BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL AT PRINCIPAL BENCH AT NEW DELHI

O.A No. 1326 of 2024

IN THE MATTER OF:

PUBLIC ACTION COMMITTEE & ORS …APPLICANTS

VERSUS

UNION OF INDIA & ORS …RESPONDENTS

Written Submission-cum- Rejoinder by Applicants

Place: Ludhiana

Date: 08.04.2025

(Applicant in person)

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WRITTEN SUBMISSION- CUM- REJOINDER BY THE APPLICANT

The Applicants humbly submits as under:

No Liquid discharge in Budda Nallah as per EC given to Respondent Associations

1. The Respondent Dying Association ("Respondent Association") in pursuance of Environment Impact Assessment Notification, 2006 applied for Environmental Clearance. It is pertinent to mention that the proposal also included the construction of a Common Effluent Treatment Plant (CETP) on a plot area of 32 acres to cater for the needs of 241 dying units in 5 industrial clusters. The MoEF & CC granted Environmental Clearence to Respondent Association stating that, "the project is located within declared industrial area. As Ludhiana has been declared as one of the critically polluted areas, hence the General conditions apply to the project since it is within 10 km from Ludhiana."

2. It is pertinent to mention that in the Environmental Clearance dated 03.05.2013, the MoEF & CC (See page 38 of **O.A No. 1326 of 2024)** imposed strict conditions including, No discharge into Budha Nallah. The relevant extract of the condition is produced herewith:

5 (ii) There shall be no discharge into Buddha Nallah

3. After taking the EC of the said project, the Respondent Association delayed the construction of CETP and continued discharging untreated water into Budha Nallah, even when the Environmental Clearance dated 03.05.2013 mandates no discharge whether treated or untreated into Budha Nallah.

High Court Directed no discharge in the Buddha Nallah

4. The Hon'ble Punjab and Haryana High Court passed detailed orders on 18th July 2007 denying the electroplating and textile/dyeing units to discharge effluents into the Buddha Nallah. The High Court had called upon the Chief secretary to file an affidavit setting out a minimum timeframe dealing with all the points and recommendations contained in minutes of the P. Ram Committee, one such recommendation is reproduced as under:

> *Similarly, all textile dyeing units discharging into Budha Nullah must either re-circulate their effluents or stop discharging the effluents into Budha Nullah by 31.3.2007 failing which they should be ordered to be closed."*

However, the Hon'ble High Court in its orders dated 10th May 2007 noted that no effective steps have been taken for removal of encroachments as well as for treatment of effluent by the textile, dyeing and electroplating units, the Hon'ble High Court passed detailed orders on 18th July 2007 ensuring the electroplating and textile/dyeing industry achieves Zero Liquid Discharge by August 31, 2008 as proposed in the last status report submitted to the Court.

The aforementioned observation is mentioned at page-15 of the order dated 14.11.2011 in CWP No. 7036 of 2005 and connected matter which is annexed as **Annexure-A.**

Consent to Establish & Grant-in-Aid taken on the basis of EC of 2013 by 40MLD CETP

5. That from the Annexure R-4/5 (see running Page no. 196 of this O.A.), the respondent project proponent had produced one document No. 7726 dated 19-11-2015 sent to the MoEF&CC by PPCB pertaining to consent to establish as well as recommending the project proponent to avail Grant-in-Aid for installation of 40MLD CETP at Tajpur Road dated 20-05-2015 granted to the 40MLD CETP. From the contents of documents, it is clear that the CTE as well as Grant has been given based on EC of 2013 given to 117 MLD. Therefore, the EC condition of 2013 is binding on project proponent.

40MLD & 50MLD CETP construction started in 2015

6. That the Respondent Association/Project Proponents of 40MLD & 50 MLD have claimed that the construction of CETP started in the year 2019. However the HISTORICAL IMAGERY option of **Google Earth Pro clearly** shows a fairly advanced level of construction work completed on the site of CETP in October 2015 i.e. after getting the consent to establish from PPCB. Thus the Respondent Association have tried to mislead this Hon'ble Tribunal by providing incorrect information just to justify their wrong intentions of projecting the CETPs as fresh projects.
(The copy of screenshot taken from Google Earth Pro as available for date 18-12-2015 depicting construction of around 20-30% of CETP structures is produced herewith as **Annexure-B**).

CPCB circular of 2016 puts dyeing industries under the Red Category: Industries generating extreme pollution

7. As per the CPCB Revised Classification of Industrial Sectors under the activities of project proponent come under the list of Red Category **(Pollution Index of 75)** as per circular No. B-29012/ESS(CPA) 2015-16/ dated March 07, 2016 issued by CPCB, Ministry of Environment Forest and Climate Change. **Further,**

in this list, it is specifically mentioned that in this sector (Dyeing Industries), all sorts of pollutions are generated. The relevant extracts of the abovementioned circular is as under:

Based on the score of the Pollution Index, following categorization be made :

- *Type of industries, if scores 60 and above be categorized as Red*
- *Type of industries, if scores from 30 to 59 be categorized as Orange*
- *Type of industries, if scores from 15 to 29 be categorized as Green*
- *Type of industries, if less than 15 be categorized as White or non-polluting industry.*

Table G-2 Final List of Red Category of Industrial Sectors

40.	Yarn/Textile Processing, involving any effluent/emission generating processes including bleacing dyeing, printing and colouring	30	10		40	15	-	15	20	75	R-R	In this sector all sorts of pollution are generated

The True copy of CPCP circular dated 07.03.2016 is annexed herewith as **Annexure-C.**

8. That vide Letter no. CP-18/1/2023-IPC-VI-HO-CPCB-HO dated 12-02-2025, the CPCB has issued fresh directions to all the SPCB/PCC regarding harmonization of classification of Industrial Sectors under Red, Orange, Green, White & Blue Categories. **The Textile Dyeing Industries have once again listed in RED CATEGORY with Pollution Index as 95.5**. Further, the CETPs of Industrial Effluents have also been listed in RED CATEGORY. The relevant extracts of the Letter dated 12.02.2025 is as under:

ANNEXURE – I

(List of Industrial Sectors Classified Under Red, Orange, Green and White Categories)

S.No	Sector	…	…	Pollution Index	Category	…
178.1	Yarn / Textile processing involving any effluent/emission generating processes including bleaching, dyeing, printing, and colouring, including the garment and apparel manufacturing industry			95.5	Red	

9. The prior Environment Clearance under EIA Notification 2006 (along with Consent to Establish and Consent to Operate under Water Act) for Member Units is mandatory for all three CETPs. Therefore, the EC condition is binding on Textile Dyeing Units as the process of dyeing comes under Dye & Dye Intermediates, synthetic organic chemical activity with significant environmental impact. It is pertinent to humbly submit here that the MoEF&CC vide orders dated 20-09-2021 issued directions under section 5 of the EP Act 1986 to not grant or renew unless Environment Clearance (statutory requirement for project/activities covered in the schedule of the EIA Notification 2006), as applicable has been obtained. As a result, the **Notification no. S.O. 6250(E) dated 19.12.2018 is not applicable for the Polluting Project Proponent which includes dyeing industries and thus, the claim of applicability of this notification by Project Proponent may kindly be rejected and set aside.**

The true copy of orders dated 20th September 2021 issued by MoEF&CC is annexed herewith as Annexure-D.

Both 40MLD and 50MLD CETPs along with their members, are habitual violators

10. In the year 2023, the PPCB imposed Environmental Compensation of Rs 75 Lakhs on the SPV of 40 MLD Focal Point Module for violations made by the SPV for discharging untreated industrial waste into Budha Nallah. The member

units of 40MLD CETP like **Ramal Dyeing Industries, two & Seven unknown Dyeing Industries of Focal Point at different time intervals has been caught red handed discharging their untreated waste into the Sewerage line.** It is pertinent to submit that the PPCB has revoked the Consent to operate for all three CETPs but they are still operating illegally as on date and discharging the effluent into Budha Dariya, and therefore all such activities are going on in collusion with PPCB. **Overall, the CETPs & members of CETPs are habitual offenders.**

11. In CWP No.4472 of 2009 titled as **'Tajpur Road Dyeing and Industries Association v. Union of India and others'** (connected matter with CWP 7036 of 2005), the Project Proponent i.e. Dyeing Association had prayed that they should be allowed to discharge industrial wastes after treatment into Budha Nullah as water was fit to be discharged into the drains and watercourse, was denied on the grounds, wholly untenable. It was urged that the reasoning advanced by the officers that the experience of 40/50 years shows that the treatment plants were not running regularly and there was no guarantee that the system would run in a foolproof manner should be rejected. (Please see Para at Page No. 6 of Annexure-A). Overall, the project proponent have been committing crime since last many decades resulting in health hazard for Citizens of India.

CPCB in 2024 directed the PPCB to ensure no discharge into Budha Nallah

12. CPCB u/s 18(1) (b) of the Water Act of 1974 issued directions dated 12.08.2024 (See page 49 Onwards, Annexure P-5 of O.A No. 1326 of 2024) to the PPCB to ensure that CETP is operating appropriately to meet

the prescribed discharged standards and complying with the Environment Clearance dated 03.05.2013 and further directed to PPCB to ensure that there shall be no discharge of treated effluent into Buddha Nallah. The relevant extract of the CPCB is produced herewith:

> "AND, NOW, THEREFORE, in exercise of powers conferred under section 18 (1) (b) of the Water (Prevention & Control of Pollution) Act, 1974 and Air (Prevention and control of pollution) Act, 1981, Punjab Pollution Control Board (PPCB) is hereby directed to take appropriate action including imposing environmental compensation and to ensure that CETPs are operating ensuring.

a. Operation/augmentation of the treatment system, appropriately, so as to meet the prescribed discharge standards and to comply with the disposal condition mentioned in the Environmental clearance by MoEF & CC dated 03.05.2013 and 08.12.2014 in the aforesaid 40 MLD, 50 MLD and 15 MLD CETPs. Further, to stop discharging of treated effluent into Buddha Nallah from the 50 MLD CETP, 40 MLD CETP and 15 MLD CETPS."

PPCB in 2024 directed the Respondent Association to comply with 2013 EC conditions and stop discharge into Budha Nallah

13. The PPCB conducted the inspection and found serious violations on the part of the Respondent Association and therefore issued directions dated 26.09.2024 (See Page 57 onwards at Annexure P-6 in O.A No. 1326 of 2024**)** u/s 33-A of the Water Act of 1974 to the Respondent Association to meet the prescribed discharged standards and to comply with the disposal condition mentioned in the environmental clearance conditions mentioned by MoEF&CC dated 03-05-2013 in the aforesaid 40 MLD CETP and to stop discharging treated effluent into Budha Nallah or any other surface waterbody. The relevant extract of PPCB order is produced herewith:

> " During hearing, it was observed by the Competent Authority that the SPV was earlier granted environmental clearance by the MoEF &

CC on 03.05.2013 with a specific condition that there shall be no discharge into the Budha Nallah…"

"After detailed deliberations and hearing the representatives of SPV, officers of the Board and taking into considerations various factors including the seriousness of the issue, the Chairman of the Board observed that the objective to restrain the discharge of effluent into Budha Nallah cannot be achieved except with the issuance of directions. It is a fit case to invoke the provisions of section 33-A of the Water (Prevention and Control of Pollution) Act, 1974 for issuance of suitable directions to the SPV operating the CETP of 40 MLD capacity:

2. The SPV shall immediately stop the discharge of effluent from the CETP of 40 MLD capacity into Buddha Nallah or any other surface water body.

Ground that EC is not applicable to Respondent Association is erroneous

No such ground taken for 13 years, No such ground even taken in an Appeal

Took this ground in counter to deceive this Hon'ble Tribunal

14. It was for the very first time, in their rejoinder in Appeal No. 41/2024, the Respondent Association (as Appellant in that case) erroneously submitted that the requirement for obtaining Environmental Clearance (EC) for establishing a Common Effluent Treatment Plant (CETP) had already been dispensed with by the amendment of December 2018 to the EIA Notification of September 2006. It is pertinent to humbly submit here that the Applicants of present O.A. have also filed I.A. No. 537 of 2024 in the impugned Appeal No. 41 of 2024 and under consideration by this Hon'ble Tribunal.

15. The contents of the Notification which is being intentionally misinterpreted is produced as under:

> **7 (h) "***General Condition shall apply"*
>
> *"Note:- Environmental Clearance for CETPS set up for or within projects or activities which do not require Environmental Clearance are exempted and if any of the existing or proposed member units of the said CETP produce or proposes to produce any product requiring Environmental Clearance, then the CETP shall need Environmental Clearance".*

16. The Respondent Association deliberately, in order to mislead this Hon'ble Tribunal, has suppressed schedule 5 (f) of the EIA, 2006, which categorically mandates the requirement of Environmental Clearance (EC) for projects and activities of dying industries. The relevant part of the schedule 5(f) is produced herewith:

(1)	(2)	(3)	(4)	(5)
5(f)	Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	Located outside the notified industrial area/ estate	Located in a notified industrial area/ estate	"General as well as specific condition shall apply."

17. Therefore, schedule 7 (h) is required to be read with schedule 5 (f), which clearly shows that dying industries require EC. Furthermore this new ground of EC not applicable to Respondent Association is taken only to deceive this Hon'ble Tribunal as the Respondent Association never disputed that it had taken Environment Clearance 03.05.2013, furthermore, it had never taken this ground even in its Appeal against PPCB orders. Therefore, this ground taken by Respondent Association is baseless and may be ignored.

18. It is also important to mention that, the Respondent Association has deliberately provided incomplete information in their Appeal No. 41 of 2024 regarding the notification dated 19-12-2018. The General Conditions of EIA Notification 2006 is produced as under for consideration of this Hon'ble Tribunal:

> ***"General Condition (GC):***
>
> ***Any project or activity specified in Category 'B' will be treated as Category A, if located in whole or in part within 10*** *km* ***from the boundary of:*** *(i) Protected Areas notified under the Wild Life (Protection) Act, 1972,* ***(ii) Critically Polluted areas as identified by the Central Pollution Control Board from time to time,*** *(iii) Eco-sensitive areas as notified under section 3 of the Environment (Protection) Act, 1986, such as, Mahabaleshwar Panchgani,*

Matheran, Pachmarhi, Dahanu, Doon Valley, and (iv) inter-State boundaries and international boundaries:

19. It is pertinent to submit here that all three Polluting Project Proponents i.e. CETPs of 40MLD, 50MLD & 15MLD are located within Municipal Limits of Ludhiana and Ludhiana has been declared Critically Polluted City by CPCB as well as PPCB from time to time & information regarding same is also available on website of CPCB. Further each and every member unit of respective CETP is also located within the MC Limits of Ludhiana, which is a critically polluted area. Thus, the activities of member units i.e. Dyeing Industries as well as CETPs of all three Polluting Project Proponent comes under Category A, therefore the requirement of EC for such project/ activities is indispensable. The copy of Action Plan of 2020 depicting Ludhiana as Critically Polluted Area is produced herewith as **Annexure-E.** The Copy of EIA Notification of 2006 is produced herewith as **Annexure-F.**

20. That save and except what has been specifically admitted in this rejoinder, all other statements in the counter affidavit dated 18-02-2013 by Respondent Association shall be deemed to have been denied. The Applicant has also submitted important facts in additional submission dated 17-02-2025 (running Page No. 78-164) with facts against the claim/statement of project proponent in the counter. The Applicants do not admit any statements, contentions, or Submissions simply if the Applicant do not deal with them and deny them para-wise. It is further submitted that the Applicants are not filing the para-wise rejoinder to the

counter affidavit of the Respondent Association however, the Applicants seeks leave of this Hon'ble Tribunal to file the same as and when required by this Hon'ble Tribunal.

Dated: 08-04-2025
Place: Ludhiana

Er. Kapil Dev
(Applicant No. 2)

Nirbhai Singh vs State Of Punjab on 14 November, 2011

Author: Kanwaljit Singh Ahluwalia

Bench: Ranjan Gogoi, Kanwaljit Singh Ahluwalia

IN THE HIGH COURT OF PUNJAB AND HARYANA
AT CHANDIGARH

1. Civil Writ Petition No.7036 of 2005
Nirbhai Singh
... Petitioner
Versus
State of Punjab
... Respondent

2. Civil Writ Petition No.13881 of 2006
Court on its own motion
... Petitioner
Versus
State of Punjab
... Respondent

3. Civil Writ Petition No.14744 of 2007
Sant Singh Namberdar and others
... Petitioners
Versus
State of Punjab and others
... Respondents

4. Civil Writ Petition No.4472 of 2009
Tajpur Road Dyeing and Industries Association
... Petitioner
Versus
Union of India and others
... Respondents

5. Civil Writ Petition No.8970 of 2009
Dyeing Effluent Treatment Society
... Petitioner
Versus
Union of India and others
... Respondents

Date of decision: 14th November, 2011

CORAM: HON'BLE MR. JUSTICE RANJAN GOGOI, CHIEF JUSTICE
HON'BLE MR. JUSTICE KANWALJIT SINGH AHLUWALIA

Present: Mr. Sumeet Mahajan, Senior Advocate with
Mr. Sham Lal Bhalla, Advocate.

Mr. Ashok Aggarwal, Senior Advocate with
Mr. Amit Aggarwal, Advocate.

Mr. Sanjeev Sharma, Senior Advocate with
Mr. Shekhar Verma, Advocate.
Mr. Harsh Aggarwal, Advocate.
Mr. G.S. Brar, Advocate.
Mr. G.S. Lalli, Advocate.
Ms. Madhu Dayal, Additional Advocate General, Punjab.
Mr. A.R. Takkar, Advocate
for Punjab Pollution Control Board.

Mr. T.P. Singh, Advocate
(was present at the time of arguments, now deceased)
for Central Pollution Control Board.

Mr. Vijay Kaushal, Advocate
for Punjab Water Supply & Sewerage Board.

Mr. Sanjay Joshi, Advocate
for Ministry of Forests and Environment - UOI.

Mr. Ashwani Bakshi, Advocate
for Tajpur Unit.

Mr. Ashish Verma, Advocate
for Punjab Small Industries and Export Corporation Ltd.

1. Whether Reporters of Local Newspapers may be allowed to see the judgment?
2. Whether to be referred to the Reporters or not?
3. Whether the judgment should be reported in the Digest?

KANWALJIT SINGH AHLUWALIA, J.

Ludhiana is the most affluent, prosperous and largest city of Punjab. The city stands on the old bank of river Sutlej, which is situated on the northern side of Ludhiana city, approximately 15 kilometers away from the City Center. Ludhiana is also known as Manchester of India, being one of the most industrialized towns of northern India. The industries housed in Ludhiana are engaged in manufacture of woolen garments, cotton and synthetic yarns. As per a survey, 95 percent of the Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 3 14744 of 2007; 4472 of 2009 and 8970 of 2009 country's woolen industry is located in Ludhiana. 30 percent of the country's cotton industry is also

based at Ludhiana. 1/3rd of the total power available in the State of Punjab is consumed in Ludhiana only. The steel based industry situated in this city consists of cycle and auto parts and foundries. Besides this, rubber based industry manufactures tyres and tubes. As much as 70 percent of the country's cycles and cycle parts are also manufactured at Ludhiana.

Industrialization and development had their fallouts too. What ails Ludhiana is suffered by Budha Nullah.

Budha Nullah is a seasonal water-stream and passes through the highly populated Ludhiana district. As per the survey carried by the Department of Science, Technology and Environment; Budha Nullah originates from village Kumbh Kalan and its confluence point with the river Sutlej is near village Valipur. Budha Nullah has a sinuous course and the width of the channel varies from place to place. It is a flooding stream during the rainy season.

Five writ petitions, out of which two have arisen out of a suo- motu notice taken by this Court, have been on the board of this Court for long. They all concern Ludhiana and Budha Nullah. The issues raised in these writ petitions essentially are the concerns of all well-meaning citizens, i.e. how to make Ludhiana and Budha Nullah pollution-free and ensure public hygiene so that the contaminated water passing through Budha Nullah, which ultimately merges in the river Sutlej, does not become a source of health hazard and cause epidemic. During the course of various hearings, CWP No.7036 of 2005 titled as 'Nirbhai Singh v. State of Punjab' became the lead case to evolve a comprehensive plan and strategy to make Ludhiana and Budha Nullah Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 4 14744 of 2007; 4472 of 2009 and 8970 of 2009 free of the ill-effects of rapid, haphazard and unplanned industrial growth.

Industrialization and technological progress had caused a negative impact on the environment in terms of pollution and degradation, and had stressed the environmental system due to accumulation of the stock of wastes. Pollution of water, air and atmosphere are the bye-products of economic development, particularly industrialization and urbanization. It is an admitted fact that air and water pollution in the developing countries cause heavy toll of human life through ill-health and premature mortality. It is the poverty struck population, i.e. lowest strata of the society, which suffers most from the onslaught on the nature. Therefore, the first writ petition viz. CWP No.7036 of 2005 titled as 'Nirbhai Singh v. State of Punjab' in which suo-motu notice was taken, originated out of a complaint received by the Chief Justice of this Court from a prisoner of Central Jail, Ludhiana. Nirbhai Singh was undergoing rigorous imprisonment for ten years. In his communication addressed to the Chief Justice of this Court he stated that 10/12 chemical factories situated in front of the jail emit black smoke after 5.00 p.m. till the early morning; due to which inmates of the jail suffer from chest/cough ailments throughout the night and itching in their eyes. A grievance was made that the smoke emitted from the chimneys of the factories engulfs the barracks of the jail and makes the prisoners feel as they are confined in gas chambers. It was stated that the prisoners are reminded of the treatment meted to the Jews by Hitler in the gas chambers. A clarion call was given to redress the grievance of the petitioner. This communication was received in the Chief Justice Secretariat on 9th November, 2004. An Administrative Judge of this Court Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 5 14744 of 2007; 4472 of 2009 and 8970 of 2009 directed the

District and Sessions Judge, Ludhiana to submit his report after visiting the Central Jail, Ludhiana. In its report, the District and Sessions Judge, Ludhiana submitted that the dyeing mills are situated along Budha Nullah in front of the jail compound and these dyeing mills were constructed in the year 1991. The Deputy Commissioner, Ludhiana, who was requested to initiate necessary action, shifted the responsibility to the Punjab Pollution Control Board (hereinafter referred to as, 'PPCB'), saying that the dyeing units have received their licences from the PPCB. The PPCB and the 24 dyeing mills passed the blame upon Municipal Corporation, Ludhiana stating that the entire city's waste/garbage is thrown on the banks of Budha Nullah near the factories and when the same is set on fire smoke emanates out of it which creates pollution in the jail. Since nobody was ready to own-up the responsibility, the Administrative Judge recommended that the communication received from the convict requires judicial intervention.

Therefore, the Court suo-motu took cognizance and issued notice on 6th May, 2005.

The PPCB in its reply stated that the smoke emitted by nine industries was within the permissible limits prescribed by the Board whereas, in case of two industries the concentration of particulate matter was found to be beyond the said limits. It was further stated that every day 400 tons of municipal solid waste from various parts of the city were brought to the dumping site at Tajpur road and the dumping site is near the industries and at a distance of 500 meters from the Central Jail, Ludhiana. It was further stated that a number of trucks carrying municipal solid waste of Ludhiana city move on the road passing in front of the Central Jail, Ludhiana. The trucks carrying the municipal solid waste are also not in a good condition and a lot of smoke and soot is emitted from Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 6 14744 of 2007; 4472 of 2009 and 8970 of 2009 their exhaust pipes. After the above said reply was filed by the PPCB, a notice was issued to the Municipal Corporation, Ludhiana.

The Joint Commissioner, Ludhiana in its affidavit dated 27th July, 2005 stated that the Municipal Corporation, Ludhiana has a dumping ground in the area of village Jamalpur, which is spread over an area of approximately 16 acres. The solid waste generated within the city is duly lifted and transported in covered-body trucks to the dumping ground and sometimes incidents of fire had taken place, however, the fire was immediately doused off. In the affidavit, it was further stated that Municipal Corporation, Ludhiana had already purchased approximately 21 acres of land in the area of Noorpur Bet on payment of Rs.1.25 crores for setting up of a Solid Waste Treatment Plant, for which a memorandum of understanding has already been entered into with a Canada based company.

Thereafter, again the District and Sessions Judge, Ludhiana was asked to submit a status report. On 23rd August, 2005 in its status report, the District and Sessions Judge stated that 28 dyeing units are operating in front of the Central Jail and furthermore, migrant labourers and rag-pickers set the garbage on fire and as such foul smell is emitted causing discomfort to the prisoners.

When the Court was in the midst of redressing the grievance of the prisoners, a national daily newspaper (The Tribune) published a series of articles under the heading of 'Killer Drains of Punjab'. One of the articles in its edition published on August 28, 2006 was under the heading of

'Killer Drain I - Budha Nullah gets more septic - 3 lakh kilolitre sewage discharge daily'. The article stated that from the banks of Budha Nullah at Badi Haibowal, one will witness something utterly grotesque and due to low water and shockingly high untreated domestic Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 7 14744 of 2007; 4472 of 2009 and 8970 of 2009 and industrial sewage discharge, the Nullah has ceased to flow. It raised the concern that for lack of water for dilution of waste and unabated discharge of raw sullage into the Nullah, jet black stinking water is carried by the Nullah and there is no semblance of life. It was observed that one will find animals stuck in the sludge and chunks of freshly scraped animals' flesh, mainly of pigs, whose meat is openly sold from the outlets thriving on the Nullah's banks. It was further reported that daily industrial effluent discharge of 60,000 cubic metres comprising poisonous heavy metals like arsenic, chemicals like cyanide, harmful pesticides and toxic organic compounds are thrown in the Nullah. The stench emitted from the Nullah is lethal. People have to endure this as they have no other choice. The article further quoted a Professor from the PGI's Community Medicine Department, who stated that if remedial measures are not taken, there can be severe outbreak of diseases, some of which have high mortality. The correspondent stated that Budha Nullah, once the lifeline of Ludhiana, is victim of official apathy, as 95 percent of the total waste is discharged by the Municipal Corporation in the Nullah. Furthermore, 12 Municipal Committees throw waste into the river Sutlej and Ludhiana Municipal Corporation was the maximum contributor of pollution load to the river through Budha Nullah. It was further mentioned that Ludhiana, a thriving, affluent and prosperous town; had no Solid Waste Material Treatment Plant. Disposal of the waste into Budha Nullah was conceived as a temporary solution and continuous discharge of pollution into Budha Nullah had contaminated Ludhiana city's drinking water sources. Furthermore, the water from the Nullah was used for drinking purposes and was a cause of massive outbreak of gastroenteritis. The second part of the article was carried by Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 8 14744 of 2007; 4472 of 2009 and 8970 of 2009 The Tribune in its edition dated 29th August, 2006 and the third part in edition dated 30th August, 2006. In these articles, an incident of a resident of Ludhiana city was reported, who was carrying toxic lead in her bloodstream for years. According to the Gastroenterologist of Repute, increased number of patients with lead poisoning caused by the industrial pollution of ground water were arriving at the hospitals of Ludhiana. It was stated that in the residential areas, which are situated near Budha Nullah, the lead poisoning has been reported in high numbers as electroplating and battery manufacturing units were contributing to the pollution load.

A Division Bench of this Court took suo-motu note of the news items published in The Tribune on 28th August, 2006; 29th August, 2006 and 30th August, 2006, and observed that the most prosperous town of the State is on the verge of a huge human tragedy, and thus, intervention of the Court was called for to take immediate and radical remedial measures. The suo-motu notice taken on the articles published in The Tribune was assigned CWP No.13881 of 2006 and was titled as 'Court on its own motion v. State of Punjab'.

During the pendency of these two writ petitions, i.e. (1) CWP No.7036 of 2005 titled as 'Nirbhai Singh v. State of Punjab' and (2) CWP No.13881 of 2006 titled as 'Court on its own motion v. State of Punjab', on intervention of the Court various steps were taken to clean the Budha Nullah of pollutants. Then another writ petition viz. CWP No.14744 of 2007 titled as 'Sant Singh Namberdar

and others v. State of Punjab and others' was filed by various residents of village Beniwala stating that this Court should take immediate steps for construction of a drain to Budha Nullah, as due to the stoppage of drain, which carried the Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 9 14744 of 2007; 4472 of 2009 and 8970 of 2009 waste through the village pond to Budha Nullah, there is accumulation of sewer water and rainy water in the village due to overflowing of pond of the village. It was urged that it is causing health hazard. The grievance of the petitioners was a result of the action taken by the authorities to close all the drains, which from various villages carried sewer, sludge and pollutants to the Budha Nullah.

When demand of the villagers was being dealt with, industry also came forward raising its own demands by instituting a writ petition viz. CWP No.4472 of 2009 titled as 'Tajpur Road Dyeing and Industries Association v. Union of India and others'. In this writ petition, a prayer was made that the CPCB be directed to release the subsidy to the extent of 25 percent of the cost of setting up of Common Effluent Treatment Plant (hereinafter referred to as, 'CETP') under the 'Centrally Sponsored Common Effluent Treatment Plant Scheme'. One of the grievances made was that the request of the Dyeing Association that they should be allowed to discharge industrial wastes after treatment into Budha Nullah as water was fit to be discharged into the drains and watercourse, was denied on the grounds, wholly untenable. It was urged that the reasoning advanced by the officers that the experience of 40/50 years shows that the treatment plants were not running regularly and there was no guarantee that the system would run in a foolproof manner should be rejected. In this writ petition, essentially it was prayed that the industry be also allowed to co-exist and the directions issued by the PPCB on various dates under Section 33-A of the Water (Prevention and Control of Pollution) Act, 1974 (hereinafter referred to as, 'the 1974 Act') be kept in abeyance.

Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 10 14744 of 2007; 4472 of 2009 and 8970 of 2009 Another writ petition, viz. CWP No.8970 of 2009 titled as 'Dyeing Effluent Treatment Society v. Union of India and others' was filed by the Dyeing Effluent Treatment Society making a similar prayer as was made in CWP No.4472 of 2009 titled as 'Tajpur Road Dyeing and Industries Association v. Union of India and others'.

Since the issues raised in all these five writ petitions overlap, it will be necessary for us to give the gist of various studies carried out under the aegis of this Court, status reports submitted by various agencies, recommendations of various committees appointed and the detailed orders passed in the last five years. This Court has monitored/goaded the all concerned to take active steps for eradication of various ills, facilitated clearance of bottlenecks, cracked whip for stoppage of all sources which polluted and caused contamination in the water carried by Budha Nullah to the river Sutlej. As the Court proceeded with the problem, which was gigantic in nature, it surfaced that till the city life of Ludhiana improves Budha Nullah cannot be saved.

This Court on 19th December, 2006 considered the status report submitted by PPCB on 16th December, 2005 and also the status report submitted by the Executive Engineer of PPCB on 19th December, 2006. After considering the reports, this Court observed that the problem of pollution in Ludhiana city is multi dimensional and the same has occurred on account of unplanned industrialization of the said town. The Court also noticed that no proper sewerage treatment plant

has come into existence and the effluents are discharged in the sewer and the same inclusive of industrial waste is being discharged in Budha Nullah, as no solid waste treatment plant commensurate to the waste generated by the city has been set up. After appraisal of the status reports, the Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 11 14744 of 2007; 4472 of 2009 and 8970 of 2009 Court was aghast to note that even though four biomedical treatment facilities were established they were not sufficient to cope up with the biomedical waste which originated daily. The Court called upon all concerned to take corrective measures to deal with the waste and effluents in a comprehensive manner. It also called upon the PPCB, the Municipal Corporation and the Deputy Commissioner, Ludhiana to act in cohesion and draw out a plan taking totality of circumstances so that effluents and the waste do not pollute the air, water and cause soil erosion. All the above said three authorities were directed to submit their reports to the District and Sessions Judge, Ludhiana who was called upon to verify the reports with the aid of any agency having necessary expertise.

It will be pertinent to note that the Secretary to Government of Punjab, Department of Science, Technology and Environment had filed an affidavit on behalf of the Chief Secretary, Punjab, in which it was stated that Budha Nullah for the past many decades carries the domestic effluent of Municipal Corporation, Ludhiana and treated/partially treated effluent of various industries located at Ludhiana. In this affidavit it was stated that as per the study conducted by PPCB in August 2006, Budha Nullah carried the pollution load in terms of organic matter (biochemical oxygen demand) as 90 ton per day and total heavy metals as 4.5 ton per day respectively, and the total discharge of sewage effluent by the Municipal Corporation, Ludhiana in Budha Nullah was about 500 million litres per day (MLD). Furthermore, the industrial effluent discharged directly or indirectly through sewer into the Budha Nullah was about 60 MLD and the majority of discharge in the Budha Nullah was of sewage effluent without any treatment. It was informed to the Court that as a Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 12 14744 of 2007; 4472 of 2009 and 8970 of 2009 remedial measure, Punjab Water Supply and Sewerage Board (hereinafter referred to as, 'PWSSB') was in the progress of installing three Sewage Treatment Plants (hereinafter referred to as, 'STP') at village Bhattian, Balloke and Jamalpur, and these STPs will ultimately be treating 311 MLD of sewage. It was assured to the Court that the STP at Bhattian was likely to be commissioned by the end of December, 2006 and the other two STPs would be commissioned by the end of June, 2007. It was further stated that 864 industries discharge about 60 MLD of effluent into the Budha Nullah and out of these, 816 industries had installed their Effluent Treatment Plants (hereinafter referred to as, 'ETP') to treat the effluent. Out of the remaining 48 industrial units which are very small, 9 units were in the process of installing ETPs and the remaining 39 had not installed the same. The PPCB had issued directions under Section 33-A of the 1974 Act as amended in 1988 for closure of 15 units and the action was initiated against 24 units, and the opportunity of personal hearing was afforded to them. The Government in its affidavit suggested that following strategy has been drawn for cleaning of Budha Nullah:

Stoppage of wastewater/municipal waste into Budha Nullah.

Release of additional water from Sutlej into Budha Nullah.

Re-modelling of Budha Nullah.

Bio-fencing along the banks.

Development of catchment area.

Providing a 30m wide bio-fence comprising grasses, shrubs and trees to arrest the pollution from non-point sources entering Budha Nullah.

Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 13 14744 of 2007; 4472 of 2009 and 8970 of 2009 To identify all the point and non-point sources of pollution including sullage or sewage from the villages.

Adoption/Establishment of Bio Gas Plant to recover gas from sewage and solid waste.

Adoption of solar pumping.

To identify Govt. land all along Budha Nullah for afforestation.

It was stated that to monitor the progress, a meeting was held by the Chief Secretary Punjab on 22nd September, 2006. The proceedings of this meeting were attached as Annexure R-3 to the affidavit submitted in CWP No.13881 of 2006. A perusal of the proceedings (Annexure R-3) reveals that the meeting called by the Chief Secretary of the State of Punjab was attended by Principal Secretary to Govt. of Punjab, Department of Science Technology and Environment;

Principal Secretary to Govt. of Punjab, Department of Industries and Commerce; Principal Secretary to Govt. of Punjab, Department of Technical Education; Principal Secretary to Govt. of Punjab, Department of Irrigation; Chief Engineer Drainage; Principal Secretary to Govt. of Punjab, Department of Rural Development and Panchayat; various officials of the Department of Water Supply and Sanitation, Punjab Small Industries and Export Corporation Ltd. (hereinafter referred to as, 'PSIEC'), Punjab State Council for Science and Technology, PWSSB and the PPCB.

In the meeting, Principal Secretary Irrigation stated that the proposal of diverting water from Sutlej/Sirhind Canal into Budha Nullah at a cost of Rs.21.00 crores was not viable for diverting 300 cusecs of water. It was stated that the land on which Budha Nullah flows has been encroached upon by various persons and certain encroachments were Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 14 14744 of 2007; 4472 of 2009 and 8970 of 2009 required to be removed. After a detailed discussion, the following decisions were taken by the Committee under the chairmanship of the Chief Secretary Punjab:

(i) The Department of Irrigation shall be the Nodal Department to execute the work of cleaning of the Budha Nullah per se and Principal Secretary, Irrigation shall be the Nodal Officer to coordinate the activities and contributions of the various departments. (Action: proposed and assigned to Department of Irrigation)

(ii) The Department of Science, Technology & Environment will constitute a Committee of senior officers at the district level to co-ordinate the activities of various Departments/ Organisations involved in the protection of environment in Ludhiana. The objectives and the terms & conditions of this Committee will be laid down separately. This Committee shall submit their recommendations to the State Level Committee to be chaired by the Chief Secretary.

(iii) Municipal Commissioner, Ludhiana will take immediate steps to effectively ban dumping of solid waste in and along Budha Nullah. The solid waste be diverted to the sites identified by MC, Ludhiana for the purpose. (Action: proposed and assigned to Department of Science Technology & Environment)

(iv) PWSSB shall assess the quantity of sewage now and expected discharge at the end of 25 years and ensure adequate sewage treatment capacity.

(v) PWSSB shall work out the feasibility of outsourcing the operation and maintenance of STPs to private entrepreneurs.

Another meeting was held under the chairmanship of Principal Secretary to Govt. Punjab, Department of Science Technology & Environment on 28th September, 2006, which was attended by the Principal Secretary to Govt. Punjab, Department of Technical Education;

Deputy Commissioner Ludhiana; officials of Municipal Corporation Ludhiana, Department of Irrigation, PSIEC, Punjab State Council for Science & Technology, PWSSB, PPCB, Department of Town & Country Planning, Department of Forests, Department of Rural Development & Panchayats, Representatives of various Industries Association and the NGOs. This Committee suggested that Section 144 Cr.P.C. be imposed in the vicinity of Budha Nullah and dumping of garbage be stopped immediately by the Deputy Commissioner/District Magistrate Ludhiana by ensuring administrative back-up including police patrolling and protection of enforcement staff of the Municipal Corporation. It further suggested that policing powers be given to the NGOs and the Municipal Corporation Ludhiana should remove the already dumped solid waste/garbage in and along the Budha Nullah and the discharge of waste water into the Budha Nullah through unauthorized outlets

be immediately stopped. The Committee further suggested that the encroachments on the land of Budha Nullah be removed and the possession be taken. PWSSB was called upon for early completion of STPs. The Irrigation Department (Drainage) was asked to prepare all technical details and cost estimate for diverting adequate quantity of water from Sirhind Canal to Budha Nullah through Nillon drain and the Forest Department was called upon to prepare a plan for developing a green belt on the banks of Budha Nullah. The Committee further observed that the various industrial units had not set up ETPs for treatment of their effluent, therefore, a CETP be installed by the PSIEC and public awareness be also created for preservation of environment. Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 16 14744 of 2007; 4472 of 2009 and 8970 of 2009 The Committee also noted that the dairy waste generated from dairy complexes based at Tajpur road and Haibowal is another source of pollution.

As a follow-up measure, the Deputy Commissioner Ludhiana also called a meeting of District Level Coordination Committee for prevention and control of pollution in Budha Nullah.

In another meeting held on 11th October, 2006, P.Ram, IAS, Principal Secretary to Govt. Punjab, Department of Technical Education and Industrial Training was appointed as a Project Coordinator for the project to clean Budha Nullah and to coordinate the community based initiatives to achieve the desired objectives. Another meeting was held on 15th May, 2006 under the chairmanship of the Chief Secretary Punjab, which was attended by very high functionaries of the State. It was followed by various other meetings held on 23rd June, 2006 and 17th July, 2006 under the chairmanship of the Chief Secretary Punjab.

The dates, particulars, plans drawn and the strategies made in the various meetings have been given to show that the State was aware of the problem, its root cause and the initiatives required. But since the necessary will was lacking this Court had to cajole, pat and wherever necessary prompt and compel by making observations and issue directions to all the officials to coordinate and act as a team in right earnest for solving the problem and achieving the objectives stated in various meetings. The Court has to assume this role, as who were responsible to govern were lacking necessary sensitivity to the human misery.

Thus, on 29th January, 2007 the Court noticed that the Committee constituted by the Chief Secretary had not perused the voluminous report prepared by the Expert Committee at the instance of Punjab State Human Rights Commission (hereinafter referred to as, Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 17 14744 of 2007; 4472 of 2009 and 8970 of 2009 'PSHRC'). The PSHRC had called upon the Committee to give a suggestion on the following terms of reference:

> "(A) The basic facts & factors responsible for the dreadful condition of Budha Nallah.
>
> (B) Overall effect of the pollution on human health as well as environmental degradation.
>
> (C) Possible remedial measures by different concerned departments in order to achieve elimination of present state of Pollution and sustain clean conditions."

The members of the Expert Committee were Dr.K.S. Aulakh, Vice Chancellor, Punjab Agricultural University, Ludhiana; Dr.L.S. Chawla, Vice Chancellor, Baba Farid University of Health Sciences, Faridkot; and Dr.Daljit Singh, Principal, Dayanand Medical College & Hospital, Ludhiana. It goes without saying that these members have achieved eminence in their field of activity. The Expert Committee further constituted a Sub-Committee called Public Health Sub-Committee and its members also hold very eminent positions in their respective fields of expertise. The Expert Committee considered overall effects and consequences of pollutants thrown in Budha Nullah, on human health and environmental degradation. The Expert Committee concluded that the pollution and environmental degradation has led to Faeco-oral bacterial diseases, Faeco-oral viral diseases, Parasitic diseases, Systemic toxicity of heavy metals, systemic toxicity of chemicals and other serious disorders. The finding of the Expert Committee was that the effect of the pollution on environment is disastrous. The water was having extremely high turbidity, much beyond the permissible limits and the dissolved oxygen in the water was nil. The findings of the Expert Committee were summed up in the order dated 29th January, 2007 as under:

> Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 18 14744 of 2007; 4472 of 2009 and 8970 of 2009 "... ... ... chemical toxins & heavy metals as well as variety of aromatic & aliphatic compounds, normally not present in river water and in a high concentration. There is a possibility of high concentration of toxic substances like amoniacal compounds, nitrites, nitrates, minerals normally not present in river waters. The likely source is industrial effluents as well as sewage, as there is heavy microbiological load in the form of bacteria (E coli, shigella spp, Vibrio cholerae, Salmonella spp etc.), which is an indicator of faecal contamination and evidence of entero viral contamination. Likely source is sewage and animal waste. There is evidence of absence of species of aquatic flora and fauna, which are normally present in fresh water streams. Likely reason is anaerobic and toxic condition of the stream water. There is evidence of progressive biological and chemical pollution of soil on both banks on the river upto 1200 meters. Evidence of presence of toxic chemicals/heavy metals in the food chain i.e. Vegetable and other crops cultivated in areas along the water course/irrigated with its water, reveal evidence of contamination of subsoil water table with chemicals as well as microbiological agents. Extremely unaesthetic conditions exist. The nallah, has an unsightly appearance a foul odour and a potential to breed mosquitoes & other insects. These pollutants flow into river Satluj, wherein there is evidence of pollution for a considerable distance downstream. This has potential of disastrous consequences of aquatic flora & fauna, human health & agriculture of areas downstream, the confluence of Buddha Nallah with Satluj river."
>
> The recommendations of the Expert Committee suggested measures for sewage disposal; disposal of industrial effluents; disposal of animal excreta; disposal of slaughterhouse waste and provision of piped water supply and regulation of village waste disposal. The Committee further recommended that on sustainable basis there should Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 19 14744 of 2007; 4472 of 2009 and 8970 of 2009 be restoration of Budha Nullah, of its width and flow of

natural water. It further recommended lining of Budha Nullah to check the seepage of pollutants into the ground water, separate flow of sewage, tree plantation, monitoring of water quality and restriction against drinking water along the course of Budha Nullah. The Committee further called upon the Government to regulate or issue a notification to prevent the irrigation of vegetable crops on the periphery of Budha Nullah with its water full of untreated toxic raw sewage.

It was further noticed by the Court in its order dated 29th January, 2007 that a Committee (hereinafter referred to as, 'the P.Ram Committee') has been constituted under the chairmanship of P.Ram, IAS, Principal Secretary to Govt. Punjab, Department of Technical Education as a Project Coordinator and N.S. Tiwana, Executive Director, Punjab State Council for Science and Technology as a Nodal Officer.

Project Coordinator and the Nodal Officer were directed to submit a status report after evaluating the reports submitted by the Committee constituted by the PSHRC.

In pursuance of the order dated 29th January, 2007, the P.Ram Committee submitted its status report dated 26th February, 2007 which forms a part of CWP No.13881 of 2006. The Committee informed the Court that major decisions are required to be taken by the concerned to achieve the objectives of cleaning of Budha Nullah. The Committee noticed that the Court would do a great service to the citizens of Punjab if it could persuade the Government to notify the master plan of all cities of Punjab in the next one year and qua Ludhiana within three months.

Underlining the importance of master plan, the Committee stated that what makes a State worth living is its environment. The environment is a result of infrastructure of the city, i.e. roads, water supply, sewerage, electricity, schools, colleges, market places along with the arrangement Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 20 14744 of 2007; 4472 of 2009 and 8970 of 2009 for transportation of the people including parking. The Committee stated that the master plan includes incentives and mechanism to encourage the citizens of the city to make optimum use of natural resources. It stated that due to the lack of master plan in Ludhiana, the regulatory authorities are not in a position to control the location of industries, hazardous activities in the non-conforming areas. The concluding part under the heading 'Master Plan' in the report submitted by the P.Ram Committee reads as under:

"This has now become a bane because of untold miseries to the inhabitants by the polluting industry. The State Govt. has made efforts on one or the other occasion to develop special areas for shifting one particular type of industry so that a Common Treatment Plant could be installed for them. But each time, it has failed to achieve this due to lack of political will. Once a Master Plan is notified, it might be much better to direct the Association of each industry to find ways and means for locating all these industries in one area and develop it according to their needs. This might be

> much quicker and much more successful than the Govt. route.
>
> Till the Master Plan is notified, the Govt. should ban locating any new industry in Ludhiana and expansion of existing units."

The P.Ram Committee observed that the sanitation comprises collection, transportation, treatment and disposal of sewage, storm water, solid waste including hazardous waste, biomedical waste and plastic waste, as well as providing safe and reliable water supply, electricity, roads and transportation system. The Committee also suggested the options for disposal of treated sewage alternatives and utilization of treated sewage for irrigation of land. It further stated that the STPs to be commissioned will be inadequate as they will be treating only Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 21 14744 of 2007; 4472 of 2009 and 8970 of 2009 311 MLD, whereas the discharge of the city may be to the tune of 750 MLD. The Committee further stated that the reliable projections for the next 30 years should be drawn and adequate STPs should be installed. The Committee further stated that the STPs being installed are basically for domestic sewage. It apprehended that in case a substantial industrial trade effluent is allowed to flow into the STPs, their biological system may not work properly. Therefore, a separate treatment plant for industrial effluents should be set up. The Committee further stated that 4.5 tons of heavy metal was daily discharged through the effluents of the city into the Budha Nullah. Therefore, a CETP for treating the waste from electroplating industry was necessary. The Committee stated that nearly 500 electroplating units in Ludhiana were called upon to form a Special Purpose Vehicle for making arrangement for transport of their effluents and its treatment through CETP. The Committee noticed that the growth of Ludhiana from a small town to a metropolitan city necessitated the city planners to foresee the future expansion, which according to the Committee was imminent. The Committee felt that there was an urgent need to draw a comprehensive plan to deal with the storm water, solid waste, hazardous waste, biomedical waste, plastic waste, garbage and cow dung. The Municipal Corporation was also called upon to set up a treatment facility for animal waste generated by the slaughterhouse, which was being thrown into the Budha Nullah. The Municipal Corporation was reminded of its duty to take cognizance and stop dumping of husk ash by some industries and other users in and around Budha Nullah. Regarding the role of Municipal Corporation, the Committee observed as under:

> "(i) This brings us, within the city limits, to the question of existence of Budha Nallah itself. It is common knowledge as also brought out by the Expert Committee appointed by the Human Rights Commission that a lot of Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 22 14744 of 2007; 4472 of 2009 and 8970 of 2009 garbage is being thrown by the locals into the Budha Nullah.

As a matter of fact, the section of Budha Nullah has substantially been reduced by dumping of solid waste over the years. The Municipal Corporation, instead of banning solid waste and removing solid waste already dumped, has constructed roads on the dumped solid waste, thereby reducing the cross-section of Nullah. It has, therefore, become a violator itself in terms of encroaching/damaging the Budha Nullah.

There are a lot of other encroachments too. P.Ram Committee had directed the Municipal Corporation to demarcate the alignment of Budha Nullah with the help of Department of Irrigation which is the owner of the land of Nallah and the district revenue authorities. The Department of Forests and some NGOs would help in erecting pillars and barbed wire fencing. The Municipal Corporation has been directed to remove temporary encroachments immediately. In case of permanent encroachments, the Department of Irrigation would file cases before the Sub Divisional Magistrate for evicting the encroachers. Thereafter, the Department of Forests with the help of NGOs would provide bio-fence in the shape of Vetiver grass, shrubs and trees so as to arrest the flow of any chemicals including fertilizers and pesticides in the non-point run off into the Budha Nallah."

The recommendations of the Committee were summed up as under:

> "(i) Notify the Master Plan of Ludhiana within three months.
>
> (ii) Ban new industry and expansion of existing industry till the notification of the Master Plan.
>
> (iii) Ban discharge of treated or untreated sewage into Budha Nullah. The entire treated effluents shall be used for irrigation. Storage arrangements to be made for no demand period during rainy season.

Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 23 14744 of 2007; 4472 of 2009 and 8970 of 2009

(iv) Ban dumping of solid waste of any type on the banks of Budha Nullah. Impose Section 144 along the length of Budha Nullah within the city, if need be, to ensure total compliance.

(v) Outsource the handling of solid waste management on the latest international standards within three months. As a matter of

fact, the total infrastructure of Ludhiana such as sewerage, water supply, roads, electric supply, transportation including parking, open spaces need to be revamped to make Ludhiana a world class industrial destination with world class quality of life.

(vi) Demarcate the entire length of Budha Nullah.

Remove encroachments. NGOs could be involved to protect the sanctity of green belt.

(vii) Convert the whole Budha Nullah into the green belt acting as a bio-fence to filter out chemicals in the non-point run off from the city into Budha Nullah.

(viii) Engage Department of Drainage to remove solid waste dumped in Budha Nullah and shift to the designed land fill sites of the Municipal Corporation. Take steps to ensure 15 acres of land required for setting up of bio-gas plants to generate 9 MW power from cow dung produced in dairies

of Ludhiana. Outsource the work of setting up bio-gas plants for the above purpose.

(ix) The storm water drainage infrastructure has been totally ignored by the Municipal Corporation and is already creating serious problems.

Planning, designing and construction of storm water, drainage system should be taken up on priority.

(x) PPCB should strengthen its scientific staff to monitor the industry in Ludhiana to ensure 100% Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 24 14744 of 2007; 4472 of 2009 and 8970 of 2009 compliance with the standards prescribed by the Board.

(xi) PPCB and M/s Nimbua Green Field (Pb.) Limited should take immediate steps to either acquire 100 acres of land by the side of the existing hazardous waste management site or acquire land on a new site to provide capacities for the next 50 years.

(xii) All small electroplating industries must commence transporting their effluents to CETP in Focal Point VIII by 31.3.2007 failing which they should be closed with effect from 1.4.2007.

Similarly, all textile dyeing units discharging into Budha Nullah must either re-circulate their effluents or stop discharging the effluents into Budha Nullah by 31.3.2007 failing which they should be ordered to be closed."

On 28th February, 2007, this Court called upon the Chief Secretary to Govt. of Punjab to file an affidavit setting out a minimum timeframe dealing with all the points and recommendations contained in minutes of the P.Ram Committee. Furthermore, the Chief Secretary was also called upon to hold regular meetings to monitor the implementation of the recommendations of P.Ram Committee so that effective steps necessary for solving the problem are initiated to achieve meaningful results. In pursuance of the order dated 28th February, 2007, the Chief Secretary Punjab filed an affidavit, wherein it was stated that a deadline was fixed to finalize the master plan of Ludhiana city before 29th February, 2008. In the affidavit it was stated that with regard to the domestic sewage and industrial effluents, STP at Jamalpur with a capacity of 48 MLD was being commissioned and the work was in progress. Another STP at Bhattian to treat 111 MLD was commissioned Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 25 14744 of 2007; 4472 of 2009 and 8970 of 2009 and was under stabilization, whereas the work for setting up of STP with a capacity of 152 MLD at Balloke was in progress. It was further stated that the PWSSB has been directed to prepare a plan for tertiary treatment & recirculation in consultation with the Municipal Corporation and such a scheme was to be financed by the Municipal Corporation. Furthermore, the Municipal Corporation had shifted dumping of solid waste and garbage from Budha Nullah to other places and 75 persons who had thrown the garbage were prosecuted by the Municipal Corporation. Furthermore, additional land of 21 acres was acquired by the Municipal Corporation in Noorpur Bet area for management of solid waste. In the affidavit it was further stated that demarcation of the area along Budha Nullah was in progress and a memorandum of understanding was to be signed with an NGO for converting both sides of Budha Nullah into the green belt. A proposal to set up

biogas plant to generate 9 megawatt power to take care of dairy waste was also planned. The Municipal Corporation was also called upon to submit a plan for storm water drainage and the Department of Industries and Commerce had constituted a Special Purpose Vehicle for commissioning of CETP.

However, while noticing the initiatives being taken and the promises made by the Chief Secretary in its affidavit, this Court in its order dated 10th May, 2007 noted that no effective steps have been taken for removal of slums and encroachments which have come up along Budha Nullah. It was further noticed that for treatment of effluents by the textiles, dyeing and electroplating units, the PPCB has not taken effective steps.

On 18th July, 2007, this Court had passed a detailed order wherein it was recorded that the recommendations of the P.Ram Committee were considered in a meeting conducted by the Chief Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 26 14744 of 2007; 4472 of 2009 and 8970 of 2009 Secretary, Punjab on 28th June, 2007 and thereafter a presentation was made to the Chief Minister, Punjab on 6th June, 2007 and that another meeting was held on 12th July, 2007. The Committee acquainted the Court with the following facts:

> (a) That the master plan of Ludhiana shall be notified on or before 29th February, 2008 and neither any new industry nor the expansion of any existing industry shall be permitted within the municipal limits of Ludhiana, except in the already earmarked areas, till the master plan is notified.
>
> (b) The meeting held under the chairmanship of Chief Secretary Punjab took note of the observations of the Nodal Officer that not only Ludhiana is discharging its domestic sewage into river Sutlej but it is also receiving the sewage from the towns right from the starting point in Himachal Pradesh. It was suggested by the P.Ram Committee that the Municipal Corporation Ludhiana has an option either to use the treated sewage on the land for irrigation or impart tertiary treatment, after which the sewage can be re-circulated for many purposes in the city of Ludhiana. The Committee further suggested that by discharge of such effluents by any activity into the river, it cannot be permitted to be polluted as the water from the river is a major source of consumption for the inhabitants of Ludhiana.
>
> (c) That Bhai Ghanahya Charitable Society, Baddowal had volunteered to undertake the plantation work along the entire stretch of Budha Nullah barring the stretch falling within the city area so that the green belt can act as a bio-fence to filter out the chemicals.

Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 27 14744 of 2007; 4472 of 2009 and 8970 of 2009

(d) Regarding the stretch of Budha Nullah falling within the city area, 43 industries had come forward to undertake the work of developing the green belt along the stretches allotted to them.

(e) For de-silting of Budha Nullah within the municipal limits, Municipal Corporation Ludhiana was directed to provide eight more Tippers to the Department of Irrigation (Drainage).

(f) Regarding removal of garbage along the banks of Budha Nullah beyond the municipal limits up to the point falling under river Sutlej, the Department of Irrigation was directed to prepare a project proposal for cleaning of Budha Nullah.

(g) The Committee further observed that cow dung/other waste of dairies will not be allowed to be discharged into the sewers and some collection sumps would be provided at the level of each dairy.

(h) The Municipal Commissioner, Ludhiana was further directed to make arrangements with regard to the dumping/removal of solid waste, normal garbage, dairy waste, boiler ash and slaughterhouse waste within a period of two months. Furthermore, this Court on 22nd August, 2007, after a perusal of the affidavit of Chief Secretary Punjab and the status report submitted by the P.Ram Committee, categorized the issues which required attention under following different heads:

> "(i) Notification of Master Plan of Ludhiana;
>
> (ii) Banning of New Industry/Expansion of Existing Industry;
>
> (iii) Banning of discharge of treated or untreated sewage into Budha Nullah. The entire treated effluent Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 28 14744 of 2007; 4472 of 2009 and 8970 of 2009 shall be used for irrigation. Storage arrangements to be made for no demand period during rainy season.

This para has further been sub-divided into different paragraphs under the heading;

(a) Treatment;
(b) Augmentation of Treatment Facility;
(c) Utilization of treated sewage - On land for irrigation - treatment and recirculation;
(iv) Using of treated industrial effluents for irrigation - upstream of city limits;
(v) Demarcation of the entire length of Budha Nullah and remove encroachments;
(vi) Conversion of the whole Budha Nullah into a

green belt acting as a bio-fence to filter out chemicals in the non point run off from the city into Budha Nullah;

(vii) Greening of Budha Nullah within the city area.

(viii) Engaging Departments of Drainage to remove solid waste dumped in Budha Nullah and to shift to the designated land fill sites of the Municipal Corporation. To take steps to ensure 15 acres of land is acquired for setting up biogas plants to generate 9 MW power from the cow dung produced in dairies of Ludhiana.

To outsource the work of setting up biogas plants for the above purpose. This has been divided into sub-heads;

(a) De-silting of Budha Nullah within city limits;

(b) Removal of garbage along the banks of Budha Nullah beyond Municipal Committee limits upto the fall point in river Sutlej;

(c) De-silting of Budha Nullah downstream of city area of Ludhiana;

(d) Waste to Energy."

Various directions were issued to the concerned authorities to deploy their resources and energy so that the issues noticed by the Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 29 14744 of 2007; 4472 of 2009 and 8970 of 2009 Court receive the required attention. The Court further directed PPCB and M/s Nimbua Green Field (Pb.) Limited to take immediate steps to acquire 100 acres of land by the side of the existing hazardous waste management site or acquire the land on a new site for a capacity for the next 50 years. It was ordered that the proposal submitted by the P.Ram Committee that all the textile/dyeing units in Ludhiana should be directed to set up their treatment plants individually or collectively to achieve Zero Liquid Discharge by August 31, 2008 be implemented. Furthermore, the electroplating units in Ludhiana were also directed to achieve Zero Liquid Discharge and re-circulate their treated effluents in their process by August 31, 2008. It will be apposite here to notice the recommendations made by the P.Ram Committee as under:

> "1. Municipal Corporation Ludhiana needs to be directed to:
>
> (i) Ensure complete desilting of sewers and Budha Nullah upstream of city, within the city as well as downstream of the city.
>
> (ii) To immediately undertake the work of segregation, collection and transportation of solid waste to the designated landfill sites without waiting for the proposed JNNURM project.
>
> (iii) To identify landfill sites for the disposal of all categories of solid, industrial waste such as boiler ash and plastic waste.
>
> (iv) To immediately stop discharge of the cow dung/liquid waste from dairies located along Budha Nullah into the municipal sewers or in Budha Nullah.
>
> (v) To immediately hand over 2.42 acres of land adjoining Haebowal Power Plant to PEDA.

(vi) To identify the land for setting up of power plants based on cow dung for complete utilization of Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 30 14744 of 2007; 4472 of 2009 and 8970 of 2009 cow dung being generated from the city of Ludhiana.

2. To direct Deputy Commissioner Ludhiana to:

(i) Hold fortnightly meetings to coordinate the activities of various departments including Municipal Corporation, Department of Irrigation (Drainage) and Punjab Pollution Control Board.

(ii) Oversee the development outside the city limits to ensure self contained units with zero liquid discharge and independent treatment of solid waste.

3. To direct Punjab Pollution Control Board to:

(i) Submit time schedule for the expansion of "Common Hazardous Waste Site" presently under construction at Nimbuan.

(ii) Immediately stop the discharge of industrial effluents from industries located along Budha Nullah.

(iii) Ensure that electroplating and textile/dyeing industry achieves zero liquid discharge by August 31, 2008 as proposed in the last status report submitted to this Court.

(iv) To enforce electroplating industry to become members of the CETP electroplating for full operationalisation of the plant.

(v) Enforce industry to install 'On-Line Monitoring System' in a time bound manner as already stipulated in the previous status report.

4. To direct Punjab Water Supply and Sewerage Board and Department of Local Bodies to ensure:

(i) Preparation of Detailed Project Reports for augmentation of the existing STPs based on zero liquid discharge and complete reuse of treated sewage within three months.

Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 31 14744 of 2007; 4472 of 2009 and 8970 of 2009

(ii) Submission of time schedule for the execution of projects related to augmentation of STPs and setting up of new STPs.

5. To direct Punjab Energy Development Agency to:

(i) Prepare Detailed Project Reports (DPRs) for setting up of power generation plants based on cow dung.

(ii) Prepare DPRs for setting up of mini hydel projects along the entire stretch of Budha Nullah.

6. To direct Department of Soil and Water Conservation to provide time bound schedule for the implementation of:

(i) Project for applying treated effluents of M/s Malwa Industries for on to land for irrigation.

(ii) Project for applying sullage of Machiwara town for on to land for irrigation."

After noticing the recommendations of the Committee, the Court issued following directions:

"The Municipal Corporation Ludhiana; Deputy Commissioner Ludhiana; Punjab Pollution Control Board; Punjab Water Supply & Sewerage Board and Department of Local Bodies; Punjab Energy Department Agency and Department of Soil and Water Conservation are directed to file status reports on the next date of hearing in terms of the recommendations of P.Ram Committee as well as in terms of the order passed by the Chief Secretary to Government of Punjab.

In paragraph 4 of the affidavit of Mr.B.K. Gupta, Joint Commissioner, Municipal Corporation Ludhiana, it has been stated that the estimated cost of augmentation of sewerage treatment plant at Jamalpur from 48 mld at Ludhiana is Rs.19.38 crores, cost of augmentation of sewerage Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 32 14744 of 2007; 4472 of 2009 and 8970 of 2009 treatment plant at Bhutan from 111 mld to 211 mld at Ludhiana is Rs.46.98 crores, cost of augmentation of sewerage treatment plant at Balloke from 152 mld to 252 mld at Ludhiana is Rs.35.64 crores, cost of construction of new main pumping station and sewerage treatment plant of 177 mld at Balloke is Rs.156.77 crores and cost of construction of new main pumping station and sewerage treatment plant of 165 mld at Bhamian is Rs.131.09 crores and the total estimated cost of these five works would be Rs.389.86 crores. Municipal Corporation Ludhiana is not in a position to bear this cost and, therefore, Government of Punjab has been requested to fund these projects.

As per the report of Central Pollution Control Board, which has also been filed before us, the wastewater in Ludhiana is directly discharged into Budha Nallah. The proposal for intercepting wastewater inflows in the Budha Nallah is yet to materialize. Thus, Budha Nallah continues to be receptor of sewage, industrial effluent, solid waste and other wastes. Approximately 540 million liter per day (mld) of wastewater is discharged into Budha Nallah, and about 100 mld is directly discharged into Sutlej river from the sewage treatment plant, out of which about 60

mld is on account of industrial effluents. The treatment capacity created/being created for 311 is domestic sewage. There is, thus, a gap of about 270 mld.

Ludhiana being a growing city, the sewage generation is steeply increasing and the gap between generation and treatment capacity is widening. Therefore, this aspect of the matter has to be addressed by the State Government and in the next meeting to be conducted by the Chief Secretary to Government of Punjab, the functioning of these treatment plants for treatment of domestic as well as industrial waste and the amount required, be considered and report be filed."

The Court in its order dated 8th January, 2008 further recorded the contention of counsel for the PPCB that open drains in Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 33 14744 of 2007; 4472 of 2009 and 8970 of 2009 Ludhiana are required to be connected with the drainage system so that the sewer and sullage is processed by STPs. On September 18, 2008, this Court directed that the Chief Secretary Punjab should hold a meeting and coordinate with the concerned departments including the PPCB for implementation of the recommendations of the P.Ram Committee. On 11th December, 2008, the Chief Secretary submitted a status report and stated that the Government has received an interim report from the National Environmental Engineering Research Institute, Nagpur (hereinafter referred to as, 'NEERI'). It was ordered that the Chief Secretary should discuss the interim report submitted by NEERI and file a progress report. On 29th December, 2008, a meeting was held under the chairmanship of Chief Secretary Punjab, wherein the findings of the interim report submitted by NEERI were considered. The Committee was acquainted that as per the study conducted by NEERI, the main findings are as under:

"i. Whereas the quality of the river water is A- Class (BOD less than 5mg/1, D.O. 8.2 mg/1) immediately upstream of the outfall of STP Bhattian, it gets deteriorated to E-Class (BOD 32 mg/1 with DO as nil) immediately thereafter. Similarly the quality of river water is rendered E- Class after its confluence with Budha Nallah.

ii. Since no dilution is available in Budha Nallah, direct discharge of domestic sewage or industrial effluents, including washings from cattle sheds, needs to be controlled in view of the contamination of receiving surface water bodies and possibility of groundwater contamination in future too.

iii. Out of the three STPs only STP at Bhattian is operational under stabilized conditions and the remaining two STPs at Balloke and Jamalpur are still under stabilization though being commissioned in June 2008. In Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 34 14744 of 2007; 4472 of 2009 and 8970 of 2009 addition the flows in these two STP are below the designed capacity, whereas excess flow is being received at STP Jamalpur. No methane generation is achieved on a sustainable basis from the STPs of Balloke and Jamalpur.

iv. Out of total 272 textile dyeing units, 65 units were monitored by NEERI. The ETPs in only 43 units were found operational, while in the remaining 22 units ETPs were

not operational. Only 4 units were found to be meeting the stipulated norms for discharge into the inlet surface waters.

v. In case of textile units discharging onto land, it was observed that partially treated effluents with residual color are discharged onto land for irrigation. In view of the possibility of groundwater contamination and deterioration in soil fertility in future, due to continuous application, it is necessary for the industry to ensure that the treated effluents discharged must meet the standards for inland surface water with no residual color through upgradation of the existing ETP based on scientific design and their effective operations.

vi. Out of total 349 electroplating units, 327 units are members of CETP. Out of the 22 electroplating units with individual ETPs 20 units were monitored. Only two units were found to conform to the standards for discharge into inland surface water.

vii. The CETP for electroplating units meets the discharge norms for inland surface water with respect to all the parameters including heavy metals except TDS, chlorides and sulphates. The remaining small scale units with individual ETP should join the CETP for ensuring effective treatment of toxic effluents. The CETP may be upgraded for zero liquid effluent discharge including reject management.

viii. The medium and large scale electroplating industries at individual level need to upgrade the ETPs aiming at zero liquid effluent discharge. Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 35 14744 of 2007; 4472 of 2009 and 8970 of 2009 ix. State regulatory authorities must strictly monitor the upgradation of ETPs and the quality of effluents discharged and should not allow the discharge until the ETPs are upgraded and perform efficiently to meet the design norms.

x. Existing STPs treating combined effluents will not perform optimally when operated at designed capacity until the individual ETPs are upgraded and operated efficiently to meet the prescribed standards for inland surface waters including complete color removal.

xi. The incoming husk from cattle sheds are not only hindering the operation of pumps at STP Balloke, but the UASB reactors inlet and outlet are getting choked, and thick carpet of floating husk is formed at the surface of the reactors requiring regular cleaning. It is therefore necessary to segregate the cattle dung washings and restrict its discharge into the drains leading to STP.

xii. The average flow of STP Jamalpur was observed to be around 65 MLD against the designed capacity of 48 MLD. This flow needs to be controlled for stabilizing the UASB system. Once stabilized and operated at designed flow, it is necessary to assess plant performance since the ratio of domestic sewage to industrial effluents in combined wastewater received at STP is quite high.

xiii. It is observed that the finally treated effluent from STP Bhattian conforms to the norms for discharge into inland surface water. The treated effluent is still toxic as the bioassay test reveals that 100% mortality within 24 hours exposure. The toxic nature of treated wastewater may have toxicity effect to biological life if the receiving water body does not have sufficient flow to provide adequate dilution to bring down the concentration to safe level. The DO concentration in the final treated effluents ranged from nil to 0.1 mg/1 indicating that polishing pond is not providing any Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 36 14744 of 2007; 4472 of 2009 and 8970 of 2009 bio-oxidation. It definitely needs upgradation to bring down the concentration to safe level."

After detailed discussions on the findings of NEERI, the following decisions were taken by the Committee:

"Electroplating Industries i. All the remaining small scale units must join the CETP by 31/03/2009.

ii. The existing CETP located at Phase-VIII, Focal Point, Ludhiana will be upgraded to achieve the prescribed norms by 31/12/2008.

iii. The medium and large scale units at individual level also need to upgrade their ETPs accordingly, and ultimately aim at zero liquid effluent discharge. PPCB in consultation with the industry should submit by 13/01/2009 an activity- wise, time-bound schedule to achieve the same. Dyeing Industries i. PPCB should take action against the textile dyeing units directly discharging into the Budha Nallah, to stop this practice.

ii. PPCB in consultation with dyeing associations should submit by 13/01/2009 an activity-wise, stage-wise action plan giving the various milestones to be achieved, so as to upgrade their ETPs within 6 months i.e. by 30/06/2009.

Sewage Treatment Plants (STPs) i. Balloke - The Municipal Corporation, Ludhiana and Punjab Water Supplies & Sewerage Board will make immediate arrangements to effectively control the husk from cattle sheds at the source itself by providing drum screens. The funds to implement the same could be obtained from the P.Ram Committee.

Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 37 14744 of 2007; 4472 of 2009 and 8970 of 2009 ii. Jamalpur - Necessary steps be taken to stabilize it.

PWSSB had earlier conducted a feasibility study to segregate the industrial effluents getting emanated from the industrial focal points by setting up of a dedicated CETP at Bhamian Kalan. This proposal is now considered to be most urgent in light of the findings of NEERI and the directions of Ministry of Urban Development, Govt. of

India which has already refused to discharge the industrial effluents into the city sewerage.

iii. Bhattian - PWSSB should upgrade the polishing pond as it is not providing any bio-oxidation as reported by NEERI. Chlorination of treated effluents needs to be undertaken prior to direct discharge into river Sutlej in view of the high MPN count in the treated effluent.

6. The Chief Secretary directed the MC Ludhiana to upgrade the STPs to ensure the treatment to a level safe for discharge into river Sutlej during no-demand period for irrigation. He made it clear that the Municipal Corporation, Ludhiana and the PWSSB stood on the same footing as the private sector as far as compliance with pollution control norms was concerned, and directed the PPCB to ensure due compliance by these authorities also.

He also directed PPCB to submit a detailed action plan with respect to each recommendation, involving all the stakeholders, in an annotated form - giving the findings of NEERI, the proposed action plan and the time targets to achieve the same, by 13/01/2009.

Further PPCB was directed to advise/direct all industrial units to install online monitoring systems to monitor the working of their individual ETPs, and also the CETP. Till the implementation of this system, PPCB should outsource the work of monitoring of working of ETPs to reputed and Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 38 14744 of 2007; 4472 of 2009 and 8970 of 2009 credible institutions like Thapar University, Panjab University and NIIT etc so as to ensure their proper functioning. Separately, PPCB may consider the due recognition of the 6 units where pollution-control measures were found to adequate."

Thereafter, a status report was filed by the Chief Secretary and this Court in its order dated 5th February, 2009 took note of the action plan prepared by the State in relation to the units situated on the banks of Budha Nullah. The action plan of the State disclosed to the Court reads as under:

"i. All the small scale electroplating industries of Ludhiana will join CETP at Phase-VIII, Focal Point, Ludhiana by 31.03.2009.

ii. The CETP for electroplating industries located at Phase-VIII, Focal Point, Ludhiana will be upgraded to achieve zero liquid discharge by 31.05.2009.

iii. Large and medium scale electroplating units will adopt zero liquid discharge technology by 31.05.2009.

iv. Electromagnetic flow meter for measurement of discharge at inlet and outlet of the treatment facility by the dyeing industries and large, medium scale electroplating

industries will be installed by 31.03.2009.

v. All the 49 dyeing industries, which were discharging their treated/untreated effluents directly into Budha Nallah have been issued closure order u/s 33-A of the Water (Prevention & Control of Pollution) Act, 1974. Directions have also been issued to PSEB Authorities for disconnection of electric connection of these industries. Reminder has also been issued to PSEB authorities to comply with the directions.

vi. Commissioning of equipments to upgrade the ETP of dyeing industries to achieve the prescribed standards will be done by 31.03.2009."

Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 39 14744 of 2007; 4472 of 2009 and 8970 of 2009 The Court issued directions on the order of even date that the action plan mentioned above should be implemented in its letter and spirit and appropriate proceedings be initiated against those who fail to achieve the prescribed target. The Court also recorded the contention of counsel for the PPCB that 49 industries, which were discharging their treated/untreated effluents directly into the Budha Nullah, have been issued closure order under Section 33-A of the 1974 Act. Furthermore, the Court made the Central Pollution Control Board (hereinafter referred to as, 'CPCB') as a party respondent and directed it to respond to the question whether Budha Nullah and river Sutlej have enough dilution available to take any further load of discharge in them from the industrial or other units. The Court in its order dated 5th February, 2009 concluded as under:

"The affidavit filed by the Chief Secretary suggests that National Environmental Engineering Research Institute (NEERI) has been directed to submit a report regarding the need for enforcing zero liquid discharge from the dyeing units as recommended by the P.Ram Committee. The affidavit states that NEERI is expected to respond to the aforementioned aspect by April, 2009 when a meeting will be convened to discuss the matter. In the circumstances therefore, all we need to say is that NEERI will do well to expedite the report about the need for enforcing zero liquid discharge to enable the Authorities to take a final decision in the matter in the proposed meeting to be held in April, 2009... ... ..."

To formulate the overall view and have the entire gamut of the problem facing Ludhiana city and Budha Nullah, which has ecological ramifications, it is necessary to take a brief note of the study carried by the CPCB. The CPCB assessed the existing situation of the Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 40 14744 of 2007; 4472 of 2009 and 8970 of 2009 pollution problem and suggested remedial measures to maintain water quality of river Sutlej. The study area of CPCB included Ludhiana, which as per the census of 2001 had a population of 13,95,053. The CPCB further noticed that Ludhiana was having eight large integrated knitwear factories, roughly 6,000 small to medium sized knitwear factories, 10 big hosiery yarn mills and 150 small to medium sized worsted and woolen yarn industries. There were also firms manufacturing bicycles, machine tools, sewing machines, generators, diesel engines, tyres & tubes and other consumable goods. CPCB stated that the municipal sewage having quantity of 500 MLD, dyeing effluent of 100 MLD and electroplating effluent of 4 MLD quantity are being discharged into the Budha Nullah. Thus, as per

CPCB the total discharge of effluents directly or indirectly into the Budha Nullah amounted to 604 MLD, whereas STPs in the Ludhiana city had a capacity of 311 MLD. The locations of three STPs along the Budha Nullah are as under:

- STP-1 at Bhattian (111 MLD)
- STP-2 at Jamalpur (48 MLD)
- STP-3 at Balloke (152 MLD)

Thus, the existing infrastructure lacked the capacity to treat 604 MLD effluent/sewage discharge. CPCB further noticed that STP-3 at Balloke with a capacity of 152 MLD was not in operation and the entire untreated sewage was being discharged into Budha Nullah. After close examination of STP-1 and STP-2 at Bhattian and Jamalpur respectively, it was stated that these STPs were underutilized. Thus, CPCB concluded that the sewage generation, capacity and treatment has a wide gap and is grossly inadequate.

This Court with dismay and anguish notices that all the efforts made by the Court since December 2006 had no effect and all the meetings held by various officials of the State had achieved nothing. The Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 41 14744 of 2007; 4472 of 2009 and 8970 of 2009 findings of CPCB were not only startling but also brought into light that all the efforts and assurances given by the State authorities were nothing but mere an eye-wash.

CPCB further stated that there were 268 dyeing industries in Ludihana and all of them were issued directions by PPCB under Section 33-A of the 1974 Act to upgrade their existing ETPs up to 31st March, 2009 to achieve the prescribed standards. Furthermore, out of 444 electroplating industries in Ludhiana, 388 industries had become members of CETP while the remaining 46 industries had not done so. CPCB further stated that the water quality of river Sutlej at Ludhiana after meeting Budha Nullah was observed to be grossly polluted in terms of BOD, which is an important indicator of water pollution. Furthermore, the BOD value was more than ten times than its desired level. The recommendations of CPCB and its conclusions are reproduced below:

> "5.0 Recommendation In order to improve the water quality, following steps desire consideration:
>
> 1. The operation of STP has to be optimized for reducing pollution load in Budha Nallah.

Immediate start of STP at Balloke.

STP at Jamalpur and Bhattian shall operate with designed capacity/load.

Capacity of sewage treatment plants must be enhanced to the maximum available load.

2. CETP shall be operated properly to meet the prescribed norms.

Compulsory set up of CETP in important industrial clusters for treatment of the wastewater.

3. No industry should be permitted to discharge untreated/partially treated effluent into Budha Nallah. Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 42 14744 of 2007; 4472 of 2009 and 8970 of 2009 Industries with partial treatment facilities should operate to the capacity for which facility could treat the effluent upto the prescribed standards.

4. Punjab State Pollution Control Board shall update the status of compliance of the industries.

5. Following this action plan, treated load of Budha Nallah can be computed and thereafter dilution factor could be evolved.

6.0 Conclusion The flow and water quality date of River Satluj and Budha Nallah indicates that any addition of untreated/partially treated effluent will further deteriorate the water quality of River Satluj, downstream of confluence of Budha Nallah as enough dilution is not available to take any further load."

This Court on 9th August, 2010 called upon PPCB to submit a status report. In the affidavit filed by Tejinder Kumar, Environmental Engineer, Regional Office, Ludhiana, it was stated that there are two major sources of water pollution in Ludhiana, i.e. domestic effluents and industrial effluents. It was estimated that about 350 MLD sewage/sullage is generated within the limits of Municipal Corporation Ludhiana and the same is discharged into the Budha Nullah. PWSSB has installed three STPs with a capacity 111 MLD at village Bhattian, 152 MLD at village Balloke and 48 MLD at Jamalpur to treat the sewage of Ludhiana under Sutlej Action Plan. Therefore, the total treatment capacity as per PPCB for the domestic effluents was 311 MLD viz-a-viz generation of 350 MLD. The STP at Bhattian was underutlized as only 80 MLD waste water was reaching the STP due to silting of certain sewerage lines as well as non- connectivity of certain areas of the sewerage system to the said STP. Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 43 14744 of 2007; 4472 of 2009 and 8970 of 2009 According to the status report, all the three STPs were not giving the desired results for COD and TSS Parameters. It was further mentioned that the efficiency of these STPs is hampered as a result of mixing of industrial effluent with the domestic sewage due to common conveyance system and this issue would be sorted out after the CETP for dyeing industries is proposed. Regarding industrial effluents, it was submitted that the main contributors are electroplating and dyeing industries. About 200 MLD of waste water from the industries is generated within Ludhiana city, out of which 150 MLD is generated by small scale dyeing units of which 130 MLD is from five clusters of dyeing units and 20 MLD from scattered units; whereas 50 MLD is generated from the large and medium dyeing units. All these units have their individual ETPs. It will be apposite here to reproduce the following portion of the affidavit filed by the Environmental Engineer:

> "... ... Board is maintaining a strict check on these industries since some of these industries have tendency of discharging waste water without treatment to save on the running cost of Effluent Treatment Plants. Presently, the industries of Ludhiana are

discharging their effluents into public sewers leading to one of the three STPs installed by Punjab Water Supply & Sewerage Board. However, these STPs have been designed for the treatment of domestic sewage and therefore, the mixing of industrial effluents with the domestic sewage in the sewerage system results in hampering of smooth operations of STPs. There is a proposal to install two Common Effluent Treatment Plants (CETPs) of capacity 100 MLD and 38 MLD at Tajpur Road and Bahadurke Road, respectively. The land for 100 MLD Common Effluent Treatment Plant at Tajpur Road has been identified, whereas, the identification process of land for second Common Effluent Treatment Plant at Village Bahadurke is at final stage. There are about 200 dyeing industries existing in these 5 clusters, which will join three Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 44 14744 of 2007; 4472 of 2009 and 8970 of 2009 Common Effluent Treatment Plants. The large scale dyeing industries will also upgrade their individual effluent treatment plants so that the quality of effluent discharged from such industries is at par with the treated effluent discharged from the Common Effluent Treatment Plants."

It was further stated in the affidavit that the pollution load from electroplating industries is higher as their effluent contains heavy metals. The affidavit further stated as under:

"In order to make sure the treatment of effluents generated from these small scale industries, a Common Effluent Treatment Plant for small scale electroplating industries has been made operational. It is being run under PPP mode by SPV of industries formed by the Department of Industries & Commerce. The Common Effluent Treatment Plant has been installed by M/s JBR Technologies Pvt. Ltd., Phase-VIII, Focal Point, Ludhiana. All the small scale electroplating industries have been persuaded to join Common Effluent Treatment Plant. The effluents generated by different electroplating industries is being collected and transported to the Common Effluent Treatment Plant site for treatment. The CETP is working on the zero liquid discharge technology and no effluent is discharged into Budha Nallah. The treated effluent from the electroplating CETP is reused by dyeing industry adjoining to the CETP. With the installation of the Common Effluent Treatment Plants for small scale electroplating industries, the discharge of untreated electroplating effluent into Budha Nallah has been effectively controlled leading to reduction in the conc. of heavy metals in the Budha Nallah. Strict monitoring and check is being kept by the Board to detect any case of diversion of effluent."

The CPCB in its latest affidavit dated 13th December, 2010 divulged its findings and recommendations as under:

Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 45 14744 of 2007; 4472 of 2009 and 8970 of 2009 "5. The major findings of the report are:

STP Bhattian is efficiently operated and overall performance of STP is good with respect to BOD and COD removal.

With respect to Balloke STP overall performance of plant is satisfactory. However, it is observed that Total Suspended Solid at Upflow Anerobic Sludge Blanket (UASB) is high and if it can be reduced efficiency of UASB in terms of BOD and COD will improve further.

STP Jamalpur mainly receives industrial effluent and efficiency of BOD and COD removal is low as compared to the other 02 STPs. Efforts must be made to augment more sewage in the plant to improve the performance of the plant.

6. The major recommendations of the report are:

In order to improve the water quality, following steps desire consideration:

The operation of STP has to be optimized for reducing pollution load in Budha Nallah. STP at Jamalpur and Bhattian shall operate with designed capacity/load.

Capacity of sewage treatment plants must be enhanced to the maximum available load.

Considering the gap of 467 MLD between sewage generation (778 MLD) and its treatment capacity (311 MLD) in Ludhiana, there is an urgent need to augment the sewage treatment capacity in the city besides optimizing the operation of existing STPs. No industry should be permitted to discharge untreated/partially treated effluent either into Budha Nallah or into sewer line which ultimately comes to STPs."

PPCB filed another affidavit on 3rd April, 2011. As per its monitoring results, various parameters of STPs at villages Bhattian and Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 46 14744 of 2007; 4472 of 2009 and 8970 of 2009 Balloke were within the permissible limits, except Total Coliforms (T.Coli). Furthermore, the various parameters of STP at village Jamalpur were within the permissible limits, except Biochemical Oxygen Demand (BOD), Total Coliforms (T.Coli) and Iron (Fe). This affidavit further stated that 816 industries were visited by the PPCB to monitor/ensure the regular operation of ETPs and air pollution control devices. Out of the 274 samples collected, 53 samples involving 48 industries were found to be not achieving the prescribed standards and out of these 48 industries, 33 industries were given notices under Section 33-A of the 1974 Act for their closure. Two industries were refused consent to operate under the 1974 Act and action was to be initiated against 11 industries. One industry had closed down on its own and out of the 11 industries, 6 have upgraded the ETPs and remaining 5 industries even though have also upgraded the ETPs but the same were under stabilization. The PPCB further identified eight large and medium industries engaged in the process of electroplating, which were discharging their effluents into the sewer leading to Budha Nullah. It was stated that the PPCB was following the policy of persuasion and pressure for all the units to switch to Zero Liquid Discharge technology. The industries had installed

> reverse osmosis (RO) systems followed by multiple effect evaporators (MEE) to achieve Zero Liquid Discharge.

Thus, it is evident that efforts of this Court made in last six years have achieved results which can be said satisfactory. Still to achieve perfection, vigorous efforts are required on the part of all concerned.

Having noticed the facts, it becomes incumbent for us before giving any directions to notice role of the Court in public interest litigation. Emerging socio political demands and perceptions about the role of the Court demands that the downtrodden common man in the street is able Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 47 14744 of 2007; 4472 of 2009 and 8970 of 2009 to secure dignified living and to give effect to this, State and its agencies should perform their part and obligation.

It will be apposite here to quote from Restatement of the Law in Public Interest Litigation published by Indian Law Institute, as under:

> "The emergence of PIL as an instrument of Court crafted justice dispensation, demonstrates the deep and historic understanding of the onerous nature of the tasks involved in governance and the complexities of the issues to be resolved. Whether it's the need to protect the right to dignity and humanity of persons lodged in jails, or the need for compassion in ensuring dignity and peace to persons lodged in care and custody institutions or the need to ensure that existing livelihood opportunities are not destroyed without fair alternatives or otherwise, or the requirement of disciplines in dealing with public property or largesses, or the need to ensure that the economic or other developmental activities do not destroy or eat away the precious irreplaceable vitals of nature, the courts have quickly articulated a synthesis between fundamental freedoms and Directive Principles of State Policy."

In 'State of Kerala v. Kumari T.P. Roshana and another' (1979) 2 SCR 974: 1979 AIR 765, Hon'ble the Supreme Court has observed as under:

> "The root of the grievance and the fruit of the writ are not individual but collective and the adessaral system 'adversary system' makes the Judge a mere umpire, traditionally speaking, the community orientation of the judicial function, so desirable in the Third World remedial jurisprudence, transforms the court's power into affirmative structuring of redress so as to make it personally meaningful and socially relevant. Frustration of invalidity is part of the judicial duty; fulfillment of legality is complementary."

Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 48 14744 of 2007; 4472 of 2009 and 8970 of 2009 In view of the above, if this Court assumes the role of an Umpire it is apparent that due to neglect of public hygiene and community health, by not taking necessary remedial measures for ensuring necessary ecological balance of Ludhiana city and Budha Nullah, the State allowed Budha

Nullah to become a source of health hazard and a cause of epidemic. Resultantly, poverty struck population and lowest strata of the society became victims and the sufferers. One of the direct gains or benefits of the present litigation due to taking of suo- motu notice and various proceedings undertaken by this Court is that now the State is aware of the ground realities and conscious of the fact that the symptoms, signals and side-effects of the prevailing conditions of Budha Nullah and Ludhiana city, if not immediately attended to, may cause great human misery and catastrophe.

It is also a well settled legal proposition that the Courts interfere only in Governmental matters in the interest of good governance. Governance and its process has been duly defined, determined and regulated by the Constitution. As per Restatement of the Law in Public Interest Litigation, 'public interest litigation is thus, an effective instrument of law and legal services delivery towards ensuring administration of justice and enforcing constitutional standards and prescriptions in the conduct of the State; particularly as regards the weaker sections of the community.' In the perspective of above, we can note with satisfaction that under the aegis of this Court, the P.Ram Committee, NEERI and CPCB have conducted studies and have submitted their reports. They have been duly taken into consideration by the High Powered Committee constituted under the chairmanship of Chief Secretary of the State. Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 49 14744 of 2007; 4472 of 2009 and 8970 of 2009 Furthermore, PSHRC has also got a study conducted from eminent experts. The necessary inputs, as to what is required to be done by the State Government in the form of suggestions, are already available. The Committee of Chief Secretary has taken note of the suggestions and necessity of initiating immediate preventive and future remedial measures. We are also aware that it is not a part of our job to run day-to- day affairs of the State. Neither we have the necessary expertise nor specialization, nor are even we aware of the constraints of the State Government and its resource limitation. We have no reason to doubt that the State Government spends each penny wisely and that too, to take care of the immediate concerns of the citizens. Thus, it is not for us to say in what particular manner and as to how the State should tackle the problem which has been caused due to neglect of Budha Nullah. Suffice it to say, various bodies like PSHRC, the P.Ram Committee, NEERI and CPCB have brought to the notice of the State Government as to what is required to be done by it. As stated earlier, the Chief Secretary in various deliberations, meetings and the affidavits filed before us has also agreed that the steps suggested by the above said bodies, require immediate attention of the State for discharging its statutory functions towards community health, safety, ecology and for ensuring a dignified living to the citizens of Ludhiana. Therefore, we shall refrain to give our advisory opinion while exercising jurisdiction in public interest litigation. However, we shall expect that the State Government, Municipal Corporation, PPCB and the District Administration in consultation, in tandem and in harmony with the CPCB and Ministry of Environment Union of India, shall take all active steps for resolving the problem faced by Budha Nullah and Ludhiana city. While doing so, we have no doubt that the Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 50 14744 of 2007; 4472 of 2009 and 8970 of 2009 State Government shall take into consideration interest of the villagers which has been projected in CWP No.14744 of 2007 titled as 'Sant Singh Namberdar and others v. State of Punjab and others' by considering their grievance that by stoppage of flow of village drains into Budha Nullah no steps have been taken to take care of the community health of villagers of the villages around Budha Nullah.

Given the varied dimensions and involvement of several processes which form a part of the governance, this Court shall be hesitant to enter into the scrutiny of all details of governance by the various instrumentalities of the State. We are also sanguine that while taking necessary action for the redressal of grievances of all, the State Government shall balance the interests of all concerned including the industry. They will do well to harmonize the competing demands and will perform their bit to synthesize divergence of opinion.

So far as the writ petitions filed by Tajpur Road Dyeing and Industries Associations and Dyeing Effluent Treatment Society i.e. CWP No. 4472 of 2009 and CWP No.8970 of 2009 respectively are concerned, we are of the view that no direction as prayed for can be issued as industry for its profits and gains cannot show its back to responsibilities and demands, towards betterment of the community. The industry cannot turn blind towards its social role. Let industry at first instance install CEPT or achieve zero liquid discharge as prescribed by expert bodies. Thereafter, it may raise claim before the appropriate forum for disbursal of subsidy. As and when the same is done, we are of the view that the State Government shall take a pragmatic view and consider the demands of the industry raised in these two writ petitions, while balancing the legitimate concerns of all classes or sections of people.

Civil Writ Petitions No.7036 of 2005; 13881 of 2006; 51 14744 of 2007; 4472 of 2009 and 8970 of 2009 To give effect to what has been stated above, we dispose of these five writ petitions by directing that the High Power Committee already constituted under the chairmanship of Chief Secretary concerning Budha Nullah shall continue to meet periodically and shall also monitor actively, protection and preservation of Budha Nullah, its environment and ecology and that of Ludhiana city. To ensure probity and transparency in the affairs of the Committee, we direct it to publish the action taken report quarterly so that in case any citizen or a well meaning group is aggrieved he can again approach this Court for redressal of the grievance. We do hope and expect that in the light of what has been noticed in this judgment and the observations made, the above said Committee duly constituted under the chairmanship of Chief Secretary shall perform its part and achieve desired results.

All pending applications are also disposed of.

[RANJAN GOGOI]
CHIEF JUSTICE

[KANWALJIT SINGH AHLUWALIA]
JUDGE

November 14, 2011
rps

ANNEXURE-B


12/2015
1985
2023
Image © 2025 CNES / Airbus
127 m
1985
Imagery Date: 12/18/2015 30°55'06.34" N 75°54'42.34" E elev 266 m

ANNEXURE-C

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
(पर्यावरण एवं वन मंत्रालय, भारत सरकार)
(MINISTRY OF ENVIRONMENT & FORESTS, GOVT. OF INDIA)

No.B-29012/ESS(CPA)/2015-16/ March 07, 2016

To

The Chairman
All the State Pollution Control Boards / Pollution Control Committees
(List Attached)

SUB: MODIFIED 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 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 classification of industrial sectors under Red/Orange/ Green category and that classification was being used by the SPCBs/PCCs for grant of consents to industries and for Inventorization / surveillance of industries.

WHEREAS, the issue regarding classification of industries was deliberated upon in the 56th Conference of Chairmen & Member Secretaries of CPCB & SPCBs/PCCs held on August 31, 2010 and a working group comprising of representatives from SPCBs & CPCB was constituted to prepare a consolidated list of industrial sectors falling under Red/Orange/Green category to bring uniformity in classification of industrial sectors across the country;

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली-110032
'Parivesh Bhawan', East Arjun Nagar, Delhi - 110032
दूरभाष/Tel. : 43102030, फैक्स/Fax : 22305793, 22307078, 22307079, 22301932, 22304948
ई-मेल/e-mail : cpcb@nic.in वेबसाईट/Website : www.cpcb.nic.in

WHEREAS, the report prepared by the Working Group was discussed in the 57th Conference of Chairmen & Member Secretaries of CPCB& SPCBs/PCCs held in Delhi on September 15, 2011, wherein some modifications were proposed;

WHEREAS, the final report of the working group was prepared, incorporating the suggestions/observations made in the 57th Conference of Chairmen and Member Secretaries of CPCB & SPCBs/PCCs and in exercise of the powers delegated to the Chairman, CPCB under Section 18(1)(b) of the Water Act, 1974, following directions were issued for compliance to all SPCBs/PCCs to maintain uniformity in categorization of industries as red, orange and green as per list finalized by CPCB, which identified 85 types of industrial sectors as 'Red', 73 industrial sectors as 'Orange' and 86 sectors as 'Green':

a). To maintain uniformity in categorization of industries under Red/ Orange/Green category, the SPCBs /PCCs shall adopt the list as finalized by CPCB based on the recommendations of that Working Group for grant of Consent, inventorization of industries under Red, Orange and Green categories and other related activities.

(b). The SPCBs/PCCs shall revise the list of Red, Orange and Green categories of industries operating in their jurisdiction based on the criteria specified in the final report of that Working Group and submit the same to CPCB within 90 days in hard copy as well as soft copy;

WHEREAS, later-on, it was observed that the process of categorization thus far was primarily based on the size of the industries and consumption of resources and pollution due to discharge of emissions and effluents and its likely impact on health was not considered as primary criteria;

WHEREAS, there have been proposals from the SPCBs / PCCs and industrial associations for categorization of the industrial sectors in a more pragmatic manner. The issue was discussed during the national level conference of the Environment Ministers of the States, held in New Delhi during April 06-07, 2015 and also during the Conference of the Chairmen and Member Secretaries of CPCB and SPCBs/PCCs held in New Delhi on April 08, 2015. Accordingly, a 'Working Group' comprising of the Members from Central Pollution Control Board and State Pollution Control Boards representing the States of Andhra Pradesh, Punjab, Tamilnadu, West Bengal, Madhya Pradesh and Maharashtra, was constituted to revisit the criteria of categorization of industries and suggest rationale based on pollution potential for categorization of industrial sectors and adopting it for implementation of pollution control plan;

WHEREAS, the Working Group has developed the criteria of categorization of industrial sectors based on the concept of Pollution Index which is a function of the emissions (air pollutants), effluents (water pollutants), hazardous wastes generated and consumption of resources. For this purpose the references are taken from the the Water (Prevention and Control

of Pollution) Cess (Amendment) Act, 2003, Standards so far prescribed for various pollutants under Environment (Protection) Act , 1986 and Doon Valley Notification, 1989 issued by MoEFCC. The Pollution Index (PI) of any industrial sector is a number from 0 to 100 and the increasing value of PI denotes the increasing degree of pollution load from the industrial sector;

WHEREAS , based on the series of consultations with SPCBs, different Government / Non-government Institutions including industries and MoEFCC , the following criteria on 'Range of Pollution Index 'for the purpose of categorization of industrial sectors has been finalized:

- Industrial Sectors having Pollution Index score of 60 and above - Red category
- Industrial Sectors having Pollution Index score of 41 to 59 -Orange category
- Industrial Sectors having Pollution Index score of 21 to 40 -Green category
- Industrial Sectors having Pollution Index score incl. & upto 20 -White category

WHEREAS, based on the revised criteria, the 'Final Report on Revised Categorization of Industrial Sectors under Red/Orange/Green/White' has been evolved. The 'Categorization' is based on the relative pollution potential of the industrial sectors and grouping of the industrial sectors based on the use of raw materials, manufacturing process adopted and pollutants likely to be generated;

WHEREAS, based on relative Pollution Index, the number of industries in various categories are as under :

i. The Red category of industrial sectors: 60
ii. The Orange category of industrial sectors: 83
iii. The Green category of industrial sectors: 63 and
iv. The Newly introduced White category: 36

WHEREAS, there shall be no necessity of obtaining the Consent to Operate" for White category of industries and an intimation to concerned SPCB / PCC shall suffice;

WHEREAS, 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 no or minimum pollutants.

WHEREAS the new categorization system shall also facilitate in self-assessment by industries;

Now, therefore, in exercise of the powers delegated to the Chairman, CPCB 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 issued in June 2012 in the context of categorisation of industries as Red, Orange & Green are withdrawn with immediate effect and following **'Directions'** are hereby issued for compliance by all SPCBs and PCCs :

1. That the SPCBs and PCCs shall adopt the Revised Criteria of categorization of industrial sectors as detailed in table nos. F1, F2, F3 and F4 and Revised Lists of Red, Orange, Green and White categories of industrial sectors, presented at table no. G2, G3, G4 and G5 respectively, in the 'Final Report' as attached herewith immediately.
2. That all pending applications for consideration of 'Consent to Establish' and 'Consent to Operate' and future such applications shall be processed as per revised criteria.
3. That the SPCBs and PCCs will provide the list of industries identified in each category existing in the State which have been considered for grant of consents. SPCBs/PCCs will forward the list of such industries before 31.05.2016 and the same will be uploaded on the websites of respective SPCB/PCC.

4. That the 'Revised Lists of Red, Orange, Green and White category of industrial sectors' shall be used by the SPCBs and PCCs for Consent Management and inventorization of industries under Red, Orange ,Green and White categories. Siting of industries shall be only in conforming areas. SPCBs / PCCs shall evolve sector specific plans for control of pollution and industrial surveillance for verifying compliance.

5. That the SPCBs and PCCs shall revise /prepare the inventory of Red, Orange, Green and White categories of industries operating in their jurisdiction based on the revised criteria specified in the Final Report and submit the same to CPCB within 90 days i.e., before 30.05.2016 in hard copy as well as soft copy.

6. That the listed category of industries or those identified later-on under different categories shall not be linked to sanction of loan /finance or bank proceedings.

7. That any further addition of any new or left-over industrial sector and their categorization which is not listed in the revised list of Red, Orange, Green and White industrial sectors, shall be done at the level of concerned SPCB /PCC following revised criteria & guidelines as detailed in the attached document and no concurrence of CPCB shall normally be required. It is further clarified that while categorizing the industries, fractional numbers shall be rounded off to nearest integer.

The SPCBs/PCCs shall acknowledge the receipt of directions and submit the 'Action Taken Report' in compliance with these directions to CPCB before 15.04.2016.

(Arun Kumar Mehta)
Chairman
7/3/16

Copy to:

1. The Chief Secretary of all the States and UTs
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 Advisor(CP Division)
   Ministry of Environment ,Forests and Climate Change
   Indira Paryavaran Bhawan
   Jor Bagh Road, New Delhi – 110 003
6. All Zonal Offices of CPCB

(A. B. Akolkar) 7.3.16
Member Secretary

Final Document on Revised Classification of Industrial Sectors Under

Red, Orange, Green and White Categories

(February 29, 2016)

Central Pollution Control Board

Delhi

Executive Summary

Categorization of Industrial Sectors under Red, Orange, Green and White Category

The Ministry of Environment, Forest and Climate Change (MoEFCC) had brought out notifications in 1989, with the purpose of prohibition/ restriction of operations of certain industries to protect ecologically sensitive Doon Valley. The notification introduced the concept of categorization of industries as " Red", "Orange "and "Green" with the purpose of facilitating decisions related to location of these industries. Subsequently, the application of this concept was extended in 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.

The concept of categorization of industries continued to evolve and as different State Pollution Control Boards interpreted it differently, a need arose to bring about necessary uniformity in its application across the country. In order to harmonize the 'Criteria of categorization', Directions were issued by CPCB under Section 18(1)(b) of the Water (Prevention & Control of Pollution) , Act, 1974 to all SPCBs/PCCs to maintain uniformity in categorization of industries as red, green and orange as per list finalized by CPCB, which identified 85 types of industrial sectors as 'Red', 73 industrial sectors as 'Orange' and 86 sectors as 'Green'.

The process of categorization thus far was primarily based on the size of the industries and consumption of resources. The pollution due to discharge of emissions & effluents and its likely impact on health was not considered as primary criteria. There was demand from the SPCBs / PCCs and industrial associations for categorization of the industrial sectors in a more transparent manner. Accordingly, the issue was discussed thoroughly during the national level conference of the Environment Ministers of the States, held in New Delhi during April 06-07, 2015 and a 'Working Group' comprising of the members from CPCB, APPCB, TNPCB, WBPCB, PPCB, MPPCB and Maharashtra PCB is constituted to revisit the criteria of categorization of industries and recommend measures for making the system transparent and rational.

The Working Group has developed the criteria of categorization of industrial sectors based on the Pollution Index which is a function of the emissions (air pollutants), effluents (water pollutants), hazardous wastes generated and consumption of resources. For this purpose the references are taken from the the Water (Prevention and Control of Pollution) Cess (Amendment) Act, 2003, Standards so far prescribed for various pollutants under Environment (Protection) Act , 1986 and Doon Valley Notification, 1989 issued by MoEFCC. The Pollution Index PI of any industrial sector is a number from 0 to 100 and the increasing value of PI denotes the increasing degree of pollution load from the industrial sector. Based on the series of brain storming sessions among CPCB, SPCBs and MoEFCC , the following criteria on 'Range of Pollution Index 'for the purpose of categorization of industrial sectors is finalized.

- Industrial Sectors having Pollution Index score of 60 and above – Red category
- Industrial Sectors having Pollution Index score of 41 to 59 –Orange category
- Industrial Sectors having Pollution Index score of 21 to 40 –Green category
- Industrial Sectors having Pollution Index score incl.&upto 20 -White category

The newly introduced White category of industries pertains to those industrial sectors which are practically non-polluting such as Biscuit trays etc. from rolled PVC sheet (using automatic vacuum forming machines), Cotton and woolen hosiers making (Dry process only without any dying/washing operation), Electric lamp (bulb) and CFL manufacturing by assembling only, Scientific and mathematical instrument manufacturing, Solar power generation through photovoltaic cell, wind power and mini hydel power (less than 25 MW).

The salient features of the 'Re-categorization' Exercise are as follows :

- Due importance has been given to relative pollution potential of the industrial sectors based on scientific criteria . Further, wherever possible, splitting of the industrial sectors is also considered based on the use of raw materials, manufacturing process adopted and in-turn pollutants expected to be generated.
- The Red category of industrial sectors would be 60.
- The Orange category of industrial sectors would be 83.
- The Green category of industrial sectors would be 63.
- Newly introduced White category contains 36 industrial sectors which are practically non-polluting.
- There shall be no necessity of obtaining the Consent to Operate'' for White category of industries. An intimation to concerned SPCB / PCC shall suffice.
- No Red category of industries shall normally be permitted in the ecologically fragile area / protected area.

The purpose of categorization is to ensure that the industry is established in a manner which is consistent with the environmental objectives. The new criteria will prompt industrial sectors willing to adopt cleaner technologies, ultimately resulting in generation of fewer pollutants. Another feature of the new categorization system lies in facilitating self-assessment by industries as the subjectivity of earlier assessment has been eliminated. This 'Re-categorization' is a part of the efforts, policies and objective of present government to create a clean & transparent working environment in the country and promote the Ease of Doing Business.

Other similar efforts include installation of Continuous Online Emissions/ Effluent Monitoring Systems in the polluting industries, Revisiting of the CEPI (Comprehensive Environment Pollution Index) concept for assessment of polluted industrial clusters, Revision of existing industrial Emission/Effluent discharge standards, initiation of special drive on pollution control activities in Ganga River basin and many more in coming future.

Revised Criteria of Categorization of Industries

"Securing industrial pollution control in accordance with the Water (Prevention & Control of Pollution) Act, 1974 and Air (Prevention & Control of Pollution) Act, 1981 by linking with categorization of industries, consent management and vigilance – 'In context of Red, Orange, Green and White categories of industries"

A: Genesis of Categorization:

- The Ministry of Environment, Forest and Climate Change (MoEFCC) had brought out notifications, which inter-alia refers to Prohibition/ Restriction on operation of industries to protect ecologically sensitive areas or areas of specific importance. This has for the first time brought the concept of categorization of industries to" Red", "Orange "and "Green" and restrict their operation in certain areas of importance. Therefore, it is at-once interpreted that Red, Orange and Green categorization is linked with location specific needs.
- The notification of MoEF was first brought on 2nd February,1989 in case of "Restriction on location of industries, mining operations and other developmental activities in Doon Valley in "Uttarakhand" and thereafter another notification on 24th February 1999 regarding restriction on the setting up of industries in Dahanu Taluka in Maharashtra. The categorization had been made mainly on the basis of size of the industries, man power and consumption of resources.
- However, in other parts of the country, there have been variations in context to the classification of industries under Red, Orange and Green categories. SPCBs / PCCs were following their own criteria in different States thereby creating confusion.
- In order to harmonize the 'Criteria of categorization', a 'Working Group' was formed as per resolution passed during the 57th Conference of the Chairmen & Member Secretaries of CPCB and SPCBs. Based on the recommendations of the Working Group, Directions dated 4/6/2012 under Section 18(1)(b) of the Water

(Prevention & Control of Pollution) , Act, 1974 were issued to all SPCBs/PCCs with the effects to maintain uniformity in categorization of industries as red, green and orange as per list finalized by the Working Group. This indicative list included 85 types of industrial sectors as 'Red', 73 industrial sectors as 'Orange' and 86 sectors as 'Green'. However, these identified categories have not been assigned with scores as per existing criteria/ or any new criteria

B: Categorization criteria used by SPCBs/PCCs:

SPCBs and PCCs use the criteria of Red, Orange and Green categories for consent management and vigilance purposes for carrying out inspections to verify compliance to the stipulated standards. However the above categorization do not emphasize on sector-specific plan for control of pollution in accordance with priority based on pollution index.

C: Gap in the process:

1. The categorization has been made mainly on the basis of size of the industries and consumption of resources. The pollution due to discharge of emissions & effluents and its impact on health was not considered as primary criteria.
2. Categorization was on random basis, no scoring system was adopted.

D: Resolutions made during National Level Conferences

The issue was discussed thoroughly during the following national level conferences held in New Delhi:

- Conference of the Environment Ministers of Central Government and State Governments during April 06-07, 2015
- 59th Conference of Chairmen & Member Secretaries of Pollution Control Boards / Pollution Control Committees held on April 08, 2015

Accordingly following resolutions were made during the Conferences:

1. *A 'Working Group' comprising of the members from CPCB, APPCB, TNPCB, WBPCB, PPCB, MPPCB and Maharashtra PCB is constituted.*
2. *This WG shall revisit the categorization of industries that is based on pollution index criteria & environmental issues such as generation of emission, effluent and hazardous wastes.*
3. *The categorization will be done on the basis of composite score (0-100 marks) of Pollution Index given in accordance with the following weightage.*

Air Pollution Score based on parameters namely PM, CO, NOx, SOx, HMs , Benzene, Ammonia and other toxic parameters relevant to the industry.	*40 Marks*
Water Pollution Score based on parameters namely pH, TSS, NH_3-N, BOD, Phenol and other toxic pollutants relevant to the industry.	*40 Marks*
Hazardous wastes (land fillable, incinerable, recyclable) as generated by the industry.	*20 Marks*
Note : • *Parameters to be decided on the basis of the nature of the wastes generating from the industrial sector.* • *Industries having only either water pollution or air pollution, the score will be normalized wrt 100.*	

4. *Based on the score of the Pollution Index, following categorization be made :*
   - *Type of industries, if scores 60 and above be categorized as Red*
   - *Type of industries, if scores from 30 to 59 be categorized as Orange*
   - *Type of industries, if scores from 15 to 29 be categorized as Green*
   - *Type of industries, if less than 15 be categorized as White or non-polluting industry.*
5. *SPCBs/PCCs may issue consent to the industries*
   - *Red category of industries for 5 years.*
   - *Orange category of industries for 10 years.*
   - *Green category of industries for 15 years.*
   - *No necessity of consent for non-polluting industries.*
6. *No red categories of industries will be permitted to establish in eco-sensitive areas and protected areas.*

E: Follow-up Actions made on the Resolutions :-

- Accordingly, a Committee comprising the Chairmen of CPCB, APPCB, TNPCB, MPPCB, MPCB, PPCB, WBPCB and MS, CPCB was constituted vide CPCB OM dated

23.04.2015 to review & classify industrial sectors into different categories based on criteria of respective pollution potential.

- The categorization is made on the basis of following:
    - Quality of emissions (air pollutants) generated
    - Quality of effluents (water pollutants) generated
    - Types of hazardous wastes generated
    - Consumption of resources

- Reference is taken from the following :
    - The Water (Prevention and Control of Pollution) Cess Act, 1977
    - Standards so far prescribed for various pollutants under the Environment (Protection) Act , 1986
    - Doon Valley Notification, 1989 issued by MoEF.

F : Scoring Methodology :

The details on the scoring methodology in respect of the aforesaid 3 components is presented in the following tables F-1 to F-4 .

Table F-1 : Water Pollution Scoring Methodology

Sl. No.	Activity / Types of Discharges	Score
Part A : Score W1 : Score based on types of expected criteria water-pollutants present in industrial processes waste waters. **Maximum of the following seven categories is to be taken.**		
W11	Waste-water which is polluted and the pollutants are - • not easily biodegradable (very high strength waste waters having BOD > 5000 mg/l); or • toxic; or • both toxic and not easily biodegradable. (Presence of criteria water pollutants having prescribed standard limits up-to 10 mg/l or having BOD > 5000 mg/l). For details appendix 1 may be referred)	30
W12	Non-toxic high strength polluted waste-water having BOD in the range of 1000-5000 mg/l and the pollutants are biodegradable. (Presence of criteria water pollutants having prescribed standard limits from 11 mg/l to 250 mg/l and having BOD strength in the range of 1000-5000 mg/l) . For details appendix 1 may be referred)	25
W13	Non toxic- polluted waste-water having BOD below 1000 mg/l and the pollutants are easily biodegradable. (Presence of criteria water pollutants having prescribed standard limits from 11mg/l to 250 mg/l and having BOD strength below 1000 mg/l) . For details appendix 1 may be referred)	20
W14	Waste-water generated from the chemical processes and which is polluted due to presence of high TDS (total dissolved solids) of inorganic nature. (Presence of criteria water pollutants having prescribed standard limits more than 250 mg/l. For details appendix 1 may be referred)	15
W15	Waste-water generated from the physical unit operations / processes and which is polluted due to presence of TDS (total dissolved solids) of inorganic nature and of natural origin like fresh-water RO rejects, boiler blow-downs, brine solution rejects etc. (Presence of criteria water pollutants having prescribed standard limits more than 250 mg/l. For details appendix 1 may be referred)	12
W16	Non-toxic polluted waste-water from those units which are: • Having the overall waste-water generation less than 10 KLD and • The pollutants are easily bio-degradable having BOD below 200 mg/l which can be easily treated in a single stage ASP (activated	12

	sludge process) based Effluent Treatment Plant. Note : This is a special category and is applicable to only those units having over-all liquid waste generation less than 10 KLD with low strength organic load.	
W17	Waste-water from cooling towers and cooling-re-circulation processes	10
Part B : Score W2 : Score based on huge discharges of any kind (Penalty Clause)		
W2	Industry having overall liquid waste generation of 100 KLD or more including industrial & domestic waste-water.	10
Overall Water Pollution Score W = W1+W2		

Appendix 1

- **Water Pollutants covered under Group W11:**

  - ✓ Free available Chlorine , Total residual chlorine, Fluoride (as F), Sulphide (as S), Free Ammonical Nitrogen, Dissolved phosphates (as P), Free ammonia (as NH3), Nitrate Nitrogen, Mercury (As Hg), Selenium (as Se), Hexa-valent chromium (as Cr + 6), Lead (as Pb), Tin , Vanadium (as V), Cadmium (as Cd), Manganese (as Mn), Total chromium (as Cr), Copper (as Cu), Iron (as Fe), Nickel (as Ni), Zinc (as Zn), Benzene, Arsenic (as As), Benzo-a-pyrene, Cyanide (as CN), Phenolic compounds (as C_6H_5OH) , Adsorbable Organic Halogens (AOX), Boron and /or
  - ✓ BOD strength of waste water > 5000 mg/l

- **Water Pollutants covered under Group W12:**

  - ✓ Sodium Absorption Ratio (SAR) , Biochemical oxygen demand (3 days at 27°C), Total Kjeldahl nitrogen (TKN), Ammonical nitrogen (as N), Suspended solids, Total nitrogen (as N), Chemical oxygen demand, Oils & grease and
  - ✓ BOD strength of waste water is in the range of 1000-5000 mg/l

- **Water Pollutants covered under Group W13:**

  - ✓ Sodium Absorption Ratio (SAR), Biochemical oxygen demand (3 days at 27°C), Total Kjeldahl nitrogen (TKN), Ammonical nitrogen (as N), Suspended solids, Total nitrogen (as N), Chemical oxygen demand and
  - ✓ BOD strength of waste water is below 1000 mg/l

- **Water Pollutants covered under Group W14 and W15:**

  Chlorides as Cl, Colour , Total dissolved solids (TDS - Inorganic)

- **Water Pollutants covered under Group W16**

  - ✓ BOD strength of waste water is below 200 mg/l and overall discharge is less than 10 KLD.

Table F-2 : Air Pollution Score

Sl. No.	Air Pollutants Group	'Range of Prescribed Standard ' of criteria pollutants	Marks
Part 1 : Score A1 = Score based on types of expected criteria Air Pollutants present in the emissions . Maximum of the following seven categories is to be taken. For details appendix 2 may be referred.			
1	Group A1A	Presence of criteria air pollutants having prescribed standard limits up-to 2 mg/Nm3	30
2	Group A1B	Presence of criteria air pollutants having prescribed standard from 3 to10 mg/Nm3	25
3	Group A1C	Presence of criteria air pollutants having prescribed standard from 11 to 50 mg/Nm3	20
4	Group A1D	Presence of criteria air pollutants having prescribed standard from 51 to 250 mg/Nm3	15
5	Group A1E	Presence of criteria air pollutants having prescribed standard from 251mg/Nm3 & above.	10
6	Group A1F	• Generation of fugitive emissions of Particulate Matters which are: o Not generated as a result of combustion of any kind of fossil-fuel. o Generated due to handling / processing of materials without involving the use of any kind of chemicals. o Which can be easily contained /controlled with simple conventional methods	10
7	Group A1G	• Generation of Odours which are : o Generated due to application of binding gums / cements /adhesives /enamels o Which can be easily contained /controlled with simple conventional methods	10
Part 2 : Score A2 = Score based on consumption of fuels and technologies required for air pollution control :			
6	Group A2F1	• All such industries in which the daily consumption of coal/fuel is more than 24 MT/day and the particular (Particulate/gaseous/process) emissions from which can be controlled only with high level equipments / technology like ESPs, Bag House Filters, High Efficiency chemical wet scrubbers etc.	10
7	Group A2F2	• All such industries in which the daily consumption of coal/fuel is from 12 MT/day to 24 MT/day and the particular (Particulate/gaseous/process) emissions from which can be controlled with suitable proven technology.	5
Overall Air Pollution Score –A = A1 + A2			

Appendix 2

- **<u>Air pollutants covered under Group A1A:</u>**

  Cd+Th, Dioxins & Furans, Mercury, Asbestos

- **<u>Air Pollutants covered under Group A1B:</u>**

  HF, Nickel+ Vanadium, HBr, Manganese, Lead, H2S, P2O5 as H3PO4

- **<u>Air Pollutants covered under Group A1C:</u>**

  Chlorine, Pesticide compounds, CH3Cl, TOC, Total Fluoride, Hydrocarbons, NH3, HCL vapour & Mist, H2SO4 Mist, SO2

- **<u>Air Pollutants covered under Group A1D:</u>**

  CO, PM, CO, NOx

- **<u>Air Pollutants covered under Group A1E:</u>**

  NOx with liquid-fuel, SO2 with liquid-fuel

Table F-3: Hazardous Waste Generation Score

Sl.No.	**Types of Hazardous Waste Generated as** per Schedule 1 / Schedule 2 of Hazardous Waste (Management, Handling & Trans-boundary Movement) Rules , 2008 . **Maximum of the following four categories is to be taken**	**Score**
HW1	• Land disposable HW which require special care & treatment for stabilization before disposal.	20
HW2	• Incinerable HW	15
HW3	• Land disposable HW which doesn't require treatment & stabilization before disposal. • High volume low effect wastes such as fly-ash, phspho-gypsum, red-mud, slags from pyro-metallurgical operations, mine tailings and ore beneficiation rejects)	10
HW4	• Recyclable HW, which are easily recyclable with proven technologies.	10

Table F-4 : Calculation Sheet

Industrial Sector - .....

1. Water Pollution Score (W)			
Scores	Waste Water Category	Value	
Score on W1			
Score on W2			
Water Pollution Score = W1+W2			
2. Air Pollution Score (A)			
Scores	Air Pollutant Category	Value	
Score on A1			
Score on A2	-	-	
Air Pollution Score = A1+A2			
3. Hazardous Waste Score (HW)			
Score	HW Category	Value	
HW			
Grand Total = W + A + HW			

Note :

1. Any of the industrial sector having only either air pollution (A) or water pollution (W) , the score will be normalized to 100 as per the following formula –

   Normalized Score = {100 x W (or A)} / 40

2. Any of the industrial sector having air pollution (A) and water pollution (W) both but no hazardous waste generation (H) , the joint score of air & water pollution will be normalized to 100 as per the following formula –

   Normalized Score = {100 x (W+A)} / 80

3. Any of the industrial sector having air pollution (A) & hazardous waste generation (H) but no water pollution (W), the joint score of air pollution & hazardous waste generation will be normalized to 100 as per the following formula –

   Normalized Score = {100 x (A+H)} / 60

4. Any of the industrial sector having water pollution (W) and hazardous waste generation (H) but no air pollution (A), the joint score of water pollution & hazardous waste generation will be normalized to 100 as per the following formula –

   Normalized Score = {100 x (W+H)} / 60

G : Developments :

i. The existing Red (85 sectors) , Orange (73 sectors) and Green (86 sectors) i.e a total of 244 industrial sectors have been assessed as per the proposed formula by the Working Group. For this purpose, concerned Engineers / Scientists from the Member SPCBs were also involved & consulted during May 28-29, 2015.

ii. After careful examination and consideration of the suggestions of concerned stake-holders the "Draft Document on Revised Concept of Categorization of Industrial Sectors " was prepared by the Committee and circulated to all the SPCBs, PCCs and concerned Ministries for their information & comments. The ' Draft Document ' was uploaded on the website of CPCB also for information & comments of one & all.

iii. The matter was discussed during the 170th Board Meeting also and issues raised by the Board Members pertaining to some of the industrial sectors were clarified.

iv. Responses were received from various concerned Ministries, SPCBs, Industrial Associations including individuals.

v. Based on the above, final meeting was convened by the Secretary , MoEFCC with CPCB and senior officers of MoEFCC on January 06, 2016 to resolve the issues appropriately and finalize the 'Re-categorization'. Accordingly , following modifications in the 'Range of Pollution Index 'for the purpose of categorization of industrial sectors were suggested :

- Industrial Sectors having Pollution Index score of 60 and above – Red category
- Industrial Sectors having Pollution Index score of 41 to 59 –Orange category
- Industrial Sectors having Pollution Index score of 21 to 40 –Green category
- Industrial Sectors having Pollution Index score incl.& upto 20 –White category

vi. Based on the final criteria as described in v above , the final categorization is as follows :

Category of Industrial Sector	Existing Categorization	Proposed (New) categorization
Red	85	60
Orange	73	83
Green	86	63
White	---	36
Total	244	242

vii. In the proposed categorization, some of the industrial sectors have been either deleted due to duplication or merged with similar type of sectors on account of same

characteristics of pollution generation. In a similar way, some of the industrial sectors are split into more sectors on account of variation in the raw materials / manufacturing process. As a result final totals of the existing and proposed categorization are different.

viii. The industrial sector which doesn't fall under any of the above four categories (Red, Orange, Green and White) , decision with regard to its categorization will be taken at the level of concerned SPCB/PCC by a committee headed by the Member Secretary , SPCB/PCC and comprising of two senior cadre Engineers / Scientists of the SPCB / PCC in accordance with the scoring-criteria specified in this document.

ix. The summary is presented in the following Table G-1 and final lists of Red, Orange, Green and White categories of industries are presented in Tables G-2, G-3, G-4 and G-5 respectively, which are self explanatory.

Table G-1: Final Summary Table Red , Orange, Green and White Categories of Industries (16-01-16)

Sl No.	Original Categorization	Initial Nos.	Addition by Splitting into further classes	Deletion/ Shifting to foot-note due to vague term / Merger / other reasons	Re-categorization to Red	Re-categorization to Orange	Re-categorization to Green	Re-categorization to White	Check
		1	2	3	4	5	6	7	(1+2) = (3 to 7)
1	Red	85	11	7	60	26	3	Nil	96=96
2	Orange	73	2	3	Nil	51	19	2	75=75
3	Green	86	Nil	3+2=5	Nil	6	41	34	86=86
Final Categorization		244	13	15	**60 (Red)**	**83 (Orange)**	**63 (Green)**	**36 (White)**	**257 =257** (Total categories including in foot-note)

Table G-2 : Final List of Red Category of Industrial Sectors

Sl No.	Orgnl Sl.No	Industry Sector	W1	W2	W	A1	A2	A	H	W+A+H	Revised Category	REMARKS
1.	38	Isolated storage of hazardous chemicals (as per schedule of manufacturing, storage of hazardous chemicals rules ,1989 as amended)									R-R	As per provisions of Rules, to be kept under Red category especially for safety purposes.
2.	4	Automobile Manufacturing (integrated facilities)	30	-	30	20	-	20	10	60	**R-R**	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. In such cases, after thorough inspection of such units by concerned SPCB, re-categorization of the industry shall be made accordingly.
3.	34	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Spent cleared metal catalyst containing copper,, Spent cleared metal catalyst containing zinc,,	30	-	30	20	-	20	10	60	**R-R**	All the three types of pollutants are expected.
4.	44	Manufacturing of lubricating oils ,grease and petroleum based products	20	-	20	20	-	20	20	60	**R-R**	Generates all sorts of pollution.
5.	66 E	DG Set of capacity > 5 MVA	-	-	-	20	5	25	-	62.5	**R-R**	i. Mainly air polluting. ii. DG sets consume the diesel @ 0.21 litres/hr/KVA at full load. iii. Average running is taken @ 12 hrs / day although many of the DG sets run for more than this period.
6.	31	Industrial carbon including electrodes and graphite blocks, activated carbon, carbon black	10	-	-	20	5	25	10	62.5	**R-R**	Mainly air polluting. Air pollution score is normalized to 100.

7.	39	Lead acid battery manufacturing(excluding assembling and charging of lead-acid battery in micro scale)	10	-	10	25	-	25	10	62.5	**R-R**	i. Mainly air polluting. Air pollution scores are normalized to 100. ii. Lead Acid Battery manufacturing consists of various stages which broadly involve (after producing or receiving lead oxide): Paste Mixing , Grid Casting , Grid Pasting & Curing , Hydro-setting, parting & enveloping , Stacking, grouping & inter-cell welding , Formation. iii. Exposure of workmen to lead during all or any of the processes outlined above exceeds the prescribed standards if appropriate equipment in this respect is not installed at any Battery Manufacturing Unit. iv. All of the above processes, some more than others, involve release of lead particles or fumes into the environment. Pollution from the above processes can be grouped into two possible types, viz: (a) Lead Oxide becomes airborne and there is Particulate Pollution (b) Fumes are generated and there is Gaseous Pollution
8.	62	Phosphate rock processing plant	30	-	30	20	-	20	-	62.5	**R-R**	i. The separation of phosphate rock from impurities and non-phosphate materials for use in fertilizer manufacture consists of beneficiation, drying or calcining at some operations, and grinding. Phosphate rock from the mines is first sent to beneficiation units to separate sand and day and to remove impurities. Steps used in beneficiation depend on the type of rock. ii. The water & air pollution scores are normalized to 100.

9.	66	Power generation plant [except Wind and Solar renewable power plants of all capacities and Mini Hydel power plant of capacity <25MW]	10	-	10	15	10	25		62.5	**R-R**	1. Mainly air polluting. It uses a mixture of biomass (agro based) and coal (< 10 %) as a fuel. Almost, round the year operation. 2 . In case of DG sets of 5 MVA & more and emissions of SO2 will take place due to use of liquid fuel. Air pollution score will be =20 + 10 = 30, Normalized score will be 75. 3. In case of 'Waste to Energy Plants' , water will be used for cooling and air score will be - 30+10 = 40.
10.	34	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Spent catalyst containing nickel, cadmium, Zinc, copper, arsenic, vanadium and cobalt,	30	-	30	25	-	25	10	65	**R-R**	All the three types of pollutants are expected.
11.	67	Processes involving chlorinated hydrocarbons	30	-	30	20	-	20	15	65	**R-R**	Chlorinated hydrocarbons are used in the manufacture of insecticides, pesticides and organo chloro pesticides. Effluents & emissions are toxic in nature.
12.	74	Sugar (excluding Khandsari)	20	10	30	15	10	25	10	65	**R-R**	i. This industrial sector is the one among the '17 categories of Highly Polluting Industries'. ii. Sugar mills generate all sorts of pollution problems.
13.	22	Fibre glass production and processing (excluding moulding)	-	-	-	20	-	20	20	67	**R-R**	i. The use of styrene in most methods of fiberglass production causes hazardous air pollution that is harmful to breathe at excessive levels. ii. It is mainly air polluting & HW generating industry. The air pollution & HW scores are normalized to 100. iii. In case of lead containing glass, the score of A1 will be 25 and final normalized score will be 75 and shall be categorized as Red.
14.	23	Fire crackers manufacturing and bulk storage facilities	-	-	-	20	-	20	20	67	**R-R**	i. This is the normalized score based on air pollution & HW generation. ii. Various hazardous chemicals are used in the manufacturing process. iii. These chemicals are namely Potassium Nitrate , Potassium per-chlorate, Barium Nitrate, Aluminium compounds, Copper Chloride etc.

												iv. These chemicals are highly hazardous and cause serious diseases among the workers. especially ability of blood to carry oxygen leading to headaches, methemoglobinemia and kidney problems , skin problems, thyroid metal fume etc.
15.	34	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Dismantlers Recycling Plants -- Components of waste electrical and electronic assembles comprising accumulators and other batteries included on list A, mercury-switches, activated glass cullets from cathode-ray tubes and other activated glass and PCB-capacitors, or any other component contaminated with Schedule 2 constituents (e.g. cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they exhibit hazard characteristics indicated in part C of this Schedule.	-	-	-	30	0	30	10	67	R-R	Mainly air polluting and hazardous waste generating. Air & HW pollution scores are jointly normalized to 100.
16.	47	Milk processes and dairy products(integrated project)	20	10	30	20	5	25	-	68.75	**R-R**	i. Water as well as air polluting due to use of boilers. ii. Water & air pollution scores are normalized to 100.
17.	63	Phosphorous and its compounds	30	-	30	25	-	25	-	68.75	**R-R**	Water pollution & air pollution containing compounds of phosphorous are expected
18.	61	Pulp & Paper (waste paper based without bleaching process to manufacture Kraft paper)	20	10	30	15	10	25	0	68.75	**R-R**	Mainly water & air polluting . Water & air pollution scores are normalized to 100.
19.	13	Coke making , liquefaction, coal tar distillation or fuel gas making	30	-	30	20	-	20	20	70	**R-R**	It is a kind of petrochemical industry.

20.	41	Manufacturing of explosives, detonators, fuses including management and handling activities	30	-	30	20	-	20	20	70	**R-R**	i. Explosives manufacture and use contribute some measure of hazardous waste to the environment. ii. Nitroglycerin produces several toxic byproducts such as acids, caustics, and oils contaminated with heavy metals. These must be disposed of properly by neutralization or stabilization and transported to a hazardous waste landfill. iii. The use of explosives creates large amounts of dust and particulate from the explosion, and, in some cases, releases asbestos, **lead,** and other hazardous materials into the atmosphere.
21.	45	Manufacturing of paints varnishes, pigments and intermediate (excluding blending/mixing)	30	-	30	25	-	25	15	70	**R-R**	i. The process may cause considerable emissions of volatile organic compounds (VOC). VOC contribute to the creation of ozone in the lower layers of the atmosphere (photochemical air pollution) and can present danger to health. ii. Dust and odour may also be a problem. iii. Washing of vessels will contribute waste-waters. iv. Large quantity of HWs are also produced.
22.	56	Organic Chemicals manufacturing	30	-	30	20	-	50	20	70	**R-R**	Such types of industrial sectors generate all sorts of pollution.
23.	1	Airports and Commercial Air Strips	20	10	30	-	-	-	10	75	**R-R**	i. The Airports are generating mainly the waste-waters. ii. This is the water pollution normalized score for airports having discharge more than 100 KLD. iii. The airports / strips having discharge less than 100 KLD will have score of 50 and hence orange category. iv. If the score is normalized wrt water + HW both, then all the airports will come under Orange category (score - 58.33).
24.	3	Asbestos and asbestos based industries	-	-	-	30	-	30	10	75	**R-R**	i. This is mainly air polluting industry. ii. Final score is based on air pollution score only. iii. Asbestos is carcinogenic and banned in many countries.
25.	5	Basic chemicals and electro chemicals and its derivatives including manufacturing of acid	30	-	30	-	-	-	10	75	**R-R**	i. Standards prescribed for Inorganic Chemicals are adopted. ii. It is mainly water polluting industry having effluents which are toxic and not easily biodegradable.

												iii. Water pollution score normalized to 100 is undertaken. iv. The earlier Red category industrial sector namely "Hydrocyanic acid and its derivatives " is also merged under this industrial sector.
26.	7	Cement	-	-	-	20	10	30	-	75	**R-R**	This is mainly air polluting industry & hence normalized air pollution score.
27.	9	Chlorates, per-chlorates & peroxides	30	-	30	-	-	-	-	75	**R-R**	i. It is mainly water polluting industry having effluents which are toxic and not easily biodegradable. ii. Water pollution score normalized to 100 is undertaken.
28.	10	Chlorine, fluorine, bromine, iodine and their compounds	30	-	30	-	-	-	-	75	**R-R**	i. It is mainly water polluting industry having effluents which are toxic and not easily biodegradable. ii. Water pollution score normalized to 100 is undertaken.
29.	16	Dyes and Dye- Intermediates	30	-	30	20	5	25	20	75	**R-R**	i. This industrial sector is the one among the '17 categories of Highly Polluting Industries'. ii. Such types of industrial sectors generate all sorts of pollution.
30.	26	Health-care Establishment (as defined in BMW Rules)	20	10	30	-	-	-	-	75	**R-R**	i. Mainly water polluting. ii. The water pollution score is normalized to 100 & valid for Hospitals having total waste-water generation > 100 KLD. iii. The hospitals with incinerator will be categorized as Red irrespective of the quantity of the waste-water generation. iv. The hospitals having total waste-water generation less than 100 KLD and without incinerator, the normalized water pollution score will be 50 and will be categorized as Orange category.
31.	29	Hotels having overall waste-water generation @ 100 KLD and more.	20	10	30	15	-	15	-	75	**R-R**	i. Mainly water polluting. Small boiler may be installed. ii. The water pollution score is normalized to 100 & valid for Hotels having waste-water generation > 100 KLD. iii. The hotels having more than 20 rooms and waste-water generation less than 100 KLD and having a coal / oil fired boiler , the pollution score will be 35/40 & are categorized as Orange. iv. The hotels having more than 20 rooms and waste-water generation less than 10 KLD and

												having no-boiler & no hazardous waste generation, the pollution score will be 20 & are categorized as Green.
32.	34	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Lead acid battery plates and other lead scrap/ashes/residues not covered under Batteries (Management and Handling) Rules, 2001. [* 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".	30	-	30	25	--	25	20	75	**R-R**	All the three types of pollutants are generated.
33.	34	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Integrated Recycling Plants -- Components of waste electrical and electronic assembles comprising accumulators and other batteries included on list A, mercury-switches, activated glass cullets from cathode-ray tubes and other activated glass and PCB-capacitors, or any other component contaminated with Schedule 2 constituents (e.g. cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they exhibit hazard characteristics indicated in part C of this Schedule.	30	-	30	25	-	25	20	75	**R-R**	All the three types of pollutants are expected.
34.	43	Manufacturing of glue and gelatin	30	10	40	20	-	20	-	75	**R-R**	Highly water polluting & obnoxious air polluting.
35.	49	Mining and ore beneficiation	30	10	40	15	5	20	-	75	**R-R**	Both air and water polluting. Score is normalized with air & water pollution.

36.	52	Nuclear power plant	10	-	10	30	-	30	15	75	**R-R**	i. Mainly air polluting due to incinerator. Others - cooling water. ii. Air pollution score is normalized to 100.
37.	58	Pesticides (technical) (excluding formulation)	30	-	30	25	-	25	20	75	**R-R**	i. This industrial sector is the one among the '17 categories of Highly Polluting Industries'. ii. Such types of industrial sectors generate all sorts of pollution.
38.	64	Photographic film and its chemicals	30	-	30	-	-	-	-	75	**R-R**	i. Silver salts and other chemicals are used in preparation. Slight quantity of effluents is generated. ii. Water pollution scores are normalized to 100.
39.	68	Railway locomotive work shop/Integrated road transport workshop/Authorized service centers	20	10	30	-	-	-	10	75	**R-R**	i. Mainly water polluting industry . Water is used in the washing of locomotives, road transport vehicles during servicing. ii. This score is valid for those Centers having discharge more than 100 KLD. iii. Service Centers having waste-water generation < 100 KLD, the normalized score will be =(100*20)/40= 50.
40.	84	Yarn / Textile processing involving any effluent/emission generating processes including bleaching, dyeing, printing and colouring	30	10	40	15	-	15	20	75	**R-R**	In this sector all sorts of pollution are generated.
41.	8	Chlor Alkali	30	10	40	20	10	30	10	80	**R-R**	i. This industrial sector is the one among the '17 categories of Highly Polluting Industries'. ii. Chlor-alkali units are having different section like NaOH, Cl2, SBP etc which are having toxic effluents. Additionally , fuel consumption is also on higher-side.
42.	70	Ship Breaking Industries	30	-	30	30	-	30	20	80	**R-R**	i. The ship-breaking industry creates numerous hazards for the coastal and marine environment. ii. Ship-breaking releases a large number of dangerous pollutants, including toxic waste, oil, poly-chlorinated biphenyls, and heavy metals, into the waters and sea bed. iii. While most of the oil is removed before a ship is scrapped, sand used to mop up the remaining oil is thrown into the sea. High concentrations of oil and grease are then found in the coastal waters, choking marine life.

												iv. Solid waste strewn on the shore, 45 tonnes on any given day according to a study by the Central Pollution Control Board, also finds its way into the sea. v. Adding to the stress on coastal waters, the organic load from the thousands of workers living in cramped conditions with little or no sanitary facilities results in unacceptably high levels of BOD.
43.	53	Oil and gas extraction including CBM (offshore & on-shore extraction through drilling wells)	30	-	30	-	-	-	20	83	**R-R**	i. Mainly water polluting & hazardous waste generating. ii. The water pollution & HW generation scores are normalized to 100.
44.	36	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	30	-	30	-	-	-	20	83	**R-R**	Mainly water polluting & toxic hazardous waste generating industry. Scores are normalized to 100.
45.	80	Tanneries	30	-	30	-	-	-	20	83	**R-R**	Mainly water polluting & hazardous waste generating industry. Scores are normalized to 100.
46.	65	Ports and harbour, jetties and dredging operations	30	10	40	15	10	25	20	85	**R-R**	This category contain all sorts of pollution.
47.	77	Synthetic fibers including rayon ,tyre cord, polyester filament yarn	30	10	40	25	10	35	10	85	**R-R**	This sector generates all sorts of pollution problems.
48.	81	Thermal Power Plants	30	10	40	20	10	30	15	85	**R-R**	i. This industrial sector is the one among the '17 categories of Highly Polluting Industries'. ii. TPP generate all sorts of pollution problems.
49.	71	Slaughter house (as per notification S.O.270(E)dated 26.03.2001)and meat processing industries, bone mill, processing of animal horn, hoofs and other body parts	25	10	35	-	-	-	-	87.5	**R-R**	Mainly water polluting and obnoxious odour generating industry. The water pollution score is normalized to 100
50.	2	Aluminium Smelter	30	10	40	20	10	30	20	90	**R-R**	i. This industrial sector is the one among the '17 categories of Highly Polluting Industries'. ii. This sector is generating all sorts of pollution i.e. air, water and HW.
51.	12	Copper Smelter	30	10	40	20	10	30	20	90	**R-R**	i. This industrial sector is the one among the '17 categories of Highly Polluting Industries'. ii. Integrated Copper Smelters contain all sorts of

												pollution.
52.	20	Fertilizer (basic) (excluding formulation)	30	10	40	20	10	30	20	90	**R-R**	i. This industrial sector is the one among the '17 categories of Highly Polluting Industries'. ii. Generates all sorts of pollution.
53.	37	Iron & Steel (involving processing from ore/ integrated steel plants) and or Sponge Iron units	30	10	40	20	10	30	20	90	**R-R**	i. This industrial sector is the one among the '17 categories of Highly Polluting Industries'. ii. Such types of industrial sectors generate all sorts of pollution.
54.	61	Pulp & Paper (waste paper based units with bleaching process to manufacture writing & printing paper)	25	10	35	25	10	35	20	90	**R-R**	Waste paper based Pulp & Paper mills with bleaching process generate all sorts of pollution.
55.	85	Zinc Smelter	30	10	40	20	10	30	20	90	**R-R**	i. This industrial sector is the one among the '17 categories of Highly Polluting Industries'. ii. Integrated Zinc smelter generates all sorts of pollution problems.
56.	55	Oil Refinery (mineral Oil or Petro Refineries)	30	10	40	25	10	35	20	95	**R-R**	i. This industrial sector is the one among the '17 categories of Highly Polluting Industries'. ii. Such types of industrial sectors generate all sorts of pollution.
57.	59	Petrochemicals Manufacturing (including processing of Emulsions of oil and water)	30	10	40	25	10	35	20	95	**R-R**	i. This industrial sector is the one among the '17 categories of Highly Polluting Industries'. ii. Such types of industrial sectors generate all sorts of pollution. iii. The earlier red category industrial sector namely "Processing of Emulsions of Oil & Water " is merged with this industrial sector.
58.	60	Pharmaceuticals	30	10	40	30	5	35	20	95	**R-R**	i. This industrial sector is the one among the '17 categories of Highly Polluting Industries'. ii. Such types of industrial sectors generate all sorts of pollution.
59.	61	Pulp & Paper (Large-Agro + wood) , Small Pulp & Paper (agro based-wheat straw/rice husk)	30	10	40	25	10	35	20	95	**R-R**	i. This industrial sector is the one among the '17 categories of Highly Polluting Industries'. ii. Large /Small Agro based Pulp & Paper mills contribute all sorts of pollution problems.
60.	15	Distillery (molasses / grain / yeast based)	30	10	40	-	-	-	-	100	**R-R**	Mainly water polluting industry. Final score is the normalized water pollution score.

Note :

i. *Under the column Revised Category, the full forms of the abbreviations are as follows :*
   a. *R-R means original category was Red and revised category is also Red*
   b. *R-O means original category was Red and revised category is Orange*
   c. *O-O means original category was Orange and revised category is also Orange*
   d. *O-G means original category was Orange and revised category is Green*
   e. *O-W means original category was Orange and revised category is White*
   f. *G-O means original category was Green and revised category is Orange*
   g. *G-G means original category was Green and revised category is also Green*
   h. *G-W means original category was Green and revised category is White*

ii. *There are specific remarks in respect of some of the industrial sectors. These sectors are either merged with other relevant sectors or deleted due to duplication. The overall details are as follows :*

Sl No.	Original Sl No.	Industry Sector	Original Category	Remarks
1	14	Common treatment and disposal facilities(CETP, TSDF, E-waste recycling, CBMWTF, effluent conveyance project, incinerator, solvent/acid recovery plant, MSW sanitary land fill site)	R	i. All such facilities are classified as Red but special category projects as these are parts of pollution control facilities. ii. In case of CETP , the categorization will depend upon the category of member industries being served.
2	18	Processing of Emulsions of Oil & Water		It is a part of Petrochemical industries. Transferred and merged with the industrial sector namely 'Petrochemicals' at Sl. No. 54.
3	27	Heavy engineering including ship building (with investment on Plant & Machineries more than Rs 10 crores)	R	Most of the pollution generating processes / operations under this category are similar to the industry category namely "Automobile Manufacturing (integrated facilities)" at Sl . No. 1 and may be referred accordingly.
4	30	Hydrocyanic acid and its derivatives	R	Have been merged with the red category industrial sector namely " Basic chemicals and electro chemicals and its derivatives including manufacturing of acid " at Sl. No. 24
5	32	Industrial estates/ parks / complexes/ areas/ export processing zones/ SEZs/ Biotech parks/ leather complex	R	The classification will depend upon the category(ies) of the industries operating / proposed to be permitted in the area. In this context, guidelines prescribed in EIA Notification, 2006 shall be followed.
6	33	Industrial inorganic gases namely- a) Chemical gas- Acetylene, hydrogen, chlorine, fluorine, ammonia, sulphur dioxide, ethylene, hydrogen-sulphide, phosphine b) Hydrocarbon gases- Methane , ethane, propane	R	These gases are generally secondary products and produced alongwith other main products. To be classified as per the main parent plant.
7	69	Reprocessing of used oils & waste oils	R	i. The industry generates mainly the air pollution and oil bearing hazardous wastes. The normalized (air pollution & HW generation score is 58.33. ii. To be deleted as already covered under HW Recyclers / Re-processors (Used oils / Waste Oils) under Orange Category

Table G-3 : Final List of Orange Category of Industrial Sectors

Final Sl. No.	Orgnl S.No	**Industry Sector**	W1	W2	W	A1	A2	A	H	W+A+H	Revised category	Remarks
1.	20	Dismantling of rolling stocks (wagons/ coaches)	--	--	--	15	--	15	10	41.67	O-O	Emissions of dust and generation of waste oils take place during dismantling. Air pollution & HW generation scores (15+10=25) are normalized to 100.
2.	5	Bakery and confectionery units with production capacity > 1 TPD. (With ovens / furnaces)	20	--	20	15	--	15	--	43.75	O-O	
3.	10	Chanachur and ladoo from puffed and beaten rice(muri and shira) using husk fired oven	20	--	20	15	--	15	--	43.75	O-O	Normal water and air polluting.
4.	23	Coated electrode manufacturing	15	0	15	20	0	20	0	43.75	**G-O**	Preparation of core wire / rod, preparation of dry mix, preparation of wet mix, application of coating by extrusion, baking of coated electrodes
5.	24	Compact disc computer floppy and cassette manufacturing / Reel manufacturing	15	0	15	20	0	20	0	43.75	**G-O**	Generates waste-water and process emissions.
6.	24	Flakes from rejected PET bottle	20	-	20	15	-	15	-	43.75	R-O	Normal water & air pollutions are generated.
7.	30	Food and food processing including fruits and vegetable processing	20	--	20	15	--	15	--	43.75	O-O	Normal water and air polluting.
8.	40	Jute processing without dyeing	20	--	20	15	--	15	--	43.75	O-O	CPCB has notified standards for this category. Both air and water pollutions are generated.
9.	56	Manufacturing of silica gel	15	0	15	20	0	20	0	43.75	**G-O**	Waste-waters containing TDS and emissions of H_2SO_4 are generated.

10.	45	Manufacturing of tooth powder, toothpaste, talcum powder and other cosmetic items	20	--	20	15	--	15	--	43.75	O-O	Both air and water pollution are generated.
11.	55	Printing or etching of glass sheet using hydrofluoric acid	15	--	15	20	--	20	--	43.75	O-O	Both air and water pollution are generated.
12.	65	Silk screen printing, sari printing by wooden blocks	20	--	20	15	--	15	--	43.75	O-O	Wash-water and PM emissions from boilers .
13.	76	Synthetic detergents and soaps(excluding formulation)	20	-	20	15	-	15	-	43.75	R-O	i. This is the score for units having generation of waste-waters less than 100 KLD. ii. The units having waste-water generation more than 100 KLD will become mainly water polluting and accordingly normalized water pollution score will be 75 and be categorized as Red.
14.	71	Thermometer manufacturing	15	--	15	20	--	20	--	43.75	O-O	Process - making 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.
15.	14	Cotton spinning and weaving (medium and large scale)	--	--	--	15	--	37.5	10	47.5	O-O	Mainly air polluting industry. Sources of air pollution (PM) are the fine particles of cotton from spinning process. Air pollution score is normalized to 100.
16.	1	Almirah, Grill Manufacturing (Dry Mechanical Process)	--	--	--	20	--	20	--	50	O-O	Air pollution due to spray painting (emissions of VOCs). Units without painting operations shall be categorized as White.

17.	2	Aluminium & copper extraction from scrap using oil fired furnace (dry process only)	--	--	--	20	--	20	10	50	O-O	i. Normalized Air pollution score. ii. Significant air pollution due to melting (emissions of SO2, PM).
18.	3	Automobile servicing, repairing and painting (excluding only fuel dispensing)	20	--	20	20	--	20	10	50	O-O	Normal water & air polluting and recyclable waste oil generating. If the waste water generation is more than 100 KLD, it will become mainly water polluting and Red category unit.
19.	4	Ayurvedic and homeopathic medicine	20	--	20	15	--	15	15	50	O-O	
20.	7	Brickfields (excluding fly ash brick manufacturing using lime process)	--	--	--	20	--	20	--	50	O-O	Significantly air polluting.
21.	8	Building and construction project more than 20,000 sq. m built up area	20	--	20	20	--	20	--	50	O-O	1. In the pre-construction stage , it is mainly air polluting due to generation of dust (PM) emissions. 2. After construction, it is mainly water polluting. If the discharge is more than 100 KLD, it will be having the normalized score of 75 and be categorized as Red.
22.	6	Ceramics and Refractories	-	-	-	20	-	20	-	50	R-O	i. Mainly air polluting industry. ii. This score is for the units having coal consumption < than 12 MT/day. iii. For the units having coal consumption > 12 MT /day, the normalized air pollution score will be 62.5 and shall be categorized as Red.

23.	11	Coal washeries	15	10	25	15	-	15	-	50	R-O	i. Wet washeries are mainly water polluting industry generating effluents which are having inorganic SS & TDS. Additionally, air pollution due to PM emissions is also generated. ii. Water & air pollution scores are jointly normalized to 100.
24.	16	Dairy and dairy products (small scale)	20	--	20	20	--	20	--	50	O-O	Water and air polluting both.
25.	18	DG set of capacity >1MVA but < 5MVA	--	--	--	20	--	20	--	50	O-O	Mainly air polluting . air pollution score is normalized to 100.
26.	17	Dry coal processing, mineral processing, industries involving ore sintering, pelletisating, grinding & pulverization	-	-	-	20	-	20	-	50	R-O	Mainly air polluting industry. Final score is the normalized air pollution score.
27.	19	Fermentation industry including manufacture of yeast, beer, distillation of alcohol (Extra Neutral Alcohol)	20	-	20	-	-	-	-	50	R-O	i. Mainly water polluting industry. This is the normalized water pollution score for units having discharge < 100 KLD. ii. For the units having discharge > 100 KLD, the normalized water pollution score will be 75 and shall be accordingly categorized as Red.
28.	21	Ferrous and Non- ferrous metal extraction involving different furnaces through melting, refining, re-processing, casting and alloy-making	-	-	-	15	5	20	10	50	R-O	i. Mainly air polluting. ii. This score is applicable to secondary production of ferrous & non-ferrous metals (excluding lead) up-to 1 MT/hour production.

												iii. For lead, the normalized air pollution score will be = (100*25)/40= 62.5 and is categorized as Red. iv. For Induction Furnace clubbed with AOD furnace – separate calculation shall be made based on the capacity of the furnaces. In such industries, the molten metal from induction furnace is transferred to AOD furnace where other metals like manganese and nickel are added to get the metal of desired constituents. The lime and silicon are also added for reduction of the metal oxides to the base metal. the normalized air pollution score will be = (100*25)/40= 62.5 and is categorized as Red.
29.	26	Fertilizer (granulation / formulation / blending only)	--	--	--	20	--	20	--	50	O-O	Air polluting.
30.	27	Fish feed, poultry feed and cattle feed	--	--	--	20	--	20	--	50	O-O	Obnoxious odour , H2S etc. AP score is normalized to 100
31.	28	Fish processing and packing (excluding chilling of fishes)	20	--	20	--	--	--	--	50	O-O	Mainly water polluting. WP score is normalized to 100.

32.	31	Forging of ferrous and non- ferrous metals (using oil and gas fired furnaces)	--	--	--	20	--	20	--	50	O-O	Heating furnace. Mainly air polluting.
33.	32	Formulation/pelletization of camphor tablets, naphthalene balls from camphor/ naphthalene powders.	--	--	--	20	--	20	--	50	O-O	Mainly air polluting. Emissions of Benzene, HC are expected.
34.	33	Glass ceramics, earthen potteries and tile manufacturing using oil and gas fired kilns, coating on glasses using cerium fluorides and magnesium fluoride etc.	--	--	--	20	--	20	--	50	O-O	Mainly air polluting. Emissions of SO2 are expected.
35.	35	Gravure printing, digital printing on flex, vinyl	20	--	20	20	--	20	10	50	O-O	Waste waters , emissions of VOCs
36.	36	Heat treatment using oil fired furnace (without cyaniding)	--	--	--	20	--	20	--	50	O-O	Mainly air polluting and noise generating. AP Score is normalized to 100.
37.	28	Hot mix plants	-	-	-	20	-	20	-	50	R-O	Mainly air polluting. Air pollution scores are normalized to 100.
38.	37	Hotels (< 3 star) or hotels having > 20 rooms and less than 100 rooms.	20	--	20	20	--	20	--	50	O-O	Mainly water polluting. WP score is normalized to 100.
39.	38	Ice cream	20	--	20	20	--	20	--	50	O-O	Wash-water and boilers / oven for pasteurization.
40.	34	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Paint and ink Sludge/residues	-	-	-	20	0	20	0	50	R-O	Mainly air polluting. Air pollution score is normalized to 100
41.	34	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Brass Dross ,, Copper Dross,, Copper Oxide Mill Scale,, Copper Reverts, Cake & Residues,, Waste Copper and copper alloys in	10	-	10	20	-	20	10	50	R-O	Mainly air polluting.

		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 from ,,										
42.	35	Industry or processes involving foundry operations	-	-	-	20	-	20	-	50	R-O	i. This score is valid for the foundries having capacity < 5 MT/hr as such units require the coal/coke @ < 500 kg/hr. ii. The units having capacity of 5 MT/hr and more, the coal/coke consumption will be more than 500 kg/hr and the normalized score will be 62.5 and classified accordingly as Red.
43.	40	Lime manufacturing (using lime kiln)	-	-	-	20	-	20	-	50	R-O	Mainly air polluting
44.	41	Liquid floor cleaner, black phenyl, liquid soap, glycerol mono-stearate manufacturing	20	--	20	20	--	20	--	50	O-O	Both air and water pollution are generated.

45.	42	Manufacturing of glass	10	-	-	20	-	20	-	50	R-O	i. Mainly air polluting (melting at 1500ºC and refining . ii. In case of lead glass , the score of A1 will be 25 and accordingly the normalized scores will be 62.5 i.e. Red .
46.	43	Manufacturing of iodized salt from crude/ raw salt	12	--	12	20	--	20	--	50	O-O	Boiling in Evaporators (multiple effect evaporators), centrifuging, iodization with KIO3 mixing . Mainly air polluting. Air pollution score is normalized to 100.
47.	42	Manufacturing of mirror from sheet glass	--	--	--	20	--	20	--	50	O-O	Evaporator & furnace for heating the metal to be applied as reflector on mirror. Mainly air polluting.
48.	44	Manufacturing of mosquito repellent coil	--	--	--	20	--	20	--	50	O-O	Mainly air polluting. Toxic fumes are expected.
49.	46	Manufacturing of Starch/Sago	25	-	25	15	-	15	-	50	R-O	i. Water and air polluting industry. Boiler is used for steam generation. ii. Water & air pollution scores are normalized to 100
50.	46	Mechanized laundry using oil fired boiler	20	--	20	20	--	20	--	50	O-O	Both air and water pollution are generated.
51.	47	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)	--	--	--	20	--	20	--	50	O-O	1. Mainly air polluting. Boiler as well as VOCs from use of adhesives. 2. Without boiler, it will be a Green category industry.
52.	50	New highway construction project	-	-	-	20	-	20	-	50	R-O	Mainly air polluting project.

53.	51	Non-alcoholic beverages(soft drink) & bottling of alcohol/non alcoholic products	20	-	20	15	5	20	-	50	R-O	i. Both air and water polluting. Score is normalized with air & water pollution. This score is valid for industries having waste-water generation < 100 KLD. ii. For the units having waste-water generation > 100 KLD the , normalized score would be 62.5 and categorized as Red.
54.	49	Paint blending and mixing (Ball mill)	20	--	20	20	--	20	10	50	O-O	Both air and water pollution are generated.
55.	62	Paints and varnishes (mixing and blending)	20	0	0	20	0	20	0	50	**G-O**	Waste-waters as well as fumes of VOCs due to solvents, pigments, varnishes.
56.	51	Ply-board manufacturing(including Veneer and laminate) with oil fired boiler/ thermic fluid heater(without resin plant)	0	--	0	20	--	20	--	50	O-O	Mainly air polluting because of use of boiler. AP score is normalized to 100
57.	52	Potable alcohol (IMFL) by blending, bottling of alcohol products	20	--	20	--	--	--	--	50	O-O	Mainly water polluting. WP score is normalized to 100.
58.	54	Printing ink manufacturing	20	--	20	20	--	20	--	50	O-O	1. Pigments, binders and solvents are used. 2. Boiler is also used. 3. Emissions of VOCs take place.
59.	70	Printing press	20	0	20	20	0	20	0	50	**G-O**	Colored waste-waters containing dyes and VOC emissions are generated.
60.	59	Reprocessing of waste plastic including PVC	20	--	20	20	--	20	--	50	O-O	Large quantities of wash-water and fugitive emissions are generated.
61.	61	Rolling mill (oil or coal fired) and cold rolling mill	10	--	10	20	--	20	--	50	O-O	Mainly air polluting. Air pollution score is normalized to 100. Others - cooling water and recyclable waste oils etc. are generated.
62.	67	Spray painting, paint baking, paint shipping	--	--	--	20	--	20	10	50	O-O	Mainly air polluting. Emissions of VOCs and HC are generated.

63.	72	Steel and steel products using various furnaces like blast furnace /open hearth furnace/induction furnace/arc furnace/submerged arc furnace /basic oxygen furnace /hot rolling reheated furnace	10	-	10	20	-	20	10	50	R-O	i. Mainly air polluting. In the emissions, oxides of manganese, nickel etc. are also present. ii. Air pollution score is normalized to 100.
64.	73	Stone crushers	-	-	-	20	-	20	-	50	R-O	Mainly air polluting. Air pollution score is normalized to 100.
65.	75	Surgical and medical products including prophylactics and latex	20	-	20	20	-	20	-	50	R-O	Both air as well as water polluting. Air and water pollution scores are normalized to 100.
66.	85	Tephlon based products	0	0	0	20	0	20	0	50	**G-O**	Due to spraying applications, emissions (HC) are generated
67.	70	Thermocol manufacturing (with boiler)	--	--	--	20	--	20	--	50	O-O	Polystyrene is heated. Mainly air polluting with boiler.
68.	82	Tobacco products including cigarettes and tobacco/opium processes	20	-	20	20	-	20	-	50	R-O	Such industries generate both air as well as water pollution. These scores are normalized to 100.
69.	72	Transformer repairing/ manufacturing (dry process only)	--	--	--	20	--	20	10	50	O-O	Mainly air polluting because of ovens, shot-blasting etc.
70.	73	Tyres and tubes vulcanization/ hot retreating	10	--	10	20	--	20	--	50	O-O	Mainly air polluting . Emissions of PM, VOCs and obnoxious odour are generated.
71.	83	Vegetable oil manufacturing including solvent extraction and refinery /hydrogenated oils	20	-	20	15	5	20	10	50	R-O	i. All sorts of pollution are generated. ii. This score is valid for plants having waste-water generation < 100 KLD. iii. If the waste-water generation is more than 100 KLD, the unit shall be classified as Red.
72.	74	Wire drawing and wire netting	20	--	20	--	--	--	--	50	O-O	Mainly water polluting. WP score is normalized to 100.

73.	21	Dry cell battery (excluding manufacturing of electrodes) and assembling & charging of acid lead battery on micro scale	30	--	30	15	--	15	10	55	O-O	Water and air polluting both.
74.	50	Pharmaceutical formulation and for R & D purpose (For sustained release/ extended release of drugs only and not for commercial purpose)	20	--	20	20	--	20	15	55	O-O	i. All sorts of pollution are generated. ii. R&D activities are to be shifted to Red category.
75.	78	Synthetic resins	20	-	20	20	-	20	15	55	R-O	All sorts of pollution are generated.
76.	79	Synthetic rubber excluding molding	20	-	20	20	-	20	15	55	R-O	i. Most synthetic rubber is created from two materials, styrene and butadiene. Both are currently obtained from petroleum. ii. Process is similar to a part of Petrochemical plants.
77.	9	Cashew nut processing	25	--	25	20	--	20	--	56	O-O	Normal water and air polluting.
78.	12	Coffee seed processing	25	--	25	20	--	20	--	56	O-O	Normal water & air polluting industry.
79.	57	Parboiled Rice Mills	25	-	25	20	-	20	-	56	R-O	i. Rice Mills are generating both air and water pollution. Waste-waters are having high strength in respect of BOD. ii. This is the normalized air & water pollution score for units having waste-water generation < 100 KLD and fuel consumption less than 12 MTD. iii. For units having waste-water generation > 100 KLD or fuel consumption > 12 MTD or both , the unit shall be classified as Red.

80.	29	Foam manufacturing	--	--	--	20	--	20	15	58	O-O	i. Raw material is polyurethane, latex etc. ii. Emissions of VOCs and HAPs. CH3Cl2 and similar compounds as blowing agents. iii. Outdated raw materials and spoiled slots are discarded as HW.
81.	34	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Used Oil – As per specifications prescribed from time to time.	10	0	10	20	0	20	15	58.33	R-O	Mainly air polluting and hazardous waste generating industry. Air pollution & HW scores are normalized to 100
82.	34	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Waste Oil ---As per specifications prescribed from time to time.	-	-	-	20	0	20	15	58.33	R-O	Mainly air polluting and hazardous waste generating industry. Air pollution & HW scores are normalized to 100.
83.	56	Producer gas plant using conventional up drift coal gasification (linked to rolling mills glass and ceramic industry refectories for dedicated fuel supply)	--	--	--	20	--	20	15	58.33	O-O	Mainly air polluting & tar (HW) generating. SO2, CO, NOx are generated. Tar is the by-product and utilized by other industries in co-processing.

Note :

i. Under the column Revised Category, the full forms of the abbreviations are as follows :

a. R-R means original category was Red and revised category is also Red

b. R-O means original category was Red and revised category is Orange

c. O-O means original category was Orange and revised category is also Orange

d. O-G means original category was Orange and revised category is Green

e. O-W means original category was Orange and revised category is White

f. G-O means original category was Green and revised category is Orange

g. G-G means original category was Green and revised category is also Green

h. G-W means original category was Green and revised category is White

ii. *There are specific remarks in respect of some of the industrial sectors. These sectors are either merged with other relevant sectors or deleted due to duplication / vague category. The overall details are as follows:*

Sl No.	Original Sl No.	Industry Sector	Original Category	Remarks
1	24	Excavation of sand from the river bed (excluding manual excavation)	O	Since such types of activities cause ecological disturbances, the instructions issued by the government from time to time be followed. To be categorized by MoEF&CC.
2	39	Infrastructure Development Project	O	Vast variety of such projects come under such category. This is to be decided by the concerned SPCB in line of EIA Notification , 2006.
3	53	Power press	O	Very vague term hence deleted. Such types of general engineering units have already been covered.

Table G-4 : Final List of Green Category of Industrial Sectors

Sl. No.	Orgnl Sl. No.	**Industry Sector**	W1	W2	W	A1	A2	A	H	W+A+H	Revised Category	Remarks
1.	2	Aluminium utensils from aluminium circles by pressing only (dry mechanical operation)	--	--	--	10	--	10	--	25	**G-G**	Minor air pollution due to some fugitive PM emissions from buffing operations.
2.	6	Ayurvedic and homeopathic medicines (without boiler)	10	--	10	--	--	--	--	25	**G-G**	Small quantities of waste-waters are generated from washing operations.
3.	8	Bakery /confectionery /sweets products (with production capacity <1tpd (with gas or electrical oven)	10	--	10	--	--	--	--	25	**G-G**	Small quantities of waste-waters are generated from washing operations.
4.	6	Bi-axially oriented PP film along with metalizing operations	10	--	10	--	--	--	--	25	**O-G**	Mainly extrusion process involving Cooling water recirculation
5.	10	Biomass briquettes (sun drying) without using toxic hazardous wastes	--	--	--	10	--	10	--	25	**G-G**	Minor air pollution due to some fugitive PM emissions from pulverization / mixing operations.
6.	13	Blending of melamine resins & different powder, additives by physical mixing	--	--	--	10	--	10	--	25	**G-G**	Minor air pollution due to some fugitive PM emissions from pulverization / mixing operations.
7.	15	Brass and bell metal utensils manufacturing from circles(dry mechanical operation without re-rolling facility)	--	--	--	10	--	10	--	25	**G-G**	Minor air pollution due to some fugitive PM emissions from buffing operations.
8.	16	Candy	10	--	10	10	--	10	--	25	**G-G**	Small quantities of waste-water and minor

												PM emissions are generated.
9.	17	Cardboard or corrugated box and paper products (excluding paper or pulp manufacturing and without using boilers)	--	--	--	10	--	10	--	25	**G-G**	This score is valid with Small gas / electricity operated oven / furnace for making glue.
10.	18	Carpentry & wooden furniture manufacturing (excluding saw mill) with the help of electrical (motorized) machines such as electrical wood planner, steel saw cutting circular blade, etc.	--	--	--	10	--	10	--	25	**G-G**	Minor air pollution due to some fugitive PM emissions from cutting operations.
11.	19	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)	--	--	--	10	--	10	--	25	**G-G**	Minor air pollution due to some fugitive PM emissions from mixing operations.
12.	20	Ceramic colour manufacturing by mixing & blending only (not using boiler and wastewater recycling process)	--	--	--	10	--	10	--	25	**G-G**	Minor air pollution due to some fugitive PM emissions.
13.	11	Chilling plant, cold storage and ice making	10	--	10	--	--	--	--	25	**O-G**	Cooling water recirculation only.
14.	13	Coke briquetting (sun drying)	--	--	--	10	--	10	--	25	**O-G**	Mainly air polluting industry. Sources of air pollution (PM) are pulverizes and mixers. Air pollution score is normalized to 100.
15.	28	Cotton spinning and weaving (small scale)	--	--	--	10	--	10	--	25	**G-G**	Minor PM emissions from spinning process.
16.	17	Dal Mills	--	--	--	10	--	10	--	25	**O-G**	Some fugitive emissions of PM.

17.	29	Decoration of ceramic cups and plates by electric furnace	--	--	--	10	--	10	--	25	**G-G**	Fumes of enamels. Minor air pollution.
18.	19	Digital printing on PVC clothes	--	--	--	10	--	10	--	25	**O-G**	Minor emissions / odour generations are expected.
19.	25	Facility of handling, storage and transportation of food grains in bulk	--	--	--	10	--	10	--	25	**O-G**	Some fugitive emissions of PM during handling of grains.
20.	36	Flour mills (dry process)	--	--	--	10	--	10	--	25	**G-G**	Fugitive dust emissions.
21.	41	Glass , ceramic, earthen potteries, tile and tile manufacturing using electrical kiln or not involving fossil fuel kiln	--	--	--	10	--	10	--	25	**G-G**	Minor fugitive emissions only.
22.	34	Glue from starch (physical mixing) with gas / electrically operated oven /boiler.	--	--	--	10	--	10	--	25	**O-G**	Some fugitive emissions of PM during mixing of raw materials.
23.	42	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)	--	--	--	10	--	10	--	25	**G-G**	Minor fumes from cleaning process.
24.	36	Heat treatment with any of the new technology like ultrasound probe , induction hardening , ionization beam, gas carburizing etc.	10	--	10	10	--	10	--	25	**O-G**	• Cooling waters and minor heat fumes. • Finalization of categorization subject to field verification.
25.	46	Insulation and other coated papers (excluding paper or pipe manufacturing)	--	--	--	10	--	10	--	25	**G-G**	Minor fumes due to application of poly-urethane
26.	49	Leather foot wear and leather products (excluding tanning and hide processing except cottage scale)	--	--	--	10	--	10	--	25	**G-G**	Minor fumes due to use of adhesives / gums.

27.	50	Lubricating oil, greases or petroleum based products (only blending at normal temperature)	--	--	--	10	--	10	--	25	**G-G**	Minor fumes at the time of transfers from one container to other.
28.	54	Manufacturing of pasted veneers using gas fired boiler or thermic fluid heater and by sun drying	--	--	--	10	--	10	--	25	**G-G**	1. Minor fumes due to application of gums / adhesives / pastes etc. 2. This score is valid only for gas fired boiler.3. The units having coal fired boilers shall be categorized as Orange.
29.	59	Oil mill Ghani and extraction (no hydrogenation / refining)	10	--	10	--	--	--	--	25	**G-G**	Small quantities of floor washings & equipments washings are generated.
30.	48	Packing materials manufacturing from non asbestos fibre, vegetable fibre yarn	--	--	--	10	--	10	--	25	**O-G**	Some fugitive emissions of PM are expected.
31.	65	Phenyl/toilet cleaner formulation and bottling	--	--	--	10	--	10	--	25	**G-G**	Minor fumes of VOCs in the work zone
32.	67	Polythene and plastic processed products manufacturing (virgin plastic)	10	--	10	10	--	10	--	25	**G-G**	Cooling water & emissions due to mixing of raw materials.
33.	68	Poultry, Hatchery and Piggery	--	--	--	10	--	10	--	25	**G-G**	Obnoxious odour containing H_2S, CH_4 etc. and fugitive PM emissions
34.	69	Power looms (without dye and bleaching)	--	--	--	10	--	10	--	25	**G-G**	Minor emissions of PM.
35.	71	Puffed rice (muri) (using gas or electrical heating system)	--	--	--	10	--	10	--	25	**G-G**	Minor emissions of PM.
36.	57	Pulverization of bamboo and scrap wood	--	--	--	10	--	10	--	25	**O-G**	Some fugitive emissions of PM are expected.
37.	72	Ready mix cement concrete	--	--	--	10	--	10	--	25	**G-G**	PM emissions.
38.	73	Reprocessing of waste cotton	--	--	--	10	--	10	--	25	**G-G**	PM emissions.
39.	60	Rice mill (Rice hullers only)	--	--	--	10	--	10	--	25	**O-G**	PM emissions are generated. Mainly air

												polluting. AP score is normalized to 100
40.	62	Rolling mill (gas fired) and cold rolling mill	10	--	10	10	--	10	--	25	**O-G**	Mainly air polluting. AP score is normalized to 100
41.	75	Rubber goods industry (with gas operated baby boiler)	--	--	--	10	--	10	--	25	**G-G**	Some PM emissions and obnoxious odour.
42.	63	Saw mills	--	--	--	10	--	10	--	25	**O-G**	Mainly air polluting. PM and noise are generated.
43.	77	Soap manufacturing (hand made without steam boiling / boiler)	10	--	10	--	--	--	--	25	**G-G**	Small quantities of waste-water are generated.
44.	80	Spice grinding (upto-20 HP motor)	--	--	--	10	--	10	--	25	**G-G**	Small quantities of fugitive emissions of raw materials.
45.	66	Spice grinding (>20 hp motor)	--	--	--	10	--	10	--	25	**O-G**	Mainly air polluting. Fugitive emissions of PM.
46.	81	Steel furniture without spray painting	--	--	--	10	--	10	--	25	**G-G**	Obnoxious gases from welding as well as noise pollution.
47.	82	Steeping and processing of grains	10	--	10	--	--	--	--	25	**G-G**	Washing waters are generated.
48.	86	Tyres and tube retreating (without boilers)	--	--	--	10	--	10	--	25	**G-G**	Due to applications of binding gum / adhesives / cement, some obnoxious fumes may generate.
49.	22	Chilling plant and ice making without using ammonia	12	--	12	--	--	--	--	30	**G-G**	Cooling water and brine water circuits. Spillages / blow down may take place
50.	26	CO2 recovery	12	--	12	--	--	--	--	30	**G-G**	Normal water pollution from scrubbing action
51.	32	Distilled water (without boiler) with electricity as source of heat	12	--	12	--	--	--	--	30	**G-G**	TDS as distillation residues

52.	45	Hotels (up to 20 rooms and without boilers)	12	--	12	--	--	--	--	30	**G-G**	This score is valid for hotels having overall waste-water generation less than 10 KLD.
53.	53	Manufacturing of optical lenses (using electrical furnace)	12	--	12	--	--	--	--	30	**G-G**	Small quantities of waste-waters containing TDS, SS are generated.
54.	58	Mineralized water	12	--	12	--	--	--	--	30	**G-G**	RO Rejects.
55.	68	Tamarind powder manufacturing	12	--	12	15	--	15	--	33.75	O-G	• Dried tamarind fruits - cleaned and after soaking them in water they are boiled in steam jacketed kettle for about 40-45 minutes. Then pulp is extracted in pulper and dried in drum type drier and on cooling, the final product is packed. • Generates small quantities of waste waters and air emissions. Joint score is normalized to 100.
56.	15	Cutting, sizing and polishing of marble stone	15	--	15	--	--	--	--	37.5	O-G	Mainly water polluting . Water pollution score is normalized to 100.
57.	22	Emery powder (fine dust of sand) manufacturing	--	--	--	15	--	15	--	37.5	O-G	Air polluting. PM emissions take place during various stages of grindings of naturally occurring minerals.
58.	25	Flyash export, transport & disposal facilities	-	-	-	15	-	15	-	37.5	R-G	• This is mainly air polluting activity. • This is the normalized score based on air pollution.
59.	48	Mineral stack yard / Railway sidings	15	-	15	15	-	15	-	37.5	R-G	• Mainly air pollution due to loading, unloading, storage and transportation of the minerals.

												• Waste-water generation mainly during rains only.
60.	54	Oil and gas transportation pipeline	-	-	-	10	5	15	-	37.5	R-G	• Contains small gas based power plants up-to 5 MWs. • Air pollution score is normalized to 100. • In case , if these power plants are bigger / liquid fuel / oil based, scores will be calculated accordingly.
61.	64	Seasoning of wood in steam heated chamber	--	--	--	15	--	15	--	37.5	O-G	Air pollution due to use boiler for supply of steam. Air pollution score is normalized to 100.
62.	84	Synthetic detergent formulation	--	--	--	15	--	15	--	37.5	**G-G**	• This score is valid for the industries which are not manufacturing LABSA. It is procured from outside. • Small quantities of emissions are generated from mini boiler. • Air pollution score is normalized to 100.
63.	69	Tea processing (with boiler)	--	--	--	15	--	15	--	37.5	O-G	With boiler, it is an orange category industry. Without boiler, it will be green category industry.

Note :

i. *Under the column Revised Category, the full forms of the abbreviations are as follows :*
   a. *R-R means original category was Red and revised category is also Red*
   b. *R-O means original category was Red and revised category is Orange*
   c. *O-O means original category was Orange and revised category is also Orange*
   d. *O-G means original category was Orange and revised category is Green*
   e. *O-W means original category was Orange and revised category is White*
   f. *G-O means original category was Green and revised category is Orange*
   g. *G-G means original category was Green and revised category is also Green*
   h. *G-W means original category was Green and revised category is White*

ii. *There are specific remarks in respect of some of the industrial sectors. These sectors are either merged with other relevant sectors or deleted due to duplication. The overall details are as follows :*

Sl No.	Original Sl No.	Industry Sector	Original Category	Remarks
1	47	Jobbing and Machining	G	Vague category to be deleted, as such activities have already been covered in other categories.
2	66	Reel manufacturing	G	Already covered in other categories. Hence, deleted
3	1	Assembling of acid lead batteries (up to 10 batteries per day excluding lead plate casting)	G	Already covered in Orange category. Hence, deleted
4	5	Automobile fuel outlets (only dispensing)	G	Minor air pollution due to some fugitive emissions during fuel filling operations. May be exempted from the purview of Consent management.
5	30	Diesel generator sets (15 KVA to 1 MVA)	G	• Normal operation – 12 hrs a day. • Consumption of diesel = 1680 litres for 1 MVA DG set at full load @ 0.21 litres / KVA / hr. • Stand-alone DG Sets having total capacity 1 MVA or less and equipped with acoustic enclosures alongwith adequate stack height may be exempted from the purview of Consent management. Higher capacity DG sets have already been covered under Red / Orange categories .

Table G-5: Final List of White Category of Industries

Sl. No.	Orgnl Sl. No.	**Industry Sector**	W1	W2	W	A1	A2	A	H	W+A+H	Revised Category
1.	3	Assembly of air coolers /conditioners ,repairing and servicing	--	--	--	--	--	--	--	--	**G-W**
2.	4	Assembly of bicycles ,baby carriages and other small non motorizing vehicles	--	--	--	--	--	--	--	--	**G-W**
3.	7	Bailing (hydraulic press)of waste papers	--	--	--	--	--	--	--	--	**G-W**
4.	9	Bio fertilizer and bio-pesticides without using inorganic chemicals	--	--	--	--	--	--	--	--	**G-W**
5.	11	Biscuits trays etc from rolled PVC sheet (using automatic vacuum forming machines)	--	--	--	--	--	--	--	--	**G-W**
6.	12	Blending and packing of tea	--	--	--	--	--	--	--	--	**G-W**
7.	14	Block making of printing without foundry (excluding wooden block making)	--	--	--	--	--	--	--	--	**G-W**
8.	21	Chalk making from plaster of Paris (only casting without boilers etc. (sun drying / electrical oven)	--	--	--	--	--	--	--	--	**G-W**
9.	25	Compressed oxygen gas from crude liquid oxygen (without use of any solvents and by maintaining pressure & temperature only for separation of other gases)	--	--	--	--	--	--	--	--	**G-W**
10.	27	Cotton and woolen hosiers making (Dry process only without any dying / washing operation)	--	--	--	--	--	--	--	--	**G-W**
11.	31	Diesel pump repairing and servicing (complete mechanical dry process)	--	--	--	--	--	--	--	--	**G-W**
12.	33	Electric lamp (bulb) and CFL manufacturing by assembling only	--	--	--	--	--	--	--	--	**G-W**

13.	34	Electrical and electronic item assembling (completely dry process)	--	--	--	--	--	--	--	--	**G-W**
14.	23	Engineering and fabrication units (dry process without any heat treatment / metal surface finishing operations / painting)	--	--	--	--	--	--	--	--	**O-W**
15.	35	Flavoured betel nuts production/ grinding (completely dry mechanical operations)	--	--	--	--	--	--	--	--	**G-W**
16.	37	Fly ash bricks/ block manufacturing	--	--	--	--	--	--	--	--	**G-W**
17.	38	Fountain pen manufacturing by assembling only	--	--	--	--	--	--	--	--	**G-W**
18.	39	Glass ampules and vials making from glass tubes	--	--	--	--	--	--	--	--	**G-W**
19.	40	Glass putty and sealant (by mixing with machine only)	--	--	--	--	--	--	--	--	**G-W**
20.	43	Ground nut decorticating	--	--	--	--	--	--	--	--	**G-W**
21.	44	Handloom/ carpet weaving (without dying and bleaching operation)	--	--	--	--	--	--	--	--	**G-W**
22.	48	Leather cutting and stitching (more than 10 machine and using motor)	--	--	--	--	--	--	--	--	**G-W**
23.	51	Manufacturing of coir items from coconut husks	--	--	--	--	--	--	--	--	**G-W**
24.	52	Manufacturing of metal caps containers etc	--	--	--	--	--	--	--	--	**G-W**
25.	55	Manufacturing of shoe brush and wire brush	--	--	--	--	--	--	--	--	**G-W**
26.	57	Medical oxygen	--	--	--	--	--	--	--	--	**G-W**
27.	60	Organic and inorganic nutrients (by physical mixing)	--	--	--	--	--	--	--	--	**G-W**
28.	61	Organic manure (manual mixing)	--	--	--	--	--	--	--	--	**G-W**
29.	63	Packing of powdered milk	--	--	--	--	--	--	--	--	**G-W**
30.	64	Paper pins and u clips	--	--	--	--	--	--	--	--	**G-W**
31.	58	Repairing of electric motors and generators (dry mechanical process)	--	--	--	--	--	--	--	--	**O-W**
32.	74	Rope (plastic and cotton)	--	--	--	--	--	--	--	--	**G-W**

33.	76	Scientific and mathematical instrument manufacturing	--	--	--	--	--	--	--	--	**G-W**
34.	78	Solar module non conventional energy apparatus manufacturing unit	--	--	--	--	--	--	--	--	**G-W**
35.	79	Solar power generation through solar photovoltaic cell, wind power and mini hydel power (less than 25 MW)	--	--	--	--	--	--	--	--	**G-W**
36.	83	Surgical and medical products assembling only (not involving effluent / emission generating processes)	--	--	--	--	--	--	--	--	**G-W**

Note : Under the column Revised Category, the full forms of the abbreviations are as follows :

a. *R-R means original category was Red and revised category is also Red*
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f. *G-O means original category was Green and revised category is Orange*
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h. *G-W means original category was Green and revised category is White*

Annexure

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
(पर्यावरण एवं वन मंत्रालय, भारत सरकार)
(MINISTRY OF ENVIRONMENT & FORESTS, GOVT. OF INDIA)

No. B-29012/ESS/CPA/2015-16

19.08.2015

Sub: "Harmonization of Classification of industries under Red / Orange / Green / White Categories".

During the Conference of the Environment Ministers of States held in New Delhi during April 06-07, 2015, it was resolved to adopt pollution potential criteria for categorization of Red, Orange & Green categories of industries and that a Committee be constituted with State representatives. Further, in the 59th Conference of Chairmen & Member Secretaries of Pollution Control Boards/PCCs held in New Delhi on April 08, 2015, it was agreed to constitute a Committee to look into categorization system of industries based on their respective pollution potential index.

2. Accordingly, a Committee comprising the Chairmen of CPCB, APPCB, TNPCB, MPPCB, MPCB, PPCB, WBPCB and MS, CPCB was constituted vide CPCB OM dated 23.04.2015 to review & classify industrial sectors into different categories based on criteria of respective pollution potential indices.

3. The existing Red (85 sectors) , Orange (73 sectors) and Green (86 sectors) industrial sectors have been assessed as per the proposed formula by a group of Scientists from CPCB . For this purpose , concerned Engineers / Scientists from the Member SPCBs of the Committee were also involved & consulted during May28-29, 2015.

4. After careful examination and consideration of the suggestions of concerned stake-holders the "Draft Document on Revised Concept of Categorization of Industrial Sectors " is prepared by the Committee .

In this context, the Undersigned is directed to forward a copy of the " Draft Document on Revised Concept of Categorization of Industrial Sectors to all the SPCBs, PCCs and concerned Ministries for their comments. Accordingly, the same is enclosed herewith and all the SPCBs, PCCs and concerned Ministries are, hereby requested to provide their comments by 04.09.2015. The comments may kindly be sent through hard copy as well as soft copy at e-mail: nkgupta.cpcb@nic.in , nkgcpcb@hotmail.com .

Encl : As above

[N.K. Gupta]
Incharge - ESS

To:

1. All the State Pollution Control Boards / Pollution Control Committees
2. The Secretary, Ministry of Micro Small and Medium Enterprises, New Delhi
3. The Secretary, Ministry of Heavy Industries & Public Enterprises, New Delhi
4. The Advisor & Incharge , CP Division, MoEFCC, New Delhi
5. CPCB Website

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली–110032
'Parivesh Bhawan', East Arjun Nagar, Delhi - 110032
दूरभाष / Tel. : 43102030, फैक्स / Fax : 22305793, 22307078, 22307079, 22301932, 22304948
ई–मेल / e-mail :cpcb@nic.in वेबसाईट / Website : www.cpcb.nic.in

ANNEXURE-D

F. No. IA3-22/19/2021-IA.III [E 164361]
Government of India
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)
*****

Indira Paryavaran Bhawan
Aliganj, Jorbagh Road
New Delhi-110 003

Dated: 20th September, 2021

ORDER

Sub: Directions under Section 5 of the Environment (Protection) Act, 1986 to not grant or renew CTO unless Environment Clearance, as applicable, has been obtained – regarding.

Whereas, prior Environmental Clearance is a statutory requirement for project/activities covered in the schedule of the EIA Notification 2006, issued under section 3 of the Environment (Protection) Act, 1986.

2. And whereas, obtaining the consents under Water (Prevention & Control of Pollution) Act, 1974 & Air (Prevention& Control of Pollution) Act, 1981 is mandatory for all industrial units in Red, Orange and Green categories.

3. And whereas, the grant of EC and Consents are requirements under different statutes and are not inter-dependent and can be carried out as a parallel process.

4. And whereas, many a times it has been observed that while industrial units are in possession of valid 'Consent to Establish' (CTE)/ 'Consent to Operate' (CTO) issued by State Pollution Control Boards (SPCBs)/ UT Pollution Control Committees (UTPCC), however, they have not obtained the Environmental Clearance (EC), even though it was required as per provisions of EIA Notification 2006.

5. And whereas, it has been observed that this situation is arising because majority of the SPCBs/ UTPCCs are issuing CTE/CTO to projects without ascertaining the applicability of prior EC to projects/ activities, resulting in an avoidable situation of closure for even those industries also who seek to carry out their activities following due procedure.

6. Now therefore, in exercise of powers conferred by section 5 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government, hereby directs that all SPCB/UTPCC shall:

i. Ascertain the applicability of EIA Notification at the time of grant/renewal of CTE and stipulate appropriate condition for obtaining Environmental Clearance (EC), if applicable, before construction/ commencement of project/activity.

ii. Ensure that the project proponent possesses a valid Prior EC in terms of the extant EIA Notification, if applicable, at the time of grant/renewal of CTO and no CTO shall be granted or renewed unless EC, if applicable, has been obtained.

7. This is issued with the approval of the Competent Authority.

(A K Agrawal)
Director

To

Chairmen of all State/UT Pollution Control Boards and Pollution Control Committees

Copy for information to:

1. PS to Hon'ble Minister for Environment, Forest and Climate Change
2. PS to Hon'ble MoS (EF&CC)
3. PPS to Secretary (EF&CC)
4. PPS to AS(RA)/JS(SKB)
5. Chairman of all the Expert Appraisal Committees
6. Chairperson/Member Secretaries of all the SEIAAs/SEACs
7. All the Officers of IA Division, MOEFCC
8. Website MoEF&CC/ Guard file.

ANNEXURE-E

Action Plan

for

Abatement of Pollution in the

Critically Polluted Area of Ludhiana City

July 2020

PUNJAB POLLUTION CONTROL BOARD,
VATAVARAN BHAWAN,
NABHA ROAD, PATIALA - 147001

Table Contents

Chapter 1 - Introduction

1.0 Introduction

After analyzing the Environmental Status of Industrial Cluster of the country, Central Pollution Control Board in consultation with the Ministry of Environment & Forests has identified 88 Polluted Industrial Areas / clusters (PIAs). These Polluted Industrial clusters have been further categorized as 'Critically Polluted Area' (CPA), 'Severely Polluted Area' (SPA) and 'Other Polluted Areas' (OPAs) based on Environmental Pollution Index score. Ludhiana is one of such critically polluted cluster in the State of Punjab. In 2009 CPCB evaluated CEPI score reflecting the Environmental Quality of Ludhiana town and categorized Ludhiana as Critically polluted area having CEPI score 81.66.

The Ministry of Environment & Forests vide office memorandum J-11013/5/2010-IA.II(I) dated 13/1/2010 had imposed a temporary restriction of 8 months for establishment of the industrial units in the said critically polluted industrial clusters, which are covered in Schedule-I appended to the EIA notification dated 14/9/2006. It was felt to assess the environmental degradation of the identified industrial clusters and to formulate a remedial action plan for abatement of pollution and restoration of the environmental quality of these clusters. As such, the Action Plan for Abatement of Pollution in Critically Polluted Area of Ludhiana City was prepared in June, 2010. With the efforts of Punjab Pollution Control Board and other stakeholder departments, the CEPI score came down. CPCB carried out monitoring in the year 2017-2018 and the CEPI Score for Industrial Areas/Clusters in Ludhiana was calculated as 73.48.

Vide order dated 13.12.2018 in O.A. No. 1038/2018, the Hon'ble NGT directed all the State Pollution Control Boards/Committees to finalize time bound Action Plan within 03 months so as to bring all polluted industrial clusters within the safe parameters under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and Water (Prevention & Control of Pollution) Act, 1974. Accordingly, CPCB vide its letter dated 30.12.2019 requested Punjab Pollution Control Board to expedite preparation of Action Plan of CPAs/SPAs. So, revised Action Plan of Critically Polluted Area of Ludhiana City is hereby prepared.

1.1 About CEPI

The Comprehensive Environmental Pollution Index (CEPI) includes weightage on nature of pollutants, ambient pollutant concentrations, receptors (number of people affected) and additional high risk element.

CEPI Comprising of following components:-

Component A	Scale of Industrial Activity	20 marks
Component B	Status of Ambient Env. Quality (Air/SW/GW)	50 marks
Component C	Health related statistics	10 marks
Component D	Compliance status of industries	20 marks

On the basis of the study jointly carried out by the CPCB and State PCBS in 2009-10, 88 industrial clusters were notified as Polluted Industrial Areas (PIAS). These PIAS were ranked as 'critically polluted area' (CPA), 'severely polluted area' (SPA) and 'other polluted areas' (OPAS), depending upon the CEPI scores of each of these industrial areas. Where the CEPI score crossed 70, the areas are designated as CPAS, where the index was between 60-70, they are designated as SPAS and those below 60 as OPAS.

1.2 About Ludhiana

1.2.1 History

Geographically, Ludhiana is the most centrally located district which falls in the Malwa region of the State of Punjab. It lies between North Latitude 30°-34' and 31°-01' and East longitude 75°-18' and 76°-20'. It is bounded on the north by River Sutlej which separates it from Jalandhar district. The River also forms its northern boundary with Hoshiarpur district. On other sides it shares common boundaries with Roop Nagar district in the East, Moga District in the West and Sangrur, Fatehgarh Sahib & Patiala districts in the South and South east.

1.2.2 Area and Population

Ludhiana, the first metropolitan city of the State of Punjab, located on National Highway-I, has emerged as the most vibrant and important business centre of Punjab. It is the largest city in Punjab, both in terms of area and population. The City is spread over an area of 159.37 sq km and accommodates approx. 16,18,879 population as per 2011 census. The projected present population of Ludhiana city is about 17.5 Lacs. Being the hub of Indian small scale Industry especially hosiery & Cycle parts, it is popularly known as “Manchester of India.” The Ludhiana is also an important education centre with famous Punjab Agricultural University, two Medical Colleges and an Engineering College.

1.2.3 Topography

The topography of the District is typical representative of an Alluvial plain, it owes its origin to the aggravation work of the Sutlej River. The alluvium deposited by the river has been worked over by the wind which gave rise to a number of small dunes and sand mounds. Most of these dunes have been leveled by the brave hard working agriculturists of the district. The District can be divided into the flood plains of the Sutlej and the Upland plains.

1.2.4 Climate

The climate of the district is characterized by dryness except a brief spell of monsoon season in a very hot summer and a bracing winter. The winter season is from middle of November to the early part of March. The succeeding period up-to the end of June is the hot season. July, August and half of September constitute the south west of monsoon, the period of mid-September to about the middle of November may be termed as post monsoon or transitional period. June is generally the hottest month. Hot and scorching dust laden winds blow during summer season. December & January are the coldest months. The mean daily temperature varies in the range of 5.8^{O} C to 41.2^{O} C.

1.2.5 Rainfall

The rainfall in the district increases from south west towards the north east. About 70% of the rainfall is received during the period July to September. The rainfall during the December to March accounts for 16% of the rainfall. The remaining 14% rainfall is received in the other months of the year. The average annual rainfall is 681mm.

1.2.6 Industry and Trade

City of Ludhiana is famous for Hosiery & Cycle industry. As such, dyeing/washing units, electroplating/pickling units are established in Ludhiana. Also, there are induction furnaces, Rolling Mills, Milk Plant, Paper Mill etc. established within the City Limits. Following industrial clusters have been established within the City Limits:

Cluster No.	**Cluster No.**
I	Focal point along with NH-1 Total Eight Phase
II	Industrial Area-B from SherpurChowk to Gill Road and Gill Road to Malerkotla Road (left side of the road)
III	Mixed Industrial Area-Right side of Gill Road
IV	Industrial Area-C (near Jugiana Village)
V	Industrial Area-A and Extension: Area between old G.T. Road and Ludhiana bye pass road
VI	Industrial Estate : Near DholewalChowk
VII	Mixed Industrial Area (MIA) Miller Ganj
VIII	Mixed Industrial Area (MIA) Bye Pass road
IX	Bahadurke Industrial Area
X	Tajpur Industrial Complex

1.3 Government's Past efforts to reduce CEPI score.

The environment of Ludhiana has degraded a lot during the last few years due to rapid urbanization, industrialization increase in population, vehicles and commercialization of land available within the city.

As already mentioned in 1.0, the Punjab Pollution Control Board had prepared an Action Plan with regard to Abatement of Pollution in Critically Polluted Area of Ludhiana involving various

District level stake holder departments wherein the activities of these departments were clearly mentioned. Various meetings to review the activities and achieving the target lines were held between 2013 to 2017 at district level under Chairmanship of Deputy Commissioner, Ludhianaand at state level under chairmanship of Chief Secretary, Punjab/PSSTE,Punjab. Following Major Activities proposed to be undertaken in the Action plan:

1. Installation/Augmentation of Sewage Treatment Plants (STPs).
2. Installation of 3 Common Effluent Treatment Plants (CETPs) for dyeing industries.
3. Development of Engineered Municipal Solid Waste Facility.
4. Shifting of industries from Non designated areas.
5. Construction of bypass along Sidhwan Canal.
6. Control of water pollution from dairy complex located at Tajpur and Humbran Road.
7. Provision of Green cover within industrial areas along with development of buffer zone separating the residential areas from industrial areas.

Installation of new STPs and up-gradation of existing STPs is still under progress. Out of proposed 3 CETPs for dyeing industries, 1 CETP as Bahadurke Road has been installed & commissioned and construction of remaining 2 CETPs is under progress. Construction of Bye-pass along Sidhwan Canal has been completed. All other activitiesDevelopment of Engineered Municipal Solid Waste Facility, Green buffer zone, water pollution from dairy complexes and shifting of industries from non-designated areas are yet to be completed. Hence, the need for updation of Action Plan.

1.3.1 Directions issued by Central Pollution Control Board and Compliance Statusalongwith Remedial Measures Required to be taken by Stakeholder Departments.

Part A: Environmental quality monitoring in all CPAs.

CPCB Directions	Present Compliance Status alongwith Remedial Measures Required To Be Taken By Stakeholders
SPCB/PCC shall undertake environmental quality monitoring in the critically polluted area falling under their jurisdiction through an outside third party agency (laboratory) recognized under Environment (Protection) Act, 1986 and accredited under NABL. The frequency of the monitoring shall be twice in a year i.e. Post-monsoon season and Pre-monsoon season	As a part of Action Plan, PPCB will engage services of third-party agency (laboratory) recognized under Environment (Protection) Act, 1986 and accredited under NABL, to carry out monitoring
SPCB/PCC shall ensure that the existing sampling locations where monitoring was undertaken in 2013 are retained and additional monitoring	PPCB has retained existing sampling locations where monitoring was undertaken in 2013. Additional

locations, if any required, can be included in the monitoring programme in consultation with concerned Zonal Offices of CPCB and (or) Head Office, CPCB	monitoring locations, if any required, will be included in the monitoring programme in consultation with CPCB.
SPCB/PCC shall ensure that the sampling stations are provided at strategic locations across the industrial clusters so as to obtain a truly representative environmental quality of the critically polluted area. Moreover, the concerned SPCBs /PCC shall ensure that there is at least one Ambient Air Quality monitoring station each in the predominant upwind and downwind directions at each of the CPA.	In Ludhiana City, ambient air monitoring stations have been placed strategically at 4 different locations within the city covering industrial, residential and commercial area. Out of these, 2 no. ambient monitoring stations have been placed in Commercial Areas.
SPCBs/PCC shall collect 3 samples with a gap of one or two days at each location during each round of monitoring in all the CPAs.	Noted and shall be complied by PPCB.
At each of the CPA, 24 hourly ambient air quality monitoring shall be carried out for parameters as prescribed by CPCB. Also, representative samples for surface water quality and ground water quality shall be collected from prominent surface and ground water bodies located in and around the CPAs.	A Continuous air quality monitoring station has been installed at Punjab Agricultural University, Ludhiana which is operational for 24 Hourly. Apart from this 4 no. manual stations have been installed within the city to procure ambient air quality data of those locations. PPCB is already collecting surface water samples from BudhaNallah, which carry sewage and storm water of part of the Ludhiana City.

Part B: Installation of Continuous Ambient Air Quality Monitoring stations:-

CPCB Directions	**Present Compliance Status alongwith Remedial Measures Required To Be Taken By Stakeholders**
SPCB/PCC shall coordinate with the 'Association(s) or any appropriate agency of the Industries of the concerned CPAs and direct them for installation of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) at strategic locations of identified Critically Polluted Areas. For this purpose, 'Polluter Pays Principle' shall be applied and the data so acquired be displayed on the website of State Board for transparency in law-enforcement.	PPCB has already installed Continuous Ambient Air Quality Monitoring Stations (CAAQMS) at Punjab Agricultural University in Ludhiana City. PPCB is in the process for installation of 04 additional Continuous Ambient Air Quality Monitoring Stations (CAAQMS).

In those Critically Polluted Areas, where no CAAQMS is so far installed, at-least 2 CAAQAMS be installed to start with, one each in the windward and leeward direction within a year.	Apart from one CAAQMS station which has been already installed in Ludhiana City, PPCB will install Four more CAAQMS station at representative and strategic location as per CPCB criteria of population based.
Existing network of continuous ambient air quality monitoring stations (CAAQMS) in CPAs established by 17 Category of highly polluting industries shall be redesigned if necessary, by shifting/ relocating some stations to cover the entire city/area. This will reduce duplicity in monitoring and ensure optimum utilization of the available monitoring facilities and resources.	PPCB is in the process for installation of 04 additional Continuous Ambient Air Quality Monitoring Stations (CAAQMS) covering entire City of Ludhiana.
Existing manual monitoring under NAMP, will be continued. In case, there is no NAMP station in the area, then manual monitoring will also be conducted atleast once in a month on 24 hourly basis	Manual ambient air monitoring stations under NAMP have been placed strategically at 01 location at Focal Point, 01 at Residential Area and 02 at Commercial Areas.

Part C: Installation of Continuous Water Quality Monitoring Stations:

CPCB Directions	**Present Compliance Status alongwith Remedial Measures Required To Be Taken By Stakeholders**
SPCBs/PCC shall ensure installation of Real Time Water Quality Monitoring Stations at various locations of identified Critically Polluted Areas in conformity with the CPCB guidelines for water quality monitoring (MINARS/27/2007-08). The SPCBs / PCC shall adopt Polluter Pays Principle' for achieving these objects.	Real Time Water Quality Monitoring Station has not been installed. PPCB will ensure installation of the same in conformity with the CPCB guidelines in Budha Nallah as well as River Sutlej.
In those Critically Polluted Areas, where no CWQMS are yet installed, at- least 2 CWQMS be installed to start with, one each in the upstream and downstream locations of the major receiving water body of the area within a year	PPCB will ensure installation of at least 2 CWQMS one each in the upstream and downstream locations of the major receiving water body of the area within a short period.
The existing manual monitoring under MINAR (Monitoring of Indian National Aquatic Resources) programme will also be continued. In case, there is no MINAR station in the area, then manual monitoring will also be conducted at least once in a month. Ground Water Quality Monitoring should be carried out at existing locations (i. e. bore-wells, tube wells,	For this CPA area, no such MINAR programme is applicable as there is no river. Ground water sampling is being carried out under NWMP from 15 no. locations on six monthly basis. PPCB shall start monitoring of VOCs in addition to regular parameters.

deep hand pumps etc.) and as per national monitoring protocol. Monitoring of heavy metals, VOCs and Pesticides should also be undertaken in addition to regular parameters of MINAR programme	

Part D: Application of revised CEPI version 2016.

CPCB Directions	**Present Compliance Status alongwith Remedial Measures Required To Be Taken By Stakeholders**
Since 'Revised CEPI 2016'has been evolved, henceforth, all future CEPI score evaluations shall be made on the basis of revised formula.	CEPI score calculated by CPCB in the year 2018 and forecasted CEPI score after implementation of Action Plan is on the basis of revised CEPI formula.
All the polluting sources identified in the area shall be notified and brought in the public domain through respective websites alongwith the details of their pollution control compliance status	PPCB will notify and make public all the polluting sources identified in Ludhiana city, which have already been incorporated in Action Plan.
The environmental quality data including CEPI score of the industrial area as per revised concept shall also be placed in public domain through website and also to be published by the State Government periodically.	Environment quality data for air pollution is being displayed at Punjab Agriculture University, Ludhiana. PPCB will display CEPI score alongwith all other environment quality data related with air, water and land, through website and also get the same published from State Government periodically
The concerned State Government shall notify the area on a properly scaled map and also issue public advisories that such an area will be exclusively meant for industrialization as per the State land.	Master Plan of Ludhiana City has already been notified (2008-2021) by the State Government, in which the area meant for industrialization has been demarcated
The revised CEPI shall be used by the State Governments, SPCBs and others concerned to understand the severity of pollution existing in the area and formulate appropriate action plan. Further, sufficient time shall be given for effective implementation of the action plan before imposition of moratorium. Thus, the revised concept shall be an early warning tool to ensure the successful implementation of Action Plan.	Action Plan for abatement of pollution in Ludhiana city has been framed to reduce pollution and bring down CEPI score below 50 by 31.12.2021.
CEPI shall not be used by the Bankers / Money Lending Institutions for financial decisions	Necessary directions will be given by State Government in this regard.

Any moratorium on expansion on setting up of new industries shall be imposed on a particular CPA only after a notice period of one year from the initial announcement of CEPI assessment, However decision on any directions already in force in a CPA shall be taken as per correct practice in vogue. High CEPI score shall also be used as early warning tool to require preparation of pollution management plans to reduce pollution levels before it reaches critical levels.	The Punjab Pollution Control Board vide its office order no. 593 dated 11.10.2019 has decided as under:- "For the time being Consent to Establish to the new water polluting industrial units having trade effluent proposed to discharged into sewerage system/varied consent to operate to the existing industrial units leading to increase in industrial effluent and discharge into sewerage system shall not be granted till further orders under the provisions of Water (Prevention & Control of Pollution) Act, 1974" Action Plan for abatement of pollution incorporates pollution management plans to reduce pollution levels.
For any industry in a critically polluted area, the changes which make it less polluting shall be permitted. These changes may include expansion of production capacity / change of product / change of raw materials / change of manufacturing process or a combination of these changes and shall be examined and assed by respective SPCBs/PCC	PPCB is promoting the change to be incorporated by industry which makes it less polluting which includes up-gradation of pollution control systems, use of cleaner fuel etc.

Part E: Action Plan and Monitoring

CPCB Directions	**Present Compliance Status alongwith Remedial Measures Required To Be Taken By Stakeholders**
SPCBs/PCC shall also continue the regular exercise of water and air quality monitoring work at different locations including those stations currently in operation under NAMP and MINAR.	PPCB is carrying out monitoring of surface water locations on monthly basis under NAMP and on daily basis for ambient air quality monitoring stations.
SPCB/ PCC shall take necessary measures to ensure regular maintenance and operation of the online systems with tamper proof mechanism including having facilities for online calibration;	PPCB is regularly keeping a check through CPCB portal on Online monitoring systems installed by various industries, common treatment facilities etc.
SPCBs / PCC shall install the necessary software and hardware in their headquarter for centralized data collection, analysis and	Adequate arrangements have been made at Head office, PPCB to collect, analyze data received through online monitoring

corrective action	systems installed in various industries/CETP through CPCB server.
SPCBs/PCC shall take necessary measures to connect and upload the online air quality and water quality monitoring data on the Servers of respective SPCB/PCC and CPCB in a time bound manner but not later by June 30, 2016;	Air quality monitoring data of CAAQMS is already connected with CPCB portal. PPCB will connect data with respect to water quality monitoring with CPCB portal once the same have been installed.
SPCBs/PCC shall upload on its websites the consent conditions of all industrial units alongwith their compliance status (updated half-yearly) with respect to prescribed norms.	PPCB has already established Online Consent Management Portal to process applications of the industries. However, PPCB uploads the consent conditions of all industrial units on its websites alongwith their compliance status (updated half-yearly) with respect to prescribed norms
Action plan categorized into short, medium and long term basis shall be brought into public domain and the progress of implementation shall be reviewed by District and State level through Monitoring Committees	PPCB shall make Action Plan public and progress of which to be reviewed in District level Environment Committee meetings.

1.4 About National Green Tribunal Directions:

The National Green Tribunal in its order dated 14.11.2019 has ordered State Pollution Control Board to furnish action taken report showing the number of identified polluters in polluted industrial areas, the extent of closure of polluting activities, the extent of environmental compensation recovered, the cost of restoration of the damage to the environment of the areas.

The National Green Tribunal also ordered on 14.11.2019 that the CPCB may prepare a tabulated analysis of the same and file a consolidated report before this Tribunal before February 15, 2020.

Chapter 2 - Vision, Mission and Strategy

2.1 Vision for Abatement of Pollution, Ludhiana

To restore the quality of water and air in Ludhiana to the prescribed standards to ensure health of the people, ecological balance and socio-economic well-being of the people and bring down CEPI scores.

2.2 Mission Abatement of Pollution, Ludhiana

To prepare and implement a comprehensive action plan for clean Ludhiana:

i) Creating awareness about the adverse impact of pollution

ii) Identifying the sources of pollution, their apportionment

iii) Identifying action steps related to Awareness, Enforcement, Infrastructure or Policy for control of various sources of Pollution

iv) Designing effective systems for monitoring the progress of the implementation of action steps.

v) Ensuring effective monitoring of the quality of water, air and land.

vi) Mitigating adverse impact on health of the people due to pollution

2.3 Strategy for bringing down CEPI Scores.

The key elements of strategy to bring down CEPI scores campaign for Ludhiana will include:

i) Identification of Government Stakeholders

ii) Nodal Department

iii) Integration of Departmental plans – Creating synergies

iv) Monitoring the mechanism for effective compliance through self-regulatory mechanism.

v) Governance

2.4 Identification of Government Stakeholders

2.4.1 Identification of Government Stakeholders- for implementation of Water Action Plan

The State of Punjab envisages a comprehensive plan for cleaning of River Sutlej by involving all the Stakeholders namely:

i) Department of Science, Technology and Environment

The Directorate of Environment and Climate Change and Punjab Pollution Control Board will be responsible for the following:

a) Overall coordination of the Action Plan and ensuring its successful implementation

b) Setting up comprehensive online monitoring portal connecting all the executing and monitoring agencies

c) Setting up of Infrastructure to monitor the quality of water

d) Monitoring of quality of water of River Sutlej & groundwater

e) Monitoring of discharge from Industries including ETPs and CETPs

f) Monitoring of discharge from STPs and other disposal facilities

g) Monitoring of management of solid waste and other waste

ii) Department of Local Government

As per the policy decision of the Department of Local Government, all Municipal Corporations are responsible for execution of their water supply and sewerage works including setting up of STPs while all Municipal Council will get the works executed through Punjab Water Supply and Sewerage Board. The policy is yet to be fully implemented as some Corporations are still relying on PWSSB for execution of works, on the other hand, some Municipal Councils are executing works on their own instead of PWSSB.

Design

a) Design projects to cover entire population with sewerage network system and its connection with STP.

b) Design Sewage Treatment Plants of adequate capacity

c) Design as per the prescribed standards

Construction

a) Monitor land acquisition closely as it is pre-requisite for setting up of STPs.

b) Ensure reputed professional contractors

c) Construction of STPs as per timelines mentioned in the action plan

d) Ensuring regular flow of funds during construction

Operation and Maintenance

a) Arranging funds for operation and maintenance of STPs to ensuring regular operation and maintenance of STPs in a professional manner

b) Providing proper in-house laboratory facilities at each STP for maintaining record of characteristics of analysis of untreated as well as treated wastewater

c) Installation, operation & maintenance of online continuous effluent monitoring system as well as CCTV cameras for the existing STPs as well as new STPs to be installed

Solid Waste

a) Proper management & handling of municipal solid waste so as not to be thrown in river

iii) Department of Housing and Urban Development

The Department and all the Development authorities under its control will be responsible for various Urban Estates developed by them. In addition, the Government has entrusted construction and subsequent operation and maintenance of Sewerage network and Sewage Treatment Plants in some of the cities to various Urban Development Authorities.

iv) Department of Industries and Commerce

Department of Industries and Commerce through Punjab Small Industries & Export Corporation is responsible for management of Industrial Focal Points set up by it or transferred to it.

v) Department of Agriculture

The Department of Agriculture through the Directorate of Soil and Water conservation will be responsible for implementation of various schemes for utilizing the treated wastewater from urban and rural treatment facilities for irrigation by the farmers. It has the following responsibilities:

a) Design the project as per the standards

b) Follow up with various funding agencies to arrange funds

c) Executing the schemes as per the timelines provided in the plan

vi) Department of Health and Family Welfare

The Department of Health and Family Welfare has the following responsibilities:

a) Checking of health indices of the in-habitants & maintaining database.

b) Holding awareness camps in the catchment area of River Sutlej to make the public aware regarding water borne diseases

vii) Department of Water Resources

The Department of Water Resources through the Chief Engineer, Drainage has the following responsibilities:

a) Measurement of flow at different locations.

b) To stop unauthorised discharge in the drains

viii) District Administration

District Administration will be responsible for monitoring of activities of the action plan at district level.

ix) Department of Soil conservation

The Department of Soil Conservation will be responsible for laying of pipeline for disposal of treated industrial/domestic effluent.

x) Punjab Energy Development Authority

Punjab Energy Development Authority will be responsible for the installation of treatment plants for dairy waste as well as bio gas plants for different dairy clusters.

xi) Department of water Resources

Department of Water Resources will be responsible for use of treated effluent of Budha Nallah for irrigation purposes. The department will also be responsible to regulate fresh water supply at the upstream of Budha Nallah so as to maintain the quality of River Sutlej.

2.4.2 Identification of Government Stakeholders-for implementation of Air Action Plan

In order to combat the challenges of pollution, all the Stakeholders will have to make concerted efforts. Following Departments and agencies have been identified along with their responsibilities:

i. Punjab Pollution Control Board

a) Monitoring of air pollution control devices installed by industries
b) Up-gradation of existing air pollution control devices
c) Monitoring of ambient air quality and stack emissions
d) Provision of canopies on the existing D.G sets

ii. Department of Local Government

a) Development of engineered municipal solid waste dumpsite
b) Improvement of road infrastructure for smooth traffic movement
c) Regular and mechanical cleaning of roads
d) Sprinkling of in the parks and maintenance of fountains
e) Increasing green cover in city
f) Upgrading traffic lights for smooth traffic movement
g) Provide canopies on the existing D.G sets

iii. Department of Transport

a) Plan for effective traffic management
b) Plan for phasing out old polluting vehicles
c) Shift to cleaner fuels viz. CNG etc.
d) Monitoring of vehicles without PUC certificate
e) Banning of pressure horns

iv. Department of Police

a) Planning and enforcement of traffic management plan
b) Checking of vehicles running without PUC certificate

c) Impounding and challan of vehicles running without permission/ registration.

d) Noise Pollution.

v. Department of Forests

a) Preparation of forestation plan

b) Organizing awareness camps for Greener City

c) Providing green belt around the industrial areas

vi. Department of Industries and Commerce / Punjab Small Industries & Export Corporation

a) Shifting of industries from non-designated areas

b) Provision of environment infrastructure in Industrial Areas

vii. PWD (B&R)

a) Improving road conditions for smooth movement of traffic

b) Increasing green cover on roadside under their jurisdiction

viii. Punjab State Council for Science and Technology

a) Evolving cost-effective cleaner technologies

ix. Department of Agriculture

a) Promotion of bio-methanization and compost facilities for agri-waste

b) To provide Machinery for in-situ management

c) To create awareness about ill-effects of stubble burning

d) To create awareness regarding alternative crops to break wheat- Rice cycle.

x. District Administration

a) Coordination with all the Stakeholders promoting collaboration and resolving local issues Public Awareness Campaign

2.4.3 Identification of Government Stakeholders- for implementation of Action Plan for Solid Waste Management Rules 2016

Following Stakeholders have been identified and their roles as per Solid Waste Management Rules 2016, the State Policy, NGT's directions and overall requirement for effective monitoring are as under:

i) Department of Environment

The Department of Environment through Punjab Pollution Control Board shall mainly be responsible for:

a) Enforcement of SWM Rules 2016 through ULBs and review of implementation of Rules.

b) Monitor environmental standards and conditions for waste processing and disposal sites.

c) Authorization for Waste processing and disposal sites and Monitoring thereof.

d) Standards for new technologies through CPCB.

e) Directions to ULBs for safe handling and disposal of domestic hazardous waste.

ii) Department of Local Government

The Department of Local Government shall be responsible for the following activities:

a) Preparation of a state policy and solid waste management strategy.

b) Inclusion of informal sector of waste pickers, waste collectors and recycling industry.

c) Ensure implementation of SWM Rules 2016 by all ULBs.

d) Ensure suitable land to the local bodies for setting up of processing and disposal facilities.

e) Ensure separate space for segregation, storage, decentralized processing of solid waste in the development plan for group housing or commercial, institutional or any other non-residential complex exceeding 200 dwelling or having a plot area exceeding 5,000 square meters.

f) Direct the developers of Special Economic Zone, Industrial Estate, Industrial Park to earmark at least five percent of the total area of the plot or minimum five plots or sheds for recovery and recycling facility.

g) Facilitate establishment of common regional sanitary land fill for a group of cities and towns falling within a distance of 50 km (or more) from regional facility.

h) Notification of cities/towns as model cities/towns, which are fully compliant to prevailing Waste Management Rules.

i) Develop system for ranking of cities, towns & villages in the State based on compliance of Rules.

j) Arrange for capacity building of local bodies.

k) Notify buffer zone for the solid waste processing and disposal facilities.

iii) Deputy Commissioner

The Deputy Commissioner shall be responsible for the following activities:

a) Facilitate allocation of suitable land for solid waste processing and disposal facilities

b) Review the performance ULBs on waste segregation, processing, treatment and disposal.

2.4.4 Identification of Government Stakeholders- for implementation of Action Plan for Bio-Medical Waste Management Rules 2016

i) Department of Environment and Punjab Pollution Control Board

a) Making Policies concerning Bio-medical Waste Management in the State.

b) Inventorization of Health-Care Facilities.

c) Compilation of data and submission of the same in annual report to Central Pollution Control Board within the stipulated time period.

d) Grant and renewal, suspension or refusal of authorization.

e) Monitoring of compliance of Rules.

f) Action against health care facilities or common biomedical waste treatment facilities for violation of these rules.

g) Organizing training programmes to staff of health-care facilities and common biomedical waste treatment facilities on management of bio-medical waste

h) Hearing Appeals and give decision against order passed by the prescribed authority.

i) Providing necessary technical and financial support in order to implement the action plan

ii) Department of Health and Family Welfare and Punjab Health System Corporation

a) To ensure implementation of Rules in all Health Care Facilities or occupier.

b) Grant of license to health care facilities with a condition to obtain authorization from PPCB for bio-medical waste management.

c) Monitoring, Refusal or Cancellation of license for health care facilities for violations of conditions of authorization or provisions under these Rules.

d) Publication of list of registered health care facilities with regard to bio-medical waste generation, treatment and disposal.

e) Undertake or support operational research and assessment with reference to risks to environment and health due to bio-medical waste and previously unknown disposables and wastes from new types of equipment.

f) Coordinate with State Pollution Control Board for organizing training programmes to staff of health care facilities on bio-medical waste.

g) Organizing or Sponsoring of trainings for the health care facilities on bio-medical waste management related activities.

h) Sponsoring of mass awareness campaigns in electronic media and print media.

i) Allocation of adequate funds to Government health care facilities for bio-medical waste management

j) Procurement and allocation of treatment equipments and make provision for consumables for bio-medical waste management in Government health care facilities.

k) Constitute State or District Level Advisory Committees under the District Magistrate or Additional District Magistrate to oversee the biomedical waste management in the Districts

l) Implementation of recommendations of the Advisory Committee in all the health care facilities

m) Installation of Effluent Treatment Plants in all the Government bedded Health Care Facilities in concurrence with the timeline given in the action plan.

iii) Department of Animal Husbandry

a) Ensuring that all the Govt. Veterinary Institutions make agreement with the CBWTF operators for scientific disposal of bio-medical waste and obtain authorization from PPCB in concurrence with the timeline given in the action plan.

b) Grant of license to veterinary establishments with a condition to obtain authorization from PPCB for bio-medical waste management.

c) Monitoring, Refusal or Cancellation of license for veterinary establishments for violations of conditions of authorization or provisions under these Rules.

d) Publication of list of registered veterinary health care facilities with regard to biomedical waste generation, treatment and disposal.

e) Coordinate with State Pollution Control Board for organizing training programmes to staff of veterinary health care facilities on bio-medical waste.

f) Allocation of adequate funds to Government veterinary health care facilities for biomedical waste management

g) Procurement and allocation of treatment equipment's and make provision for consumables for bio-medical waste management.

h) Implementation of recommendations of the Advisory Committee.

iv) Department of Medical Education & Research

a) Installation of Effluent Treatment Plants in all the Government Medical Colleges & Hospitals.

b) Organizing or Sponsoring of trainings for the Medical Colleges & Hospitals on biomedical waste management in coordination with PPCB.

c) Allocation of adequate funds to Government health care facilities for bio-medical waste management

d) Procurement and allocation of treatment equipment's and make provision for consumables for bio-medical waste management in Government health care facilities.

e) Implementation of recommendations of the Advisory Committee.

v) Department of Rural Development and Panchayat

a) Ensuring that all the Govt. Rural Dispensaries make agreement with the CBWTF operators for scientific disposal of bio-medical waste and obtain authorization from PPCB in concurrence with the timeline given in the action plan.

b) Allocation of adequate funds to Government Rural Dispensaries for bio-medical waste management

c) Procurement and allocation of treatment equipment's and make provision for consumables for bio-medical waste management in Government Rural Dispensaries.

d) Organizing or Sponsoring of trainings for the Govt. Rural Dispensaries on bio-medical waste management in coordination with PPCB.

vi) Department of Local Government

a) Ensuring collection of bio-medical waste generated in house-holds and disposing it to nearest common bio-medical waste treatment facility.

b) Collection of solid waste (other than the biomedical waste) from the health care facilities as per the Solid Waste (Management) Rules, 2016.

c) Coordinate with NGOs for organizing/imparting training programmes to house-holds for segregation of bio-medical waste.

d) Implementation of recommendations of the Advisory Committee.

vii) District Administration

a) Ensuring Regular meetings of the District Level Monitoring Committee (DLMC) to monitor and review the implementation of the Rules in the District.

b) Submit report of the DLMC once in six months to the State Advisory Committee with a copy to State Pollution Control Board for taking further necessary action.

c) Coordinate with State Pollution Control Board for organizing training programmes for house-holds on segregation of bio-medical waste.

d) Organizing mass awareness campaigns in electronic media and print media.

e) Implementation of recommendations of the Advisory Committee.

2.4.5 Identification of Government Stakeholders- for implementation of Action Plan for Plastic Waste Management Rules 2016

Role/responsibilities of various stakeholder departments in light of the Rules is given below:

i) Department of Environment through Punjab Pollution Control Board

Enforcement of the provisions of PWM Rules, 2016, relating to registration, manufacture of plastic products and multi-layered packaging, processing and disposal of plastic wastes.

ii) Department of Local Government and ULBs

a) Ensure segregation, collection, storage, transportation, processing and disposal of plastic waste.

b) Ensuring channelization of recyclable plastic waste fraction to registered recyclers.

c) Ensuring processing and disposal of non-recyclable fraction of plastic waste.

d) Creating awareness among all stake holders about their responsibilities.

e) Ensuring no open burning of plastic waste.

f) Framing of bye-laws incorporating the provisions of Rules.

g) Setting up system for plastic waste management within one year.

2.4.6 Identification of Government Stakeholders- for implementation of Action Plan for Hazardous Waste Management Rules 2016

i) Department of Environment through Punjab Pollution Control Board

a) Preparation of integrated plan for effective implementation of provisions of these rules.

b) Inventorisation of Hazardous Wastes generating industrial units.

c) Grant and Renewal of authorization to Hazardous waste generating industrial units.

d) Monitoring of compliance of Rules.

e) Implementation of programs to prevent or reduce or minimize the generation of hazardous and other wastes.

ii) Department of Industries

Allocation of industrial space or shed for recycling, pre-processing and other modes of utilization of wastes in the existing and up-coming industrial parks, estates and industrial clusters.

iii) Department of Labour

a) Ensure recognition and registration of workers involved in recycling, pre-processing and other utilization activities.

b) Assist in formation of groups of such workers to facilitate setting up of such facility.

c) Undertake industrial skill development activities for the workers.

d) Undertake annual monitoring and to ensure safety and health of workers.

2.4.7 Identification of Government Stakeholders- for implementation of Action Plan for Construction & Demolition Rules 2016

Various stakeholders and their role as per the C&D Waste Management Rules 2016 are as under:

i) Department of Environment

The Department of Environment through Punjab Pollution Control Board shall mainly be responsible for:

a) Enforcement and review of Implementation of C&D Waste Management Rules, 2016.

b) Monitoring of environmental standards and waste processing and disposal sites.

c) Grant of authorization to construction and demolition waste processing facilities.

d) Monitoring of the work zone air quality at processing or recycling site.

e) Compilation of the annual report sent by Local Bodies.

ii) Department of Local Government

a) Preparation of C&D Waste Management Policy and Plans.

b) Seek detailed plans from generator of C&D waste.

c) Chalk out stages, methodology, equipment, material involved for management of C&D waste.

d) Place containers for C&D waste at appropriate places and remove at regular intervals.

e) Transportation of collected waste to appropriate sites for processing and disposal.

f) Appropriate incentives to generator for salvaging, processing and or recycling.

g) Sanction of C&D waste management plan of the generators after approval of building plans.

h) Tracking generation of C&D waste and establish a data base and update once in a year.

i) Management of C&D waste including processing facility and promote recycled products.

j) Undertake IEC activities.

k) Appropriate incentives for use of material made out of construction and demolition waste in the construction activity including in non-structural concrete, paving blocks, lower layers of road pavements, colony and rural roads.

l) Submission of Annual report in Form-2 to the Punjab Pollution Control Board.

2.4.8 Identification of Government Stakeholders- for implementation of Action Plan for E-Waste Rules 2016 under CEPI

Various stakeholders and their role as per the E-Waste Management Rules 2016 are as under:

i) Department of Environment through Punjab Pollution Control Board

a) Identification of bulk consumers, manufacturer, producer, refurbisher, recycler, dismantler

b) Inventorisation / quantification of E-Waste:

- Outsourcing/ involving students of reputed institutes for the Inventorisation of bulk consumers.
- CPCB website for producers / manufacturer / refurbishers

c) Monitoring and compliance of Extended Producer Responsibility

- PPCB shall ensure the monitoring & compliance of EPR – Authorization as per the provisions laid down under the E-Waste (Management) Rules, 2016 amended from time to time.

d) Grant of Authorization to manufacturers, dismantlers, recyclers and refurbishers

- As per the time lines prescribed under E-Waste (Management) Rules, 2016 or as prescribed under the Punjab Transparency and Accountability in Delivery of Public Service Act, 2018, whichever is earlier.

e) Conduct random inspection of dismantler or recycler or refurbishers

- At least two visits in a year to the dismantling / recycler facilities / refurbishers by the concerned Regional Office of the Board and special surprise checks by the teams constituted by the Head Office.

f) Maintaining online information regarding authorization granted

- PPCB shall upload the information regarding authorization granted to manufacturers, dismantlers, recyclers and refurbishers for placing the same in the public domain.

g) Submission of Annual Report to the CPCB

- The annual return submitted by the manufacturer, dismantler, recycler and refurbisher in Form-3 before 30th June of every year, shall be complied by the PPCB for further sending to CPCB by 30th September of every year in Form-5.

h) Organizing awareness camps for the bulk consumers

- Regional Office of PPCB shall organize at least two awareness camps for Educational Institutions, Major Hospitals, Govt. Organizations, Large Scale Industrial Units etc. to make them aware about their responsibilities under the E-Waste Management Rules, 2016 for channelization of the such type of waste in an environmentally sound manner.

ii) Department of Local Government (ULBs)

a) To ensure proper segregation/collection of e-waste mixed in MSW and its channelization to authorised dismantler or recyclers.

b) To ensure that e-waste pertaining to orphan products is collected and channelized to authorised dismantler or recycler.

c) Department of Local Bodies to issue instructions to all the municipal Corporations/ municipal councils regarding sound management of E-waste.

d) Department of Local Bodies to make agreement/ sign MoU with the authorized dismantler/ recycler for channelizing the E-waste segregated from MSW.

e) Concerned municipalities to maintain such records of the E- waste, transferred to the recycler/ dismantler.

iii) Department of Industries & Commerce / Housing & Urban Development / any other Development Authority

To ensure earmarking or allocation of industrial space or shed for E-waste dismantling and recycling in the existing and upcoming industrial park, estate and industrial cluster. For compliance of above, the concerned authority / department shall identify at least 10 cities where space or shed for e-waste dismantling and recycling shall have to be reserved. Preferably, the towns shall be selected on the basis of potential bulk consumers, like

a) Industrial predominance (e.g Ludhiana & Jalandhar)

b) Educational predominance (Patiala, Ludhiana, Jalandhar, Amritsar)

c) Commercial/ Govt. Office dominance (Ludhiana, Jalandhar, Patiala, Mohali)

d) Geographical Connectivity (Amritsar, Faridkot, Bathinda, Ludhiana, Mohali)

e) IT Hub (Mohali)

2.5 Nodal Agency

The Directorate of Environment and Climate Change will be the nodal department for coordinating and monitoring of all the activities of above said Action Plan.

2.6 Integration of Departmental plans

The Nodal Department will integrate plans of individual departments for control of pollution from various sources and prepare a comprehensive plan.

2.7 Monitoring the mechanism for effective compliance through self-regulatory mechanism

2.7.1 Design of Monitoring System

Various measures envisaged under the action plan for control of pollution can be classified in the following categories:

i. Public Awareness

ii. Effective Enforcement

iii. Creation of new Infrastructure

iv. Maintenance related activities

v. Policy Advocacy

vi. Technology Support

2.7.2 Monitoring system for various activities

Monitoring of various activities of the Action Plan will be a key to achieve the outcome envisaged under the Action Plan. Different kind of monitoring systems will be required for different categories of activities:

i) Design of effective online platform including social media to disseminate air pollution related information and seek citizen feedback and participation in the campaign. It will have a monitoring mechanism to see the level of participation and measures to increase the same.

ii) Design of effective online system to capture various enforcement activities by various agencies to monitor them, evaluate them and provide feedback and enforce accountability.

iii) Design of an effective monitoring system to monitor the progress of various infrastructure related activities as envisaged under the plan.

iv) Design of an effective monitoring system for policy advocacy within the Government for expediting formulation of various policies.

v) Design of an effective monitoring system for various technological interventions to reduce the air pollution.

2.8 Mechanism

Mechanism evolved after consultation with stakeholders for new activities expansion by Red & Orange Category of industries in Critically/Severely Polluted areas.

i) Environmental Management of CPAs and SPAs

Protocol to be followed by the State Pollution Control Boards (SPCBS)/ Pollution Control Committees (PCCs) For improvement of environmental quality in the Critically Polluted Areas (CPAS) and Severely Polluted areas(SPAs)

a) The CEPI score assessment done by CPCB will be used as warning tool State Governments, SPCBS and other concerned to understand the severity of pollution existing in the area and to formulate appropriate action plan.

b) The State Govts/ SPCBs will finalize the time bound action plans within three months for the identified CPAS and SPAS to restore environment quality within norms. Short term and long term action points have to be formulated with time frames of up to one year and more than one year, as may be required, respectively.

c) The action plan will be prepared by a committee constituted by Chief Secretary. Representative of industries association may be included in the committee constituted. The final preparation of action plan including its execution shall be overseen by the Chief Secretary of the concerned state. The same shall be submitted to CPCB for consideration & approval.

d) While preparing action plans, the committee constituted by the Chief Secretary shall follow the directions, issued by CPCB under section 18(1) (b) of the Water (Prevention & Control of pollution) Act, 4974 and the Air (Prevention & Control of pollution) Act,1981 on 26.04.2016, which include (1) environmental quality monitoring in all CPAS, (ii) installation of continuous ambient air quality monitoring stations/Strengthening of manual monitoring stations (iii) installation of continuous water quality monitoring stations, (iv) application of revised CEPI version and (v) action plan & monitoring. Long term and short term action plans, along with sector and region wise action points, should be defined clearly with time lines and responsible implementing agencies. Additionally, Source

apportionment Studies shall be conducted to ascertain contribution from sources including industries for planning actions.

e) The progress of implementation of action points will be reviewed by district and State Level Monitoring Committees, quarterly. It would be ensured that there is no slippage either in terms of time frame or the activities to be completed relating to the action plan. In case of delay/inefficiency in implementation of action plan, the concerned State Government will take appropriate action against the responsible authorities, implementing agencies, industries, etc. under the provisions of relevant acts/laws.

f) The SPCB will undertake environmental quality monitoring for evaluating CEPI in the critically and severely polluted areas falling under their jurisdiction through an outside third party recognized agency (laboratory) under Environment (Protection) Act 1986 and accredited under NABL. The frequency of monitoring shall be twice in a year i.e pre-monsoon season and post-monsoon season.

g) The action plans prepared for the CPAS/SPAS, environmental quality monitoring data, evaluated CEPI scores (as per revised CEPI-2016 concept) and progress reports of committee meetings to be placed in public domain through their respective State Govts. / UTs / SPCBS /PCC website's. CPCB will also review the progress of implementation of action plans of CPAS/ SPAS on a quarterly basis.

h) In case CEPI scores of a particular CPA continue to be in critical category for a year, MoEF& CC will review the action plans with the concerned State Govt. / Union territory and impose additional safeguards such as revising the time limits for implementation of action points, supplementary action points and will recommend penal action against the authorities responsible for implementation of action plan for environmental management of CPAs/SPAs.

i) CPCB will also carry out re-assessment of CEPI scores in CPAs, with concurrence of MOEF&CC and report outcome for further consideration and decision by MoEF& CC.

j) Carrying capacity study of the each of the area will be carried out by State Govts./Union Territories /SPCBs/PCCs based on the protocols prepared by CPCB.

ii) Consideration of proposals for grant of Environmental clearance for new and expansion activities listed in Red' and 'Orange' Categories located in Critically Polluted Areas and Severely Polluted areas:

a) Any project or activity specified in Category B1 will be appraised at the Central Level, if located in whole or in part within 5 km from the boundary of Critically Polluted Areas or Severely Polluted Areas. However, Category B2 projects shall be considered at state level

stipulating Environmental Clearance conditions as applicable for the Category 'B1' project/activities.

b) Proposals located in CPAs and SPAs will be examined by the sectoral Expert Appraisal Committee (EAC) during scoping/appraisal based on the CEPI scores of Air/Water/ Land Environment as published by CPCB from time to time. In such proposals, appropriate mitigation measures for the environment possessing higher CEPI score may be made by EAC in the form of recommendations/decision. These recommendations will be explicitly mentioned in the Terms of Reference/Environmental Clearance letter and to be ensured by the member secretary concerned.

c) SPCBs/PCCs will prescribe following additional conditions, deemed fit for grant Consent to establish (CTE)/Consent to Operate (CTO) to those projects/activities of Red/Orange Categories located in CPAs/SPAs which are not covered under the provisions of the ELA Notification, 2006.

Environment	**Mitigation Measures**
Air (Prevention & Control of Pollution) Act, 1981	**Stipulation of conditions such as:** i. Stack emission levels should be stringent than the existing standards in terms of the identified critical pollutants. ii. CEMS should be installed in all large/medium red category industries (air polluting) and connected to SPCB and CPCB server. iii. Effective fugitive emission control measures should be imposed in the process, transportation, packing etc. iv. Transportation of materials by rail/conveyor belt, wherever feasible. v. Encourage use of cleaner fuels (pet coke/ furnace oil/LSHS may be avoided). vi. Best Available Technology be used. For example, usage of EAF/SAF/IF in place of Cupola furnace. Usage of Supercritical technology in place of sub-critical technology. vii. Increase of green belt cover by 40% of the total land area beyond the permissible requirement of 33%, wherever feasible. viii. Stipulation of greenbelt outside the project premises such as avenue plantation, plantation in vacant areas, social forestry, etc. ix. Assessment of carrying capacity of transportation load on roads inside the industrial premises. If the roads required to be widened, shall be prescribed as a condition.
Water	**Stipulation of conditions such as:** i. Reuse/recycle of treated wastewater, wherever feasible. ii. Continuous monitoring of effluent quality/quantity in large

	and medium Red Category Industry (Water Polluting). iii. A detailed water harvesting plan be submitted by the project proponent. iv. Zero liquid discharge wherever techno-economically feasible.
Land	**Stipulation of conditions such as:** i. Increase of green belt cover by 40% of the total land area beyond the permissible requirement of 33%, wherever, feasible for new projects. ii. Stipulation of greenbelt outside the project premises such as avenue plantation, plantation in vacant areas, social forestry, etc. iii. Dumping of waste (fly ash, slag, red mud, etc.) may be permitted only at designated locations approved by SPCBs/ PCCs. **iv.** More stringent norms for management of hazardous waste. The waste generated should be preferably utilized in co-processing.
Other Conditions (Additional)	i. Monitoring of compliance of EC conditions be submitted with third party audit every year. ii. The % of the CER should be at least 1.5 times the slabs given for CPA in case of Environmental Clearance, the dated 01.05.2018 for SPA and 2 times for CPA in case of Environmental Clearance.

2.9 Governance

The monitoring of progress, coordination of various activities, corrective measures required and fixing of accountability will be done by District Environment Committee at the District level under Deputy Commissioner, State Level under Principal Secretary, Environment and Apex Committee under Chief Secretary.

Chapter 3 : Sources of Pollution, Current Status and Trends of pollution level in Ludhiana

3.1 Water Pollution

The Ludhiana City is an industrial town and has mainly two types of effluent i.e. domestic effluent and industrial effluent. The domestic and industrial effluents of the city are discharged into sewerage system laid by Municipal Corporation, Ludhiana. In addition, two dairy complexes located at Tajpur Road and at Haibowal discharges their effluent directly into Budha Nallah. Major part of the effluent of the city is discharged into Budha Nallah leading to River Sutlej near village Walipur and from the outlet of the Bhattian, a part of the effluent is discharged directly into River Sutlej near village Kasabaad.

Budha Nallah, a non-perennial natural drain, originates from confluence of Kumlink drain and Neelon drain near Vill. Kum Kalan, traverses across Ludhiana city (20 kms) from east to west finally meeting the river Sutlej in the outskirts of the city. Earlier, the Budha Nallah acted as a drain for the water logged area of river Sutlej and carried good quality of water. With the growing urbanization and industrialization in Ludhiana, it becomes a recipient body for domestic and industrial effluents of the Ludhiana city.

When the Budha Nallah enters Ludhiana City, it carries effluent of about 13 MLD. Water logging, effluent of habitation and some dairies on the upstream of the limits of Municipal Corporation, Ludhiana contribute to this discharge.

Outlets of 48 MLD STP, 152 MLD STP, 105 MLD STP, Dairy Complex Tajpur Road, Dairy Complex Haibowal and other unauthorized outlets as discussed above, contribute to the discharge in Budha Nallah. Disposal of effluent into Budha Nallah within the MC limits of Ludhiana city is through the following disposal points:

1. Outlet of STP of 48 MLD capacity installed at Jamalpur, opposite Central Jail. Major part of effluent at this location is industrial.
2. Disposal near Amrit Dharam Kanda Bridge at Tajpur Road. This outlet contains industrial and domestic effluent.
3. Disposal of EWS Colony near Geeta Nagar Bridge along Tajpur Road. This outlet contains mainly domestic effluent.
4. Multiple outlets from various Dairies at Tajpur Road with dairy waste.
5. Individual disposal points of slum area near Tibba Road disposal. This outlet contains domestic effluent.
6. MC Tibba Road Disposal on G.T. Road bye-pass. Major part of effluent at this disposal is domestic.

7. MC Disposal of Transport Nagar (near Cremation Ground). This outlet contains industrial and domestic effluent.
8. MC Disposal near Atam Nagar/ Sunder Nagar. Major part of effluent at this disposal is domestic.
9. MC Disposal near New Shivpuri (Opp. ShaniMandir). This outlet contains domestic effluent.
10. MC Disposal near Chand Cinema, G.T. Road. This outlet contains domestic effluent.
11. MC Disposal near ChhauniMohalla and Manna Singh Nagar. This outlet contains domestic effluent.
12. MC Disposal near Upkar Nagar. This outlet contains domestic effluent.
13. MC Disposal backside of Life line Hospital (DMC Culvert). This outlet contains domestic effluent.
14. MC disposal at the backside of Lord MahaviraAyurvedic Hospital. This outlet contains domestic effluent.
15. MC Disposal at the backside of Ram SharnamSatsangBhawan. This outlet contains domestic effluent.
16. Multiple outlets from various dairies located at Haibowal dairy complex with dairy waste.
17. Outlet of two modules of STPs of 152MLD & 105MLD capacities installed at Balloke. Major part of the effluent at this disposal is domestic. At the downstream of this point there is no outlet of MCL.

Further, outlet of two modules of STPs of 111MLD & 50MLD (total 161 MLD) capacities installed at Bhattian is directly into River Sutlej. This outlet contains industrial and domestic effluent.

Thus, the total effluent generated from the City is about 761 MLD (600 + 161). No separate sewerage system is provided in the City to carry the segregated industrial and domestic effluent. Thus, the sewerage system of the city carries the combined industrial and domestic effluent.

3.1.1 Industrial Water pollution

There are two major types of water polluting industries i.e. Dyeing and Electroplating/ Pickling industries in Ludhiana City. Besides this, there are also other types of water polluting industries in Ludhiana City like milk plants, garment washing units, service stations etc.

There are 229 dyeing industries in Ludhiana, out of which 12 industries are in large scale and 217 industries are Medium & Small Scale sector. All the dyeing industries have installed Captive effluent treatment plants. However, to monitor the quality of treated effluent of these industries under Medium and small scale sector, three Common Effluent Treatment Plants (CETPs) are being installed in Ludhiana for the dyeing clusters of Bahadurke Road (capacity 15

MLD), Focal Point (40 MLD) and Tajpur Road & Rahon Road (capacity 50 MLD). The CETP of 15 MLD capacity has been completed and is under stabilization. The other two CETPs of 40 MLD & 50 MLD capacities are under advance stage of construction and are likely to be commissioned soon.

There are 1521 small scale and 19 large/ medium scale electroplating & allied industries in Ludhiana City. The effluent of these industries contain heavy metals such as zinc, nickel, chrome, copper, iron etc. in different concentrations. For the treatment of effluent of such small scale industries, a Common Effluent Treatment Plant (CETP) is installed in Focal Point, Ludhiana on Zero Liquid Discharge (ZLD) Technology. After treatment, the effluent (RO Permeate) is reused in the nearby dyeing industries as their raw material and the reject water of the ETP is evaporated in the Multiple Effect Evaporator (MEE). The performance of the ZLD system adopted by the CETP is being monitored by the Board regularly and the results are as under:-

M/s J.B.R. Tech Pvt Ltd. (CETP for electroplating)										
Date of Sampling		**4.4.19**	**27.5.19**	**14.6.19**	**2.7.19**	**7.9.19**	**9.10.19**	**7.11.19**	**6.12.19**	**8.1.20**
S.N.	**Parameters in mg/l except pH**	**RO Permeate**								
1	pH	8.9	7.56	7.52	7.42	6.8	8.1	8.2	8.5	7.2
2	TSS	BDL	BDL	BDL	12	BDL	BDL	BDL	BDL	BDL
3	TDS	926	1109	1036	836	823	1466	1050	1628	1740
4	Oil & Grease	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
5	Iron	0.91	BDL	0.17	0.3	0.97	0.08	0.17	0.97	0.14
6	Zn	0.27	BDL	0.11	BDL	0.053	0.08	BDL	BDL	0.17
7	Ni	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
8	T.Cr	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
9	H. Cr	BDL	BDL	BDL	BDL	-	BDL	BDL	BDL	BDL
10	Total metal	1.18	BDL	0.28	0.3	1.02	-	-	-	0.31

From the above, it is evident that no heavy metals like zinc, nickel and chrome is detected in the RO Permeate being used by the nearby dyeing industries as their raw material. Thus, the CETP is achieving the prescribed standards of the Board.

All the large and medium scale industries have installed their Captive ETPs based on ZLD.

The other Sulphuric Acid (H2SO4) based pickling units have joined a Common Facility for the recovery of Ferrous Sulphate. This facility is also based on ZLD technology.

No effluent of electroplating/pickling industries of the City is discharged into Budha Nallah/ River Sutlej.

Other water polluting industries have also installed Captive Effluent Treatment Plants. After treatment, the effluent is discharged into sewer leading to the inlets of Sewage Treatment Plants (STPs) installed in the respective catchment areas for final disposal. No industrial effluent is allowed by the Board for disposal directly into Budha Nallah.

The total industrial effluent of the city has been estimated about 120 MLD.

3.1.2 Domestic Water pollution

For the treatment of effluent of the city, five STPs of 48 MLD (Jamalpur), 111 MLD (Bhattian), 50 MLD (Bhattian), 152 MLD (Balloke) & 105 MLD (Balloke) capacities are installed at Ludhiana. The effluent from STP Jamalpur and Balloke are discharged into Budha Nallah while the effluent from STPs Bhattian is discharged directly into River Sutlej. The capacity of these STPs is 466 MLD and the excess effluent is discharged directly into Budha Nallah as detailed in Chapter 3.1.

The five STPs installed at Ludhiana are as under:-

S. no.	Name of STP	STP Installed Capacity (in MLD)	Technology (UASB/ASP/OP/SBR/MBR/FAB Etc.)	Disposal (land, river sea or any other)	Operational status
1.	Balloke	152	UASB	Into Budha Nallah	Operational
2.	Balloke	105	SBR	Into Budha Nallah	Operational
3.	Bhattian	111	UASB	Into Sutlej River	Operational
4.	Bhattian	50	SBR	Into Sutlej River	Operational
5.	Jamalpur	48	UASB	Into Budha Nallah	Non-operational

The STP of 48 MLD installed at Jamalpur is lying defunct while the other 4 STPs are operational. The performance of these STPs is being monitored by the Board regularly and is tabulated as under:-

STP Bhattian, 50 MLD

Sr. no.	Parameters	Aug. 2019	Sept. 2019	Oct. 2019	Nov. 2019		Dec. 2019		Jan, 2020		Permissible limits
		Board's Lab	Board's Lab	Board's Lab	Board's Lab	SAI Lab	Board Lab	SAI Lab	Board's Lab	SAI Lab	
1.	pH	7.35	7.4	7.9	7	7	7.2	7.1	8	7.26	6.5-9.0
2.	BOD mg/l	18	**43**	**43**	10	11	7	<5.0	6	28	<30 mg/l
3.	COD mg/l	75	132	152	80	71	52	43	44	100	-
4.	TSS mg/l	19	49	23	20	50	17	18	20	47	<100 mg/l
5.	F. ColiMPN /100 ml	280	460	110	940	<1.8	<1.8	<1.8	45	20	<1000

This module of STP has achieved the prescribed limits in the last 6 months except for the month of Sept & October, 2019.

STP Bhattian, 111 MLD

Sr. no.	Parameter	Aug. 2019	Sept. 2019	Oct. 2019	Nov. 2019		Dec. 2019		Jan, 2020		Permissible limits
		Board's Lab	Board's Lab	Board's Lab	Board's Lab	SAI Lab	Board's Lab	SAI Lab	Board's Lab	SAI Lab	
1.	pH	**7.13**	**7.3**	**7.6**	**6.8**	**6.7**	**7**	**6.9**	**7.6**	**6.85**	**6.5-9.0**
2.	BOD mg/l	**38**	**80**	**88**	**33**	**55**	**42**	**38**	**50**	**227**	**<30 mg/l**
3.	COD mg/l	**135**	**248**	**284**	**192**	**261**	**200**	**170**	**224**	**296**	**-**
4.	TSS mg/l	**42**	**188**	**114**	**69**	**144**	**153**	**160**	**188**	**182**	**<100 mg/l**
5.	F. Coli MPN/ 100ml	**11000**	**79000**	**1700**	**15000**	**240**	**120000**	**<1.8**	**3500000**	**172000**	**<1000**

This module of STP has not achieved the prescribed limits in the last 6 months.

STP Balloke, 105 MLD

Sr. no.	Parameters	Aug. 2019	Sept. 2019	Oct. 2019	Nov. 2019		Dec. 2019		Jan, 2020		Permissible limits
		Board's Lab	Board's Lab	Board's Lab	Board's Lab	SAI Lab	Board's Lab	SAI Lab	Board's Lab	SAI Lab	
1.	pH	7.1	6.6	7.8	6.9	6.9	6.9	6.8	7.8	7.31	6.5-9.0
2.	BOD mg/l	**182**	**120**	**32**	12	20	12	15	25	26	<30 mg/l
3.	COD mg/l	560	336	108	76	67	68	64	96	104	--
4.	TSS mg/l	**196**	94	31	16	<10	48	56	78	16	<100 mg/l
5.	F.Coli MPN/ 100 ml	**2200**	220	**3800**	45	<1.8	940	<1.8	830	490	<1000

This module of STP is achieving the prescribed limits for the last three months.

STP Balloke, 152 MLD

Sr. no.	Parameters	Aug. 2019	Sept. 2019	Oct. 2019	Nov. 2019		Dec. 2019		Jan, 2020		Permissible limits
		Board's Lab	Board's Lab	Board's Lab	Board's Lab	SAI Lab	Board's Lab	SAI Lab	Board's Lab	SAI Lab	
1.	pH	7	7.1	5.3	6.8	6.4	7.2	7.2	7.4	6.74	6.5-9.0
2.	BOD mg/l	**65**	**65**	**88**	**35**	**49**	27	25	30	24	<30 mg/l
3.	COD mg/l	196	208	320	164	209	132	136	152	228	-
4.	TSS mg/l	82	63	72	58	88	38	18	56	27	<100 mg/l
5.	F.Coli MPN/ 100 ml	**28000**	**79000**	ND	**430000**	**17000000**	920	<1.8	<1.8	<1	<1000

This module of STP is achieving the prescribed limits for the last two months.

STP Jamalpur, 48 MLD

Sr. no.	Parameters	Aug. 2019	Sept. 2019	Oct. 2019	Nov. 2019	Dec. 2019	Jan, 2020	Permissible limits
		Board's Lab	Board's Lab	Board's Lab	Board's Lab	Board's Lab	Board's Lab	
1.	pH	7.37	7.1	7.04	7.27	7.8	7.82	6.5-9.0
2.	BOD mg/l	185	130	190	210	85	320	<30 mg/l
3.	COD mg/l	540	398	438	613	240	922	-
4.	TSS mg/l	250	134	136	242	-	336	<100 mg/l
5.	Fecal Coliform MPN/100 ml	170000	49000	150000	70000	94000	120000	<1000

This module of STP is not operational and is lying defunct. It is acting as a pumping station for disposal of untreated effluent into Budha Nallah.

3.1.3 Other major sources of water pollution

Besides above, there are two dairy complexes located at Tajpur Road and Humbran Road and one slaughter house in city. The slaughter house, which is run by the Municipal Corporation, Ludhiana has installed captive ETP. There is a proposal to install two CETPs of 5 MLD and 10 MLD capacities, to treat the effluents from diary complexes located at Tajpur Road and Humbran

Road, Ludhiana, respectively. Presently the untreated effluent from these dairy complexes is discharged into Budha Nallah.

3.1.3.1 Tajpur Dairy Complex, Ludhiana

The Municipal Corporation, Ludhiana had developed a dairy complex at Tajpur Road, Ludhiana. Untreated trade effluent and solid waste from this dairy complex is discharged into Budha Nallah without any treatment. There is a proposal to install a CETP of 5 MLD capacity for the treatment of liquid waste from this dairy complex. As per the Comprehensive plan for rejuvenation of Budha Nallah submitted by Municipal Corporation, Ludhiana, the target date for completion and commissioning of the project is 30.04.2022.

3.1.3.2 Haibowal Dairy Complex, Ludhiana

The Municipal Corporation, Ludhiana had developed a dairy complex at Humbran Road, Haibowal Ludhiana. Untreated trade effluent and solid waste from this dairy complex is discharged into Budha Nallah without any treatment. There is a proposal to install a CETP of 10 MLD capacity for the treatment of liquid waste from this dairy complex. As per the Comprehensive plan for rejuvenation of Budha Nallah submitted by Municipal Corporation, Ludhiana, the target date for completion and commissioning of the project is 30.04.2022.

3.1.3.3 Slaughter House, Haibowal, Ludhiana

One slaughter house is established at Haibowal, Ludhiana by Municipal Corporation, Ludhiana for slaughtering of sheeps, goats, pigs and poultry birds. For the treatment of trade effluent generated, the Municipal Corporation, Ludhiana has recently upgraded the existing Effluent Treatment Plant (ETP), which is likely to be commissioned shortly. Its performance will be checked by the Board after its commissioning.

3.1.4 Ground Water Pollution

Under the National Water Quality Monitoring Programme (NWMP), the Punjab Pollution Control Board is monitoring the quality of ground water in the pre-monsoon & Post monsoon seasons of the years. During the year 2017, 2018 & 2019 the effluent samples were collected and the analysis reports are annexed as **Annexure-3-A, 3-B, 3-C, 3-D, 3-E & 3-F.**

A perusal of ground water analysis report reveals that the concentration of various parameters is within the permissible limits. The ground water/drinking water standards are prescribed by the Bureau of Indian Standards (BIS), for the entire country. These standards/ limits do not take into account the geographical/ geological conditions of the different areas of the country which could contribute to the levels being more or less than the prescribed limits. In the months of

April, 2017, October, 2018, levels of Fe have been found beyond the permissible limits. It may be pertinent to mention that the cause for these higher levels may due to natural geographical/geological conditions rather than due to pollution as the results of the samples collected in the vicinity of Budha Nallah are within the permissible limits. Thus, it is evident that the ground water quality is not effected by the effluent generated by the city.

3.1.5 Discharge and Water Quality of Budha Nallah

3.1.5.1 Average discharge in Budha Nallah

The Executive Engineer, Discharge Division, Department of Water Resources, vide his letter no. 207-209 dt 02.04.2019 has informed that the discharge in Budha Nallah (at a particular time of measurement of flow) is as under:

Date	**Bhammian Pully**	**Tajpur central Jail Pully**	**Vijay Nagar Pully**	**Baba Ghori Shah Pully**	**Balloke Bridge**	**Baranhara Pully**
27.3.2019	Discharge in MLD					
	12.52	121.22	197.13	352.77	429.61	636.63

From the above, it is evident that the Ludhiana City is contributing about 624 MLD of effluent in Budha Nallah, which leads to River Sutlej. In addition, two STPs of capacity 111 MLD & 50 MLD (161 MLD) are installed at Bhattian, which discharge effluent directly into River Sutlej.

The discharge of Budha Nallah was measured at various locations, jointly by a team of officers from Municipal Corporation Ludhiana, Punjab Pollution Control Board and Department of Water Resources on hourly basis for 72 hours from 27.3.2019 to 30.3.2019, at six locations.

The Minimum, Maximum and Average discharges from the various six locations as calculated by the MCL are as under:

Date	**Bhammian Pully**	**Tajpur central Jail Pully**	**Vijay Nagar Pully**	**Baba Ghori Shah Pully**	**Balloke Bridge**	**Baranhara Pully**
27.3.2019 to 30.3.2019	**Discharge in MLD**					
Average	13	125	218	342	414	610
Max	14	131	232	369	450	691
Min	12	116	192	303	362	525

Average discharge into Budha Nallah at the exit point of MCL is about 597 MLD (610-13), say 600 MLD.

Further, the Discharge Division, Water Resources has informed that the average discharge of Budha Nallah into River Sutlej is as under:

Discharge data of Gauge at Budha Nallah (Sutlej River) for the period 01.04.2019 to 30.04.2020		
Month	**Avg. Discharge in Cusecs**	**Avg. discharge in MLD**
April	190.22	465.40
May	192.49	470.95
June	203.28	497.35
July	294.67	720.95
August	282.02	690.00
September	286.19	700.20
October	261.67	640.20
November	220.30	539.00
December	265.73	650.15
January	255.56	625.25
February	249.49	610.40
March	216.73	530.25
April	192.45	470.85
Average discharge of the year	239.2923077	585.4576923

3.1.5.2 Water quality of Budha Nallah

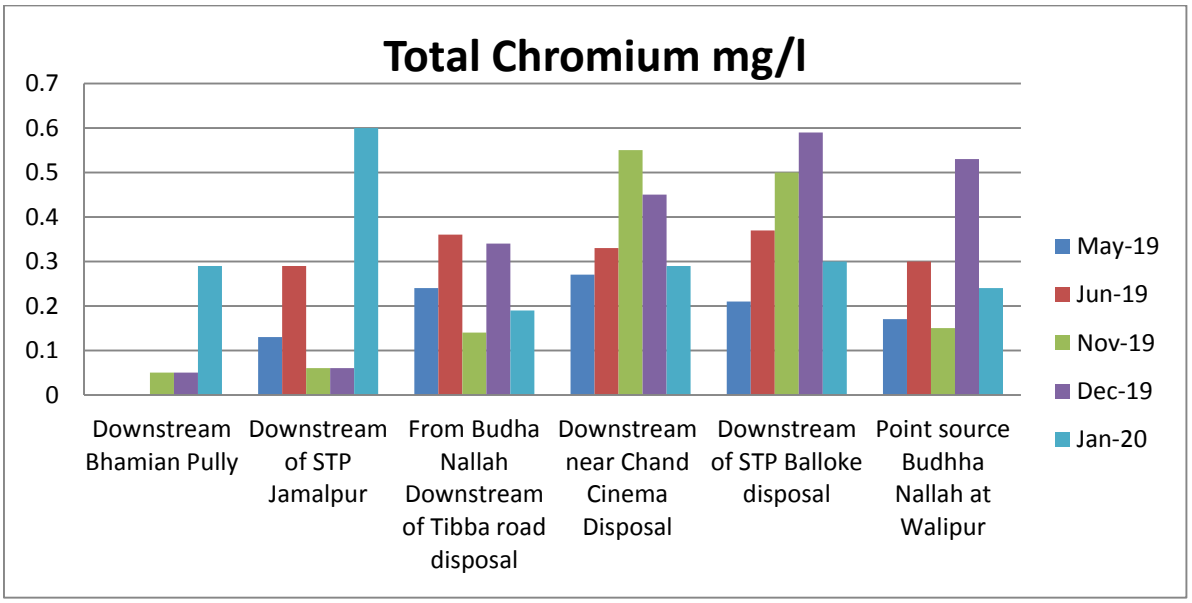
Monitoring of the water quality of Budha Nallah for various pollutants is being carried by the Board from the followings six locations.

S. No.	**Name of the location**
1.	Downstream BhamianPully
2.	Downstream of STP Jamalpur
3.	From Budha Nallah Downstream of Tibba road disposal
4.	Downstream near Chand Cinema Disposal
5.	Downstream of STP Balloke disposal
6.	Point source Budha Nallah at Walipur

The levels of various pollutants since May, 2019 is as under:

3.1.5.2.1 Total Chromium

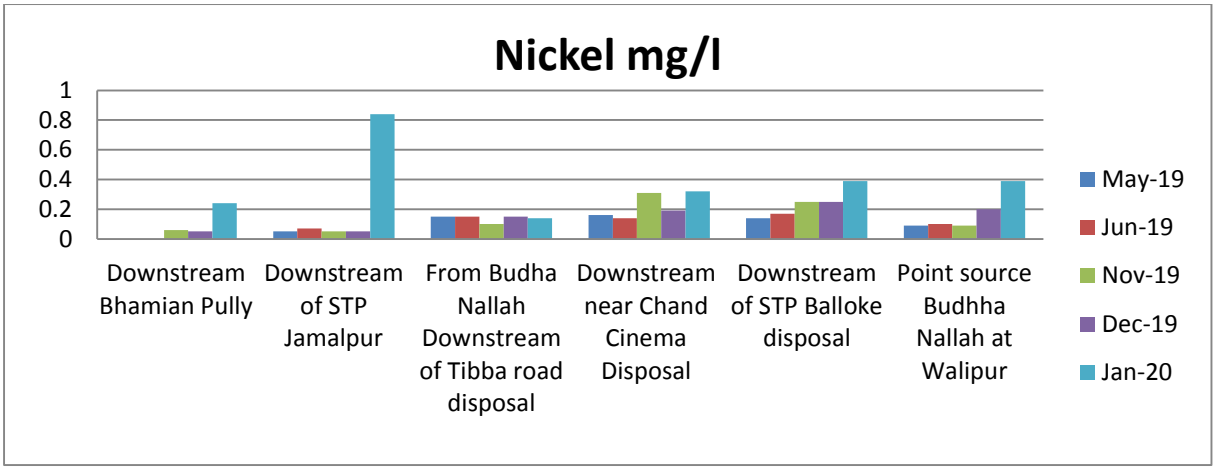
Sr. No.	Point of Sample Collection	Total Chromium mg/l				
		May-19	Jun 19	Nov-19	Dec-19	Jan-20
1	Downstream BhamianPully	-	-	0.05	0.05	0.29
2	Downstream of STP Jamalpur	0.13	0.29	0.06	0.06	0.6
3	From Budha Nallah Downstream of Tibba road disposal	0.24	0.36	0.14	0.34	0.19
4	Downstream near Chand Cinema Disposal	0.27	0.33	0.55	0.45	0.29
5	Downstream of STP Balloke disposal	0.21	0.37	0.5	0.59	0.3
6	Point source Budha Nallah at Walipur	0.17	0.3	0.15	0.53	0.24



It has been observed that the concentration of Total Chromium has increased at the downstream of STP Jamalpur, downstream of Chand Cinema disposal & STP Balloke.

3.1.5.2.2 Nickel

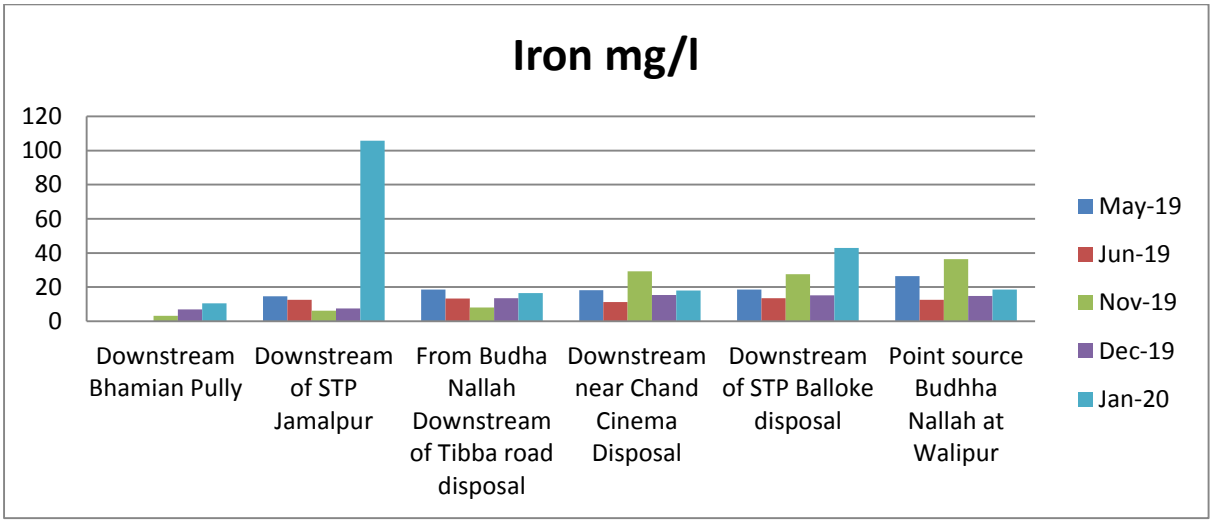
Sr. No.	Point of Sample Collection	Nickel mg/l				
		May-19	Jun-19	Nov-19	Dec-19	Jan-20
1	Downstream Bhamian Pully	-	-	0.06	0.05	0.24
2	Downstream of STP Jamalpur	0.05	0.07	0.05	0.05	0.84
3	From Budha Nallah Downstream of Tibba road disposal	0.15	0.15	0.1	0.15	0.14
4	Downstream near Chand Cinema Disposal	0.16	0.14	0.31	0.19	0.32
5	Downstream of STP Balloke disposal	0.14	0.17	0.25	0.25	0.39
6	Point source Budha Nallah at Walipur	0.09	0.1	0.09	0.2	0.39



It has been observed that the concentration of Nickle has increased at the downstream of STP Jamalpur, downstream of Chand Cinema disposal & STP Balloke.

3.1.5.2.3 Iron

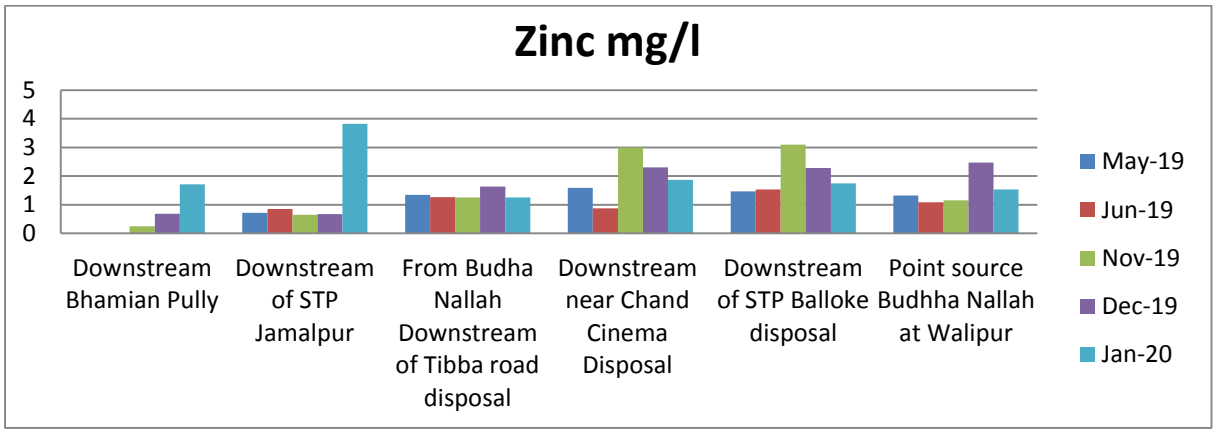
Sr. No.	Point of Sample Collection	Iron mg/l				
		May-19	Jun-19	Nov-19	Dec-19	Jan-20
1	Downstream Bhamian Pully	-	-	3.19	6.84	10.5
2	Downstream of STP Jamalpur	14.6	12.6	6.23	7.42	105.7
3	From Budha Nallah Downstream of Tibba road disposal	18.6	13.2	7.97	13.38	16.5
4	Downstream near Chand Cinema Disposal	18.2	11.2	29.28	15.32	18
5	Downstream of STP Balloke disposal	18.6	13.5	27.53	15.11	43
6	Point source Budha Nallah at Walipur	26.4	12.5	36.3	14.81	18.6



It has been observed that the concentration of Iron has increased at the downstream of STP Jamalpur& STP Balloke.

3.1.5.2.4 Zinc

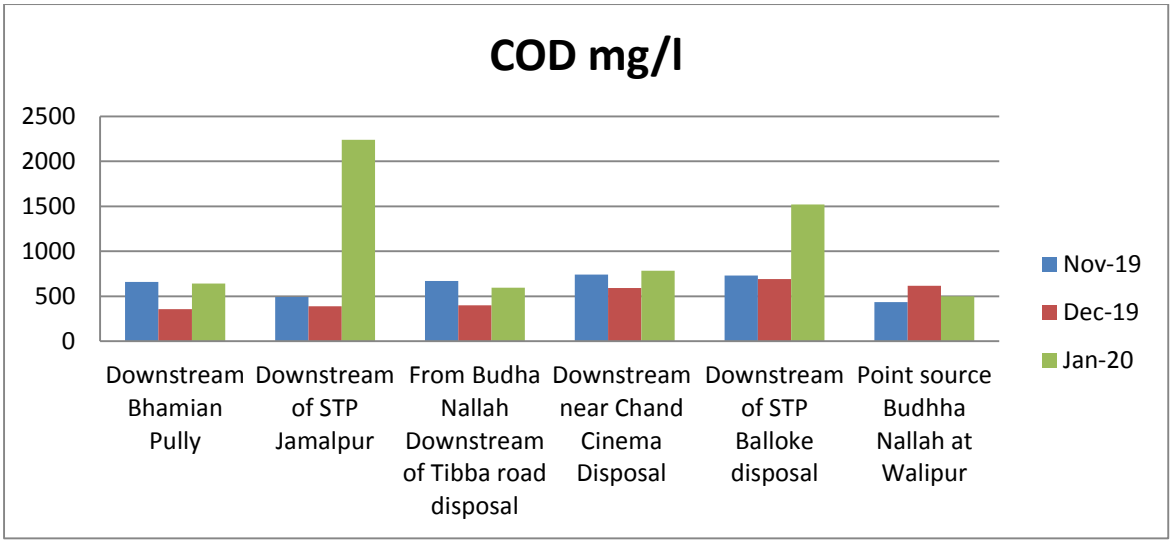
Sr. No.	Point of Sample Collection	Zinc mg/l				
		May-19	Jun-19	Nov-19	Dec-19	Jan-20
1	Downstream Bhamian Pully	-	-	0.25	0.68	1.71
2	Downstream of STP Jamalpur	0.72	0.85	0.65	0.67	3.83
3	From Budha Nallah Downstream of Tibba road disposal	1.34	1.27	1.25	1.64	1.26
4	Downstream near Chand Cinema Disposal	1.59	0.87	3	2.3	1.87
5	Downstream of STP Balloke disposal	1.47	1.54	3.1	2.28	1.75
6	Point source Budha Nallah at Walipur	1.32	1.09	1.15	2.47	1.53



It has been observed that the concentration of Zinc has increased at the downstream of STP Jamalpur& downstream of Chand Cinema disposal.

3.1.5.2.5 COD

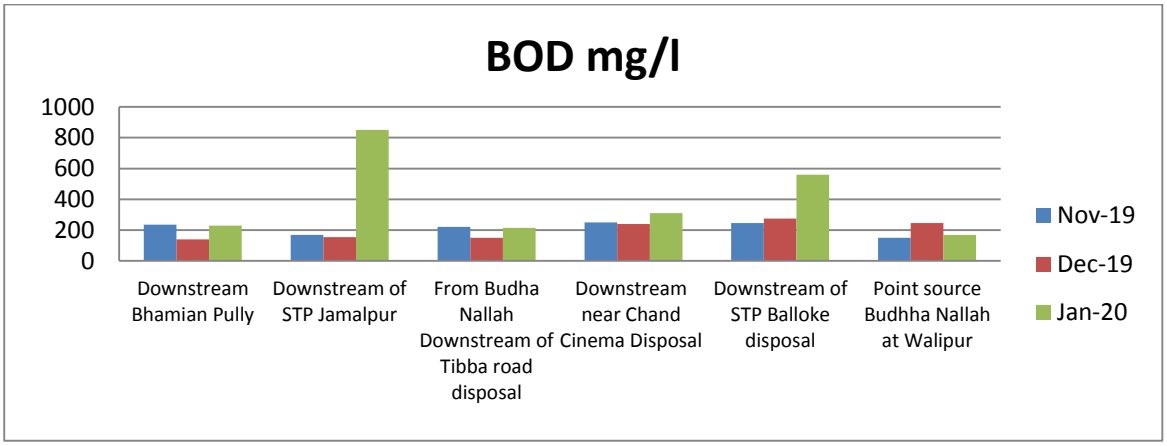
S. no.	Point of Sample Collection	COD mg/l		
		Nov-19	Dec-19	Jan-20
1.	Downstream Bhamian Pully	660	356	640
2.	Downstream of STP Jamalpur	492	388	2240
3.	From Budha Nallah Downstream of Tibba road disposal	670	400	596
4.	Downstream near Chand Cinema Disposal	740	592	784
5.	Downstream of STP Balloke disposal	730	692	1520
6.	Point source Budha Nallah at Walipur	436	616	500



It has been observed that the concentration of COD has increased at the downstream of STP Jamalpur, downstream of Chand Cinema disposal & STP Balloke.

3.1.5.2.6 BOD

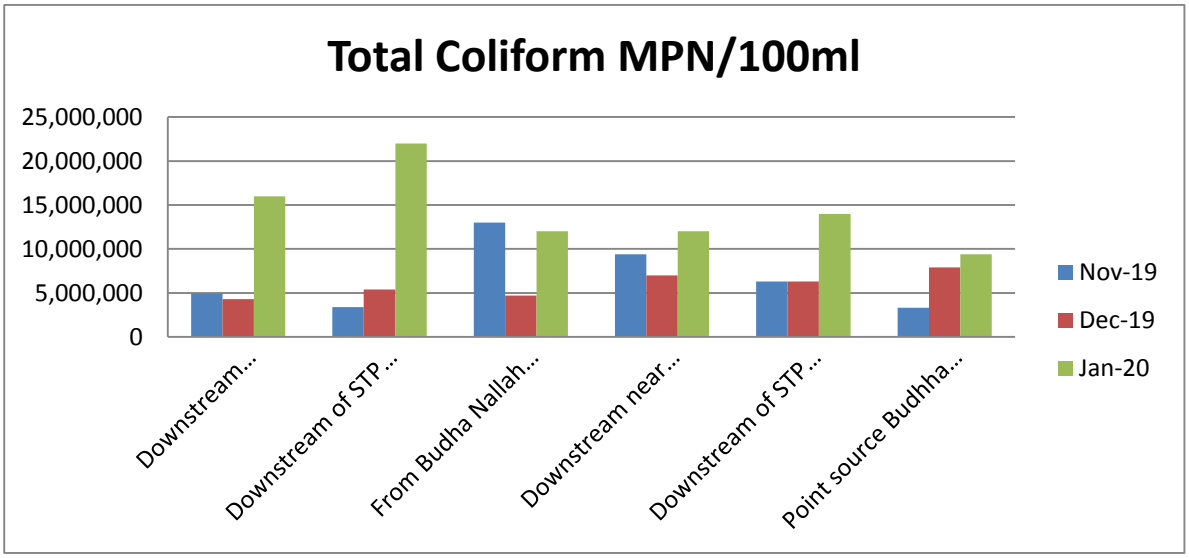
Point of Sample Collection	**BOD mg/l**		
	Nov-19	**Dec-19**	**Jan-20**
Downstream Bhamian Pully	235	140	230
Downstream of STP Jamalpur	170	155	850
From Budha Nallah Downstream of Tibba road disposal	220	150	215
Downstream near Chand Cinema Disposal	250	240	310
Downstream of STP Balloke disposal	245	275	560
Point source Budha Nallah at Walipur	150	245	170



It has been observed that the concentration of BOD has increased at the downstream of STP Jamalpur, downstream of Chand Cinema disposal & STP Balloke.

3.1.5.2.7 T.Coli

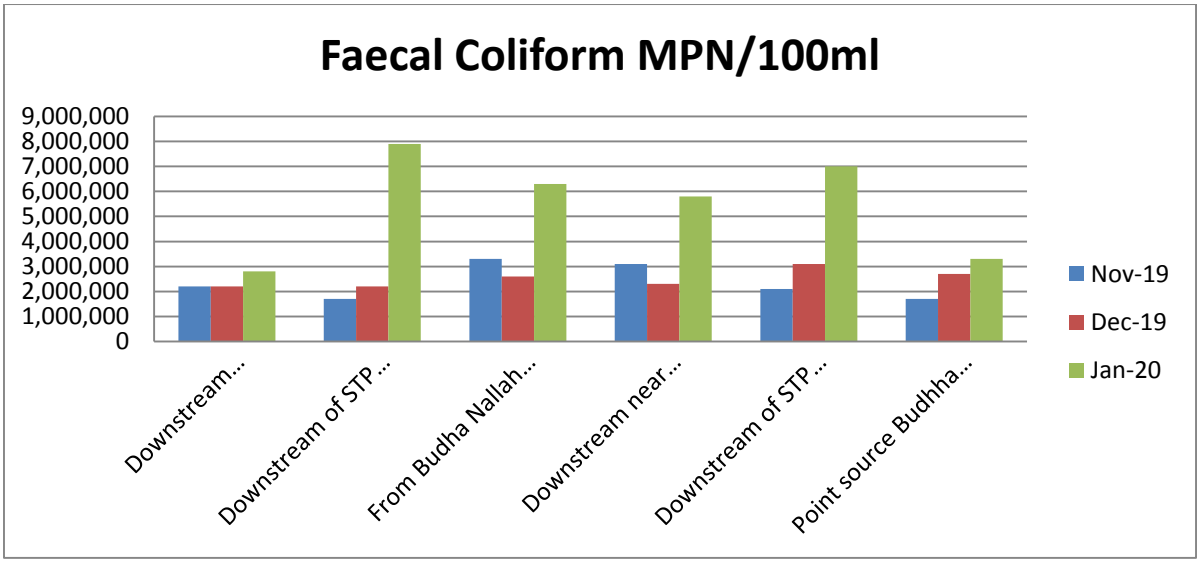
S. No.	Point of Sample Collection	T.Coli MPN/100ml		
		Nov-19	Dec-19	Jan-20
1.	Downstream Bhamian Pully	4,900,000	4,300,000	16,000,000
2.	Downstream of STP Jamalpur	3,400,000	5,400,000	22,000,000
3.	From Budha Nallah Downstream of Tibba road disposal	13,000,000	4,700,000	12,000,000
4.	Downstream near Chand Cinema Disposal	9,400,000	7,000,000	12,000,000
5.	Downstream of STP Balloke disposal	6,300,000	6,300,000	14,000,000
6.	Point source Budha Nallah at Walipur	3,300,000	7,900,000	9,400,000



It has been observed that the concentration of T. Coli is already high at the downstream of Bhamian Pully and has further increased at the downstream of STP Jamalpur. Increased trend of T. Coli has also been observed at the downstream of STP Balloke.

3.1.5.2.8 F.Coli

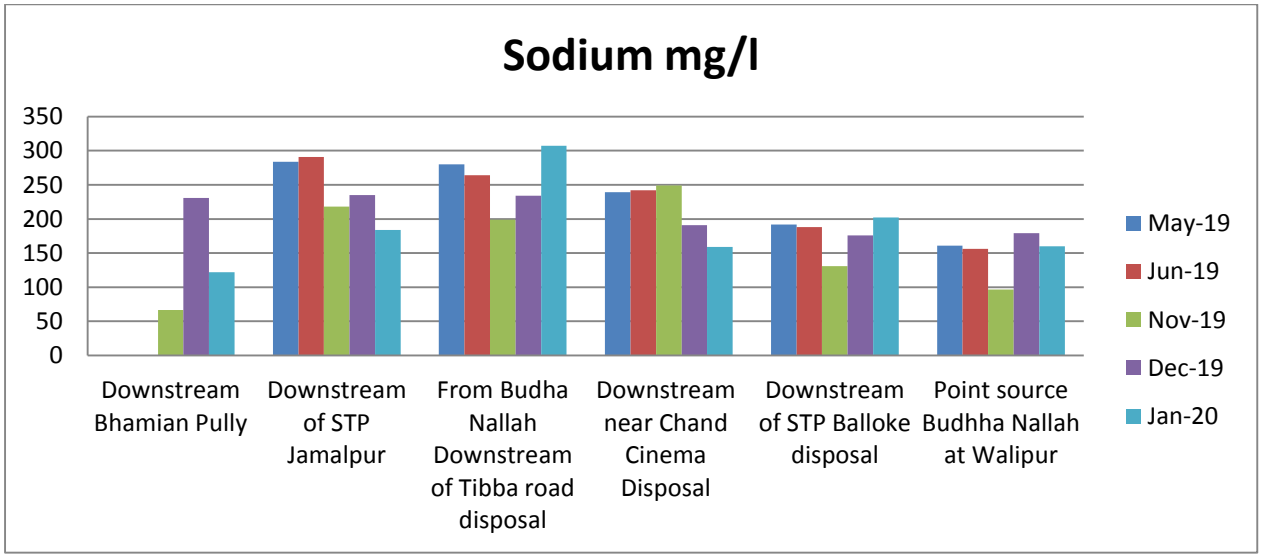
S. No.	Point of Sample Collection	F.Coli MPN/100ml		
		Nov-19	Dec-19	Jan-20
1.	Downstream Bhamian Pully	2,200,000	2,200,000	2,800,000
2.	Downstream of STP Jamalpur	1,700,000	2,200,000	7,900,000
3.	From Budha Nallah Downstream of Tibba road disposal	3,300,000	2,600,000	6,300,000
4.	Downstream near Chand Cinema Disposal	3,100,000	2,300,000	5,800,000
5.	Downstream of STP Balloke disposal	2,100,000	3,100,000	7,000,000
6.	Point source Budha Nallah at Walipur	1,700,000	2,700,000	3,300,000



It has been observed that the concentration of F. Coli has increased at the downstream of STP Jamalpur and at the downstream of STP Balloke, which is mainly due to the disposal of untreated dairy waste into Budha Nallah.

3.1.5.2.9 Sodium

Sr. No.	Point of Sample Collection	Sodium mg/l				
		May-19	Jun-19	Nov-19	Dec-19	Jan-20
1	Downstream Bhamian Pully	-	-	66.7	231	122
2	Downstream of STP Jamalpur	284	291	218	235	184
3	From Budha Nallah Downstream of Tibba road disposal	280	264	199	234	307
4	Downstream near Chand Cinema Disposal	239	242	249	191	159
5	Downstream of STP Balloke disposal	192	188	131	176	202
6	Point source Budha Nallah at Walipur	161	156	96.5	179	160



From above, it is clear that there is slight reduction of Sodium at the point source Budha Nallah at Walipur.

3.1.6 Water quality of River Sutlej

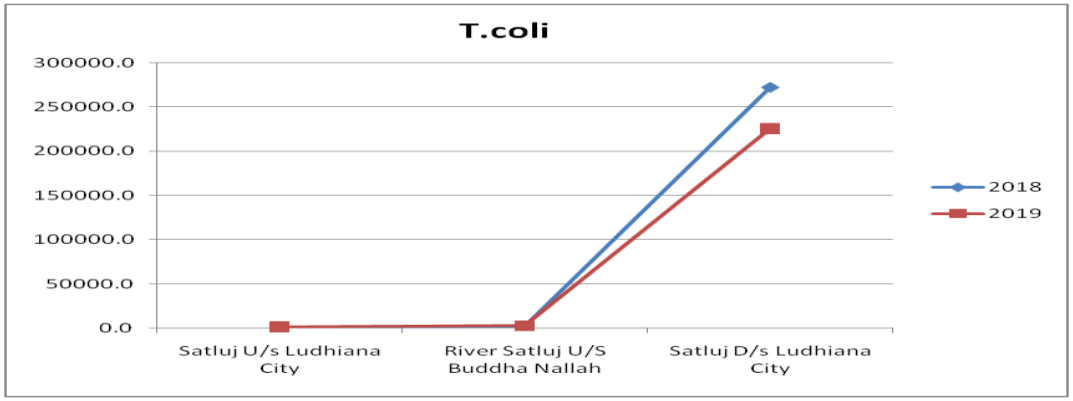
The Budha Nallah meets River Sutlej near Village Walipur, which is located the downstream of Ludhiana City. There is another point source of water pollution in River Sutlej contributed by Ludhiana City, which is in village Kaasabaad and is a common disposal point of 111 MLD & 50 MLD capacity STPs installed at Bhattian. The water quality of the River Sutlej is being monitored by the Board regularly at the following points :

1. Upstream of Ludhiana City (point source of Village Kaasabaad)
2. Upstream of point source of Budha Nallah near Village Walipur.
3. Downstream of Ludhiana City

The average values of the various parameters for the last 2 years are as under:-

3.1.6.1 T. Coli

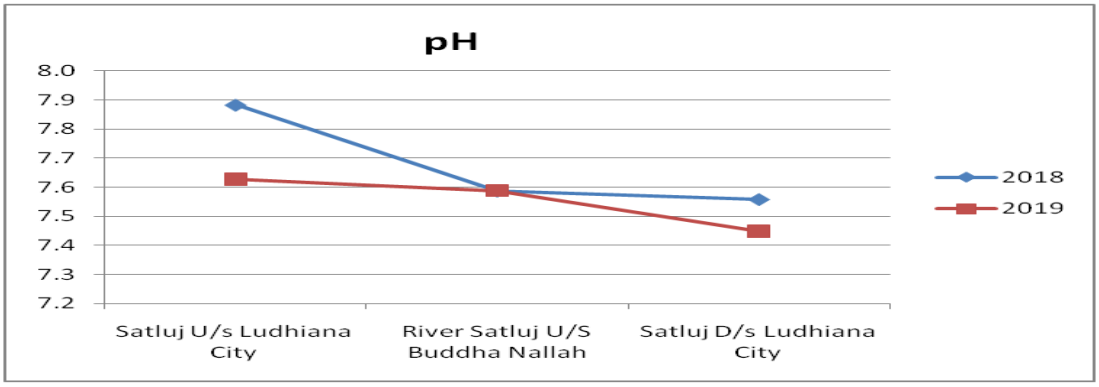
Name of Location	Average 2018 (MPN/100ml)	Average 2019 (MPN/100ml)
Satluj U/s Ludhiana City	1783.0	1463.0
River Satluj U/S Budha Nallah	2550.0	2754.0
Satluj D/s Ludhiana City	272000.0	225500.0



From above, it is clear that there is a decline in the level of T. Coli after point source of Budha Nallah.

3.1.6.2 pH

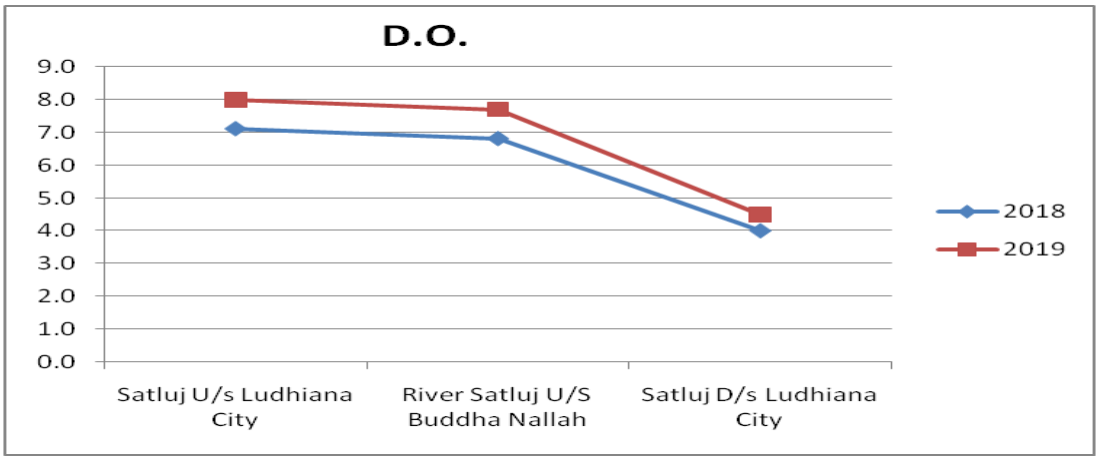
Name of Location	Average 2018	Average 2019
Satluj U/s Ludhiana City	7.9	7.6
River Satluj U/S Budha Nallah	7.6	7.6
Satluj D/s Ludhiana City	7.6	7.4



From above, it is clear that there is a decline in the level of pH and is approaching the neutral value of 7.

3.1.6.3 D.O.

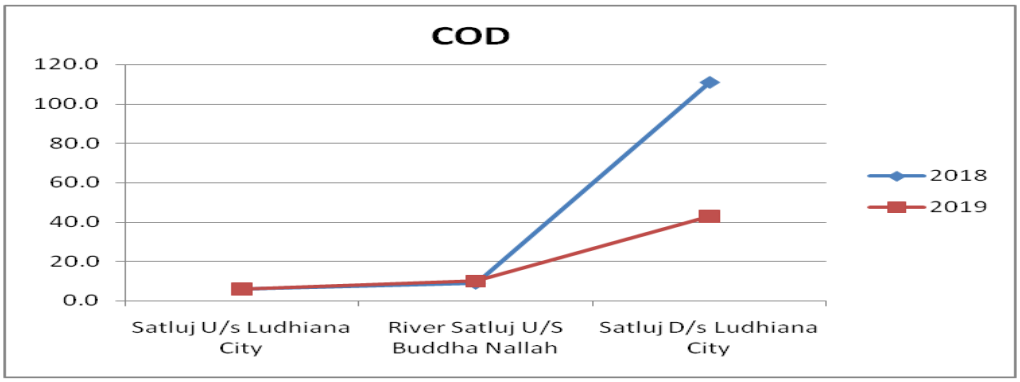
Name of Location	Average 2018 (mg/l)	Average 2019 (mg/l)
Satluj U/s Ludhiana City	7.1	8.0
River Satluj U/S Budha Nallah	6.8	7.7
Satluj D/s Ludhiana City	4.0	4.5



From above, it is clear that there is an increase in the level of D.O.

3.1.6.4 COD

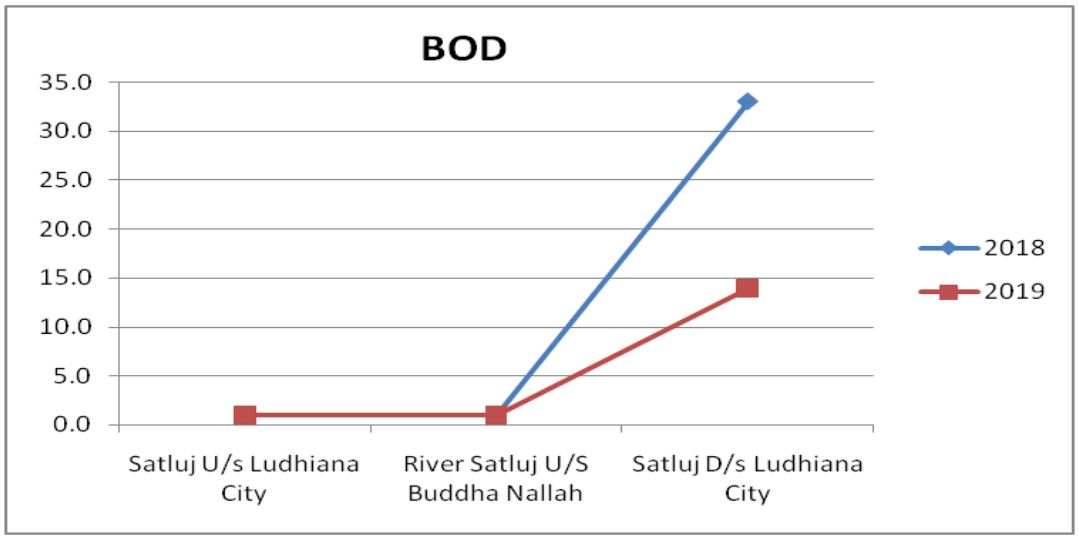
Name of Location	Average 2018 (mg/l)	Average 2019 (mg/l)
Satluj U/s Ludhiana City	6.0	6.0
River Satluj U/S Budha Nallah	9.0	10.0
Satluj D/s Ludhiana City	111.0	43.0



From above, it is clear that there is a decline in the level of COD.

3.1.6.5 BOD

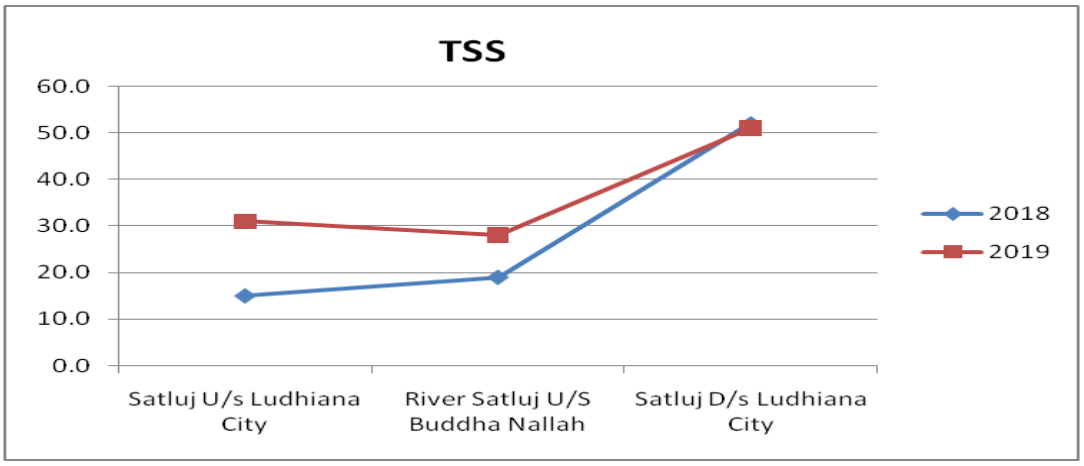
Name of Location	Average 2018 (mg/l)	Average 2019 (mg/l)
Satluj U/s Ludhiana City	1.0	1.0
River Satluj U/S Budha Nallah	1.0	1.0
Satluj D/s Ludhiana City	33.0	14.0



From above, it is clear that there is a decline in the level of BOD.

3.1.6.6 TSS

Name of Location	Average 2018 (mg/l)	Average 2019 (mg/l)
Satluj U/s Ludhiana City	15.0	31.0
River Satluj U/S Budha Nallah	19.0	28.0
Satluj D/s Ludhiana City	52.0	51.0



From above, it is clear that there is no significant change in the level of TSS.

As per the Designated Best Use (DBU), the classification of the water quality of the River Sutlej for the following points is as under:

S. No.	Name of Location	Classification
1	Satluj U/s Ludhiana City	"C"
2	River Satluj U/S Budha Nallah	"C"
3	Satluj D/s Ludhiana City	"D"

It is concluded that the quality of River Sutlej has improved as compare to the last year.

3.2 Air Pollution

3.2.1 Industrial Air Pollution

The main stationary sources of air pollution are the industrial units, which are emitting particulate matter, hydrocarbon, sulphur dioxide, oxides of nitrogen, VOCs and acid mist. As per inventory of the Punjab Pollution Control Board, there are 736air polluting industries in Ludhiana city, which are emitting the aforesaid pollutants, besides, emitting process/ fugitive emissions. Besides above, non-agricultural activities are going on within the MC limits of Ludhiana city but the city is surrounded by agricultural fields, as such, the burning of rice and wheat straw by the farmers is affecting the ambient air quality of the town. Furthermore, due to erratic supply of power, most of the establishment, residential houses and industries have installed D.G set of various capacities to cater to their power needs, which are emitting uncontrolled emissions into the Atmosphere within the city limits. Due to all these sources, the quality of ambient air of the city is being effected. The air polluting industries located in the jurisdiction of Ludhiana city are as under:

Sr. No.	Category	Number of air polluting units
1.	Casting/ Cupola/ Kothali	100
2.	Induction	64
3.	Forging	110
4.	Lead Smelting	4
5.	Rolling Mills	15
6.	Arc Furnace	4
7.	Tyre& Tubes	15
8.	Dyeing / Textile	226
9.	Milk Plant	2
10.	Misc.	196
Total		**736**

All the air polluting industries of the city have installed Air Pollution Control Devices, which are being monitored by the Board regularly.

3.2.2. Other Sources of Air Pollution

3.2.2.1 Mobile sources (Major)

In Ludhiana city, the main mobile sources of air pollution are various motor vehicles i.e. auto rickshaw, buses, mini & large trucks, car and 2 wheelers etc. which are emitting air/vehicle emissions into the atmosphere within the city limits

3.2.2.2 Stationary Point Sources

Due to erratic supply of power, most of the establishment, residential houses and industries have installed D.G. set of various capacities to cater to their power needs, which are emitting uncontrolled emissions into the atmosphere within the city limits.

3.2.2.3 Non-Point Sources

Ludhiana city is surrounded by agricultural fields. As such, the burning of rice and wheat straw by the farmers during the harvesting season, is also affecting the ambient air quality of the town. Also, anaerobic digestion of biomass and garbage stored and frequent fires at the Municipal Solid Waste Dump site is affecting the quality of ambient air quality of the city to a great extent & addition to above the climate conditions of the area also increase the level s of the particulate matter especially during day weather.

3.2.2.4 Noise Pollution

Various sources of noise pollution are as under

1. Road Traffic Noise:

In the city, the main sources of traffic noise are the motors and exhaust system of autos, smaller trucks, buses, and motorcycles. This type of noise can be augmented by narrow streets and tall buildings, which produce a canyon in which traffic noise reverberates.

2. Noise from railroads:

The noise from locomotive engines, horns and whistles, and switching and shunting operation in rail yards can impact neighboring communities and railroad workers. For example, rail car retarders can produce a high frequency, high level screech that can reach peak levels of 120 dB at a distance of 100 feet, which translates to levels as high as 138, or 140 dB at the railroad worker's ear.

3. Construction Noise:

The noise from the construction of highways, city streets, and buildings is a major contributor to the urban scene. Construction noise sources include pneumatic hammers, air compressors, bulldozers, loaders, dump trucks (and their back-up signals), and pavement breakers.

4. Noise in Industry:

Although industrial noise is one of the less prevalent community noise problems, neighbors of noisy manufacturing plants can be disturbed by sources such as fans, motors, and compressors mounted on the outside of buildings Interior noise can also be transmitted to the community through open windows and doors, and even through building walls. These interior noise sources have significant impacts on industrial workers, among whom noise- induced hearing loss is unfortunately.

5. Noise from Consumer products:

Certain household equipment, such as vacuum cleaners and some kitchen appliances have been and continue to be noisemakers, although their contribution to the daily noise dose is usually not very large.

3.2.3 Air Quality of Ludhiana City

The Board is monitoring Ambient Air Quality of Ludhiana city and have installed 4 Monitoring Stations at the following locations:-

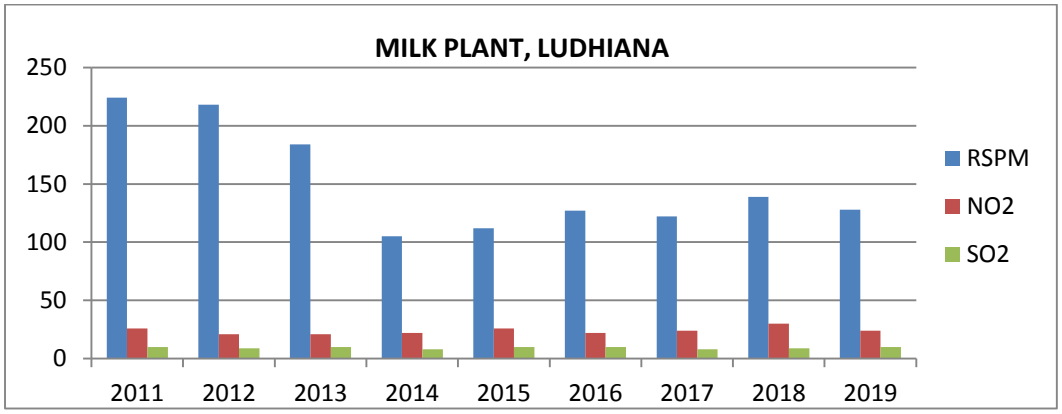
1. Milk Plant, Ferozepur Road, Ludhiana
2. United Cycle Parts Building, Gill Road, Ludhiana (Earlier Punjab Pollution Control Board Office, Gill Road, Ludhiana)
3. Nahar Industrial Enterprises Ltd, Industrial Area – A, Ludhiana (Earlier Rita Sewing Machine, Industrial Area-A, Ludhiana)
4. Vishvakarma Chowk, Ludhiana

These stations have been installed under National Ambient Air Quality Scheme and the data alongwith graphical representation pertaining to each station is as below:-

3.2.3.1 Milk Plant, Ferozepur Road, Ludhiana

Comparative Values of RSPM, SO_2 & NO2 µg/m^3 for the years 2011-2019

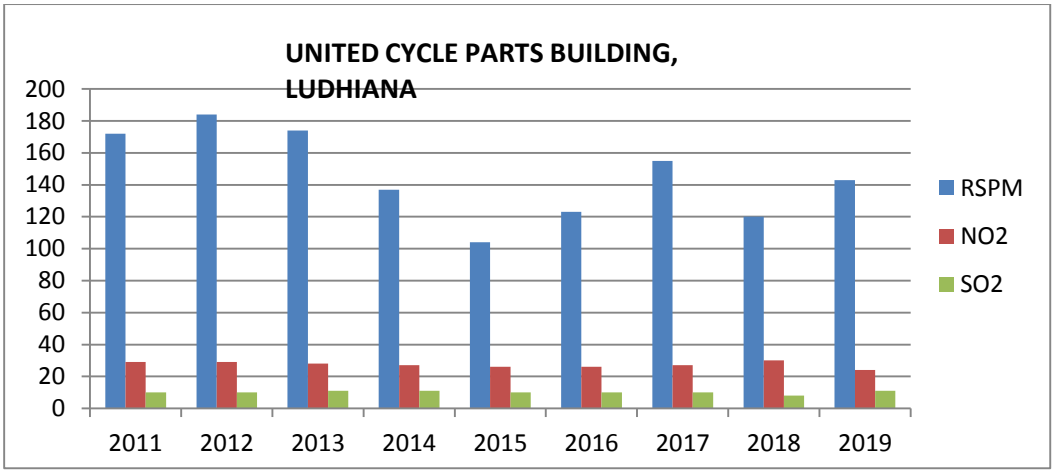
Year	RSPM (µg/m^3)	NO2(µg/m^3)	SO2 (µg/m^3)
2011	224	26	10
2012	218	21	9
2013	184	21	10
2014	105	22	8
2015	112	26	10
2016	127	22	10
2017	122	24	8
2018	139	30	9
2019	128	24	10



From the above, it is evident that air quality of the area has improved w.r.t. RSPM from year 2011 to 2019, while there is no significant change in the levels of NO_2& SO_2.

3.2.3.2 United Cycle Parts Building, Gill Road, Ludhiana (Earlier Punjab Pollution Control Board Office, Gill Road, Ludhiana)

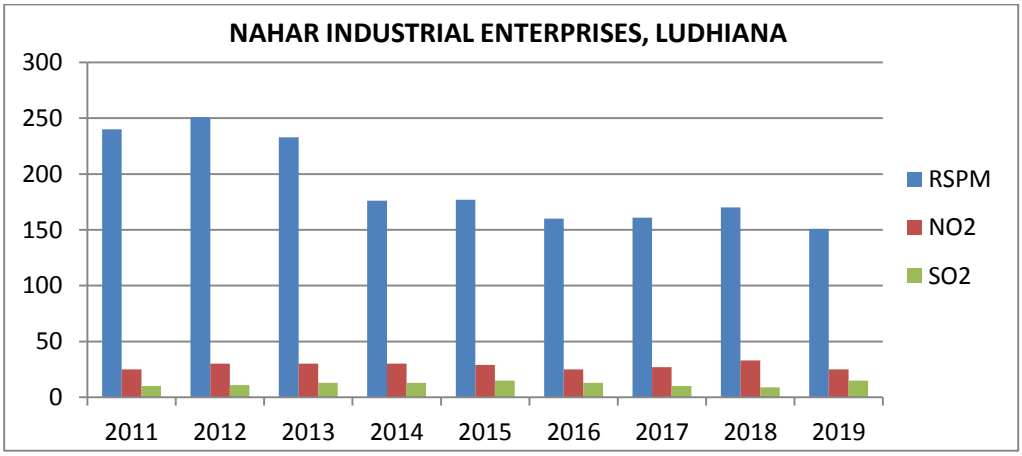
Year	RSPM (µg/m^3)	NO2(µg/m^3)	SO2 (µg/m^3)
2011	172	29	10
2012	184	29	10
2013	174	28	11
2014	137	27	11
2015	104	26	10
2016	123	26	10
2017	155	27	10
2018	120	30	8
2019	143	24	11



From the above, it is evident that air quality of the area has improved w.r.t. RSPM from year 2011 to 2019, while there is no significant change in the levels of NO_2& SO_2.

3.2.3.3 Nahar Industrial Enterprises Ltd, Industrial Area – A, Ludhiana (Earlier Rita Sewing Machine, Industrial Area-A, Ludhiana

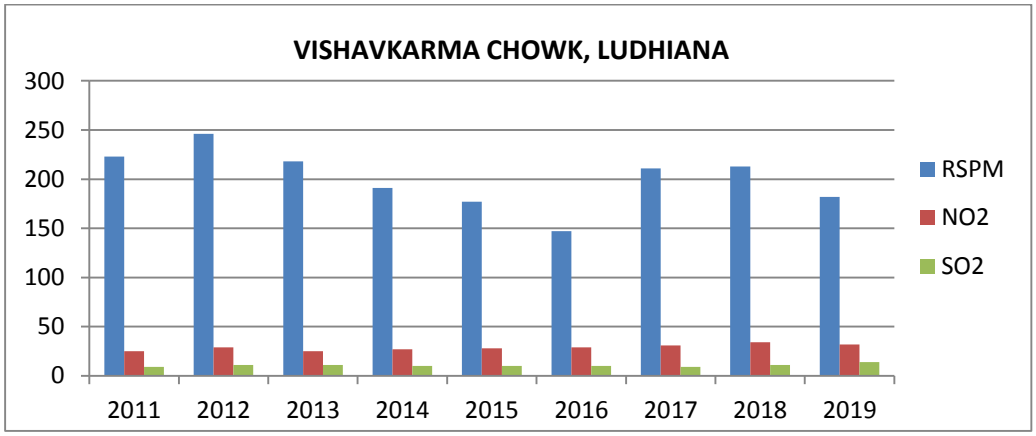
Year	RSPM (µg/m³)	NO2(µg/m³)	SO2 (µg/m³)
2011	240	25	10
2012	251	30	11
2013	233	30	13
2014	176	30	13
2015	177	29	15
2016	160	25	13
2017	161	27	10
2018	170	33	9
2019	151	25	15



From the above, it is evident that air quality of the area has improved w.r.t. RSPM, while there is no significant change in the levels of NO_2& SO_2.

3.2.3.4 Vishwakarma Chowk, Ludhiana

Year	RSPM (µg/m^3)	NO_2(µg/m^3)	SO_2 (µg/m^3)
2011	223	25	9
2012	246	29	11
2013	218	25	11
2014	191	27	10
2015	177	28	10
2016	147	29	10
2017	211	31	9
2018	213	34	11
2019	182	32	14

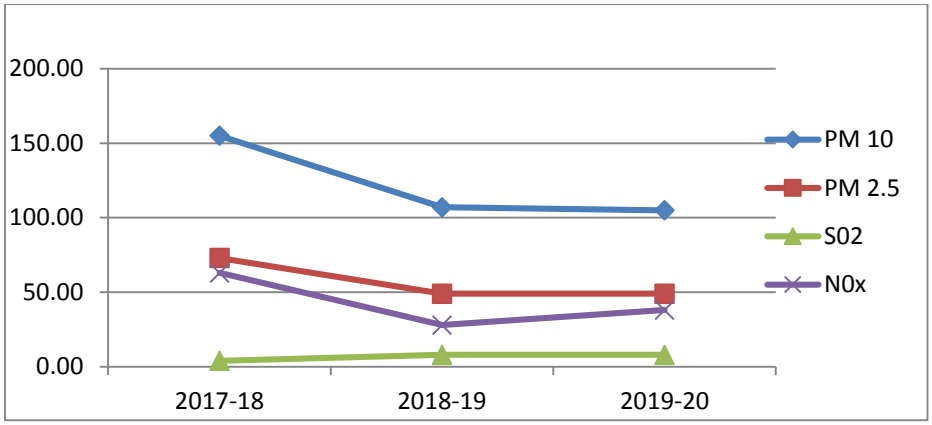


From the above, it is evident that air quality of the area has improved w.r.t. RSPM, while there is a slight increase in the levels of NO_2& SO_2.

The Board has also installed one Continuous Ambient Air Quality Monitoring Station (CAAQMS) at Ludhiana. And its real time data is being displayed at Gate No - 2, PAU, Ferozepur Road, Ludhiana. This real time data is also available on the website of the PPCB & CPCB. Data of the various parameters is as under:

3.2.3.5 Data of CAAQMS, Ludhiana for year 2017-2020

Year	PM 10	PM 2.5	S02	N0x
2017-18	155	73	4	63
2018-19	107	49	8	28
2019-20	105	49	8	38



From the above, it is evident that there is decrease in the level of PM10, PM 2.5 and NOX, while there is an increase in the level of SO_2.

3.3. Sources of Land Pollution

3.3.1 Municipal Solid Waste

About 1150 MTD of Municipal Solid Waste is generated in the jurisdiction of Municipal Corporation, Ludhiana. As per the census of 2011, the population of the city is 16,13,878. Municipal Solid Waste @ 520 gm/day/capita is generated in the city. The Municipal Corporation, Ludhiana has provided a Solid waste treatment facility at Tajpur Road, Ludhiana, where about 600 TPD of municipal solid waste is processed. About 150 TPD of RDF is produced by the Municipal Corporation, Ludhiana. This facility is established in about 19.84 hectares. At site, about 24 lac MT of legacy waste is stored in an unscientific way.

The present status w.r.t compliance of Solid Waste Management Rules, 2016 for Ludhiana city w.e.f. 01.04.2019 to 31.12.2019 is as under:

3.3.1.1 Door to Door Collection and segregation of Solid Waste

Total wards	Wards with d2d collection	Total households	Hh with d2d collection	Hh percent covered
95	95	349642	337395	96.5

3.3.1.2 Source Segregation

Wet waste collected	Dry waste collected	Total waste collected	Total wards	Wards with ss	Total households	Hh with source segregation	Hh percent covered ss
8087.8	12132	20220	95	95	349642	326121	93.27

3.3.1.3 Collection and Transportation Vehicles

Tricycle compartmentized	Tricycle owned by pvt.	e-riksha total	e-riksha with GPS	Tata ACE total	Tata ACE with GPS	Tipper total	Tipper GPS	Tractor trolley total
500	1500	0	0	50	50	29	29	11

3.3.1.4 Waste Processing Facility

total pits constructed	pits with shed	pits without shed	total wet waste feeded in pits	total compost generated	hh with home composting
0	0	0	0	0	170

3.3.1.5 Horticulture waste Management

Parks with horticulture waste	Parks with onsite composting	Parks total pits constructed
922	148	278

3.3.1.6 MRF and Bulk waste generators

MRF sites constructed	BWG above100 kg identified	BWG above100 composting	BWG 50 to 100 kg identified	BWG 50 100 composting
1	31	22	0	0

3.3.1.7 MRF and Bulk waste generators

Total wards	Residential wards	Residential wards with sweeping	Commercial wards	Commercial wards with sweeping	Commercial wards with night sweeping	Public places	Public places with sweeping
95	60	60	35	35	0	18	18

3.3.1.8 MRF and Bulk waste generators

Rag pickers identified	Rag pickers integrated swm	Waste pickers identified	Waste pickers integrated swm	Kabadis identified	Safai sewaks regular	Safai sewaks contract outsourced	Ngo identified
104	104	1360	1360	0	2895	2447	0

3.3.1.9 Legacy waste, Garbage Vulnerable Points

Legacy waste sites identified	Legacy waste sites cleared	Gvp (garbage vulnerable points)identified	Gvp cleared	No. Of points waste entering in water body	No of water body sites with arrangement
2	0	494	210	29	8

3.3.1.10 Awareness Programs

No of complaints received	No of complaints resolved	Awareness activities	Workshops training programs conducted	Workshop participants	No of advertisements news
2425	2375	2022	2	450	99

3.3.1.11 Violations observed

No of violation littering / burning plastic	No of challans issued	Amount collected
8161	2728	182700

3.3.2. Bio-Medical Waste

The Board has identified 400 health care establishments having total bed capacity of 9040 and 447 non-bedded health care establishments in Ludhiana city, which are generating about 3.3 TPD of bio-medical waste of different categories as specified in Schedule-1 appended to the Biomedical Waste (Management & Handling) Rules 2016. The segregation of the bio-medical waste is being done by all these health care establishments at source. Furthermore, the liquid waste being generated by all these health care establishments is being disinfected as per the procedure prescribed in the said rules. Moreover, 15 nos. of health care establishments have additionally installed ETP for treatment of effluent generated from their premises. The bio-medical waste generated is not allowed to mix with the municipal solid waste and it is handled by a common Bio-medical Waste Treatment Facility of bio-medical waste of different categories. The Punjab Pollution Control Board vide its letter no. 4813 dated 11.10.2019 has decided that, as an interim measure, all the Health Care Facilities (Govt. as well as Pvt.) has been given time to install ETP by 30.06.2020.

3.3.3 Hazardous Waste

There are 1291 hazardous waste generating industries in Distt. Ludhiana. The main industries are dyeing, washing, electroplating, induction furnaces, casting units, etc. Presently, these industries are generating total hazardous waste of 19424.96 MTA. Out of which 13508.2 MTA is land fillable, 869.86 MTA incinerable, 3411.904 MTA is recyclable and 1635 MTA is incinerable. All these industries are storing their hazardous waste temporarily in their premises. A common Treatment, Storage & Disposal Facility has been developed by M/s Nimbuan Greenfield (Punjab) Ltd., at Vill. Nimbuan, Tehsil DeraBassi, Distt. Mohali for environmentally sound disposal of the hazardous waste, which came in operation in the month of October 2007 and its life span is about 15-years. The Common TSDF is collecting, transporting, treating &disposing hazardous

waste after lifting from industrial premises of various industries to be disposed at village Nimbuan.

3.3.4 Plastic Waste Management.

The current compliance status of Plastic Waste Management Rules, 2016 w.e.f 01.04.2019 to 31.12.2019 is as under:

Setting up of Material Recovery Facilities

Name of ULB	No. of MRFs required	No. of MRF constructed	No. of MRF operational	No. of MRF under construction
Ludhiana	39	1	1	5

Monitoring of MRFs for segregation and channelization of plastic waste

Name of ULB	Segregation of Plastic Waste into Recyclable & Non-Recyclable Plastic Waste started(Yes/No)	Whether segregated recyclable plastic waste disposed to authorized recycler (Yes/No)	Whether non-recyclable plastic waste used in road construction / cement kiln / RDF (Yes/No)
Ludhiana	No	No	No

Monitoring of littering/open burning of plastic waste:

Sr. No	Name of ULB	No. of violations regarding littering/open burning of plastic waste observed	Action taken against violators	
			No. of challans issued	Amount of fine collected in Rs
1.	Ludhiana	389	389	47200

Monitoring of the ban on plastic carry bags in the State:

14. Plastic Carry Bags Violations			
Plastic bag violations observed	Qty of plastic bags confiscated	No of plastic carry bag challans issued	Plastic fine amount (Rs.)
5920	5551	2684	Rs. 7,07,000/-

Monitoring of Registration under Plastic Waste Management Rules,2016:

Category	No. of units identified	No. of units obtained registration	Remaining no. of units yet to obtain registration	Action taken against the violator
Producer	3	1	2	Notices issued
Brand Owner	0	0	0	
Recycler	8	0	8	
Manufacturer	29	2	27	

3.3.5 E-Waste

The e-waste is generally generated from dismantling activities of various electrical / electronics appliances / gadgets such as audiovisual components, televisions, VCRs, stereo equipment, mobile phones and computer components. For proper disposal of E-waste, the Ministry of Environment & Forest has separately notified E-Waste (Management) Rules, 2016.

3.3.6 Construction & Demolition Waste.

The status of current compliance Construction & Demolition Waste Rules, 2016 w.e.f 01.04.2019 to 31.12.2019 is as under:

Construction and Demolition Waste Facility

CnD waste sites identified	CnD waste sites notified	Qty of cnd waste collected	No of cnd recycling units	Total cnd waste processed
6	6	1196.4	1	0

C & D waste violations monitoring

No of C&D waste violations observed	No of C&D waste challans issued	C&D waste fine amount	C&D waste bwg identified	C&D bwg action plan approved	Bwg managing C&D waste	Bwg C&D violations identified	Bwg C&D action taken
3537	596	17500	0	0	0	0	0

Chapter 4 : Pollution Control Action Plan for CPA- Ludhiana City

4.1 Water Pollution Control Action Plan for CPA- Ludhiana City

A) Comprehensive plan for Rejuvenation of Budha Nallah

The Municipal Corporation, Ludhiana has prepared Comprehensive plan for Rejuvenation of Budha Nallah. The tentative cost of the project is Rs. 650 Crores and almost new capacity of 300 MLD is to be built alongwith rehabilitation of 466 MLD of STPs. The project envisages the interception of various drains and their diversion to STPs in an economical manner. It includes segregation of industrial and domestic effluents and a complex challenge to treat dairy effluent from 2 big dairy complexes of Ludhiana i.e. Haibowal Dairy Complex and Tajpur Dairy Complex. The bids for the project are proposed to be invited on Engineering procurement and construction mode with 10 years operation and maintenance. The brief break up of the total cost to be spent on the commissioning of new STPs and augmentation/enhancement of existing STPs is as below:-

Sr. No.	Description	Capital Cost (In Rs. Crores)
1.	Jamalpur STP	366 Cr.
2.	Bhattian STP	74 Cr.
3.	Balloke STP	150 Cr.
4.	Construction of 2 CETPs for Dairy Waste	38 Cr.
5.	Provisional Sum for enhancement of electric load and other allied works like Hot line and DG sets, site development, tree plantation and shifting of utility services	22 Cr.
	Total	**650 Cr.**

The Broad PERT chart for execution of various components of the project has already been submitted to the NGT by MCL. As per the past experience, the commissioning of STPs of such magnitude generally takes around 30 months. Accordingly, the execution period for the project has been kept as 30 months after award of tender in which design period shall be 3 months.

Timelines for setting up of new STPs

Sr. No.	Name of STP/ETP	Cap. (MLD)	Tech.	Status of Funds	Preparation of DPR	Current Status i.e. Date of completion or likely date of completion			
						Tendering	Commencement of work	Completion & Commissioning as per Action Plan for Clean River Satluj	Completion & Commissioning
1	2	3	4	5	6	7	8	9	10
1	Jamalpur	225 MLD (Including 48 MLD rehabilitation)	Open	Tied Up	Feasibility report prepared and submitted to PMIDC.	Tender Floated	30.06.2020	31.03.2021	31.10.2022
2	Balloke	50 MLD(new)	Open	Tied Up	Feasibility report prepared and submitted to PMIDC.	Tender Floated	30.06.2020	31.03.2021	30.04.2022
3	Balloke	152 MLD rehabilitation	Open	Tied Up	Feasibility report prepared and submitted to PMIDC.	Tender Floated	30.06.2020	31.03.2021	31.07.2021
4	Bhattian	111 MLD rehabilitation	Open	Tied Up	Feasibility report prepared and submitted to PMIDC.	Tender Floated	30.06.2020	31.03.2021	31.10.2021
5	Haibowal Diary Complex	10 MLD	Open	Tied Up	Feasibility report prepared and submitted to PMIDC.	Tender Floated	30.06.2020	31.12.2020	30.04.2022
6	Tajpur Road dairy complex	5 MLD	Open	Tied Up	Feasibility report prepared and submitted to PMIDC.	Tender Floated	30.06.2020	31.12.2020	30.04.2022

B) Timelines for setting up of CETPs for dyeing cluster of Ludhiana

1) Name of the Project: 15 MLD CETP Bahadurke Road Cluster, Ludhiana.			
Brief Scope of Work		**Scope : 1 No. CETP of 15 MLD**	
Sr. No	**Stage**	**Start Date**	**Completion Date**
1	Preparation of DPR	Already Prepared	Approved
2	Financial Closure	Already done.	
3	Tendering of the work including allotment	Already done.	
4	Commencement of Work	Already done.	
5	Quarterly milestones during the construction stage	Completed and under stabilization	
6	Completion and Commissioning	Completed and under stabilization	

2) **Name of the Project: 40 MLD CETP Focal Point Cluster, Ludhiana.**			
Brief Scope of Work		**Scope : 1 No. CETP of 40 MLD**	
Sr.No	**Stage**	**Start Date**	**Completion Date**
1	Preparation of DPR	Already Prepared	Approved
2	Financial Closure	Already done.	
3	Tendering of the work including allotment	Already done.	
4	Commencement of work	Already done.	
5	Quarterly milestones during the construction stage	95 % civil work completed, overall 76% completed.	
6	Completion and Commissioning	T + 6 months (T= Date of release of balance Central and State Share)	

3) Name of the Project: 50 MLD CETP Tajpur-Rahon Road Cluster, Ludhiana.			
Brief Scope of Work		**Scope : 1 No. CETP of 50 MLD**	
Sr.No	**Stage**	**Start Date**	**Completion Date**
1	Preparation of DPR	Already Prepared	Approved
2	Financial Closure	Already done.	
3	Tendering of the work including allotment	Already done.	
4	Commencement of Work	Already done.	
5	Quarterly milestones during the construction stage	80 % civil work completed, overall 50% completed.	
6	Completion and Commissioning	T + 6 months (T= Date of release of balance Central and State Share)	

C) Timelines for ETP for Dairy Complex, Ludhiana

(i) Name of the Project: Treatment of Effluent generated from dairy complex located at Tajpur and Haibowal, Ludhiana			
Brief Scope of Work		**Scope: 2 No. ETPs of 05MLD capacity and10 MLD Capacity**	
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds of Rs. 43.30 crores approved by SLTC	
3	Tendering of the work including allotment	DNIT under preparation	
4	Commencement Of Work	-	-
5	Quarterly Milestones during the construction Stage	-	-
6	Completion and Commissioning	-	31.12.2020

D) Timelines for modernization of slaughter house

(i) Name of the Project: Modernization of existing slaughter house located at Ludhiana			
1	Preparation of DPR	Prepared	Already approved
2	Financial Closure	Funds of Rs. 17.65 allotted to the third party.	
3	Tendering of the work including allotment	Started.	07.09.2018
4	Commencement of Work	08.09.2018	Ongoing
5	Quarterly Milestones during the construction stage	40% work completed as on 15.01.2019	100% civil work completed as on 30.06.2019. 100% commissioning completed as on 30.09.2019.
6	Completion and Commissioning	-	Already completed

E) PROJECT FOR RELEASING 200 CUSECS WATER IN BUDHA NAALAH THROUGH NEELON DRAIN FROM SIRHIND CANAL RD :-

This project which amounts to Rs. 575.31 lacs aims at rejuvenating Budha Nallah into old BudhaDariya by releasing fresh water to Budha Nallahfor cleaning the water flowing through it. The fresh water will be supplied from Sirhind Canal RD 145700 in Neelon Drain which falls in Budha Nallahat village Kum Kalan. The fresh water discharged in Budha Nallah will help in increasing the flow of water thereby improving the water quality and reducing the pungent smell. It will provide a relief to people living in Ludhiana city. The funding of this project is to be done by Municipal Corporation, Ludhiana and Punjab Pollution Control Board on 50- 50 basis. DPR for this project is under preparation. Completion of this project at the earliest will certainly help in improving Water Quality in Budha Nallah which ultimately leads to River Sutlej.

4.2 Action Plan for Clean Air for CPA- Ludhiana City

A source apportionment study of Air Pollution for the Critically Polluted Area of Ludhiana City has been carried out by PSCST and a draft study report has been submitted. This study carried out baseline source apportionment of $PM_{2.5}$and PM_{10}concentrations in Ludhiana city using two modeling-based approaches. The first approach relied upon monitoring and chemical characterization of $PM_{10}$and $PM2_{.5}$ samples. These samples of PM_{10} and $PM_{2.5}$ along with source profiles of possible contributing sources acted as inputs to the receptor model to derive source apportionment. In parallel, sectoral emissions inventory of different pollutants and meteorological inputs are fed into a chemical transport dispersion model to predict PM10 and

PM2.5 concentrations. The simulated concentrations were compared with actual observations for validation. The model once validated has been used to carry out source sensitivity to derive source contributions in PM10 andPM2.5 concentrations at various locations within and outside the Ludhiana city. The key conclusions that may be derived from the study are as follows:

Air pollution levels violate the prescribed standards in Ludhiana city. The levels were highest during winters and post-monsoon seasons. While in winters, the adverse meteorological conditions lead to accumulation of pollutants, high concentrations during post monsoon season may be attributed to agricultural residue burning which acts as an additional stressor over the already existing year-round sources of pollution such as industries, transport etc.

The two techniques used for assessment reveal that industries, transport, and biomass burning, are the major contributors to PM2.5 concentrations in Ludhiana. Industrial and biomass burning contributions are not only from within the city but also from outside the city-limits. There is a significant share of dust from local as well as far-off sources.

The assessment for PM shows that other than transport, biomass burning, and industries, road dust also contributes significantly to PM10 concentrations. There is also a significant share of dust from far-off sources.

The study also projected the future in a BAU scenario based on prevailing sectorial growth rates and current plans and policies. The scenario shows a decline in share of transport sector contributions due to penetration of BS-VI vehicles from 2020 onwards, while the industrial shares are expected to increase with growth in industrial productions. With greater number of vehicles, road dust re-suspension is expected to increase further. Enhanced LPG penetration is expected to reduce the share of the domestic sector in PM concentrations. Despite, reductions due to these measures, air quality simulations for BAU scenario show that the average modelled concentrations of PM2.5 (3-season avg.) will increase slightly from 103 mg/m^3 to 106 mg/m3 in 2025 and 116 mg/m3 in 2030. Similarly, the average modelled concentrations of PM10 (3-season avg.) will increase slightly from 137 mg/m3 to 151 mg/m3 in 2025 and 171 mg/m3 in 2030. This also emphasize on the fact that more stringent interventions will be required for further control of air quality in Ludhiana.

For this purpose, the study analyzed various interventions and estimated their possible impacts over PM2.5 and PM10 concentrations in Ludhiana city. An alternative scenario has been developed considering the interventions which can provide maximum air quality benefits. The alternative scenario results in a reduction of 73% in PM2.5 and 77% in PM10 in 2030, with respect to the BAU scenario, and achieves ambient air quality standards for PM10 and PM2.5.

The interventions have identified those that have the highest impact on PM concentrations in 2030.

Based on the assessment of PM sources and their future growth potentials, the broad interventions which can be identified for PM pollution control should be focused on industries, transport, road dust and biomass burning sectors. These recommendations are classified into short term, medium, and long term as follows:

Short term measures

- Vacuum cleaning of roads for control of road dust.
- Enforcement of full ban on refuse burning.
- Introduction of congestion pricing scheme in specific congested zones in Ludhiana city and use its revenues for enforcement of public transport system.
- Pollution tax on pre BS IV commercial vehicles for entering the city of Ludhiana.
- Introduction of odd-even schemes for 1 to 2 weeks during high air pollution episodes for both cars and two-wheelers.
- Ensuring 24 × 7 power supply to completely arrest the use of DG Sets.
- (The study has estimated that these short-term measures can reduce the PM2.5 and PM10 concentrations by 15% and *23% respectively)*

Medium and Long term measures

- Introduction of gaseous fuels and enforcement of new and stringent SO2/NOx/PM2.5 standards for industries using solid fuels
- Complete phase out of biomass use by enhanced LPG penetration in rural households
- Complete ban on agricultural residues burning and accelerating their use in power plants and other industries to replace high ash coal.
- Strict implementation of BS-VI norms and introduction of gaseous fuels in the transport sector.
- Improvement and strengthening of inspection and maintenance (PUC) systems of vehicles.
- Designing and introduction of fleet modernization and retro-fitment programs.
- Introducing policies for higher penetration of electric and hybrid vehicles and creation of infrastructure for charging. To start with, new public vehicles may be bought on electric modes.
- Congestion taxation and management at specific congested locations.
- Monitoring of road dust and its control using wall to wall paving and vacuum cleaning.

In light of the recommendations of Source Apportionment Study, the various activities to be under-taken with time lines have been tabulated in Annexure-**4A to 4G**.

4.3 Solid Waste Management Action Plan for CPA-Ludhiana City

4.3.1 Action Plan for regular monitoring of the progress of solid waste management: -

i) Source Segregation of Waste

Municipal Corporation, Ludhiana to ensure source segregation of waste into biodegradable, non-biodegradable, domestic hazardous. This is the most essential part of the action plan and needs behavioural changes and provision of necessary infrastructure.

ii) Door to Door Collection

Municipal Corporation, Ludhiana to ensure 100% Door to Door Collection of Segregated Solid Waste.

iii) Tracking of Collection and Transportation Vehicles

Municipal Corporation, Ludhiana to ensure GPS Monitoring in case of mechanized collection and transportation vehicles.

iv) Sweeping of Public Areas

Municipal Corporation, Ludhiana to ensure sweeping of public areas such as Residential, Public and Commercial areas.

v) Demarcation of Space for Waste Processing

Municipal Corporation, Ludhiana to ensure Demarcation of separate space for segregation, storage, decentralized waste processing for establishment of systems for home/ decentralized and centralized composting of Wet Waste and setting up of MRF Facility for Dry Waste.

vi) Compliance by Bulk Waste Generators

Identification and compliance by Bulk Waste Generators through decentralized waste processing.

vii) Green/Horticulture Waste Management

Municipal Corporation, Ludhiana will ensure onsite green waste management for parks, gardens, green belts, institutions, organizations

viii) Inclusion of Rag Pickers/ Waste Collectors & Kabadis/ Safai Sewaks

Municipal Corporation, Ludhiana will ensure inclusion of rag pickers, waste collectors & Kabadis and Safai Sewaks into solid waste management system. Efforts to be made to make their SHG and provide them other benefits such as health check-up, etc

ix) Treatment of Legacy Waste

Municipal Corporation, Ludhiana to ensure Setting up of systems for treatment of legacy waste and clean drives to remove waste from the roadsides, vacant plots, parks and public places, water bodies etc.

x) Citizen Grievance Redressal through Swachh App

Setting up of Citizen Grievance Redressal system set up along with the Name, mobile No. Email Id of Nodal Officer.

xi) Mechanism for stopping entry of solid waste intro water bodies/ drains/ rivers etc.

xii) Awareness mechanism for behaviour change.

xiii) Monitoring of the processing sites of solid waste.

4.3.2. Action Plan for regular management of Dairy Waste (Animal Dung): -

(I) Installation of Bio-Gas Plant for Tajpur Road Dairy Complex:-

Around 275 dairies are running in Tajpur Road Dairy Complex. As per Action Plan for Clean River Sutlej, around 2.5 Acres of land has been allotted to PEDA by GLADA at Tajpur Dairy Complex, Ludhiana for setting up of 12000 cubic meter raw biogas per day Bio-CNG project based on cattle dung and other agro-waste. The project will be capable to handle about 300 metric ton of cattle dung per day. The purpose of the project is to avoid animal excreta from Tajpur Dairy Complex falling into Budha Nallah for which National Green Tribunal (NGT) is pressing hard for scientific disposal of the animal waste. PEDA/ Punjab Genco Limited (PGL) being the Nodal Agency for such projects has been entrusted this responsibility for setting up of this project. The project is being implemented by PEDA / PGL with its own investment as approved by the Government. The project is scheduled for commissioning within 30-months from this date i.e. by July 2022 which includes 6-months pre-construction activities and 24 months' execution time as reported to the NGT. The process of selection of technology and preconstruction activities are in progress. Early Set up and commissioning of the Project will significantly lead to decrease in Pollution Load in Budha Nallah.

(II) Efficient Working and augmentation/upgradation of Haibowal Dairy Complex Bio-Gas plant :-

Around 700 dairies are running in Haibowal Dairy. Presently, The Punjab Energy Development Association has installed one Bio-Gas Plant at Haibowal for handling cow/buffalo dung of the dairy complex of said area. The CO2 generated in the anaerobic digester alongwith bio gas is separated in the scrubber and is further compressed in the bottling plant for its further industrial use. Around 100-125 tonnes cattle dung is being fed only daily basis. Efficient Working of this plant and its augmentation and upgradation as per latest technology will significantly lead to decrease in Pollution Load in Budha Nallah.

4.4 Plastic Waste Management Action Plan for CPA- Ludhiana City

(i) Setting up of Material Recovery Facilities

Adequate number of Material Recovery Facilities (MRFs) shall be established by Municipal Corporation, Ludhiana for sorting of the waste.

(ii) Monitoring of MRFs for segregation and channelization of plastic waste

Collection and utilization of the segregated fraction of the recyclable as well as non-recyclable component shall be reported by Municipal Corporation, Ludhiana on monthly basis.

(iii) Monitoring of the awareness programmes to discourage use of single use plastic etc.

The awareness programs which shall be conducted by Municipal Corporation, Ludhiana through interpersonal communication and print media on monthly basis.

(iv) Monitoring of littering/open burning of plastic waste

The violators carrying out the open burning and littering of the plastic waste shall be challaned by Municipal Corporation, Ludhiana and the same will be reported by Department of Local Govt. on monthly basis.

(v) Monitoring of Registration under Plastic Waste Management Rules,2016

Progress regarding the registration granted under the PWM rules to the producer's/ brand owners/recycler/manufacturer shall be reported by PPCB on quarterly basis.

(vi) Monitoring of random inspection of Recyclers, Producers, Importers, Manufacturers and Brand-Owners

Progress regarding inspections conducted and action taken report will be taken by PPCB on six monthly basis.

(vii) Monitoring of Annual Return to be filed by ULBs.

Annual reports are required to be submitted before 30th June of every year by each ULB. The progress regarding the submission of the same shall be reported by Department of Local Govt. on yearly basis.

(viii) Monitoring of Extended Producer Responsibility

Progressregardingtheobtainingofregistrationandsubmissionofactionplanby Brand-Owner/Producer/ Importer shall be reported by PPCB on every six monthly basis.

(ix) Monitoring of the ban on plastic carry bags in the State

Progress regarding the no of violators engaged in manufacturing and usage of plastic carry bags in each ULB & district and no of challans issued shall be reported by Department of Local Govt. and PPCB on quarterly basis.

4.5 Bio-Medical Waste Management Action Plan for CPA- Ludhiana City

Punjab Pollution Control Board (PPCB) has devised a detailed plan for managing bio-medical waste. About 3.3 tons per day of bio-medical waste is generated in Ludhiana city, which is collected, transported, treated and disposed through Common Bio-Medical Waste Treatment Facilities (CBWTF) located at Ludhiana.

4.5.1 Following measures will be undertaken to meet the challenges of pollution due to bio-medical waste:

(i) Creating awareness about the adverse impacts of bio-medical waste

(ii) Identifying and covering the unidentified HCFs under the Rules

(iii) Setting up additional CBWTFs for treating the bio-medical waste as per requirement

(iv) Ensuring effective operations of the CBWTFs

(v) Installation of effluent treatment plants by all the HCFs

4.5.2 Setting up of effluent treatment plants by all the HCFs

The liquid waste being generated by all the health care establishments is being disinfected as per the procedure prescribed in the said rules. Moreover,15 nos. of health care establishments have additionally installed ETP for treatment of effluent generated from their premises. The bio-medical waste generated is not allowed to mix with the municipal solid waste and it is handled by a common Bio-medical Waste Treatment Facility of bio-medical waste of different categories. The Punjab Pollution Control Board vide its letter no. 4813 dated 11.10.2019 has decided that, as an interim measure, all the Health Care Facilities (Govt. as well as Pvt.) has been given time to install ETP by 30.06.2020.

4.5.3 Monitoring of the installation of the ETPs by Govt. HCFs

On the basis of timeline given by Department of Health regarding installation of ETP/STP in Govt. HCFs, progress will be reported by Department of Health on quarterly basis for monitoring.

4.5.4 Monitoring of HCFs and CBWTF

The regular monitoring of the HCFs/CBWTF will be carried out by the Punjab Pollution Control Board on regular basis so as to ensure the compliance of the Biomedical Rules, 2016.

4.5.5 Ensuring effective operations of the CBWTFs

For ensuring effective operations of the CBWTF, PPCB has already taken many steps in this regard. All the collection vehicles of the CBWTF are installed with Bar-code Based Software system and GPS system to track the collection of bio-medical waste and to track the movement of the vehicles. The stack of the Incinerator is equipped with Online Continuous Emission Monitoring System (OCEMS) to monitor the concentration of pollutants in the emissions online. Further, CCTV cameras have been installed in the processing areas of the CBWTF which are connected with PPCB.

4.6 Construction& Demolition Waste Management Action Plan for CPA- Ludhiana City

i) Identification & Notification of Sites for Construction and Demolition Waste

The Municipal Corporation, Ludhiana shall identify the suitable sites for setting up of storage, processing and recycling sites for C & D waste and shall notify the same.

ii) Monitoring of awareness

The Municipal Corporation, Ludhiana shall create public awareness through information, education and communication campaign and educate the waste generators for management of C&D waste.

iii) Monitoring of Collection, Segregation and channelization of C&D Waste on monthly basis

The Municipal Corporation, Ludhiana shall make arrangements for collection, segregation and channelization of C&D Waste either through their own resources or by appointing private operators.

iv) Monitoring of processing/ recycling of C&D waste

The Municipal Corporation, Ludhiana shall set up processing/recycling facilities for proper management of C&D waste within its jurisdiction.

v) Monitoring of Penalties by Municipal Corporation, Ludhiana

The Municipal Corporation, Ludhiana shall impose penalties on the violators of the C&D waste Rules and shall submit the details of levying of penalties along with amount of fine recovered.

vi) Issuance of directions for proper management of C&D waste

The Municipal Corporation, Ludhiana shall issue detailed directions with regard to proper management of C&D waste within its jurisdiction in accordance with the provisions of the Rules.

vii) Sanctioning of waste management plans of generators.

The Municipal Corporation, Ludhiana shall examine and sanction the waste management plan of the generators within a period of one month or from the date of approval of the building plan whichever is earlier from the date of its submission.

viii) Monitoring of the Processing Sites by PPCB

Monitoring of the Storage/Processing sites set up by the Municipal Corporation, Ludhiana shall be done by PPCB through its Regional Offices on quarterly basis.

4.7 Hazardous Waste Management Action Plan for CPA- Ludhiana City

There are 1291 hazardous waste generating industries in Distt. Ludhiana. The main industries are dyeing, washing, electroplating, induction furnaces, casting units, etc. Presently, these industries are generating total hazardous waste of 19424.96 MTA. Out of which 13508.2 MTA is land fillable, 869.86 MTA incinerable, 3411.904 MTA is recyclable and 1635 MTA is incinerable. All these industries are storing their hazardous waste temporarily in their premises. A common Treatment, Storage & Disposal Facility has been developed by M/s Nimbuan Greenfield (Punjab) Ltd., at Vill. Nimbuan, Tehsil DeraBassi, Distt. Mohali for environmentally sound disposal of the hazardous waste, which came in operation in the month of October 2007 and its life span is about 15-years. The Common TSDF is collecting, transporting, treating & disposing hazardous waste after lifting from industrial premises of various industries to be disposed at village Nimbuan.

The Compliance of the HWM Rules, will be Checked by the PPCB by monitoring the following quarters:

i. Monitoring of Identification of hazardous waste generating units (monthly basis)

ii. Monitoring of Hazardous Waste generating units (monthly basis)

iii. Monitoring of Common Hazardous Waste Treatment, Storage & Disposal Facility (quarterly basis).

iv. Monitoring of Installation of Incinerator at Common TSDF (quarterly basis).

v. Monitoring of quantum of hazardous waste generated by occupier (quarterly basis).

vi. Monitoring of interstate movement of hazardous waste for recycling/ reutilization / disposal (quarterly basis).

vii. Monitoring of quantum of hazardous wastes recycled and utilized (quarterly basis).

viii. Monitoring of quantum of hazardous waste disposed of (quarterly basis).

ix. Monitoring of submission of annual return.

4.8 E- Waste Management Action Plan for CPA- Ludhiana City

E-waste is generally generated from dismantling activities of various electrical / electronics appliances / gadgets such as audiovisual components, televisions, VCRs, stereo equipment, mobile phones and computer components. For proper disposal of E-waste, the Ministry of Environment & Forest has separately notified E-Waste (Management) Rules, 2016. There is a E-waste recycling unit in Ludhiana namely M/s Spreco Recycling, D-45, Industrial Focal Point, Ludhiana.

The Compliance of the E-Waste Rules, will be Checked by the PPCB by monitoring the following quarters:

i) Monitoring of Identification / inventorisation of bulk consumers and quantification of Ewaste (monthly basis)

ii) Monitoring of compliance of Extended Producer Responsibility (quarterly basis)

iii) Monitoring of Grant of Authorization to Manufacturers, Dismantlers, Recyclers and Refurbishers and its online updation (monthly basis)

iv) Monitoring of random inspection of Dismantler, Recycler, Refurbisher (half yearly basis)

v) Monitoring of Annual Return to be filed by Bulk Consumers, Manufacturer, Refurbisher, Recycler, Dismantler (yearly basis)

vi) Monitoring of Segregation and channelization of E-waste from the MSW by the Deptt. of Local Bodies (quarterly basis)

vii) Monitoring of allocation of industrial space for industrial sheds / plots by the Deptt. of Industries/ other development agencies (quarterly basis).

4.9 Action Plan for surveillance and monitoring of Polluting Units – Ludhiana City.

Punjab Pollution Control Board will visit the industries located in the Polluted Industrial Area of Ludhiana & its impact Area (within radius of 5 km) as per protocol regarding frequency of visit to the industries to carry out inspection & monitoring of APCD/ Effluent Treatment Plants and maintain proper record of all these visits. PPCB will submit report as per the proforma attached in **Annexure-4H.**

Chapter 5 : Expected impact on the Comprehensive Environment Pollution Index

The present action plan for abatement of pollution in the critically polluted area of Ludhiana City has been prepared keeping in view the present environmental quality based on the Comprehensive Environment Pollution Index (CEPI). The CEPI Score for Ludhiana City for the year 2018 as calculated by CPCB has been observed to be 73.48, which is cumulative Score of the environment pollution index calculated for the Air (53.50), Water (71.00) and Ground Water (16.00), separately. The calculation of CEPI score are annexed are **Annexure 5**. While calculating the score for Comprehensive Environment Pollution Index for Air Environment Quality for Ludhiana, pollutants like PM_{10}, $PM_{2.5}$ and CO have been taken as the critical pollutants. These critical pollutants belong to Group-B of pollutants, which are known organics/pollutants/chemicals that are probable carcinogens (USEPA class 2 & 3) or with some systemic toxicity. The Exceedance Factor in regard to PM10, PM2.5 and CO has been observed to be 1.36, 0.85 and 0.59 respectively. The whole of the population residing in Ludhiana City has been observed to be potentially affected and the level of exposure has been observed to be critical. The additional high risk element has been assigned to the lack of common action plan for control of the pollutants. The presence of these critical pollutants is basically related with the pollution caused mainly due to the vehicular traffic, road dust& to some extent to the industries.

The Comprehensive Environment Pollution Index calculation for Water Environment Quality has considered BOD, TP and TNH_4-N as the critical pollutants. These critical pollutants belong to Group-A & B of the pollutants. The Exceedance Factor with regard to BOD, TP and TNH_4-N has been observed to be 2.19, 9.34 and 3.76 respectively. The presence of these critical pollutants is basically related with the pollution caused mainly due to discharge of un-treated domestic effluent and inefficient operation of STPs.

While calculating the score for Comprehensive Environment Pollution Index for Ground Water Quality for Ludhiana, pollutants like TDS, Total Hardness and Fe have been taken as the critical pollutants. The Exceedance Factor with regard to TDS, Total Hardness and Fe has been observed to be 0.21, 0.45 and 0.22 respectively. These critical pollutants belong to Group-A & C of the pollutants.

On perusal of the above discussion, it has been observed that the air, water and land environment of the Ludhiana City has been impacted mainly due to improper treatment of domestic sewage, lack of common effluent treatment plant for dyeing units, lack of facility for management of liquid and solid waste of dairy complexes, industrial emissions, lack of engineered common municipal solid waste disposal site and improper traffic management. The Action Plan has been prepared keeping in view

all the above factors impacting the environment. The Action Plan includes installation of new sewage treatment plants and capacity enhancement of the existing sewage treatment plants for the domestic effluent, installation of the common effluent treatment facilities for dyeing industries, development of engineered common municipal solid waste treatment and disposal site, improvement/ up-gradation in the pollution control devices installed by the various industries and management of the vehicular traffic. With the implementation of the Action Plan, majority of the pollutants including PM_{10}, $PM_{2.5}$, BOD, TP, TNH_4-Nwill reduce significantly, resulting in the overall improvement of the environment in the area.

ACKNOWLEDGEMENT

The action plan for the Critically polluted Area of Ludhiana has been prepared by obtaining requisite data/information and valuable inputs from the various departments as listed below :-

(a). Zonal Offices and Regional Offices of PPCB

(b). Municipal Corporation, Ludhiana

(c). Irrigation Deptt. (Drainage Division).

(d). Punjab State Council for Science and Technology(PSCST)

(e). Punjab Energy Development Agency (PEDA)

(f). Punjab Water Supply and Sewerage Board (PWSSB)

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Annexure-3-A – Analysis results of ground water sample – April 2017

Sr. no.	Point of Collection	pH	Cond (µs/cm)	TDS (mg/l)	TFS(mg/l)	T.H(mg/l)	Ca (mg/l)	Mg(mg/l)	F (mg/l)	NO3 as N (mg/l)	Cl (mg/l)	SO4 (mg/l)	PO4 (mg/l)	T.Alk(mg/l)	Na(mg/l)	K(mg/l)	SAR	%NA	B (mg/l)	Fe (mg/l)	Zn (mg/l)
1	Bawa Oil Company (H.P Petrol Pump), G.T Road, Sherpur, Ludhiana	7.1	1164	715	572	278	50.4	37.1	0.5	4.4	70	84	BDL	343	140	44.1	3.6	47.6	**5.5**	0.23	0.36
2	Bhagwan Singh , Dashmesh Nagar, Ludhiana	7.8	770	510	464	269	60.8	28.5	1.3	2.37	38	28	BDL	242	30	4.5	0.8	19.1	0.11	0.11	BDL
3	Haibowal, Dairy Complex, Near Jagga de dairy, Ludhiana	7.8	753	490	439	310	60.8	38.4	0.7	1.29	32	26	BDL	281	32	6.6	0.8	17.9	0.11	0.18	BDL
4	Submersible installed near Dusshera Ground, Industrial Estate, Ludhiana	8	744	460	410	280	53.6	35.6	0.8	6	31	18	BDL	223	57	15.9	1.5	29.2	BDL	0.18	0.46
5	Police Station, Focal Point Ph-3, Ludhiana,	6.4	1455	800	710	507	95.6	65.4	1.2	0.3	80	110	BDL	227	71	16.9	1.4	22.59	0.71	0.17	BDL
6	PAU Research Fields, Ludhiana	7.5	810	510	450	303	60	37.3	0.8	1.6	40	38	1.4	289	32	6.6	0.8	18.2	0.14	0.19	0.11
7	Dashmesh Nagar Gali no.12, Gurdwara, Ludhiana	7.5	649	363	308	284	64.4	30	0.8	1.15	30	28	BDL	231	23	4.9	0.6	14.7	0.14	0.13	BDL
8	TSSM Sr. Sec School Shimlapuri, Ludhiana	7.8	726	436	370	275	51.2	35.9	0.5	4.74	39	32	BDL	164	45	4.3	1.2	25.84	0.18	**0.63**	2.22
9	Dairy Complex, Tajpur Road, Ludhiana opp. Satish Dairy near AmritDharam Kanda.	7.8	627	380	320	261	55.2	30	0.6	1.24	14	32	BDL	203	32	6	0.9	20.5	0.15	0.19	0.19
10	Submersible installed in area on Sua Road near DhandariKalan, Ludhiana	7.2	1268	720	640	339	44.8	55.4	1.8	3	115	36	BDL	270	98	20	2.3	36.85	BDL	**0.76**	BDL
11	Submerssible installed in the area on Janta Nagar, Ludhiana	7.8	758	459	350	289	51.6	39	0.9	4.83	30	28	BDL	177	37	10.5	0.9	21.01	BDL	**0.31**	0.41
Standards(Permissible Limit)		**6.5-8.5**	**-**	**2000**	**-**	**600**	**200**	**100**	**1.5**	**-**	**1000**	**400**	**-**	**600**	**-**	**-**	**-**	**-**	**1.0**	**0.3**	**15**

Note: BOD, T. Coli, F. Coli, TKN, Amm. N., P. alk, Turbidity, COD, TSS, Pb, Cu, Ni, Cr, Cd, As, Hg were BDL in all the samples.

Annexure-3-B – Analysis results of ground water sample – October, 2017

Sr. No.	Point of Collection	pH	Cond (µs/cm)	TDS (mg/l)	TFS (mg/l)	T.H (mg/l)	Ca (mg/l)	Mg (mg/l)	F (mg/l)	NO3 as N (mg/l)	Cl (mg/l)	SO4 (mg/l)	T.Alk (mg/l)	Na (mg/l)	K (mg/l)	SAR	%NA	B (mg/l)q	Fe (mg/l)	Zn (mg/l)	Cu (mg/l)	Ni (mg/l)	Cr (mg/l)	Cd (mg/l)	As (mg/l)
1	Bawa Oil Company (H.P Petrol Pump), G.T Road, Sherpur, Ludhiana	7.5	1115	683	608	285	52	37	0.4	12.6	77	27	380	115	31	3	43.7	**4**	**0.32**	0.27	BDL	BDL	0.01	0.002	BDL
2	Bhagwan Singh , Dashmesh Nagar, Ludhiana	7.3	736	413	334	322	62	41	0.6	13.2	49	44	212	18	6.2	0.4	10.6	0.1	BDL	BDL	0.01	BDL	BDL	BDL	BDL
3	Haibowal, Dairy Complex, Near Jagga de dairy, Ludhiana	7.2	741	429	367	304	64	35	0.5	3	37	13	296	61	8.1	1.5	29.7	0.1	BDL	BDL	BDL	BDL	BDL	BDL	0.01
4	Submersible installed near Dusshera Ground, Industrial Estate, Ludhiana	7.7	789	445	392	336	64	43	0.4	13.7	43	16	316	47	9.5	1.1	22.7	0.1	0.14	0.19	BDL	BDL	0.01	0.0006	BDL
5	Police Station, Focal Point Ph-3, Ludhiana,	6.9	1411	794	636	592	136	61	0.3	7.2	215	51	336	70	11	1.3	20.1	0.4	BDL	0.18	BDL	BDL	0.01	BDL	BDL
6	PAU Research Fields, Ludhiana	7.4	645	381	332	268	59	29	0.4	6.2	16	21	300	39	7.6	1	23.4	0.1	BDL	BDL	BDL	BDL	0.01	BDL	BDL
7	Dashmesh Nagar Gali no.12, Gurdwara, Ludhiana	7.3	800	442	394	340	82	33	0.5	14.9	57	43	218	31	6.9	0.7	16.2	0.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL
8	TSSM Sr. Sec School Shimlapuri, Ludhiana	7.5	798	490	441	349	76	38	0.2	18.5	42	31	270	36	6.8	0.8	18.1	0.2	0.12	0.81	BDL	BDL	BDL	0.0006	BDL
9	Dairy Complex, Tajpur Road, Ludhiana opp. Satish Dairy near AmritDharam Kanda.	7.2	737	427	359	300	66	33	0.5	3	48	19	256	61	8.2	1.5	30	0.1	BDL	BDL	BDL	BDL	BDL	BDL	0.01
10	Submersible installed in area on Sua Road near DhandariKalan, Ludhiana	7.4	795	437	380	370	66	50	0.4	2.2	41	13	308	46	9.2	1	20.8	0.1	0.17	0.17	BDL	BDL	0.01	BDL	BDL
11	Submerssible installed in the area on Janta Nagar, Ludhiana	7.7	753	476	418	350	76	39	0.6	12.6	40	40	242	29	7	0.7	14.9	0.1	0.2	0.12	BDL	0.01	0.01	BDL	BDL
Standards(Permissible Limit)		**6.5-8.5**	**-**	**2000**		**600**	**200**	**100**	**1.5**	**10.2**	**1000**	**400**	**600**					**1**	**0.3**	**15**	**1.5**	**0.02**	**0.05**	**0.003**	**0.01**

Note : BOD, T. Coli, F. Coli, TKN, Amm. N., P. alk, COD, TSS, Turbidity, Pb,PO4, Hg were BDL in all the samples.

Annexure-3-C – Analysis results of ground water sample – April, 2018

Point of Collection		pH	Cond (µs/cm)	TDS (mg/l)	TFS (mg/l)	T.H (mg/l)	Ca (mg/l)	Mg (mg/l)	F (mg/l)	NO3 as N (mg/l)	Cl (mg/l)	SO4 (mg/l)	T.Alk (mg/l)	Na (mg/l)	K (mg/l)	SAR	%Na	B (mg/l)	Fe (mg/l)	Zn (mg/l)	Ni (mg/l)	Cr (mg/l)
1	Bawa Oil Company (H.P Petrol Pump), G.T Road, Sherpur, Ludhiana	7.2	1206	723	514	294	44	44.5	0.3	14.7	84	16	378	172	25	4.36	55.5	**2**	0.18	BDL	BDL	0.03
2	Bhagwan Singh , Dashmesh Nagar, Ludhiana	7.5	586	348	247	202	30	30.9	0.3	0.94	8	5	296	64	6.7	1.95	40.5	0.1	BDL	0.2	BDL	BDL
3	Haibowal, Dairy Complex, Near Jagga de dairy, Ludhiana	7.3	664	360	266	238	40	33.8	0.3	2.34	18	6	300	54	6.9	1.52	32.8	0.1	BDL	BDL	BDL	BDL
4	Submersible installed near Dusshera Ground, Industrial Estate, Ludhiana	7.4	840	483	353	339	59	46	0.4	13.8	41	8	308	57	8.4	1.35	26.8	0.1	BDL	0.15	BDL	BDL
5	Police Station, Focal Point Ph-3, Ludhiana,	7	1373	800	590	532	84	78.2	0.3	7.48	180	40	322	80	9.2	1.51	24.6	0.2	0.15	BDL	BDL	0.02
6	PAU Research Fields, Ludhiana	7.3	542	309	225	230	37	33.3	0.4	2.77	8	7	248	26	5.7	0.75	19.7	0.1	BDL	BDL	BDL	BDL
7	Dashmesh Nagar Gali no.12, Gurdwara, Ludhiana	7.5	620	347	253	272	49	36.2	0.5	11.82	41	14	178	25	5.8	0.66	16.6	0.1	BDL	BDL	BDL	BDL
8	TSSM Sr. Sec School Shimlapuri, Ludhiana	7.3	878	495	352	343	57	48.6	0.2	18.32	38	13	296	56	6.3	1.31	26.1	0.1	BDL	0.84	BDL	BDL
9	Dairy Complex, Tajpur Road, Ludhiana opp. Satish Dairy near AmritDharam Kanda.	7	1272	692	548	371	57	55.6	0.2	21.73	94	25	352	108	8.8	2.44	38.6	0.1	BDL	BDL	BDL	BDL
10	Submersible installed in area on Sua Road near DhandariKalan, Ludhiana	6.8	1392	773	547	533	45	**102**	0.4	10.9	138	20	440	86	9	1.62	25.9	0.2	BDL	BDL	0.01	BDL
11	Submerssible installed in the area on Janta Nagar, Ludhiana	7.6	802	450	347	340	64	44	0.5	13.7	43	30	226	41	6.3	0.96	20.7	0.1	BDL	BDL	BDL	BDL
Standards(Permissible Limit)		**6.5-8.5**	-	**2000**	-	**600**	**200**	**100**	**1.5**	-	**1000**	**400**	**600**	-	-	-	-	**1**	**0.3**	**15**	**0.02**	**0.05**

Note: BOD, T. Coli, F. Coli, TKN, Amm. N., P. alk, Turbidity, COD, TSS, Pb, Cu, Ni, Cr, Cd, As, Hg were BDL in all the samples.

Annexure-3-D – Analysis results of ground water sample – October, 2018

Sr. No	Point of Collection	pH	Turbidity	Cond (µs/cm)	TDS (mg/l)	TFS (mg/l)	T.H (mg/l)	Ca (mg/l)	Mg (mg/l)	F (mg/l)	NO3 as N (mg/l)	Cl (mg/l)	SO4 (mg/l)	T.Alk (mg/l)	Na (mg/l)	K (mg/l)	SAR	%Na	B (mg/l)	Fe (mg/l)	Zn (mg/l)	Cu (mg/l)	Ni (mg/l)	Cr (mg/l)	Pb (mg/l)
1	Bawa Oil Company (HP Petrol Pump), GT road, Sherpur, Ludhiana	6.4	BDL	1224	922	738	486	66	78	0.2	24.1	65	278	233	82	8	1.62	26.4	**3.2**	BDL	BDL	BDL	BDL	BDL	BDL
2	Bhagwan Singh, Dashmesh Nagar, Ludhiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	Haibowal, Dairy Complex, Near Jagga Di Diary, Ludhiana	7.1	BDL	907	489	430	329	63.6	41.3	0.3	12.7	59	18	291	68	8.1	1.63	30.4	0.1	BDL	0.2	BDL	BDL	BDL	BDL
4	Submersible installed near Dushera Ground, Industrial Estate, Ludhiana	6.6	BDL	808	565	446	351	76	39.1	0.5	14.9.	42	156	153	39	6.6	0.91	19	0.1	0.1	0.3	BDL	BDL	BDL	BDL
5	Police Station, Phase-3, Focal Point, Ludhiana	6.8	BDL	1381	911	748	534	39.6	**106**	0.3	9.26	193	108	314	76	9.4	1.43	23.2	0.4	0.2	BDL	BDL	BDL	BDL	BDL
6	PAU Research fields, Ludhiana	7.3	BDL	528	272	210	180	49.2	13.9	0.4	4.1	8	23	193	24	5.9	0.78	21.8	0.1	0.3	0.2	BDL	BDL	BDL	BDL
7	Dashmesh Nagar,	6.2	BDL	747	423	368	314	70	33.8	0.4	17	48	60	215	31	6.1	0.76	17.3	0.1	BDL	0.2	0.01	BDL	BDL	BDL

	GaliNo. 12, Gurdhwara, Ludhiana																							
8	TSSM Sr. Sec School Shimlapuri, Ludhiana	6.5	BDL	809	531	435	329	98.4	20.2	0.1	17.7	33	132	207	51	6.2	1.22	24	0.1	BDL	1.1	0.012	BDL	0.014	BDL
9	Dairy Complex, Tajpur Road, Ludhiana	6.8	BDL	1967	1230	1119	545	95.6	74.4	0.2	11.8	31.8	93	482	192	11	3.58	42.7	0.3	BDL	0.2	BDL	BDL	BDL	BDL
10	Submersible installed in area on Sua Road near DhandariKalan, Ludhiana	6.8	BDL	851	525	425	362	68	46.7	0.4	17.4	47	77	267	54	8.9	1.23	23	0.1	BDL	0.3	BDL	BDL	BDL	BDL
11	Submersible installed in the area on Janta Nagar, Ludhiana	6.6	BDL	1248	769	669	515	115	55.2	0.4	13.9	97	112	388	79	8.9	1.51	24	0.2	BDL	0.1	BDL	BDL	0.026	BDL
12	Submersible at RSSB, Tibba Road, Ludhiana, Indl. Area	7.5	BDL	563	357	320	230	45	29	0.3	0.21	4	10	274	53	7.1	1.52	32.5	0.2	0.4	BDL	BDL	BDL	BDL	BDL
13	MSW Dumping Site, Jamalpur, Ludhiana	7.3	BDL	573	368	312	236	42	32	0.3	0.11	5	6	287	57	6.5	1.62	33.7	0.1	BDL	0.2	0.08	0.015	BDL	BDL
14	STP, Jamalpur, Ludhiana	6.9	BDL	1756	935	813	571	99	75	0.2	7.24	243	124	270	119	12	2.2	31.2	0.2	BDL	0.1	BDL	BDL	0.011	BDL
15	HP Park adjoining M/s National	6.4	BDL	1224	877	692	299	60	36	0.3	21	81	276	209	115	33	2.89	42.3	**4.2**	BDL	BDL	BDL	BDL	BDL	0.01

	Industries, E-128, Phase-IV, Focal Point, Ludhiana																							
16	H.P. in SahotaBaghabni Farm, Village Harian, Machhiwara	7.8	4	1393	883	698	423	84	53	0.2	BDL	236	33	292	87	11	1.83	30	0.1	**1.3**	BDL	BDL	BDL	BDL	BDL
	Standards (Permissible Limit)	**6.5-8.5**	**5**	**-**	**2000**	**-**	**600**	**200**	**100**	**1.5**	**-**	**1000**	**400**	**600**	**-**	**-**	**-**	**-**	**1**	**0.3**	**15**	**1.5**	**0.02**	**0.05**	**0.01**

Note :- BOD, T. Coli, F. Coli, TKN, Amm. N., P. alk, PO4, TSS, COD, Cd, As & Hg were BDL in all the samples.

Annexure-3-E – Analysis results of ground water sample – April, 2019

April, 2019																						
Sr. No	**Point of Collection**	**pH**	**Cond (µs/cm)**	**TDS (mg/l)**	**TFS (mg/l)**	**COD (mg/l)**	**T.H (mg/l)**	**Ca (mg/l)**	**Mg (mg/l)**	**F (mg/l)**	**NO3 as N (mg/l)**	**Cl (mg/l)**	**SO4 (mg/l)**	**T.Alk (mg/l)**	**Na (mg/l)**	**K (mg/l)**	**SAR**	**%Na**	**B (mg/l)**	**Fe (mg/l)**	**Zn (mg/l)**	**Cd (mg/l)**
1	Bawa Oil Company (HP Petrol Pump), GT road, Sherpur, Ludhiana	7.4	1062	634	526	BDL	309	64.8	35.7	0.3	25.3	87	34	302	116	33	2.87	41.83	**3.1**	BDL	BDL	BDL
2	Bhagwan Singh , Dashmesh Nagar, Ludhiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	Haibowal, Dairy Complex, Near Jagga Di Diary, Ludhiana	7	785	474	403	BDL	336	78.8	35	0.3	5.6	61	16	268	65	8.3	1.53	28.67	0.1	BDL	BDL	0.002
4	Submersible installed near Dushera Ground, Industrial Estate, Ludhiana	7.4	757	460	382	7	359	80.4	38.4	0.3	20.5	50	13	236	56	9	1.29	24.73	0.1	BDL	BDL	BDL
5	Police Station, Phase-3, Focal Point, Ludhiana	6.8	1295	766	659	BDL	**615**	200	27.9	0.2	14.2	72	56	250	73	9.6	1.28	20.2	0.4	BDL	BDL	0.001
6	PAU Research fields, Ludhiana	7.3	469	292	260	BDL	237	47.2	28.9	0.3	5.1	9	26	206	25	5.9	0.71	18.19	0.1	BDL	BDL	BDL
7	Dashmesh Nagar, Gali No. 12, Gurdhwara, Ludhiana	7.4	658	396	344	BDL	325	71.6	35.5	0.3	22	54	40	148	28	6	0.68	15.46	0.1	0.3	BDL	BDL
8	TSSM Sr. Sec School Shimlapuri, Ludhiana	7.4	852	514	447	BDL	365	90	34	0.1	32.3	48	15	236	66	7.1	1.5	27.73	0.1	0.2	0.2	0.0006
9	Dairy Complex, Tajpur Road, Ludhiana	6.8	1688	1010	898	BDL	441	130	27.9	0.2	8.9	300	25	300	208	12	4.31	49.8	0.3	BDL	BDL	0.001
10	Submersible installed in area on Sua Road near DhandariKalan, Ludhiana	7	1061	628	554	BDL	408	58.8	63.4	0.3	18.8	86	18	316	78	9	1.68	28.79	0.1	0.3	BDL	0.001
11	Submersible installed in the area on Janta Nagar, Ludhiana	7.7	700	421	366	BDL	329	73.6	35.2	0.4	18	46	35	168	39	6.5	0.94	20.09	BDL	BDL	BDL	0.0007
12	Submersible at RSSB, Tibba Road, Ludhiana, Indl. Area	7.4	509	325	269	BDL	236	48.8	27.7	0.3	0.5	9	11	250	53	7.1	1.5	31.98	0.1	BDL	BDL	BDL
13	MSW Dumping Site, Jamalpur, Ludhiana	7.3	525	326	264	BDL	234	45.2	29.4	0.2	0.5	7	10	252	58	6.7	1.65	34.2	0.1	BDL	BDL	0.002

14	STP, Jamalpur, Ludhiana	6.9	1376	832	723	BDL	544	179	24.8	0.2	6.9	175	38	304	103	11	1.91	28.49	0.2	BDL	BDL	0.0006
15	HP Park adjoining M/s National Industries, E-128, Phase-IV, Focal Point, Ludhiana	7	1208	714	635	BDL	455	148	20.4	0.2	30.5	73	50	258	79	8.6	1.61	26.93	**3**	BDL	BDL	BDL
16	H.P. in SahotaBaghabni Farm, Village Harian, Machhiwara	7	2151	1308	1072	11	567	178	29.4	0.2	2.4	380	68	374	368	12	6.72	57.87	0.3	0.1	BDL	BDL
Standards(Permissible Limit)		**6.5-8.5**	**-**	**2000**	**-**	**-**	**600**	**200**	**100**	**1.5**	**-**	**1000**	**400**	**600**	**-**	**-**	**-**	**-**	**1**	**0.3**	**15**	**0.003**

Note :- BOD, T. Coli, F. Coli, TKN, Amm. N., P. alk, Turbidity, COD, PO4, Pb, Ni, Cr, As, Hg & Cu were BDL in all the samples.

Annexure-3-F – Analysis results of ground water sample – October, 2019

Sr. No.	Point of Collection	pH	Cond (µs/cm)	TDS (mg/l)	TFS (mg/l)	T.H (mg/l)	Ca (mg/l)	Mg (mg/l)	F (mg/l)	NO3 as N (mg/l)	Cl (mg/l)	SO4 (mg/l)	T.Alk (mg/l)	Na (mg/l)	K (mg/l)	SAR	%Na	B (mg/l)	Fe (mg/l)	Zn (mg/l)	Cu (mg/l)	Ni (mg/l)	Cr (mg/l)
1	Bawa Oil Company (HP Petrol Pump), GT road, Sherpur, Ludhiana	7	1084	672	558	318	66.4	36.9	0.3	25.8	92	38	296	120	33	2.93	42.03	0.2	0.2	0.1	BDL	BDL	BDL
2	Bhagwan Singh , Dashmesh Nagar, Ludhiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	Haibowal, Dairy Complex, Near Jagga Di Diary, Ludhiana	7.7	693	430	362	298	69.6	30.1	0.2	5.1	28	16	272	61	8	1.54	30.11	0.3	0.1	0.2	BDL	BDL	BDL
4	Submersible installed near Dushera Ground, Industrial Estate, Ludhiana	7.6	770	470	396	376	84.8	39.9	0.4	22.2	65	14	316	60	9.8	1.35	25.15	0.2	0.2	0.3	BDL	BDL	BDL
5	Police Station, Phase-3, Focal Point, Ludhiana	7.1	1316	804	684	611	205	24	0.2	14.8	80	58	268	78	10	1.37	21.4	0.2	0.2	0.1	BDL	BDL	BDL
6	PAU Research fields, Ludhiana	7.6	694	434	382	302	70.4	30.6	0.4	5.8	12	28	216	64	8.6	1.6	30.8	0.2	0.3	0.2	BDL	BDL	BDL
7	Dashmesh Nagar, Gali No. 12, Gurdhwara, Ludhiana	7.8	533	326	277	236	49.6	27.2	0.3	21.2	48	36	136	22	5.4	0.62	16.47	0.1	0.2	0.2	0.01	BDL	BDL
8	TSSM Sr. Sec School Shimlapuri, Ludhiana	7.6	802	496	432	352	87.2	32.6	0.1	24.6	63	18	328	64	6.9	1.48	27.84	0.2	0.2	1	0.01	BDL	0.01
9	Dairy Complex, Tajpur Road, Ludhiana	7.6	759	478	411	336	99.2	21.4	0.2	8.2	56	24	232	72	9.4	0.71	31.05	0.2	BDL	0.2	BDL	BDL	BDL
10	Submersible installed in area on Sua Road near	7.2	1102	684	596	416	60.8	64.2	0.4	25.4	105	20	436	82	9.5	1.75	29.4	0.2	BDL	0.3	BDL	BDL	BDL

	DhandariKalan, Ludhiana																					
11	Submersible installed in the area on Janta Nagar, Ludhiana	7.7	743	454	394	340	76.8	35.9	0.5	18.8	60	38	224	44	7.1	1.04	21.54	0.2	BDL	0.2	BDL	BDL	0.02
12	Submersible at RSSB, Tibba Road, Ludhiana, Indl. Area	7.8	538	344	286	244	51.2	28.2	0.3	0.7	12	14	266	58	7.6	1.62	33.22	0.2	BDL	0.3	0.01	BDL	BDL
13	MSW Dumping Site, Jamalpur, Ludhiana	7.9	553	354	288	268	52.8	33	0.3	0.8	9	12	260	60	6.9	1.6	33.6	0.2	BDL	0.2	BDL	BDL	0.01
14	STP, Jamalpur, Ludhiana	7.6	554	338	294	272	55.2	32.6	0.3	0.9	10	14	264	64	7.2	1.69	33.11	0.2	0.1	0.1	BDL	0.01	BDL
15	HP Park adjoining M/s National Industries, E-128, Phase-IV, Focal Point, Ludhiana	7	1100	682	608	386	14.2	16.5	0.2	31.2	68	44	244	84	8.9	3.59	61.42	0.2	0.2	0.1	0.03	BDL	BDL
16	H.P. in SahotaBaghabni Farm, Village Harian, Machhiwara	7	480	298	244	258	51.2	31.6	0.1	1.8	10	28	228	48	6.8	1.3	28.14	0.1	BDL	BDL	BDL	BDL	BDL
	Standards(Permissible Limit)	6.5-8.5	-	2000	-	600	200	100	1.5	-	1000	400	600	-	-	-	-	1	0.3	15	1.5	0.02	0.05

Note : BOD, T. Coli, F. Coli, TKN, Amm. N., P. alk, Turbidity, COD,TSS, PO4, Pb, Cd, As, Hg were BDL in all the samples.

Annexure 4A – Action Plan for Control on Vehicular Emissions

Sr. No.	Activity	Implementation period (Short Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	CVE 1 - Public awareness campaign for control of vehicular emissions	Short Term	Deptt. of Transport	Presently, awareness is being created in Educational Institutes under Sadak Surakhya Abhiyan	The public to be educated & motivated to actively play their role in curbing the vehicular pollution.	Regular Activity	1. Public awareness campaign in print and electronic media-Twice a month 2. Use of Social Media Facebook, twitter, Instagram-Regular 3. Jingles on air pollution on local radio and TV-Local FM Radio will be hired 4. Awareness drives in educational Institutions-Monthly 5. Public meetings-Monthly 6. Nukar nataks-Quarterly	Nil
-		Short Term	Traffic Police.	Organised1,221 awareness camps during year 2018and 212 upto Feb 2019 by Traffic Education Cell	Public awareness campaigns to be continued	Regular activity	--	Nil
2	CVE 2 - Remote	Medium Term	Department	Manual checking	All Pollution Check	31.12.2020	1. Preparation of RFP	Nil

	sensor based PUC system		of Transport	At Pollution Check Centre (PCC) exists	Centres will be linked with VAHAN 4.0 software of the Transport deptt.		for selection of vendors by committee- Under Process 2. Allotment of work after selection of vendors – 2 Months 3. Development of software solution to link all PUC centres – 9 months 4. Linking of software to VAHAN 4.0 software of the transport Deptt.- 1 Month	
3	CVE 3 - Extensive drive against polluting vehicles	Short Term	Traffic Police.	11,315 Challans were issued against polluting vehicles in 2018 and 994 challans issued upto Feb, 2019	Regular inspection to be continued and violators to be challaned.	Regular Activity	--	Nil
4	CVE 4 (a) – Prevent parking of vehicles in non-designated areas by creating parking infrastructure	Long Term	Municipal Corporation	• Designated parking lots : 23Nos • Multi-storey parkings :2 Multilevel parking already exists. • Parking for trucks/ commercial vehicles : 1	• Designated parking lots being identified. • Multi storey parkings to be made : Following 3 nos. of multi- storey car parking's are proposed: i) Feroze Gandhi Market. ii) Books Market iii) Ghumar Mandi. • Need based additional	- 31.03.2022 -	- DPR—6month Tendering – 3 months Work allotment— 1 month -	Rs 96.51 Crore -

				no. transport nagar exists.	Parking areas for trucks/commercial vehicles being identified.			
-		Short Term	Municipal Corporation	• Roadside parking earmarked by yellow line :18No. • "No Parking" sign Boards installed -16	• Roadside parking for earmarking being identified. • Additional "No Parking" sign Boards being installed in non designated areas – 40 No. Under smart city.	NA 30.09.2020	-	- Rs. 1.5 lacs
	CVE 4b – Enforcement	Short Term	Traffic Police.	59,151 challans were issued in 2018 and 7734 challans issued upto Feb, 2019	Regular inspection to be continued and violators to be challaned.	Regular Activity	-	Nil
5	CVE 5 - Check fuel adulteration	Short Term	Department of Food and Civil Supplies/Oil Industry	As informed by Deptt. of Food & Civil Supplies, the Oil Companies have adopted Online Automated System for transportation & checking the density of Petrol/Diesel.	State Level Coordinator, Oil Companies will conduct inspections on annual, quarterly & random basis. - In case of complaint, Department of Food & Civil Supplies in coordination with local oil company officials shall check fuel adulteration & if any discrepancy is noticed	Regular activity	-	Nil

					then action against the violator shall be taken by State Level Coordinator of Oil Company.			
6	CVE 6 (a) - Widening of roads and improvement of infrastructure for decongestion of roads	Short Term	Municipal Corporation	Roads identified for widening 1) Sua road i.e. from Canal to Passi Chowk– 4.2 Km 2. Kanganwal Road 2.0 Km 3) Gen. Mohan Singh Road 1.0 Km 4)Dhandari Kalan to Surjit Palace 0.8 Km	Total 08 Km of road length to be widening.	31.12.2020	Estimate —Completed Tendering -- Completed Work allotment— Completed Completion—06 Month	Rs 11.09 Crore
		Medium Term	GLADA	21.14 Km of road length has been identified for widening in Sector 32 A	Identified road length will be widened.	31.03.2021	1. DPR—Completed 2. Tendering – Under process	Rs. 25 Crore
	CVE 6(b) - Road design improvement	Long Term	Municipal Corporation	40 Km road has been constructed as concrete road after proper road designing.	New roads identified for redesigning: • Malhar Road (1.1 Km) • Rotary Club Road (600 meters) & • Ghumar Mandi roads (1.0 Km) are being redesigned under Smart City Mission. 14 nos. chowks and	31.03.2021	Work allotted Completion -Dec 2019. DPR- Completed Tender- 2 months' Work Allotment-1 month DPR- 6 months Tender- 2 months' Work Allotment-1 month	Rs. Crore 39.60

					junctions in the city are to be realigned and redesigned under smart city mission: • 6 nos. of chowks • 8 nos. of junctions			
7	CVE 7 - Introduce intelligent traffic systems	NA	Municipal Corporation	Already installed 42 nos. Of conventional traffic signals at different intersections in the City.	No. intelligent traffic system to be installed- NIL	-	-	NIL
8	CVE 8 - Construction of expressways/ bypasses to avoid congestion	Long Term	Municipal Corporation	Level crossing at Pakhowal Road railway line cause traffic congestion .	Flyover at Pakhowal Road railway crossing identified for construction Under Smart City to avoid congestion (length of Railway under Bridge portion is 600 meters and the length of Railway Over Bridge is 800meters.)	30.06.2021	1. DPR-1month 2. Tendering- 6 months, 3. Work Allotment- 1 month, 4. Completion- June 2021	Rs. 79 Crore
		Medium Term	GLADA	1.635 Km of road length has been identified (Malerkotla Road ToDugri Road.)	200' wide bye pass of length 1.635 Km to be constructed.	31.12.2020	1. Work allotted 2. Completion by 31.12.2020	Rs.5.25 Crore
		Medium Term	NHAI	Identified Laddowal bypass to divert the NH-	Laddowal bypass is under construction which would divert the NH-1	31.12.2020	Work in progress	Rs. 1148 Crore

				1 bound traffic coming from Ferozepur side &Doraha. Elevated corridor on Ferozepur road identified to be congest traffic.	bound traffic coming from Ferozepur side &Doraha. Elevated corridor is also under construction in stretch from chungi on Ferozepur road to Chandigarh road.			
9	CVE 09 – Phasing out of commercial diesel vehicles more than 15 years old	Long Term	Department of Transport.	New commercial diesel vehicles is registered for 2 years and thereafter, fitness certificate is being issued every year.	Matter of fixing the age of commercial diesel vehicle is being examined legally.	-	-	Nil
10	CVE10– Promotion Of E- vehicles	Medium Term	Deptt. of Transport	Presently, most of the vehicles are running on diesel and petrol. Framing of the E-vehicle policy is in the final stages.	After approval from Competent Authority E-Vehicle policy will Be notified.	31.12.2020	1. Framing & notification of E-vehicle policy – 9 months 2. Providing public charging points for E-vehicles as per Govt. policy.	NIL
11	CVE 11 (a) – Introduction of CNG based public transport (Infrastructure development)	Long Term	Deptt. of food & civil supplies Ludhiana	• 03 nos. of CNG Stations exist • Work being executed M/ Jay Madhok Co.	• To upgrade 01 no. conventional filling stations to CNG filling stations. • 01 no. new CNG station to be setup	31.03.2021	Upgradation & commissioning of CNG filling stations	Nil
	CVE 11 (b) – Introduction of CNG based city bus service	Long Term	Municipal Corporation	At present no CNG based city bus service exits.	To take measures to introduce CNG based city bus service.	-	-	Nil
	CVE 11 (c) –	Long Term	Deptt. of	At present, no	To take measures to	-	Implementation of	Nil

	Introduction of CNG based autos / taxis		Transport	CNG based auto/ taxis exits. PPCB has issued direction vide letter no 05 dated 03.01.2019 under section31- A of Air Act 1981 to stop registrationof new diesel/ petrol driven auto rickshaw(s), in5districts including Ludhiana,w.e.f01.02.2019.	introduce CNG based auto/ taxis.		PPCB orders dated 03.01.2019.	
12	CVE 12 – Retrofitting of particulate filters in diesel vehicles for BS-IV fuels	Long Term	Department of Transport.	Presently, India is implementing BS-IV standards for diesel vehicles	India is going to skip adopting BS-5 norms and shift directly to adopting BS-6 norms by 2020	-	The steps for retrofitting of particulate filters in diesel vehicles is to be undertaken by Automotive industry	Nil

Annexure 4B – Action Plan for Control on Road Dust

Sr. No.	Activity	Implementation period (Short/ Medium/Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	CRD 1 – Maintain pothole free roads for free-flow of traffic	Medium Term	Municipal Corporation	All major roads measuring 167 km of total length identified to make pothole free	Repair of 167km of identified road length	30.11.2020	1. Estimate Completed 2. Tendering under process.	Rs. 4.15 crore
		N A	GLADA	No repair work required in area under GLADA	NA	-	-	-
2	CRD 2 (a) – Water sprinkling	Short Term	Municipal Corporation	41.5 km of Road length Identified for water sprinkling .	Regular Water sprinkling on identified road	Regular Activity	-	Nil
	CRD 2 (b) – Procurement of Water sprinkler	Medium Term	Municipal Corporation	2 Nos water sprinklers-exists.	2 more sprinklers to be procured.	31.12.2020	1. Estimation-Completed 2. Tendering-Under process.	Rs.46 lacs
3	CRD 3 – Mechanical sweeping	Medium Term	Municipal Corporation	-Presently manual sweeping being done. -120 km of Road length identified for mechanical sweeping.	4 no. mechanical sweepers to be procured.	31.12.2020	1. Estimation-Completed 2. Tendering – Under process.	Rs.5 Crore

4	CRD 4 - Creation of green buffers along road side	Short term	Municipal Corporation	7.8 Km of Road length identified for green buffer: 1. Jeewan ngrchk to Phase VII 2. Metro Road to Vishkarma Colony 3. Viahawnath Mandir (U/E Ph-1 & 2) &Rly Colony 4. From phase- VI-B,121 to228 5. Focal Point D-210 to 228 Ph-VII 6. Subash Nagar	12000 plants to be planted in industrial & residential and along road sides.	Regular activity	1. Identification – Completed 2. Demand of plants send to forest department for procurement 3. Plantation- 30.09.2019 4. Maintenance – Regular	Rs.74 lacs
5	CRD 5 - Greening of parks, open areas, community places, schools and housing societies	Medium Term	Municipal Corporation	665 nos of parks out of total 870 nos in Ludhiana city are being maintained by MC and Park Management Committees.	To ensure all public parkshave adequate green cover/ plantation.	Regular Activity	1. All public parks will be provided adequate green cover/plantation. 2. Schools & housing societies to be motivated for plantation.	
		Medium Term	DFO	Vacant land available for plantation.	1)5000 plants will be planted on Kasabad Forest under NPV scheme.	31.12.2020	1. Ist Quarter 2019: Earth work will be done	Rs 20.57 lacs
					2)5000 plants will be planted on		2. IInd Quarter: Plantation will be	

					Tajpur Road, Central Jail to Khasi Kalan under NPV scheme. 3) 10,000 plants will be planted on PF Laddowal under NPV Scheme. 4) 2000 Plants will be planted on RF Ludhiana Compartment No. 7 & 8 under NPV Scheme. 5) 2000 plants will be planted along Budha Nallah from Central Jail to Khasi Kalan under MGNREGA		done 3. IIIrd and IVth Quarter: Maintenance of plantation will be done	
6	CRD 6 - Water fountains at major traffic intersections	N A	Municipal Corporation	Water Installed at fountains a) Fountain chowk on Mall road near Guru Nanak Dev Stadium b) Vishavkarma Chowk. c) Sherpur Chowk intersections.	No immediate proposal to install any fountain.	NA	No further proposal for fountains due to non-availability of space at chowks.	NA

7	CRD 7 (a) Kacha/Brick Paved Roads to be made Pucca road	Short Term	MC	Identified 10.06 Km of Kacha roads for making pucca roads.	Blacktopping of identified Kacha roads to be done for control of road dust emissions.	31.12.2020	i) Estimation-Complete. ii) Tendering – Under process.	Rs 65 Crore
	CRD 7 (b) Existing roads requiring recarpeting	Short Term	MC	93.55 km of existing road within MC limit requiring re-carpeting identified	93.55 km of existing road to be re- carpeted	30.09.2020		
		Short Term	PWD	6.62 km of existing road within MC limit requiring re-carpeting identified	6.62 km of existing road to be re- carpeted	30.09.2020	1. Estimation-Under Process. 2. Tendering -Under process. . Work Allotment-After tendering 4. Completion : 6months	Rs.2.97 Crore
		Short Term	GLADA	5.24 km of existing road requires re carpeting	5.24 km of existing road to be re carpeted	30.09.2020	Tendering completed & Work Allotted	Rs 44 Lacs
	CRD 7 (c) Pavement of road side using interlocking tiles/Greening to prevent road dust emissions	Short Term	MC	0.8 km main road identified for pavement of road side (Gill road)	Identified road to be completed	30.09.2020	-	Rs. 88.5 lacs

Annexure 4C – Action Plan for Control on Burning of Garbage and Biomass

Sr. No.	Activity	Implementation period (Short/Medium/ Long Term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	CBGB 1 – Control on open burning of bio-mass in City	Medium Term	Municipal Corporation	140 Kacha pits have been made in different parks for collection of horticulture waste to avoid burning of Bio Mass.	126 nos. of Pucca compost pits are to be constructed in parks and green belts	31.03.2021	i) Estimate : Completed ii) Tender : Under process	Rs. 45 Lacs
2	CBGB 2 – Control on burning of municipal solid wastes	Medium Term	Municipal Corporation	No. Of inspections made – 85 No. No. Of challans issued – 50 No. No. Of awareness camps – 60 No. Burning of municipal solid wastes stands prohibited. Awareness among MC staff/Safai Sewak is being created	Regular inspections to be continued for Control on burning of municipal solid wastes and Challans to be issued to the violators.	Regular Activity	-	Nil
3	CBGB 3 – Control	Short Term	District Administrat	• Identification of sites byPRSC(PAU)	Enforcement by Team	During rice/ wheat	1. To create awareness among farmers regarding health	Rs. 3 Lacs

	on burning of agriculture waste and crop residue		ion, Department of Agriculture, Police, PSPCL, Revenue Department & PPCB	• Regular monitoring under supervision of DC • In District Ludhiana, 150 challans issued imposing Rs5,25,000/- as Environmental compensation in year 2018 by PPCB • Rs.1,00,000/- Environmental compensation recovered upto Dec 2018.		harvesting season	effects of residue burning 2. Deptt. of Agriculture to provide subsidy for equipment/ machinery as per Govt.policy 3. Teams will be constituted one month prior to start of each harvesting season. 4. Identification of no. of fire incidents by PRSC. 5. Visit to identified sites 6. Imposing Environmental compensation on defaulters 7. PSPCL shall ensure electricity for in-situ management 8. Progress review in District Level Air Quality Monitoring Committee meeting 9. Recovery of Environmental compensation	

Annexure 4D – Action Plan for Control on Industrial pollution

Sr. No.	Activity	Implementation period (Short/Medium/ Long term)	ResponsibleAgencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1.	CIE 1 – Conversion to side hood suction in induction furnaces	Short Term	PPCB	Total 31 units are having induction furnace of capacity more than 1 Ton/heat (within M.C. and outside M.C. within 05 Km). No units have adopted side hood suction facility.	All 31 units having induction furnace of capacity more than 1 Ton/heat (within M.C. and outside M.C. limit within 05 Km) to be converted to side hood suction facility.	31.03.2021	Monthly review meetings. Steps:- 1) Taking design 2) Commissioning	Nil
2.	CIE 2 – Conversion to CNG/PNG from pet coke/coal.	Long Term	PPCB/Jay Madhok Energy Pvt Ltd.	-500 no. of industry are yet to converted. -M/s Jai Madhok Energy Pvt Ltd. is awaiting approval from NHAI for laying of pipeline to supply PNG	-500 no. units to be converted to CNG/PNG.	31.03.2021	1. Providing pipeline for transportation of PNG 2. Procurement of instruments 3. Installation 4. Commissioning	Nil
3.	CIE 3 – Conversion of natural draft brick kilns to induced draft	Short Term	PPCB	One unit out of 8 (within 5 km of M.C. limits) have adopted induced draft technology.	7 units yet to be converted	31.03.2021	Work under process	Nil
4	CIE 4 – Action against non-complying industrial units	Short Term	PPCB	Regular inspection as per policy of the Board	• Action against defaulting industries. • Checking the	Regular activity	-Identification of industries in which ETP/APCD is installed. - Checking the	Nil

					adequacy of ETP/APCD installed by the industries		adequacy of ETP/APCD already installed. - Issuing show cause notice to the industries violating norms. -Facilitating industry to get set right the inadequate ETP/APCD.	
5	CIE 5 – Shifting of industries from non-Designated areas to industrial areas	Long Term	Local Govt. / Distt. Town Planner / Deptt of Industries.	Industries located in non-designated need to be identified for shifting. PSIEC has developed 15 acre pocket at Tajpur Road & developing HiTech Cycle Valley Dhanansu.	Identified Industries required to be shifted to the designated areas.	Upto 2023	As per the provisions of notified Master Plan	Nil

Annexure 4E – Action Plan for Control on Construction and Demolition Activities

Sr. No.	Activity	Implementation period (Short/Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	CCDA 1 (a) – Enforcement of Construction & Demolition Rules.	Short Term	Municipal Corporation	Inspection is being carried out as per needs for bigger/commercial& road projects. No. Of inspections made– 120 No. No. Of challans issued – 95 No.	-Regular inspection will be made for Control of Construction &Demolition waste. -Counter verification to be done by ATP/EO.	Regular Activity	--	Nil
	CCDA 1 (b) – Infrastructure of Construction & Demolition waste	Long Term	Municipal Corporation	MC Ludhiana has notified 6 no. of secondary points for collection of C&D waste under MC limits vide house resolution No. 37 dated 04.09.2018.	-MC Ludhiana is going to install a C&D plant under Smart City Mission. -Installation of CCTV cameras at major construction sites.	31.3.2021	DPR- Approved for setting up of processing/ recycling plant for C&D waste Tendering under process.	Rs 14.18 cr
2	CCDA 2 – Control measure for fugitive measures	Short Term	Municipal Corporation	At present, minimal measures being taken by the building contractors.	Proper curtains / sheets on the construction sites to be provided &the construction material be kept in covered conditions. Regular inspection to be made and challan issued to violators	Regular activity	Regular inspections	Nil
3	CCDA 3 – Ensure carriage of construction material in closed/covered vessels.	Short Term	Municipal Corporation	MC has already directed all contractors to carry building materials and malba in enclosed/ covered vessels.	Regular inspection will be made to ensure implementation of directions given to contractors to carry the building materials and malba in enclosed/ covered vessels.	Regular Activity	-	Nil

Annexure 4F – Action Plan for Control through Other steps

Sr. No.	Activity	Implementation period (Short/ Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	COS 1 – Dissemination of Air Quality Index	Medium Term	PPCB	1No.CAAQMS Installed	3 more CAAQMS to be installed	30.06.2021	1. Expected Allotment of Station by CPCB on50:50 sharing basis-31.03.2019. Finalization of specifications by CPCB 31.05.2019. Tendering-31.07.2019Identification of site and its approval from CPCB (Simultaneouslywithtendering-31.07.2019). Procurement & installation of CAAQMS-31.01.2020 Calibration, Commissioning &data procurement - 31.03.2020.	Rs 3 crores
2	COS 2-Establish an Air Quality Management Division at SPCB HQ	Medium Term	PPCB	No such division exists	One required	31.03.2020 (Air quality management division at HQ has already been established)	a. Develop methodology-Three months b. Providing infrastructure-Six months c. Implementation- Three months	Rs 2.0 lacs
3	COS 3 – Setup helpline in each	Medium Term	PPCB	No helpline exists	One help line number	31.03.2021	Develop Methodology-Three months 1. Providing Infrastructure-Six months	Rs 0.5 lacs

	city/town as well as SPCB HQ Policy				required		2. Implementation- Three months	
4	COS 4 - Monitoring of DG sets and action against violations	Short Term	Punjab Pollution Control Board	Manual monitoring exists	No non-complying DG set to be operated	Regular Activity	1. Identification – Four months 2. Implementation-Two Months	Nil
5	COS 5-Source Apportionment Study	Short Term	PPCB	Source Apportionment Study have been conducted through PSCST & TERI	Not required	--	--	Rs.1.10 Cr.

Annexure 4G– Action Plan for Training & Capacity Building Programmes

Sr. No.	Activity	Implementation period (Short/ Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	TCB1 – Training &Capacity Building Programmes	Short Term	PPCB	Officers get trainings under various programmes organized by the concerned departments	• District/City level training programme – 1 Nos. • State level training programme – 1 Nos.	31.03.2021	Selecting agencies/ experts for organizing theme specific trainings. Organization of programmes at City/District and level.	Rs.2.00 lacs

Annexure 4H – Action Plan for control by surveillance of polluting industries

Sr. No.	Activity	Implementation period (Short/ Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications , if any (Estimated Cost)
1.	CSPI-1 – Monitoring of 17 category highly polluting units	Long Term	PPCB	One 17 category highly polluted industry is located in the critically polluted area of Ludhiana.	Mandatory Quarterly inspection of this units and collection of effluent as well as air emission samples.	Regular activity	Monthly review meetings. Steps: - 1) Improvising design and technology of APCDs/ETPs 2) Compliance towards Punjab Pollution Control Board norms	Nil
2.	CSPI- 2 – Surveillance of water intensive dyeing units.	Long Term	PPCB	Total 229water intensive dyeing units are located in the critically polluted area of Ludhiana.	Large& Medium scale dyeing units- Mandatory Quarterly inspection of these units and collection of effluent as well as air emission samples Small Scale units- Mandatory inspection of these units and collection of effluent as well as air emission samples after every 6 months.	Regular activity	Quarterly review meetings. Steps: - 1. Improvising design and technology of APCDs/ETPs 2. Compliance towards Punjab Pollution Control Board norms	Nil
3.	CSPI-3- Surveillance of electroplating/ phosphating/ pickling/ surface coating units.	Long term	PPCB	Total 1553electroplating/ phosphating/ pickling/ surface coating units are located in the critically polluted area of Ludhiana.	Large & Medium scale dyeing units- Mandatory Quarterly inspection of these units. Extensive surveillance of ZLD systems. Small Scale units-	Regular activity	Half yearly meetings. Steps: - 1. Adopting technologies for reducing water consumption.	Nil

					Mandatory inspection of these units and verification of the records for effluent generation and lifting every 6 months.		2. Compliance towards Punjab Pollution Control Board norms	
3.	CSPI- 4 –Shifting of scattered dyeing units to CETP compatible area	Short Term	PPCB	Total 37scattered dyeing units are located in the critically polluted area of Ludhiana.	All these units are required to be shifted to the CETP compatible area	31-12-2020	Compliance to the directions issued by the Board to the scattered units	Nil
4	CSPI-5 – Action against non-complying industrial units	Long term	PPCB	Regular inspection as per policy of the Board	Action against defaulting industries. Checking the adequacy of ETP/APCD installed by the industries	Regular activity	• Identification of industries in which ETP/APCD is not installed. • Checking the adequacy of ETP/APCD already installed. • Issuing show cause notice to the industries violating norms. • Facilitating industry to • Get set right the inadequate ETP/APCD.	Nil
5	CSPI-6 – Connecting the water polluting dyeing/washing/printing units to 15 MLD, 40 MLD and 50 MLD CETP and successful	Short Term	Punjab Pollution Control Board/Respective SPVs	15 MLD CETP member units-34 40 MLD CETP member units- 67 50 MLD CETP member units-130	Connecting all the member units to the CETPs and making 15, 40 and 50 MLD CETPs operational	T+6 months T is the date of actual release of Central/	All the CETPs are to be made successfully functional within 6 months from the release of Central/State Grant-in-Aid	Funds required to be released by Central/State Govt. 1) 40 MLD CETP- Rs. 12.12 Cr. by

	operation of CETPs					State Grant-in-Aid		Central Govt. and 5.76 Cr. by State Govt. 2) 50 MLD CETP- Rs. 12 Cr. by Central Govt. and Rs. 6.0 Cr. by State Govt.

Note 1: 'Short Term' refers to activities to be carried out during next 6 months, 'Medium Term' refers to activities to be carried out during next 2 years and 'Long Term' refers to activities to be carried out in more than 2 years' times period.

Annexure-5

Calculation of CEPI score for 2018 of Ludhiana City by CPCB

As per calculations by Central Pollution Control Board for the year 2018

Water Quality Analysis Report

Pollutants	Group	A1	A2	
TP	B	2	Large	A (A1 X A2)
TNH4-N	A	0.25		
BOD	B	0.5		
		2.75	4	11

Pollutants	Avg (1)	Std (2)	EF [(3)= 1/2]	No. of Samples Exceeding (4)	Total No. of Samples	SNLF Value [(6) = 4/5 x3]	SNLF Score	
TP	2.80	0.30	9.34	39	45	8.10	C	30
TNH4-N	5.64	1.50	3.76	29	45	2.42	C	10
BOD	17.51	8.00	2.19	21	45	1.02	C	10
B Value = (B1 + B2 + B3)						B	50	

C	0	< 5%
D	10	A-A-IA

WATER EPI	(A+B+C+D)	71.00

Air Quality Analysis Report

Pollutants	Group	A1	A2	
PM10	B	2	Large	A (A1 X A2)
PM2.5	B	0.5		
CO	B	0.5		
		3	4	12

Pollutants	Avg (1)	Std (2)	EF [(3)= 1/2]	No. of Samples Exceeding (4)	Total No. of Samples	SNLF Value [(6) = 4/5 x3]	SNLF Score	
PM10	136.18	100	1.36	45	45	1.35	C	30
PM2.5	51.29	60	0.85	0	45	0	L	1.5
CO	1.18	2	0.59	0	45	0.00	L	0
B Value = (B1 + B2 + B3)								31.5

C	0	< 5%
D	10	A-A-IA
AIR EPI	(A+B+C+D)	53.50

GROUND WATER Quality Analysis Report

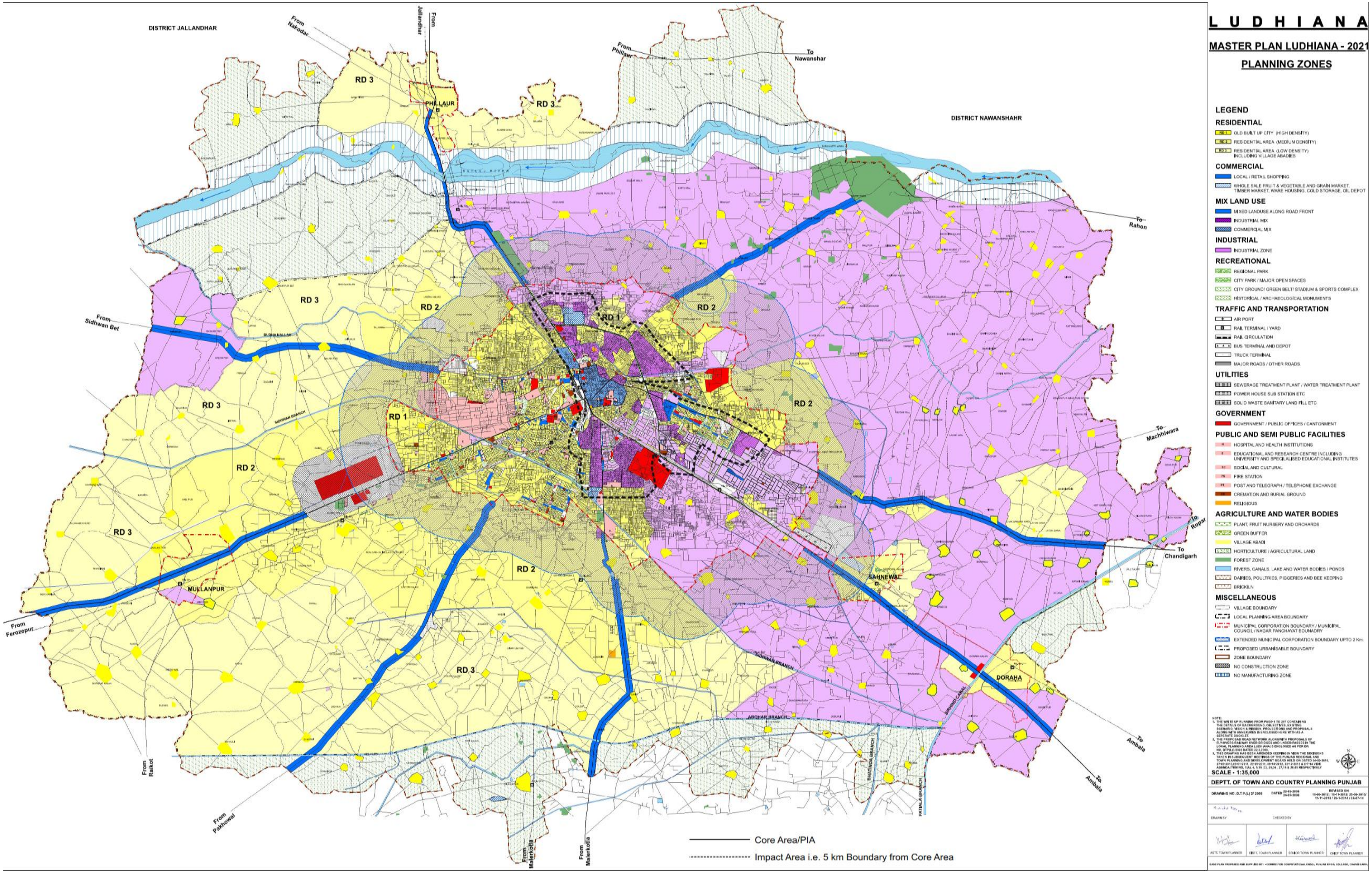
Pollutants	Group	A1	A2	
TDS	A	1	Large	A (A1 X A2)
T. hard	A	0.25		
Fe	C	0.25		
		1.5	4	6

Pollutants	Avg (1)	Std (2)	EF [(3)= 1/2]	No. of Samples Exceeding (4)	Total No. of Samples	SNLF Value [(6) = 4/5 x3]	SNLF Score	
TDS	428.71	2000	0.21	0	45	0	L	0
T.Hard	270.44	600	0.45	0	45	0	L	0
Fe	0.07	0.3	0.22	0	45	0	L	0
B Value = (B1 + B2 + B3)								**0**

C	0	< 5%
D	10	A-A-IA
GROUND WATER EPI	(A+B+C+D)	16

Air= 53.50, Water= 71.00 and ground water= 16.00

Hence overall CEPI score calculated by CPCB for the year 2018 = 73.48


L U D H I A N A
MASTER PLAN LUDHIANA - 2021
PLANNING ZONES
LEGEND
RESIDENTIAL
OLD BUILT UP CITY (HIGH DENSITY)
RESIDENTIAL AREA (MEDIUM DENSITY)
RESIDENTIAL AREA (LOW DENSITY) INCLUDING VILLAGE ABADIES
COMMERCIAL
LOCAL / RETAIL SHOPPING
WHOLE SALE FRUIT & VEGETABLE AND GRAIN MARKET, TIMBER MARKET, WARE HOUSING, COLD STORAGE, OIL DEPOT
MIX LAND USE
MIXED LANDUSE ALONG ROAD FRONT
INDUSTRIAL MIX
COMMERCIAL MIX
INDUSTRIAL
INDUSTRIAL ZONE
RECREATIONAL
REGIONAL PARK
CITY PARK / MAJOR OPEN SPACES
CITY GROUND/ GREEN BELT/ STADIUM & SPORTS COMPLEX
HISTORICAL / ARCHAEOLOGICAL MONUMENTS
TRAFFIC AND TRANSPORTATION
AIR PORT
RAIL TERMINAL / YARD
RAIL CIRCULATION
BUS TERMINAL AND DEPOT
TRUCK TERMINAL
MAJOR ROADS / OTHER ROADS
UTILITIES
SEWERAGE TREATMENT PLANT / WATER TREATMENT PLANT
POWER HOUSE SUB STATION ETC
SOLID WASTE SANITARY LAND FILL ETC
GOVERNMENT
GOVERNMENT / PUBLIC OFFICES / CANTONMENT
PUBLIC AND SEMI PUBLIC FACILITIES
HOSPITAL AND HEALTH INSTITUTIONS
EDUCATIONAL AND RESEARCH CENTRE INCLUDING UNIVERSITY AND SPECILALISED EDUCATIONAL INSTITUTES
SOCIAL AND CULTURAL
FIRE STATION
POST AND TELEGRAPH / TELEPHONE EXCHANGE
CREMATION AND BURIAL GROUND
RELIGIOUS
AGRICULTURE AND WATER BODIES
PLANT, FRUIT NURSERY AND ORCHARDS
GREEN BUFFER
VILLAGE ABADI
HORTICULTURE / AGRICULTURAL LAND
FOREST ZONE
RIVERS, CANALS, LAKE AND WATER BODIES / PONDS
DAIRIES, POULTRIES, PIGGERIES AND BEE KEEPING
BRICKILN
MISCELLANEOUS
VILLAGE BOUNDARY
LOCAL PLANNING AREA BOUNDARY
MUNICIPAL CORPORATION BOUNDARY / MUNICIPAL COUNCIL / NAGAR PANCHAYAT BOUNADRY
EXTENDED MUNICIPAL CORPORATION BOUNDARY UPTO 2 Km.
PROPOSED URBANISABLE BOUNDARY
ZONE BOUNDARY
NO CONSTRUCTION ZONE
NO MANUFACTURING ZONE
SCALE - 1:35,000
DEPTT. OF TOWN AND COUNTRY PLANNING PUNJAB
DISTRICT JALLANDHAR
DISTRICT NAWANSHAHR
From Nakodar
From Jallandhar
From Phillaur
To Nawanshar
To Rahon
To Machhiwara
To Ropar
To Chandigarh
To Ambala
From Sidhwan Bet
From Ferozepur
From Raikot
From Pakhowal
From Malerkotla
RD 1
RD 2
RD 3
PHILLAUR
SAHNEWAL
MULLANPUR
DORAHA
Core Area/PIA
Impact Area i.e. 5 km Boundary from Core Area

ANNEXURE-F

(Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii)
MINISTRY OF ENVIRONMENT AND FORESTS
New Delhi 14th September, 2006
Notification

S.O. 1533(E). - Whereas, a draft notification **under sub-rule (3) of Rule 5 of the Environment (Protection) Rules, 1986 for imposing** certain restrictions and prohibitions on new projects or activities, or on the expansion or modernization of existing projects or activities based on their potential environmental impacts as indicated in the Schedule to the notification, being undertaken in any part of India[1], unless prior environmental clearance has been accorded in accordance with the objectives of National Environment Policy **as approved by the Union Cabinet on 18th May, 2006** and the procedure specified in the notification, by the Central Government or the State or Union territory Level Environment Impact Assessment Authority (SEIAA), to be constituted by the Central Government in consultation with the State Government or the Union territory Administration concerned under sub-section (3) of section 3 of the Environment (Protection) Act, 1986 for the purpose of this notification, was published in the Gazette of India ,Extraordinary, Part II, section 3, sub-section (ii) vide number S.O. 1324 (E) dated the 15th September ,2005 inviting objections and suggestions from all persons likely to be affected thereby within a period of sixty days from the date on which copies of Gazette containing the said notification were made available to the public;

And whereas, copies of the said notification were made available to the public on 15th September, 2005;

And whereas, all objections and suggestions received in response to the above mentioned draft notification have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986, read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 and in supersession of the notification number S.O. 60 (E) dated the 27th January, 1994, except in respect of things done or omitted to be done before such supersession, the Central Government hereby directs that on and from the date of its publication the required construction of new projects or activities or the expansion or modernization of existing projects or activities listed in the Schedule to this notification entailing capacity addition with change in process and or technology shall be

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

undertaken in any part of India only after the prior environmental clearance from the Central Government or as the case may be, by the State Level Environment
Impact Assessment Authority, duly constituted by the Central Government under sub-section (3) of section 3 of the said Act, in accordance with the procedure specified hereinafter in this notification.

_____
[1]Includes the territorial waters

2. Requirements of prior Environmental Clearance (EC):- The following projects or activities shall require prior environmental clearance from the concerned regulatory authority, which shall hereinafter referred to be as the Central Government in the Ministry of Environment and Forests for matters falling under Category 'A' in the Schedule and at State level the State Environment Impact Assessment Authority (SEIAA) for matters falling under Category 'B' in the said Schedule, before any construction work, or preparation of land by the project management except for securing the land, is started on the project or activity:

(i) All new projects or activities listed in the Schedule to this notification;

(ii) Expansion and modernization of existing projects or activities listed in the Schedule to this notification with addition of capacity beyond the limits specified for the concerned sector, that is, projects or activities which cross the threshold limits given in the Schedule, after expansion or modernization;

(iii) Any change in product - mix in an existing manufacturing unit included in Schedule beyond the specified range.

3. State Level Environment Impact Assessment Authority:- (1) A State Level Environment Impact Assessment Authority hereinafter referred to as the SEIAA shall be constituted by the Central Government under sub-section (3) of section 3 of the Environment (Protection) Act, 1986 comprising of three Members including a Chairman and a Member – Secretary to be nominated by the State Government or the Union territory Administration concerned.

(2) The Member-Secretary shall be a serving officer of the concerned State Government or Union territory administration familiar with environmental laws.

(3) The other two Members shall be either a professional or expert fulfilling the eligibility criteria given in Appendix VI to this notification.

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(4) One of the specified Members in sub-paragraph (3) above who is an expert in the Environmental Impact Assessment process shall be the Chairman of the SEIAA.

(5) The State Government or Union territory Administration shall forward the names of the Members and the Chairman referred in sub- paragraph 3 to 4 above to the Central Government and the Central Government shall constitute the SEIAA as an authority for the purposes of this notification within thirty days of the date of receipt of the names.

(6) The non-official Member and the Chairman shall have a fixed term of three years (from the date of the publication of the notification by the Central Government constituting the authority).

[I] "(7) All decisions of the SEIAA shall be taken in a meeting and shall ordinarily be unanimous:

Provided that, in case a decision is taken by majority, the details of views, for and against it, shall be clearly recorded in the minutes and copy thereof sent to MoEF."

4. Categorization of projects and activities:-

(i) All projects and activities are broadly categorized in to two categories - Category A and Category B, based on the spatial extent of potential impacts and potential impacts on human health and natural and man made resources.

(ii) All projects or activities included as Category 'A' in the Schedule, including expansion and modernization of existing projects or activities and change in product mix, shall require prior environmental clearance from the Central Government in the Ministry of Environment and Forests (MoEF) on the recommendations of an Expert Appraisal Committee (EAC) to be constituted by the Central Government for the purposes of this notification;

(iii) All projects or activities included as Category 'B' in the Schedule, including expansion and modernization of existing projects or activities as specified in sub paragraph (ii) of paragraph 2, or change in product mix as specified in sub paragraph (iii) of paragraph 2, but excluding those which fulfill the General Conditions (GC) stipulated in the Schedule, *will* require prior environmental clearance from the State/Union territory Environment Impact Assessment Authority (SEIAA). The SEIAA shall base its decision on the recommendations of a State or Union territory level Expert Appraisal Committee (SEAC) as to be constituted for in this notification. [II] "In the absence of a duly constituted SEIAA

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

or SEAC, a Category 'B' project shall be considered at Central Level as a Category 'B' project;"

5. Screening, Scoping and Appraisal Committees:-

The same Expert Appraisal Committees (EACs) at the Central Government and SEACs (hereinafter referred to as the (EAC) and (SEAC) at the State or the Union territory level shall screen, scope and appraise projects or activities in Category 'A' and Category 'B' respectively. EAC and SEAC's shall meet at least once every month.

(a) The composition of the EAC shall be as given in Appendix VI. The SEAC at the State or the Union territory level shall be constituted by the Central Government in consultation with the concerned State Government or the Union territory Administration with identical composition;

(b) The Central Government may, with the prior concurrence of the concerned State Governments or the Union territory Administrations, constitutes one SEAC for more than one State or Union territory for reasons of administrative convenience and cost;

(c) The EAC and SEAC shall be reconstituted after every three years;

(d) The authorised members of the EAC and SEAC, concerned, may inspect any site(s) connected with the project or activity in respect of which the prior environmental clearance is sought, for the purposes of screening or scoping or appraisal, with prior notice of at least seven days to the applicant, who shall provide necessary facilities for the inspection;

(e) The EAC and SEACs shall function on the principle of collective responsibility. The Chairperson shall endeavour to reach a consensus in each case, and if consensus cannot be reached, the view of the majority shall prevail.

6. Application for Prior Environmental Clearance (EC):-

An application seeking prior environmental clearance in all cases shall be made in the prescribed Form 1 annexed herewith and Supplementary Form 1A, if applicable, as given in Appendix II, after the identification of prospective site(s) for the project and/or activities to which the application relates, before commencing any construction activity, or preparation of land, at the site by the applicant. The applicant shall furnish, along with the application, a copy

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

of the pre-feasibility project report except that, in case of construction projects or activities (item 8 of the Schedule) in addition to Form 1 and the Supplementary Form 1A, a copy of the conceptual plan shall be provided, instead of the pre-feasibility report.

7. Stages in the Prior Environmental Clearance (EC) Process for New Projects:-

7(i) The environmental clearance process for new projects will comprise of a maximum of four stages, all of which may not apply to particular cases as set forth below in this notification. These four stages in sequential order are:-

- Stage (1) Screening (Only for Category 'B' projects and activities)
- Stage (2) Scoping
- Stage (3) Public Consultation
- Stage (4) Appraisal

I. **Stage (1) - Screening**:

In case of Category 'B' projects or activities, this stage will entail the scrutiny of an application seeking prior environmental clearance made in Form 1 by the concerned State level Expert Appraisal Committee (SEAC) for determining whether or not the project or activity requires further environmental studies for preparation of an Environmental Impact Assessment (EIA) for its appraisal prior to the grant of environmental clearance depending up on the nature and location specificity of the project . The projects requiring an Environmental Impact Assessment report shall be termed Category 'B1' and remaining projects shall be termed Category 'B2' and will not require an Environment Impact Assessment report. For categorization of projects into B1 or B2 except item 8 (b), the Ministry of Environment and Forests shall issue appropriate guidelines from time to time.

II. **Stage (2) - Scoping**:

(i) "Scoping": refers to the process by which the Expert Appraisal Committee in the case of Category 'A' projects or activities, and State level Expert Appraisal Committee in the case of Category 'B1' projects or activities, including applications for expansion and/or modernization and/or change in product mix of existing projects or activities, determine detailed and comprehensive Terms Of Reference (TOR) addressing all relevant environmental concerns for the preparation of an Environment Impact Assessment (EIA) Report in respect of the project or activity for which prior environmental clearance is sought. The Expert Appraisal Committee or State level Expert Appraisal Committee

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

concerned shall determine the Terms of Reference on the basis of the information furnished in the prescribed application Form1/Form 1A including Terns of Reference proposed by the applicant, a site visit by a sub- group of Expert Appraisal Committee or State level Expert Appraisal Committee concerned only if considered necessary by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, Terms of Reference suggested by the applicant if furnished and other information that may be available with the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned. All projects and activities listed as Category 'B' in Item 8 of the Schedule (Construction/Township/Commercial Complexes /Housing) shall not require Scoping and will be appraised on the basis of Form 1/ Form 1A and the conceptual plan.

(ii) The Terms of Reference (TOR) shall be conveyed to the applicant by the Expert Appraisal Committee or State Level Expert Appraisal Committee as concerned within sixty days of the receipt of Form 1. In the case of Category A Hydroelectric projects Item 1(c) (i) of the Schedule the Terms of Reference shall be conveyed along with the clearance for pre-construction activities .If the Terms of Reference are not finalized and conveyed to the applicant within sixty days of the receipt of Form 1, the Terms of Reference suggested by the applicant shall be deemed as the final Terms of Reference approved for the EIA studies**.** The approved Terms of Reference shall be displayed on the website of the Ministry of Environment and Forests and the concerned State Level Environment Impact Assessment Authority.

(iii) Applications for prior environmental clearance may be rejected by the regulatory authority concerned on the recommendation of the EAC or SEAC concerned at this stage itself. In case of such rejection, the decision together with reasons for the same shall be communicated to the applicant in writing within sixty days of the receipt of the application.

III. **Stage (3) - Public Consultation**:

(i) "Public Consultation" refers to the process by which the concerns of local affected persons and others who have plausible stake in the environmental impacts of the project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate. All Category 'A' and Category B1 projects or activities shall undertake Public Consultation, except the following:-

(a) modernization of irrigation projects (item 1(c) (ii) of the Schedule).

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(b) all projects or activities located within industrial estates or parks (item 7(c) of the Schedule) approved by the concerned authorities, and which are not disallowed in such approvals.

(c) expansion of Roads and Highways (item 7 (f) of the Schedule) which do not involve any further acquisition of land.

[III] "(cc) maintenance dredging provided the dredged material shall be disposed within port limits.";

[III] "(d) All Building or Construction projects or Area Development projects (which do not contain any category 'A' projects and activities) and Townships (item 8(a) and 8(b) in the Schedule to the notification)."

e) all Category 'B2' projects and activities.

f) all projects or activities concerning national defence and security or involving other strategic considerations as determined by the Central Government.

(ii) The Public Consultation shall ordinarily have two components comprising of:-

(a) a public hearing at the site or in its close proximity- district wise, to be carried out in the manner prescribed in Appendix IV, for ascertaining concerns of local affected persons;

(b) obtain responses in writing from other concerned persons having a plausible stake in the environmental aspects of the project or activity.

(iii) the public hearing at, or in close proximity to, the site(s) in all cases shall be conducted by the State Pollution Control Board (SPCB) or the Union territory Pollution Control Committee (UTPCC) concerned in the specified manner and forward the proceedings to the regulatory authority concerned within 45(forty five) of a request to the effect from the applicant.

(iv) in case the State Pollution Control Board or the Union territory Pollution Control Committee concerned does not undertake and complete the public hearing within the specified period, and/or does not convey the proceedings of the public hearing within the prescribed period directly to the regulatory authority concerned as above, the regulatory

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

authority shall engage another public agency or authority which is not subordinate to the regulatory authority, to complete the process within a further period of forty five days,.

(v) If the public agency or authority nominated under the sub paragraph (iii) above reports to the regulatory authority concerned that owing to the local situation, it is not possible to conduct the public hearing in a manner which will enable the views of the concerned local persons to be freely expressed, it shall report the facts in detail to the concerned regulatory authority, which may, after due consideration of the report and other reliable information that it may have, decide that the public consultation in the case need not include the public hearing.

(vi) For obtaining responses in writing from other concerned persons having a plausible stake in the environmental aspects of the project or activity, the concerned regulatory authority and the State Pollution Control Board (SPCB) or the Union territory Pollution Control Committee (UTPCC) shall invite responses from such concerned persons by placing on their website the Summary EIA report prepared in the format given in Appendix IIIA by the applicant along with a copy of the application in the prescribed form, within seven days of the receipt of a written request for arranging the public hearing. Confidential information including non-disclosable or legally privileged information involving Intellectual Property Right, source specified in the application shall not be placed on the web site*.* The regulatory authority concerned may also use other appropriate media for ensuring wide publicity about the project or activity. The regulatory authority shall, however, make available on a written request from any concerned person the Draft EIA report for inspection at a notified place during normal office hours till the date of the public hearing. All the responses received as part of this public consultation process shall be forwarded to the applicant through the quickest available means.

(vii) After completion of the public consultation, the applicant shall address all the material environmental concerns expressed during this process, and make appropriate changes in the draft EIA and EMP. The final EIA report, so prepared, shall be submitted by the applicant to the concerned regulatory authority for appraisal. The applicant may alternatively submit a supplementary report to draft EIA and EMP addressing all the concerns expressed during the public consultation.

IV. Stage (4) - Appraisal:

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(i) Appraisal means the detailed scrutiny by the Expert Appraisal Committee or State Level Expert Appraisal Committee of the application and other documents like the Final EIA report, outcome of the public consultations including public hearing proceedings, submitted by the applicant to the regulatory authority concerned for grant of environmental clearance. This appraisal shall be made by Expert Appraisal Committee or State Level Expert Appraisal Committee concerned in a transparent manner in a proceeding to which the applicant shall be invited for furnishing necessary clarifications in person or through an authorized representative. On conclusion of this proceeding, the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned shall make categorical recommendations to the regulatory authority concerned either for grant of prior environmental clearance on stipulated terms and conditions, or rejection of the application for prior environmental clearance, together with reasons for the same.

(ii) The appraisal of all projects or activities which are not required to undergo public consultation, or submit an Environment Impact Assessment report, shall be carried out on the basis of the prescribed application Form 1 and Form 1A as applicable, any other relevant validated information available and the site visit wherever the same is considered as necessary by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned.

(iii) The appraisal of an application be shall be completed by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned within sixty days of the receipt of the final Environment Impact Assessment report and other documents or the receipt of Form 1 and Form 1 A, where public consultation is not necessary and the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee shall be placed before the competent authority for a final decision within the next fifteen days .The prescribed procedure for appraisal is given in Appendix V ;

7(ii). Prior Environmental Clearance (EC) process for Expansion or Modernization or Change of product mix in existing projects:

All applications seeking prior environmental clearance for expansion with increase in the production capacity beyond the capacity for which prior environmental clearance has been granted under this notification or with increase in either lease area or production capacity in the case of mining projects or for the modernization of an existing unit with increase in

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

the total production capacity beyond the threshold limit prescribed in the Schedule to this notification through change in process and or technology or involving a change in the product –mix shall be made in Form I and they shall be considered by the concerned Expert Appraisal Committee or State Level Expert Appraisal Committee within sixty days, who will decide on the due diligence necessary including preparation of EIA and public consultations and the application shall be appraised accordingly for grant of environmental clearance.

8. Grant or Rejection of Prior Environmental Clearance (EC):

(i) The regulatory authority shall consider the recommendations of the EAC or SEAC concerned and convey its decision to the applicant within forty five days of the receipt of the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned or in other words within one hundred and five days of the receipt of the final Environment Impact Assessment Report, and where Environment Impact Assessment is not required, within one hundred and five days of the receipt of the complete application with requisite documents, except as provided below.

(ii) The regulatory authority shall normally accept the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned. In cases where it disagrees with the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, the regulatory authority shall request reconsideration by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned within forty five days of the receipt of the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned while stating the reasons for the disagreement. An intimation of this decision shall be simultaneously conveyed to the applicant. The Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, in turn, shall consider the observations of the regulatory authority and furnish its views on the same within a further period of sixty days. The decision of the regulatory authority after considering the views of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned shall be final and conveyed to the applicant by the regulatory authority concerned within the next thirty days.

(iii) In the event that the decision of the regulatory authority is not communicated to the applicant within the period specified in sub-paragraphs (i) or (ii) above, as applicable, the

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

applicant may proceed as if the environment clearance sought for has been granted or denied by the regulatory authority in terms of the final recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned.

(iv) On expiry of the period specified for decision by the regulatory authority under paragraph (i) and (ii) above, as applicable, the decision of the regulatory authority, and the final recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned shall be public documents.

(v) Clearances from other regulatory bodies or authorities shall not be required prior to receipt of applications for prior environmental clearance of projects or activities, or screening, or scoping, or appraisal, or decision by the regulatory authority concerned, unless any of these is sequentially dependent on such clearance either due to a requirement of law, or for necessary technical reasons.

(vi) Deliberate concealment and/or submission of false or misleading information or data which is material to screening or scoping or appraisal or decision on the application shall make the application liable for rejection, and cancellation of prior environmental clearance granted on that basis. Rejection of an application or cancellation of a prior environmental clearance already granted, on such ground, shall be decided by the regulatory authority, after giving a personal hearing to the applicant, and following the principles of natural justice.

9. Validity of Environmental Clearance (EC):

The "Validity of Environmental Clearance" is meant the period from which a prior environmental clearance is granted by the regulatory authority, or may be presumed by the applicant to have been granted under sub paragraph (iv) of paragraph 7 above, to the start of production operations by the project or activity, or completion of all construction operations in case of construction projects (item 8 of the Schedule), to which the application for prior environmental clearance refers. The prior environmental clearance granted for a project or activity shall be valid for a period of ten years in the case of River Valley projects (item 1(c) of the Schedule), project life as estimated by Expert Appraisal Committee or State Level Expert Appraisal Committee subject to a maximum of thirty years for mining projects and five years in the case of all other projects and activities. However, in the case of Area Development projects and Townships [item 8(b)], the validity

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

period shall be limited only to such activities as may be the responsibility of the applicant as a developer. This period of validity may be extended by the regulatory authority concerned by a maximum period of five years provided an application is made to the regulatory authority by the applicant within the validity period, together with an updated Form 1, and Supplementary Form 1A, for Construction projects or activities (item 8 of the Schedule). In this regard the regulatory authority may also consult the Expert Appraisal Committee or State Level Expert Appraisal Committee as the case may be.

10. Post Environmental Clearance Monitoring:

[IV] "(i)(a) In respect of Category 'A' project, it shall be mandatory for the project proponent to make public the environment clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the district or State where the project is located and in addition, this shall also be displayed in the project proponent's website permanently.

(b) In respect of Category 'B' projects, irrespective of its clearance by MoEF / SEIAA, the project proponent shall prominently advertise in the newspapers indicating that the project has been accorded environment clearance and the details of the MoEF website where it is displayed.

(c) The Ministry of Environment and Forests and the State/Union Territory Level Environmental Impact Assessment Authorities (SEIAAs), as the case may be, shall also place the environmental clearance in the public domain on Governmental portal.

(d) The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.";

[IV] (ii) It shall be mandatory for the project management to submit half-yearly compliance reports in respect of the stipulated prior environmental clearance terms and conditions in hard and soft copies to the regulatory authority concerned, on 1st June and 1st December of each calendar year.

[IV] (iii) All such compliance reports submitted by the project management shall be public documents. Copies of the same shall be given to any person on application to the

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

concerned regulatory authority. The latest such compliance report shall also be displayed on the web site of the concerned regulatory authority.

11. Transferability of Environmental Clearance (EC):

A prior environmental clearance granted for a specific project or activity to an applicant may be transferred during its validity to another legal person entitled to undertake the project or activity on application by the transferor, or by the transferee with a written "no objection" by the transferor, to, and by the regulatory authority concerned, on the same terms and conditions under which the prior environmental clearance was initially granted, and for the same validity period. No reference to the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned is necessary in such cases.

12. Operation of EIA Notification, 1994, till disposal of pending cases:

From the date of final publication of this notification the Environment Impact Assessment (EIA) notification number S.O.60 (E) dated 27th January, 1994 is hereby superseded, except in suppression of the things done or omitted to be done before such suppression to the extent that in case of all or some types of applications made for prior environmental clearance and pending on the date of final publication of this notification, the Central Government may relax any one or all provisions of this notification except the list of the projects or activities requiring prior environmental clearance in Schedule I , or continue operation of some or all provisions of the said notification, for a period not exceeding one year from the date of issue of this notification.

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

SCHEDULE

(See paragraph 2 and 7)

LIST OF PROJECTS OR ACTIVITIES REQUIRING PRIOR ENVIRONMENTAL CLEARANCE

Project or Activity		Category with threshold limit		Conditions if any
		A	B	
1		Mining, extraction of natural resources and power generation (for a specified production capacity)		
(1)	(2)	(3)	(4)	(5)
[V] "1(a)	(i) Mining of minerals.	≥ 50 ha. of mining lease area in respect of non-coal mine lease. > 150 ha of mining lease area in respect of coal mine lease. Asbestos mining irrespective of mining area	<50 ha ≥ 5 ha .of mining lease area in respect of non-coal mine lease. ≤ 150 ha ≥ 5 ha of mining lease area in respect of coal mine lease.	General Condition shall apply Note: Mineral prospecting Is exempted.”;
	(ii) Slurry pipelines (coal lignite and other ores) passing through national parks / sanctuaries / coral reefs, ecologically sensitive areas.	All projects.		
1(b)	Offshore and onshore oil and gas exploration, development & production	All projects		Note Exploration Surveys (not involving drilling) are exempted provided the concession areas have got previous clearance for physical survey
1(c)	River Valley pojects	(i) ≥ 50 MW hydroelectric power generation; (ii) ≥ 10,000 ha. of culturable command area	(i) < 50 MW ≥ 25 MW hydroelectric power generation; (ii) < 10,000 ha. of culturable command area	[V] “General Condition shall apply. Note: Irrigation projects not involving submergence or inter-state domain shall be appraised by the SEIAA as Category ‘B’ Projects.”;

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(1)	(2)	(3)	(4)	(5)
1(d)	Thermal Power Plants	[v] " ≥ 500 MW (coal / lignite / naphtha & gas based); ≥ 50 MW (Pet coke diesel and all other fuels including refinery residual oil waste except biomass); ≥ 20 MW (based on biomass or non hazardous municipal waste as fuel).”;	< 500 MW (coal / lignite / naphtha & gas based); <50 MW ≥ 5MW (Pet coke, diesel and all other fuels including refinery residual oil waste except biomass); ≥ 20 MW > 15 MW (based on biomass or non hazardous municipal waste as fuel).”;	[v] “General Condition shall apply. Note: (i) Power plant up to 15 MW, based on biomass and using auxiliary fuel such as coal / lignite / petroleum products up to 15% are exempt. (ii) Power plant up to 15 MW, based on non-hazardous municipal waste and using auxiliary fuel such as coal / lignite / petroleum products up to 15% are exempt. (iii) Power plants using waste heat boiler without any auxiliary fuel are exempt.”;
1(e)	Nuclear power projects and processing of nuclear fuel	All projects		
2		Primary Processing		
2(a)	Coal washeries	≥ 1 million ton/annum throughput of coal	<1million ton/annum throughput of coal	General Condition shall apply (If located within mining area the proposal shall be appraised together with the mining proposal)
2 (b)	Mineral beneficiation	≥ 0.1million ton/annum mineral throughput	< 0.1million ton/annum mineral throughput	General Condition shall apply (Mining proposal with Mineral beneficiation shall be appraised together for grant of clearance)

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[v] I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

3		Materials Production		
(1)	(2)	(3)	(4)	(5)
3(a)	Metallurgical industries (ferrous & non ferrous)	a)Primary metallurgical industry All projects b) Sponge iron manufacturing ≥ 200TPD c) Secondary metallurgical processing industry All toxic and heavy metal producing units ≥ 20,000 tonnes /annum	Sponge iron manufacturing <200TPD Secondary metallurgical processing industry i.)All toxic and heavy metal producing units <20,000 tonnes /annum ii.)All other non –toxic secondary metallurgical processing industries >5000 tonnes/annum	[V] "General condition shall apply. Note: (i) The recycling industrial units registered under the HSM Rules, are exempted. (ii) In case of secondary metallurgical processing industrial units, those projects involving operation of furnaces only such as induction and electrical arc furnace, submerged arc furnace, and cupola with capacity more than 30,000 tonnes per annum (TPA) would require environmental clearance. (iii) Plant / units other than power plants (given against entry no. 1(d) of the schedule), based on municipal solid waste (non-hazardous) are exempted."
3(b)	Cement plants	≥ 1.0 million tonnes/annum production capacity	<1.0 million tonnes/annum production capacity. All Stand alone grinding units	General Condition shall apply
4		Materials Processing		
(1)	(2)	(3)	(4)	(5)
4(a)	Petroleum refining industry	All projects	-	-
4(b)	Coke oven plants	≥2,50,000 tonnes/annum	<2,50,000 & ≥25,000 tonnes/annum	[V] "General Condition shall apply."
4(c)	Asbestos milling and asbestos based products	All projects	-	-

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(1)	(2)	(3)	(4)	(5)
4(d)	Chlor-alkali industry	≥300 TPD production Capacity or a unit located out side the notified industrial area/ estate	[v] "(i) All projects irrespective of the size, if located in a Notified Industrial Area/ Estate. (ii) <300 tonnes per day (TPD) and located outside a Notified Industrial Area/ Estate."	[v] "General as well as specific condition shall apply. No new Mercury Cell based plants will be permitted and existing units converting to membrane cell technology are exempted from this notification."
4(e)	Soda ash Industry	All projects	-	-
4(f)	Leather/skin/hide processing industry	New projects outside the industrial area or expansion of existing units out side the industrial area	All new or expansion of projects located within a notified industrial area/ estate	[v] "General as well as specific condition shall apply."
5		Manufacturing / Fabrication		
5(a)	Chemical fertilizers	[v] "All projects except Single Super Phosphate."	[v] "Single Super Phosphate."	-
5(b)	Pesticides industry and pesticide specific intermediates (excluding formulations)	All units producing technical grade pesticides	-	-
5(c)	Petro-chemical complexes (industries based on processing of petroleum fractions & natural gas and/or reforming to aromatics)	All projects -	-	-
5(d)	Manmade fibers manufacturing	Rayon	Others	General Condition shall apply
5(e)	Petrochemical based processing (processes other than cracking & reformation and not covered under the complexes)	Located out side the notified industrial area/ estate -	Located in a notified industrial area/ estate	[v] "General as well as specific condition shall apply."

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(1)	(2)	(3)	(4)	(5)
5(f)	Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	Located out side the notified industrial area/ estate	Located in a notified industrial area/ estate	[v] "General as well as specific condition shall apply."
5(g)	Distilleries	(i)All Molasses based distilleries (ii) All Cane juice/ non-molasses based distilleries ≥30 KLD	All Cane juice / non-molasses based distilleries – <30 KLD	General Condition shall apply
5(h)	Integrated paint industry	-	All projects	General Condition shall apply
5(i)	Pulp & paper industry excluding manufacturing of paper from waste paper and manufacture of paper from ready pulp with out bleaching	Pulp manufacturing and Pulp& Paper manufacturing industry	Paper manufacturing industry without pulp manufacturing	General Condition shall apply
5(j)	Sugar Industry	-	≥ 5000 tcd cane crushing capacity	General Condition shall apply
5(k)	[v] Omitted			
6		Service Sectors		
6(a)	Oil & gas transportation pipe line (crude and refinery/ petrochemical products), passing through national parks / sanctuaries /coral reefs / ecologically sensitive areas including LNG Terminal	All projects		-

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(1)	(2)	(3)	(4)	(5)
6(b)	**Isolated storage & handling of hazardous chemicals (As per threshold planning quantity indicated in column 3 of schedule 2 & 3 of MSIHC Rules 1989 amended 2000)**	**-**	**All projects**	**General Condition shall apply**
7		**Physical Infrastructure including Environmental Services**		
7(a)	**Air ports**	**[v] "All projects including airstrips, which are for commercial use."**	**-**	**[v] "Note: Air strips, which do not involve bunkering/ refueling facility and or Air Traffic Control, are exempted."**
7(b)	All ship breaking yards including ship breaking units	All projects	-	-
7©	**Industrial estates/ parks/ complexes/ areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes.**	**If at least one industry in the proposed industrial estate falls under the Category A, entire industrial area shall be treated as Category A, irrespective of the area.** **Industrial estates with area greater than 500 ha. and housing at least one Category B industry.**	**Industrial estates housing at least one Category B industry and area <500 ha.** **Industrial estates of area> 500 ha. and not housing any industry belonging to Category A or B.**	**[v] "Genral as well as special conditions shall apply.** **Note:** **1. Industrial Estate of area below 500 ha. and not housing any industry of Category 'A' or 'B' does not require clearance.** **2. If the area is less than 500 ha. but contains building and construction projects > 20,000 Sq. mts. And or development area more than 50 ha it will be treated as activity listed at serial no. 8(a) or 8(b) in the Schedule, as the case may be."**
7(d)	**Common hazardous waste treatment, storage and disposal facilities (TSDFs)**	**All integrated facilities having incineration &landfill or incineration alone**	**All facilities having land fill only**	**General Condition shall apply**

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(1)	(2)	(3)	(4)	(5)
7(e)	[V] "Ports, harbours, break waters, dredging."	≥ 5 million TPA of cargo handling capacity (excluding fishing harbours)	< 5 million TPA of cargo handling capacity and/or ports/ harbours ≥10,000 TPA of fish handling capacity	[V] "General Condition shall apply. Note: 1. Capital dredging inside and outside the ports or harbors and channels are included; 2. Maintenance dredging is exempt provided it formed part of the original proposal for which Environment Management Plan (EMP) was prepared and environmental clearance obtained."
7(f)	Highways	i) New National High ways; and ii) Expansion of National High ways greater than 30 KM, involving additional right of way greater than 20m involving land acquisition and passing through more than one State.	[V] " i) All State Highway Project; and ii) State Highway expansion projects in hilly terrain (above 1,000 m AMSL) and or ecologically sensitive areas."	General Condition shall apply. Note: Highways include expressways."
7(g)	Aerial ropeways	[V(xvi)(a)] "(i) All projects located at altitude of 1,000 mtr. And above. (ii) All projects located in notified ecologically sensitive areas."	[V(xvi)(b)] "All projects except those covered in column (3)."	General Condition shall apply
7(h)	Common Effluent Treatment Plants (CETPs)		All projects	General Condition shall apply
7(i)	Common Municipal Solid Waste Management Facility (CMSWMF)		All projects	General Condition shall apply
8		Building /Construction projects/Area Development projects and Townships		
8(a)	Building and Construction projects		≥20000 sq.mtrs and <1,50,000 sq.mtrs. of built-up area#	#(built up area for covered construction; in the case of facilities open to the sky, it will be the activity area)
8(b)	Townships and Area Development projects.		Covering an area ≥ 50 ha and or built up area ≥1,50,000 sq .mtrs ++	++All projects under Item 8(b) shall be appraised as Category B1

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

Note:-

[V(xvii)] **"General Condition (GC):**
Any project or activity specified in Category 'B' will be treated as Category A, if located in whole or in part within 10 km from the boundary of: (i) Protected Areas notified under the Wild Life (Protection) Act, 1972, (ii) Critically Polluted areas as identified by the Central Pollution Control Board from time to time, (iii) Eco-sensitive areas as notified under section 3 of the Environment (Protection) Act, 1986, such as, Mahabaleshwar Panchgani, Matheran, Pachmarhi, Dahanu, Doon Valley, and (iv) inter-State boundaries and international boundaries:

Provided that the requirement regarding distance of 10 km of the inter-State boundaries can be reduced or completely done away with by an agreement between the respective States or U.Ts sharing the common boundary in case the activity does not fall within 10 kilometres of the areas mentioned at item (i), (ii) and (iii) above."

Specific Condition (SC):
If any Industrial Estate/Complex / Export processing Zones /Special Economic Zones/Biotech Parks / Leather Complex with homogeneous type of industries such as Items 4(d), 4(f), 5(e), 5(f), or those Industrial estates with pre –defined set of activities (not necessarily homogeneous, obtains prior environmental clearance, individual industries including proposed industrial housing within such estates /complexes will not be required to take prior environmental clearance, so long as the Terms and Conditions for the industrial estate/complex are complied with (Such estates/complexes must have a clearly identified management with the legal responsibility of ensuring adherence to the Terms and Conditions of prior environmental clearance, who may be held responsible for violation of the same throughout the life of the complex/estate).

[No. J-11013/56/2004-IA-II (I)]
(R.CHANDRAMOHAN)
JOINT SECRETARY TO THE GOVERNMENT OF INDIA

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

APPENDIX I

(See paragraph – 6)

FORM 1

[VI(a)] **"(I) Basic Information**

Serial Number	Item	Details
1.	Name of the project/s	
2.	S. No. in schedule	
3.	Proposed capacity/area/length/tonnage to be handled/command area/lease area/number of wells to be drilled	
4.	New/Expansion/Modernization	
5.	Existing Capacity/Area etc.	
6.	Category of Project i.e. 'A' or 'B'	
7.	Does it attract the general condition? If' Yes, please specify.	
8.	Does it attract the specific condition? If' Yes, please specify.	
9.	Location	
	Plot/Survey/Khasra No.	
	Village	
	Tehsil	
	District	
	State	
10.	Nearest railway station/airport along with distance in kms.	
11.	Nearest Town, city, District Headquarters along with distance in kms.	
12.	Village Panchayats, Zilla Parishad, Municipal Corporation, Local body (complete postal addresses with telephone nos. to be given)	
13.	Name of the applicant	
14.	Registered Address	
15.	Address for correspondence:	
	Name	
	Designation (Owner/Partner/CEO)	
	Address	
	Pin Code	
	E-mail	
	Telephone No.	
	Fax No.	
16	Details of Alternative Sites examined, if any. Location of these sites should be shown on a topo sheet.	Village-District-State 1. 2. 3.
17.	Interlinked Projects	
18	Whether separate application of interlinked project has been submitted?	

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

19.	If yes, date of submission	
20.	If no, reason	
21.	Whether the proposal involves approval/ clearance under: If yes, details of the same and their status to be given. (a) The Forest (Conservation) Act, 1980 ? (b) The Wildlife (Protection) Act, 1972 ? (c) The C.R.Z. Notification, 1991 ?	
22.	Whether there is any Government Order/Policy relevant/ relating to the site ?	
23.	Forest land involved (hectares)	
24.	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up ? (a) Name of the Court. (b) Case No. (c) Orders/directions of the Court, if any and its relevance with the proposed project.	

(II) Activity

1. Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)		
1.2	Clearance of existing land, vegetation and buildings?		
1.3	Creation of new land uses?		
1.4	Pre-construction investigations e.g. bore houses, soil testing?		
1.5	Construction works?		
1.6	Demolition works?		
1.7	Temporary sites used for construction works or housing of construction workers?		
1.8	Above ground buildings, structures or earthworks including linear structures, cut And fill or excavations		

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

1.9	Underground works including mining or tunneling?		
1.10	Reclamation works?		
1.11	Dredging?		
1.12	Offshore structures?		
1.13	Production and manufacturing processes?		
1.14	Facilities for storage of goods or materials?		
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?		
1.16	Facilities for long term housing of operational workers?		
1.17	New road, rail or sea traffic during construction or operation?		
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?		
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?		
1.20	New or diverted transmission lines or pipelines?		
1.21	Impoundment, damming, culverting, realignment or other changes to the ydrology of watercourses or aquifers?		
1.22	Stream crossings?		
1.23	Abstraction or transfers of water form ground or surface waters?		
1.24	Changes in water bodies or the land surface affecting drainage or run-off?		
1.25	Transport of personnel or materials for construction, operation or decommissioning?		
1.26	Long-term dismantling or decommissioning or restoration works?		
1.27	Ongoing activity during decommissioning which could have an impact on the environment?		
1.28	Influx of people to an area in either temporarily or permanently?		
1.29	Introduction of alien species?		

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

1.30	Loss of native species or genetic diversity?		
1.31	Any other actions?		

2. Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
2.1	Land especially undeveloped or agricultural land (ha)		
2.2	Water (expected source & competing users) unit: KLD		
2.3	Minerals (MT)		
2.4	Construction material – stone, aggregates, sand / soil (expected source – MT)		
2.5	Forests and timber (source – MT)		
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)		
2.7	Any other natural resources (use appropriate standard units)		

3. Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)		
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)		
3.3	Affect the welfare of people e.g. by changing living conditions?		
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,		
3.5	Any other causes		

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

4. Production of solid wastes during construction or operation or decommissioning (MT/month)

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
4.1	Spoil, overburden or mine wastes		
4.2	Municipal waste (domestic and or commercial wastes)		
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)		
4.4	Other industrial process wastes		
4.5	Surplus product		
4.6	Sewage sludge or other sludge from effluent treatment.		
4.7	Construction or demolition wastes		
4.8	Redundant machinery or equipment		
4.9	Contaminated soils or other materials		
4.10	Agricultural wastes		
4.11	Other solid wastes		

5. Release of pollutants or any hazardous, toxic or noxious substances to air (Kg/hr)

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources.		
5.2	Emissions from production processes		
5.3	Emissions from materials handling including storage or transport		
5.4	Emissions from construction activities including plant and equipment		
5.5	Dust or odours from handling of materials including construction materials, sewage and waste		

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

5.6	Emissions from incineration of waste		
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)		
5.8	Emissions from any other sources		

6. Generation of Noise and Vibration, and Emissions of Light and Heat:

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
6.1	From operation of equipment e.g. engines, ventilation plant, crushers		
6.2	From industrial or similar processes		
6.3	From construction or demolition		
6.4	From blasting or piling		
6.5	From construction or operational traffic		
6.6	From lighting or cooling systems		
6.7	From any other sources		

7. Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea:

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials		
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)		
7.3	By deposition of pollutants emitted to air into the land or into water		
7.4	From any other sources		
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?		

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

8. Risk of accidents during construction or operation of the Project, which could affect human health or the environment

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances		
8.2	From any other causes		
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?		

9. Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
9.1	Lead to development of supporting. lities, ancillary development or development stimulated by the project which could have impact on the environment e.g.: • Supporting infrastructure (roads, power supply, waste or waste water treatment, etc.) • housing development • extractive industries • supply industries • other		
9.2	Lead to after-use of the site, which could have an impact on the environment		
9.3	Set a precedent for later developments		
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects		

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(III) Environmental Sensitivity

S.No.	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value		
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests		
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, esting, foraging, resting, over wintering, migration		
4	Inland, coastal, marine or underground waters		
5	State, National boundaries		
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas		
7	Defence installations		
8	Densely populated or built-up area		
9	Areas occupied by sensitive man-made land uses *(hospitals, schools, places of worship, community facilities)*		
10	Areas containing important, high quality or scarce Resources *(ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)*		
11	Areas already subjected to pollution or environmental damage. *(those where existing legal environmental standards are exceeded)*		
12	Areas susceptible to natural hazard which could cause the project to present environmental Problems (*earthquakes, subsidence, landslides, erosion, Flooding or extreme or adverse climatic conditions*)		

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(IV). Proposed Terms of Reference for EIA studies

VI(b) "I hereby given undertaking that the data and information given in the application and enclosures are true to the best of my knowledge and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and clearance give, if any to the project will be revoked at our risk and cost."

Date: _____

Place: _____

Signature of the applicant
With Name and Full Address
(Project Proponent/Authorised Signatory)

NOTE:

1. The projects involving clearance under Coastal Regulation Zone Notification, 1991 shall submit with the application a C.R.Z. map duly demarcated by one of the authorized agencies, showing the project activities, w.r.t. C.R.Z. (at the stage of TOR) and the recommendations of the State Coastal Zone Management Authority (at the stage of EC). Sinmultaneous action shall also be taken to obtain the requisite clearance under the provisions of the C.R.Z. Notification, 1991 for the activities to be located in the CRZ.
2. The projects to be located within 10 km of the National Prks, Sancturies, Biosphere Reserves, Migratory Corridors of Wile Animals, the project proponenet shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden thereon (at the stage of EC)."
3. All correspondence with the Ministry of Environment & Forests including aubmission of application for TOR/Environmental Clearance, subsequent clarifications, as may be required from time to time, participation in the EAC Meeting on behalf of the project proponent shall be made by the authorized signatory only. The authorized signatory should also submit a document in support of his claim of being and authorized signatory for the specific project."

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

APPENDIX II
(See paragraph 6)

FORM-1 A (only for construction projects listed under item 8 of the Schedule)

CHECK LIST OF ENVIRONMENTAL IMPACTS

(Project proponents are required to provide full information and wherever necessary attach explanatory notes with the Form and submit along with proposed environmental management plan & monitoring programme)

1. **LAND ENVIRONMENT**

(Attach panoramic view of the project site and the vicinity)

1.1. Will the existing landuse get significantly altered from the project that is not consistent with the surroundings? (Proposed landuse must conform to the approved Master Plan / Development Plan of the area. Change of landuse if any and the statutory approval from the competent authority be submitted). Attach Maps of (i) site location, (ii) surrounding features of the proposed site (within 500 meters) and (iii) the site (indicating levels & contours) to appropriate scales. If not available attach only conceptual plans.

1.2. List out all the major project requirements in terms of the land area, built up area, water consumption, power requirement, connectivity, community facilities, parking needs etc.

1.3. What are the likely impacts of the proposed activity on the existing facilities adjacent to the proposed site? (Such as open spaces, community facilities, details of the existing landuse, disturbance to the local ecology).

1.4. Will there be any significant land disturbance resulting in erosion, subsidence & instability? (Details of soil type, slope analysis, vulnerability to subsidence, seismicity etc may be given).

1.5. Will the proposal involve alteration of natural drainage systems? (Give details on a contour map showing the natural drainage near the proposed project site)

1.6. What are the quantities of earthwork involved in the construction activity-cutting, filling, reclamation etc. (Give details of the quantities of earthwork involved, transport of fill materials from outside the site etc.)

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

1.7. Give details regarding water supply, waste handling etc during the construction period.

1.8. Will the low lying areas & wetlands get altered? (Provide details of how low lying and wetlands are getting modified from the proposed activity)

1.9. Whether construction debris & waste during construction cause health hazard? (Give quantities of various types of wastes generated during construction including the construction labour and the means of disposal)

2. WATER ENVIRONMENT

2.1. Give the total quantity of water requirement for the proposed project with the breakup of requirements for various uses. How will the water requirement met? State the sources & quantities and furnish a water balance statement.

2.2. What is the capacity (dependable flow or yield) of the proposed source of water?

2.3. What is the quality of water required, in case, the supply is not from a municipal source? (Provide physical, chemical, biological characteristics with class of water quality)

2.4. How much of the water requirement can be met from the recycling of treated wastewater? (Give the details of quantities, sources and usage)

2.5. Will there be diversion of water from other users? (Please assess the impacts of the project on other existing uses and quantities of consumption)

2.6. What is the incremental pollution load from wastewater generated from the proposed activity? (Give details of the quantities and composition of wastewater generated from the proposed activity)

2.7. Give details of the water requirements met from water harvesting? Furnish details of the facilities created.

2.8. What would be the impact of the land use changes occurring due to the proposed project on the runoff characteristics (quantitative as well as qualitative) of the area in the post construction phase on a long term basis? Would it aggravate the problems of flooding or water logging in any way?

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

2.9. What are the impacts of the proposal on the ground water? (Will there be tapping of ground water; give the details of ground water table, recharging capacity, and approvals obtained from competent authority, if any)

2.10. What precautions/measures are taken to prevent the run-off from construction activities polluting land & aquifers? (Give details of quantities and the measures taken to avoid the adverse impacts)

2.11. How is the storm water from within the site managed?(State the provisions made to avoid flooding of the area, details of the drainage facilities provided along with a site layout indication contour levels)

2.12. Will the deployment of construction labourers particularly in the peak period lead to unsanitary conditions around the project site (Justify with proper explanation)

2.13. What on-site facilities are provided for the collection, treatment & safe disposal of sewage? (Give details of the quantities of wastewater generation, treatment capacities with technology & facilities for recycling and disposal)

2.14. Give details of dual plumbing system if treated waste used is used for flushing of toilets or any other use.

3. VEGETATION

3.1. Is there any threat of the project to the biodiversity? (Give a description of the local ecosystem with it's unique features, if any)

3.2. Will the construction involve extensive clearing or modification of vegetation? (Provide a detailed account of the trees & vegetation affected by the project)

3.3. What are the measures proposed to be taken to minimize the likely impacts on important site features (Give details of proposal for tree plantation, landscaping, creation of water bodies etc along with a layout plan to an appropriate scale)

4. FAUNA

4.1. Is there likely to be any displacement of fauna- both terrestrial and aquatic or creation of barriers for their movement? Provide the details.

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

4.2. Any direct or indirect impacts on the avifauna of the area? Provide details.

4.3. Prescribe measures such as corridors, fish ladders etc to mitigate adverse impacts on fauna

5. AIR ENVIRONMENT

5.1. Will the project increase atmospheric concentration of gases & result in heat islands? (Give details of background air quality levels with predicted values based on dispersion models taking into account the increased traffic generation as a result of the proposed constructions)

5.2. What are the impacts on generation of dust, smoke, odorous fumes or other hazardous gases? Give details in relation to all the meteorological parameters.

5.3. Will the proposal create shortage of parking space for vehicles? Furnish details of the present level of transport infrastructure and measures proposed for improvement including the traffic management at the entry & exit to the project site.

5.4. Provide details of the movement patterns with internal roads, bicycle tracks, pedestrian pathways, footpaths etc., with areas under each category.

5.5. Will there be significant increase in traffic noise & vibrations? Give details of the sources and the measures proposed for mitigation of the above.

5.6. What will be the impact of DG sets & other equipment on noise levels & vibration in & ambient air quality around the project site? Provide details.

6. AESTHETICS

6.1. Will the proposed constructions in any way result in the obstruction of a view, scenic amenity or landscapes? Are these considerations taken into account by the proponents?

6.2. Will there be any adverse impacts from new constructions on the existing structures? What are the considerations taken into account?

6.3. Whether there are any local considerations of urban form & urban design influencing the design criteria? They may be explicitly spelt out.

6.4. Are there any anthropological or archaeological sites or artefacts nearby? State if any other significant features in the vicinity of the proposed site have been considered.

7. SOCIO-ECONOMIC ASPECTS

7.1. Will the proposal result in any changes to the demographic structure of local population? Provide the details.

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

7.2. Give details of the existing social infrastructure around the proposed project.

7.3. Will the project cause adverse effects on local communities, disturbance to sacred sites or other cultural values? What are the safeguards proposed?

8. BUILDING MATERIALS

8.1. May involve the use of building materials with high-embodied energy. Are the construction materials produced with energy efficient processes? (Give details of energy conservation measures in the selection of building materials and their energy efficiency)

8.2. Transport and handling of materials during construction may result in pollution, noise & public nuisance. What measures are taken to minimize the impacts?

8.3. Are recycled materials used in roads and structures? State the extent of savings achieved?

8.4. Give details of the methods of collection, segregation & disposal of the garbage generated during the operation phases of the project.

9. ENERGY CONSERVATION

9.1. Give details of the power requirements, source of supply, backup source etc. What is the energy consumption assumed per square foot of built-up area? How have you tried to minimize energy consumption?

9.2. What type of, and capacity of, power back-up to you plan to provide?

9.3. What are the characteristics of the glass you plan to use? Provide specifications of its characteristics related to both short wave and long wave radiation?

9.4. What passive solar architectural features are being used in the building? Illustrate the applications made in the proposed project.

9.5. Does the layout of streets & buildings maximise the potential for solar energy devices? Have you considered the use of street lighting, emergency lighting and solar hot water systems for use in the building complex? Substantiate with details.

9.6. Is shading effectively used to reduce cooling/heating loads? What principles have been used to maximize the shading of Walls on the East and the West and the Roof? How much energy saving has been effected?

9.7. Do the structures use energy-efficient space conditioning, lighting and mechanical systems? Provide technical details. Provide details of the transformers and motor efficiencies, lighting intensity and air-conditioning load assumptions? Are you using CFC and HCFC free chillers? Provide specifications.

9.8. What are the likely effects of the building activity in altering the micro-climates? Provide a self assessment on the likely impacts of the proposed construction on

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

creation of heat island & inversion effects?

9.9. What are the thermal characteristics of the building envelope? (a) roof; (b) external walls; and (c) fenestration? Give details of the material used and the U-values or the R values of the individual components.

9.10. What precautions & safety measures are proposed against fire hazards? Furnish details of emergency plans.

9.11. If you are using glass as wall material provides details and specifications including emissivity and thermal characteristics.

9.12. What is the rate of air infiltration into the building? Provide details of how you are mitigating the effects of infiltration.

9.13. To what extent the non-conventional energy technologies are utilised in the overall energy consumption? Provide details of the renewable energy technologies used.

10. Environment Management Plan

The Environment Management Plan would consist of all mitigation measures for each item wise activity to be undertaken during the construction, operation and the entire life cycle to minimize adverse environmental impacts as a result of the activities of the project. It would also delineate the environmental monitoring plan for compliance of various environmental regulations. It will state the steps to be taken in case of emergency such as accidents at the site including fire.

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

APPENDIX III

(See paragraph 7

GENERIC STRUCTURE OF ENVIRONMENTAL IMPACT ASSESSENT DOCUMENT

S.NO	EIA STRUCTURE	CONTENTS
1.	Introduction	• Purpose of the report • Identification of project & project proponent • Brief description of nature, size, location of the project and its importance to the country, region • Scope of the study – details of regulatory scoping carried out (As per Terms of Reference)
2.	Project Description	• Condensed description of those aspects of the project (based on project feasibility study), likely to cause environmental effects. Details should be provided to give clear picture of the following: • Type of project • Need for the project • Location (maps showing general location, specific location, project boundary & project site layout) • Size or magnitude of operation (incl. Associated activities required by or for the project • Proposed schedule for approval and implementation • Technology and process description • Project description. Including drawings showing project layout, components of project etc. Schematic representations of the feasibility drawings which give information important for EIA purpose • Description of mitigation measures incorporated into the project to meet environmental standards, environmental operating conditions, or other EIA requirements (as required by the scope) • Assessment of New & untested technology for the risk of technological failure

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

3.	Description of the Environment	• Study area, period, components & methodology • Establishment of baseline for valued environmental components, as identified in the scope • Base maps of all environmental components
4.	Anticipated Environmental Impacts & Mitigation Measures	• Details of Investigated Environmental impacts due to project location, possible accidents, project design, project construction, regular operations, final decommissioning or rehabilitation of a completed project • Measures for minimizing and / or offsetting adverse impacts identified • Irreversible and Irretrievable commitments of environmental components • Assessment of significance of impacts (Criteria for determining significance, Assigning significance) • Mitigation measures
5.	Analysis of Alternatives (Technology & Site)	• In case, the scoping exercise results in need for alternatives: • Description of each alternative • Summary of adverse impacts of each alternative • Mitigation measures proposed for each alternative and • Selection of alternative
6.	Environmental Monitoring Program	• Technical aspects of monitoring the effectiveness of mitigation measures (incl. Measurement methodologies, frequency, location, data analysis, reporting schedules, emergency procedures, detailed budget & procurement schedules)
7.	Additional Studies	• Public Consultation • Risk assessment • Social Impact Assessment. R&R Action Plans
8.	Project Benefits	• Improvements in the physical infrastructure • Improvements in the social infrastructure

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

		• Employment potential –skilled; semi-skilled and unskilled • Other tangible benefits
9.	Environmental Cost Benefit Analysis	If recommended at the Scoping stage
10.	EMP	• Description of the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored, after approval of the EIA
11	Summary & Conclusion (This will constitute the summary of the EIA Report)	• Overall justification for implementation of the project • Explanation of how, adverse effects have been mitigated
12.	Disclosure of Consultants engaged	• The names of the Consultants engaged with their brief resume and nature of Consultancy rendered

APPENDIX III A

(See paragraph 7)

CONTENTS OF SUMMARY ENVIRONMENTAL IMPACT ASSESSMENT

The Summary EIA shall be a summary of the full EIA Report condensed to ten A-4 size pages at the maximum. It should necessarily cover in brief the following Chapters of the full EIA Report: -

1. Project Description
2. Description of the Environment
3. Anticipated Environmental impacts and mitigation measures
4. Environmental Monitoring Programme
5. Additional Studies
6. Project Benefits
7. Environment Management Plan

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

APPENDIX IV

(See paragraph 7)

PROCEDURE FOR CONDUCT OF PUBLIC HEARING

1.0 The Public Hearing shall be arranged in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site(s) or in its close proximity District -wise, by the concerned State Pollution Control Board (SPCB) or the Union Territory Pollution Control Committee (UTPCC).

2. 0 **The Process:**

2.1 The Applicant shall make a request through a simple letter to the Member Secretary of the SPCB or Union Territory Pollution Control Committee, in whose jurisdiction the project is located, to arrange the public hearing within the prescribed statutory period. In case the project site is covering more than one District or State or Union Territory, the public hearing is mandated in each District, State or Union Territory in which the project is located and the applicant shall make separate requests to each concerned SPCB or UTPCC for holding the public hearing as per this procedure.

2.2 The Applicant shall enclose with the letter of request, at least 10 hard copies and an equivalent number of soft (electronic) copies of the draft EIA Report with the generic structure given in Appendix III including the Summary Environment Impact Assessment report in English and in the official languageof the state/local language, prepared strictly in accordance with the Terms of
Reference communicated after Scoping (Stage-2). Simultaneously the applicant shall arrange to forward copies, one hard and one soft, of the above draft EIA Report along with the Summary EIA report to the following authorities or offices, within whose jurisdiction the project will be located:

(a) District Magistrate/District collector/Deputy commissioner/s
(b) Zila Parishad or Municipal Corporation or Panchayats Union
(c) District Industries Office
(d) Urban Local Bodies (ULBs) / PRIs Concerned / Development authorities.
(d) Concerned Regional Office of the Ministry of Environment and Forests

2.3 On receiving the draft Environmental Impact Assessment report, the abovementioned authorities except the Regional Office of MoEF, shall arrange to widely publicize it within their respective jurisdictions requesting the interested persons to send their comments to the concerned regulatory authorities. They shall also make available the draft EIA Report for inspection electronically or otherwise to the public during normal office hours till the Public Hearing is over.

2.4 The SPCB or UTPCC concerned shall also make similar arrangements for giving publicity about the project within the State/Union Territory and make available the Summary of the draft Environmental Impact Assessment report (Appendix III A) for

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

inspection in select offices or public libraries or any other suitable location etc. They shall also additionally make available a copy of the draft Environmental Impact Assessment report to the above five authorities/offices as given in para 2.2.

3.0 Notice of Public Hearing:

3.1 The Member-Secretary of the concerned SPCB or UTPCC shall finalize the date, time and exact venue for the conduct of public hearing within 7(seven) days of the date of receipt of the draft Environmental Impact Assessment report from the project proponent, and advertise the same in one major National Daily and one Regional vernacular Daily / Official State Language. A minimum notice period of 30(thirty) days shall be provided to the public for furnishing their responses;

3.2 The advertisement shall also inform the public about the places or offices where the public could access the draft Environmental Impact Assessment report and the Summary Environmental Impact Assessment report before the public hearing**.** In places where the newspapers do not reach, the Competent Authority should arrange to inform the local public about the public hearing by other means such as by way of beating of drums as well as advertisement / announcement on radio / television.

3.3 No postponement of the date, time, venue of the public hearing shall be undertaken, unless some untoward emergency situation occurs and then only on the recommendation of the concerned District Magistrate/District collector/Deputy Commissioner, the postponement shall be notified to the public through the same National and Regional vernacular dailies and also prominently displayed at all the identified offices by the concerned SPCB or Union Territory Pollution Control Committee;

3.4 In the above exceptional circumstances, fresh date, time and venue for the public consultation shall be decided by the Member – Secretary of the concerned SPCB or UTPCC only in consultation with the District Magistrate/District collector/Deputy Commissioner and notified afresh as per procedure under 3.1 above.

4.0 Supervision and Presiding over the Hearing:

4.1 The District Magistrate/District collector/Deputy Commissioner or his or her representative not below the rank of an Additional District Magistrate assisted by a representative of SPCB or UTPCC**,** shall Supervise and preside over the entire public hearing process.

5.0 Videography

5.1 The SPCB or UTPCC shall arrange to video film the entire proceedings. A copy of the videotape or a CD shall be enclosed with the public hearing proceedings while Forwarding it to the Regulatory Authority concerned.

6.0 Proceedings

6.1 The attendance of all those who are present at the venue shall be noted and annexed with the final proceedings.

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

6.2 There shall be no quorum required for attendance for starting the proceedings.

6.3 A representative of the applicant shall initiate the proceedings with a presentation on the project and the Summary EIA report.

6.4 Persons present at the venue shall be granted the opportunity to seek information or clarifications on the project from the Applicant. The summary of the public hearing proceedings accurately reflecting all the views and concerns expressed shall be recorded by the representative of the SPCB or UTPCC and read over to the audience at the end of the proceedings explaining the contents in the local/vernacular language and the agreed minutes shall be signed by the District Magistrate/District collector/Deputy Commissioner or his or her representative on the same day and forwarded to the SPCB/UTPCC concerned**.**

6.5 A Statement of the issues raised by the public and the comments of the Applicant shall also be prepared in the local language or the Official State language, as the case may be, and in English and annexed to the proceedings:

6.6 The proceedings of the public hearing shall be conspicuously displayed at the office of the Panchyats within whose jurisdiction the project is located, office of the concerned Zila Parishad, District Magistrate/District collector/Deputy Commissioner, and the SPCB or UTPCC . The SPCB or
UTPCC shall also display the proceedings on its website for general information. Comments, if any, on the proceedings which may be sent directly to the concerned regulatory authorities and the applicant concerned.

7.0 **Time period for completion of public hearing**

7.1 The public hearing shall be completed within a period of 45 (forty five) days from date of receipt of the request letter from the Applicant. Thereafter the SPCB or UTPCC concerned shall sent the public hearing proceedings to the concerned regulatory authority within 8(eight) days of the completion of the public hearing.Simultaneously, a copy will also be provided to the project proponent.The applicant may also directly forward a copy of the approved public hearing proceedings to the regulatory authority concerned along with the final Environmental Impact Assessment report or supplementary report to the draft EIA report prepared after the public hearing and public consultations incorporating the concerns expressed in the public hearing along with action plan and financial allocation, item-wise, to address those concerns.”.

7.2 If the SPCB or UTPCC fails to hold the public hearing within the stipulated 45(forty five) days, the Central Government in Ministry of Environment and Forests for Category ‘A’ project or activity and the State Government or Union Territory Administration for Category ‘B’ project or activity at the request of the SEIAA, shall engage any other agency or authority to complete the process, as per procedure laid down in this notification.

APPENDIX –V

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(See paragraph 7)

PROCEDURE PRESCRIBED FOR APPRAISAL

1. The applicant shall apply to the concerned regulatory authority through a simple communication enclosing the following documents where public consultations are mandatory:

- Final Environment Impact Assessment Report [20(twenty) hard copies and 1 (one) soft copy)]
- A copy of the video tape or CD of the public hearing proceedings
- A copy of final layout plan (20 copies)
- A copy of the project feasibility report (1 copy)

2. The Final EIA Report and the other relevant documents submitted by the applicant shall be scrutinized in office within 30 days from the date of its receipt by the concerned Regulatory Authority strictly with reference to the TOR and the inadequacies noted shall be communicated electronically or otherwise in a single set to the Members of the EAC /SEAC enclosing a copy each of the Final EIA Report including the public hearing proceedings and other public responses received along with a copy of Form -1or Form 1A and scheduled date of the EAC /SEAC meeting for considering the proposal.

3. Where a public consultation is not mandatory, the appraisal shall be made on the basis of the prescribed application Form 1 and EIA report, in the case of all projects and activities other than Item 8 of the Schedule. In the case of Item 8 of the Schedule, considering its unique project cycle, the EAC or SEAC concerned shall appraise all Category B projects or activities on the basis of Form 1, Form 1A and the conceptual plan and make recommendations on the project regarding grant of environmental clearance or otherwise and also stipulate the conditions for environmental clearance."

4. Every application shall be placed before the EAC/SEAC and its appraisal completed within 60 days of its receipt with requisite documents / details in the prescribed manner.

5. The applicant shall be informed at least 15 (fifteen) days prior to the scheduled date of the EAC /SEAC meeting for considering the project proposal.

6. The minutes of the EAC /SEAC meeting shall be finalised within 5 working days of the meeting and displayed on the website of the concerned regulatory authority. In case the project or activity is recommended for grant of EC, then the minutes shall clearly list out the specific environmental safeguards and conditions. In case the recommendations are for rejection, the reasons for the same shall also be explicitly stated.

Note: The principal rules were published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii) vide notification number S.O. 1533 (E), dated 14th September, 2006 and amended vide S.O. 1737 (E), dated the 11th October, 2007.

APPENDIX VI

(See paragraph 5)

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

COMPOSITION OF THE SECTOR/ PROJECT SPECIFIC EXPERT APPRAISAL COMMITTEE (EAC) FOR CATEGORY A PROJECTS AND THE STATE/UT LEVEL EXPERT APPRAISAL COMMITTEES (SEACs) FOR CATEGORY B PROJECTS TO BE CONSTITUTED BY THE CENTRAL GOVERNMENT `

1. The Expert Appraisal Committees (EAC(s) and the State/UT Level Expert Appraisal Committees (SEACs) shall consist of only professionals and experts fulfilling the following eligibility criteria:

Professional: The person should have at least (i) 5 years of formal University training in the concerned discipline leading to a MA/MSc Degree, or (ii) in case of Engineering /Technology/Architecture disciplines, 4 years formal training in a professional training course together with prescribed practical training in the field leading to a B.Tech/B.E./B.Arch. Degree, or (iii) Other professional degree (e.g. Law) involving a total of 5 years of formal University training and prescribed practical training, or (iv) Prescribed apprenticeship/article ship and pass examinations conducted by the concerned professional association (e.g. Chartered Accountancy),or (v) a University degree , followed by 2 years of formal training in a University or Service Academy (e.g. MBA/IAS/IFS). In selecting the individual professionals, experience gained by them in their respective fields will be taken note of.

Expert: A professional fulfilling the above eligibility criteria with at least 15 years of relevant experience in the field, or with an advanced degree (e.g. Ph.D.) in a concerned field and at least 10 years of relevant experience.

Age: Below 70 years. However, in the event of the non-availability of /paucity of experts in a given field, the maximum age of a member of the Expert Appraisal Committee may be allowed up to 75 years

2. The Members of the EAC shall be Experts with the requisite expertise and experience in the following fields /disciplines. In the event that persons fulfilling the criteria of “Experts” are not available, Professionals in the same field with sufficient experience may be considered:

- **Environment Quality Experts**: Experts in measurement/monitoring, analysis and interpretation of data in relation to environmental quality

- **Sectoral Experts in Project Management**: Experts in Project Management or Management of Process/Operations/Facilities in the relevant sectors.

- **Environmental Impact Assessment Process Experts**: Experts in conducting and carrying out Environmental Impact Assessments (EIAs) and preparation of Environmental Management Plans (EMPs) and other Management plans and who have wide expertise and knowledge of predictive techniques and tools used in the EIA process

- **Risk Assessment Experts**

- **Life Science Experts in floral and faunal management**

- **Forestry and Wildlife Experts**

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

• **Environmental Economics Expert with experience in project appraisal**

3. The Membership of the EAC shall not exceed 15 (fifteen) regular Members. However the Chairperson may co-opt an expert as a Member in a relevant field for a particular meeting of the Committee.

4. The Chairperson shall be an outstanding and experienced environmental policy expert or expert in management or public administration with wide experience in the relevant development sector.

5. The Chairperson shall nominate one of the Members as the Vice Chairperson who shall
preside over the EAC in the absence of the Chairman /Chairperson.

6. A representative of the Ministry of Environment and Forests shall assist the Committee as its Secretary.

7. The maximum tenure of a Member, including Chairperson, shall be for 2 (two) terms of 3 (three) years each.

8. The Chairman / Members may not be removed prior to expiry of the tenure without cause and proper enquiry.

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH AT NEW DELHI

(In O.A No. 1326/2024)

IN THE MATTER OF:

PUBLIC ACTION COMMITTEE & ORS

-APPLICANTS

VERSUS

UNION OF INDIA & ORS

RESPONDENTS

AFFIDAVIT

I, Er. Kapil Dev (aged 48 years) s/o Sh.Jagdish Chander, r/o #186-E, BRS Nagar, Ludhiana. Do hereby Solemnly affirm and declare as under:

NOTARY PUBLIC Harpinder Pal Singh LUDHIANA (PB.) Regd No 1887 GOVT OF INDIA

1. That I am a member of the Applicant Organization and duly authorized by the organization to file this affidavit.

2. That I am fully conversant with the present case and competent to swear to this affidavit.

539 08-04-2025

3. That I have read the accompanying rejoinder from paragraphs __1__to __20___ from pages____3__ to ___14____and have understood the contents thereof. The facts stated there in are true and correct to the best of my knowledge and nothing has been concealed there from.

4. That the Annexure is true copy of it' originals

DEPONENT

Certified that the affidavit SPA/GPA has been read over & explained to the deponent executant who seemed directly to understand the same & the making above statement

VERIFICATION

Verified at Ludhiana on this ___8th___ day of _April______ 2025, I the above named deponent, do hereby verify that the contents of the above affidavit are true and correct. No part of it is false and nothing material has been concealed there from.

DEPONENT

I know the Deponent/Executants personally and he/she has Signed/Thumb impression in my presence.

ATTESTED AS IDENTIFIED 08-04-2025

NOTARY PUBLIC LUDHIANA (PB.)

08 APR 2025

Gmail **PAC MattewaraSutlej <mattewarasutlejpac@gmail.com>**

Advance service of copy of Written Submission cum Rejoinder by Applicant in O.A. 1326 of 2024

PAC MattewaraSutlej <mattewarasutlejpac@gmail.com> Tue, Apr 8, 2025 at 12:30 PM

To: secy-moef@nic.in, mscb.cpcb@nic.in, msppcb@punjab.gov.in, ppcbzo1ldh@gmail.com, secy.te@punjab.gov.in, Xen SidhwanCanal <xensidhwancanal@gmail.com>, pdafocalpoint@gmail.com, prince@artlo.in, artakkar@artlo.in

Dear sir

Please find attached advance copy of Written Submission cum Rejoinder by Applicant in O.A. 1326 of 2024

Please acknowledge receipt.

Regards

Public Action Committee through Er. Kapil Dev
Applicant in O.A. 1325 of 2024

Written Submission cum Rejoinder by Applicant in O.A. 1326 of 2024.pdf
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