise of water tanks made as partitioned portions of feed manger or as separate units in the open area.

3. Selection of Site

3.1 The housing system should meet the provisions given under **3.1** to **3.4** of IS : 11786-1986 'Recommendations for cattle housing for an average farmer'.

3.2 The site shall be such that the longer axis of the wall of the shed should be oriented east to west in all areas except temperate Himalayan and hilly regions. In coastal and desert areas, the longer axis of the shed shall be oriented across the prevailing wind direction in order to protect the roof from being blown off by high wind and at the same time to provide sufficient air movement in the shed. In sub-mountainous region, the buildings should be so sited as to avail of the natural aeration and drying. The site shall be away from other buildings.

4. Herd Size—A 50-cow or buffalo dairy farm normally comprises of 35 to 40 cows, buffaloes, 10 to 15 dry animals, 35 to 40 male and female or 15 to 20 female calves, 20 to 26 growing female stock of 1 to 3 years age, 1 or 2 bulls and 2 or 3 pair of bullocks.

5. Building Units — In general, the buildings can be grouped into following three categories:

a) Buildings in which there is maximum labour activity, frequent handling of animals and need for closer and constant supervision, such as milking shed, milch animal shed, down-calver sheds (maternity pens), suckling calf shed and milk house.

b) Buildings in which there is lesser labour activity, no routine handling of animals and less need for closer supervision, such as dry animal-cum-bullock shed, young stock shed and bull shed.

c) Ancillary sheds where no animals are housed but activities relating to feeding and management of stock are performed, such as stores for ration and dry fodder, chaffing shed and silos.

6. Layout

6.1 *Arrangement of Buildings* — Economization of space without sacrificing free flow of air and natural lighting or making conditions crampy for animals, should be the broad guideline in arranging the different buildings on a dairy farm. As far as possible, buildings within each group may be

Adopted 30 December 1987 | © September 1998, BIS | Gr 3

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

arranged together, with the buildings of group mentioned under 5(a) getting the most central and most approachable area. The buildings of group mentioned under 5(c) should be close to or have easy access to the feeding area of the animal shed.

Note — Shady trees planted and protected in the open area and around the buildings are essential ingredient of loose housing system.

6.2 Typical layouts comprising the various units are given in Fig. 1 and 2 for guidance.

Note — These layouts can be modified depending upon size and shape of available land, topography of land, finances, special needs, etc. However, such modifications may not be contrary to the general principles given in 5, 6 and 7.

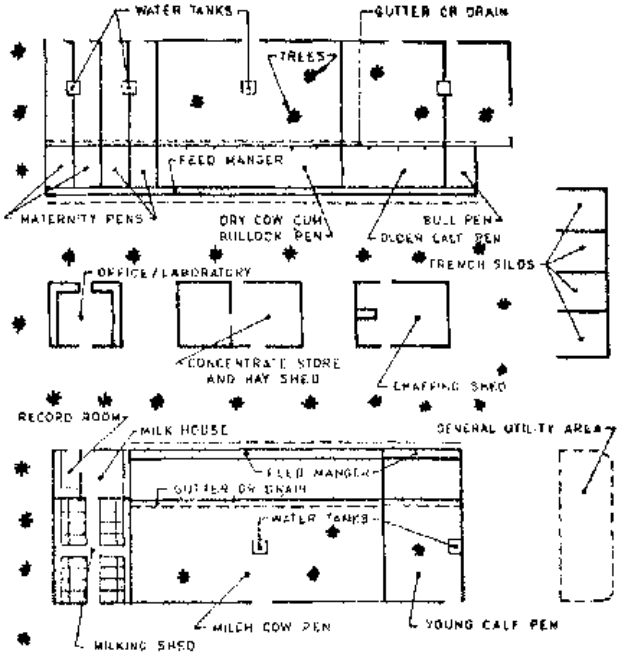


FIG. 1 LAYOUT SHOWING THE FUNCTIONAL DETAIL OF LOOSE HOUSING IN THREE ROWS

7. Description of Sheds

7.1 *Milking Shed* — This is a fully covered barn type building in which lactating cows are milked. It should be located at a central place with all other buildings arranged around it. There should be individual standings or stalls or stanchions in two rows in a tail-to-tail arrangement. Each standing can be used for milking 3 to 5 cows or buffaloes in one hour under hand milking conditions; the number of standings required on a farm, thus, will be about one-fourth of the number of milch animals. The length and width of the standing shall be decided according to the size of the animals and may vary from 1·5 to 1·7 m in length and 1·05 to 1·20 m in width. The width of the central passage shall be 1·5 to 1·8 m. The central passage shall have a gentle slope from the centre outwards towards the drain. There shall be two continuous mangers, one on each side along the heads of standing rows and a 0·75 m wide feeding alley beyond each manger. There shall be a shallow U-shaped drain 20 cm wide, one on either side of the central passage.

7.1.1 The floor of the standing should be paved with a slope of 1 in 40 towards drains. There should be walls along the length and at each end of the shed to support the beams or the roof. The roof of the shed should be gabled. The eaves of the roof shall project out at least 50 cm away from the side walls. The side walls need not necessarily be complete; large open spaces may be left in the side walls at suitable intervals. When walls are complete up to the roof, as is necessary intervals. When walls are complete up to the roof, as is necessary in cooler and/or heavy rainfall areas, there shall be windows and ventilators at suitable places in the walls.

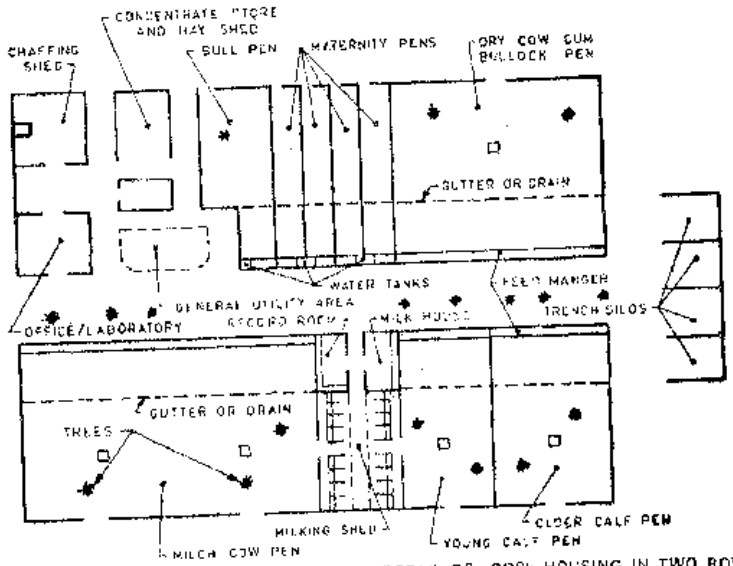


FIG. 2 LAYOUT SHOWING THE FUNCTIONAL DETAIL OF LOOSE HOUSING IN TWO ROWS

7.1.2 Some device should be arranged to secure individual animal by neck in each standing. The milking barn may, if necessary, be extended to accommodate down-calvers as well as calves. Milch animal, that are in heat, can be left after milking in the standings and inseminated right there.

7.2 *Sheds for Milch Dry Animals* — These are sheds for housing milch animals and dry animals separately. On small farms, a partition can be raised in one shed for housing dry animals separately. On farms with only a few animals, all the animals, milking or dry can be housed together.

7.2.1 These are simple sheds comprising a covered portion and an adjoining open paddock. The manger and water tank should also be provided. The covered area should preferably be of cement concrete, brick-on edge, stone slab, *Moorum* or *Kunkar*, flooring may be used.

7.3 *Maternity Pens* — Pregnant cows are to be transferred into maternity pens or calving boxes two to three weeks before the expected date of calving. The number of calving boxes of maternity pens required is about 5 percent of the number of breedable female stock on the farm. These should be located near the living quarters of farmer and/or milking barn so that the down-calvers are constantly observed. The pens can be constructed either in a row or in groups of two or four.

7.3.1 The dimensions of each calving pen shall be about 3 × 4 m for covered area and another 3 × 4 m for the open paddock. The covered area shall have a 1·25 m high wall all around, barring a 1·2 m wide gate opening into the open lot. A manger and a water trough of proper size should be constructed in each pen. The floors shall be *Moorum*, brick-on-edge or cement paved with a 1 in 40 slope towards the drain.

7.4 *Sick Animal Sheds* — Sheds more or less similar to maternity pens in structure shall be located well away from the other sheds so that these sheds are inaccessible to other animals.

7.5 *Calf Shed* — The calf shed can be located either at the end or on the side of the milking barn. This facilitates calves to their dams quickly at milking time (if weaning is not practised), and hand feeding of milk to calves if weaning is practised. If there is a large number of calves, the calf shed shall form a separate unit, but shall be located near to milking barn, so that calves of different age groups can be housed separately.

7.5.1 The dimensions of calf shed depend on the number of calves to be housed. The dimensions of mangers and water troughs shall conform to specifications given in **8.2**. Floors shall be of cement concrete in covered area and brick-on-edge in open area.

7.6 *Young Stock Shed* — Older heifer calves from about six months of age to breeding age are to be housed separately from the suckling calves. Generally, no male calves are kept on farms beyond six months of age. When a large number of young stock is there, they should be divided into different age groups and each group housed separately.

7.6.1 When their number is small, the young stock shed may be an extension of the dry animal shed or it may be a separate unit nearer to it. In the latter case, this shed shall be constructed in a single row. The constructional details of this shed are the same as for cow sheds except for the difference in dimensions of mangers and water troughs.

7.7 *Bull Sheds* — The bull sheds should be constructed towards one end of the farm. There shall be one shed for each bull, the number of bulls required being one for every 50 breedable females on the farm, if natural breeding is practised. When artificial insemination service facilities are available nearby, there may be no necessity to keep bulls on the farm. The bull shed shall have covered area of 3 × 4 m dimensions, leading into a paddock of 120 m^2.

7.8 *Trees* — Shady trees, preferably quick growing, may be chosen for planting in and around animal sheds. Leaves and pods of many of these can be used as cattle feed. The following species may be considered:

a) *Acacia arabica*
b) *Acacia leucophloea*
c) *Madhuca longifolia* or *Madhuca indica*
d) *Cassia fistula*
e) *Cordia dichotoma*
f) *Erythroxylon monogynum*
g) *Ficus bengalensis*
h) *Ficus religiosa*
j) *Helicteres isora*
k) *Kydia calycina*
m) *Leucaena leucocephala*
n) *Mangifera indica*
p) *Salix tetrasperma*
q) *Syzygium jabolanum*
r) *Tamarindus indica*
s) *Wrightia tictoria*

7.8.1 As far as possible, existing trees of the site proposed for construction should not be destroyed but incorporated within the layout. Further, trees should be planted at pre-determined spots within the layout even before the construction is completed, and the same may be nurtured and protected by tree guards.

8. Constructional Details

8.1 *Floor* — It shall be in accordance with 7.1.1 of IS : 11799-1986 'Recommendations for cattle housing for a rural milk producer'.

8.2 *Manger* — The manger shall meet the provisions of 7.1.2 of IS : 11799-1986 except that the wooden planks are not recommended for its construction.

8.3 *Water Supply* — Water troughs or tanks should be constructed in each shed for the convenience of animals. The water troughs should be built with reinforced concrete, bricks with cemented junctions, stone slabs with cemented joints or plain thick galvanized iron sheets. The water tanks may be round (generally in larger pens) or rectangular and shall be located at a convenient place in the shed. Its dimensions shall be more or less the same as for mangers for different classes of livestock. A two metre wide paved platform shall be provided adjacent to the water troughs. In smaller pens, a tank can be made by raising an impervious partition towards one end of the continuous manger. Each water tank should have one hydrant, the outflow from which may be controlled by a float valve. The hydrant can also be left without a tap, and water let into the troughs at regular intervals so that the water trough may get filled as the animals empty them. Hydrants with spouts to attach a hose pipe should also be fixed in each shed at convenient places. The pens and animals (buffaloes) can be washed by flushing water through a hose. Wherever possible, the water supply pipe lines should run underground.

8.4 Manure Disposal

8.4.1 *Liquid manure* — The liquid manure and wash water should be taken out of the shed by a shallow U-shaped gutter or drain located longitudinally to the long axis of the shed at the junction of the open and the covered area. Outside the shed, liquid manure from each shed can be lead by means of drains (preferably closed or sub-terrain drains) to a main farm drain. This main drain leads liquid waste ultimately to a liquid manure storage tank through an inspection chamber and a settling chamber. The drains should be constructed out of the same materials as that of floors. The width of the drains may vary between 30 to 40 cm. A slop of 1 to 40 should be provided to the drains towards storage tank so that the liquid may flow down easily. Shallow U-shaped drains are preferable. Drains in a row of pens should be made continuous by routing them through holes in the intervening partition walls.

8.4.2 *Solid manure* — When solid manure is collected separately, it should be stored properly in manure pits so that the same gets well decomposed. Manure pits should be located as far off as possible from animal habitations after duly considering the labour required in transporting manure from the sheds to the pits. This is necessary as a safeguard against foul odours existing near milk parlours and as a measure against fly menace. For reasons of hygiene, manure pits should be at a minimum distance of 10 m from wells, rivers and tanks and from the boundary of the adjoining land property. Further, they must be impermeable to water. The size and the number of manure pits required depend on the production of manure on the farm. Total manure storage capacity may be planned on 33 kg per day or 0·045 m³ on per animal basis.

8.5 *Pillars* — Provisions given in **7.3** and **7.3.1** of IS : 11799-1986 should be followed.

8.6 *Walls and Roofs* — These should be in accordance with **7.2** and **7.4** of IS : 11799-1986, respectively.

8.7 *Paddock and Shelter* — The paddock and shelter of each shed should form an integrated unit so that the animals can move freely to any part of the paddock shelter combine. The sheltered regions should be paved while the paddock may be left unpaved, but well rammed. The space per animal shall be as given in Table 1.

TABLE 1 SPACE OF PADDOCK AND SHELTER

Sl No.	Category of Animal	Paddock (Open Area) m²	Shelter (Covered Area) m²	Maximum Number of Animals to be Kept in Each Shelter
i)	Buffalo	9	4	40
ii)	Cow	7	3·5	40
iii)	Young stock	4	2	30
iv)	Calf	2	1	30
v)	Calving pen	12	12	1
vi)	Bull	25	12	1

8.7.1 *Manger and water trough* — Manger and water through may be constructed in paddocks with reinforced cement concrete, brick with cement mortar or stone slabs with cement joining. A 2 m wide paved platform shall be provided away from trough to withstand the heavy treading of animals and permit easy washing and cleanliness.

8.8 *Fencing* — It shall be in accordance with **8.2** of IS : 11799-1986.

8.9 *Gate* — A gate of suitable type and size may be provided taking care that they are hinged firmly and raised well above the ground. Braces shall be positioned vertically.

9. Ancillary Structures

9.1 *Milk House* — Milk collection, recording, testing and cooling facilities as well as facilities for cleanning and stacking of milking pails and milk cans have to be provided in this house. This floor space can accommodate the milk recording equipment, milk cooling device in the form of bulk cooler, can racks, milking pail rack, sinks, washing outfit and furniture of the milk recorder. On very large farms, the different components of the milk house, that is recording-cum-milk cooling room, milk utensils and equipment room and washing room, may be constructed as separate units. The doors and the windows of the milk house shall be made fly-proof. The flooring of the room shall be of cement concrete, impervious and reinforced with iron strips located at suitable distances to make it hard wearing. The walls should be lined with white glazed tiles up to a height of 1·5 m. A suitable platform or concrete slab in the form of bench shall be provided for keeping the milk testing apparatus.

9.2 *Stores* — There shall be one main concentrate store-cum-feed mixing room at a distant place but it is advisable to have a small ration room near the milking barn for storing prepared concentrate mixture temporarily for a day or two. On smaller farms, one feed store near the milking barn would be sufficient. The feed room shall be damp-proof and rodent-proof.

9.3 *Silo* — Suitable size trench silo may be provided.

9.4 *Hay/Straw Shed* — Shed, preferably with walls on three sides may be provided for storing straw or hay. Storing hay or straw as stacks in the open results in excessive wastage in the form of spoilage and deterioration. Sometimes, a simple shed with gabled roof is used. The hay shed shall be away from animal sheds because of fire hazards. On larger farms, the hay sheds can be made into a sort of self-feeding hay bunks by placing movable wooden partition on one side edge of the hay shed so that the animals can eat hay at will from only the portions accessible through this wooden partition and do not spoil the hay excessively.

9.5 *Chaffing Shed* — A shed for chaffing the fodder with chaffing machine or ensilage cutter is erected. The shed may have provisions for power supply to the machine.

9.6 *Office Room* — Depending upon the size of the farm, an office room may be provided. The office room may also be used for keeping medicines and instruments required for treating sick animals. A toilet may also be provided. A visitors' room may be attached to the office room.

9.7 *Trevis or Cattle Crutch* — A cattle trevis may be provided in the general utility area for securing animals for insemination, treatment, etc.

9.8 *Seggretion Room* — Provision may be made for a seggretion room for keeping new animals introduced in the herd for some initial days before their mixing up with the herd.

9.9 *Lighting* — Provision of lighting shall be made; in case electricity is available, a 25 W bulb for each 10 m^2 space or 60 W bulb for each 20 m^2 space or equivalent tube light may be provided.

9.10 *Biogas Plant* — A bio-gas plant of suitable size may be installed so that the farm wastes (biomass) can be used to produce gas for use on the farm.

EXPLANATORY NOTE

Animal housing helps in moderating the range of microenvironment to which the animals are exposed and optimizes their production by protecting them from extreme climates. Normally, the animal housing consists of either barn system or loose system.

This standard covers the details of loose housing which is becoming now more popular. A number of Indian Standards on barn system of housing have already been published.

In the preparation of this standard, assistance has been derived from the Department of Livestock Production and Management, Haryana Agricultural University, Hissar.

Printed at Printograph, New Delhi India.

IS 11799 : 2005

भारतीय मानक

ग्रामीण क्षेत्रों में पशु-आवास के लिए अनुशंसाएँ

(पहला पुनरीक्षण)

Indian Standard

RECOMMENDATIONS FOR CATTLE HOUSING IN RURAL AREAS

(First Revision)

ICS 65.040.10

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Price Group 5

May 2005

Livestock Feeds, Equipment and System Sectional Committee, FAD 5

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Livestock Feeds, Equipment and System Sectional Committee had been approved by the Food and Agriculture Division Council.

Proper housing is an important feature in raising the production capabilities of animals, in addition to good breeding, feeding, selection and disease control. It is conducive to good health, comfort protection from inclement weather and the animals are capable of utilizing their genetic abilities and feed for optimum production.

Cattle raising and dairying is practiced in the country by various interests. Generally these interests are : (a) an average farmer who has not more than a pair of bullocks and two or three milch animals with their calves; (b) a rural milk producer normally having a total of about 20 animals including about 12 milch animals, their followers and a pair of bullocks; (c) *GAUSHALAS* and other organized milk producers; and (d) large dairy farms.

This standard was published in 1986, covering recommendations for cattle housing for rural milk producer. This revision has been taken up to enlarge the scope of the standard by incorporating the recommendations for cattle housing for an average farmer (IS 11786:1986 'Recommendations for cattle housing for an average farmer') and updating the referred standard.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

RECOMMENDATIONS FOR CATTLE HOUSING IN RURAL AREAS

(First Revision)

1 SCOPE

This standard covers recommendations for layout and constructional details of a cattle shed meant for an average farmer normally having three milch animals with their calves and a pair of bullock and rural milk producer normally having 20 animals which may include about 12 milch animals, their followers and a pair of bullocks.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
258 : 2000	Potash alum — Specification (*second revision*)
712 : 1984	Specification for building limes (*third revision*)
797 : 1982	Common salt for chemical industries (*third revision*)
3583 : 1988	Specification for burnt clay paving bricks (*second revision*)
3622 : 1977	Specification for sand stone (slabs and tiles) (*first revision*)

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

3.1 Paddock or Yard — An open area surrounded by walls, fences or rails for accommodating cattle. This area is meant to provide open air exercise to the animals. It generally contains manger(s) or trough(s) with or without ties to control animals for different purpose.

3.2 Standard (Stall) — The floor space provided within a shed for an individual animal to stand or lie.

4 SELECTION OF SITE

4.1 The shed shall be located on dry, elevated and well-drained area with consideration for future expansion.

4.2 The shed shall preferably be located at a place where there are enough suitably placed trees to serve as wind-breaks and to provide shade. In order to break the wind, it is recommended that a row of trees be also planted across the directions of wind at the boundary of the farm.

4.3 The site shall be away from public road but easily accessible throughout the year.

4.4 The site shall be such that arrangement could be made for adequate and good water supply.

4.5 The site shall be such that the long axis of the shed could be oriented east to west in all areas except temperate Himalayan and hilly regions. In desert areas, the shed shall be oriented across the prevailing direction of the wind in order to protect the roof from being blown off by high wind.

4.5.1 In coastal areas the shed shall be oriented along the prevailing wind direction in order to protect the roof from being blown off by high wind and at the same time to provide sufficient air movement in the shed. In sub-mountainous region, the buildings should be so sited as to avail of the natural aeration and drying.

5 HERD SIZE

A typical herd for an average farmer has been assumed to have about 5 animals comprising 3 milch animals, their followers and a pair of bullocks whereas for rural milk producer it is about 20 animals comprising 12 milch animals of which about 8 may be in milk. The remaining eight animals may include the followers of adult animals and a pair of bullocks.

6 SHED AND LAYOUT

6.1 For an Average Farmer

An average farmer having not more than three milch animals with calves and a pair of bullocks generally makes use of an existing wall for constructing the cattle shed. The construction of shed under this interest, therefore, has been suggested assuming that a lean to type roof could be built against an existing wall. Arrangement of adequate water supply and light shall be made in the shed. The typical layout of such a shed to accommodate five animals is shown in Fig. 1. The two side walls should be of height not more than

1.2 m. The height of main wall (*see A* in Fig.1) shall be minimum of 2.5 m.

6.2 For a Rural Milk Producer

The shed shall consist of standings for accommodating adult animals and the young stock. At the far end of the shed, there shall be a room for accommodating calves and a separate calving box. The paddock or yard for adult and young stock and calves may be separate on either side of the standings. The calves and the down calver shall have separate paddocks or yards for themselves laid adjacent to the calf room and calving box.

6.2.1 The layout and overall dimensions of each of the units (*see* **6.2**) may be as given in Fig. 2 and Fig. 3.

7 CONSTRUCTION

7.1 Standing

For an average farmer the standings shall be constructed in such a way that the animals are kept facing towards the wall. The manger shall be adjacent to the wall. The length, width and area of cow shed and buffalo shed capable of accommodating one to four cattle is given in Table 1.

For a rural milk producer the standings shall be constructed in such a way that the animals are arranged in rows. The length and width of each standing shall be decided depending upon the size of the animals. The length and width of each standing shall be decided depending upon the size of the animals. The length and width of each standing may vary from 1.5 m to 1.7 m and 1.0 m to 1.2 m per animal respectively. In coastal region, sometimes buffaloes with spreading horns are found; in that case the width per animal may vary from 1.2 m to 1.3 m

7.1.1 *Floor of Standings*

The floor may be either of *MOORUM KANKAR* and sand, cement concrete, stone slabs or bricks-on-edge. The details of laying these floorings may be as given in Annex A. A plinth of at least 15 cm shall be provided for the floor. The surface of the cement concrete or stone flooring shall be grooved to make it non-slippery for animals. For larger animals, the grooves shall be formed in a square of 15 cm × 15 cm and for calves 10 cm × 10 cm (*see A* in Fig. 4). The width of the groove shall be 12 mm and depth 10 mm. The groove shall be of 'U' shape. A slope of 1 in 60 towards the drain shall be provided in order to keep the floor properly drained after washing. Steel rings may be provided on the floor near the manger for tying the animals.

7.1.2 *Manger*

The manger shall be continuous type. The manger shall be made of stone slabs, wooden plank or brick-in-lime or cement mortar. The flooring material of the manger shall be the same as for the floor but the surface shall be finished smooth. All the corners of the manger shall be rounded off and finished smooth. The dimensions of the manger (*see* Fig. 5) shall be as given in Table 2. In case the mangers are of brick, the fore curb should be topped with angle iron.

7.2 Walls

The wall shall be of brick or stone slab laid in cement mortar. The wall may be cement-plastered from inside. The thickness of the wall shall be at least 20 cm. All walls shall be solid up to 1.25 m height from the floor level and shall be constructed in honey comb pattern above that height in order to provide sufficient air movement in the shed. The rest of the portion of the wall may be left open by a series of wire-netted windows. In desert areas, the solid portion may extend up to 1.8 m in height. In case of lean-to type system, the end walls above the solid portion may be left open or provided with a series of wire-netted windows.

Table 1 Space Norms for Cattle Shed

(*Clause* 7.1)

All dimensions in metres.

No. of Cattle	Cow Shed		Buffalo Shed		Remarks
	Length	Width	Length	Width	
(1)	(2)	(3)	(4)	(5)	(6)
1	2.5	3.0	2.7	3.4	Along with calf
2	4.2	3.0	5.2	3.4	Along with calves
3	5.7	3.0	7.3	3.4	Along with calves
4	5.6	3.0	6.8	3.4	For cattle
	2.0	1.5	2.4	1.9	For calves

7.3 Pillars

One pillar shall be placed at intervals of every two or three standings depending on the width of each standing. Pillars may be made from any of the following materials and their minimum dimensions shall be as indicated against each:

a)	Brick	45 cm × 35 cm (*see* Note 1) or 40 cm × 30 cm (*see* Note 2)
b)	Mild steel I section	10 cm × 10 cm
c)	Stone masonry	30 cm × 30 cm
d)	Iron pipes, dia	10 cm
e)	Timber	
	1) Square	10 cm × 10 cm
	2) Round	15 cm dia

NOTES

1 In case of 22.5 cm × 11.25 cm brick, 2 lengths and 3 widths shall be used.

2 In case of 20 cm × 10 cm (modular) brick, 2 lengths and 3 widths shall be used.

3 All iron structures shall be suitably painted for protection against corrosion.

7.3.1 All edges in rectangular pillars shall be rounded off a finished smooth.

7.4 Roof

The roof shall be of lean-to type or gabled type. The roof material may either be asbestos cement sheets, galvanized steel sheets, asphalt roofing material; or locally available material. Where necessary, particularly in hot climate, asbestos cement or galvanized steel roofs may be overlaid with a 8 cm to 10 cm thick thatch to lessen the stress of extreme climate. In areas where locally available materials are used, gunny sacks treated with cement lime mixture (*see* 7.4.1) may be used. The roof shall be supported by steel or wooden trusses or by a series of central pillars. The pitch of the roof may range from 22 to 30 degrees depending upon the material used. Wooden purlins may be spaced up to 1.3 m apart. The eaves of the roof shall project out (*see A* in Fig. 2 and 3) at least 50 cm away from the pillars and in the regions where extreme climatic conditions prevail, the eaves of the roof may project out to 75 cm from the pillars in order to afford protection to the animals from direct sun and rain. The eaves should be 2.2 mm high from ground level (*see B* in Fig. 2 and 3).

7.4.1 *Preparation of Cement Lime Mixture*

Stir thoroughly 12 parts by volume of cement and three parts by volume of lime (*see* IS 712) salt (*see* IS 797) and one-half part by volume of alum (*see* IS 258) and stir until all ingredients are well mixed. Apply the mixture evenly with the help of a brush on the inner surface of the gunny sack. Give

Table 2 Dimensions of Manger

(*Clause* 7.1.2)

All dimensions in centimetres.

Sl No.	Particulars	Stone Slab	Wooden Plank	Brick Laid in Cement or Lime	Ref to Fig. 1
(1)	(2)	(3)	(4)	(5)	(6)
i)	Height of the manger wall, *Min*	75	75	75	*A*
ii)	Height of fore curb, *Max*				
	a) For adults	50	50	50	*B*
	b) For calves	30	30	30	*B*
iii)	Thickness of fore curb, *Min*	4	3	10	*C*
iv)	Inner width of the manger, *Min*				
	a) For adults:				
	1) One way feeding	60	60	60	*D*
	2) Two way feeding	120	120	120	*D*
	b) For calves: one way feeding	40	40	40	*D*
v)	Depth of manger, *Min*:				
	a) For adults	40	40	40	*E*
	b) For calves	15	15	15	*E*

two coats of the mixture on the outer surface of the gunny sack. Stretch the gunny sack and dry in the sun until it becomes stiff.

7.5 *Drains*

The drain shall be laid in the shed at the back of the standing. In case of gabled type roof, two drains shall be laid outside the shed, one on each side of the standing. The drain shall be made of brick in cement mortar or of stone and shall be of 'U' shape with a depth of 6 cm at the bottom. The slope of the drain shall be 1 in 40 to 1 in 60. The width of the drain (*see* C in Fig. 2 and 3) may vary between 30 cm and 40 cm. The drain may be led to a common urine pit having a depth not exceeding 40 cm or to the field if slope permits. The urine pit may be circular or rectangular.

7.6 Special Constructional Requirements for a Rural Milk Producer

7.6.1 *Water Supply*

There shall be an adequate supply of potable water in the shed. For this purpose, a trough of reinforced cement concrete or brick-in-cement should be provided. The size of the trough shall depend upon the daily requirement of water calculated at the rate of 50 litres per livestock per day. The water troughs should be provided with railing on its sides so that the animals may not try to step in the water trough and contaminate it.

7.6.2 *Calf-Room*

A part of the standing at the far end of the shed shall be partitioned suitably for housing calves. Generally, a floor space of 1.2 m^2 to 1.5 m^2 is recommended per calf. There shall be a manger adjacent to the wall of the room. A wall covering half the height of the room shall be provided in order to separate the calf-room from its adjoining yard.

7.6.3 *Calving-Box*

A separate unit shall be provided for housing one down-calver. The calving-box shall be adjacent to the calf-room and at the end of the standings. The box shall be separated from the calf-room as well as from the rest of the shed by a suitable partition. The dimensions of the calving-box shall be 2.8 m × 4 m. There shall be cement concrete manger and water trough in one corner of the box. The width of the manger and the water trough shall be at least 60 cm.

8 OTHER REQUIREMENTS FOR A RURAL MILK PRODUCER

8.1 Paddock or Yard

8.1.1 The design of the paddock or open yard may be made while using the common wall of the residence of the average farmer. There shall be a paddock with the following minimum space per animal for various categories of animals:

a)	Buffalo	8 m^2
b)	Cow	7 m^2
c)	Young stock	4 m^2
d)	Calf	2 m^2
e)	Calving	12 m^2

8.1.2 There shall be feeding and water troughs within the paddock.

8.2 Fencing

8.2.1 The wall of bricks or stone slabs or a railing or wires may constitute fence. The railings may be of 35 mm galvanized iron pipe or 5 mm galvanized iron wire and posts to support railings. The posts may be of 5 cm steel pipe, 6 cm × 4 cm angle iron, 8 cm × 5 cm stone slabs or 10 cm × 10 cm timber placed 2 m apart. The posts shall be holed to pass the railings through or it may be riveted or 'U' bolted to the place.

8.2.1.1 The railings for different categories of the animals shall be fixed with the posts as given below:

Height from Ground to Centre of Each Rail	*Calves* cm	*Cows, Young Stock and Buffaloes* cm	*Bull* cm
First rail	30	40	40
Second rail	60	80	80
Third rail	90	120	120
Fourth rail	120	–	150

8.2.2 The wooden horizontal braces or steel horizontal braces shall be placed as given in Fig. 6. Braced steel end or corner posts shall be embedded as given in Fig. 7.

8.3 Ancillary Structure

8.3.1 Provision of milk recording room and ration room, each of approximately 9 m², preferably at fore end of the shed, may be made.

9 LIGHTING

Provision of lighting shall be made. In case electricity is available, 125 W bulb for each 10 m² floor space or 60 W bulb for each 25 m² space or equivalent fluorescent tube light may be provided.

10 WASTE HANDLING

It is suggested that bio-gas plant of suitable size should be installed. The animal waste should be removed from standing/dung alley either by scrapping or direct collection in hand push cart or animal cart and taken to feed the bio-gas plant.

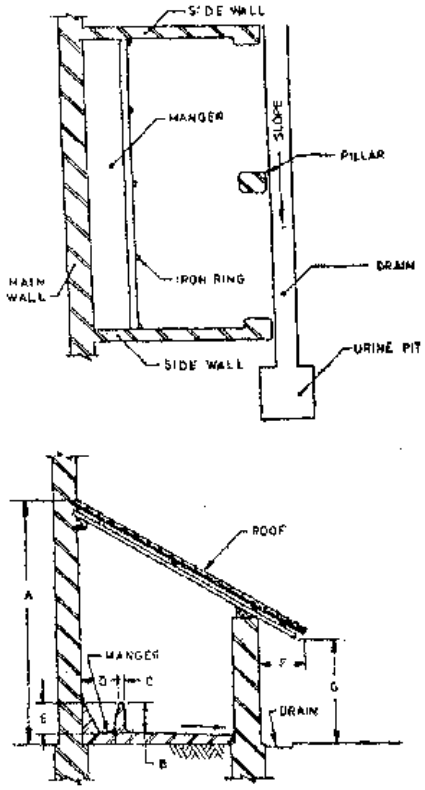


FIG. 1 TYPICAL LAYOUT OF FARM CATTLE SHED

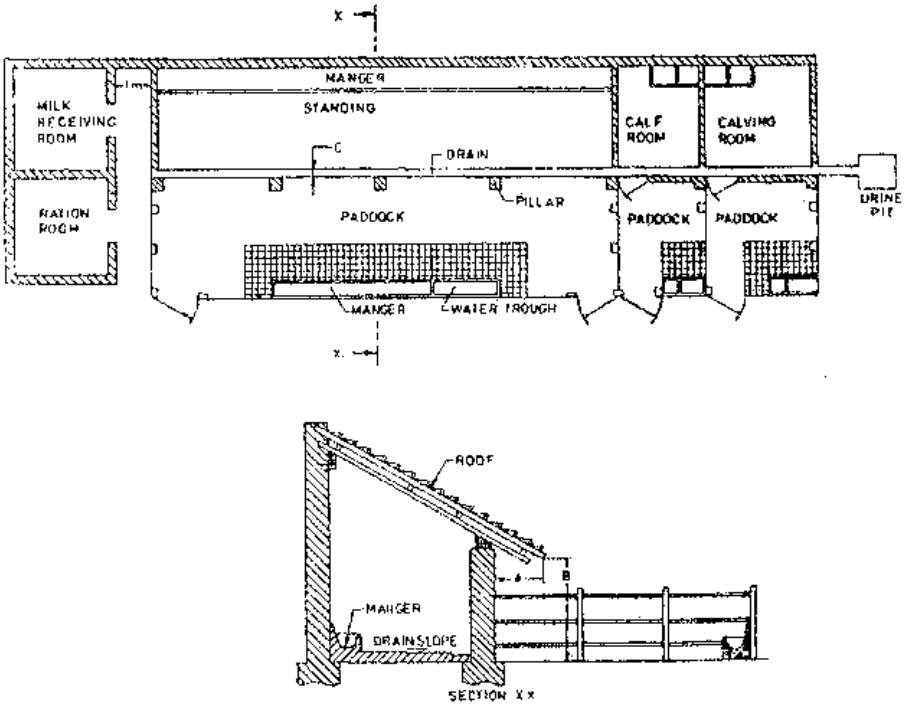


FIG. 2 A TYPICAL LAYOUT OF SHED, LEAN-TO TYPE ROOF

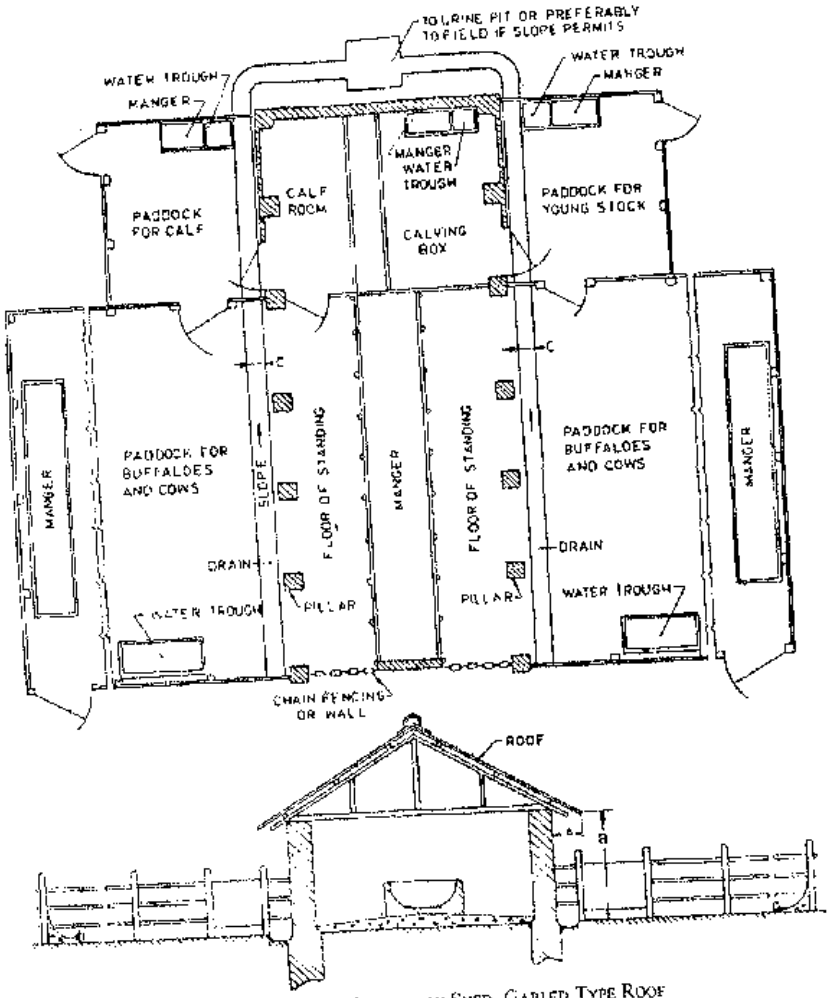
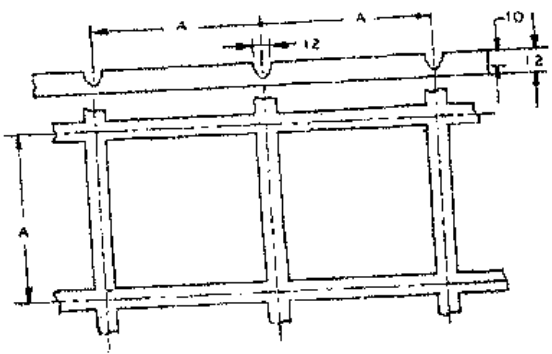
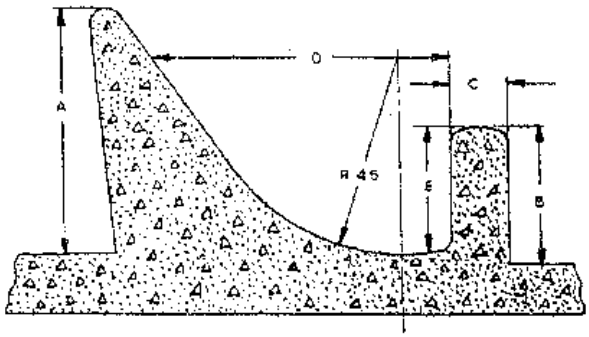


FIG. 3 A TYPICAL LAYOUT OF SHED, GABLED TYPE ROOF



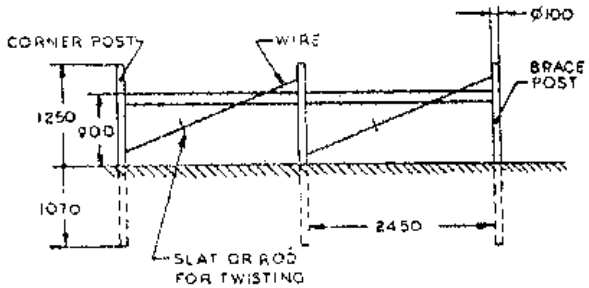
All dimensions in millimetres.

FIG. 4 CROSS-SECTION OF STANDING



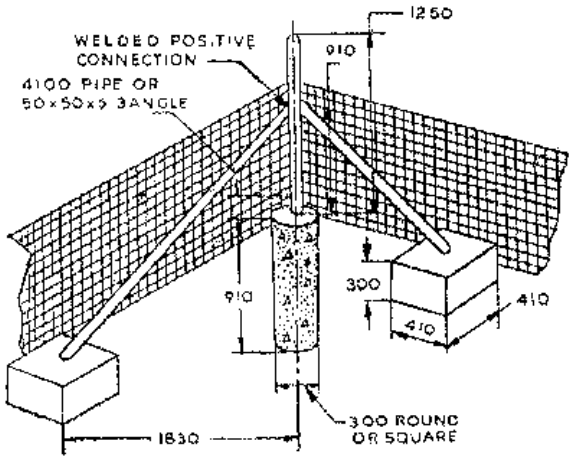
All dimensions in millimetres.

FIG. 5 CROSS-SECTION OF MANGER



All dimensions in millimetres.

FIG. 6 WOOD OR STEEL HORIZONTAL BRACES



All dimensions in millimetres.

FIG. 7 BRACED STEEL END OR CORNER POST

ANNEX A

(*Clause* 7.1.1)

DETAILS OF LAYING DIFFERENT TYPES OF FLOORING OF STANDINGS

A-1 *MOORUM, KANKAR* AND SAND FLOORING

The *moorum, kankar* and sand flooring shall be laid over a subgrade or rubble packing or broken bricks of 15 to 25 cm thick wetted and well rammed. A 15 cm layer of hard *moorum, kankar* and sand (as the case may be) shall be laid over this subgrade with coarser pieces at the bottom and fine ones over at the top. A layer of powder *moorum, kankar* and sand about 3 to 5 cm shall be spread over the top of this layer. Water shall then be sprinkled and the surface shall be well rammed. Water shall again be sprinkled until the floor is fully saturated. The surface shall be rammed, leveled and well consolidated. When the floor is dry, a thick paste of cow dung plaster shall be uniformly spread and it shall be well rammed. A final thin coating of mixture of cow dung (four parts) and cement (one part) shall be applied after the floor has dried up and wiped clean to prevent cracking and panelling. The cow dung plaster shall be applied weekly or fortnightly to keep the floor in good condition.

A-2 BRICK ON EDGE FLOORING

A-2.1 The subgrade for this type of flooring shall be rubble or brick aggregates which shall be hand packed, watered and well rammed. A layer of 10 cm of lime concrete shall be spread over the subbase, well rammed and shall be allowed to set for 7 days. The bricks shall be well burnt and of good quality (*see* IS 3583) and shall be well soaked in water before laying. Bricks shall be laid on about 10 mm thick cement or lime mortar bed and each brick shall be properly bedded on edge and set home by gentle tapping with the handle of trowel or a wooden mallet. Its inside faces shall be buttered with mortar before the next brick is laid and pressed against it. On completion of a portion of flooring the vertical joints shall be fully filled from the top with the mortar.

A-2.2 The surface of the flooring during the laying shall be frequently checked with a straight edge at least 2 m long so as to obtain a true surface with the required slope. The surface of the flooring shall be kept constantly moist for a minimum period of 7 days. In the case of fat lime mortar, curing shall commence two days after the laying of the flooring and shall continue for 7 days. The bricks may be laid in rows having the joints parallel and at right angles to the walls or in 'herringbone' pattern.

A-3 STONE SLAB FLOORING

A-3.1 The stone slabs shall be of good quality, hard, sound and dense (*see* IS 3622). Apart from sandstone any other good quality stone slabs may be used according to the availability of the material. The subgrade shall be prepared as given in **A-2.1** and the lime concrete bed shall be cleaned, wetted and mopped. The bedding for the slabs shall be made with cement mortar 1:4 (1 cement : 4 coarse sand) or with lime mortar (either 1 lime putty : 1 surkhi : 1 coarse sand or 1 lime putty : 2 coarse sand). The average thickness of the bedding mortar under the slab shall be 20 mm. The mortar shall be spread under the area of each slab to the specified thickness. The stone slab shall be washed clean before laying. It shall be laid on top, pressed, tapped with wooden mallet and brought to level with the adjoining slabs. It shall be lifted and laid aside. The top surface of the mortar shall then be corrected by adding fresh mortar at hollows. The edges of the slab already paved shall be buttered with cement slurry. The slab to be paved shall be lowered gently back in position and tapped with wooden mallet till it is properly bedded in level with and close to the adjoining slab with as fine joints as possible. Subsequent slabs shall be laid in the same manner. After each slab has been laid, surplus cement on the surface of the slab shall be cleaned off. The flooring shall be cured for a minimum period of 7 days. The surface of the flooring as laid shall be true to a level and shall be of the desired slope. Slight unevenness at the meeting edges of slabs shall be removed by fine chiseling.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc: No. FAD 5 (1533).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402 *website* : www.bis.org.in

Regional Offices:		Telephones
Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	2323 7617, 2323 3841
Eastern	: 1/14 C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi KOLKATA 700054	2337 8499, 2337 8561, 2337 8626, 2337 9120
Northern	: SCO 335-336, Sector 34-A, CHANDIGARH 160022	260 3843, 260 9285
Southern	: C.I.T. Campus, IV Cross Road, CHENNAI 600113	2254 1216, 2254 1442, 2254 2519, 2254 2315
Western	: Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	2832 9295, 2832 7858, 2832 7891, 2832 7892

Branches : AHMEDABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. NAGPUR. NALAGARH. PATNA. PUNE. RAJKOT. THIRUVANANTHAPURAM. VISAKHAPATNAM.

Printed at Simco Printing Press, Delhi

IS : 11942 - 1986

[Superseding IS : 4466 (Part 3)-1968,
IS : 5605 (Part 3)-1970 and
IS : 8845 (Part 3)-1978]

Indian Standard

RECOMMENDATIONS FOR *GAUSHALA* AND OTHER ORGANIZED MILK PRODUCERS

UDC 631·223·24 : 725·42

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

July 1987

Gr 5

IS : 11942 - 1986

[Superseding IS : 4466 (Part 3)-1968,
IS : 5605 (Part 3)-1970 and
IS : 8845 (Part 3)-1978]

Indian Standard

RECOMMENDATIONS FOR *GAUSHALA* AND OTHER ORGANIZED MILK PRODUCERS

Animal Structures and Equipment Sectional Committee, AFDC 17

Chairman	*Representing*
PROF A. P. BHATNAGAR	Punjab Agricultural University, Ludhiana
Members	
DR C. L. ARORA	Indian Council of Agricultural Research, New Delhi
MAJ-GEN R. K. R. BALASUBRAMANIAN	Directorate of Remount Veterinary Services, New Delhi
LT-COL K. VENKATARAMAN (*Alternate*)	
DR A. K. BASUTHAKUR	Ministry of Agriculture & Rural Development (Department of Agriculture & Co-operation), New Delhi
DR IQBALUDDIN (*Alternate*)	
DR D. S. BHANDARI	Directorate of Animal Husbandry, Government of Rajasthan, Jaipur
DR G. K. RASTOGI (*Alternate* I)	
DR P. S. CHAUDHARY (*Alternate* II)	
DR P. N. BHAT	Indian Veterinary Research Institute (ICAR), Izatnagar
DR V. K. TANEJA (*Alternate*)	
DR J. L. BHUTANI	Milk Commissioner, Government of Haryana, Chandigarh
DR P. K. GHOSH	Central Arid Zone Research Institute (ICAR), Jodhpur
DR R. S. GREWAL	Directorate of Animal Husbandry, Government of Punjab, Chandigarh
DR N. S. UPPAL (*Alternate*)	
SHRI H. GUHA	Directorate of Animal Husbandry, Government of West Bengal, Calcutta
SHRI S. GUPTA (*Alternate*)	
DR GURCHARAN SINGH	Indian Agricultural Research Institute (ICAR), New Delhi
SHRI GURDIP SINGH	Hi-Bred (India) Pvt Ltd, Karnal
SHRI HAIDER ALI KHAN (*Alternate*)	

(*Continued on page* 2)

(*Continued from page* 1)

Members	*Representing*
DR K. HANUMANTHA RAO	Directorate of Animal Husbandry, Government of Andhra Pradesh, Hyderabad
DR VISWA RAJ (*Alternate*)	
DR MANOHAR SINGH	Central Sheep and Wool Research Institute (ICAR) Jaipur
DR S. K. KAUSHISH (*Alternate*)	
DR M. R. MARATHE	The Bharatiya Agro-Industries Foundation, Pune
DR D. V. RANGNEKAR (*Alternate*)	
DR S. C. MOHAPATRA	Central Avian Research Institute, Izatnagar
DR S. D. AHUJA (*Alternate*)	
SHRI V. D. MUDGAL	Central Institute for Research on Buffaloes (ICAR), Hissar
SHRI S. K. JINDAL (*Alternate*)	
DR (KUMARI) A. PATEL	Indian Dairy Corporation, Vadodara
DR S. N. SINGH (*Alternate*)	
DR M. V. N. RAO	National Dairy Research Institute (ICAR), Karnal
DR S. R. SAMPATH (*Alternate*)	
DR P. V. RAO	Andhra Pradesh Agricultural University, Hyderabad
DR P. VARADARAJULU (*Alternate*)	
LT-COL S. K. ROY	Directorate of Military Farms, Army Headquarters, QMG's Branch, New Delhi
SHRI SHAHID ALI (*Alternate*)	
DR N. S. R. SASTRY	Haryana Agricultural University, Hissar
DR S. N. SHARMA	Directorate of Animal Husbandry, Haryana
DR H. L. ARHI (*Alternate*)	
DR B. D. SHUKLA	Central Institute of Agricultural Engineering (ICAR), Bhopal
SHRI P. K. SRIVASTAV (*Alternate*)	
SHRI M. D. SINGH	ICAR Research Complex for N. E. H. Region, Shillong
SHRI A. SINGH (*Alternate*)	
DR M. SUBRAHMANYAN	Kerala Agricultural University, Trichur
SHRI T. PURNANANDAM, Director (Agri & Food)	Director General, BIS (*Ex-officio Member*)

Secretary

SHRI R. N. SHARMA
Joint Director (Agri & Food), BIS

AMENDMENT NO. 1 DECEMBER 2005
TO
IS 11942 : 1986 RECOMMENDATIONS FOR *GAUSHALA* AND OTHER ORGANIZED MILK PRODUCERS

(*Page* 16, *clause* 10.8) — Substitute the following for the existing text:

'Provision must be made for a suitable foot bath at the entrance gate. Also at the main entrance of the gate, a concrete floor should be constructed. This is to ensure that any vehicle entering the farm will be allowed to pass through the shallow floor which contains medicated solution.'

(FAD 5)

Reprography Unit, BIS, New Delhi, India

IS : 11942 - 1986

Indian Standard

RECOMMENDATIONS FOR *GAUSHALA* AND OTHER ORGANIZED MILK PRODUCERS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 31 December 1986, after the draft finalized by the Animal Structures and Equipment Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Proper housing is an important feature in raising the production capabilities of animals, in addition to good breeding, feeding, selection and disease control. It is conducive to good health, comfort and protection from inclement weather and the animals are capable of utilizing their genetic abilities and feed for optimum production.

0.3 Cattle raising and dairying is practised in the country by various interests. Generally these interests are: (a) an Average Farmer who has not more than a pair of bullocks and two or three milch animals with their calves; (b) rural Milk Producers normally having a total of about 20 animals including about 12 milch animals, their followers and a pair of bullocks; (c) *gaushalas* and other organized milk producers; and (d) Large Dairy Farms.

0.4 This standard covers recommendations for shed for *GAUSHALA* and other organized milk producers. It supersedes IS : 4466 (Part 3)-1968*, IS : 5605 (Part 3)-1970†, and IS : 8845 (Part 3)-1978‡. Since India's climatic conditions, unlike most of the principal dairy countries of the world, are very varied, hence shed of cattle would also vary according to the climatic conditions prevailing in a particular region. In order to meet these varied requirements, wherever necessary specific recommendation has been made for (a) plain areas with medium rainfall, (b) arid area, (c) high altitute areas, and (d) heavy rainfall and high humidity areas.

---

*Recommendations for farm cattle housing for plain areas with medium rainfall: Part 3 Farm cattle sheds for *GAUSHALAS* and other organized milk producers.

†Recommendations for farm cattle housing for heavy rainfall and high humidity areas: Part 3 Farm cattle sheds for *GAUSHALAS* and other organized milk producers.

‡Recommendations for farm cattle housing for arid areas: Part 3 Farm cattle sheds for *GAUSHALAS* and other organized milk producers.

1. SCOPE

1.1 This standard recommends layout and constructional details of a cattle shed meant for *GAUSHALA* and other organized milk producer.

2. TERMINOLOGY

2.1 For the purpose of this standard, the following definitions shall apply.

2.1 **Paddock or Yard** — An open area surrounded by walls, fences or rails for accommodating cattle. This area is meant to provide open air exercise to the animals. It generally contains manager(s) or trough(s) with or without ties to control animals for different purposes.

2.2 **Standing (Stall)** — The floor space provided within a shed for an individual animal to stand or lie.

3. SELECTION OF SITE

3.1 The shed shall be located on dry, elevated and well-drained area with consideration for future expansion.

3.2 The shed shall preferably be located at a place where three are enough suitably placed trees to serve as wind-breaks and to provide shade. In order to break the wind it is recommended that a row of trees be also planted across the direction of wind at the boundary of the farm.

NOTE — In case there are no shaded trees on the site, these should be planted immediately keeping a minimum distance of 4 m from the shed.

3.3 The site shall be away from public road but easily accessible throughout the year.

3.4 The site shall be such that arrangement could be made for adequate and good water supply.

3.5 The site shall be such that the long axis of the shed could be oriented east to west in all areas except temperate Himalayan and hilly regions. In desert areas, the shed shall be oriented across the prevailing direction of the wind in order to protect the roof from being blown off by high wind.

3.5.1 In coastal areas the shed shall be oriented along the prevailing wind direction in order to protect the roof from being blown off by high wind and at the same time to provide sufficient air movement in the shed. In sub-mountainous region, the buildings should be so sited as to avail of the natural aeration and drying.

4. HERD SIZE

4.1 It is assumed that producers in this interest shall normally maintain a herd of about 130 animals consisting of 40 milch animals, 40 dry animals, two bulls, and the rest comprising followers, as also about three pairs of bullocks.

5. BUILDING UNITS

5.1 The units should comprise sheds (*see* **5.1.1**) for housing different categories of animals and the necessary ancillary structures (*see* **5.1.2**) required for this interest.

5.1.1 *Sheds* — Various types of sheds (*see* **7**) that are required under this interest are as follows:

a) Milch animals shed,
b) Dry animal shed,
c) Down-calver shed,
d) Sick-animal shed,
e) Young stock shed,
f) Calf shed, and
g) Bull shed.

5.1.1.1 There shall be a paddock attached to each of the sheds.

5.1.2 The ancillary structures (*see* **10**) required under this interest shall be as follows:

a) Milk collection, recording and testing room;
b) Utensils room;
c) Ration room;
d) Store;
e) Office room;
f) Fodder processing and storage room;
g) Trevis; and
h) Foot bath.

6. LAYOUT

6.1 A typical layout comprising the various units is given in Fig. 1.

NOTE — The layout with these units could be modified depending upon local conditions like shape, size and topography of available land, size of enterprises, finances, etc.

7. DESCRIPTION OF SHEDS

7.1 Milch Animal Shed — The standings of the milch animal shed shall be of a tail-to-tail system with a central passage. The length and width of the standing shall be decided according to the size of the animal and may vary from 1·5 to 1·7 m in length and 1·0 to 1·2 m in width. In coastal region, sometimes buffaloes with spreading horns are found in that case width per animal may vary from 1·2 to 1·3 m.

7.1.1 The width of the central passage may be 1·8 m. The central passage shall be sloped from the centre outwards towards drains. There shall be a drain on either side of the central passage.

7.1.2 There shall be two continuous manger (*see* **8.2**), one on each side in front of the standings with a cross passage of one metre width at the end of every 8 standings for easy movement.

7.1.3 There shall be pillars (*see* **8.4**) along with length of the sheds to support the beam of the roof. The roof of the shed shall be gabled (*see* **8.6**).

7.1.4 The shed may, if necessary, be extended to accommodate calving (*see* **7.3**) as also calves (*see* **7.6**).

7.2 Dry Animal Shed — The standings of the shed shall be constructed on the head-to-head system with a central manger and if in a single line, facing the wall (*see* Fig. 1). The length and width of each standing shall be in the same range as specified for the milch animals (*see* **7.1**). There shall be a drain behind each line of animals. There shall be pillars along the length of the sheds to support the beam of the roof and walls at each end. The roof of the shed shall be gabled. The dry animal shed may be extended to accommodate the young stock as well (*see* **7.5**).

7.2.1 The bullocks may be accommodated with dry animals or a separate provisions for bullock shed may be made. If a separate provision for bullock shed is made, a cart shed may also be attached to it.

7.3 Calving Animal Shed — The shed shall have two calving boxes for housing animals very close to calving and standings adjacent to the boxes for accommodating heavy-in-calf. Provision for this should generally be made at the rate of 5 percent of the adult females. A calving attendant room may also be provided in the shed.

7.3.1 *Calving Boxes* — The calving boxes shall be adjacent to each other and shall be at the end of the shed separated by a wall from the standings. The wall partition between the two calving boxes may be 1·25 m high. The dimension of each calving box shall be 3 × 4 m. A manger and a water trough, each 0·5 m wide inside, shall be constructed

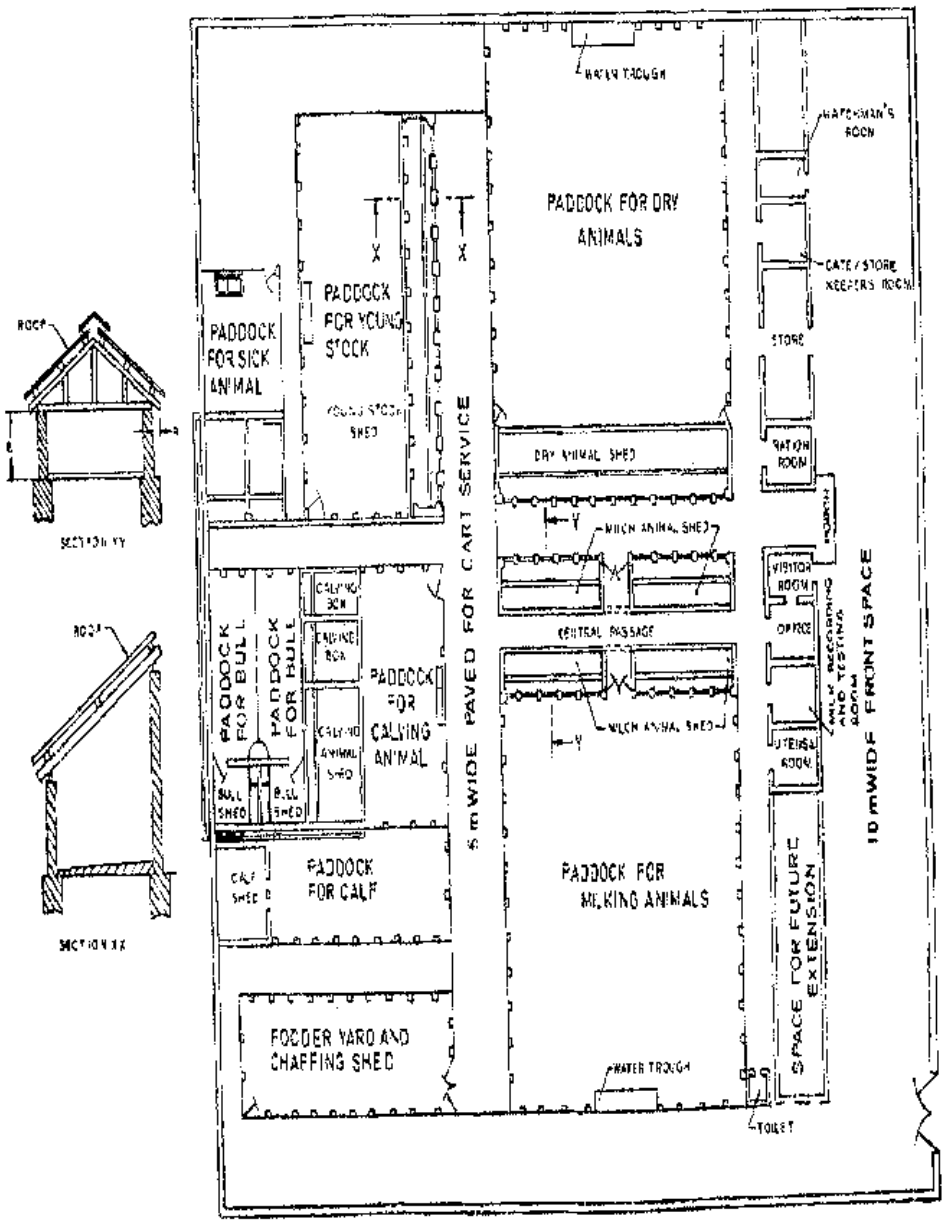


FIG. 1 TYPICAL LAYOUT OF FARM CATTLE SHED FOR GAUSHALAS AND OTHER ORGANISED MILK PRODUCERS (*Continued*)

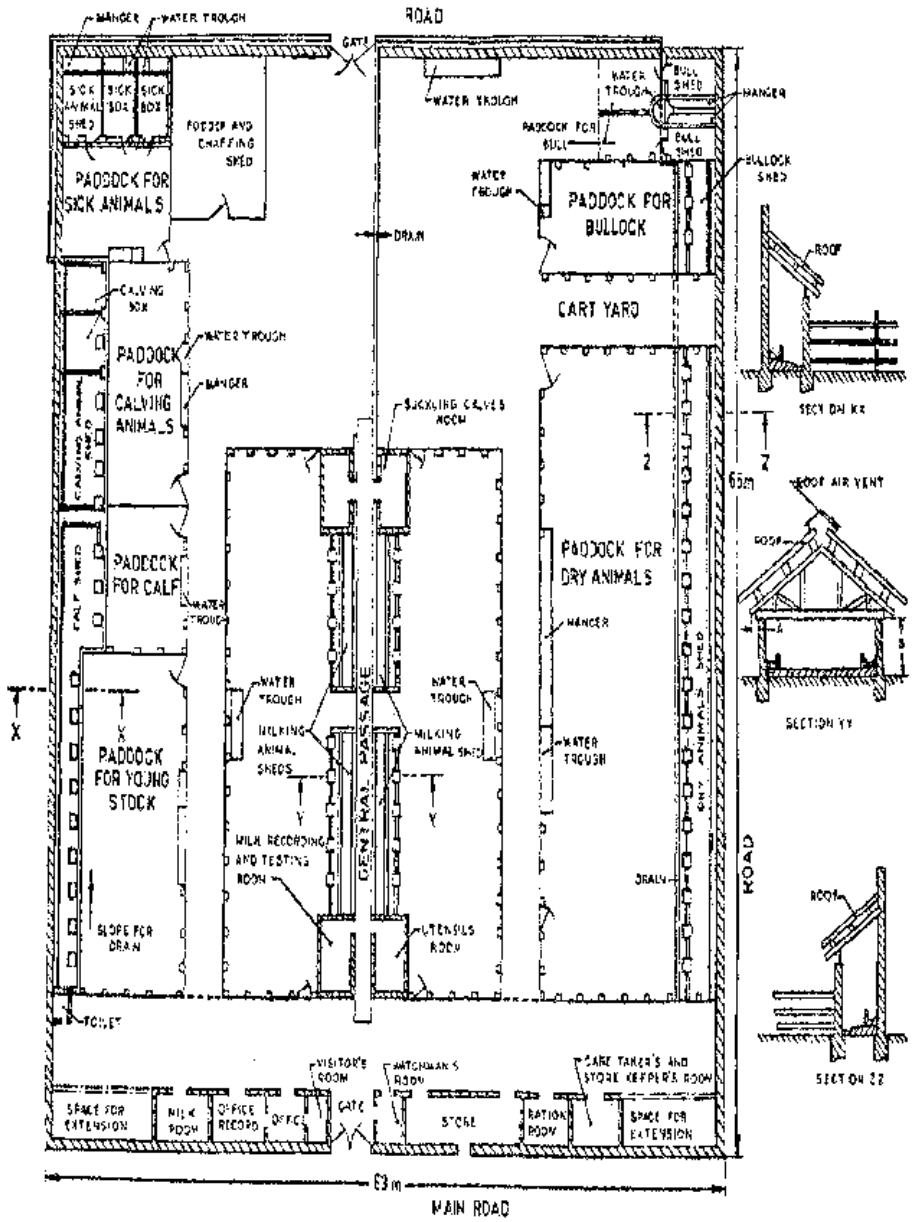


FIG. 1 TYPICAL LAYOUT OF FARM CATTLE SHED FOR GAUSHALAS AND OTHER ORGANISED MILK PRODUCERS

at the two separate corners of each of the calving boxes or a trough throughout the width of the box. A single-leaf door 2 m high and 1·2 m wide shall be provided for each of the calving boxes. The flooring of the calving boxes and standings shall be sloped towards the wall and into a drain running outside the shed.

7.3.2 *Standings* — The standings of the down-calver shed shall be constructed in such a way that animals are kept tethered facing the wall. There shall be a continuous manger along the wall. The length and width of each standing shall be 2·0 m and 1·6 m respectively.

7.4 Sick Animal Shed — The sick animal shed shall be located well away from the other sheds inaccessible to other animals. The dimensions and arrangements for sick animal shed shall be the same as in **7.3.1** and **7.3.2**.

7.5 Young Stock Shed — The young stock shed may be an extension of the dry animals shed or a separate unit. In case the young stock shed is a separate unit to economize cost and space, the shed shall be constructed in such a way that young animals are tethered in two rows facing each other with a central manger. The length and width of each standing shall be 1·4 and 1·0 m respectively. The two drains of the shed shall be laid on either side of the standings. The roof of the shed shall be gabled and shall be supported on the length of the shed by a series of pillars and walls at each end. The young stock standings may alternatively be in a single line against a wall and the drains located suitably.

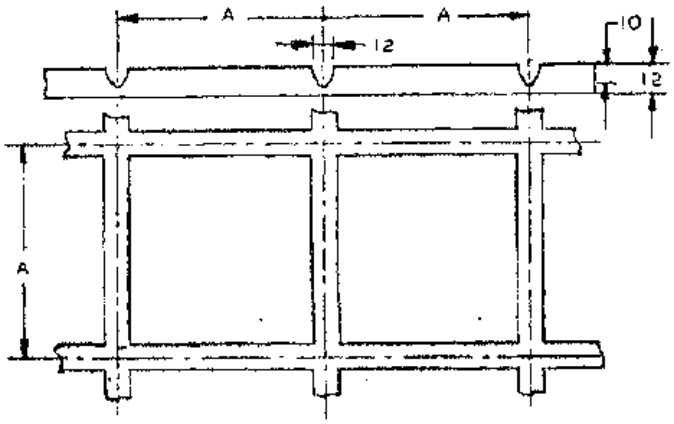
7.6 Calf Shed — The calf shed may be annexed either at the end or on the side to the milch animal shed and the calves may be separated from the milch animals by a suitable partition. If there is a large number of calves, the calf shed may form a separate unit. The dimensions of the calf shed shall depend upon the number of calves. The floor space provided per calf shall be not less than 1 m^2. The calves may be kept loose. The manger shall be constructed along the walls of the three sides of the shed. There shall be a central shallow saucer-shaped drain. The roof may be either lean-to-type or gabled. A water trough shall be provided at one corner of the shed.

7.7 Bull Shed — The bull shed shall have two boxes each measuring 4 × 3 m. The walls may be 1·5 m high. A 0·5 m wide raised manger with feed and water sections shall be provided in each box. The two boxes shall lead to separate paddocks.

8. CONSTRUCTIONAL DETAILS OF SHEDS

8.1 Floor — The floor may be either of *MOORUM*, *KANKAR*, cement concrete, brick-on-edge or stone slabs. The details of laying of flooring

are given in Appendix A of IS : 11786-1986*. In case of cement concrete flooring, the surface shall be properly grooved in order to avoid slipping of the animals. For larger animals, the grooves shall be formed in square of 15 × 15 cm and for calves 10 × 10 cm (*see A* in Fig. 2). The width of the groove shall be 12 mm and depth 10 mm. The groove shall be of U shape. A plinth of at least 15 cm shall be provided for the floor. A slope of 1 in 60 towards the drains shall be provided in order to keep floor properly drained after washing.



All dimensions in millimetres.

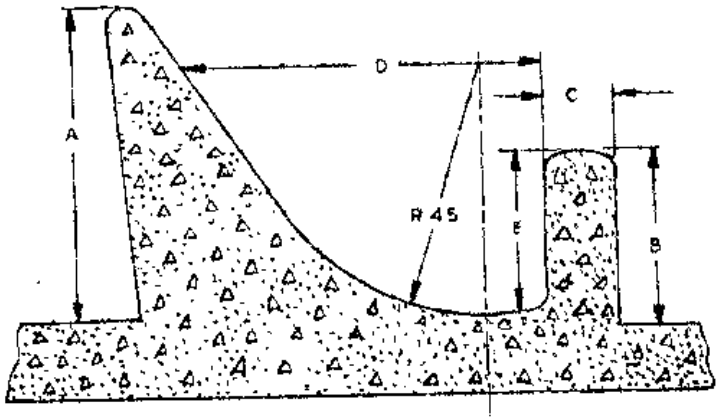
FIG. 2 CROSS-SECTION OF STANDING

8.2 Manger — The manger shall be of continuous type. The manger shall be made of reinforced cement concrete, stone slabs, or brick-in-lime or cement mortar. The flooring material of the manger shall be the same as for the floor but the surface shall be finished smooth. All the corners of the manger shall be rounded off and finished smooth. The dimensions of the manger (*see* Fig. 3) shall be as given in Table 1. In case the mangers are of brick, the fore curb should be topped with angle iron.

8.2.1 *Water Supply* — There shall be an adequate supply of potable water in the shed. One of the ways of supplying water in the shed may be that water trough of 20 cm diameter may be constructed on the manger wall. Water shall be allowed to flow through these troughs so that fresh water may be made available to the animals, calculated at the rate of 50 litres per livestock unit per day. These troughs may be placed between the two standings. The water troughs should be provided with railing on its sides so that the animals may not try to step in the water

*Recommendations of cattle housing for an average farmer.

trough and contaminate it. When a piped water supply is available, a shallow water trough having its slope towards one end, and having a balancing float tank at the other end, ensures fresh water supply.



All dimensions in millimetres.

FIG. 3 CROSS-SECTION OF MANGER

TABLE 1 DIMENSIONS OF MANGER

(*Clause* 8.2)

(All dimensions in cm)

SL No.	PARTICULARS	REINFORCED CEMENT CONCRETE	BRICK LAID IN CEMENT	STONE SLAB	REF TO FIG. 3
(1)	(2)	(3)	(4)	(5)	(6)
i)	Height of manger wall, *Min*	75	75	75	A
ii)	Height of fore curb *Max*				
	a) For adults	50	50	50	B
	b) For calves	30	30	30	
iii)	Thickness of fore curb, *Min*	10	10	4	C
iv)	Inner width of manger, *Min*				
	a) For adults	60	60	60	D
	b) For calves	40	40	40	
v)	Depth of manger, *Min*				
	a) For adults	40	40	40	E
	b) For calves	15	15	15	

8.3 Drains — The drains shall be made of brick in cement mortar or of stone and shall be of shallow U type with a depth of 6 cm at the bottom. The slope of the drain shall be 1 in 100 to 1 in 120. The width of the drains may vary between 30 and 40 cm. Where a long running shed is constructed, connecting drains at right angles should be provided after every 15 standings. The main drain may be led to a common urine pit having a depth not exceeding 40 cm or to the field if slope permits. The urine pit may be circular or rectangular.

8.4 Pillars — One pillar shall be placed at intervals of every two or three standings depending upon the width of each standing. Pillars may be made from any of the following materials and their minimum dimensions shall be as indicated against each:

a) Brick	45 × 35 cm (*see* Note 1), or 40 × 30 cm (*see* Note 2)
b) Mild steel I Section	10 × 10 cm
c) Stone	10 × 10 cm or 8 × 15 cm
d) Iron pipes dia	10 cm
e) Timber (include palmira palm, coconut and bamboo):	
1) Rectangular pillars	10 × 10 cm
2) Round pole, dia	15 cm

NOTE 1 — In case of 22·5 × 11·25 cm bricks, 2 lengths and 3 widths shall be used.

NOTE 2 — In case of 20 × 10 cm (modular) bricks, 2 lengths and 3 widths shall be used.

NOTE 3 — All iron structures shall be suitably painted for protection against corrosion.

8.4.1 All edges in rectangular pillars shall be rounded off and finished smooth.

8.5 Walls — The wall shall be of brick or stone slab laid in cement mortar. The wall may be cement-plastered from inside. The thickness of the wall shall be at least 20 cm, however in case of bull shed it shall be at least 30 cm. All walls shall be solid up to 1·25 m height from the floor level and shall be constructed in honey comb pattern above that height in order to provide sufficient air movement in the shed. The rest of the portion of the wall may be left open by a series of wire-netted windows. In desert areas, the solid portion may extend up to 1·8 m in height. In case of lean-to-type system, the end walls above the solid portion may be left open or provided with a series of wire-netted windows.

8.6 Roof — The roof may be gabled, flat or lean-to-type. The roof may be constructed either of corrugated asbestos sheets or galvanized steel sheets or tiles (Country tiles are not recommended). The roof shall be supported by steel or wooden trusses or by a series of central pillars. The pitch of the roof may range between 22 to 30 degrees depending upon the materials used. Wooden purlins may be spaced up to 1·3 m apart. Generally, the eaves of the roof (*see A* in Fig. 1) shall project out at least 50 cm away from the pillars/walls and in regions where extreme climatic conditions prevail, the eaves of the roof may project up to 75 cm from the pillars/walls in order to afford protection to the animals from direct sun and rain. The eaves should be 2·2 m high from the ground level (*see B* in Fig. 1).

9. PADDOCKS OR YARD

9.1 A paddock shall be attached to every shed for animals to move about freely. There may be trees in the paddock to provide enough shade. A part of the paddock may be paved with bricks laid on edge. The paddock shall have the following minimum space per animal for various categories of animals:

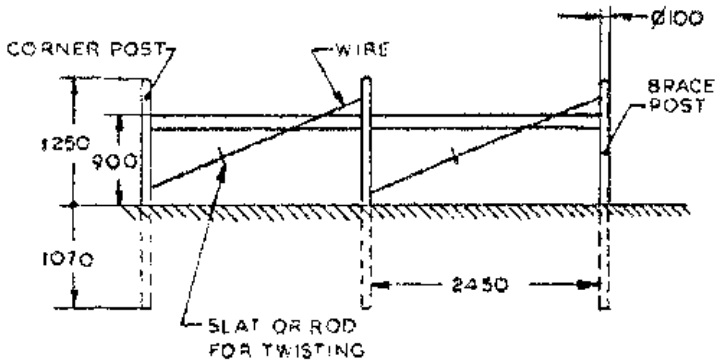
a) Buffaloes	8 m^2
b) Cow	7 m^2
c) Young stock	4 m^2
d) Calf	2 m^2
e) Calving	12 m^2
f) Bull	25 m^2

9.2 Fences

9.2.1 The wall of bricks or stone slabs or a railing or wires may constitute fence. The railings may be of 35 mm galvanized iron pipe or 5 mm galvanized iron wire and posts to support railings. The posts may be of 5 cm steel pipe, 6 × 4 cm angle iron, 8 × 5 cm stone slabs or 10 × 10 cm timber placed 2 m apart. The posts shall be holed to pass the railings through or it may be riveted or 'U' bolted to the place. The railings for different categories of the animals shall be fixed with the posts as given below:

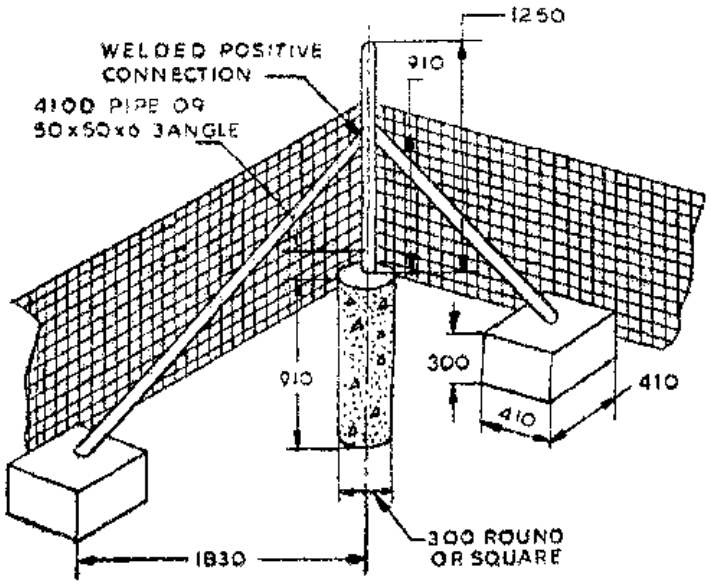
Height from Ground to Centre of Each Rail	*Calves*	*Cows, Young Stock and Buffaloes,*	*Bull*
	cm	cm	cm
First rail	30	40	40
Second rail	60	80	80
Third rail	90	120	120
Fourth rail	120	—	150

9.2.2 The wooden horizontal braces or steel horizontal braces shall be placed as given in Fig. 4. Braced steel end or corner posts shall be embedded as given in Fig. 5.



All dimensions in millimetres.

FIG. 4 WOOD OR STEEL HORIZONTAL BRACES



All dimensions in millimetres.

FIG. 5 BRACED STEEL END OR CORNER POST

9.3 Gate — A gate of suitable type and size may be provided taking care that they are hinged firmly and raised well above the ground. Braces shall be positioned vertically.

9.4 Manger and Water Trough — Manger and water trough may be constructed with reinforced cement concrete, brick with cement mortar or stone slabs with cement joining. A 2-m wide paved platform shall be provided away from trough to with stand the heavy treading of animals and permit easy washing and cleanliness.

10. ANCILLARY STRUCTURES

10.1 Milk Collection, Recording and Testing Room — There shall be a room of 4 × 3 m in or near the milch animal shed for collecting, recording and testing of milk. The door and the windows shall be made fly-proof. The flooring of the room shall be of cement concrete impervious and reinforced with iron strips at suitable distances to make it hard wearing. A suitable platform or a slab shall be provided for testing apparatus. A separate milk room may also be provided for handling milk.

10.2 Utensils Room — There shall be a room of 4 × 3 m for washing and storing milk cans. The flooring of the room shall be of hard-wearing type to withstand the frequent handling of heavy milk cans. The door and windows shall be made fly-proof. The room may be located as near as possible to the milk recording and testing room.

10.3 Ration Room — There shall be a room of at least 4 × 3 m near to the milch animal shed to store feed concentrates temporarily to meet the requirements of the animals for the day. The ration room shall be damp- and rodent proof.

10.4 Store — The store shall be adequate to accommodate feed concentrate required for a period of about 2 months. The space required for storage shall be 0·2 m^2 per livestock unit. The store shall be made damp- and rodent-proof. A store keeper's room may also be attached to the store.

10.5 Office Room — Provision of an office accommodation is generally desirable in *GAUSHALAS* and similar organizations. The office room may also be used for keeping medicines and instruments required for treating sick animals. The dimensions of the office room shall depend upon the space available and the size of the enterprise. A toilet may also be provided. A visitor's room may also be attached to the office room.

10.6 Trevis or Cattle Crutch — A cattle trevis may be provided to secure the animals for rendering first-aid and artificial insemination.

10.7 Adequate provision shall be made for storage of roughages.

10.8 A provision shall be made for a suitable foot bath at the entrance gate.

10.9 Provision may be made for a segregation room for keeping new animals introduced in the herd for some initial days before their mixing up with the herd.

10.10 Lighting — Provision of lighting shall be made in case electricity is available, a 25 W bulb for each 10 m^2 space or 60 W bulb for each 20 m^2 space or equivalent fluorescent tube light may be provided.

10.11 Waste Handling System — Bio-gas plant of suitable size should be installed. The animal waste (dung, urine and other biomass) should be fed to the plant.

BUREAU OF INDIAN STANDARDS

Headquarters:
Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones : 331 0131 331 1375 Telegrams : Manaksanstha
(Common to all Offices)

Regional Offices:	*Telephone*
*Western : Manakalaya, E9 MIDC, Marol Andheri (East) BOMBAY 400093	6 32 92 95
†Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Maniktola, CALCUTTA 700054	36 24 99
Northern : SCO 445-446, Sector 35-C CHANDIGARH 160036	2 18 43 3 16 41
Southern : C. I. T. Campus, MADRAS 600113	41 24 42 41 25 19 41 29 16
Branch Offices:	
'Pushpak', Nurmohamed Shaikh Marg, Khanpur AHMADABAD 380001	2 63 48 2 63 49
'F' Block, Unity Bldg, Narasimharaja Square, BANGALORE 560002	22 48 05
Gangotri Complex, 5th Floor, Bhadbhada Road, T. T. Nagar, BHOPAL 462003	6 67 16
Plot No. 82/83, Lewis Road, BHUBANESHWAR 751002	6 36 27
53/5 Ward No. 29, R. G. Barua Road, 5th Byelane, GUWAHATI 781003	—
5-8-56C L.N. Gupta Marg, HYDERABAD 500001	23 10 83
R14 Yudhister Marg, C Scheme, JAIPUR 302005	6 34 71 6 98 32
117/418 B Sarvodaya Nagar, KANPUR 208005	21 68 76 21 82 92
Patliputra Industrial Estate, PATNA 800013	6 23 05
Hantex Bldg (2nd Floor), Rly Station Road, TRIVANDRUM 695001	62 27
Inspection Office (With Sale Point):	
Institution of Engineers (India) Building, 1332 Shivaji Nagar, PUNE 411005	6 24 35

*Sales Office in Bombay is at Novelty Chambers, Grant Road, BOMBAY 400007 89 65 28

†Sales Office in Calcutta is at 5 Chowringhee Approach, P.O. Princep Street, CALCUTTA 700072 27 68 00

Printed at Printograph, New Delhi, India

Inventory Performa for Dairy Farms and Gaushalas in the State/UT

Sl. No.	Description	Urban Area	Peri-urban Area	Rural Area
1.	Total no. of dairy farms			
	• Small (upto 25 animals)	•	•	•
	• Medium (upto 100 animals)	•	•	•
	• Large (above 100 animals)	•	•	•
	• Total	•	•	•
2.	Total no. of animals in			
	• Small dairy farms	•	•	•
	• Medium dairy farms	•	•	•
	• Large dairy farms	•	•	•
	• Total	•	•	•
3.	Total amount of bovine dung produced (ton per day) by			
	• Small dairy farms	•	•	•
	• Medium dairy farms	•	•	•
	• Large dairy farms	•	•	•
	• Total	•	•	•
4.	Methods of disposal/utilization of bovine dung and wastewater by dairy farms (to be enclosed)			
5.	Total no. of dairy colonies/clusters (list of such dairy colonies/clusters along with the details of no. of dairies, no of bovine, method of disposal/utilization of bovine dung & wastewater, etc. to be enclosed)	•	•	•

6.	Total no. of Gaushalas • Small (upto 100 animals) • Medium (upto 1000 animals) • Large (above 1000 animals) • Total			
7.	Total no. of animals in • Small Gaushalas • Medium Gaushalas • Large Gaushalas • Total			
8.	Total amount of dung produced (ton per day) by • Small Gaushalas • Medium Gaushalas • Large Gaushalas • Total			
9.	Methods of disposal/utilization of dung and wastewater by Gaushalas (to be enclosed)			

Note:

Urban area: As per the Census of India 2011, the urban area is defined as follows:

i. All places with a municipality, corporation, cantonment board or notified town area committee, etc.
ii. All other places which satisfied the following criteria:
   a. A minimum population of 5,000;
   b. At least 75 per cent of the male main working population engaged in non-agricultural pursuits, and
   c. A density of population of at least 400 persons per sq. km.

Peri-urban area: It is an area or habitation located on the perimeter of the urban area having partial or complete influence of urbanization.

Dairy colonies/cluster: It is defined as the area designated by the government for the purpose of dairy activities.

****

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

CP-18/1/2023-IPC-VI-HO-CPCB-HO Date: 12.02.2025

To

The Chairman
State Pollution Control Board/Pollution Control Committee
(As per the list)

Sub: Directions under section 18(1)(b) of the Water (Prevention & Control of Pollution) Act, 1974 and the Air (Prevention & Control of Pollution) Act, 1981 regarding harmonization of classification of industrial sectors under Red, Orange, Green, White and Blue categories.

WHEREAS, under section 16 (2)(b) of the Water (Prevention and Control of Pollution) Act, 1974 and under Section 16 (2)(c) of the Air (Prevention & Control of Pollution) Act, 1981, one of the functions of the Central Pollution Control Board (CPCB), constituted under the Water (Prevention and Control of Pollution) Act, 1974, is to coordinate activities of the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs); and

WHEREAS, under section 16 (2)(c) of the Water (Prevention and Control of Pollution) Act, 1974 and under Section 16 (2)(d) of the Air (Prevention & Control of Pollution) Act, 1981, one of the functions of the CPCB is to provide technical assistance and guidance to SPCBs and PCCs; and

WHEREAS, it was brought to the notice of CPCB, that different SPCBs/PCCs were following different criteria for the classification of industrial sectors under different categories. Therefore, in 2012, to have uniformity in classification throughout the country, CPCB vide letter no. B-29012/1/2012/ESS/1526-1563, dated 04.06.2012 issued directions under section 18(1(b) of the Water Act, 1974 and the Air Act, 1981 to SPCBs/PCCs to adopt and implement standardized list of Red, Orange and Green categories of industries; and

WHEREAS, in 2016, the Central Pollution Control Board (CPCB) developed a scoring methodology based on the Pollution Index (PI) to harmonize the criteria for classification of industrial sectors. The PI is determined based on Precautionary Principle- by evaluating potential of water pollution, air pollution, and hazardous waste generation from particular sector. CPCB vide letter no. B-29012//ESS(CPA)/2015-16, dated 07.03.2016 issued directions under section 18(1(b) of the Water Act, 1974 and the Air Act, 1981 to SPCBs/PCCs to adopt and implement revised classification. SPCBs/PCCs were also directed to categorize any new or left over sectors at their level by constituting a Committee and following the methodology prescribed by CPCB; and

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली-110032
Parivesh Bhawan, East Arjun Nagar, New Delhi - 110032
दूरभाष/Tel: 43102030, 22305792, वेबसाईट/Website : www.cpbc.nic.in

WHEREAS, CPCB vide letter no. B-29016/ROGW/IPC-VI/2020-21, dated 30.04.2020, issued directions under section 18(1)(b) of the Water Act, 1974 and the Air Act, 1981 to SPCBs/PCCs regarding segregated list of non-industrial sectors (activities/ facilities/ infrastructure/ services) such as sewage treatment plants, healthcare facilities, hotels, building and construction projects, airports, highways etc. Further, CPCB also classified few additional sectors from time to time; and

WHEREAS, based on the experience gained over the years in Pollution Index calculation, use of cleaner fuels like PNG/CNG etc., adoption of cleaner technology resulting in reduced emission/wastewater generation, a need was felt to revisit the classification methodology of 2016; and

WHEREAS, during July 2023, CPCB prepared a "Draft Report on Classification of Industrial Sectors into Red, Orange, Green and White Categories: A Tool for Progressive Environmental Management" which was uploaded on CPCB website for seeking comments/suggestions of the stakeholders/public on the same. The draft report was also circulated to SPCBs/PCCs/MoEF&CC for comments; and

WHEREAS, CPCB vide office order dated 26.09.2023 constituted a committee to critically examine and analyse the comments/suggestions and to make recommendations for suitable incorporation in the finalizing the methodology and classification; and

WHEREAS, based on the stakeholders' comments, a need was felt to promote/incentivize units for adopting measures resulting in better environmental performance. Additionally, a requirement was also felt for separate category – Blue Category- for essential environmental services for management of environmental pollution arising from domestic/household activities. Accordingly, CPCB prepared an "Addendum and substitution thereto in Draft Report on Classification of Sectors into Red, Orange, Green, White and Blue Categories", which was shared with SPCBs/PCCs and also uploaded on CPCB website on 11.07.2024 for seeking inputs/comments; and

WHEREAS, the amendment in Section-21 of the Air (Prevention and Control of Pollution) Act, 1981 through the Jan Vishwas (Amendment of Provisions) Act, 2023 and amendment in Section-25 of the Water (Prevention and Control of Pollution) Act, 1974 through the Water (Prevention and Control of Pollution) Amendment Act, 2024, grant exemption to certain categories of industries, as notified by Central Government, for obtaining consent under these Acts; and

WHEREAS, the Ministry of Environment, Forest and Climate Change, Government of India vide notification no. G.S.R. 702(E), dated 12.11.2024 granted exemption of consent under the Water Act, 1974 and the Air Act, 1981 to exemption of Consent to Establish (CTE) and Consent to Operate (CTO) to all industrial plants having pollution index score upto 20 (at present total 39 industrial sectors under white categories as per 2016 methodology) subject to

condition that such plant shall inform in writing to the concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC); and

WHEREAS, the MoEF&CC vide letter no. Q-15012/2/2022/-CPW-Part (1)/e-240741, dated 14.11.2024 has issued Standard Operating Procedure for implementation of the said Notification dated 12.11.2024. The SOP includes the following provisions for White categories of industries:

i. Industry to intimate to concerned SPCB/PCC about operations and self-declare the compliance with prevalent rules & regulations,
ii. Concerned SPCB/PCC to maintain separate list of such industries/activities, and
iii. Concerned SPCB/PCC to ensure that no activities other than those intimated, are carried out by exempted units.

WHEREAS, the Committee constituted by CPCB evaluated the comments, incorporated the suitable changes and finalized the revised methodology as well as classification of sectors. Final report in this regard titled as "Classification of sectors in to Red, Orange, Green, White and Blue Categories (A tool for progressive environmental management)" was submitted to Ministry of Environment, Forest and Climate Change (MoEF&CC) for concurrence. The MoEF&CC vide letter no. Q-16017-57-2015-CPA, dated 15.01.2025 granted concurrence to the revised classification; and

WHEREAS, as per the revised methodology, the category of the sector is decided based on the following ranges of Pollution Index:

i. Red: $PI \geq 80$,
ii. Orange: $55 \leq PI < 80$,
iii. Green: $25 \leq PI < 55$,
iv. White: $PI < 25$; and

WHEREAS, based on the revised methodology, CPCB has classified a total of 419 sectors and sub-sectors as under:

i. The Red Category: 125
ii. The Orange Category: 137
iii. The Green Category: 94
iv. The White Category: 54
v. The Blue Category: 9; and

WHEREAS, the purpose of classification is to ensure that the industry is established in a manner consistent with the environmental objectives and also to prompt industrial sectors to adopt cleaner technologies, ultimately resulting in the generation of no or minimum pollutants. The revised classification system also defines criteria for incentivizing such industry. The industry may self-assess the PI score as per defined criteria and can submit application to respective SPCBs/PCCs for consideration; and

NOW, THEREFORE, in the exercise of the powers delegated under Section 18(1)(b) of the Water (Prevention & Control of Pollution) Act, 1974 and Section 18(1)(b) of the Air (Prevention & Control of Pollution), Act, 1981 the earlier directions dated 07.03.2016 and subsequent directions/letter in the context of categorization of industries are withdrawn with immediate effect and following **'Directions'** are hereby issued for compliance by all SPCBs and PCCs:

1. That SPCBs and PCCs shall immediately adopt the revised methodology for classification of sectors and list of 419 sectors/sub-sectors classified under Red, Orange, Green, White, and Blue categories as detailed in the **attached** report- "Classification of Sectors into Red, Orange, Green, White and Blue Categories (A tool for progressive environmental management)".
2. That all pending application for consideration of consent (CTE/CTO) and future such application shall be processed as per the revised classification. In case CTE granted before the revised classification, applicability of CTO will be as per revised classification.
3. That the revised sectors/subsectors classified under Red, Orange, Green, White, and Blue category of sectors as given in the attached document shall be used by the SPCBs and PCCs for consent management, inventorization of units under different categories, siting criteria, deciding environmental surveillance frequency, calculation of environmental compensation, etc., as per the guidelines issued from time to time.
4. That SPCBs and PCCs shall prepare the inventory of Red, Orange, Green, White and Blue categories of units operating in their jurisdictions, based on the revised classification. SPCBs and PCCs shall upload the category and sector-wise list of such units on their website. SPCBs and PCCs shall also forward such list to CPCB, latest by 30.06.2025 and thereafter updated list by 30th June every year.
5. That the classification of sectors shall not be linked to sanction of loans/finance of bank proceedings.
6. That any further addition of any new or left-out sector and their classification which is not listed in the revised list of Red, Orange, Green, and White categories, shall be done at the level of concerned SPCB /PCC by constituting a Committee and following revised criteria & guidelines as detailed in the attached report and no concurrence of CPCB shall normally be required. Intimation of same from time to time will suffice. However, addition in Blue Category Sectors-Essential Environmental Services for domestic waste management, will be done at the level of CPCB only. SPCBs/PCCs may forward their proposal, if any, to CPCB in this regard.
7. That SPCBs and PCCs are required to prepare and submit list of additional sector classified under white category to CPCB on annual basis, by 30th of June every year, in the prescribed format (Annexure-V) as given in the attached report, for further notification for exemption from consent as per the provisions of the Jan Vishwas (Amendment of Provisions) Act, 2023, the Water Act, and the Air Act as amended from time to time by MoEF&CC.
8. That SPCBs and PCCs shall constitute a committee as prescribed in the report to evaluate the applications of the units for incentives due to adopting measures resulting in better environmental performance and reduction in PI score. The SPCB/PCC shall

place the separate list of such units on their website and also submit list of such units to CPCB on Annual Basis by 30th June every year.

The SPCBs/PCCs shall acknowledge the receipt of directions and submit the "Action Taken Report" in compliance with these directions to CPCB before 20.02.2025.

Encl. As above.

(Bharat Kumar Sharma)
Member Secretary

Copy to:

1. The Chief Secretary of all the States and UTs
   (As per the list)
2. The Secretary,
   Ministry of Micro, Small and Medium Entrepreneurs
   Udyog Bhawan, Rafi Marg, New Delhi - 110 011
3. The Secretary,
   Ministry of Heavy Industries
   Udyog Bhawan, Rafi Marg, New Delhi - 110 011
4. The Secretary,
   Ministry of New and Renewable Energy
   Block-14, CGO Complex,
   Lodhi Road, New Delhi-110 003
5. The Joint Secretary (CP Division)
   Ministry of Environment, Forests and Climate Change
   Indira Paryavaran Bhawan
   Jor Bagh Road, New Delhi - 110 003
6. All Regional Directorates, CPCB
   (As per the list)

(Bharat Kumar Sharma)
Member Secretary

Address List of The Chief Secretaries of States/UTs			
1.	The Chief Secretary, Government of Andhra Pradesh, 1st Block, A.P Secretariat Office, Velagapudi- 522503 E-mail:- (cs@ap.gov.in)	2.	The Chief Secretary, Government of Arunachal Pradesh, Civil Secretariat, Itanagar-791111 E-mail:- (Cs-arunachal@nic.in)
3	The Chief Secretary, Government of Assam, Block-C,3rd Floor, Assam Sachivalaya, Dispur-781006 E-mail:- (Cs-assam@nic.in)	4	The Chief Secretary, Government of Bihar, Main Secretariat, Patna-800015 E-mail:- (Cs-bihar@nic.in)
5.	The Chief Secretary, Government of Chattisgarh, Mahanadi Bhawan, Mantralaya, Naya Raipur-492002 E-mail:- (Csoffice.cg@gov.in)	6.	The Chief Secretary, Government of Goa, Secretariat, Porvroim, Bardez, Goa-403521 E-mail:- (Cs-goa@nic.in)
7.	The Chief Secretary, Government of Gujarat, 1st Block, 5th Floor, Sachivalaya, Gandhinagar-382010 E-mail:- (chiefsecretary@gujarat.gov.in)	8.	The Chief Secretary, Government of Haryana, 4th Floor, Haryana Civil Secretariat, Sector-1, Chandigarh-160019 E-mail:- (cs@hry.nic.in)
9	The Chief Secretary, Government of Himachal Pradesh, H.P Secretariat, Shimla-171002 E-mail:- (Cs-hp@nic.in)	10	The Chief Secretary, Government of Jammu & Kashmir, R. No. 2/7, 2nd Floor, Main Building, Civil Secretariat, Jammu-180001 E-mail:- (Cs-jandk@nic.in)
11.	The Chief Secretary, Government of Jharkhand, 1st Floor, Project Building, Dhurwa, Ranchi-834004 E-mail:- (Cs-jharkhand@nic.in)	12.	The Chief Secretary, Government of Karnataka, Room No. 320, 3rd Floor, Vidhan Soudha, Bengaluru-560001 E-mail:- (cs@karnataka.gov.in)

13.	The Chief Secretary, Government of Kerala, Secretariat, Thiruvananthapuram-695001 E-mail:- (chiefsecy@kerala.gov.in)	14.	The Chief Secretary, Government of Maharashtra, CS office main building, Mantralaya, 6th Floor, Madame Cama Road, Mumbai-400032 E-mail:- (cs@maharashtra.gov.in)
15	The Chief Secretary, Government of Manipur, South Block, Old Secretariat, Imphal-795001 E-mail:- (Cs-manipur@nic.in)	16	The Chief Secretary, Government of Mizoram, New Secretariat Complex, Aizwal-796001 E-mail:- (Cs_miz@rediffmail.com)
17	The Chief Secretary, Government of Meghalaya, Main Secretariat Building, Room No. 316, Shillong-793001 E-mail:- (Cso-meg@nic.in)	18.	The Chief Secretary, Government of Madhya Pradesh, MP Mantralaya, Vallabh Bhavan, Bhopal-462004 E-mail:- (cs@mp.nic.in)
19.	The Chief Secretary, Government of Nagaland, Civil Secretariat, Kohima-797004 E-mail:- (csngl@nic.in)	20	The Chief Secretary, Government of Odisha, General Administration Department, Odisha Secretariat, Bhubaneswar-751001 E-mail:- (csori@nic.in)
21	The Chief Secretary, Government of Punjab, Chandigarh-160001 E-mail:- (cs@punjab.gov.in)	22	The Chief Secretary, Government of Sikkim, New Secretariat, Gangtok-737101 E-mail:- (Cs-skm@nic.in)
23.	The Chief Secretary, Government of Rajasthan, Secretariat, Jaipur-302005 E-mail:- (csraj@rajasthan.gov.in)	24.	The Chief Secretary, Government of Telangana, Block C, 3rd Floor, Telangana Secretariat, Khairatabad, Hyderabad-500022 E-mail:- (cs@telangana.gov.in)

25	The Chief Secretary, Government of Tripura, New Secretariat Complex, Agartala-799010 E-mail:- (Cs-tripura@nic.in)	26	The Chief Secretary, Government of Tamil Nadu, Secretariat, Chennai-600009 E-mail:- (cs@tn.gov.in)
27.	The Chief Secretary, Government of Uttarakhand, 4 Subash Road, Uttarakhand Secretariat, Dehradun-248001 E-mail:- (Cs-uttarakhand@nic.in)	28.	The Chief Secretary, Government of Uttar Pradesh, 1st Floor, Room No. 110, Lal Bahadur Shastri Bhawan, Uttar Pradesh Secretariat, Lucknow-226001 E-mail:- (csup@nic.in)
29.	The Chief Secretary, Andaman and Nicobar Administration, Secretariat, Port Blair-744101 E-mail:- (Cs-andaman@nic.in)	30	The Advisor to the Administrator, Chandigarh Secretariat, Sector 9, Chandigarh-160009 E-mail:- (adviser-chd@nic.in)
31.	The Chief Secretary, Government of NCT of Delhi, Delhi Secretariat, IP Estate, New Delhi-110002 E-mail:- (csdelhi@nic.in)	32.	The Advisor to Administrator, Daman & Diu and Dadar & Nagar Haveli, Secretariat, Moti, Daman-396220 E-mail:- (Devcom-dd@nic.in)
33.	The advisor to the Administrator, U.T of Lakshadweep, Kavaratti-682555 E-mail:- (lk-advisor@gov.in)	34.	The Chief Secretary, Government of Puducherry, Main Building, Chief Secretariat, Puducherry-605001 E-mail:- (cs@py.gov.in)
35.	The Chief Secretary, Government of West Bengal, Nabanna, 13th Floor, 325 Sarat Chatterjee Road, Mandirtala, Shibpur, Howrah-711102 E-mail:- (Cs-westbengal@nic.in)	36	The Advisor to Hon'ble Lt. Governor of Ladakh, Civil Secretariat, Leh-Ladakh-194101 E-mail:- (Advisor-lg-ladakh@gov.in)

Address List of The Chairman, SPCBs/PCCs			
1.	The Chairman Andhra Pradesh Pollution Control Board D.No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre, Chalamvari Street, Kasturibaipet, Vijayawada- 520007 (Andhra Pradesh) Email:- (chairman@appcb.gov.in)	2.	The Chairman Arunachal Pradesh State Pollution Control Board Paryavaran Bhawan, Yupia Road, Papu Nalah, Naharlagun – 791110 (Arunachal Pradesh) Email-: (arunachalspcb@gmail.com)
3	The Chairman Assam Pollution Control Board Bamunimaidan, Guwahati – 781021 (Assam) Email:- (chairman@pcbassam.org)	4	The Chairman Bihar State Pollution Control Board PariveshBhawan, Plot No.N-B/2, Patliputra Industrial Area Patna-800010 (Bihar) Email:- (chairmanbspcb-bihar@gov.in)
5.	The Chairman Chhattisgarh Environment Conservation Board ParyavasBhawan, North Block, Sector-19 Atal Nagar, Raipur– 492 002 (Chhattisgarh) Email:- (henv.cg@nic.in)	6.	The Chairman Goa State Pollution Control Board Nr. Pilerne Industrial Estate, Opp. Saligao Seminary, Saligao ,Bardez,- 403511(Goa) Email:- (chairman-gspcb.goa@nic.in)
7.	The Chairman Gujarat Pollution Control Board Paryavaran Bhavan, Sector-10A, Gandhinagar– 382043 (Gujarat) Email:- (chairman-gpcb@gujarat.gov.in)	8.	The Chairman Haryana State Pollution Control Board C-11, Sector 6, Panchkula- 134109 (Haryana) Email:- (hspcbho@gmail.com)
9	The Chairman Himachal Pradesh State Pollution Control Board Paryavaran Bhavan, Phase III, New Shimla – 171009 Email:- (chairmanpcbhp@gmail.com)	10	The Chairman Jammu & Kashmir Pollution Control Committee, Parivesh Bhawan, Forest Complex, Gladni, Narwal, Transport Nagar, Jammu-180004 Email:- (chairman87jkspcb@gmail.com)
11.	The Chairman Jharkhand State Pollution Control Board T.A Building, HEC Campus, P.O. Dhurwa Ranchi – 834004, (Jharkhand) Email:- (ranchijspcb@gmail.com)	12.	The Chairman Karnataka State Pollution Control Board Parisara Bhavan, #49, Church Street, Bengaluru – 560 001, (Karnataka) Email:- (chairman@kspcb.gov.in)

13.	The Chairman Kerala State Pollution Control Board Plamoodu, Pattom P.O Thiruvananthapuram-695004 (Kerala) Email:- (chn.kspcb@gov.in)	14.	The Chairman Maharashtra Pollution Control Board Kalpataru Point, 3rd& 4th floor, Opp. PVR Cinema, Sion Circle (E), Mumbai- 400022 (Maharashtra) Email:- (chairman@mpcb.gov.in)
15	The Chairman Manipur Pollution Control Board Lamphelpat, Imphal West D.C. Office Complex – 795004 (Manipur) Email:- (radhakishore888@gmail.com)	16	The Chairman Mizoram State Pollution Control Board New Secretariat Complex, Khatla, Thlanmual Peng, Aizwal Mizoram- 796001 Email:- (mpcb@mizoram.gov.in)
17	The Chairman Meghalaya State Pollution Control Board Arden, Lumpyngngad, Shillong – 793014 Email:- (megspcb@rediffmail.com)	18.	The Chairman Madhya Pradesh Pollution Control Board ParyavaranParisar, E-5 Arera Colony Bhopal – 462016 Email:- (chairman-mppcb@mp.gov.in)
19.	The Chairman Nagaland State Pollution Control Board Signal Point, Dimapur, Nagaland – 797112 Email: - (npcb2@yahoo.com)	20	The Chairman Odisha State Pollution Control Board Paribesh Bhawan A-118, Nilakanta Nagar, Unit –VIII, Bhubaneshwar – 751012. Email: - (chairman@ospcboard.org)
21	The Chairman Punjab State Pollution Control Board Nabha Road, ITI Rd, Adarsh Nagar, Prem Nagar, Patiala - 147001. Email:- (chairman.ptl.ppcb@punjab.gov.in)	22	The Chairman Sikkim State Pollution Control Board Department of Forest, Environment & Wildlife Management Government of Sikkim, Deorali, Gangtok, -737102 (Sikkim) Email:- (spcbsikkim@gmail.com)
23.	The Chairman Rajasthan State Pollution Control Board A-4 Institutional Area, Jhalane Dungri Jaipur – 302004. (Rajasthan) Email:- (chairperson@rpcb.nic.in)	24.	The Chairman Telangana Pollution Control Board Paryavaran Bhavan A-3, Industrial Estate, Sanath Nagar, Hyderabad – 500 018 (Telangana) Email:- (chief.advisor@telangana.gov.in)

25	The Chairman Tripura State Pollution Control Board Parivesh Bhawan Pt. Nehru Complex, Gorkhabasti P.O., Kunjaban, Agartala, Tripura - 799 006 Email:- (bagarwala00@gmail.com)	26	The Chairman Tamil Nadu Pollution Control Board No. 76, Mount Salai, Guindy, Chennai – 600032 (Tamil Nadu) Email-(chairman@tnpcb.gov.in)
27.	The Chairman Uttarakhand Pollution Control Board Gaura Devi Bhawan, 46 B IT Park Sahastradhara, Dehradun-248001 Uttarakhand Email:- (Secy-for-ua@nic.in)	28.	The Chairman Uttar Pradesh Pollution Control Board Building No. TC-12V VibhutiKhand, Gomti Nagar, Lucknow– 226010, (Uttar Pradesh) Email:- (chairman@uppcb.in)
29.	The Chairman Andaman & Nicobar Islands Pollution Control Committee Department of Science & Technology Dollyganj Van Sadan, Haddo P.O., Port Blair-744102, (Andaman & Nicobar) Email:- (secretaryuddm@gmail.com)	30	The Chairman Chandigarh Pollution Control Committee Paryavaran Bhawan Madhya Marg, Sector - 19 B, Chandigarh – 160019. Chandigarh Email:- (cpcc-chd@nic.in)
31.	The Chairman Delhi Pollution Control Committee 4th& 5th Floor, ISBT Building, Kashmere Gate, Delhi - 110006. Email:- (chdpcc@nic.in)	32.	The Chairman Daman, Diu & Dadra Nagar Haveli Pollution Control Committee 1st Floor, Udhyog Bhavan Bhenslore, Dunetha Nani Daman, Daman – 396210 Email:- (fs-dmn-diu@nic.in)
33.	The Chairman Lakshadweep Pollution Control Committee Lakshadweep Administration Department of Science, Technology & Environment Kavarati – 682555. (Lakshadweep) Email:- (lk-advisor@gov.in)	34.	The Chairman Puducherry Pollution Control Committee Department of Science, Technology & Environment 3rd Floor, Housing Board Complex, Anna Nagar, Nellithope, Puducherry – 605 005 Email:- (secytran@py.gov.in)
35.	The Chairman West Bengal Pollution Control Board Paribesh Bhavan Canteen, 10A, Sector III, Bidhannagar, Kolkata- 700106 West Bengal Email:- (chrmn.wbpcbwb@bangla.gov.in)	36	The Chairman Ladakh Pollution Control Committee Skara Yokma, Near KBR Airport, Leh-194101 UT of Ladakh Email:- (Admsecyutl.hfee@gmail.com)

Address list of The Regional Directors, CPCB			
1.	The Regional Director (Kolkata) Central Pollution Control Board 502, Southend Conclave 1582, Rajdanga Main Road Kolkata-700107 E-mail:- (rdkolkata.cpcb@gov.in)	2.	The Regional Director(Vadodara) Central Pollution Control Board Parivesh Bhawan, Opp. Ward No. 10 VMC Office Subhanpura, Vadodara – 390 023 Gujarat E-mail: - (pcrdvad.cpcb@gov.in)
3.	The Regional Director (Shillong) Central Pollution Control Board BSNL NE- 1, Telecom Circle CTO Building Ground Floor Shillong-793001 E-mail: - (zoshillong.cpcb@nic.in)	4.	The Regional Director (Bhopal) Central Pollution Control Board 3rd Floor, Sahkar Bhawan North T.T Nagar Bhopal- 462003 E-mail: - (cpcb.bhopal@gov.in)
5.	The Regional Director (Lucknow) Central Pollution Control Board Ground Floor, PICUP Bhawan Vibhuti Khand, Gomti Nagar Lucknow- 226020 E-mail: - (zolucknow.cpcb@nic.in)	6.	The Regional Director (Bengaluru) Central Pollution Control Board 1st& 2nd Floors, Nisarga Bhawan A-Block, Thimmaiah Main Road 7th D Cross, Shivanagar Opposite Pushpanjali Theatre Bengaluru-560010 E-mail:- (zobangalore.cpcb@nic.in)
7.	The Regional Director(Chandigarh) Central Pollution Control Board BSNL Exchange, 2nd Floor Sector 49-C, Chandigarh-160047 E-mail: - (rdchandigarh.cpcb@gov.in)	8.	The Regional Director (Chennai) Central Pollution Control Board Regional Directorate - Chennai 2nd Floor, 40-E, BSNL Building TVK Industrial Estate, CIPET Road, Guindy, Chennai – 600032. E-mail: - (rdchennai.cpcb@gov.in)
9.	The Regional Director (Pune) Central Pollution Control Board Row House No. 1, Nisarg Vihar, Near Mitcon International Public School, Balewadi, Pune-411045 E-mail: - (rdpune.cpcb@gov.in)		

Classification of Sectors into Red, Orange, Green, White and Blue Categories

(A tool for progressive environmental management)

Central Pollution Control Board

"Parivesh Bhawan", East Arjun Nagar

Delhi-110032

(January 2025)

तन्मय कुमार, भा.प्र.से.
अध्यक्ष
Tanmay Kumar, I. A. S.
Chairman

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
CENTRAL POLLUTION CONTROL BOARD
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

सत्यमेव जयते

FOREWORD

The concept of classifying industries into different pollution categories originated in 1989 with the Doon Valley (Uttarakhand) Notification issued by Ministry of Environment and Forests. Subsequently the concept of pollution index was developed by Central Pollution Control Board (CPCB) during 2016 to classify the sectors into different category. The 2016 classification helped State Pollution Control Boards (SPCBs)/Pollution Control Committees (PCCs) in streamlining consent management, prioritizing regulatory oversight & environmental monitoring, taking decision related to siting of units, etc. However, necessity felt for refining the concept of calculating Pollution Index to overcome certain limitation and to bifurcate sub-sectors based on pollution load, scale of operation etc.

Accordingly, draft methodology was prepared and widely circulated for inputs/comments/suggestions by placing the same on CPCB website (public domain) as well as by inviting comments from MoEF&CC/SPCBs/PCCs. As of 11.08.2024, i.e. the extended date for receipt of suggestions, CPCB received 170 representations, comprising over 700 comments from PSUs, NGOs, industries, industrial associations, including feedback from SPCBs of Kerala, Nagaland, Tamil Nadu, Mizoram, West Bengal, Punjab and Lakshadweep. The report has been finalised after examining all the comments by a working committee.

The 2025 classification methodology bifurcates sub-sectors based on pollution load, scale of operation, production technology, and type of fuel used into Red, Orange, Green, White and Blue categories. Red indicates the highest pollution potential, requiring stringent regulatory oversight, while White signifies minimal or no pollution, with much reduced compliance burden of merely intimation to the concerned SPCBs/PCCs. **A new Blue Category has also been introduced to distinguish the Essential Environmental Services** required for management of environmental concerns arising from anthropogenic pollution due to domestic/household activities which otherwise will have large littering potential. Additional 2 years validity for consent to operate (as per Pollution Index) is prescribed for the blue category.

This report also outlines the implementation pathway, which includes guidelines for State Pollution Control Boards/Pollution Control Committees to follow and implement the new classification system. Earlier classified 257 sectors have now been bifurcated and classified into 403 sectors (including sub sectors) and additionally, 16 new sectors have been introduced. Thus, the revised classification of 273 key sectors comprising of total 419 sectors/sub-sectors are further classified into Red Category (125 nos.), Orange Category (137 nos.), Green Category (94 nos.), White Category (54 nos.) and Blue Category (9 nos.). Progression between red, orange and green categories for the industrial sectors is also incorporated based on the use of less polluting available processes and technologies.

The report also comprises provisions for individual units to adopt cleaner technologies and practices resulting in reduction of pollution load in any sector. Incentives, such as extended validity for Consent to Operate (CTO) and reduced inspection frequencies, are outlined to encourage continual improvement of environmental performance. The incentive mechanism allowing progression between categories will thereby promote Ease of Doing Business by extended consent validity and enhance duration between inspections, thereby leading to reduced compliance burden.

To sum up, this report aims to create a more transparent, consistent, and incentivized regulatory mechanism for better environment management, promoting sustainable industrial development and better governance. I hope the report will be useful to all concerned in the field of industrial pollution control in the country and would incentivise the industries to switch over to cleaner process and technology leading to reduced air, water and soil pollution and also encourage setting up of blue category industries.

I would like to place on record my sincere appreciation for the hard work and valuable contributions by the CPCB team comprising of Shri Amit R. Thakkar, Add. Director, Shri Saubhagya Dixit, Scientist D, and Dr. Anantha N. S., SSA under the guidance of Shri Bharat Kumar Sharma, Member Secretary. I would also like to extend my thanks to Dr. Prashant Gargava, former Member Secretary, Shri P. K. Gupta, former Director and Shri Ajay Aggarwal, former Director, for their contribution. I would also express gratitude to the Working Committee, CPCB, MoEF&CC, SPCBs/PCCs and others for their contributions in the preparation of this report.

(Tanmay Kumar)

'परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली-110 032, भारत
'Parivesh Bhawan, East Arjun Nagar, Delhi-110 032, India
Tel. +91-11-22307233, Tele Fax : +91-11-22304948, e-mail: ccb.cpcb@nic.in

CONTRIBUTORS

Overall Guidance

1. Shri Tanmay Kumar, IAS, Chairman, CPCB
2. Shri Bharat Kumar Sharma, Member Secretary, CPCB

Working Committee

1.	Shri B. Vinod Babu, Scientist 'F' and Div. Head, WM-II & IT, CPCB, Delhi	:	Chairman
2.	Shri V. P. Yadav Scientist 'F' and Div. Head, WM-I, CPCB, Delhi	:	Member
3.	Shri Dinabandhu Gauda, Scientist 'F' and Div. Head, IPC-I, CPCB, Delhi	:	Member
4.	Shri Nazimuddin, Scientist 'F' and Div. Head, IPC-II, CPCB, Delhi	:	Member
5.	Shri Kamlesh Singh, Scientist 'E' and Div. Head, IPC-III, CPCB, Delhi	:	Member
6.	Smt. Anamika Sagar, Scientist 'E' and Div. Head, IPC-IV & V, CPCB, Delhi	:	Member
7.	Shri P. K. Gupta, Scientist 'F' and Div. Head, IPC-VI & VII, CPCB, Delhi	:	Member
8.	Shri Amit Thakkar, Scientist 'E', IPC-VI & VII Division, CPCB, Delhi	:	Member Convenor

Report preparation, finalization and overall coordination

1. Shri P. K. Gupta, Former Scientist 'F', CPCB, Delhi
2. Shri Amit Thakkar, Scientist 'E', and Divisional Head, IPC-VI&VII, CPCB, Delhi
3. Shri Saubhagya Dixit, Scientist 'D', IPC-VI Division, CPCB, Delhi

Development of Online Calculator:

Dr. Anantha N. S., Senior Scientific Assistant, Regional Directorate, Bengaluru

EXECUTIVE SUMMARY

The concept of classification of industrial sectors into red, orange, and green categories based on the size of operations and consumption of resources was first introduced in 1989 for Doon Valley, Uttarakhand. This classification aimed to aid decisions regarding siting of industries. Over the period of time, this concept was extended nationwide to manage consents and establish norms for surveillance and inspection of industry. In 2012, to have uniformity in classification throughout the country, the Central Pollution Control Board (CPCB) issued a standardized list of 244 sectors, classified under red (85 sectors), orange (73 sectors) and green (86 sectors) categories.

In 2016, the Central Pollution Control Board (CPCB) developed a scoring methodology based on the Pollution Index (PI) to harmonize the criteria for categorizing industries. This PI was determined by evaluating water pollution, air pollution, and hazardous waste generation. Using this methodology, CPCB classified 257 industrial sectors into four categories: Red (63 sectors), Orange (91 sectors), Green (65 sectors), and White (38 sectors). The White category was introduced for sectors considered "practically non-polluting" during 2016. Additionally, State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) were authorized to categorize any new or left over sectors according to the CPCB's 2016 methodology.

Further, based on the experience gained over the years, the increased use of cleaner fuels like PNG and bio-CNG, adoption of cleaner technology resulting into reduced wastewater generation, normalisation approach & different formula for calculating PI etc. a need was felt to revisit the classification methodology of 2016 for several such identified areas for improvement. Separate scoring for trade effluent and sewage effluent was also required due to differing characteristics and treatment methods.

Considering the scope of revision, CPCB published a draft report revising the methodology for calculating PI and accordingly classification of sectors into Red, Orange, Green, and White categories based on pollution index range was placed in the public domain for inputs/comments. Around 160 representations comprising more than 700 comments were received. Based on feedback/suggestions and examination of same by the working committee constituted for the purpose, the methodology was finalised. As per the final methodology, the scoring criteria for the following three major pollutant groups are as follows:

i. Water Pollutant Score (PI_W): Assesses the water pollution potential considering the oxygen demand of wastewater, other pollutants in the wastewater and quantity of wastewater generated.
ii. Air Pollutant Score (PI_A): Evaluates the potential air pollution due to process emissions (point source), work zone emissions (fugitive and odour) and type & quantity of fuel used.
iii. Waste Pollutant Score (PI_H): Considering the type and quantity of waste (which are hazardous/toxic/infectious/bulk in nature) generated.

Each pollutant group is scored out of 100, and the Cumulative Pollution Index is calculated. The category of the sector is decided based on the pollution index range, if PI ≥ 80 the category

of sector is Red, if PI ranges between 55 ≤ PI < 80, the category of sector is orange, similarly for the range of PI between 25 ≤ PI < 55, the category is Green and for PI < 25, the category of the sector is white.

Further, based on the stakeholders' comments, a need was felt to introduce a separate "blue category" for Essential Environmental Services (ESS) required for management of waste generated from domestic/household activities and, an incentive mechanism to promote units in a particular sector, taking measures resulting into better environmental performance. An addendum was prepared, shared and presented to all SPCBs/PCCs. The addendum was also placed in the CPCB Website on 11.07.2024 for inputs/comments. 09 representations were received in the addendum. All representations were examined, and classification based on revised methodology is finalised. Based on the revised methodology, CPCB has classified total 419 sectors and sub-sectors under Red (125), Orange (137), Green (94), White (54) and Blue (9) categories.

The report introduced incentive mechanism for the units in any sector that adopt environment friendly practices such as treatment and recovery of 100% wastewater, use of 100% cleaner fuel/renewal energy etc. and ensuring continuous compliance. These incentives are designed to encourage continuous improvement in environmental performance and to reward units that demonstrate proven implementation of sustainable practices and compliances.

Following are the salient features of the revised classification methodology:

- Methodology focusses on "Potential to pollute the environment" by the sector.
- Simplified single formula for Cumulative Pollution Index for all cases.
- Equal weightage to all three pollutant groups- Air, Water, and Waste.
- Cumulative PI based on weighted proportionate scores of pollutant groups.
- Separate scoring criteria for sectors generating sewage (such as Building & construction projects, STPs, Airports, etc.) and bio-medical waste (Health Care Facilities).
- Introduced Blue Category for 9 sectors under Essential Environmental Services required for management of waste generated from domestic/household activities.
- Appropriate weightage to scale of operations by introducing more slabs to bifurcates sub-sectors based on pollution load, scale of operation, production technology and type of fuel used.
- Introduction of sub-categories for sectors based on cleaner technologies, fuel types, integrated/segregated operations etc.
- Motivation to industries for progressive environmental management.
- A tool to assess the Cumulative Pollution Index and category based on revised method.

This report, prepared by the Central Pollution Control Board (CPCB), presents a revised methodology for classifying sectors based on their pollution potential. The classification aims to enhance environmental management and regulatory oversight by classifying sectors into red, orange, green, white, and blue categories. The report covers in detail about the genesis of

classification, need for the revision of 2016 methodology, scoring methodology for calculation of cumulative PI, etc.

The report also outlines guidelines for implementing the classification system. The classification may be used for consent management, inspection frequency, siting criteria, cluster development, pollution control plans, levying environmental compensation, promoting progressive environmental management, etc.

*****

LIST OF ABBREVIATION

CBG: Compressed Biogas

CNG: Compressed Natural Gas

CPI: Cumulative Pollution Index

CPCB: Central Pollution Control Board

CTE: Consent to Establishment

CTO: Consent to Operate

EC: Environment Compensation

ETP: Effluent Treatment Plant

EES: Essential Environmental Services

Gen-Set: Generator Set

HAPs: Hazardous Air Pollutants

HCFs: Health Care Facilities

HW: Hazardous Waste

MoEF&CC: Ministry of Environment, Forest & Climate Change

LNG: Liquefied Natural Gas

LPG: Liquefied Petroleum Gas

NGT: National Green Tribunal

NOC: No Objection Certificate

OCEMS: Online Continuous Effluent/Emission Monitoring System

PCC: Pollution Control Committee

PM: Particulate Matter

PI: Pollution Index

PI_A: Air pollutant score

PI_H: Waste pollutant score

PI_W: Water pollutant score

PNG: Piped Natural Gas

SPCB: State Pollution Control Board

TTZ: Taz Trapezium Zone

VOCs: Volatile Organic Compounds

TABLE OF CONTENT

LIST OF TABLES

1

Genesis and Journey of Classification

1.1 Introduction

The notifications issued by the Ministry of Environment and Forest during 1989 for Doon Valley, Uttarakhand introduced the concept of classification of industries as red, orange, and green categories. The purpose of this classification was to facilitate decisions related to location of these industries. The criteria for classification of industries was primarily based on quantity of industrial effluent, quantity of fuel/coal, and the number of employees, and amount of waste generated. The notification included list of 129 sectors, classified under red (45), orange (35), and green (39) categories. The criteria used for Doon Valley Notification, 1989 is summarized in the **Figure I**.

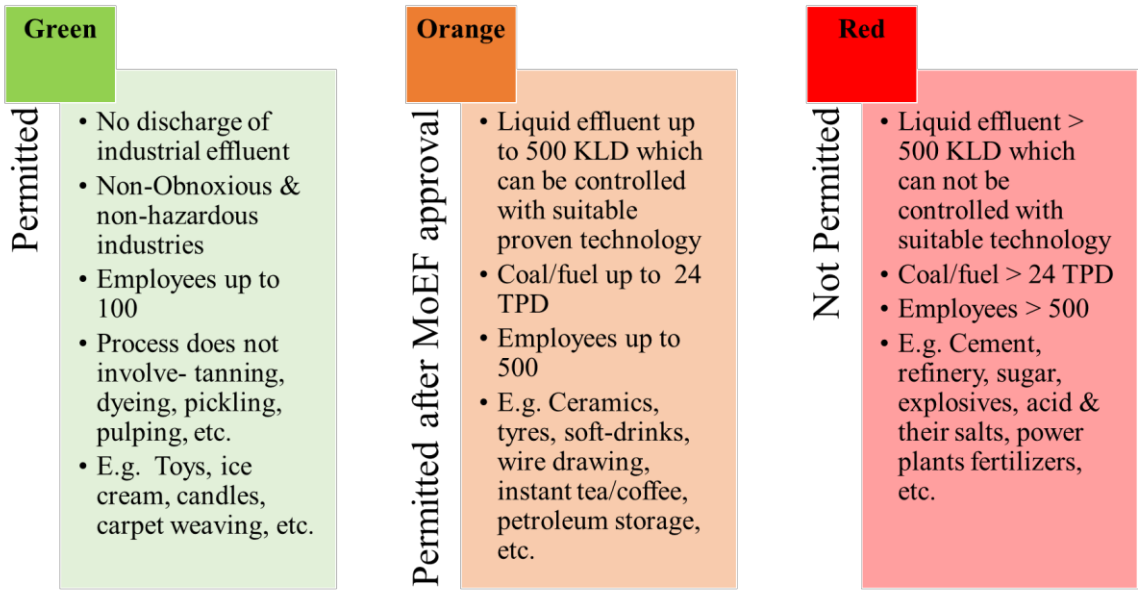


Figure I: Criteria for classification of industries in Doon Valley Notification, 1989

Subsequently, the application of this concept was extended to other parts of the country not only for the purpose of location of industries, but also for the purpose of consent management and formulation of norms related to surveillance/inspection of industries. As the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) were following different

categorization of industries, to maintain the uniformity across the country, during 2012, CPCB issued a list of 244 sectors, classified under red (85), orange (73) and green (86) categories.

In order to harmonize the criteria for categorization, during the year 2016, CPCB developed the scoring methodology to classify the industries based on the Pollution Index (PI) which was a function of water pollution, air pollution and hazardous waste generation. Based on this methodology, CPCB has classified 257 sectors under red (63), orange (91), green (65) and white (38) categories and directed SPCBs/PCCs to adopt the same. During 2016, CPCB introduced white category as a new category for such sectors which are "practically non-polluting". SPCBs/PCCs were also empowered to categorize any new/left-out sector at their own level, following the methodology prescribed by CPCB. Additionally, during 2020, CPCB also segregated the list of non-industrial operations/facilities. The overall journey of classification may be understood with the help of milestone chart shown in **Figure II**.

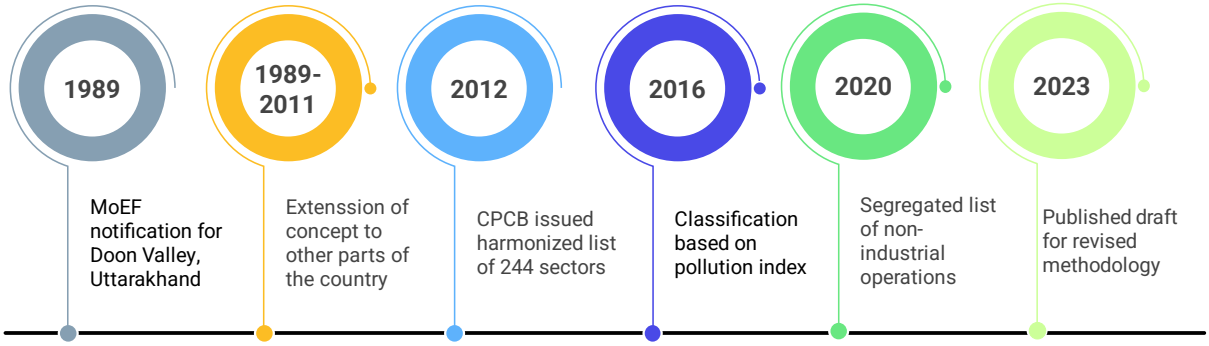


Figure II: Genisis and journey of classification of sectors

The concept of categorization is based on the "Precautionary Principle", which focuses on potential of industries to pollute the environment. The purpose of categorization is to ensure that the industry is established in a manner consistent with the environmental objectives and to prompt industrial sectors to adopt cleaner technologies, ultimately resulting in generation of minimum pollutants.

*****

2

Modified Methodology for Classification

2.1 Need and scope for revision of methodology

Based on the experience gained over the years, a need was felt to revisit the 2016 methodology for classification of sectors considering following scope of improvement:

i. Assessment of Pollution Index:

The category of any industrial sector depends on the Pollution Index (PI), which comprises of scores of three pollutant groups i.e., air pollution, water pollution and hazardous waste. The water and air pollutants were each assigned a weight of 40%. However, the hazardous waste generation was given 20% weightage in pollution index.

As per the classification methodology of 2016, in case of absence of any pollutant groups, pollution index was normalized to 100. As a result, different formulas were required to compute pollution index.

Further, the normalization method has certain limitations while comparing pollution potential among sectors having scores for all three pollutant groups verses score only for any one/two pollutant group(s). Moreover, it was also observed that in some sectors normalization involved subjectivity based on perception.

ii. Size of operations of industrial activities:

It was observed that, there was less variation in PI score of industry based on size of operation in same sector. Limited variables/slabs were considered for the quantity of wastewater discharge and fuel consumption. It was also observed that adequate weightage in the considered variables/slabs to account the variation in size of operations of industrial activities need to introduce.

iii. Consideration to segregated industrial activities:

Although there were differences in pollution potential of integrated and standalone units of a particular sector, the classification methodology (2016) classifies the integrated or standalone units in the same sector. For example, standalone cement grinding units will have less pollution potential than integrated cement plants, but both were classified under red category.

iv. Consideration of type of fuel used:

In industrial operations requiring fuels, the amount of emissions is governed by many factors such as the type of fuel and its calorific value, combustion efficiency, emission factors, etc. Use of biomass and cleaner gaseous fuels such as Piped Natural Gas (PNG), Liquefied Petroleum Gas (LPG), Compressed Natural Gas (CNG), bio-CNG etc. have increased significantly in recent years. It was observed that adequate weightage based on type of fuel used is required.

v. Separate scoring for sewage and trade effluent:

It is desirable to have separate wastewater scoring criteria for the sectors generating trade effluent and sewage effluent, as characteristics, treatment method and impact are different for trade effluent generated from industrial sectors and sewage effluent generated from infrastructure & development sectors.

vi. Motivation to industries for progressive environmental management:

In the previous classification regime, there was no effective provision for change in category of industries based on the variation in pollution potential of a sector, even if the industries adopt cleaner technologies or switch over to cleaner raw material/cleaner fuel etc., resulting into reduction in pollution index.

2.2 Modified methodology for classification of sectors

Considering the scope of revision, CPCB prepared a draft report on "Classification of Industrial Sectors into Red, Orange, Green and White Categories: A Tool for Progressive Environmental Management". As per the draft report, a revised methodology for the classification is proposed which incorporates, water pollutant score, air pollutant score and waste generation score, based on the pollution potential of a sector on the environment. Scores out of 100 were given to each three pollutant groups and formula for calculating cumulative score based on the impact pollutant is devised. These scores are used for computation of pollution index for deciding the

category of industrial sector. The cut-offs for deciding the category were based on the quartiles of pollution indices, pollution potential of sectors, etc. The draft report was placed on CPCB website in July 2023, for comments/feedback from stakeholders.

CPCB received 161 representations, comprising more than 700 comments from various State Pollution Control Boards, research and technical institutions, industrial associations, NGOs, individual industries, and the public. The stakeholder-wise representations are shown with the help of pie-chart in **Figure III**.

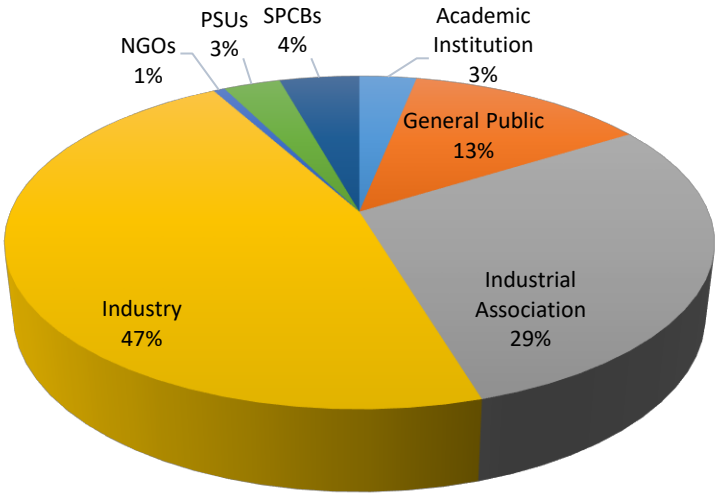


Figure III: Stakeholder-wise representations received

Subsequently, CPCB constituted a committee to critically examine and analyse the comments and to make recommendations for suitable incorporation in the final methodology and classification. After incorporating the feedback received from stakeholders, the Committee has finalized the basic methodology which can be used as a yardstick for classification of the sectors into Red, Orange, Green and White Categories.

Further, based on the stakeholders' comments, a need was felt to introduce a separate "blue category" for Essential Environmental Services (ESS) required for management of waste generated from domestic/household activities and, an incentive mechanism to promote units in a particular sector, taking measures resulting into better environmental performance. An addendum was prepared, shared and presented to all SPCBs/PCCs. The addendum was also placed in the CPCB Website on 11.07.2024 for inputs/comments. Till last date (i.e. 11.08.2024) 09 representations were received in the addendum. All representations were examined, and classification based on revised methodology is finalised.

It is worth to mention that to safeguard the environment, following the fundamental principle of classification i.e., “Precautionary Principle", scope is always available for application of mind and collective wisdom. As per the precautionary principle, when human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. Therefore, variation from methodology is possible in case of projects having high chances of damage to the environment/eco-system such as river mining, etc. or having associated accidental risk such as major accident hazards installations wherein risk is associated with industrial activities having potential in terms of operation or process, manufacturing, transportation, and storage of one or more hazardous chemicals as prescribed by the Manufacture, Storage, and Import of Hazardous Chemical Rules, 1989.

Considering the above issues, the classification methodology was modified based on the potential of three pollutant groups, namely, water pollutant, air pollutant and waste pollutant (which are hazardous/toxic/infectious/bulk in nature), which have been given scores out of 100, each. Slabs are assigned for selection of pollutant groups respectively for water, air, and waste. Score can be decided based on dominant pollutants in the pollutant groups and quantity as detailed in Table-I, Table-II and Table-III. These scores are used for computation of pollution index for deciding the category of sector. The scoring methodology is based on the pollution potential during generation and not at the end of pipe/ after treatment considering the fact that all pollutants need to be treated and disposed as per the provisions/rules notified under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986 and as amended.

The details of scoring criteria for PI_W for “water pollutant,” PI_A for “air pollutant” and PI_H for “waste generating sector” are as follows:

2.2.1 Scoring criteria for Water Pollutant “PIw”

Water pollution score consider the potential water pollution load from any sector in terms of characteristics and quantity of untreated trade effluent (wastewater). The “trade effluent” includes any liquid, gaseous or solid substance which is discharged from any premises used for carrying on any [industry, operation or process, or treatment and disposal system], other than domestic sewage.

The water pollutant score (PI_W) is the addition of three sub-scores which are based on organic content in terms of oxygen demand of wastewater (W1), potential of other pollutants (W2) and

quantum of wastewater (W3). The weightages of W1, W2 and W3 in the water pollution score are 35%, 30% and 35%, respectively.

Proportionate higher scores are assigned to the sectors generating trade effluent of high BOD and/or high COD, heavy metals/toxic compounds, and large volume of wastewater. The scores are assigned considering the potential for causing damage to the environment. It may be noted that for sectors generating industrial effluent, dominant quantity of trade effluent is considered in score W3 (W3-1 to W3-5). Whereas, for sectors generating huge volume of sewage effluent such as railway stations, STPs, residential building projects, airports etc., the separate scores W3 (W3-6 to W3-10) are assigned. The term used, "Sewage effluent" means effluent from any sewerage system or sewage disposal works and includes sullage from open drains. The scoring criteria for water polluting sectors are given in **Table-I**.

Table I: Scoring Criteria for Water Polluting Sector

Water Pollutant Group	Description	Score
Score W1: Score based on the oxygen demand of wastewater (Maximum of the following scores to be considered)		
W1-1	BOD ≥ 5,000 mg/l or COD ≥ 10,000 mg/l	35
W1-2	1000 ≤ BOD < 5,000 mg/l or 5000 ≤ COD < 10,000 mg/l	30
W1-3	500 ≤ BOD < 1,000 mg/l or 1000 ≤ COD < 5,000 mg/l	25
W1-4	100 ≤ BOD < 500 mg/l or 250 ≤ COD < 1,000 mg/l	20
W1-5	10 ≤ BOD < 100 mg/l or 50 ≤ COD < 250 mg/l	10
Score W2: Score based on other pollutants in the wastewater (Maximum of the following scores to be considered)		
W2-1	Pollutants like pesticides, heavy metals, and toxic compounds: *(Aluminium, Anionic detergents, Barium, Chloramines, Copper, Fluoride, Total residual chlorine, Iron, Manganese, Mineral oil, Phenolic compounds, Selenium, Silver, Sulphide, Cadmium, Cyanide, Lead, Zinc, Mercury, Tin, Vanadium, Antimony, Benzene, Benzo-a-pyrene, Molybdenum, Nickel, Phosphates, Polychlorinated biphenyls, Polynuclear aromatic hydrocarbons, Arsenic, Total/Hexavalent Chromium, Trichloroethane, Trichloroethylene, Adsorbable Organic Halogens (AOx), Pesticides compounds, Residual antibiotic, Radioactive materials, etc.)*	30
W2-2	Pollutants like Nitrate Nitrogen, Nitrate, Ammonical Nitrogen, Total Kjeldahl Nitrogen (TKN), Oil & grease, pH<5.5 or > 9	25
W2-3	Pollutants mainly in terms of inorganic dissolved solids and associated other impurities due to process e.g. wastewater generated from DM water rejects, boiler blowdowns, brine solution rejects, fresh-water RO rejects, etc.	20
W2-4	Pollutants mainly in terms of inorganic dissolved solids e.g. wastewater from cooling towers, cooling-re-circulation processes, etc.	15

Score W3: Score based on quantity of wastewater generated		
A. For sectors generating Industrial Trade effluent (Maximum score to be considered)		
W3-1	Wastewater ≥ 500 KLD	35
W3-2	100 KLD ≤ Wastewater < 500 KLD	30
W3-3	50 KLD ≤ Wastewater < 100 KLD	25
W3-4	10 KLD ≤ Wastewater < 50 KLD	20
W3-5	Wastewater < 10 KLD	15
B. For sectors such as STPs, building projects, etc. generating/handling only high-volume Sewage (Maximum score to be considered)		
W3-6	Sewage ≥ 5,000 KLD	35
W3-7	2,000 KLD ≤ Sewage < 5,000 KLD	30
W3-8	500 KLD ≤ Sewage < 2,000 KLD	25
W3-9	100 KLD ≤ Sewage < 500 KLD	20
W3-10	Sewage < 100 KLD	15
Water Pollutant Score (PI_W) = W1+W2+W3		

2.2.2 Scoring criteria for Air Pollutant "PI_A":

Air pollution score consider the potential air pollution load from any sector in terms of characteristics of emissions and its quantum/scale in terms of quantity of fuel. The air pollutant score is based on generation of emission. The "air pollutant" means any solid, liquid, or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

The air pollution score (PI_A) is the addition of three sub-scores which are based on the type of pollutants in emissions (A1), work zone emission/fugitive emissions & odour nuisance (A2), and fuel type & quantity (A3). The weightages of A1, A2 and A3 in air pollution score are 35%, 30% and 35%, respectively.

Proportionate higher scores are assigned to the sectors generating emissions with hazardous air pollutants, process-based fugitive emissions and using solid/liquid fuels, as such pollutants have higher potential to damage the environment.

The California Air Resources Board defines fugitive emissions as "Emissions not caught by a capture system which are often due to equipment leaks, evaporative processes and windblown disturbances." The fugitive emissions from any process having acid mist, VOCs, etc. are given higher weightage (score A2=30) as compared to the fugitive emissions of inert material (score A2=25). Sectors having persistent foul odour issue, will get score A2=20. Sectors/units using solid/liquid fuel will get higher score-A3, compared to the sectors using cleaner gaseous fuel or electricity. The scoring criteria for air polluting sectors are given at **Table-II.**

Table II : Scoring criteria for air polluting sectors

Air Pollutant Group	Description	Score
Score A1: Score based on Process emissions (point source) (Maximum of the following scores to be considered)		
A1-1	Hazardous Air Pollutants (HAPs) and heavy metals: *HAPs (Phosgene, Benzene, Benzo(α)pyrene, Butadiene, Toluene Di-isocyanate, Methylene-di-phenyl Di-isocyanate, Ethylene Oxide, Ethylene Di Chloride, Acrylonitrile, Propylene Oxide), Dioxins & Furans, Asbestos, Polycyclic Aromatic Hydrocarbons (PAHs), HCN, Cd, Th, Hg, Sb, As, Pb, Co, Cr, Cu, Mn, Ni, V, etc.*	35
A1-2	Halogens, acids, and pesticides-based pollutants: *H_2S, HF, HBr, P_2O_5 as H_3PO_4, NH_3, TOC, Cl, HCl, SO_3, CH_3Cl, Total Fluoride, PM having pesticide compounds/other organic compounds, Acid mist, etc.*	30
A1-3	Pollutants due to combustion of fuel or due to process: *PM, CO_2, CO, NOx, SO_2, etc.*	25
A1-4	Volatile Organic Compounds (VOCs): *Ethyl benzene, Styrene, Toluene, Xylene, Aromatics, Propylene Glycol, Ethylene Glycol, etc.*	20
Score A2: Score based on fugitive emissions and odour nuisance (Maximum of the following scores to be considered)		
A2-1	Fugitive emissions of Particulate Matter (PM), acid mist, VOCs, etc. from process	30
A2-2	Fugitive emissions of Particulate Matter (PM), acid mist, VOCs, etc. due to storage and handling, etc.	25
A2-3	Odour nuisance, including odour due to the use of binding gums, cements, adhesives, enamels etc.	20
Score A3: Score based on quantity of fuel (Maximum of the following scores to be considered)		
	Coal or liquid fuels	
A3-1	Fuel consumption ≥ 24 TPD	35
A3-2	12 TPD ≤ Fuel consumption < 24 TPD	30
A3-3	Fuel consumption < 12 TPD	25
	Biomass-based fuels	
A3-4	Fuel consumption ≥ 48 TPD	25
A3-5	24 TPD ≤ Fuel consumption < 48 TPD	20
A3-6	Fuel consumption < 24 TPD	15
	Cleaner/gaseous fuels, such as, PNG, CNG, LPG, Compressed Biogas (CBG), propane, butane etc.	
A3-7	Fuel consumption ≥ 120 TPD	20
A3-8	60 TPD ≤ Fuel consumption < 120 TPD	15
A3-9	Fuel consumption < 60 TPD	10
A3-10	Electricity	0
Air Pollutant Score (PI_A) =A1+A2+A3		
Note: In case, any sector/unit is using more than one type of fuel, the most polluting fuel category, will be considered.		

2.2.3 Scoring criteria for Industrial Waste Generating Sector "PI_H"

Industrial waste generating sectors are considered based on the generation of hazardous waste/high volume low effect waste. As per the Hazardous and Other Wastes (Management & Trans-boundary Movement) Rules, 2016, the "hazardous waste" means any waste which by reason of characteristics such as physical, chemical, biological, reactive, toxic, flammable, explosive or corrosive, causes danger or is likely to cause danger to health or environment, whether alone or in contact with other wastes or substances and shall include waste as per the Schedule I, Schedule II and Schedule III of the rule. Further, scores are also assigned to the high-volume low effect wastes such as fly ash, phosphogypsum, red mud, jarosite, slags from pyro-metallurgical operations, mine tailings and ore beneficiation rejects.

The score for waste comprises of two sub-scores H1 and H2. The H1 score is based on the different type of hazardous waste which are generated during the process, and which required to be managed/disposed through common facility OR based on the generation of high-volume low effect waste/ HW like contaminated bags/ drums etc. The H2 score is based on the total quantum of waste generated.

The desirable disposal method such as incineration, landfill after treatment, landfill etc. signifies the potency of hazardous waste. In recent time, the utilization of hazardous waste as per the Rule-9 of Hazardous and Other Wastes (Management & Trans-boundary Movement) Rules, 2016, as alternate fuel and raw material in cement kilns, as recyclable hazardous waste etc. has increased. The classification is based on the pollution potential due to generation of such types of hazardous waste from any sector. The score for the quantum of hazardous waste is total potential of generation of such hazardous waste by any sector., Score H1: Based on potency of hazardous waste and score H2: Based on quantum of hazardous waste, are given weightage of 30% and 70%, respectively. Considering the higher risk due to amount of hazardous waste generated rather than its disposal method, more weightage is given to the quantity. Overall waste generation score in case of waste generating sector will be PI_H =H1+H2. The scoring criteria for hazardous waste generating sectors are given at **Table-III**.

A separate scoring criterion has been included for sectors generating bio-medical waste. Bio-medical waste means any waste, which is generated during the diagnosis, treatment or immunisation of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps, including the categories mentioned in Schedule-I appended to the Bio-Medical Waste Management Rules, 2016. As any Health Care

Facilities (HCFs) generates all types of bio-medical waste (red, yellow, blue, and white) and quantities of such wastes may vary considerably based on the type of facility/location of facility (rural/urban), and other such factors. Therefore, scoring based on number of beds in a healthcare facility is considered as sole criteria for assigning waste score (H: B-1 to B-7) as tabulated in **Table-III**.

Least score of 25 is given to non-bedded healthcare facilities and maximum score of 100 is given to facilities having more than 1,000 beds. Overall waste generation score in case of bio-medical waste generating sector will be PI_H.

Table III: Scoring criteria for waste generating Sectors

Waste Pollutant Group	Description	Score
A. Score for sectors generating hazardous waste		
Score H1: Score based on the hazardous waste management/disposal method. (Maximum of the following scores to be considered)		
H1-1	Hazardous wastes which are flammable, ignitable, corrosive, oxidizing toxic, etc. and requiring disposal through incineration	30
H1-2	Hazardous wastes which are reactive, capable of yielding another material post disposal, etc. and requiring disposal in secured landfill after stabilization/treatment	25
H1-3	Hazardous wastes which are requiring direct disposal in secured landfill without stabilization	20
H1-4	High volume and low effect wastes, contaminated bags/ drums/ containers etc.	10
Score H2: Score based on quantity of hazardous waste generation. (Maximum of the following scores to be considered)		
H2-1	Hazardous Waste ≥ 5000 TPA	70
H2-2	1000 TPA ≤ Hazardous Waste < 5000 TPA	50
H2-3	200 TPA ≤ Hazardous Waste < 1000 TPA	30
H2-4	10 TPA ≤ Hazardous Waste < 200 TPA	20
H2-5	Hazardous Waste < 10 TPA	10
B. Scores for the sectors generating bio-medical waste		
B-1	No. of beds ≥ 1,000	100
B-2	500 ≤ No. of beds < 1,000	80
B-3	200 ≤ No. of beds < 500	60
B-4	50 ≤ No. of beds < 200	50
B-5	10 ≤ No. of beds < 50	40
B-6	No. of beds < 10	30
B-7	Non-bedded facility	25
For sectors generating hazardous waste PI_H =H1+H2 **For sectors generating bio-medical waste PI_H =B**		

2.3 Computation of Cumulative Pollution Index and criteria for deciding category of sector

In the revised methodology of classification (2025), all three pollutant scores due to water, air and industrial waste generation are taken into account while computing pollution index. The formula for computing cumulative pollution index (PI) is as follows:

$$PI = i_{max} + (100 - i_{max})\left(\frac{i_2 + i_3}{200}\right)$$

Where, i_{max}, is the maximum score among Water (PI_W), Air (PI_A), and Waste (PI_H) pollutant scores and i_2 & i_3 are the remaining pollutant scores.

The category of the sector will be decided based on the pollution index ranges given at **Table-IV.**

Table IV: Ranges of Cumulative Pollution Index for different categories

Cumulative Pollution Index (PI)	Category of industrial sector
PI ≥ 80	Red
55 ≤ PI < 80	Orange
25 ≤ PI < 55	Green
PI < 25	White

The purpose of classification is to have uniform consent mechanism, defined routine monitoring frequency by concerned SPCB/PCC, environmental protection plans etc. Modified methodology also considers the variation in pollution potential due to various type of activities and operations in a particular sector.

The scores/pollution index/category of any two sectors may be same, however, comparing two different sectors based on the category or pollution index is not desirable as the cumulative PI is a function of air pollutant, water pollutant, and waste pollutant and the cumulative score is arithmetically relates the maximum score of one pollutant with the remaining other two pollutants. Hence, PI/category of sectors may be same but may have different impact on environment.

2.4 Blue Category Projects- Essential Environmental Services for management of environmental pollution arising from domestic/household activities

Essential Environmental Services may be defined as those facilities which are essential to control, abate and mitigate pollution generated from Domestic and Industrial activities. Such Essential environment services for Industrial Activity includes CETP, CHWTSDF, Effluent conveying system etc. and essential environment services for domestic activities includes STP, MSW etc. Both the type of EES plays a vital role in Environment Management. However, during the treatment of waste, some EES generates/handle hazardous waste/infectious waste. The EES which do not generate Hazardous Waste, and which otherwise have large littering potential can be categorised as Blue Category Projects. Further, there are past legal references wherein Hon'ble Apex court has also considered the importance and requirement of such Essential Environment Services.

Human settlements whether located in rural/urban/eco-sensitive area generate sewage, solid waste, and C&D waste, which are required to be managed to prevent adverse impact on environment and human health. Basic environment management facilities are required to be set-up to manage such waste which includes STP, C&D waste processing facility, MSW management facility like sanitary landfill, material recovery facility & waste processing units, bio-methanation, bio-composting, waste to energy, etc.

These facilities are basically essential environment services which play a vital role in protecting environment and human health. These facilities may also bring value addition by producing various by-products such as secondary raw material, compost, energy, etc. and promotes circular economy and sustainable development by converting waste into wealth. Moreover, these categories do not generate hazardous or infectious wastes.

As the role and importance of these facilities is different in nature as compared to other activities and industries in the sense that they are primarily set-up for prevention, control and abatement of soil, water and air pollution. It is more appropriate to have a separate colour category-Blue Category for essential environmental services facilizes related to environmental pollution arising from domestic/household activities. These activities are required to meet all the prescribed environmental norms/rules notified from time to time and the pollution index for such Essential Environmental Services (EES) shall continue to be calculated as per the formula and consent to operate will be governed based on the pollution index. However, the

category of the EES will be termed "Blue Category sector" and as an incentive for the essential services, additional 2 years validity for consent to operate (as per PI) will be provided.

The list of EES facilities is given at **Annexure-II**.

*****

3

Classification of Sectors as per Revised Methodology

3.1 Types of sectors based on their activities

The revised methodology of classification will be applicable to all industries which may have potential for generation of environmental pollutants. As per the Section 2(j) of the Industrial Disputes Act, 1947, "Industry" means any business, trade, undertaking, manufacture, or calling of employers and includes any calling, service, employment, handicraft or industrial occupation or avocation of workman", however, based on type of operational activities, the industries are divided into following four sectors:

i. Industrial Sectors
ii. Essential Environmental Services (EES)
    a. EES for Industrial Waste
    b. EES for Domestic Waste (Blue Category Sector)
iii. Service/Infrastructure Development Sectors
iv. Others/Special Category Sectors

The sectors which are involved in production of goods, products, etc. are considered under "Industrial Sectors". The sectors covered under "Essential Environmental Services (EES)" are those facilities which are essential to control, abate and mitigate pollution generated from Domestic and Industrial activities. These services are essential facilities which are required to reduce pollution load on the environment, such as sewage treatment plants, common bio-medical waste treatment facilities, construction & demolition waste processing plants, etc. Essential Environmental Services Sectors are sub classified as "EES for industrial waste" and "EES for domestic waste (Blue category sectors which do not handle or generate infectious or hazardous waste)". On the other hand, sectors which carry out service-related activities such as infrastructure projects, railways, airports, hospitals, etc. are covered under "Service/infrastructure development sectors".

"Other/special category sectors" include those projects which cannot be classified based on the scoring methodology of pollution index but require classification based on precautionary principle and considering the potential of ecological damage/ health and environment related risk, etc. Few such sectors are sand mining, hydel power plants, etc.

The revised methodology of classification, sub-categorises the main sector based on the usage of cleaner technology/cleaner production/cleaner fuel which has proven reduction in trade effluent generation, emissions, waste, etc., for better environmental management, resulting into overall reduction of pollution index compared to main sector. For example, if coffee seeds processing industries use eco-pulping technology, which generates less water pollution, the pollution index of the said sector gets reduced and category changes from orange to green. Similarly, variation in type/scale of activities in a particular sector is also considered for classification of sub-sectors.

The methodology and scores have been screened through stakeholder feedback/consultation and public opinion. Available standard literature, various documents and guidelines, inspection reports, etc. were also referred, while assessing the scores for water pollution, air pollution, and waste generation for classification of sectors. Based on the modified methodology, the list of sectors and sector specific sub-classification is given at **Annexure-I to Annexure-IV**. Summary of classified sectors is given in **Table-V**.

Table V: Number of sectors classified under different categories

Sl. No.	Type of sector	Total number of sectors/sub-sectors	Red	Orange	Green	White	Blue
1.	Industrial Sectors	**359**	**107**	**120**	**81**	**51**	-
2.	Essential Environmental Services (ESS)						
2.a.	ESS for domestic waste	**9**	**-**	**-**	-	-	**9**
2.b.	ESS for industrial waste	**9**	**9**	**-**	-	-	-
3.	Service/Infrastructure Development Sectors	**37**	**7**	**15**	**13**	**2**	-
4.	Others/Special Category Sectors	**5**	**2**	**2**	`-	**1**	-
	Total	**419**	**125**	**137**	**94**	**54**	**9**

3.2. Usage of classification of sectors

The classification of sectors may be used for the following purposes:

i. **Consent management:** SPCBs/PCCs may grant Consent to Operate (CTO) to red, orange, and green categories of industries for validity up to 5 years, 10 years, and 15 years, respectively as per existing provisions which would be later governed as per the provisions/guidelines under Jan Vishwas (Amendment of Provisions) Act, 2023/Water Act, as amended. The validity of blue category sectors will be 2 years more than the category based on PI.

ii. **Inspection frequency:** SPCBs/PCCs may prioritize their environmental surveillance programs based on the categories of sectors. SPCBs/PCCs are required to ensure inspection of red, orange, and green category of industries at least once in six-months, one-year, and two-years, respectively. Common facilities and 17 categories of industries are to be inspected at least once in every three-months.

iii. **Siting criteria:** The categorization may be used as a tool for deciding the location/siting of an industry in a particular location.

iv. **Development of cluster:** The classification will help in planning of sector specific cluster, based on scoring of various pollutants and development of adequate environment management infrastructure facility, accordingly.

v. **Sector specific plans for pollution control:** The plans for control of pollution may be prepared and implemented on priority for the sectors having higher pollution index and overall higher pollution load.

vi. **Levying environmental compensation:** Pollution index may be used for determining and levying environmental compensation on industries violating the environmental norms.

vii. **A tool for progressive environmental management:** Industrial units may adopt cleaner technologies, cleaner fuels, etc. which may result in reduction of pollution index, thus, moving to lower pollution potential category. It will provide incentives to industries in terms of less consent renewal fees, less environmental surveillance/compliance burden, more validity period for consents/authorizations, etc.

3.3 Classification of left-out/new sectors

The revised methodology of classification (2025) and list of sectors classified by CPCB is required to be adopted and implemented by all SPCBs/PCCs. In case of any new or left-out

sector, the SPCB/PCC may categorize the sector at its own level. For this purpose, a committee headed by the Member Secretary, SPCB/PCC and comprising of at least two senior cadre engineers/scientists of the SPCB/PCC (as nominated by the Member secretary of the concerned SPCB/PCC) may be constituted to examine the matter and classify the sector in accordance with the methodology prescribed by CPCB. The State Level Committee may also co-opt subject experts, industrial association representative, etc., as member, as per requirement. CPCB has also developed a tool to assess the Cumulative Pollution Index and category of any sector, which is available on CPCB website (https://cpcb.nic.in/categorization-of-industrial-sectors/).

In addition, all SPCBs/PCCs are required to submit list of all such sector classified under white category to CPCB in the prescribed format (**Annexure-V**), for notification as per provisions of Jan Vishwas (Amendment of Provisions) Act, 2023.

*****

4

Incentives to unit in a sector for adopting measures resulting to better environmental performance

A methodology has been strategized to provide incentives to the unit in a sector which are dedicated to reduce environmental impacts from their operations/process. The objective can be achieved by 100% treatment and reuse of wastewater generated, having complete dependency on cleaner fuel alternatives (such as PNG, LPG, compressed biogas, propane, butane, electricity etc. for meeting energy requirement), implementation & achievements of targets of sector-specific charters of CPCB/SPCB for environmental management, EPR obligations and use of cleaner process/cleaner technology to eliminate generation of toxic/hazardous pollutants.

The units fulfilling the following eligibility criteria may submit their formal proposal to the concerned SPCB/PCC for consideration:

4.1 Eligibility Criteria

- The unit should have completed at least one year of completion of production/operations with demonstrated, verifiable steps and submitted audit report from institute of repute for considering the unit for the purpose by concerned SPCB/PCC. To facilitate verification, the unit must have properly maintained logbooks/bills for production, electricity consumption, fuel, water consumption, wastewater treatment and use of treated wastewater.
- The unit should be located in conforming area with applicable Environment Clearance, Consent to Establishment (CTE) and Consent to Operate (CTO) and hazardous/bio-medical waste authorization from SPCB/PCC.
- Unit should comply with all the norms/conditions stipulated under EC, CTO and Guidelines/Rules issued by CPCB.

- In case, unit using ground water resource, it should have valid permission/NOC and also required to install electronic flowmeter.
- No penalty or legal obligation is imposed/pending against unit for violation of environmental norms. Records for last 5 years may be verified. In case establishment period of the unit is less than 5 years, the past records since the start of production may be verified.
- Unit should not be involved in any sort of accident/incident resulting into emission /discharge into the environment. Records for last 5 years may be verified.

All such units, interested in availing incentives are required to demonstrate and prove their initiatives to the Committee (to be constituted at the level of concerned SPCB/PCC), comprising of members as mentioned in **Table VI**.

Table VI: Structure of Committee to evaluate the request of units adopting measures resulting in better environmental performance

Sl. No.	Members	Role
1	Member Secretary, SPCB/PCC	Chairman
2	Subject expert from Indian Institute of Technologies (IITs) or National Institute of Technologies (NITs) or any other institute/university of repute.	Member
3	Expert from CSIR institute/laboratories, having expertise in industrial process and pollution control technologies/ environmental management	Member
4	Two officials of concerned SPCB/PCC, as nominated by the Member Secretary, SPCB/PCC	Member

4.2. Evaluation Criteria

The committee shall scrutinize the proposals based on the eligibility criteria. The basis of evaluation will be- (i) Measures taken for treatment and reuse of wastewater to reduce freshwater consumption, (ii) Use of alternative cleaner fuel to reduce emissions, and (iii) Use of cleaner technology/ cleaner production which results in reduction in pollution/hazardous waste generation (iv) Recycling units identified for EPR obligations and has fulfilled all requirement including Environmentally Sound Management Facility for recycling.

The unit is required to demonstrate the successful implementation of measures by annual submission of third-party audit report (through institute of repute) regarding performance of environmental management measures. The Committee members may also inspect unit, collect samples, and get it analysed, check logbooks, electricity/water bills, examine system feasibility through mass-balances, ensure real-time submission of environment data to SPCB/PCC server, etc. The check and balances to examine the industry claims are summarized in **Table VII.**

Table VII: Checks and balances to assess the adequacy of environment management measures

Criteria	Checks and balances
I. Wastewater Management	
Installation of wastewater recovery system resulting into treatment and 100% reuse of treated wastewater in industrial process.	• Unit must have adequate operational Effluent Treatment Plant (ETP). The freshwater requirement of the unit has shown proportionate reduction. • There should not be any flow/ponding of wastewater inside the premises or discharge outside from the premises. Further, there should not be any by-pass. • Electronic flowmeters and Pan-tilt-zoom (PTZ) camera should have been installed with connectivity for continuous transmission of data to SPCB/PCC and CPCB servers (as applicable). • Recirculation system should be clearly mapped and visible for inspection and flow meter should be installed at required locations with records. • Mass/water balance based on actual production need to be checked. The claim regarding reduction in freshwater consumption should have concurrency with the readings of flow meters, water bill, log-books, etc. • Treated wastewater should not be used for horticulture or agriculture purposes. • Sludge generated from treatment of wastewater should be managed properly as per the authorization issued by the concerned SPCB/PCC and timely submission of Form-IV as per the requirement of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
II. Air Pollution Management	
100% fuel dependency on cleaner fuels, such as- Piped Natural Gas (PNG), Compressed Natural Gas (CNG), Liquefied Natural Gas (LNG) Liquefied Petroleum Gas (LPG), Compressed	• No other fuel (coal, pet-coke, furnace oil, etc.) should be stored/used in the unit premises. Diesel for Gensets (as an auxiliary power source) may be allowed. Preference may be given to the units using gas based Gensets. • Adequate facility for stack monitoring (port holes, zig-zag ladder etc.) should be available with provision of OCEMS (as applicable).

Biogas (CBG), propane, butane, etc.	• Use of upgraded air pollution control devices with higher efficiency for the reduction of emissions. • Adoption of cleaner technology, advanced pollution control systems etc. to control fugitive/emissions • Use of alternate cleaner raw material for generation of less pollution. • Use of renewable energy as an alternate to conventional fuel/power should be considered.
III. Waste Management	
The unit has adopted cleaner technology/ cleaner production which results in reduction in pollution/ hazardous waste generation	• Reduction in generation of pollution/waste due to adoption of cleaner technology/change in raw material etc. • Mass balance based on actual production need to be checked. There should be concurrency in generation of hazardous waste, utilization, disposal, etc. with respect to net reduction in generation.
IV. EPR Targets (for recycling facilities)	
Recycling units identified for EPR obligations and has fulfilled all requirement including Environmentally Sound Management Facility for recycling.	• Complying with the requirement of EPR obligation identified by CPCB from time to time.

4.3. Re-assessment of Pollution Index (PI)

The purpose of giving star category is to classify the unit in the sector as star performing units. The category of the unit may be re-assessed as detailed below:

A. For Industries, Service/Infrastructure facilities and Essential Environmental Services Sectors for management of waste.

The pollution index of the units in any sector which have proven reduction in trade effluent generation and/or air pollution management and/or waste management measures, can be calculated based on submission of same with the supporting documents for considering the modified score based on the same methodology.

The revised cumulative pollution index (PI) will be calculated with modified air/water/waste scores as discussed in the methodology given in previous section. If revised, cumulative PI results to change in the category of unit in the sector, the nomenclature for revised category will be as per the **Table VIII**.

Table VIII: Nomenclature for revised category

Change in category	Nomenclature of revised category
Red to Orange	Red*
Orange to Green	Orange*
Green to White	Green*

B. Essential Environmental Service Sectors for Domestic/Household Waste- "Blue Category Sectors":

Units under Blue Category are required to reduce their existing PI score by 25%, by meeting evaluation criteria/check and balances, as mentioned in **Table III** to qualify for change in category to Blue*.

4.4 Incentives to the units for better environmental management

Units which have demonstrated the successful implementation of environmental management measures and verified by the Committee, shall be eligible for the incentives, as listed in the **Table IX**.

Table IX: Incentives to units for better environmental performance

Category	Incentives
Red*	• CTO may be granted for the validity of max. 10 years. • Prescribed random environmental surveillance inspection frequency may be once a year, considering the change in category.
Orange*	• CTO may be granted for the validity of max. 15 years. • Prescribed random environmental surveillance inspection frequency may be once in two years, considering the change in category.
Green*	• CTO may be granted for the validity of max. 20 years. • Prescribed random environmental surveillance inspection frequency may be once in four years, considering the change in category and given incentives twice the original category.
Blue*	• CTO may be granted with additional 3 years validity period. • Prescribed random environmental surveillance inspection frequency may be once in 3 months.

In case of non-compliance(s) observed in future, the State Board can remove the star status and for calculation of EC, the PI of original category shall be considered.

*****

5 Implementation pathway/guidelines

The revised methodology and classification of sectors will be implemented in prospective manner. For this purpose, following guidelines may be referred:

i. All pending application for consideration of CTE/CTO and future such application shall be processed as per the revised methodology of classification. In case CTE granted before the revised classification, applicability of CTO will be as per new classification.

ii. New classification will be applicable to existing units at the time of renewal of CTO or within one year from the date of directions issued by CPCB regarding implementation of revised classification, whichever is earlier. The annual fees or cumulative fees for the remaining period shall be as per the revised category.

iii. SPCBs/PCCs may grant Consent to Operate (CTO) to units under red, orange, and green categories for maximum validity up to 5 years, 10 years, and 15 years, respectively as per existing provisions which would be later governed as per the provisions/guidelines under Jan Vishwas (Amendment of Provisions) Act, 2023/Water Act, as amended. SPCBs/PCCs may grant Consent to Operate (CTO) to units under Blue Category sectors with additional 2 years validity, considering their role as Essential Environmental Services for management of waste generated from domestic/household activities.

iv. Requirement of intimation/consent for white category of industries, shall be governed as per the provisions/guidelines under Jan Vishwas (Amendment of Provisions) Act, 2023//Water Act, as amended.

v. All sectors irrespective of category shall follow guidelines for pollution control, if any, issued by SPCB/PCC/CPCB time to time.

vi. Siting of units shall be only in the conforming area as per the guidelines of CPCB/SPCB/PCC. Further, as per the Section 17(1)(n) of the Water Act, 1974 and the Section 17(1)(h) of the Air Act, 1981, SPCB/PCC may also frame policies/advisory with respect to the location of any industry/operations, the carrying on of which is likely to cause air/water pollution, considering the scale/type of industries and sensitivity of area. Siting of units in eco-sensitive area will be governed by their respective notifications.

vii. The classification of sectors shall not be linked to sanction of loans/finance of bank proceedings.

viii. In the matter of Taz Trapezium Zone (TTZ), for air pollution scores of 10 and 20 (as per 2016 methodology), equivalent scores of 30 and 60 (as per 2025 methodology), respectively, may be considered for sectoral guidelines/opinion from NEERI (Ref: Order dated 08.12.2021, in the matter of M.C. Mehta v/s Union of India, Writ Petition (Civil) No.13381/1984, before Hon'ble Supreme Court).

ix. As per CPCB directions dated 12.12.2019, issued under Section 18(1)(b) of the Water Act, 1974 and the Air Act, 1981, SPCBs/PCCs are required to ensure inspection of red, orange, and green category of industries at least once in six-months, one-year, and two-years, respectively. Common waste treatment facilities and 17 categories of industries are to be inspected at least once in every three-months. (Ref: Order dated 05.11.2019, in the matter of Shailesh Singh v/s State of Haryana & Ors., OA No.639/2018, before Hon'ble National Green Tribunal, Principal Bench).

x. The sectors which are classified under white or green category and if such sectors have installed Genset(s) of higher capacity which are classified under orange/green category, then such sector will be considered under higher category.

xi. All Industrial units are encouraged to adopt measures such as cleaner technology/cleaner production, cleaner raw material, cleaner fuel etc., for better environmental management. If such measures result into overall reduction of pollution

index, request regarding change in category of such sectors/units may be made to concerned SPCB/PCC as detailed under Section 8 of this report.

*****

REFERENCES

1. *Bio-medical Waste Management Rules, 2016.* (c3). [Online]. Ministry of Environment, Forest and Climate Change, Government of India. [Accessed 02 April 2024]. Available from: https://cpcb.nic.in/bio-medical-waste-rules/

2. California Air Resources Board. *Glossary of Air Pollution Terms*. [Online]. [Accessed 02 February 2024]. Available from: https://ww2.arb.ca.gov/glossary

3. Central Pollution Control Board, April 1995. *Classification of Industries for Consent Management.* 1st ed. Printed at Prabhat Publicity, New Delhi – 110002

4. Central Pollution Control Board. *Comprehensive Environmental Pollution Index (CEPI), 2024.* [Online]. [Accessed 25 March 2024]. Available from: http://www.cepi.cpcb.gov.in/cpcb_cepi/vwstactions

5. Central Pollution Control Board. April 2021. *Pollution Control Acts, Rules & Notifications Issued Thereunder,* [Online]. 7th ed. Pollution Control Law Series: PCLS/02/2021. [Accessed 10 December March 2023]. Available from: https://cpcb.nic.in/7thEditionPollutionControlLawSeries2021.pdf

6. *Final Document on Revised Classification of Industrial Sectors Under Red, Orange, Green and White Categories, 07 March 2016.* [Online]. Central Pollution Control Board. [Accessed 12 September 2023]. Available from: https://cpcb.nic.in/openpdffile.php?id=TGF0ZXN0RmlsZS9MYXRlc3RfMTE4X0ZpbmFsX0RpcmVjdGlvbnMucGRm

7. *Guidelines on Management of Pyro-metallurgical Slags (Iron & Steel Slags) Ver 1.0, December 2023.* [Online]. Central Pollution Control Board. [Accessed 10 January 2024]. Available from: https://cpcb.nic.in/openpdffile.php?id=TGF0ZXN0RmlsZS80MDBfMTcwMzg0ODIzMV9tZWRpYXBob3RvMTI0MjkucGRm

8. Government of India, 1988, October 6. Notification S.O. 923(E) of 1988: *Environmental Protection in the Doon Valley*.

9. *Hazardous and other Wastes (Management & Transboundary Movement) Rules, 2016.* [Online]. Ministry of Environment, Forest and Climate Change, Government of India. [Accessed 02 April 2024]. Available from: https://cpcb.nic.in/bio-medical-waste-rules/

10. M.C. Mehta v. Union of India & Ors. 2021. Hon'ble Supreme Court of India. Writ Petition (Civil) No.13381/1984. [Accessed 28 May 2024]. Available from: https://webapi.sci.gov.in/supremecourt/1984/63426/63426_1984_5_1_31948_Order_08-Dec-2021.pdf

11. Shailesh Singh v. State of Haryana & Ors. 2019. Hon'ble National Green Tribunal (Principal Bench), OA. No. 639/2018. [Accessed 28 May 2024]. Available from: https://greentribunal.gov.in/gen_pdf_test.php?filepath=L25ndF9kb2N1bWVudHMv

RWZpbGluZ19kb2N1bWVudHMvbmd0ZG9jL2Nhc2Vkb2MvMDcwMTExNjAwMzY1MjAxOC8wNC8wMS8yNS8wNF8yNV8wMDFfMTU4MTMzNTY2ODExMS5wZGY=

12. *The Air (Prevention and Control of Pollution) Act, 1981*. (c1). [Online]. Government of India. [Accessed 15 March 2024]. Available from: https://www.indiacode.nic.in/bitstream/123456789/1389/1/Prevwater1981__41.pdf

13. *The Environment (Protection) Rules, 1986.* (c3). [Online]. Government of India. Ministry of Environment and Forests (Department of Environment, Forest, and Wildlife). [Accessed 02 April 2024]. Available from: https://upload.indiacode.nic.in/showfile?actid=AC_MP_74_308_00003_00003_1543231806694&type=rule&filename=ep_rules_1986.pdf

14. *The Industrial Disputes Act, 1947. (*C2b). [Online]. Government of India. [Accessed 15 April 2024]. Available from: https://www.indiacode.nic.in/bitstream/123456789/15191/1/A1947-14.pdf#search=dispute

15. *The Occupational Safety, Health, and Working Conditions Code, 2020.* (c2). [Online]. Government of India. Ministry of Law and Justice (Legislative Department). [Accessed 15 April 2024]. Available from: https://labour.gov.in/sites/default/files/osh_gazette.pdf

16. *The Public Liability Insurance Act, 1991*. (c7). [Online]. Government of India. [Accessed 12 March 2024]. Available from: https://www.indiacode.nic.in/bitstream/123456789/1960/1/A1991-06.pdf#search=9.The%20Public%20Liability%20Insurance%20Act,%201991.

17. *The Water (Prevention and Control of Pollution) Act, 1974.* (c1). [Online]. Government of India. [Accessed 15 March 2024]. Available from: https://www.indiacode.nic.in/bitstream/123456789/1612/3/A1974-06.pdf

ANNEXURE-I

(LIST OF INDUSTRIAL SECTORS CLASSIFIED UNDER RED, ORANGE, GREEN, AND WHITE CATEGORIES)

LIST OF INDUSTRIAL SECTORS

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
	~A~															
1	Manufacturing of **Automobiles** (integrated facilities)	20	30	25	**75**	0	25	0	**25**	25	20	**45**	83.8	Red	i. Such types of plants are having either one or combinations of polluting activities viz. washing, metal surface finishing operations, pickling, plating, electro-plating, phosphating, painting, heat treatment etc. ii. Some of such plants may outsource some /all of the polluting activities or may have stand-alone units. In such cases, after thorough inspection of such units by concerned SPCB, re-categorization of the industry shall be made accordingly.	IPC-V
2	**Asbestos** and asbestos based industries	10	30	25	**65**	35	30	30	**95**	25	30	**55**	98	Red	Asbestos is carcinogenic and banned in many countries.	IPC-II
3	**Almirah**, Grill Manufacturing (Dry Mechanical Process)	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
	~B~															
4.0	**BAKERY**, CONFECTIONERY AND SWEETS PRODUCTS															
4.1	Bakery, confectionery, sweets with production capacity ≥ 1 TPD	25	0	20	**45**	25	0	25	**50**	0	0	**0**	61.3	Orange		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
4.2	Bakery, confectionery, sweets with production capacity ≥ 1 TPD. (using cleaner/gaseous fuel)	25	0	20	**45**	25	0	10	**35**	0	0	**0**	54.6	Green		IPC-III
5.0	**BRICK** MANUFACTURING															
5.1	Brick kilns using coal as fuel	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
5.2	Brick kilns using biomass as fuel	0	0	0	**0**	25	25	15	**65**	0	0	**0**	65	Orange		IPC-V
5.3	Tunnel brick kilns (gas fired)	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V
6.0	MANUFACTURING OF AUTOCLAVED AERATED CONCRETE (AAC) **BRICKS/BLOCKS.**															
6.1	AAC bricks/blocks manufacturing using coal as fuel (12 TPD and above)	0	0	0	**0**	25	25	30	**80**	0	0	**0**	80	Red		IPC-V
6.2	AAC bricks/blocks manufacturing using coal as fuel (less than 12 TPD)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
6.3	AAC bricks/blocks manufacturing using biomass as fuel	0	0	0	**0**	25	25	20	**70**	0	0	**0**	70	Orange		IPC-V
6.4	AAC bricks/blocks manufacturing using gas as fuel	0	0	0	**0**	25	25	15	**65**	0	0	**0**	65	Orange		IPC-V
7.0	FLY ASH **BRICKS / BLOCK** MANUFACTURING															
7.1	Fly ash bricks/ block manufacturing (with boiler)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
7.2	Fly ash bricks/ block manufacturing (without boiler)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
8.0	MANUFACTURING OF NON-ALCOHOLIC **BEVERAGES**															
8.1	Wastewater generation ≥ 100 KLD	25	20	30	**75**	25	0	25	**50**	0	0	**0**	81.3	Red		IPC-III
8.2	Wastewater generation < 100 KLD	25	20	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
9.0	**BATTERY** MANUFACTURING															
9.1	Lead-acid **Battery** manufacturing (excluding assembling and charging of lead acid **Battery** in micro-scale)	0	30	20	**50**	35	30	25	**90**	25	10	**35**	94.3	Red		IPC-V
9.2	Dry cell **Battery** (excluding manufacturing of electrodes) and assembling & charging of acid lead battery on micro scale	0	30	15	**45**	25	25	10	**60**	25	10	**35**	76	Orange		IPC-V
9.3	**Battery** manufacturing without boiler (excluding lead acid battery)	0	0	0	**0**	0	25	0	**25**	25	10	**35**	43.1	Green		IPC-V
10	**Briquette** manufacturing (coal/biomass/coke)	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green	The process involves mixing, mechanized compression and drying.	IPC-II
11	Assembly of **Bicycles** , **Baby** carriages and other small non motorizing vehicles	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
12	**Bailing** (hydraulic press) of waste papers	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
13	**Bio fertilizer** and bio-pesticides without using inorganic chemicals	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
14	**Block** making of printing without foundry (excluding wooden block making)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
15	Flavoured **Betel** nuts production/ grinding (completely dry mechanical operations)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
16	Manufacturing of shoe **Brush** and wire **Brush**	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
	~C~															
17.0	MANUFACTURING OF INDUSTRIAL **CARBON** INCLUDING ELECTRODES AND GRAPHITE BLOCKS, ACTIVATED **CARBON**, **CARBON BLACK**															
17.1	Carbon black manufacturing	20	15	20	**55**	25	30	30	**85**	30	20	**50**	92.9	Red		IPC-I
17.2	Industrial carbon including electrodes & graphite blocks and calcined pet coke	20	15	20	**55**	25	25	25	**75**	30	10	**40**	86.9	Red		IPC-II
17.3	Activated carbon manufacturing (with steam activation)	20	15	20	**55**	25	25	15	**65**	0	0	**0**	74.6	Orange		IPC-V
18.0	INORGANIC **CHEMICALS**															
18.1	Basic inorganic chemicals and electro chemicals and its derivatives including manufacturing of acid	10	30	25	**65**	30	30	20	**80**	20	20	**40**	90.5	Red		IPC-I
18.2	Phosphorous and its compounds, including phosphorous rock processing	20	30	20	**70**	35	25	10	**70**	10	30	**40**	86.5	Red		IPC-I
18.3	Chlorates, per-chlorates & peroxides	20	30	20	**70**	30	20	25	**75**	20	20	**40**	88.8	Red		IPC-I
18.4	Chlorine, fluorine, bromine, iodine, and their compounds	10	30	25	**65**	35	20	10	**65**	20	20	**40**	83.4	Red		IPC-I
19	Coke oven plant, coal liquefaction, coal tar distillation and fuel gas-making	30	30	30	**90**	25	30	35	**90**	25	50	**75**	98.3	Red		IPC-II
20.0	**CEMENT** PLANTS															

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
20.1	With co-processing with CPP (Captive Power Plant)	20	25	35	**80**	35	30	35	**100**	10	50	**60**	100	Red		IPC-II
20.2	With co-processing without CPP	20	0	20	**40**	35	30	35	**100**	30	20	**50**	100	Red		IPC-II
20.3	Without co-processing with CPP	10	25	35	**70**	35	30	35	**100**	10	50	**60**	100	Red		IPC-II
20.4	Without co-processing without CPP	0	0	0	**0**	25	30	35	**90**	30	10	**40**	92	Red		IPC-II
20.5	Stand-alone grinding units with CPP	20	25	35	**80**	25	30	35	**90**	10	50	**60**	97	Red		IPC-II
20.6	Stand-alone grinding units without CPP	0	0	0	**0**	25	30	0	**55**	30	10	**40**	64	Orange		IPC-II
20.7	Bulk terminals for storage and packaging of cement	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-II
21.0	**CHLOR** ALKALI															
21.1	Chlor alkali	10	20	25	**55**	30	25	25	**80**	20	20	**40**	89.5	Red		IPC-I
21.2	Chlor alkali using washed salt	10	20	15	**45**	30	25	25	**80**	20	10	**30**	87.5	Red		IPC-I
21.3	Chlor alkali using cleaner/gaseous fuel	10	20	25	**55**	30	25	10	**65**	20	20	**40**	81.6	Red		IPC-I
21.4	Chlor alkali using cleaner/gaseous fuel and washed salt	10	20	15	**45**	30	25	10	**65**	20	10	**30**	78.1	Orange		IPC-I
22	Manufacturing of **Compact** disc **Computer** (CD/DVD) / cassette manufacturing / reel manufacturing	0	15	15	**30**	30	0	0	**30**	20	10	**30**	51	Green		IPC-V
23.0	MANUFACTURING OF **COIR/COIR** PITH AND **COIR** PRODUCTS															
23.1	Coir bleaching and dyeing/printing units	25	0	25	**50**	25	25	20	**70**	0	0	**0**	77.5	Orange		IPC-V
23.2	Coir fibre/pith processing units generating effluent	25	0	20	**45**	0	25	0	**25**	0	0	**0**	51.9	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
23.3	Coir fibre/pith processing and/or Manufacturing of coir products from coir (only dry process)	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
24.0	**CERAMICS**															
24.1	Ceramics/ Glass /Earthen potteries and tile manufacturing using coal/oil fired kilns (fuel consumption: 12 TPD and above)	0	0	0	**0**	25	25	30	**80**	0	0	**0**	80	Red		IPC-V
24.2	Ceramics/ Glass /Earthen potteries and tile manufacturing using coal/oil fired kilns (fuel consumption: less than 12 TPD)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
24.3	Ceramics/ Glass /Earthen potteries and tile manufacturing (using gas fired kilns)/tunnel kiln	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V
24.4	Ceramics/ Glass /Earthen potteries and tile manufacturing (using only electrical kiln)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
25	**Coal Washeries**	20	25	30	**75**	0	25	0	**25**	0	0	**0**	78.1	Orange		IPC-II
26	Liquid floor **Cleaner**, black phenyl, liquid soap, glycerol mono-stearate manufacturing	25	25	15	**65**	0	20	0	**20**	0	0	**0**	68.5	Orange		IPC-V
27	Phenyl/toilet **Cleaner** formulation and bottling	10	0	15	**25**	0	20	0	**20**	0	0	**0**	32.5	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
28	**Cashew** nut processing	20	0	15	**35**	25	20	15	**60**	0	0	**0**	67	Orange		IPC-III
29.0	**COFFEE** SEEDS PROCESSING INDUSTRY															
29.1	Coffee seeds processing (wet process)	35	0	20	**55**	25	0	15	**40**	0	0	**0**	64	Orange		IPC-III
29.2	Coffee seeds processing with eco-pulper	20	0	15	**35**	25	0	15	**40**	0	0	**0**	50.5	Green		IPC-III
30	Manufacturing of **Candy**	10	0	15	**25**	0	0	0	**0**	0	0	**0**	25	Green		IPC-V
31	**Cardboard** or corrugated box and paper products (excluding paper or pulp manufacturing and without using boilers)	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
32	Manufacturing of precast **Cement** products (without using asbestos/ boiler / steam curing) like pipe ,pillar, jafri, well ring, block/tiles etc.(should be done in closed covered shed to control fugitive emissions)	0	0	15	**15**	0	25	0	**25**	0	0	**0**	30.6	Green		IPC-V
33	Manufacturing of **Ceramic Colour** by mixing & blending only (not using boiler and wastewater recycling process)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
34.0	**CHILLING** PLANT, COLD STORAGE AND ICE-MAKING															
34.1	Chilling plant	20	15	15	**50**	0	0	0	**0**	0	0	**0**	50	Green		IPC-IV
34.2	Cold storage	0	15	15	**30**	0	0	0	**0**	0	0	**0**	30	Green		IPC-V
34.3	Ice Making	0	20	15	**35**	0	0	0	**0**	0	0	**0**	35	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
35	Decoration of **Ceramic Cup**s and plates by electric furnace	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
36	Ready mix **Cement Concrete**	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
37	**CO2** recovery plant	0	0	0	**0**	0	0	0	**0**	20	10	**30**	30	Green	Exhausted molecular sieves are generated as hazardous waste.	IPC-V
38	Assembly of air **Coolers/Conditioners**, repairing and servicing	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
39	**Chalk** making from plaster of Paris (only casting without boilers etc.(sun drying / electrical oven)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
40	Standalone manufacturing of **Concrete** admixtures up to 1000 MT per Month capacity by physical mixing (without boiler and reactor and no generation of wastewater)	0	0	0	**0**	0	0	0	**0**	10	10	**20**	20	White	The sector may become green category if it generates wastewater. The unit needs to be re-classified as per the methodology in case the capacity exceeds 1000 MT per Month.	IPC-V
41	Used **Cooking** oil (UCO) collection centers	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
								~D~								
42.0	**DYES, DYE** INTERMEDIATES AND PIGMENT PRODUCTIONS															
42.1	Dyes, Dye Intermediates and Pigments produced by chemical synthesis	35	30	25	**90**	30	20	25	**75**	30	20	**50**	96.3	Red		IPC-I
42.2	Natural Dye and Pigments requiring acidic/ alkaline/ solvent extraction	30	30	20	**80**	25	20	25	**70**	20	10	**30**	90	Red		IPC-I
42.3	Natural Dye and Pigments not require acidic/ alkaline/ solvent extraction	30	20	20	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-I
43.0	SYNTHETIC **DETERGENT** AND SOAPS															
43.1	Synthetic detergents and soaps (wastewater generation ≥ 100 KLD)	20	20	30	**70**	25	0	25	**50**	25	10	**35**	82.8	Red		IPC-I
43.2	Synthetic detergents and soaps (wastewater generation < 100 KLD)	20	20	25	**65**	25	0	25	**50**	25	10	**35**	79.9	Orange		IPC-I
43.3	Synthetic detergents and soaps (only formulation)	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-I
43.4	Soap manufacturing (handmade -without steam boiling / boiler)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	DISTILLERIES AND FERMENTATION SECTORS															
44.0	**DISTILLERIES** AND FERMENTATION INDUSTRIES															
44.1	Distillery (Molasses based)	35	25	35	**95**	25	25	35	**85**	0	0	**0**	97.1	Red		IPC-III
44.2	Distillery (Grain based)	35	25	30	**90**	25	25	25	**75**	0	0	**0**	93.8	Red		IPC-III
44.3	Distillery (Grain based) with Distiller's Dried Grains with Soluble (DDGS) as by-product	25	25	20	**70**	25	25	25	**75**	0	0	**0**	83.8	Red		IPC-III
44.4	Standalone yeast manufacturing units	35	25	35	**95**	25	20	25	**70**	0	0	**0**	96.8	Red		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
44.5	Breweries and malteries industry (with fermentation)- Wastewater generation ≥ 100 KLD	30	15	30	**75**	25	0	25	**50**	0	0	**0**	81.3	Red		IPC-III
44.6	Breweries and malteries industry (with fermentation)- Wastewater generation < 100 KLD	30	15	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III
44.7	Potable alcohol by blending, bottling of alcohol products	20	0	25	**45**	0	0	0	**0**	0	0	**0**	45	Green		IPC-III
45	**Diesel** pump repairing and servicing (complete mechanical dry process)	0	0	0	**0**	0	0	0	**0**	10	10	**20**	20	White		IPC-V
~E~																
46	Manufacturing of **Explosives**, detonators, fuses, etc.	25	30	15	**70**	0	30	0	**30**	30	10	**40**	80.5	Red	Explosives manufacture contribute to release of hazardous pollutants, including generation of other toxic chemicals. Accident/safety hazard is also associated with such sector during manufacturing and usages.	IPC-I
47	Manufacturing of coated **Electrode**	0	15	15	**30**	0	25	0	**25**	0	0	**0**	38.8	Green	Process involves preparation of core wire / rod, preparation of dry mix, preparation of wet mix, application of coating by extrusion, baking of coated electrodes.	IPC-V
48	**Emery** powder (fine dust of sand) manufacturing	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green	Fugitive emissions from grinding operations.	IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
49	**Electric** lamp (bulb) and CFL manufacturing by assembling only	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
50	**Electrical** and electronic item assembling (completely dry process)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
51	**Engineering** and fabrication units (dry process without any heat treatment / metal surface finishing operations / painting)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
								~F~								
52.0	**FIBRE** GLASS (FIBRE REINFORCED PLASTIC) PRODUCTION															
52.1	Fibre glass (containing lead) production and processing (excluding moulding)	0	0	0	**0**	35	0	25	**60**	25	20	**45**	69	Orange		IPC-V
52.2	Fibre glass (without lead) production and processing (excluding moulding)	0	0	0	**0**	30	0	25	**55**	25	20	**45**	65.1	Orange	The use of styrene in most methods of fibre glass production causes hazardous air pollution that is harmful to breathe at excessive levels.	IPC-V
53	Manufacturing of **Firecrackers** including improved crackers/green crackers, etc.	0	0	0	**0**	35	30	0	**65**	30	10	**40**	72	Orange	Various hazardous chemicals are used in the manufacturing process. Accident/safety hazard is also associated with such sector during manufacturing and usages.	IPC-V
54.0	SYNTHETIC **FIBRES** MANUFACTURING															
54.1	Synthetic fibres-PSF & PFY, generated from petrochemical	35	30	35	**100**	30	25	35	**90**	30	20	**50**	100	Red		IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
54.2	Synthetic fibres including rayon, tyre cord, viscose filament yarn/staple fibre, acrylic fibres	25	20	25	**70**	30	20	25	**75**	20	10	**30**	87.5	Red		IPC-I
54.3	Synthetic fibres including rayon, tyre cord, viscose filament yarn/staple fibre, acrylic fibres using cleaner/gaseous fuel	25	20	25	**70**	30	20	10	**60**	20	10	**30**	83.5	Red		IPC-I
55.0	**FERTILIZERS** PRODUCTION															
55.1	Fertilizers (Urea)	10	30	35	**75**	30	30	20	**80**	20	30	**50**	92.5	Red		IPC-I
55.2	Fertilizers (Calcium Ammonium Nitrate/Ammonium Nitrate)	10	30	25	**65**	30	25	25	**80**	20	20	**40**	90.5	Red		IPC-I
55.3	Fertilizers (NPK)	10	30	25	**65**	30	25	25	**80**	20	20	**40**	90.5	Red		IPC-I
55.4	Fertilizers (Straight Phosphatic Fertilizers)	10	30	25	**65**	30	25	25	**80**	20	20	**40**	90.5	Red		IPC-I
55.5	Fertilizer (granulation /formulation / blending) generating wastewater through floor washings, cooling towers etc.	10	30	15	**55**	30	30	0	**60**	10	10	**20**	75	Orange		IPC-I
55.6	Fertilizer (granulation /formulation / blending) not generating wastewater	0	0	0	**0**	30	30	0	**60**	10	10	**20**	64	Orange		IPC-I
56.0	**FOOD** AND **FOOD PROCESSING** INCLUDING FRUITS AND VEGETABLE PROCESSING															
56.1	Wastewater generation ≥ 10 KLD	25	0	25	**50**	25	0	25	**50**	0	0	**0**	62.5	Orange		IPC-III
56.2	Wastewater generation < 10 KLD (without boiler)	25	0	15	**40**	0	0	0	**0**	0	0	**0**	40	Green		IPC-III
57.0	**FISH** FEED, POULTRY FEED AND CATTLE FEED															
57.1	Fish feed, poultry feed and cattle feed (with boiler)	0	20	15	**35**	25	25	25	**75**	0	0	**0**	79.4	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
57.2	Fish feed, poultry feed and cattle feed (without boiler)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
58	**Fish** processing and packing (excluding chilling of fishes)	25	25	20	**70**	0	20	0	**20**	0	0	**0**	73	Orange		IPC-IV
59.0	MANUFACTURING OF MODULAR WOODEN **FURNITURE**															
59.1	Modular wooden furniture from particle board, MDF, swan timber etc, Ceiling tiles/ partition board from saw dust, wood chips etc., and other agricultural waste using synthetic adhesive resin, wooden box making (With boiler)	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V
59.2	Modular wooden furniture from particle board, MDF, swan timber etc, Ceiling tiles/ partition board from saw dust, wood chips etc., and other agricultural waste using synthetic adhesive resin, wooden box making (Without boiler)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
60.0	CARPENTRY & WOODEN **FURNITURE** MANUFACTURING															
60.1	Carpentry & wooden furniture manufacturing with spray painting (excluding saw mill) with the help of electrical (motorized) machines such as electrical wood planner, steel saw cutting circular blade, etc.	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
60.2	Carpentry & wooden furniture manufacturing without spray painting (excluding saw mill) with the help of electrical (motorized) machines such as electrical wood planner, steel saw cutting circular blade, etc.	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
61	**Foam** manufacturing	0	0	0	**0**	35	0	0	**35**	20	10	**30**	44.8	Green	Emissions of VOCs and HAPs. Raw materials are polyurethane, latex etc.	IPC-V
62	**Flour** mills (dry process)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green	Separate classification for domestic flour mills may not require.	IPC-V
63.0	STEEL **FURNITURE** INDUSTRY (Obnoxious gases from welding.)															
63.1	Steel furniture with spray painting	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
63.2	Steel furniture without spray painting	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~G~															
64.0	MANUFACTURING OF **GLUE** AND **GELATIN**															
64.1	Manufacturing of glue and gelatin using coal/liquid fuel	25	20	15	**60**	25	20	25	**70**	10	10	**20**	82	Red		IPC-I
64.2	Manufacturing of glue and gelatin by using biomass/cleaner fuel	25	20	15	**60**	25	20	15	**60**	10	10	**20**	76	Orange		IPC-I
65.0	MANUFACTURING OF **GLASS** (INCLUDING PRINTING OR ETCHING OF **GLASS** SHEET USING HYDROFLUORIC ACID)															
65.1	Manufacturing of glass (Oil/coal fired)	0	15	15	**30**	25	25	25	**75**	0	0	**0**	78.8	Orange		IPC-V
65.2	Manufacturing of glass (gas fired)	0	15	15	**30**	25	25	10	**60**	0	0	**0**	66	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
66	Producer **Gas** plant using conventional coal **Gasification**	20	25	15	**60**	25	0	25	**50**	30	10	**40**	78	Orange		IPC-V
67.0	COMPRESSED **BIOGAS** (CBG)/BIO-CNG PLANTS															
67.1	CBG plants based on Municipal Solid Waste (MSW) as feed	30	25	25	**80**	0	20	0	**20**	0	0	**0**	82	Red		UPC-II
67.2	CBG plants based on process waste (industrial/ process liquid effluent & solid waste like press mud, organic sludge, molasses, etc.) as feed	30	25	25	**80**	0	20	0	**20**	0	0	**0**	82	Red		IPC-III
67.3	CBG plants based on crop residue (paddy straw /wheat straw /corn sweet sorghum/ Napier grass, etc.) as feed	30	25	20	**75**	0	20	0	**20**	0	0	**0**	77.5	Orange		IPC-III
67.4	CBG plants based on animal waste (dairy farms, poultry farms, and other animal waste) as feed	30	25	20	**75**	0	20	0	**20**	0	0	**0**	77.5	Orange		IPC-III
67.5	CBG plants producing Fermented Organic Manure (FOM) & Liquid Fermented Organic Manure (LFOM) as by-products	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White	CBG plants producing FOM & LFOM as by-products in conformity with requirements of Gazette Notification No. 2051 dated 14.07.2020 & No. 1972 dated 01.06.2021, respectively, and utilizing entire FOM & LFOM as a fertilizer or manure on land and also not discharging any waste-water, to be considered under White category, subject to verification by SPCB on case-to-case basis.	IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
68.0	STANDALONE PRODUCTION OF **HYDROGEN** AND/OR **AMMONIA** (WITHOUT CAPTIVE POWER PLANT USING FOSSIL FUEL)															
68.1	Integrated unit for production of Ammonia through Hydrogen generated by pyrolysis/gasification	20	25	20	**65**	20	25	25	**70**	30	20	**50**	87.3	Red	i. Pyrolysis of biomass will generate syn gas and other condensable gases having hydrocarbons and other impurities. ii. Purification of gas will generate wastewater having high organic content and tarry residue as hazardous waste. iii. The process will generate fugitive emissions and due to pyrolysis operation.	IPC-I
68.2	Integrated unit for production of ammonia through Hydrogen generated by electrolysis using renewable energy (capacity ≥ 15 TPD)	10	25	35	**70**	0	20	0	**20**	30	20	**50**	80.5	Red	i. Ammonia manufacturing process (Haber process) and associated safety hazards remain same as per the chemical properties of ammonia. ii. Wastewater generation due to the production of hydrogen through electrolysis and condensation of ammonia, other scrubbed liquid etc. iii.Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
68.3	Integrated unit for production of Ammonia through hydrogen generated by electrolysis using renewable energy (Capacity < 15 TPD)	10	25	20	**55**	0	20	0	**20**	30	10	**40**	68.5	Orange	i. Ammonia manufacturing process (Haber process) and associated safety hazards remains same as per the chemical properties of ammonia. ii. Wastewater generation due to production of hydrogen through electrolysis and condensation of ammonia, other scrubbed liquid etc. iii.Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.	IPC-I
68.4	Hydrogen production through pyrolysis/gasification	20	25	20	**65**	20	25	25	**70**	30	10	**40**	85.8	Red	i. Pyrolysis of biomass will generate syn gas and other condensable gases having hydrocarbons and other impurities. ii. Purification of gas will generate wastewater having high organic content and tarry residue as hazardous waste. iii.The process will generate fugitive emissions and due to pyrolysis operation.	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
68.5	Hydrogen production through electrolysis using raw/seawater and renewable energy (capacity ≥ 2.5 TPD)	0	20	35	**55**	0	0	0	**0**	30	10	**40**	64.0	Orange	i. Type of electrolysers may include Alkaline Water Electrolyser (AWE), Proton Exchange Membrane (PEM), Solid Oxide Electrolyser Cell (SOEC) and Anion Exchange Membrane (AEM), etc. ii. Generation of DM reject, cooling tower blowdown, draining of alkaline/electrolyser water during maintenance, etc. as wastewater. iii. Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.	IPC-I
68.6	Hydrogen production through electrolysis using raw/sea water and renewable energy (capacity < 2.5 TPD)	0	20	20	**40**	0	0	0	**0**	30	10	**40**	52.0	Green	i. Type of electrolysers may include Alkaline Water Electrolyser (AWE), Proton Exchange Membrane (PEM), Solid Oxide Electrolyser Cell (SOEC) and Anion Exchange Membrane (AEM), etc. ii. Generation of DM reject, cooling tower blowdown, draining of alkaline/electrolyser water during maintenance, etc. as wastewater. iii. Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.	IPC-I
68.7	Hydrogen production through electrolysis (using	0	0	0	**0**	0	0	0	**0**	0	10	**10**	10.0	White	i. DM water as feed water for electrolyser and cooling/chilling	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
	renewable energy) on BOO/BOOT/BOT, mode etc., located in the premises of end user industry and directly using de-mineralized water & other utilities (cooling tower, ETP, etc.) sourced from end user industry														water requirement to be met by the end user industry. ii. Wastewater and other waste generated during O&M shall also be managed by the end user industry.	
69	**Glue** from starch (physical mixing) with Gas/ electrically operated oven /boiler.	0	0	0	**0**	25	0	10	**35**	0	0	**0**	35	Green		IPC-V
70	**Gold** and silver smithy (purification with acid smelting operation and sulphuric acid polishing operation) (using less or equal to 1 litre of sulphuric acid/ nitric acid per month)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
71	Compressed oxygen **Gas** from crude liquid oxygen (without use of any solvents and by maintaining pressure & temperature only for separation of other **Gases**)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
72	**Glass** and ampules and vials making from **Glass** tubes	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
73	**Ground** nut decorticating	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
74	**Medical Oxygen**	0	0	0	**0**	0	0	0	**0**	10	10	**20**	20	White	The sector may become green category if it generates wastewater	IPC-V
	~H~															
75.0	**HOT** MIX PLANTS															
75.1	Hot mix plants using oil as fuel	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
75.2	Hot mix plants using gaseous as fuel	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V
76	**Hazardous** waste pre-processing/processing facility including spent acid processing, spent solvent recovery, etc.	25	30	15	**70**	25	25	15	**65**	30	20	**50**	87.3	Red		WM-II
77	**Handloom**/ carpet weaving (without dying and bleaching operation)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~I~															
78	**Ice** cream manufacturing units	25	25	20	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-IV
79	Printing **Ink** Manufacturing	20	30	15	**65**	0	20	10	**30**	30	10	**40**	77.3	Orange	In the process pigments, binders and solvents are used. VOCs are generated.	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
80	Manufacturing of scientific and mathematical **Instrument** (assembling only)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~J~															
81.0	**JUTE** PROCESSING															
81.1	Jute processing (with dyeing / with boiler)	25	20	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III
81.2	Jute processing (without dyeing / without boiler)	20	0	20	**40**	0	0	0	**0**	0	0	**0**	40	Green		IPC-III
81.3	Manufacturing of products from jute (without dyeing/ without boiler)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-III
	~L~															
82	**Lime** manufacturing (using lime kiln)	0	0	0	**0**	25	0	30	**55**	0	0	**0**	55	Orange		IPC-V
83	**Leather** foot wear and **Leather** products (excluding tanning and hide processing)	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White	Fumes due to use of adhesives / gums.	IPC-IV
84	Manufacturing of optical **Lenses** (using electrical furnace)	0	20	15	**35**	0	0	0	**0**	0	0	**0**	35	Green		IPC-V
85	**Leather** cutting and stitching (more than 10 machine and using motor)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~M~															

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
86	**Mobile** towers using genset(s)	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green	i. The used oil/waste oil generated during repair and maintenance need to be disposed through authorized hazardous waste recycler by service provider/OEM. ii. Order dated 24.08.2017 in the related matter with OA No. 83(THC) OF 2012 (Bharti Infratel Ltd.) may be referred for issuance of composite consent in case of mobile towers.	UPC-I
87.0	**MILK** PROCESSES AND DAIRY PRODUCTS															
87.1	Milk processes and dairy products (integrated project)	30	25	30	**85**	25	20	30	**75**	0	0	**0**	90.6	Red		IPC-IV
87.2	Dairy and dairy products (Small scale units), using coal/biomass as fuel (Wastewater generation ≥ 100 KLD)	25	25	30	**80**	25	0	25	**50**	0	0	**0**	85	Red		IPC-IV
87.3	Dairy and dairy products (Small scale units), using coal/biomass as fuel (Wastewater generation < 100 KLD)	25	25	20	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-IV
87.4	Dairy and dairy products, (Small scale units), using PNG as fuel	25	25	20	**70**	0	0	10	**10**	0	0	**0**	71.5	Orange		IPC-IV
88.0	**MINING** AND ORE BENEFICIATION															
88.1	Open-cast coal mining	10	25	35	**70**	25	30	35	**90**	10	70	**80**	97.5	Red		IPC-II
88.2	Underground coal mining	0	25	35	**60**	25	30	35	**90**	0	0	**0**	93	Red		IPC-II
88.3	Mining of major minerals and ore beneficiation	20	30	35	**85**	25	30	35	**90**	25	70	**95**	99.4	Red	Includes captive limestone mining.	IPC-II

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
88.4	Mining of minor minerals (except Sand/riverbed material mining)	10	0	20	**30**	25	25	25	**75**	0	0	**0**	78.8	Orange		IPC-II
88.5	Grinding, processing, and screening of minor minerals	0	0	0	**0**	25	30	0	**55**	0	0	**0**	55	Orange		IPC-II
89	Manufacturing of **Mirror** from sheet glass	0	0	0	**0**	30	20	0	**50**	25	10	**35**	58.8	Orange		IPC-V
90	**Mineral** processing, industries involving ore sintering, pelletisating, grinding & pulverization	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-II
91	**Malteries** (without fermentation)	30	15	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III
92	Manufacturing of **Mosquito** repellent & coil	0	0	0	**0**	30	0	25	**55**	0	0	**0**	55	Orange	Toxic fumes may be released.	IPC-V
93	Organic **Manure** (physical mixing)	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
94	Packing of powdered **Milk**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
METALS AND METALLURGICAL SECTORS																
95.0	**IRON & STEEL** (PRIMARY PROCESSING FROM ORE, INTEGRATED STEEL PLANTS AND SPONGE IRON UNITS)															
95.1	Integrated iron and steel plants	25	30	35	**90**	25	30	35	**90**	25	50	**75**	98.3	Red		IPC-II
95.2	Stand-alone sintering/palletisation	0	0	0	**0**	25	30	35	**90**	0	0	**0**	90	Red		IPC-II
95.3	Sponge iron with CPP (Captive Power Plant)	20	25	35	**80**	25	30	35	**90**	10	50	**60**	97	Red		IPC-II
95.4	Sponge iron without CPP	20	15	30	**65**	25	30	35	**90**	10	50	**60**	96.3	Red		IPC-II

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
95.5	Stand-alone coke oven gas plants	25	30	30	**85**	25	30	35	**90**	25	50	**75**	98	Red		IPC-II
96.0	**ALUMINIUM** PROCESSING															
96.1	Aluminium Refinery	10	30	35	**75**	25	25	35	**85**	10	70	**80**	96.6	Red		IPC-II
96.2	Aluminium Smelter	10	30	35	**75**	30	25	35	**90**	25	70	**95**	99.1	Red		IPC-II
97	**Copper Smelter**	10	30	35	**75**	30	25	35	**90**	10	70	**80**	97.8	Red		IPC-II
98	**Zinc smelter**	10	30	35	**75**	30	25	35	**90**	10	70	**80**	97.8	Red		IPC-II
99.0	**FERROUS AND NON-FERROUS METAL** SECONDARY PROCESSING/REPROCESSING UNITS INVOLVING DIFFERENT FURNACES THROUGH MELTING, REFINING, CASTING, ALLOY-MAKING															
99.1	All Ferrous and Non-ferrous metal secondary processing/reprocessing units involving different furnaces through melting, refining, casting, alloy-making (using coal/liquid fuels)	0	15	15	**30**	25	25	25	**75**	25	10	**35**	83.1	Red		IPC-V
99.2	Ferrous and Non-ferrous metal (excluding lead, nickel, and manganese) secondary processing/reprocessing units involving different furnaces through melting, refining, casting, alloy-making (using cleaner fuels/electricity)	0	15	15	**30**	25	25	10	**60**	10	10	**20**	70	Orange		IPC-V
100	Aluminium & copper extraction from scrap using an oil-fired furnace (dry process only)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
101.0	INDUSTRY OR PROCESS INVOLVING **METAL** SURFACE TREATMENT OR PROCESS/HEAT TREATMENT															

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
101.1	Industry or process involving metal surface treatment or process such as pickling/ electroplating/paint stripping/ heat treatment using cyanide bath/ phosphating or finishing and anodizing / enamellings/ galvanizing	25	30	20	**75**	30	25	0	**55**	25	30	**55**	88.8	Red		IPC-V
101.2	Plasma electrolytic polishing (electroplating)	25	30	15	**70**	30	25	0	**55**	0	0	**0**	78.3	Orange		IPC-V
101.3	Heat treatment using furnace (without cyaniding)	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-V
101.4	Heat treatment with any of the new technology like ultrasound probe, induction hardening, ionization beam, gas carburizing etc.	0	15	15	**30**	0	25	0	**25**	0	0	**0**	38.8	Green		IPC-V
102.0	FORGING OF **FERROUS AND NON- FERROUS METALS**															
102.1	Forging of ferrous and non-ferrous metals using liquid fuel	0	0	0	**0**	25	25	20	**70**	30	10	**40**	76	Orange		IPC-V
102.2	Forging of ferrous and non-ferrous metals using gaseous fuel	0	0	0	**0**	25	25	10	**60**	30	10	**40**	68	Orange		IPC-V
102.3	Forging of ferrous and non-ferrous metals using electricity	0	0	0	**0**	25	25	0	**50**	30	10	**40**	60	Orange		IPC-V
102.4	Forging of ferrous and non-ferrous metals (cold forging, without any heat treatment)	0	0	0	**0**	0	0	0	**0**	30	10	**40**	40	Green		IPC-V
103.0	ROLLING **MILLS**															
103.1	Rolling and pickling	25	30	15	**70**	25	30	25	**80**	25	10	**35**	90.5	Red		IPC-V
103.2	Rolling mills (oil and coal fired)	0	15	15	**30**	25	0	25	**50**	0	0	**0**	57.5	Orange		IPC-V
103.3	Rolling mills (gas fired)	0	15	15	**30**	25	0	10	**35**	0	0	**0**	44.8	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
103.4	Cold rolling mill (without heat treatment)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
104.0	**FOUNDRY OPERATIONS**															
104.1	Cupola furnace	**0**	**0**	**0**	**0**	25	25	25	**75**	10	10	20	77.5	Orange		IPC-V
104.2	Induction furnace/arc furnace	0	0	0	**0**	25	30	0	**55**	10	10	**20**	59.5	Orange		IPC-V
105.0	**WIRE** DRAWING AND **WIRE** NETTING															
105.1	Wire drawing and wire netting (with pickling)	25	30	15	**70**	30	25	0	**55**	10	10	**20**	81.3	Red		IPC-V
105.2	Wire drawing and wire netting (without pickling and with heat treatment)	0	0	0	**0**	25	0	20	**45**	10	10	**20**	50.5	Green		IPC-V
105.3	Wire drawing and wire netting (without pickling and without heat treatment)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
106	**Die-casting** /extrusion process only	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-V
107	Manufacturing of aluminium utensils from aluminium circles pressing/ Brass and bell **Metal** utensils manufacturing from circles (dry mechanical operation only)	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green	Emissions during buffing	IPC-V
108	Manufacturing of **Metal** caps containers etc	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
~N~																
109	Formulation/palletisation of camphor tablets, **Naphthalene** balls from camphor/ naphthalene powders.	0	0	0	**0**	35	20	0	**55**	0	0	**0**	55	Orange	Emissions of benzene, hydrocarbons etc. are expected.	IPC-V
110	Organic and inorganic **Nutrients** by physical mixing (without boiler and without any reactor)	0	0	0	**0**	0	0	0	**0**	10	10	**20**	20	White	The sector may become green category if it generates wastewater	IPC-V
111.0	**ORGANIC** CHEMICALS INCLUDING HALOGENATED HYDROCARBONS															
111.1	Organic chemicals including halogenated hydrocarbons (using solid/liquid fuel)	30	30	25	**85**	35	0	30	**65**	30	20	**50**	93.6	Red		IPC-I
111.2	Organic chemicals including halogenated hydrocarbons (using cleaner fuel)	30	30	25	**85**	35	0	10	**45**	30	20	**50**	92.1	Red		IPC-I
112	**Oil** and gas extraction (offshore & onshore extraction through drilling wells), Coal Bed Methane (CBM) drilling and shale gas, including group gathering stations (GGS), etc.	25	30	15	**70**	20	25	0	**45**	30	10	**40**	82.8	Red		IPC-I
113.0	EDIBLE **OIL** MILLS															
113.1	Vegetable oil manufacturing including solvent extraction and refinery /hydrogenated oils	25	25	20	**70**	25	0	20	**45**	0	0	**0**	76.8	Orange		IPC-III
113.2	Oil mills Ghani and extraction without boiler (no refining/ hydrogenation)	10	25	15	**50**	0	0	0	**0**	0	0	**0**	50	Green		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
								~P~								
114.0	**POWER** GENERATION PLANTS															
114.1	Power plants based on coal	0	15	35	**50**	35	25	35	**95**	10	70	**80**	98.3	Red		IPC-II
114.2	Power plants based on liquid fuels	0	15	35	**50**	25	25	35	**85**	30	20	**50**	92.5	Red		IPC-II
114.3	Biomass-based power plants	0	15	30	**45**	25	25	25	**75**	10	50	**60**	88.1	Red		IPC-II
114.4	Nuclear energy-based power plants (> 220 MW)	0	30	35	**65**	25	0	25	**50**	25	20	**45**	81.6	Red	Overall safety aspects related with radioactivity is regulated by Atomic Energy Regulatory Board (AERB).	IPC-II
114.5	Nuclear energy-based power plants (up to 220 MW)	0	30	35	**65**	25	0	25	**50**	25	10	**35**	79.9	Orange	Overall safety aspects related with radioactivity is regulated by Atomic Energy Regulatory Board (AERB).	IPC-II
114.6	Gas-based power plants	0	15	35	**50**	25	0	20	**45**	0	0	**0**	61.3	Orange		IPC-II
115.0	**PULP & PAPER** (AGRO & WOOD)															
115.1	Manufacturing of bleached chemical pulp, papers, and paperboards	30	30	35	**95**	30	0	35	**65**	30	30	**60**	98.1	Red		IPC-III
115.2	Unbleached or Totally Chlorine Free (TCF) bleaching for manufacturing of chemical pulp, papers, and paperboards	30	20	35	**85**	30	0	35	**65**	10	30	**40**	92.9	Red		IPC-III
115.3	Bleached grades of chemical pulp, paper, and paperboard having Totally Chlorine Free (TCF) bleaching	30	20	35	**85**	30	0	35	**65**	10	30	**40**	92.9	Red		IPC-III
116.0	**PULP AND PAPER** (RECYCLED FIBRE/WASTE PAPER BASED)															
116.1	Pulp & Paper (With bleaching)	30	15	35	**80**	25	0	25	**50**	10	30	**40**	89	Red		IPC-III
116.2	Pulp & Paper (Without bleaching, capacity ≥15 TPD)	25	15	35	**75**	25	0	25	**50**	10	30	**40**	86.3	Red		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
116.3	Pulp & Paper (Without bleaching; plant capacity <15 TPD)	25	15	20	**60**	25	0	25	**50**	10	10	**20**	74	Orange		IPC-III
117.0	MANUFACTURING OF **PAINTS**, VARNISHES (The process may cause considerable emissions of volatile organic compounds (VOC).)															
117.1	Manufacturing of solvent-based paints/varnish	35	30	20	**85**	25	20	25	**70**	25	30	**55**	94.4	Red		IPC-I
117.2	Manufacturing of water-based paints	25	30	20	**75**	25	20	25	**70**	20	20	**40**	88.8	Red		IPC-I
117.3	Manufacturing of powder coatings	0	15	15	**30**	20	30	25	**75**	10	20	**30**	82.5	Red		IPC-I
117.4	Manufacturing of paint and varnishes (only blending and mixing)	20	30	15	**65**	0	20	0	**20**	30	20	**50**	77.3	Orange		IPC-I
118.0	**PESTICIDE** INDUSTRIES															
118.1	Pesticide technical (organic chemicals based)	30	30	20	**80**	30	25	25	**80**	30	30	**60**	94	Red		IPC-I
118.2	Pesticide technical (inorganic chemicals based like Zinc Phosphide and Aluminium Phosphide)	20	30	20	**70**	30	25	25	**80**	20	20	**40**	91	Red		IPC-I
118.3	Pesticide formulation industries (Liquid formulation only) having boiler/thermopack	20	30	20	**70**	25	20	25	**70**	20	20	**40**	86.5	Red		IPC-I
118.4	Pesticide formulation industries (Liquid formulation only) without having boiler/thermopack	20	30	20	**70**	0	20	0	**20**	20	20	**40**	79	Orange	Considering that dry formulation industries can also generate effluent because of equipment cleaning, the water pollution score is given	IPC-I
118.5	Pesticide formulation industries (having both liquid and dry formulation or dry formulation only) without having boiler / thermopack	20	30	20	**70**	30	20	0	**50**	20	20	**40**	83.5	Red	Considering that dry formulation industries can also generate effluent because of equipment cleaning, the water pollution score is given	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
118.6	Pesticide formulation industries (having both liquid and dry formulation or dry formulation only) having boiler / thermopack	20	30	20	**70**	30	20	25	**75**	20	20	**40**	88.8	Red	Considering that dry formulation industries can also generate effluent because of equipment cleaning, the water pollution score is given	IPC-I
119	**Photographic** film and its chemicals	20	20	15	**55**	30	0	25	**55**	20	10	**30**	74.1	Orange	Silver salts and other chemicals are used	IPC-I
120	**Petroleum** oil refineries	35	30	30	**95**	35	20	35	**90**	20	20	**40**	98.3	Red		IPC-I
121.0	**PETROCHEMICALS**															
121.1	Petrochemicals (Naphtha cracker.)	30	30	30	**90**	35	25	35	**95**	30	20	**50**	98.5	Red		IPC-I
121.2	Petrochemicals (Gas cracker)	30	30	30	**90**	35	25	25	**85**	30	20	**50**	96.8	Red		IPC-I
121.3	Petrochemicals (without cracker)	25	30	20	**75**	25	25	15	**65**	20	20	**40**	88.1	Red		IPC-I
121.4	Petrochemicals (without cracker and using cleaner/gaseous fuel)	25	30	20	**75**	25	25	10	**60**	20	20	**40**	87.5	Red		IPC-I
122.0	MANUFACTURING OF LUBRICATING OILS, GREASE AND **PETROLEUM**-BASED PRODUCTS															
122.1	Manufacturing of lubricating oils, grease, and petroleum-based products	20	15	15	**50**	25	20	10	**55**	30	10	**40**	75.3	Orange	Such unit uses distillation columns/ boilers etc	IPC-I
122.2	Manufacturing of lubricating oils, grease, and petroleum-based products (only blending)	0	0	0	**0**	0	25	0	**25**	10	10	**20**	32.5	Green		IPC-I
123.0	**PHARMACEUTICAL** INDUSTRY															
123.1	Pharmaceuticals manufacturing	35	30	30	**95**	35	25	35	**95**	30	20	**50**	98.6	Red		IPC-I
123.2	Pharmaceuticals manufacturing using cleaner/gaseous fuel	35	30	30	**95**	35	25	10	**70**	30	20	**50**	98	Red		IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
123.3	Pharmaceuticals (Formulation)	20	15	15	**50**	25	0	25	**50**	30	10	**40**	72.5	Orange		IPC-I
123.4	Pharmaceuticals (Formulation) using cleaner/gaseous fuel	20	15	15	**50**	25	0	10	**35**	30	10	**40**	68.8	Orange		IPC-I
123.5	Vaccine manufacturing	20	15	15	**50**	25	0	35	**60**	30	10	**40**	78	Orange		IPC-I
123.6	Vaccine manufacturing using cleaner/gaseous fuel	20	15	15	**50**	25	0	10	**35**	30	10	**40**	68.8	Orange		IPC-I
123.7	Pharmaceutical R&D facilities	20	15	15	**50**	25	0	25	**50**	30	10	**40**	72.5	Orange		IPC-I
123.8	Ayurvedic or Unani medicines manufacturing	20	15	15	**50**	25	0	25	**50**	30	10	**40**	72.5	Orange		IPC-I
123.9	Ayurvedic or unani medicines manufacturing using cleaner fuel	20	15	15	**50**	25	0	10	**35**	0	0	**0**	58.8	Orange		IPC-I
123.10	Ayurvedic or unani medicines manufacturing (Without boiler)	20	15	15	**50**	0	0	0	**0**	0	0	**0**	50	Green		IPC-I
124	Digital **Printing** on flex /vinyl, PVC etc. (more than 5 machines)	0	0	0	**0**	20	0	0	**20**	30	10	**40**	46	Green		IPC-V
125	Spray **Painting**, Paint baking, Paint shipping	0	0	0	**0**	0	25	0	**25**	30	10	**40**	47.5	Green	Emissions in the form of VOCs and HC are generated.	IPC-V
126	**Plywood**/board manufacturing (including Veneer and laminate) with biomass fired boiler / thermic fluid heater (without resin plant)	20	20	15	**55**	25	20	25	**70**	0	0	**0**	78.3	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
127	**Printing** press (newspaper, books, magazines, etc./ Gravure printing	20	0	15	**35**	20	0	0	**20**	30	10	**40**	56.5	Orange		IPC-V
128	Manufacturing of bi-axially oriented **Polypropylene** (PP) film along with metalizing operations	0	15	15	**30**	0	0	0	**0**	0	0	**0**	30	Green	Mainly extrusion process involving	IPC-V
129	**Pulse**/Dal Mills	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
130	Insulation and other coated **Papers** (excluding paper or pipe manufacturing)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
131	**Packaging** materials manufacturing from non-asbestos fibre, vegetable fibre yarn	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
132	**Polythene** and plastic processed products manufacturing (virgin/compostable plastic)	0	15	15	**30**	0	20	0	**20**	0	0	**0**	37	Green		IPC-V
133	**Poultry**, piggery, and hatchery	0	0	0	**0**	30	20	0	**50**	0	0	**0**	50	Green		IPC-V
134	**Puffed** rice (muri) (using gas)	0	0	0	**0**	25	0	10	**35**	0	0	**0**	35	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
135	Biscuits trays etc from rolled **PVC** sheet (using automatic vacuum forming machines)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
136	Fountain **Pen** manufacturing by assembling only	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
137	Glass **Putty** and sealant (by mixing with machine only)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
138	Manufacturing of **Paper** Pins, U-clips, etc.	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
139	Solar **Power** generation through solar photovoltaic cell and wind power	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~R~															
140	Synthetic **Rubber** excluding molding	20	15	15	**50**	20	0	25	**45**	20	10	**30**	68.8	Orange	Most synthetic rubber is created from two materials, styrene, and butadiene.	IPC-I
141.0	**REFRACTORIES**															
141.1	Refractories based on coal/liquid fuel (fuel consumption: 12 TPD and above)	0	0	0	**0**	25	25	30	**80**	0	0	**0**	80	Red		IPC-V
141.2	Refractories based on coal/liquid fuel (fuel consumption: less than 12 TPD)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
141.3	Refractories based on cleaner fuels	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V
142.0	**RUBBER** PRODUCTS MANUFACTURING															

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
142.1	Tyre and tube manufacturing	0	15	15	**30**	25	25	25	**75**	0	0	**0**	78.8	Orange		IPC-V
142.2	Tyres and tubes vulcanization/ hot retreading	0	15	15	**30**	25	20	10	**55**	0	0	**0**	61.8	Orange	Emissions of PM, VOCs and obnoxious odour are generated.	IPC-V
142.3	Rubber goods industry (with solid fuel/oil-based boiler)	0	15	15	**30**	25	0	25	**50**	0	0	**0**	57.5	Orange		IPC-V
142.4	Rubber goods industry (with gas-based boiler)	0	15	15	**30**	25	0	10	**35**	0	0	**0**	44.8	Green		IPC-V
143.0	SYNTHETIC **RESINS**															
143.1	Synthetic resins manufacturing	20	15	15	**50**	25	20	25	**70**	20	10	**30**	82	Red		IPC-I
143.2	Synthetic resins manufacturing (using only gaseous fuel)	20	15	15	**50**	25	20	10	**55**	20	10	**30**	73	Orange		IPC-I
144	Blending of melamine **Resins** & different powder, additives by physical mixing, including phenolic resin (without boiler)	0	15	15	**30**	0	30	0	**30**	20	10	**30**	51	Green		IPC-I
145.0	**RICE** MILLS															
145.1	Parboiled rice mill (with soaking and steam/drier)	25	0	20	**45**	25	0	25	**50**	0	0	**0**	61.3	Orange		IPC-V
145.2	Raw rice mill (Without soaking and steam/drier)/ hullers)	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
146	**Repairing** of electric motors and generators (dry mechanical process)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
147	Manufacturing of plastic or cotton **Rope**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
148	Tyre **Retraders**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		WM-III
RECYCLING AND REPROCESSING SECTOR																
149.0	INDUSTRIES ENGAGED IN **RECYCLING/REPROCESSING/ RECOVERY/REUSE** OF HAZARDOUS WASTE UNDER SCHEDULE IV OF H&OW(M & TBM) RULES, 2016 - ITEMS, NAMELY, SPENT CATALYSTS CONTAINING NICKEL, CADMIUM, ZINC, COPPER, ARSENIC, VANADIUM, AND COBALT, INCLUDING DRY BATTERY (EXCEPT LEAD), AND CLEARED METAL CATALYST.															
149.1	Hydro & pyro metallurgy	0	30	15	**45**	35	25	25	**85**	25	10	**35**	91	Red		WM-II
149.2	Hydro & pyro metallurgy (using cleaner/gaseous fuels & without crushing of materials)	0	30	15	**45**	35	25	10	**70**	25	10	**35**	82	Red		WM-II
149.3	Pyro metallurgy (using coal/liquid fuels)	0	0	0	**0**	35	25	25	**85**	20	10	**30**	87.3	Red		WM-II
149.4	Pyro metallurgy (using cleaner/gaseous fuels)	0	0	0	**0**	35	25	10	**70**	20	10	**30**	74.5	Orange		WM-II
149.5	Hydro metallurgy	0	30	15	**45**	30	25	0	**55**	25	10	**35**	73	Orange		WM-II
150.0	E-WASTE DISMANTLING / **RECYCLING**															
150.1	Industry engaged in recycling of e-waste generated from the electrical and electronic Equipment (EEE) listed in the E-Waste (Management) Rules 2022 using pyro/ hydro/ electro-metallurgical processing and recycling of plastic separated from Waste EEE	30	30	20	**80**	35	25	15	**75**	25	20	**45**	92	Red		WM-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
150.2	Industry engaged in recycling of e-waste generated from the electrical and electronic equipment (EEE) listed in the E-Waste (Management) Rules 2022 (PCB processing limited to only mechanical processing and separation without pyro/ hydro/ electro-metallurgical processing), production of Al, Cu, and other metals from non-PCB sources and/or recycling of plastic separated from Waste EEE.	0	15	15	**30**	20	25	15	**60**	25	10	**35**	73	Orange		WM-III
150.3	Industry engaged in dismantling (only) of e-waste, generated from the electrical and electronic equipment (EEE) listed in the E-Waste (Management) Rules 2022	0	0	0	**0**	0	25	0	**25**	25	10	**35**	43.1	Green		WM-III
150.4	E-waste refurbishing centres	0	0	0	**0**	0	25	0	**25**	25	10	**35**	43.1	Green		WM-III
151.0	INDUSTRIES ENGAGED IN **RECYCLING/REPROCESSING/ RECOVERY/REUSE** OF HAZARDOUS WASTE (Items as per Schedule IV of H&OW(M & TBM) Rules, 2016.)															
151.1	Lead Recycling (Lead Acid Batteries with Acids; Lead Scrap Recycling) Rotary Furnace/ Pit Furnace (Mandir/Canopy Bhatti)	0	30	20	**50**	35	30	25	**90**	20	20	**40**	94.5	Red	This also includes battery scrap, namely: Lead battery plates covered by ISRI, Code word "Rails" Battery lugs covered by ISRI, Code word "Rakes." Scrap drained/dry while intact, lead batteries covered by ISRI, Code word "rains."	WM-II

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
151.2	Lead Recycling (Drained Lead Acid Batteries; Lead Scrap Recycling) Rotary Furnace/Mandir Bhatti on Cleaner Fuel	0	30	15	**45**	35	30	10	**75**	20	10	**30**	84.4	Red	This also includes, battery scrap, namely: Lead battery plates covered by ISRI, Code word "Rails" Battery lugs covered by ISRI, Code word "Rakes." Scrap drained/dry while intact, lead batteries covered by ISRI, Code word "rains."	WM-II
151.3	Isolated storages (as defined under Manufacture, Storage, and Import of Hazardous Chemicals Rules, 1989 as amended)	10	25	15	**50**	20	25	0	**45**	30	10	**40**	71.3	Orange		IPC-I
151.4	Paint and ink sludge / residues recycling	20	25	15	**60**	0	20	0	**20**	30	10	**40**	72	Orange		WM-II
151.5	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste, excluding lead, paint, and ink sludge	0	30	15	**45**	35	0	25	**60**	20	10	**30**	75	Orange	This includes items namely - Brass Dross, Copper Dross, Copper Oxide Mill Scale, Copper everts, Cake & Residues, Waste Copper and copper alloys in dispersible form, Slags from copper processing for further processing or refining, Insulated Copper Wire, Scrap/copper with PVC sheathing including ISRI-code material namely "Druid" Jelly filled Copper cables, Zinc Dross-Hot dip Galvanizers SLAB,, Zinc Dross-Bottom Dross, Zinc ash/Skimming arising from galvanizing and die casting operations, Zinc ash/Skimming/other zinc bearing wastes arising from smelting and refining,, Zinc ash and residues including zinc alloy residues in dispersible form.	WM-II

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
151.6	Refining of used oil by hydro-treating/using solvent extraction	10	25	25	**60**	25	0	25	**50**	20	20	**40**	78	Orange		WM-II
151.7	Refining of used oil by using thin film evaporation/vacuum distillation with clay treatment	10	25	15	**50**	25	0	15	**40**	20	10	**30**	67.5	Orange		WM-II
151.8	Recycling / reprocessing of waste oil	20	25	15	**60**	25	0	15	**40**	20	10	**30**	74	Orange		WM-II
152.0	**RECYCLING** OF PLASTIC WASTE															
152.1	Manufacturing of flakes/staple fibre/strip from the recycling of PET bottles	20	15	25	**60**	0	20	0	**20**	0	0	**0**	64	Orange		IPC-I
152.2	Plastic waste processing (manufacturing of flakes/granules)	20	15	15	**50**	0	20	0	**20**	0	0	**0**	55	Orange	Process using In-built heaters.Washwater and fugitive emission.	UPC-II
153.0	SCRAPING FACILITIES FOR **RECYCLING** END-OF-LIFE VEHICLES, WAGONS, AND COACHES															
153.1	Collection, Depollution and Dismantling Centers (Without shredding)	0	30	15	**45**	0	30	0	**30**	25	10	**35**	62.9	Orange		WM-II
153.2	Collection, Depollution, Dismantling and shredding Centers	0	30	15	**45**	0	30	0	**30**	25	10	**35**	62.9	Orange		WM-II
153.3	Common Shredders (Standalone)	0	0	0	**0**	0	30	0	**30**	25	10	**35**	44.8	Green		WM-II
153.4	Collection Centers (Without depollution, dismantling and shredding)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		WM-II
	~S~															
154	**Sugar** (excluding khandsari/jaggery)	30	25	35	**90**	25	0	25	**50**	30	10	**40**	94.5	Red	Generates large volume of wastewater.	IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
155	**Ship** breaking industries	0	0	0	**0**	0	30	0	**30**	30	20	**50**	57.5	Orange	Ship breaking releases a large number of pollutants, including toxic waste, used/waste oil, poly-chlorinated biphenyls, and heavy metals.	WM-III
156	**Slaughterhouse** / **Slaughterhouse** (with rendering plant)/ integrated slaughtering unit, meat processing units, bone mill, processing of animal horns, hoofs and other body parts	30	25	30	**85**	25	20	25	**70**	0	0	**0**	90.3	Red		IPC-IV
157	Manufacturing of **Silica** gel	10	25	20	**55**	30	0	20	**50**	25	10	**35**	74.1	Orange		IPC-I
158	Manufacturing of Iodized **Salt** from Crude / Raw Salt	10	20	15	**45**	25	0	25	**50**	0	0	**0**	61.3	Orange	Process may involve boiling in evaporators (multiple effect evaporators), centrifuging, iodization, mixing, etc.	IPC-V
159	Manufacturing of **Starch** / Sago / Sorbitol	20	25	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III
160	**Stone** crushers	0	0	0	**0**	25	30	0	**55**	0	0	**0**	55	Orange		IPC-V
161	**Stone** crushing/grinding/washing & screening of riverbed material(s)	10	0	25	**35**	25	30	0	**55**	0	0	**0**	62.9	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
162.0	MANUFACTURING OF **SURGICAL** AND MEDICAL PRODUCTS															
162.1	Manufacturing of **Surgical** and medical products	10	25	15	**50**	25	0	10	**35**	0	0	**0**	58.8	Orange		IPC-V
162.2	Surgical and medical products assembled only (with effluent-generating processes)	10	25	15	**50**	0	0	0	**0**	0	0	**0**	50	Green		IPC-V
162.3	Surgical and medical products assembled only (without effluent-generating processes)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
163.0	**SEMICONDUCTOR** MANUFACTURING INDUSTRIES i. Toxic wastewater is generated due to presence of Hydrofluoric acid (HF), Mixed Nitric HF (HF + HNO3), Phosphoric acid, Sulphuric acid (H2SO4), Hydrogen Peroxide, Isopropyl alcohol (IPA) / Methanol (Methanol Only), Stripper EKC-265 /ACT N396 (ACT N396 Only), BHF – 63 U, Choline etchant, etc. ii. The air pollutants which are being emitted during the manufacturing process are SiH4, PH3, B2H6, HF, HBr, DCS, NF3, SF6, BCl3, Cl2, HCL, NH3, C2F6, CHF3, CF4, C4F8, C2F6 etc. iii. Process waste, used oil etc. are generated as hazardous waste.)															
163.1	Semiconductor fabs manufacturing	25	30	35	**90**	35	30	0	**65**	25	10	**35**	95	Red		WM-III
163.2	Display fabs manufacturing	25	30	35	**90**	25	30	0	**55**	25	10	**35**	94.5	Red		WM-III
163.3	Sensor fabs manufacturing/ Compound semiconductors/ silicon photonics	25	30	35	**90**	25	30	0	**55**	25	10	**35**	94.5	Red		WM-III
163.4	Semiconductor Assembly, Testing, Marking and Packaging Facility (ATMP)	0	0	0	**0**	0	25	0	**25**	25	10	**35**	43.1	Green		WM-III
164	**Saw** mills	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
165	**Spice** grinding	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
166	Cutting, **Sizing** and polishing of marble, granite and other stones	10	0	20	**30**	0	30	0	**30**	0	0	**0**	40.5	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
167	Manufacturing of **Solar** module/ non-conventional energy apparatus	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~T~															
168.0	**TANNERIES**															
168.1	Tanneries (Raw to finish)	35	30	25	**90**	0	20	0	**20**	25	30	**55**	93.8	Red		IPC-IV
168.2	Tanneries (Raw to wet blue)	35	30	25	**90**	0	20	0	**20**	25	30	**55**	93.8	Red		IPC-IV
168.3	Tanneries (Wet blue to finish)	35	30	20	**85**	0	20	0	**20**	25	30	**55**	90.6	Red		IPC-IV
168.4	Vegetable tanning	20	25	25	**70**	0	20	0	**20**	20	10	**30**	77.5	Orange		IPC-IV
169.0	MANUFACTURING OF **TOOTH** POWDER, TOOTHPASTE, TALCUM POWDER AND OTHER COSMETIC ITEMS															
169.1	Manufacturing of toothpaste and other cosmetic items	20	25	20	**65**	25	0	25	**50**	0	0	**0**	73.8	Orange		IPC-V
169.2	Manufacturing of tooth powder, talcum powder	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
170.0	**THERMOMETER** MANUFACTURING															
170.1	Glass (mercury based) thermometer manufacturing	10	30	15	**55**	25	0	10	**35**	25	10	**35**	70.8	Orange	Process involves making of glass bulb, forming reservoir in the glass tube for fluid, inserting fluid, scale marking. Use of fuel to heat the glass tubes and hydrofluoric acid to seal the scaling. Small quantities of spent acids are generated.	IPC-V
170.2	Digital thermometer manufacturing	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
171	Manufacturing of **Teflon**-based products	10	0	15	**25**	25	25	25	**75**	0	0	**0**	78.1	Orange	Due to spraying applications, emissions (HC) are generated	IPC-V
172	**Thermocol** manufacturing (with boiler)	0	20	15	**35**	25	0	25	**50**	0	0	**0**	58.8	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
173.0	MANUFACTURING OF **TOBACCO** PRODUCTS INCLUDING CIGARETTES AND TOBACCO PROCESSES															
173.1	Manufacturing of tobacco products including cigarettes and tobacco processes (with boiler)	20	0	15	**35**	25	20	25	**70**	0	0	**0**	75.3	Orange		IPC-III
173.2	Manufacturing of tobacco products including cigarettes and tobacco processes (without boiler)	20	0	15	**35**	0	20	0	**20**	0	0	**0**	41.5	Green		IPC-III
174	**Transformer** repairing/ manufacturing (dry process only)	0	0	0	**0**	0	25	0	**25**	30	10	**40**	47.5	Green		IPC-V
175	**Tyre** Pyrolysis Oil Industries-Applicable for advanced batch automated process / continuous TPO units	10	0	15	**25**	25	25	25	**75**	0	0	**0**	78.1	Orange		WM-III
176	**Tamarind** powder manufacturing	10	15	15	**40**	25	0	10	**35**	0	0	**0**	50.5	Green	Dried tamarind fruits are cleaned, soaked, and boiled in steam jacketed kettle. Then pulp is extracted in pulper and dried in drum type drier.	IPC-V
177.0	**TEA** PROCESSING AND BLENDING															
177.1	Tea processing (with boiler)	10	0	15	**25**	25	0	25	**50**	0	0	**0**	56.3	Orange		IPC-III
177.2	Tea processing (without boiler)	10	0	15	**25**	0	0	0	**0**	0	0	**0**	25	Green		IPC-III
177.3	Blending and packing of tea	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
TEXTILE SECTOR																
178.0	**TEXTILE** INDUSTRY															
178.1	Yarn / Textile processing involving any effluent/emission generating processes including bleaching, dyeing, printing, and colouring, including the garment and apparel manufacturing industry	30	30	30	**90**	25	0	35	**60**	30	20	**50**	95.5	Red		IPC-III
178.2	Yarn to grey fabric manufacturing with water jet machines	20	25	25	**70**	0	0	0	**0**	0	0	**0**	70	Orange		IPC-III
178.3	Garment and apparel manufacturing industry including Doubling / Reeling / TFO-Two for one unit (dry process)-with boiler	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-III
178.4	Garment and apparel manufacturing industry including Doubling / Reeling / TFO-Two for one unit (dry process)-without boiler	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-III
179.0	**SAREE/FABRIC PRINTING** BY SCREEN / WOODEN BLOCK /HAND BLOCK															
179.1	Saree/fabric printing by screen / wooden block/hand block	25	0	25	**50**	25	0	20	**45**	30	10	**40**	71.3	Orange		IPC-III
179.2	Hand block printing without effluent generation	0	0	0	**0**	25	0	20	**45**	0	0	**0**	45	Green		IPC-III
180.0	**TEXTILE** SPINNING**,** SIZING AND WEAVING MILLS															
180.1	Textile spinning, sizing and weaving mills (wastewater generation≥ 10 KLD)	10	20	20	**50**	25	0	15	**40**	0	0	**0**	60	Orange		IPC-III
180.2	Textile spinning, sizing and weaving mills (wastewater generation <10 KLD)	10	20	15	**45**	25	0	10	**35**	0	0	**0**	54.6	Green		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
181	**Power looms** (without dye and bleaching)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-III
182.0	REPROCESSING OF WASTE **TEXTILE** FABRIC															
182.1	Integrated facility for reprocessing of waste textile fabric (including washing, bleaching, dyeing etc.)	30	30	20	**80**	25	25	15	**65**	0	0	**0**	86.5	Red		IPC-III
182.2	Reprocessing of waste textile fabric (dry process)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-III
183	**Cotton and woollen Hosiers** making (Dry process only without any dying / washing operation)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~W~															
184	Seasoning of **Wood** in steam heated chamber	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-V
185	Pulverization of bamboo and scrap **Wood**	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
186	Distilled **Water** (without boiler) with electricity as source of heat	0	20	20	**40**	0	0	0	**0**	0	0	**0**	40	Green		IPC-V
187	Purification of **Water** and packaging (mineralized/non-mineralized water)	0	20	25	**45**	0	0	0	**0**	0	0	**0**	45	Green	RO Rejects.	IPC-V

ANNEXURE-II

(LIST OF ESSENTIAL ENVIRONMENTAL SERVICES)

LIST OF ESSENTIAL ENVIRONMENTAL SERVICES

i. Essential Environmental Services for Industrial Waste Management

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
1.0	**COMMON EFFLUENT TREATMENT PLANT (CETP)**															
1.1	CETP having MEE/spray drier	30	30	35	**95**	25	0	25	**50**	25	50	**75**	98.1	Red		IPC-VII
1.2	CETP (without having MEE/spray drier), Common MEE/common spray driers	25	30	30	**85**	0	0	0	**0**	25	30	**55**	89.1	Red		IPC-VII
1.3	Common Sewage-Effluent Treatment Plant (CSETP)	25	30	30	**85**	0	0	0	**0**	25	20	**45**	88.4	Red		WQM-I & IPC-VII
2.0	Effluent conveyance projects	20	30	35	**85**	0	0	0	**0**	25	10	**35**	87.6	Red	Such projects during O&M operation will generate deposited sludge, spillage etc. in addition regular operation of handling of effluent and its disposal.	IPC-VII
3.0	**COMMON HAZARDOUS WASTE TREATMENT, STORAGE AND DISPOSAL FACILITY**															
3.1	Integrated facility (Secured landfill and incinerator)	35	30	15	**80**	25	25	15	**65**	30	70	**100**	100.0	Red		WM-II
3.2	Only secured landfill	35	30	15	**80**	0	25	0	**25**	25	70	**95**	97.6	Red		WM-II
3.3	Only incinerator	35	30	15	**80**	25	25	15	**65**	30	70	**100**	100.0	Red		WM-II
4.0	**COMMON BIO-MEDICAL WASTE TREATMENT FACILITY (CBWTF)**															
4.1	CBWTF	20	25	20	**65**	35	20	25	**80**	20	20	**40**	90.5	Red		WM-I
4.2	CBWTF using cleaner/gaseous fuel	20	25	20	**65**	35	20	10	**65**	20	20	**40**	83.4	Red		WM-I

ii. LIST OF BLUE CATEGORY SECTORS- Essential Environmental Services for Domestic/Household Activities:

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
1.0	**MUNICIPAL SOLID WASTE MANAGEMENT FACILITY**															
1.1	Municipal Solid Waste Management Facility (Sanitary landfill/ Integrated Sanitary landfill with material recycling facility/ refused derived fuel, etc.)	35	30	15	**80**	35	25	0	**60**	0	0	**0**	86.0	Blue		UPC-II
1.2	Waste to energy power plants	0	15	30	**45**	35	25	35	**95**	10	50	**60**	97.6	Blue		UPC-II
1.3	Bio-mining of legacy waste projects	35	30	25	**90**	35	25	0	**60**	0	0	**0**	93.0	Blue		UPC-II
1.4	Municipal Solid Waste Bio-methanation plant (Quantity of MSW ≥ 5 TPD)	30	25	25	**80**	0	20	0	**20**	0	0	**0**	82.0	Blue		UPC-II
1.5	Municipal Solid Waste Composting Facility (Quantity of MSW ≥ 5 TPD)	30	25	15	**70**	0	30	0	**30**	0	0	**0**	74.5	Blue		UPC-II
1.6	Municipal Solid Waste Material Recovery Facility (Quantity of MSW ≥ 5 TPD)	20	25	15	**60**	0	30	0	**30**	0	0	**0**	66.0	Blue		UPC-II
2.0	Construction and Demolition (C&D) Waste Processing Plants	10	0	15	**25**	25	25	0	**50**	0	0	**0**	56.3	Blue	Wastewater of high TDS of inorganic nature is generated.	UPC-I
3.0	**SEWAGE TREATMENT PLANT**															
3.1	Sewage Treatment Plant (5 MLD and above)	20	0	35	**55**	0	20	0	**20**	0	0	**0**	59.5	Blue		WQM-I
3.2	Sewage Treatment Plant (less than 5 MLD)	20	0	25	**45**	0	20	0	**20**	0	0	**0**	50.5	Blue		WQM-I

ANNEXURE-III

(LIST OF SERVICE/INFRASTRUCTURE DEVELOPMENT SECTORS CLASSIFIED UNDER RED, ORANGE, GREEN, AND WHITE CATEGORIES)

SERVICE/INFRASTRUCTURE DEVELOPMENT SECTORS

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
1.0	**STANDALONE GENERATOR SET** (Genset) (i. Standalone genset(s) of total capacity less than 1000 KVA may not require additional classification. The used oil/waste oil generated during repair and maintenance need to be disposed through authorized hazardous waste recycler by service provider/OEM. ii. Projects such data centers etc. having pollution potential due to gensets only, may be classified based on the capacity and fuel used.)															
1.1	Genset(s) of total capacity ≥ 1 MVA, using liquid fuel	0	0	0	**0**	25	0	25	**50**	30	10	**40**	60.0	Orange		UPC-I
1.2	Genset(s) of total capacity ≥ 1 MVA, using cleaner/gaseous fuel	0	0	0	**0**	25	0	10	**35**	30	10	**40**	50.5	Green		UPC-I
2.0	Airports	20	0	35	**55**	25	0	25	**50**	30	10	**40**	75.3	Orange	Airports generates mainly domestic sewage as wastewater. Emissions and generation of hazardous waste due to overall operations in airport are considered.	UPC-I
3.0	**HEALTH CARE FACILITIES (HCFS) (AS DEFINED UNDER BIO-MEDICAL WASTE MANAGEMENT RULES, 2016)** (Sectors generates bio-medical waste. As per methodology scores assigned to H.)															
3.1	HCFs with captive incinerator, irrespective of number of beds	20	0	15	**35**	35	20	25	**80**			**50**	88.5	Red		WM-I
3.2	more than 1000 bedded HCFs	20	0	35	**55**	0	0	0	**0**			**100**	100.0	Red		WM-I
3.3	501 to 1,000 bedded HCFs	20	0	30	**50**	0	0	0	**0**			**80**	85.0	Red		WM-I
3.4	201 to 500 bedded HCFs	20	0	30	**50**	0	0	0	**0**			**60**	70.0	Orange		WM-I
3.5	51 to 200 bedded HCFs	20	0	20	**40**	0	0	0	**0**			**50**	60.0	Orange		WM-I
3.6	11 to 50 bedded HCFs	20	0	20	**40**	0	0	0	**0**			**40**	52.0	Green		WM-I
3.7	Up to 10 bedded HCFs	20	0	15	**35**	0	0	0	**0**			**30**	44.8	Green		WM-I
3.8	Non-bedded HCFs	0	0	0	**0**	0	0	0	**0**			**25**	25.0	Green		WM-I
4.0	**HOTELS/BANQUET HALLS HAVING ROOM FACILITY**															
4.1	Hotels (above 3 star) or having 100 & above rooms	20	25	30	**75**	25	0	25	**50**	0	0	**0**	81.3	Red		UPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
4.2	Hotels (above 3 star) or having 100 & above rooms (based on cleaner /gaseous fuel)	20	25	30	**75**	25	0	10	**35**	0	0	**0**	79.4	Orange		UPC-I
4.3	Hotels (up to 3 star) or having more than 20 rooms but less than 100 rooms.	20	25	20	**65**	25	0	25	**50**	0	0	**0**	73.8	Orange		UPC-I
4.4	Up to 20 rooms	10	25	15	**50**	0	0	10	**10**	0	0	**0**	52.5	Green		UPC-I
5.0	**RAILWAY LOCOMOTIVE WORK SHOP/ INTEGRATED ROAD TRANSPORT WORKSHOP/ AUTHORIZED SERVICE CENTERS**															
5.1	Railway locomotive work shop/ Integrated road transport workshop/ Authorized service centers (wastewater generation ≥ 10 KLD)	20	25	25	**70**	30	25	0	**55**	30	10	**40**	84.3	Red		IPC-V
5.2	Railway locomotive work shop/ Integrated road transport workshop/ Authorized service centers (wastewater generation <10 KLD)	20	25	15	**60**	30	25	0	**55**	30	10	**40**	79.0	Orange		IPC-V
6.0	**RAILWAY STATIONS**															
6.1	Railway Stations (Wastewater Generation ≥ 5 MLD)	20	0	35	**55**	25	0	25	**50**	30	10	**40**	75.3	Orange	Wastewater generating from public toilets, public taps, platform, and apron washing, coach cleaning, laundry, restaurants etc. Emissions and generation of hazardous waste due to overall operations are considered.	UPC-I
6.2	Railway Stations (Wastewater Generation ≥ 100 KLD, but < 5 MLD)	20	0	15	**35**	0	0	0	**0**	0	0	**0**	35.0	Green	Wastewater generating from various domestic uses as public toilets, public taps, platforms, and apron washing, restaurants etc.	UPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
7.0	**RAILWAY SIDINGS** (Fugitive emissions due to loading, unloading, storage and transportation of the minerals.)															
7.1	Railway sidings / Mineral stock yard	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25.0	Green		UPC-I
7.2	Railway sidings only for defence purpose	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0.0	White		UPC-I
8.0	**PORTS AND HARBOURS**															
8.1	Ports and harbours, jetties and dredging operations	20	30	25	**75**	0	25	0	**25**	30	20	**50**	84.4	Red		WM-I
8.2	Ports and harbours (only containers handling)/ Captive jetties	20	25	20	**65**	0	25	0	**25**	30	10	**40**	76.4	Orange		WM-I
9.0	Automobile service stations/ workshops	20	25	20	**65**	20	0	0	**20**	30	10	**40**	75.5	Orange		IPC-V
10.0	**BUILDING CONSTRUCTION PROJECTS** (i. During the construction phase, the sector is mainly air polluting. However, in post construction phase it is mainly water polluting due to generation of sewage. Consent to Establish/Operate to be taken as per EC conditions, as applicable. ii. Building construction project ≥ 5,000 sq. m., but < 20,000 sq. m. built-up area (with connectivity to terminal STP) may not require separate classification. iii. For projects < 5000 the wastewater shall be managed according to on-site sanitation methods as mentioned in the Manual on Sewerage and Sewage Treatment System (2013), published by the Central Public Health and Environmental Engineering Organisation (CPHEEO), and as amended from time to time.)															
10.1	Building construction project ≥ 20,000 sq. m. built-up area	20	0	25	**45**	25	0	25	**50**	0	0	**0**	61.3	Orange		UPC-I
10.2	Building construction project ≥ 5,000 sq. m., but < 20,000 sq. m. built-up area (without connectivity to terminal STP)	20	0	20	**40**	0	0	0	**0**	0	0	**0**	40.0	Green		UPC-I
11.0	Standalone mechanized laundry (using boiler)	20	0	20	**40**	25	0	25	**50**	0	0	**0**	60.0	Orange		IPC-V
12.0	New highway construction project	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75.0	Orange	Such projects involve use of hot mix plants, ready-mix concrete plants, construction activities generating fugitive emissions, etc.	UPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
13.0	**DAIRY FARM** (Dairy farms having less than 15 animals do not require separate classification.)															
13.1	Dairy Farm (having more than 500 animals)	30	25	25	**80**	0	20	0	**20**	0	0	**0**	82.0	Red		IPC-IV
13.2	Dairy Farm (having 101 to 500 animals)	30	25	20	**75**	0	20	0	**20**	0	0	**0**	77.5	Orange		IPC-IV
13.3	Dairy Farm (having 15 to 100 animals)	30	25	15	**70**	0	20	0	**20**	0	0	**0**	73.0	Orange		IPC-IV
14.0	Gold Assaying & Hallmarking Centres	0	0	0	**0**	35	0	0	**35**	25	10	**35**	46.4	Green	Lead oxide, nitrous fumes are generated during cupellation and parting acid treatment, respectively contributing to the air emissions.The hazardous waste is generated during fire assay in the form of spent cupels bearing lead, spent acid, scrubbed water etc.	IPC-V
15.0	Facility of handling, storage, and transportation of food grains in bulk	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25.0	Green		IPC-V
16.0	Flyash export or disposal operations	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25.0	Green		IPC-V
17.0	Oil and gas transportation pipeline (excluding pipeline covered under definition of isolated storage of hazardous chemicals, as per Manufacture, Storage, and Import of Hazardous Chemicals Rules, 1989)	0	0	0	**0**	25	0	10	**35**	0	0	**0**	35.0	Green		IPC-I
18.0	Gaushalas	20	0	15	**35**	0	20	0	**20**	0	0	**0**	41.5	Green		IPC-IV

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
19.0	Household bio-digesters/gobar-gas (cow-dung) plants based on biodegradable wastes, etc.	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20.0	White		IPC-V

ANNEXURE-IV

(LIST OF OTHERS/SPECIAL CATEGORY SECTORS CLASSIFIED UNDER RED, ORANGE, GREEN, AND WHITE CATEGORIES)

OTHERS/SPECIAL CATEGORY SECTORS

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
1.0	**HYDEL POWER PLANTS INCLUDING PUMPED STORAGE PROJECTS**															
1.1	Hydel power plants (Capacity > 50 MW)													Red	PI may be considered as 90.	IPC-II
1.2	Mini Hydel power plants (Capacity from more than 25 MVA and up to 50 MW)													Orange	PI may be considered as 67.5.	IPC-II
1.3	Mini Hydel power plants (Capacity ≤ 25 MW)													White	PI may be considered as 12.5.	IPC-II
2.0	**SAND / RIVERBED MATERIAL MINING FROM RIVERBED AND ITS FLOODPLAINS** (excluding manual excavation) (i. Sand / riverbed material mining from riverbed and its floodplains may cause ecological disturbances, erosion of riverbed, change in hydro-geological conditions & river ecosystem, etc. ii. Cluster mining means that the distance of mining lease area is less than 500 m from periphery of another lease area. iii. This categorization is made considering the ecological damages and not based on pollution potential/index. iv. Cluster mining as defined in 'Enforcement & Monitoring Guidelines for Sand Mining, 2020', issued by MoEF&CC.)															
2.1	Mining lease area more than 5 hectares or Mining lease area up to 5 hectares which is part of cluster mining													Red	PI may be considered as 90.	IPC-II
2.2	Standalone mining lease area up to five hectares in areas (not a part of any cluster mining)													Orange	PI may be considered as 67.5.	IPC-II

ANNEXURE-V

FORMAT FOR SUBMISSION OF INFORMATION BY SPCBS/PCCS REGARDING SECTORS CLASSIFIED UNDER WHITE CATEGORY

S. No.	Sector	Water Pollutant Score (PI_W)				Air Pollutant Score (PI_A)				Waste Pollutant Score (PI_H)			Pollution Index (PI)	Remarks (including brief description of process and pollution potential)
		W1	W2	W3	W	A1	A2	A3	A	H1	H2	H		

A tool for progressive environmental Management

CPCB

Central Pollution Control Board

"Parivesh Bhawan", East Arjun Nagar, Delhi - 110032

रजिस्ट्री सं० डी० एल०-33004/99

REGD. NO. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

असाधारण
EXTRAORDINARY
भाग II—खण्ड 3—उप-खण्ड (i)
PART II—Section 3—Sub-section (i)
प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

सं. 843] नई दिल्ली, शुक्रवार, अक्तूबर 13, 2017/आश्विन 21, 1939
No. 843] NEW DELHI, FRIDAY, OCTOBER 13, 2017/ASVINA 21, 1939

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 13 अक्तूबर, 2017

सा.का.नि. 1265(अ).—केन्द्रीय सरकार, पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 6 और धारा 25 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, पर्यावरण (संरक्षण) नियम, 1986 का और संशोधन करने के लिए निम्नलिखित नियम बनाती है, अर्थात् : —

1. **संक्षिप्त नाम और प्रारम्भ :—**(1) इन नियमों का संक्षिप्त नाम पर्यावरण (संरक्षण) संशोधन नियम, 2017 है ।

(2) ये राजपत्र में उनके प्रकाशन की तारीख को प्रवृत्त होंगे ।

2. पर्यावरण (संरक्षण) नियम, 1986 की अनुसूची-1 में, क्रम संख्यांक 104 और उससे सम्बन्धित प्रविष्टियों के पश्चात्, निम्नलिखित क्रम संख्यांक और प्रविष्टियां अन्तःस्थापित की जाएगी, अर्थात् :—

क्र. सं.	उद्योग	मानदंड	मानक	
1	2	3	4	
		बहिर्स्राव निस्सारण मानक (निपटान के सभी ढंगों को लागू)		
"105	मल उपचार संयंत्र (एसटीपी)		अवस्थान	सांद्र का निम्नलिखित से अधिक न होना
			(क)	(ख)
		पीएच	देश में कहीं भी	6.5-9.0
		जैव-रासायनिक ऑक्सीजन मांग (बीओडी)	महानगर* अरूणाचल प्रदेश, असम, मणिपुर, मेघालय, मिजोरम, नागालैण्ड, त्रिपुरा, सिक्किम, हिमाचल प्रदेश, उत्तराखंड, जम्मू-कश्मीर राज्यों और	

			अंदमान और निकोबार द्वीप, दादरा और नागर हवेली, दमण और दीव और लक्षद्वीप के सिवाय, सभी राज्यों की राजधानी।	
			ऊपर उल्लिखित से भिन्न क्षेत्र/प्रदेश	30
		कुल निलंबित ठोस पदार्थ (टीएसएस)	महानगर* अरूणाचल प्रदेश, असम, मणिपुर, मेघालय, मिजोरम, नागालैण्ड, त्रिपुरा, सिक्किम, हिमाचल प्रदेश, उत्तराखंड, जम्मू-कश्मीर राज्यों और अंदमान और निकोबार द्वीप, दादरा और नागर हवेली, दमण और दीव और लक्षद्वीप के सिवाय, सभी राज्यों की राजधानी।	<50
			ऊपर उल्लिखित से भिन्न क्षेत्र/प्रदेश	<100
		फेकल कोलीफॉर्म (एफसी) (अतिसंभाव्य संख्या प्रति 100 मिलीलिटर एमपीएन/100 मिलीलिटर	देश में कहीं भी	<1000

*मुम्बई, दिल्ली, कोलकाता, चेन्नई, बेंगलूरू, हैदराबाद, अहमदाबाद और पुणे महानगर हैं।

टिप्पण :

(i) पीएच और फैकल कौलीफॉर्म के सिवाय, मिलीग्राम/लिटर में सभी मूल्य।

(ii) ये, मानक जलाशयों में निस्सारण और भूमि निपटान/अनुप्रयोगों के लिए लागू होंगे।

(iii) फैकल कौलीफॉर्म के लिए मानक औद्योगिक प्रयोजनों के लिए उपचारित बहिर्स्राव के उपयोग के सम्बन्ध में लागू नहीं होंगे।

(iv) ये मानक 1 जून, 2019 को या उसके पश्चात् कमीशन किए जाने वाले सभी मल उपचार संयंत्रों (एसटीपी) को लागू होंगे और पुराने/विद्यमान मल उपचार संयंत्र (एसटीपी) राजपत्र में इस अधिसूचना के प्रकाशन की तारीख से पांच वर्ष की अवधि के भीतर इन मानकों को प्राप्त करेंगे।

(v) समुद्र में उपचारित बहिर्स्राव के निस्सारण के मामले में, इसे उचित समुद्री मुहाने के माध्यम से किया जाएगा और विद्यमान तट निस्सारण को समुद्री मुहानों में संपरिवर्तित किया जाएगा और उन मामलों में, जहां समुद्री मुहाना निस्सारण के बिन्दु पर 150 गुणा न्यूनतम आरम्भिक तनुकरण और निस्सारण बिन्दु से दूर 100 मीटर के किसी बिन्दु पर 1500 गुणा न्यूनतम तनुकरण प्रदान करता है, तब विद्यमान सन्नियम साधारण निस्सारण मानकों में विनिर्दिष्ट किए गए अनुसार लागू होंगे।

(vi) उपचारित बहिर्स्राव का पुनःउपयोग/पुनःचक्रण तथा उन मामलों में, जहां उपचारित बहिर्स्राव के भाग का पुनःउपयोग और पुनःचक्रण किया जाता है जिसमें मानवीय सम्पर्क की सम्भावना अन्तर्वलित है, ऊपर यथा विनिर्दिष्ट मानक लागू होंगे।

(vii) केन्द्रीय प्रदूषण नियंत्रण बोर्ड/राज्य प्रदूषण नियंत्रण बोर्ड/प्रदूषण नियंत्रण समितियां, पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 5 के अधीन स्थानीय परिवेश को ध्यान में रखते हुए, अधिक कठोर सन्नियम जारी कर सकेगा/कर सकेंगी।

[फा. सं. क्यू-15017/2/2008/-सीपीडब्ल्यू]

अरुण कुमार मेहता, अपर सचिव

टिप्पण : मूल नियम भारत के राजपत्र, असाधारण, भाग II, खंड 3, उप-खंड (i) में का.आ. सं. 844(अ), तारीख 19 नवम्बर, 1986 द्वारा प्रकाशित किए गए थे और तत्पश्चात् उनमें निम्नलिखित अधिसूचनाओं द्वारा संशोधन किए गए थे, अर्थात् :— का.आ. 433(अ), तारीख 18 अप्रैल, 1987; सा.का.नि. 176(अ), तारीख 2 अप्रैल, 1996; सा.का.नि. 97(अ), तारीख 18 फरवरी, 2009; सा.का.नि. 149(अ), तारीख 4 मार्च, 2009; सा.का.नि. 543(अ), तारीख 22 जुलाई, 2009; सा.का.नि. 739(अ), तारीख 9 सितम्बर, 2010; सा.का.नि. 809(अ), तारीख 4 अक्तूबर, 2010; सा.का.नि. 215(अ), तारीख 15 मार्च, 2011; सा.का.नि. 221(अ), तारीख 18 मार्च, 2011; सा.का.नि. 354(अ), तारीख 2 मई, 2011; सा.का.नि. 424(अ), तारीख 1 जून, 2011; सा.का.नि. 446(अ), तारीख 13 जून, 2011; सा.का.नि. 152(अ), तारीख 16 मार्च, 2012; सा.का.नि. 266(अ), तारीख 30 मार्च, 2012; सा.का.नि. 277(अ), तारीख 31 मार्च, 2012; सा.का.नि. 820(अ), तारीख 9 नवम्बर, 2012; सा.का.नि. 176(अ), तारीख 18 मार्च, 2013; सा.का.नि. 535(अ), तारीख 7 अगस्त, 2013; सा.का.नि. 771(अ), तारीख 11 दिसम्बर, 2013; सा.का.नि. 2(अ), तारीख 2 जनवरी, 2014; सा.का.नि. 229(अ), तारीख 28 मार्च, 2014; सा.का.नि. 232(अ), तारीख 31 मार्च, 2014; सा.का.नि. 325(अ), तारीख 7 मई, 2014; सा.का.नि. 612(अ), तारीख 25 अगस्त, 2014; सा.का.नि. 789(अ), तारीख 11 नवम्बर, 2014; का.आ. 3305(अ), तारीख 7 दिसम्बर, 2015; का.आ. 4(अ), तारीख 1 जनवरी, 2016; सा.का.नि. 35(अ), तारीख 14 जनवरी, 2016; सा.का.नि. 281(अ), तारीख 7 मार्च, 2016; सा.का.नि. 496(अ), तारीख 9 मई, 2016; सा.का.नि. 497(अ), तारीख 10 मई, 2016; सा.का.नि. 978(अ), तारीख 10 अक्तूबर, 2016; और अंतिम बार अधिसूचना संख्यांक सा.का.नि. 1016(अ), तारीख 28 अक्तूबर, 2016 द्वारा संशोधित किए गए थे ।

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 13th October, 2017

G.S.R. 1265(E).—In exercise of the powers conferred by sections 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely:-

1. **Short title and commencement.—**(1) These rules may be called the Environment (Protection) Amendment Rules, 2017.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Environment (Protection) Rules, 1986, in Schedule – I, after serial number 104 and the entries relating thereto, the following serial number and entries shall be inserted, namely:—

Sl. No.	Industry	Parameters	Standards	
1	2	3	4	
		Effluent discharge standards (applicable to all mode of disposal)		
"105	Sewage Treatment Plants (STPs)		Location	Concentration not to exceed
			(a)	(b)
		pH	Anywhere in the country	6.5-9.0
		Bio-Chemical Oxygen Demand (BOD)	Metro Cities*, all State Capitals except in the State of Arunachal Pradesh, Assam, Manipur, Meghalaya Mizoram, Nagaland, Tripura Sikkim, Himachal Pradesh, Uttarakhand, Jammu and Kashmir, and Union territory of	20

			Andaman and Nicobar Islands, Dadar and Nagar Haveli Daman and Diu and Lakshadweep	
			Areas/regions other than mentioned above	30
		Total Suspended Solids (TSS)	Metro Cities*, all State Capitals except in the State of Arunachal Pradesh, Assam, Manipur, Meghalaya Mizoram, Nagaland, Tripura Sikkim, Himachal Pradesh, Uttarakhand, Jammu and Kashmir and Union territory of Andaman and Nicobar Islands, Dadar and Nagar Haveli Daman and Diu and Lakshadweep	<50
			Areas/regions other than mentioned above	<100
		Fecal Coliform (FC) (Most Probable Number per 100 milliliter, MPN/100ml	Anywhere in the country	<1000

*Metro Cities are Mumbai, Delhi, Kolkata, Chennai, Bengaluru, Hyderabad, Ahmedabad and Pune.

Note :

(i) All values in mg/l except for pH and Fecal Coliform.

(ii) These standards shall be applicable for discharge into water bodies as well as for land disposal/applications.

(iii) The standards for Fecal Coliform shall not apply in respect of use of treated effluent for industrial purposes.

(iv) These Standards shall apply to all STPs to be commissioned on or after the 1st June, 2019 and the old/existing STPs shall achieve these standards within a period of five years from date of publication of this notification in the Official Gazette.

(v) In case of discharge of treated effluent into sea, it shall be through proper marine outfall and the existing shore discharge shall be converted to marine outfalls, and in cases where the marine outfall provides a minimum initial dilution of 150 times at the point of discharge and a minimum dilution of 1500 times at a point 100 meters away from discharge point, then, the existing norms shall apply as specified in the general discharge standards.

(vi) Reuse/Recycling of treated effluent shall be encouraged and in cases where part of the treated effluent is reused and recycled involving possibility of human contact, standards as specified above shall apply.

(vii) Central Pollution Control Board/State Pollution Control Boards/Pollution Control Committees may issue more stringent norms taking account to local condition under section 5 of the Environment (Protection) Act, 1986".

[F. No. Q-15017/2/2008-CPW]

ARUN KUMAR MEHTA, Addl. Secy.

Note : The principal rules were published in the Gazette of India, Extraordinary, Part II, Section 3,Sub-section (i) *vide* number S.O. 844 (E), dated the 19th November, 1986 and subsequently amended *vide* the following notifications, namely:—

S.O. 433 (E), dated the 18th April 1987; G.S.R. 176(E) dated the 2nd April, 1996; G.S.R. 97 (E), dated the 18th February, 2009; G.S.R. 149 (E), dated the 4th March , 2009; G.S.R. 543(E), dated the 22nd July,2009; G.S.R. 739 (E), dated the 9th September, 2010; G.S.R. 809(E), dated the 4th October, 2010, G.S.R.

215 (E), dated the 15th March, 2011; G.S.R. 221(E), dated the 18th March, 2011; G.S.R. 354 (E), dated the 2nd May, 2011; G.S.R. 424 (E), dated the 1st June, 2011; G.S.R. 446 (E), dated the 13th June, 2011; G.S.R. 152 (E), dated the 16th March, 2012; G.S.R. 266(E), dated the 30th March, 2012; and G.S.R. 277 (E), dated the 31st March, 2012; and G.S.R. 820(E), dated the 9th November, 2012; G.S.R. 176 (E), dated the 18th March, 2013; G.S.R. 535(E), dated the 7th August, 2013; G.S.R. 771(E), dated the 11th December, 2013; G.S.R. 2(E), dated the 2nd January, 2014; G.S.R. 229 (E), dated the 28th March, 2014; G.S.R. 232(E), dated the 31st March, 2014; G.S.R. 325(E), dated the 7th May, 2014; G.S.R. 612, (E), dated the 25th August 2014; G.S.R. 789(E), dated the 11th November 2014; S.O. 3305(E), dated the 7th December, 2015; S.O.4(E), dated the 1st January 2016; G.S.R. 35(E), dated the 14th January 2016; G.S.R. 281 (E), dated the 7th March, 2016; G.S.R. 496(E), dated the 9th May, 2016; G.S.R.497(E), dated the 10th May, 2016; G.S.R.978(E), dated the 10thOctober, 2016; and lastly amended vide notification G.S.R. 1016(E), dated the 28th October, 2016.

Uploaded by Dte. of Printing at Government of India Press, Ring Road, Mayapuri, New Delhi-110064
and Published by the Controller of Publications, Delhi-110054.

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार.
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA.

Most Urgent
Hon'ble NGT Matter

Speed Post/E-mail

CM-13011/134/2025-LAW-HO-CPCB-HO October 10, 2025

To

The Member Secretary
Punjab Pollution Control Board
Vatavaran Bhawan, Nabha Road
Patiala- 147001 (Punjab)

Subject: Hon'ble NGT (PB) in the matter of OA No. 435/2025 regarding News Item titled "Ludhiana: Dairy waste destroying STPs says Seechewal" appearing in The Hindustan Times dated 14.08.2025

Sir,

This has reference to the Hon'ble NGT (PB) order dated 01.09.2025 in OA No. 435/2025, related to severe impact of dairy waste on Sewage Treatment Plants (STPs) located at Haibowal, Tajpur and Balloke and illegal encroachments at Haibowal Dairy Complex in Ludhiana. A copy of the Hon'ble NGT (PB) order dated 01.09.2025 is enclosed for ready reference.

In this regard, it is to inform that CPCB had issued "Guidelines for Environmental Management of Dairy Farms and Gaushalas" in July, 2021 for its implementation and also sought the status of the same from time to time.

In view of the above, it is requested to examine the matter and provide the status and action taken report along with the status of implementation of the aforesaid Guidelines, latest by 24.10.2025, so that same is compiled and submitted to the Hon'ble NGT before the next date of hearing.

Yours faithfully

10/10/25

(Anamika Sagar)
Scientist-E &
Divisional Head IPC-IV

Most Urgent

CPCB

LiFE Lifestyle for Environment

238

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार.
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA.

Reminder

CM-13011/134/2025-LAW-HO-CPCB-HO

November 11, 2025

To

The Member Secretary
Punjab Pollution Control Board
Vatavaran Bhawan, Nabha Road
Patiala- 147001 (Punjab)

Subject: Hon'ble NGT (PB) OA No. 435/2025 regarding News Item titled "Ludhiana: Dairy waste destroying STPs says Seechewal" appearing in The Hindustan Times dated 14.08.2025– reg.

Sir,

This refers to CPCB letter dated 10.10.2025 regarding providing the status and action taken report in OA No. 435/2025 along with the status of implementation of the CPCB revised "Guidelines for Environmental Management of Dairy Farms and Gaushalas" issued in July, 2021 in the state Punjab. In this regard, the required information is awaited from your Punjab Pollution Control Board.

In view of above, it is once again requested to provide the status and action taken report along with the status of implementation of the aforesaid Guidelines, latest by 14.11.2025, so that same is compiled and submitted to the Hon'ble NGT before the next date of hearing i.e. 27.11.2025.

Yours faithfully

(Anamika Sagar)
Scientist-E &
Divisional Head IPC-IV

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली - 110032.
Parivesh Bhawan, East Arjun Nagar, Delhi - 110 032.
दूरभाष /Tel : 43102030, 22305792, वेबसाइट/Website: www.cpcb.nic.in

ਪੰਜਾਬ ਪ੍ਰਦੂਸ਼ਣ ਨਿਯੰਤਰਣ ਬੋਰਡ

PUNJAB POLLUTION CONTROL BOARD

LiFE Lifestyle for Environment

Regional Office-III, Savitri Complex, Dholewal Chowk, Ludhiana

PPCB/RO-III/No. 3671 **Dated:** 21/11/25

To

Smt. Anamika Sagar,
Scientist-E & Divisional Head IPC-IV,
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi – 110032.

Sub: **Hon'ble NGT (PB) in the matter of OA no. 435/2025 regarding News item titled "Ludhiana: Dairy waste destroying STPs says Seechewal" appearing in The Hindustan Times dated 14.08.2025.**

Ref: **CPCB Letter no. CM-13011/134/2025-LAW-HO-CPCB-HO/6181 dated 10.10.2025.**

Please find enclosed herewith the reply/status report filed by the Board in the matter of OA no. 435/2025 regarding News item titled "Ludhiana: Dairy waste destroying STPs says Seechewal" appearing in The Hindustan Times dated 14.08.2025 before the Hon'ble NGT. The case is listed on 27.11.2025.

This is for your kind information and further necessary action, please.

DA/- As above.

O/C **Environmental Engineer**

Endst. 3672 **Dated** 21/11/25

A copy of above is forwarded to the Senior Environmental Engineer, Punjab Pollution Control Board, Zonal Office-2, Ludhiana for information, please.

O/C **Environmental Engineer**