

**BEFORE THE NATIONAL GREEN TRIBUNAL,  
PRINCIPAL BENCH, NEW DELHI  
ORIGINAL APPLICATION NO.916/2018  
(Earlier OA No. 101/2014)**

**IN THE MATTER OF:-  
SOBHA SINGH**

**APPLICANT**

**VS.**

**STATE OF PUNJAB & ORS**

**RESPONDENTS**

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**A. SUDHAKAR  
SCIENTIST-E**

**CENTRAL POLLUTION CONTROL BOARD,  
PARIVESH BHAWAN, EAST ARJUN NAGAR,  
DELHI-110032.**

**DATE: 21.02.2019  
PLACE: DELHI**



**Report of the Monitoring Committee  
constituted by Hon'ble National Green Tribunal,  
Principal Bench, New Delhi**

**[submitted in Compliance to Hon'ble National Green Tribunal,  
Principal Bench, New Delhi (NGT) Orders dated 24.07.2018 and  
14.11.2018 in Original Application No.101/2014 in the matter of  
Sobha Singh & Ors. (Vs) State of Punjab & Ors]**

**February 14, 2019**

## **Report of the Monitoring Committee constituted by Hon'ble National Green Tribunal**

[submitted in Compliance to Hon'ble NGT Orders dated 24-07-2018 and 14.11.2018 in the matter of OA No. 101/2014 – Sobha Singh Vs. State of Punjab & Ors]

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### **1. Introduction**

The Original Application No. 101/2014 (Sobha Singh & Ors. Vs State of Punjab & Ors) was filed in 2014 by the resident of Village ChhaniBadi Tehsil Badra, District Hanumangarh, State of Rajasthan. According to the application, 8 Districts of Rajasthan are supplied water from Indira Gandhi Canal Project (IGNP) and people are suffering due to supply of contaminated water from Punjab.

Hon'ble National Green Tribunal (NGT), Principal Bench, New Delhi was of the opinion that the resume of the facts appearing in the inspection reports of CPCB and the steps taken by local bodies in Punjab State does not give a clear picture of the result achieved at the ground level with respect to control of pollution in River Sutlej and River Beas. Also, there is a need to upgrade STPs/CETPs in the catchment area of rivers Sutlej and Beas, apart from other challenges, therefore, Hon'ble National Green Tribunal (NGT) on 24.07.2018 passed directions which are reproduced as follows:-

- i) The Central Pollution Control Board may forthwith constitute a Monitoring Committee with the involvement of Mr. Balbir Singh Seechewal who has rendered remarkable voluntary service for creating awareness of checking pollution. The Representative of the CPCB will be the Nodal Officer and a representative of the Rajasthan Pollution Control Board may also be included in the Monitoring Committee. The Monitoring Committee must have one Engineer and one Scientist and also a Member of the Punjab Pollution Control Board and a Nominee of the Urban Development of the State of Punjab.*
- ii) The Monitoring Committee must have first meeting latest by 10th August, 2018 and take stock of the action taken report so far. It may also prepare time bound Action Plan for handling the situation. Short term action plan may be for three months and longer plan may have three monthly targets.*
- iii) Action Plan may be put on the website of the PPCB/CPCB enabling suggestions from stake holders and involvement of such volunteers as are considered relevant and genuine. Educational institutions may be encouraged to create awareness among children*
- iv) The report of the Monitoring Committee may be filed by October 31, 2018 and registered as an independent application.*

A Copy of the Hon'ble National Green Tribunal (NGT) order dated 24.07.2018 is enclosed as **Annexure –I.**

The monitoring committee filed its interim report on 30.10.2018 and the interim report was considered by the Hon'ble NGT and further passed orders on 14.11.2018 and main directions passed by Hon'ble NGT are as detailed below:-

- i. *"Polluter Pays" principle, the State of Punjab is directed to deposit a sum of Rs. 50 crores with the Central Pollution Control Board **within one month** from today for being spent on restoration of the environment as well for relief to the victims. The State of Punjab is at liberty to prepare an action plan to recover the amount from the erring industries, local bodies, individuals and also the erring officers.*
- ii. *We direct that the Secretary, Local Bodies, Punjab, the Municipal Commissioners of Ludhiana and Jalandhar, Punjab Water Supply and Sewerage Board (PWSSB) to jointly take responsibility for taking further steps to prevent any further damage and to take remedial steps so that the quality of water in the affected areas of rivers Sutlej and Beas is brought within the prescribed standards within 6 months.*
- iii. *The nodal officer for coordinating all actions will be the Secretary, Local Bodies.*
- iv. *The Monitoring Committee constituted by this Tribunal may suggest a mechanism for spending the above amount in proper proportion for restoration of the environment and for public health or other issues in the area.*
- v. *The authorities may initiate prosecution against violators of law in accordance of law and take such other steps may be found appropriate, including closure of polluting industries, disciplinary and penal action against erring officers, etc.*
- vi. *Time for furnishing further report is extended till 31.01.2019.*

A Copy of the Hon'ble National Green Tribunal (NGT) order dated 14.11.2018 is enclosed as **Annexure –II**.

Further, in compliance to the Hon'ble NGT Order dated 14.11.2018, the monitoring committee filed its report on 31.01.2019 covering the report of the committee on the issue of discharge of molasses in River Beas (in compliance to the Hon'ble NGT Order dated 04.09.2018 in Original Application No. 344 of 2018 filed by Sukhpal Singh Khaira, MLA, Punjab Assembly & Ors. Vs Union of India & Ors as well as Original Application No. 345 of 2018 (M. A. No. 934 of 2018 filed by Amber Sachdeva Vs. UOI & Ors.) and also on the issue of sand mining on the bank of River Sutlej at village Sataun in Himachal Pradesh. (in compliance to Hon'ble NGT order dated October 05, 2018 in Original Application No. 206/2016 (M.A. No. 387/2016) in the matter of Capt. Hans Raj Singha Vs. Union of India & Ors).

As the Punjab Government was reviewing and planned to submit the action plans for rejuvenation of river Sutlej and River Beas in compliance

to the Hon'ble NGT order dated 20.09.2018 and 19.12.2018 in the matter of OA No. 673 of 2018 (News item published in "The Hindu" authored by Shri Jacob Koshy Titled "More river stretches are now critically polluted: CPCB".) by 31.01.2019, and the monitoring committee while submitting its report dated 30.01.2019 through nodal agency i.e., Central Pollution Control Board (CPCB) prayed Hon'ble NGT that upon submission of the action plans for restoration of river Sutlej and River Beas, the Monitoring Committee will examine and file its report thereafter prior to next date of hearing i.e., 22.02.2019.

In view of the afore-said reasons, the monitoring committee is now submitting its report covering only on rejuvenation of river Sutlej and its tributary river Beas.

## **2 About River Sutlej**

The River Sutlej enters India near Mansarover and flows North Westwards. It crosses great Himalayan ranges on its way from the Shipkipass. It flows upto Gobind Sagar Lake over which Bhakra dam is constructed. About 14 Km downstream of Bhakra dam, Nangal head-works is constructed at Nangal. From here onwards, the river takes southern direction. After flowing for another about 50 kms, it enters the plains near Ropar. At Ropar, there is a Head-Works for canal system to provide irrigation to large parts of the state. The gradient in the plains is very gentle. The river flows slowly downstream head-works due to broad bed width and meager flow, its major part having been diverted to the irrigation canals. It finally reaches Harike where it meets river Beas. During the monsoon period, the areas on both sides of river are prone to floods. The river leaves Punjab plains near Ferozepur and enters Pakistan. The total length of river Sutlej in the state of Punjab is approximately 440 km. Average discharge of river Sutlej in the state of Punjab as measured at Ropar is approximately 500 m<sup>3</sup>/ sec. The total catchment area of river Sutlej in the state of Punjab is approximately 20303 Sq. km. Main cities and towns along the river are Nangal, Anandpur Sahib, Kiratpur Sahib, Ropar, Kurali, Machhiwara, Ludhiana, Phillaur, Phagwara, Jalandhar, Cantoment Jalandhar, Nawanshahar, Banga and Hoshiarpur.

Tributaries of River Sutlej are (i) Baspa River rises near the Indo-Tibetan border from Baspa Hills and joins Sutlej River from the left bank near Karcham; (ii) Spiti River originates from Kunzum range and Tegpo and Kabzian streams are its tributaries. Spiti river meets River Sutlej at Namgia in Kinnaur District traversing a length of about 150 km and (iii) River Beas rises in the Himalayas in central Himachal Pradesh flows for about 470 KM and confluence with the River Sutlej at Harike. ◆

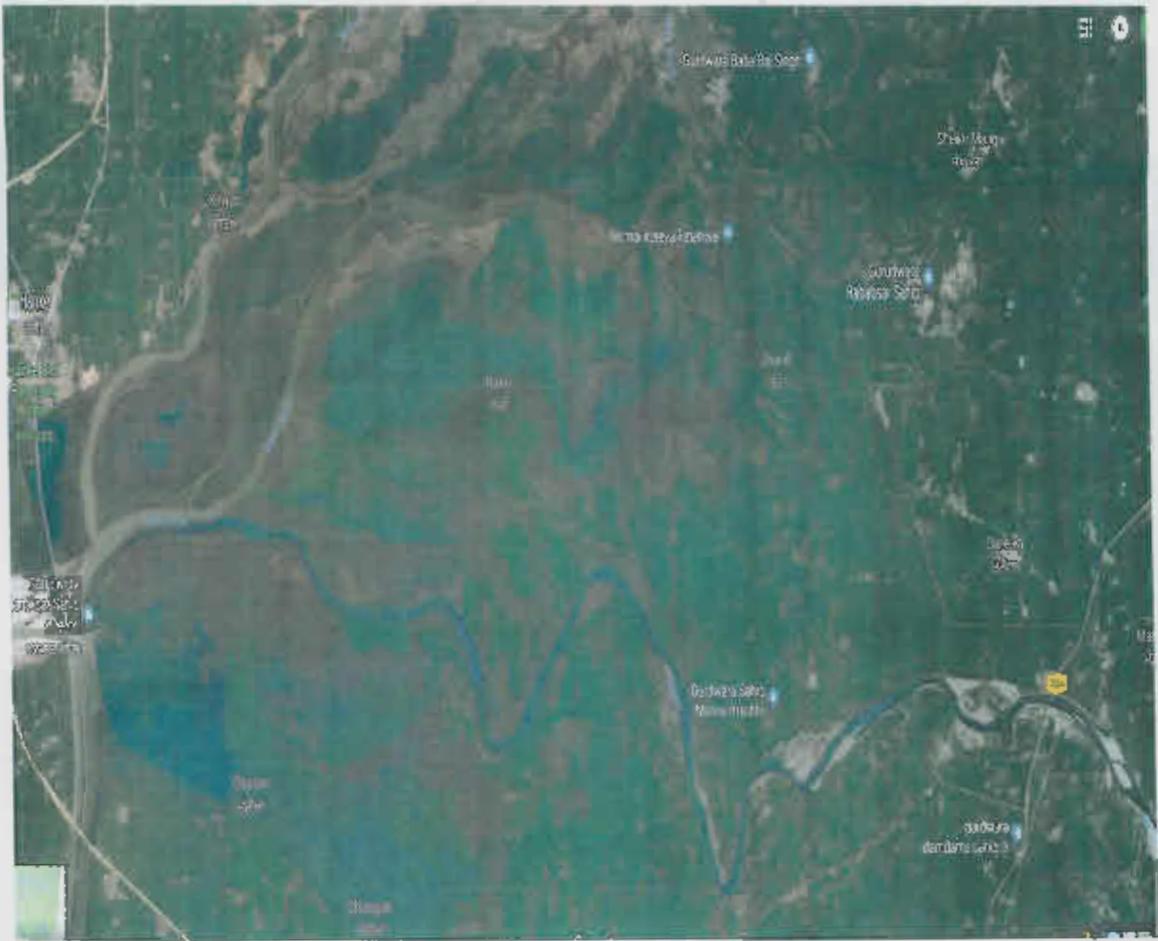
### River Beas: -

The Beas River, is a tributary of River Sutlej which starts from the Beas Kund lake in Kullu District of Himachal Pradesh. After traversing through the District of Mandi and Kangra in Himachal Pradesh, it enters Punjab near Mukerian towards Pathankot. After meeting the Shivalik Hills in Hoshiarpur, the river sweeps sharply northward forming boundary between Hoshiarpur and Kangra District. After bending round the base of Shivalik Hills, it takes the southerly direction separating the district of Gurdaspur and Hoshiarpur. After touching the Jalandhar district for a short distance, the river forms the boundary between Amritsar and Kapurthala District. Finally, the Beas joins the river Sutlej at the south western boundary of Kapurthala District of Punjab upstream of Harike Wetland. The right side bank of River Beas touches four Districts i.e Pathankot, Gurdaspur, Amritsar and Taran Taran whereas the left side bank of river Beas touches District Hoshiarpur and Jalandhar originating from Talwara-Mukerian and flow through Jalandhar.

**Figure 1** depicts the river Sutlej and its main tributaries. **Figure 2** Depicts satellite imagery of confluence of River Beas with River Sutlej and at Harike Barrage in Punjab.



**Figure 1. River Sutlej and its tributaries**



**Figure 2. Satellite imagery of River Sutlej and River Beas at Harike Barrage**

### **3 Sources of Water Pollution**

Due to inadequate infrastructure, mainly, major sources of pollution contributing to the pollution load in the river Sutlej and Beas are

- (i) Domestic Sources i.e., sewage, solid waste etc.,
- (ii) Industrial Sources i.e., industrial effluent, industrial hazardous waste, waste from hospitals etc.,

#### **3.1 Major drains discharging wastewater into River Sutlej**

Drains are the channels which are either man made or available in system naturally to carry storm water to its disposal point which can be either a river or a lake or sea. However, in the absence of sewerage systems or storm water drains, drains turn into open channels to carry storm water, sewage and untreated industrial effluent.

There are 30 major drains which are contributing to the river Sutlej pollution. Among 30 drains, two main major drains i.e. Budha Nallah and East Bein, which carry domestic as well as industrial effluents of Ludhiana, Jalandhar, Phagwara, Phillaur, Nawanshahar etc. and merge with river Sutlej at village Wallipur and near village Malsian, respectively. In addition to this, the sewage from STP Bhattian, Ludhiana is also discharged into river Sutlej through an independent carrying channel (about 3 Km) and meets river Sutlej near village Kasabad. Sewage of Phillour town is also discharged into river Sutlej through Theing drain, which falls directly into river Sutlej. The detail of each drain is as under:

**(a) Budha Nallah:** -The Buddha Nallah is a non-perennial natural drain of about 51 Km length, which traverses about 14 Km across Ludhiana city from East to West and finally meets river Sutlej near village Wallipur in district Ludhiana. The total waste water of Ludhiana city discharged into river Sutlej is estimated about 700 MLD. Budha Nallah receives untreated domestic effluent of Ludhiana city through 16 various disposal points and treated effluent of two STPs of capacity 152 MLD, 105 MLD installed at Balloke and one STP of 48 MLD capacity installed at Jamaipur. In addition to this, the treated effluent from two STPs Bhattian of capacity 111 MLD and 50 MLD is also discharged directly into river Sutlej. Thus 234 MLD untreated waste water is discharged into river Sutlej from Ludhiana city. Apart from the above, discharge of untreated industrial effluent cannot be ruled out.

**(b) East Bein:** -East Bein passes through Nawanshahar, Kapurthala and Jalandhar. It is a natural storm water drain which originates near village Bhairon Mazra, District Nawanshahar. After travelling through a length of around 40 Km, it passes through Jalandhar district near village Phadrana. As East Bein traverses through Jalandhar district, a number of drains fall into it. East Bein falls into river Sutlej at Village Mundi Kalan few kilometers upstream of Harike Lake. As per the information provided by PPCB, the details of drains /choes falling into East Bein is as under:

**(c) Nawashahar Municipal Drain:** -This drain starts from Nawanshahar and joins East Bein after travelling about 1 Km of distance. It carries treated domestic wastewater of Nawanshahar and treated trade effluent of M/s Nawashahar Co. Operative Sugar Mills, Nawashahar. A Sewage Treatment Plant (STP) of 6 MLD capacity based on SBR Technology has been installed to treat the domestic effluent of Nawashahar City.

**(d) Nariala Choe:** -This Choe originates from Shivalik hills and carries rain water from its catchment area and joins East Bein.

**(e) Mehlawali Choe:** This Choe originates from Shivalik hills and carries only storm water to East Bein.

**(f) Rajni Devi Choe:** It also originates from Shivalik hills and carries only rain water to East Bein.

**(g) Pathlawa Drain :** This drain originates from Banga area and carries only domestic wastewater of Banga.

**(h) Nasrala Choe /Bhangi Choe:** These Choes start from district Hoshiarpur and carry treated/ untreated domestic wastewater of Hoshiarpur. These also carry the treated/untreated wastewater from the industries located in focal point and industrial area of Hoshiarpur and finally discharge into East Bein. A Sewage Treatment Plant (STP) of 30 MLD capacity based on MBBR Technology has been installed and commissioned to treat the domestic effluent of Hoshiarpur City.

**(i) Phagwara Drain:** It carries only sewage/ domestic wastewater of Phagwara and treated effluent of M/s JCT Limited, M/s Sukhjot Starch & Chemical Limited and M/s Wahid Sandhar Sugars Limited. The Municipal

Council, Phagwara has installed Sewage Treatment Plants of 20 MLD capacity (North), 8 MLD (North) and 8 MLD (South). These STPs are in operation.

**(j) Cantt. Drain:** It carries domestic wastewater /sewage of Jalandhar Cantt. which is treated in the STP installed by Military Engineering Services (MES). No Industrial effluent is discharged into this drain.

**(k) Garha Drain:** This drain carries only sewage /domestic wastewater of Jalandhar. Three Sewage Treatment Plants (STP) of 100 MLD, 25 MLD and 25 MLD capacity have been installed to treat their domestic waste water.

**(l) Kala Singhian Drain:** It carries sewage of Jalandhar town and effluent of Leather Complex. At Basti Peer Dad, STP of capacity 50 MLD has been installed and its operation and maintainance is very poor. For effluent of leather complex at Jalandhar, Common Effluent Treatment Plant (CETP) of 5 MLD capacity is in operation. In addition to above, a part of sewage of Jalandhar town is also discharged into East Bein through drain near Cheheru. For this, STPs at Bhambiawali (10 MLD) and Jaitewali (25 MLD) have been installed and are in operation. Total 65 MLD untreated wastewater of Jalandhar town is discharged into River Sutlej through East Bein. All the outlets except Sabji Mandi outlet and Industrial area outlet have been closed, but still there is a discharge of untreated sewage and untreated industrial effluent into the drain leading to pollution load in river Sutlej.

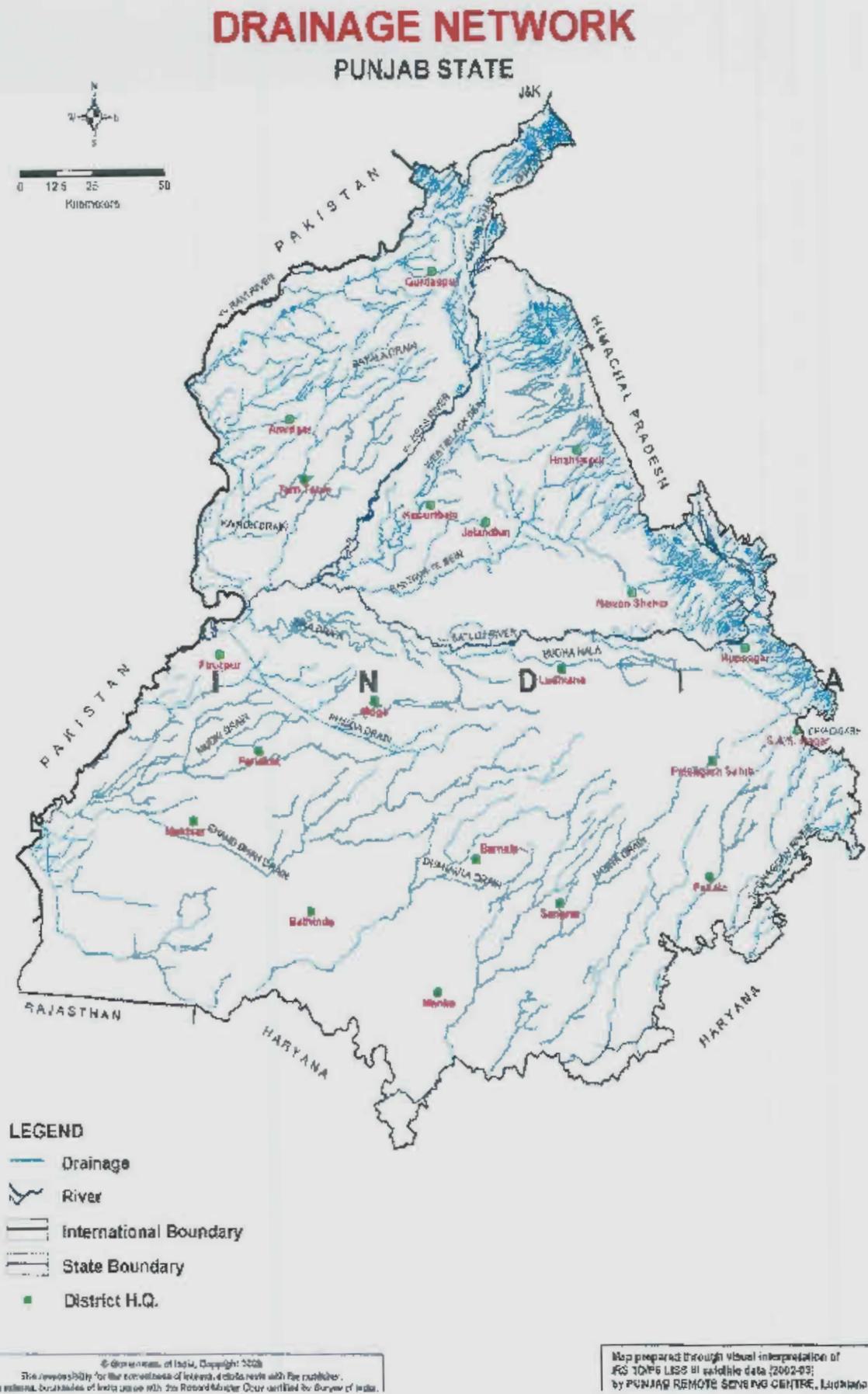
**(m) Theing Drain :-**It originates in Phillaur and falls into river Sutlej. It carries only domestic effluent of Phillaur city. Two sewage plants of capacity 2.5 MLD (North) and 3.0 MLD (South) have been installed and are in operation.

Details of each major drains with respect to point of origin, approximate lenth in Km, co-ordinates at which the drain meets the river Sutlej, location at which it meets the river Sutlej approximate discharge in Million Litres Per Day (MLD) is given at **Annexure-III**.

### **3.2 Drains discharging wastewater into River Beas**

There are 13 major drains/choes/nallahs which are directly discharging wastewater into the River Beas. The details of these drains/choes/ nallahs are given in **Annexure IV**.

Major drainage network in Punjab in respect of river Sutlej and river Beas is given in **Figure 3**.



**Figure 3. Major drainage network in Punjab in respect of river Sutlej and river Beas**

#### **4 Status of Sewage Management in the catchment areas of river Sutlej and River Beas: Gap Analysis**

As per local Government, there are 65 Urban Local Bodies (ULBs) having approximate population of about 56,27,458 which are falling in the catchment of river Sutlej and 19 urban areas having population about 6, 79,751 falling in the catchment area of River Beas. Sewage/ sullage generated from Urban Areas in the catchment areas of river Sutlej and River Beas are given in the subsequent paras: -

##### **4.1 Sewage/ sullage generated from Urban Areas in the catchment area of river Sutlej**

There are 54 local bodies and urban towns in the catchment area of River Sutlej (other 11 remaining areas are either stored in ponds or sewage is used for irrigation purpose), which are discharging generated wastewater about 1290.85 MLD directly or indirectly into river Sutlej. 26 local bodies have installed STPs of adequate capacity while 3 local bodies have installed STPs meeting partial requirement and remaining 25 local bodies are yet to install STPs. Out of 25 local bodies, which have not installed STPs, 9 local bodies are without sewage conveyance system. The installed treatment capacity of the existing 52 STPs is about 1001.15 MLD leaving a gap of 382.6 MLD and is discharged into river Sutlej. Details are given in **Annexure-V**.

As recommended by the Monitoring Committee, discharge of Budda Nallah was measured by Municipal Corporation, Ludhiana along with Drainage Department over the duration of 72 hours during December 22-24, 2018. The details of measured flows in Budda Nallah catchment is given in the **Table 1** as under:

**Table 1. Average measured discharge in Budda Nallah observed during December 22-24, 2018**

<b>Name of STP Catchment Area</b>	<b>Average (72 hours) discharge of Budda Nalla (in MLD) as observed during December 22-24, 2018</b>
Balloke	317
Balloke	
Bhattian	279
Bhattian	
Jamalpur	168
<b>Total</b>	<b>764 MLD</b>

##### **4.2 Sewage/ sullage generated from rural areas in the catchment of river Sutlej**

There are 336 villages, which are discharging their wastewater about 68.7 MLD either directly or indirectly through various drains / nallahs/ creeks into river Sutlej. In order to install necessary treatment facilities to

treat the wastewater of rural areas, the villages have been prioritized into following phases:

- (i). **Phase 1:** Villages having discharge  $\geq 200$  KLD –137 nos
- (ii). **Phase 2:** Villages having discharge between 100 KLD and 200 KLD – 85 nos
- (iii). **Phase 3:** Villages having discharge  $\leq 100$  KLD – 114 nos

#### **4.3 Sewage/sullage generated from Urban Areas in the catchment of river Beas**

There are 16 local bodies which are discharging their wastewater about 100.1 MLD either directly or indirectly into River Beas. In addition, 6 Military Engineering Services (MES) authorities, 2 Industrial Focal Points, 01 Jalandhar Development Authority and one Industrial Complex of Himachal Pradesh are also discharging effluent about 13 MLD directly or indirectly into River Beas and the afore-said areas are discharging wastewater about 13 MLD, 4 MLD, 1 MLD and having treatment capacity about 11 MLD, Nil and Nil respectively and leaving a gap of more than 7 MLD.

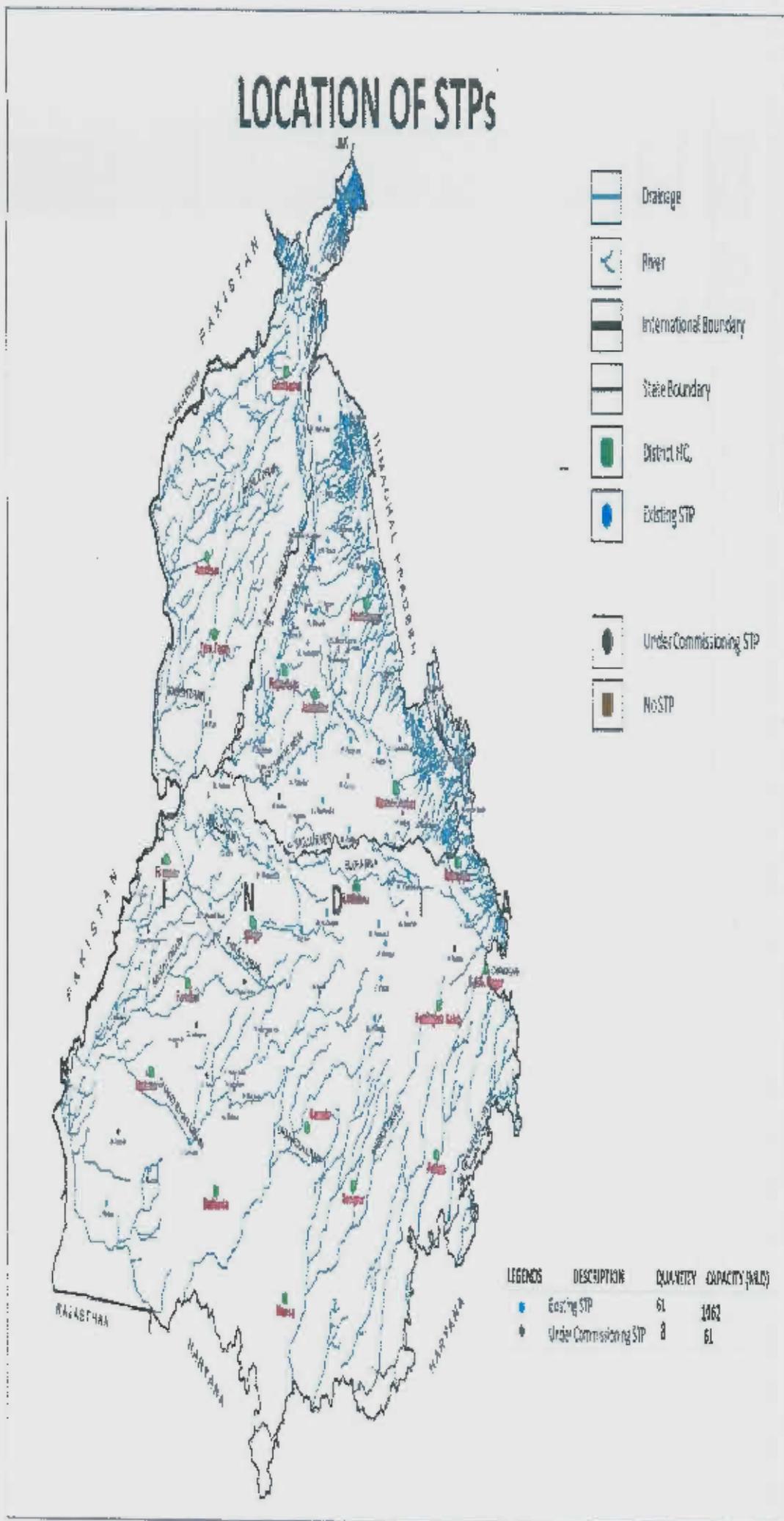
Out of 16 local bodies, 11 STPs have been installed in 11 towns and 10 new STPs are proposed to be installed in 7 towns and 1 STP is proposed to be upgraded in one of the town. The installed treatment capacity of the existing 11 STPs is about 64.24 MLD and the treatment capacity is about 84.1 MLD. However, some of the areas where STPs do not exist or have inadequate treatment capacity. Details are given in **Annexure-VI**.

#### **4.4 Sewage/sullage generated from Rural Areas in the catchment of river Beas**

There are 75 villages, which are discharging wastewater is about 17.232 MLD through various creeks and drains into River Beas. Discharge-wise details of the villages is as below: -

- (i) 17 Villages are having discharge more than 300 KLD
- (ii) 43 Villages having discharge between 100 KLD and 300 KLD
- (iii) 15 Villages having discharge less than 100 KLD.

Location of STPs in the catchment of river Sutluj and river Beas is given in **Figure-4**.



**Figure-4. A map showing the location of STPs in the Urban Local Bodies in the catchment areas of River Sutlej and River Beas**

## 5 Industrial Sources of pollution in river Sutlej and River Beas

Details of sources of pollution in the catchment of river Sutlej and river Beas are given in the subsequent paras: -

### 5.1 Industrial sources of pollution in river Sutlej

In the catchment of river Sutlej, there are 06 industrial estates namely Ludhiana, Jalandhar, Phagwara, Nawanshahr, Ropar and Moga. As per Punjab State Pollution Control Board (PPCB), there are 2423 total no. of industries in the catchment area of River Sutlej mainly comprising Dyeing, Pulp & Paper, Thermal Power Generation, Chlor-Alkali, Cement, Fertiliser, Sugar, Electroplating/Surface Treatment, Tannery and others such as washing of garments, food processing, milk plants, automobile service stations etc. Category-wise and area-wise detail of these units are given in **Table-2**.

**Table-2. Category-wise and area-wise no. of industries in the catchment of river Sutlej**

S. No	Industrial Sector	Area-wise No. of industries						Total
		Ludhiana	Jalandhar	Phagwara	Nawanshahr	Ropar	Moga	
1.	Dyeing	228	3	1	Nil	Nil	Nil	<b>232</b>
2.	Pulp & Paper	2	Nil	Nil	Nil	Nil	Nil	<b>2</b>
3.	Thermal	Nil	Nil	Nil	Nil	1	Nil	<b>1</b>
4.	Chlor Alkali	Nil	Nil	Nil	Nil	1	Nil	<b>1</b>
5.	Cement	Nil	Nil	Nil	Nil	1	Nil	<b>1</b>
6.	Fertilizer	Nil	Nil	Nil	Nil	1	Nil	<b>1</b>
7.	Sugar Mills	Nil	Nil	1	1	Nil	Nil	<b>2</b>
8.	Electroplating / surface treatment	1649	254	Nil	Nil	Nil	Nil	<b>1903</b>
9.	Tannery	Nil	87	Nil	Nil	Nil	Nil	<b>87</b>
10.	Others (washing of garments / service station etc.,)	149	40	3	Nil	Nil	1	<b>193</b>
	<b>Total</b>	<b>2028</b>	<b>384</b>	<b>5</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>2423</b>

#### Note:

*Out of 2423 industries, 433 industries have installed their captive ETPs. The remaining 1990 industries, mentioned at S.No. 8 & 9 of the table given herein above have joined as member of the CETP, the details of which are as under: -*

- *Small & Medium scale electroplating industries & pickling units using HCl are supplying their untreated trade effluent to CETP (based on ZLD technology) installed at Focal Point, Ludhiana. The RO permeate and condensate of MEE is supplied by CETP operator to the adjoining dyeing units. The quantity of trade effluent from such industries is about 0.5 MLD. This CETP is also accepting and treating the wastewater generated by electroplating industries situated in the other parts of the State such as Amritsar, Jalandhar & Mohali etc.*
- *Small scale wire drawing/pickling industries using Sulphuric Acid (H<sub>2</sub>SO<sub>4</sub>) are providing their untreated trade effluent/spent acid to re-processing plant installed for these industries at Kohara, Ludhiana. Re-processing plant produces Ferrous Sulphate (Fe<sub>2</sub>SO<sub>4</sub>) as product & no trade effluent*

is discharged by the said plant as it is based on ZLD technology. The quantity of trade effluent from such industries is about 0.055 MLD.

- There are 10 large scale electroplating industries and these units have adopted their own Zero Liquid Discharge Treatment Technology and no effluent from these industries is discharged into sewer leading to Budha Nallah, which merges with River Sutlej.
- There are 61 tannery units at Leather Complex, Jalandhar, the wastewater of which is treated in the CETP installed in the Leather Complex. There is a proposal for upgradation of this CETP. Besides, there are 26 bag tanning unit at Phillour, the wastewater of which is treated in CETP at Phillour.

## 5.2 Industrial Sources in the Catchment Area of River Beas

Industrial units in the Catchment Area of River Beas are located mainly at Pathankot, Gurdaspur, Mukerian and Dasuya Area. There are 21 water polluting industries in the catchment area of River Beas. Category-wise and area-wise detail of the industrial units located in the catchment area of river Beas is given in **Table-3**.

**Table-3. Category-wise and area-wise no. of industries in the catchment of river Beas**

S. No	Industrial Sector	Area-wise No. of Industries							Total
		Pathankot	Gurdaspur	Mukerian	Dasuya	Goindwal Sahib	Beas	Kapurthala	
1	Brewery	Nil	1	Nil	Nil	Nil	Nil	Nil	1
2	Distillery	1	3	Nil	1	Nil	Nil	Nil	5
3	Sugar Mill	Nil	1	1	1	Nil	Nil	Nil	3
4	Paper/ Board Mill	2	Nil	Nil	Nil	Nil	Nil	Nil	2
5	Gluten	1	Nil	Nil	Nil	Nil	Nil	Nil	1
6	Thermal Plant	Nil	Nil	Nil	Nil	1	Nil	Nil	1
7	Vanaspathi	Nil	Nil	Nil	Nil	1	Nil	Nil	1
8	Educational Institute	Nil	Nil	Nil	Nil	1	Nil	Nil	1
9	Health Care Facility	Nil	Nil	Nil	Nil	Nil	1	Nil	1
10	Dera Beas	Nil	Nil	Nil	Nil	Nil	1	Nil	1
11	Miscellaneous	Nil	Nil	Nil	Nil	3	Nil	1	4
<b>Total</b>		<b>4</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>2</b>	<b>1</b>	<b>21</b>

**Note:-**

- *Brewery, Distillery, Sugar, Pulp & Paper/Board Mill, Gluten industries, Thermal Power, Food industries, Phamalation, Vanaspathi, Educational Institutions, Miscenaneous Units have installed ETPs and only Sugar Mills have installed online continuous monitoring systems. Although, all the units have installed captive ETPs, all the industries located on the bank of Goindwal Sahibdrain, Beas River & Holy Bein, there is a need to monitor all these industries especially in odd hours to rule out the possibility for discharge of wastewater into said drains leading into river Beas.*

- *Screening plants of Pathankot are partly discharging their wastewater into River Beas.*
- *As per Punjab Pollution Control Board (PPCB), there are about 15 industries in an Industrial Cluster namely Industrial Complex, Sansarpur-Terrace, Distt Kangra, Hlmachal Pradesh located near to Talwara Headworks (Punjab) and the waste water effluent of this industrial complex is discharged into River Beas at Talwara Headworks through Swan Choe.*

### **5.3 Industry-wise water consumption, wastewater generation and mode of final disposal**

As per the information provided by the Punjab Pollution Control Board (PPCB), in the catchment areas of river Sutlej and river Beas together there are 2444 water polluting industries and the total water consumption and wastewater generation from these industries is about 284.15 MLD and 131.43 MLD respectively. Details of sector-wise and area-wise total water consumption and the waste water generation from 2444 industries is given in **Annexure-VII**. The details given at the annexure also reveal that total industrial effluent generated from the electroplating industries (1903 nos) is about 0.606 MLD whereas total wastewater generated from the tanneries (87 nos) located in the catchment area of river Sutlej is about 4.239 MLD. There are three CETPs in the catchment area of river Sutlej which are located at Jalandhar, Ludhiana and Phillaur each having treatment capacity of 5 MLD, 0.5 MLD and 0.035 MLD.

Total waste water effluent of tanneries and the electroplating/surface treatment industries are discharged through CETPs located at Jalandhar, Phillaur (i.e., 61 units through Common Effluent Treatment Plant (CETP) located at Jalandhar and 26 units through CETP located at Phillaur) and Ludhiana respectively whereas the remaining industries are having captive effluent treatment plant and treated water is discharged onto land or into public sewer. However, the monitoring committee is of the view that the industries might be discharging the effluent into the adjacent or nearby drains without imparting any treatment and it might be finding its way into the river bodies.

Punjab Dyers Association is setting up three CETPs for dyeing clusters at Ludhiana with a capacity of 50 MLD for Tajpur-Rahon Road Cluster, 40 MLD for Focal Point Cluster and 15 MLD for Bahadur Ke Road Cluster.

### **5.4 Status on compliance to the discharge norms by the industries based on the random inspection carried out by the PPCB inspection teams**

Monitoring Committee in its sixth meeting held on 04.02.2018, directed Punjab Pollution Control Board for submission of the assessment reports in respect of the industries and sewage treatment plants (STPs) subsequent to the order of 07.08.2018 by the Hon'ble NGT. *The Punjab Pollution Control Board inspected only 180 out of 2444 industries (i.e., 7.4 %) which includes 64 industries having captive ETPs [i.e., mainly comprising of the industrial sectors such as dyeing (42 nos) and miscellaneous (such as washing, service stations, food processing etc.,)], 114 industries which are members of CETPs, 2 electroplating with ZLD located in the catchment of river Sutlej and river Beas, in December 2018. The visited Punjab Pollution*

Control Board officials also collected effluent samples from 52 industries and got analysed through PPCB laboratory/Punjab Biotechnology Incubator Laboratory.

Industry-wise analysis results of the industrial effluent collected by PPCB officials and the industry-wise observations and the compliance status of the industries (which are members of the CETPs) is enclosed as annexure **(Annexure-VIII)**. The analysis results of the industry effluent and the observations of the visited team, reveal that 81 out of 180 industries inspected are complying and 73 out of 180 industries are the industries inspected are not complying with the effluent discharge norms/not complying to the requisite conditions of Consents and 26 industries are observed to be closed/not in operation. Details of such industries are given in **Table 4** below: -

**Table 4. Details of the industries complying and non-complying based on the effluent characteristics or observations made by the PPCB visited teams in December 2018**

S. No.	Industry Sector	No. of Industries Inspected	No. of Industries from which Samples collected	Compliance status as per Effluent Discharge Norms		No. of Industries Closed/ Not in Operation
				Complying	Not Complying	
1	Dyeing	41	29	6	23	12
2	Electroplating (ZLD)	2	2	1	1	-
3	Miscellaneous	23	21	13	8	2
4	CETP Members	114	-	61	41	12
	<b>Total</b>	<b>180</b>	<b>52</b>	<b>81</b>	<b>73</b>	<b>26</b>

### **5.5 Ground Water Analysis in the catchment areas of river Sutlej and River Beas carried out by PPCB**

As per recommendations of the Monitoring Committee, the Punjab Pollution Control Board (PPCB) has also carried out sampling of 55 ground water samples in December 2018 in the catchment areas of river Sutlej and the collected ground water samples got analysed through a laboratory Viz., PPCB and Punjab Biotechnology Incubator Laboratory, for parameters such as Sulphate, Fluoride, Cadmium, Copper, Lead, Nickel, Zinc, Arsenic, Mercury and Total Chromium.

Details of collected samples and the analysis results of the 55 ground water samples is annexed as **Annexure-IX** and the maximum and minimum concentration as well as the status of compliance of the collected samples is given in the **Tables 5**.

**Table 5. Minimum and maximum concentration of SO<sub>4</sub>, Fluoride and Heavy Metals and No. of Ground Water sampling locations (55 nos) complying/ not complying with the IS:10500-2012 drinking water specifications (acceptable limits)**

S. No.	Details	Analysis results of Ground Water Samples ( from the catchment areas of river Sutlej and river Beas by PPCB collected in December 2018) for General Parameters and Heavy Metals (In mg/l)									
		SO <sub>4</sub>	F	Cd	Cu	Pb	Ni	Zn	As	Hg	Total Cr.
1	Minimum (in mg/l)	BDL	0.11	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2	Maximum (In mg/l)	462	0.74	BDL	0.03	0.02	0.01	0.95	BDL	0.0005	4.12
3	No. of locations exceeds the limit	1	-	-	-	1	-	-	-	-	5
IS:10500-2012 Drinking Water Specifications- Acceptable Limit (in mg/l)		200	1	0.003	0.05	0.01	0.02	5	0.05	0.001	0.05

The compliance status of collected ground water samples based on the analysis results given at **Table 5** reveals that the

- concentration of Chromium in the range of 'BDL to 4.12 mg/l' and is observed to be exceeding the limit of drinking water specification as per IS:10500-2012 at five out of total 55 sampling locations and one of the sample is also exceeding the limit for sulphate content (at 462 mg/l).
- Lead at 0.02 mg/l and is found to be exceeding the prescribed limit for drinking water specification as per IS:10500-2012, only at one out of the 55 locations.

Area-wise ground water sampling locations (55 nos) complying and non-complying to the Bureau of Indian Standard drinking water specifications (second revision) IS:10500-2012 w.r.to the acceptable limits is given in **Table 6**.

**Table 6. Area-wise ground water sampling locations (55 nos) complying and non-complying to the BIS Drinking Water Specifications (second revision) IS:10500-2012 w.r.to the acceptable limits**

S. No.	Ground Water Sample collection area	No. of ground water sampling locations	Total No. of ground water sampling locations- Compliance w.r.to IS 10500:2012 Drinking Water Standards	
			Complying	Non-Complying
1	Nangal to Ropar Stretch	1	1	Nil
2	Ludhiana Area	47	41	6
3	Jalandhar Area	3	3	Nil
4	Phagwara Area	2	2	Nil
5	Phillour Area	2	2	Nil
Total		55	49	6

## 6 Waste Management

Waste management aspects in the catchment of river Sutlej and river Beas are given in the subsequent paras: -

### 6.1 Solid Waste Management-Gap Analysis

The overall solid waste generation in these 83 towns falling under the catchment area of River Sutlej and Beas is 2726 Tonnes per day (TPD). Out of this, the urban area in the catchment of Sutlej River generates 2485 TPD. Highest among the Ludhiana where 1100 TPD solid waste is generated per day. Land for Common Sanitary Engineered Landfill Facility has been identified for Ludhiana, Jalandhar & Bhatinda Clusters. The urban area/town-wise waste generation and area of landfill is given in the **Annexure-X**.

With respect to solid waste management, it was observed that the waste is not properly handled and is dumped to open sites at different places in the urban area especially in and around Buddha Nalla in Ludhiana. As a result of such practices, area in and around the disposal sites is unhygienic and poses a serious threat to the environment and to public health. A large amount of solid waste, including banned thermocol (expanded polystyrene) items and poly bags, has choked the Buddha Nallah. Recently a new Punjab Solid Waste Management Policy- 2018 for the entire Punjab has been prepared and notified in compliance with Solid Waste Management Rules, 2016 and Hon'ble Supreme Court directions. Beside this, the National Green Tribunal (NGT) has constituted regional monitoring committees with defined timelines to ensure implementation of the Municipal Solid Waste Management Rules-2016. Action plans of each state will have to be submitted by the state by October 31, 2018 while its execution will have to be ensured by December 2019.

### 6.2 Management of Bio-Medical Waste

In the State of Punjab, there are around 7400 Healthcare Facilities (HCFs) including hospitals, nursing homes, clinics, veterinary polyclinics, dispensaries, laboratories etc. and presently having around 70000 beds strength in addition to diagnostic laboratories/non-bedded clinics etc. All the health care facilities are disposing off their bio-medical waste through four authorized Common Bio-Medical Waste Treatment Facilities (CBWTFs) located at Ludhiana, SAS Nagar (Mohali), Amritsar and Pathankot. *Further, two more CBMWTFs are being set up in the State in District Sri Muktsar Sahib and District Jalandhar. Also Expression of Interest (EOI) has been invited for setting up of 2 more facilities, one for Districts of Sangrur and Barnala and other for Districts of Hoshiarpur and Nawa Shahr.*

As per the information provided by the 3 CBWTF operators, there are Healthcare Facilities (HCFs) which have not made agreement with the CBWTFs and the CBWTF-wise details of HCFs which have not taken membership are given in Table 7 as under: -

**Table 7: CBWTF-wise no. of HCFs which have not made agreement for collection, treatment and disposal of bio-medical waste**

<b>S. No</b>	<b>Name of CBWTF Operator</b>	<b>No. of HCFs not having membership with the CBMWTF as per list</b>
1	M/s Rainbow Environment Pvt. Ltd., Village Balyali, Mohali	130
2	M/s Medicare Environmental Management (P) Ltd., Opp. Central Jail, Ludhiana	231
3	M/s BMWT Trust, Vill. Pangoli, Defence Road, Distt. Pathankot	64

*There is a need for taking action on the HCFs which have neither obtained authorization from PPCB under the Bio-medical Waste Management Rules, 2016 and amendments made thereof, nor made agreement with the CBWTF operator for collection, transportation, treatment and disposal of bio-medical waste.*

### **6.3 Management of Hazardous Waste**

As per information provided by M/s Remky Enviro Engineers Limited, a Common Hazardous Waste Treatment Storage and Disposal Facility Operator located at Nimbua to PPCB regarding quantity of hazardous waste generated as per authorization granted vis-à-vis actual quantity received by the facility during the period 01-01-2017 to 31-08-2018, the information reveals that total 43626 MT of hazardous waste has been received by the facility during the last 20 months period against the anticipated generation of 47162 MT annually as per authorization granted by PPCB. As such, there is a gap of about 20453 MTA. This gap may be due to the reasons that actual operation and production capacities of the industry may not be the same as that of the installed/authorized capacities.

*However, this aspect needs to be looked into by the PPCB and appropriate corrective actions need to be taken as required in accordance with the Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016 and amendment made thereof.*

### **7 Initiatives taken by the Monitoring Committee subsequent to the constitution of the Committee in compliance to the Hon'ble NGT Order dated 24.07.2018**

In pursuance to the Hon'ble NGT order dated 24.07.2018, Central Pollution Control Board has issued an Office Order dated

06.08.2018 constituting the Monitoring Committee taken up the following activities, as detailed in subsequent paras:-

**(A) Participated in joint monitoring and sampling of River Sutlej, River Beas, Major Drains contributing to the river Sutlej and river Beas pollution as well as Ground Water in the Catchment area of River Sutlej and River Beas during 07<sup>th</sup> -08<sup>th</sup> October, 2018**

The Monitoring Committee participated in joint monitoring of river Sutlej, River Beas, Major drains contributing to pollution load as well as ground water samples in the catchment area of River Sutlej and River Beas during *October 07 to 08, 2018 by the joint team comprising (i) Shri Balbir Singh Seechewal, Member; (ii) Member and representative of Rajasthan State Pollution Control Board (RSPCB); (iii) Officials of Punjab Pollution Control Board (PPCB) and (iv) Nodal Officer and other Officials of Central Pollution Control Board (CPCB).*

To study the impact on river Sutlej, river Beas, samples of rivers as well as major drains were collected at salient points mainly covering before and after confluence of River Beas with river Sutlej, before and after confluence of major drains with river Sutlej and river Beas. The details of sources of samples collected are given in **Table 8** and sampling locations details are given in **Table 9** below:-

**Table 8. Details of Samples collected from Rivers Sutlej, Beas and drains as well as ground water from the catchment area of River Sutlej and Beas**

Sampling Locations	Parameters	No. of Samples
River(9) /Canals(3)	General Parameters	12
	Ammonia	12
	Heavy Metals	12
	Bacteriological	12
	Pesticide	15
Major Drains (10)/ STP (1)	General Parameters	11
	Ammonia	11
	Heavy Metals	10
	Bacteriological	1
Ground Water (9)	General Parameters	9
	Heavy Metals	9
	Mercury	9
<b>Total No. of Samples</b>		<b>123</b>

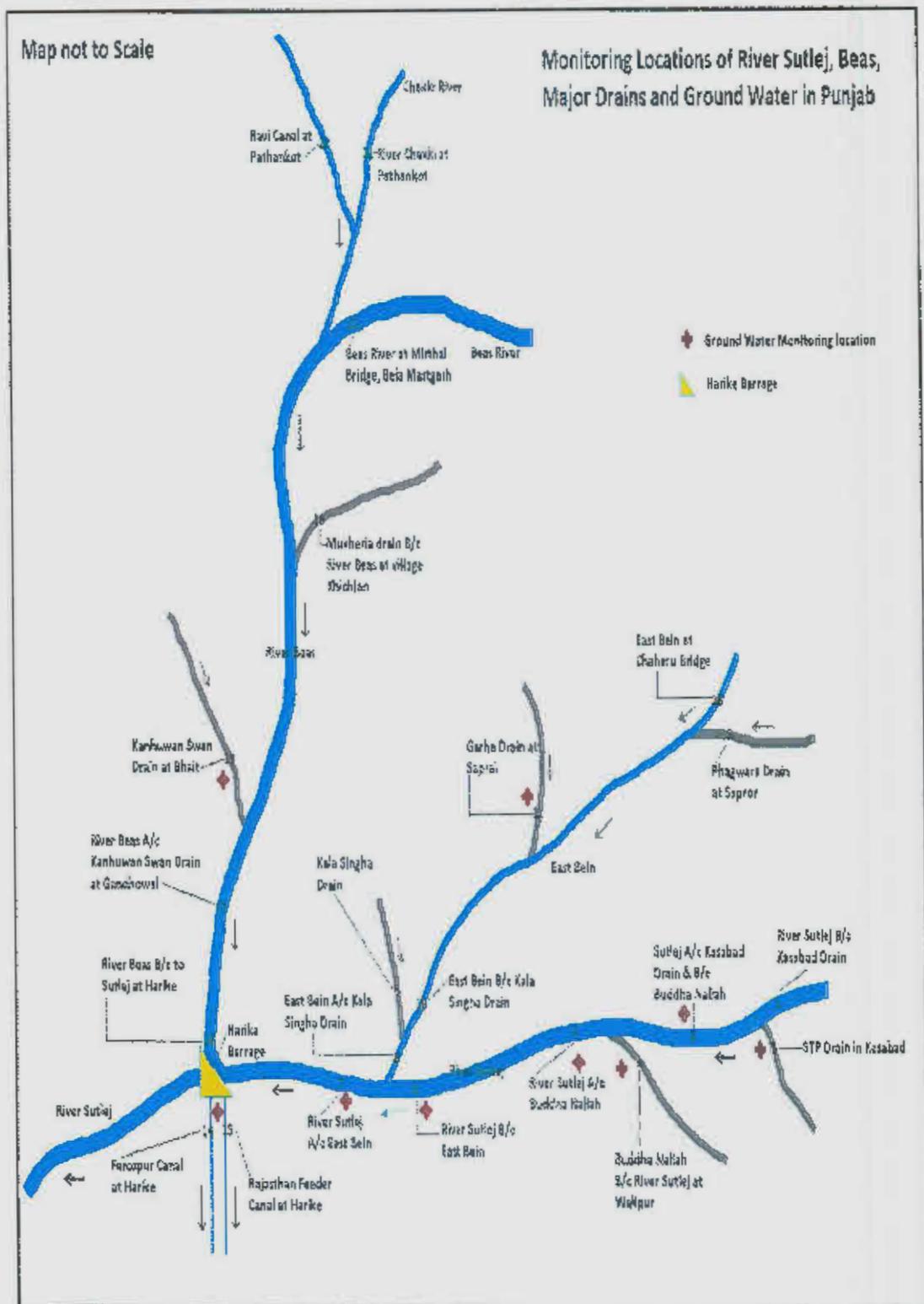
**Table 9. GPS Location details of samples collected during October 07-08, 2018 by the Monitoring Committee**

S. No	Location	Date of Sampling	Name of Water Body	Latitude	Longitude
1	River Sutlej A/c East Bein	07.10.2018	Sutlej	31.136700	75.105076
2	River Sutlej B/c East Bein	07.10.2018	Sutlej	31.127639	75.120127
3	River Beas B/c to Sutlej	07.10.2018	Beas	31.150770	74.951119
4	River Sutlej B/c Kasabad drain	08.10.2018	Sutlej	30.990884	75.841459
5	River Sutlej A/c Kasabad drain & B/c Buddha Nallah	08.10.2018	Sutlej	30.996731	75.788141
6	River Sutlej A/c Buddha Nallah	08.10.2018	Sutlej	30.964016	75.481496
7	River Beas A/c Kanhuwan Swan drain at Gandhowal	08.10.2018	Beas	31.69431	75.522780
8	Beas River at Mirthal Bridge, Bela Mastgarh, Punjab	08.10.2018	Beas	32.098149	75.611430
9	River Chakki at Pathankot	08.10.2018	Chakki	32.251233	75.657379
10	Ferozpur Canal at Harike	07.10.2018	Ferozpur Canal	31.126920	74.948540
11	Rajasthan Feeder Canal at Harike	07.10.2018	Rajasthan Feeder	31.126047	74.949742
12	Ravi Canal at Pathankot	08.10.2018	Ravi Canal	32.263295	75.621779
13	Kala Singhian Drain	07.10.2018	Kala Singhian	31.151369	75.346516
14	East Bein B/c Kala Singhian Drain	07.10.2018	East Bein	31.149770	75.346571
15	East Bein A/c Kala Singhian Drain	07.10.2018	East Bein	31.134778	75.337781
16	East Bein at Chaheru Bridge	08.10.2018	East Bein	31.271086	75.690907
17	STP drain in Kasabad	08.10.2018	Kasabad drain	30.989811	75.833157
18	Buddha Nallah B/c River Sutlej at Walipur	08.10.2018	Buddha Nallah	30.972837	75.651173
19	Phagwara drain at Saprora	08.10.2018	Phagwara drain	31.258708	75.715573
20	Garha drain at Saprora	08.10.2018	Garha drain	31.231136	75.609353
21	Mukheria drain B/c River Beas at village Khichian	08.10.2018	Mukheria drain	31.950129	75.598604
22	Kanhuwan Swan drain at Bhait	08.10.2018	Kanhuwan Swan	31.759594	75.536893
23	Hand Pump near Railway Bridge No 84	07.10.2018	Ground Water	31.138047	75.108542
24	Hand Pump in Village Mahle Wala	07.10.2018	Ground Water	31.124628	75.118977
25	Hand Pump between Ferozpur & Rajasthan Canal at Harike	07.10.2018	Ground Water	31.126773	74.948882
26	Submersible in Kasabad village	08.10.2018	Ground Water	30.978453	75.844854
27	Hand Pump in Shanidev Temple near Phillaur Toll, Talwandi Kalan	08.10.2018	Ground Water	30.996905	75.788082
28	Hand Pump in Village Walipur	08.10.2018	Ground Water	30.970153	75.623144
29	Hand Pump in Village Khurshedpur	08.10.2018	Ground Water	30.955507	75.481261
30	Hand pump at Parthapura Road, JhamsherKhas, Saprora, Punjab	08.10.2018	Ground Water	31.231457	75.611417
31	Hand Pump in Bhait village	08.10.2018	Ground Water	31.759061	75.53188

The river water samples got analysed for the parameters such as pH, DO, Conductivity, TDS, COD, BOD, Chloride, Total Alkalinity, Total Hardness, Calcium, Magnesium, Nitrate-N, Nitrite-N, Ammonia, Phosphate, Fecal Coliform, Total Coliform, Arsenic, Cadmium, Copper, Lead, Chromium (Total), Nickel, Zinc, Iron (Total), OCPs compounds such as  $\alpha$ ,  $\beta$ ,  $\gamma$  BHC, O,P'-DDT, P,P'-DDT, P,P'-DDE,  $\alpha$  -Endosulfan,  $\beta$  -Endosulfan, Aldrin, Dieldrin, and OPP compounds such as Malathian, Methyl Parathian, Ethion, Chloropyrifos, Dimethoate and 2,4-D.

Ground Water samples got analysed for the general parameters such as Sulphate, Fluoride and heavy metals such as Arsenic, Cadmium, Copper, Lead, Chromium (Total), Nickel, Zinc, Mercury and Iron (Total) whereas the Drain samples collected are being analysed for the general parameters such as pH, Conductivity, TDS, COD, BOD, TSS, Ammonia and Phosphate as well as heavy metals such as Arsenic, Cadmium, Copper, Lead, Chromium (Total), Nickel, Zinc and Iron (Total)

The location details of surface water, drain samples and ground water samples collected during October 07-08, 2018 is given in **Figure 5.**



**Figure 5. Line Diagram Showing River Sutlej, River Beas, Ground Water and Drain Sampling Locations**

Water Quality Monitoring Results of river Sutlej, river Beas and major drains contributing to pollution in both the afore-said rivers and the ground water samples collected by the monitoring committee are given in **Annexure-XI to Annexure-XV**.

Based on the analysis results (CPCB) of the collected river water samples, values are observed in the order of pH (7.9 to 8.7), DO (1.1 to 10.3 mg/l), COD (BDL to 37 mg/l), NH<sub>3</sub>-N (BDL to 6.8 mg/l), BOD (1 to 9 mg/l), Faecal Coliform (FC) (<1.8 to 170000 MPN/100 ml) and heavy metals are in the order of As (BDL), Cd (BDL), Cr (BDL to 0.02 mg/l), Cu (BDL to 0.02 mg/l), Fe (1.28 to 13.53 mg/l), Ni (BDL to 0.01 mg/l), Pb (BDL) and Zn (0.02 to 0.14 mg/l).

*Analysis results of the river (Sutlej, Beas, Chakki) water samples reveals that the samples w.r to water quality criteria for bathing parameters such as dissolved oxygen (DO) and bio-chemical oxygen demand (BOD) is complying at all the monitored locations except BOD at locations namely before and after confluence of East Bein with river Sutlej and after confluence of Budda Nallah with river Sutlej. Similarly, dissolved oxygen (DO) level in river Sutlej after confluence of Budda Nallah is not meeting the water quality criteria whereas all the monitored locations are exceeding the limit of water quality criteria w.r.to the Faecal Coloform i.e., FC > 500 MPN/100 ml).*

Apart from the above, pesticides i.e., *Organochlorine Pesticides (OCPs)* compounds such as  $\alpha$ ,  $\beta$ ,  $\gamma$  BHC, O, P'-DDT, P,P'-DDT, P,P'-DDE,  $\alpha$  -Endosulfan,  $\beta$  -Endosulfan, Aldrin, Dieldrin, and *Organophosphorous Pesticides (OPP)* compounds such as Malathian, Methyl Parathian, Ethion, Chloropyriphos, Dimethoate and 2,4-D at all the monitored locations of river Sutlej, river Beas, Rajasthan & Ferozpur Feeder canal are observed as '**BDL**'

The analysis results of the samples collected from 10 drains are observed as pH (7.7 to 8.28), Total Dissolved Solids-TDS (352 to 1120 mg/l), BOD (12 to 283 mg/l), Chemical Oxygen Deman-COD (25 to 709 mg/l), Ammonia (NH<sub>3</sub>-N) (6 to 39 mg/l), TSS (41 to 430 mg/l), heavy metals such as As (BDL), Cd (BDL), Pb (BDL to 0.12 mg/l), Total Cr (BDL to 2.15 mg/l), Cu (BDL to 0.12 mg/l), Total Fe (1.05 to 26.13 mg/l), Ni (BDL- 0.14 mg/l), Zn (0.02 to 1.37 mg/l).

The analysis results of the ground samples collected from the catchment areas of river Sutlej and River Beas are observed as Sulphate (8 to 104 mg/l), Fluoride (0.3 to 0.5 mg/l), As (BDL to 0.12 mg/l), Cd (BDL), Cr (Total) (BDL), Cu (BDL to 0.02 mg/l), Fe (Total)(0.03 to 4.73 mg/l), Ni (BDL), Pb (BDL to 0.01 mg/l), Zn (0.05 to 0.56 mg/l), Hg (BDL) *and all the measured values are within the acceptable limits as per drinking water specifications of IS:10500-2012 except for Arsenic and Iron content.*

#### **(B) Meetings held with the officials of Punjab State Government**

Although the Monitoring Committee had discussions with the concerned Punjab State Governments authorities, the response from authorities was poor till first two meetings. Most of the

authorities have attended the third and fourth meetings of the monitoring committee.

The monitoring committee as well as the nodal officer of CPCB has guided the authorities for preparation of the action plans by conducting the assessment w.r.t. the existing scenario, gaps identification, aspects to be covered for preparing the action plans with time lines for ensuring proper management of industrial pollution control, sewage management in rural and urban areas, waste management in an environmentally sound manner which include hazardous waste, municipal solid waste, bio-medical waste, so that no waste will become a part of the river bodies. The Monitoring committee held seven meetings of the Monitoring Committee with the concerned officials of Punjab State Government held during August 10, 2018 to 08.01.2019.

The Monitoring Committee meeting-wise main decisions taken by the monitoring committee in its four meetings are given in the subsequent paras:-

**(a) First meeting of Monitoring Committee (MC) held at CPCB, Delhi on 10.08.2018**

- i) Strict actions including prosecutions to be taken against violating industries as well as defaulting municipalities.
- ii) Professional companies should be roped in for O & M of STPs & CETPs
- iii) Raw effluent to CETP should pass through only closed conduit pipes and all member units of CETPs should be connected through SCADA to monitor the quality of discharged industrial effluent
- iv) Providing information relating to area-wise: Towns/cities, population, sector-wise no. of industries, Sewage generation, Industrial effluents generation, existing Infrastructure for existing management, gap analysis i.e., additional infrastructure required, action plans with time lines for sewage and Industrial effluent management
- v) Performance assessment of STPs, CETPs and captive ETPs.
- vi) Waste generation, Collection, Treatment and Disposal as per provisions.
- vii) Assessment of Water Quality of River Sutlej at all salient points and also drains contributing to pollution load.
- viii) Information relating to Non-Complying Industries, Industries not having valid Consent, Industries not installed OCEMS, Industries not a member of CETP and indulged in discharge of effluents in River Sutlej

**(b) Second meeting of Monitoring Committee (MC) held at PPCB, Ludhiana, on 06.09.2018**

- i) Sub-committee members shall plan for collection of samples from (a) major drains contributing pollution load, (b) river Sutlej and River Beas at all salient points.

- ii) Sub-Committee (members from Local & Urban Development) to pursue with all the concerned Departments for preparation and submission of action plans.
- iii) Review of Providing information relating to area-wise: Sewage and industrial effluent management, gaps observed, additional infrastructure required, action plans with time lines for sewage and Industrial effluent management; Performance assessment of STPs, CETPs and captive ETPs;
- iv) Waste Generation, Collection, Treatment and Disposal related aspects.
- v) Digital maps pertaining to river Sutlej & River Beas showing area-wise industrial effluent, sewage management including gaps.
- vi) To submit action plans with time lines in compliance to the Hon'ble NGT Orders dated 24<sup>th</sup> July , 2018 etc.,

**(c) *Third meeting of Monitoring Committee held at PPCB, Jalandhar, Punjab on 26.09.2018***

- i) Recommendations of PPCB Committees on restoration of River Beas due to discharge of molasses, to be finalised within a month and also to present recommendation in the next MC meeting.
- ii) All the concerned Departments shall provide information – Name of Head of the Department as well Nodal Officers
- iii) Detailed reports of STPs visited jointly by Shri.Balbir Singh Seechewal, Member and PPCB along with collected treated sewage analysis results as well as random inspections of 10 STPs located in catchment of river Sutlej & River Beas to be submitted within three weeks.
- iv) PPCB shall collect sample of STPs sludge and get analysed and obtain the views of Punjab Agriculture Department on final mode of disposal.
- v) Concerned Departments shall ensure proper O & M of STPs.
- vi) Concerned Departments shall provide information on ground water quality being supplied to the public for drinking water purposes.
- vii) Health Department shall submit report on health survey in the catchment of River Sutlej and mainly in Buddha Nallah drainage areas.
- viii) All the STPs shall install COEMS at the outlet of STPs and also to install electromagnetic flow meters at all salient points in STPs.

**(d) *Fourth meeting of the Monitoring Committee held on 17.10.2018 at CPCB:-***

- i) The time span proposed for establishing new STPs and maintaining the old ones is too long. The proposed time lines should be shortest as possible and the fixed timelines should be strictly ensured by the concerned departments.
- ii) STP's which have already been installed at different places in Punjab are neither working properly or not operating at all. As a result, the

sewage of towns and Cities is not treated at all or partially treated and are flowing directly into natural water resources. Therefore, it was suggested PPCB to constitute a Task Force comprising officials from different departments for carrying out surprise inspections.

- iii) All the STPs should have a laboratory facility for analysis of STP treated effluent for routine parameters as prescribed by the PPCB under Consent and all other parameters may be get analysed through Punjab State Water Testing Laboratory as per the frequency prescribed by PPCB.
- iv) The capacity of the STP's for an area should be in line with the actual flow of sewage outfalls into the river bodies.
- v) Presently water is abstracted and supplied more than 300 lpcd which is more than the prescribed per capita water demand and leading to sewage generation more than the existing capacities of STPs. Therefore, Government of Punjab should take a policy decision with regard to the supply of water to the public as per the demand or supply prescribed under the guidelines issued by Ministry of Urban Development.
- vi) Drains carrying sewage generated from the towns and cities located in the catchment of river Sutlej and river Beas should be stopped by having properly designed sewerage network connectivity to the existing STPs, for ensuring treatment of generated sewage to comply with the discharge norms and thereafter only such treated sewage may be discharged into drains.
- vii) All the treated sewage complying to the discharge norms may be encouraged to use for beneficial purposes which include agriculture, construction activity and green development. Therefore, action plans also be included from utilisation of treated sewage point of view.
- viii) For ensuring compliance to the effluent discharge norms notified under the Environment (Protection) Act, 1986, all the outlet of STPs also be connected with online continuous effluent monitoring system (OCEMS) with a provisions of CC Cameras and real time data also be transferred to the servers of CPCB and PPCB *within next three months*.
- ix) Sludge generated from STPs is required to be pre-treated for using it as a manure. Therefore, all STPs may include a provision of Sludge Digester as a part of STP or a Common sludge digester for methane recovery and such generated sludge from the sludge digester may be used as manure.
- x) Presently, all the STPs are not having standby arrangements in STPs and during maintenance; STPs are indulged in bye-passing untreated sewage into the nearby drains. Therefore, all the STPs should take prior permission from PPCB for carrying out any maintenance. Also, all STPs should have adequate capacity of holding tank (s) or standby arrangements for storage of untreated

sewage during maintenance or shut down if any. All upcoming STPs also should have the above provisions.

- xi) Any STP indulged in Bye-passing of untreated sewage, action against concerned officers should be taken by PPCB which include levying of fine under E (P) Act, 1986.
- xii) All STPs should have a provision of uninterrupted power supply or DG Set of adequate capacity for ensuring proper treatment of sewage during power failures.
- xiii) Training component of all the officials i.e., O & M Staff, field staff or supervisors of the concerned departments involved in operation of the STPs should also be included in the action plans.
- xiv) In rural areas, feasibility of using constructed wet lands or treatment of sewage should be examined by the Water Supply and Sanitation Department.
- xv) Industrial effluents of the cities or towns should not be allowed to mix up with the domestic sewage. In the industrial cities like Ludhiana, Jalandhar, and Amritsar where industrial effluents have been allowed to mix with domestic sewage, the whole machinery of STPs has been damaged decreasing their working capacity. Therefore, dedicate sewerage network for carrying industrial effluent should be laid for which action plans should be included by all the concerned departments.
- xvi) Presently, STPs are under the control of the different organisations and different organisations are planning in their own way and there is no proper co-ordination. Therefore, Punjab Government should bring all the STPs under one authority so that it becomes easy for planning, commissioning and for ensuring proper operation and maintenance of the existing or upcoming STPs.
- xvii) The sewage pipeline which was laid in 2014 along Kala Sanghian Drain in Jalandhar has not been linked across Jalandhar-Kapurthala railway line near D.A.V. College. The whole sewage water of upstream area goes direct into Kala Sanghian Drain which flows into Sutlej. Necessary remedial measures be taken by the concerned authorities.
- xviii) Entire house keeping of Leather complex is very poor. CETP of Leather Complex outlet effluent is also further contaminating Kala Singhian Drain apart from discharge of untreated sewage. Therefore, all the STPs and CETPs should be connected with the real time effluent monitoring systems with CC camera provision and the real time data needs to be transferred to the servers of PPCB and CPCB by all the STPs and CETPs.
- xix) Industries of Focal Point and Surgical Complex do not have any CETP. Industrial effluents of Focal Point at present flow directly into Kala Singhian Drain and those of Surgical Complex flow into

domestic sewerage system which affects it adversely. Necessary measures to be taken by the concerned authorities.

- xx) In every industrial area, CETP of suitable capacity and based on state-of-the-technology should be established at the earliest possible as a part of rejuvenation of river Sutlej and River Beas with the financial support of State Government as well as contribution by all the concerned industry.
- xxi) Sewage water of eastern side of Jalandhar is directly flowing into Garha Drain. The dairies along its banks also discharge their cow dung into it leading to faecal contamination of river Sutlej. There is a need for construction of a Bio-gas plant.
- xxii) The STP for private colonies opposite of RCF (Kapurthala), which was sanctioned, has not yet been installed and their sewage water is directly flowing into the Holy Kali Bein and contaminating it. Early progress with regard to the commissioning of STP should be ensured by the concerned authorities.
- xxiii) Irrigation pipeline of SultanpurLodhi has been established and is being maintained by us. But at all other places no government department is willing to take this responsibility. This responsibility should be given to suitable department to ensure the success of the system.
- xxiv) There is no PETP Standards prescribed by PPCB for the industries discharging their effluent through CETP. Therefore, PPCB is required to prescribe PETP Standards for all the CETPs in Punjab.
- xxv) All the member industries of CETPs should be directed to have a flow measuring devices at all the outlet of the individual industries and records should be maintained with regard to the total wastewater generated from each industry.
- xxvi) PPCB is required to carry out sampling and monitoring of river Sutlej and river Beas on monthly basis and analysis results also be submitted to Nodal Officer of CPCB.
- xxvii) Health Department should carryout preliminary health survey in all the villages located surrounding areas of major drains (Budha Nallah, East Bein, Kala Singhian) carrying sewage and contributing to the pollution load in river Sutlej and River Beas and a report be prepared and submitted with action plans, within two months. Health Department also suggested conducting health camps in the afore-said areas periodically. Health Department and PPCB shall also direct private hospitals associations to organise such health camps periodically on voluntary basis in the afore-said areas.
- xxviii) It was also decided that the monitoring committee may meet at RO, PPCB, Ludhiana on 26.10.2018 at 2 PM for finalisation and approval of the interim report by all the members and same may be ensured for its filing in Hon'ble NGT on or before 31.10.2018.

**(e) Fifth meeting of the Monitoring Committee held on 28.10.2018 at Ludhiana: -**

V Meeting of the Monitoring Committee was held on 16.11.2018 at 'Hotel Holiday Home, Shimla' with the concerned Departments of Himachal Pradesh State Government and Himachal State Pollution Control Board (HPSPCB) in compliance to Hon'ble NGT order dated 5.10.2018 in the matter of OA No.206 of 2016 titled Capt. Hans Raj Singha Vs. Union of India & Ors. Issues were discussed by the Committee and site visit were made by the committee to examine the sand mining at Village Sataun, Himachal Pradesh.

**(f) Sixth meeting of the Monitoring Committee held during 04.12.2018 (First Day) and 05.12.2018 (Second Day) at Jalandhar**

Upon deliberations on the course of actions to be taken by the concerned authorities, the following decisions were taken On 04.12.2018 (first day) by the Monitoring Committee: -

- 1) The samples of sludge generated from the STPs where industrial effluents are mixed with domestic effluent, located in the catchment area of river Sutlej and river Beas should be collected and got analyzed by PPCB through a laboratory approved under Environment (Protection) Act, 1986 or NABL approved laboratory. The analysis results of STPs sludge for its use as manure shall be submitted to the Monitoring Committee by PPCB, by December 31, 2018.
- 2) Information regarding inspections of water polluting industries carried out by PPCB during the period 24.07.2018 to 30.11.2018 listing the details of industries visited, industries found not complying with the effluent discharge norms, nature of violations observed, action taken and present status thereof be prepared and submitted to the Monitoring Committee.
- 3) Out of 61 STPs located in the catchment area of river Sutlej and river Beas, 43 STPs have been visited by Sant Balbir Singh Seechewal along with PPCB Officials and remaining 18 STPs should also be monitored by PPCB and compliance verification reports on the format already finalized by the Monitoring Committee along with analysis results of STP outlet should be submitted to the Monitoring Committee by PPCB. The report shall cover aspects such as status of consents, name of the operator, STP capacity, unit operations in STP with flow diagram, technology adopted for treatment of sewage in the STP, total sewage treated based on electromagnetic flow meters at the outlet during the last one month, treated sewage final disposal mode, sludge generation quality and quantity, influent and out characteristics of sewage for relevant parameters and other observations made by the visiting officials. The report should also indicate names of PPCB Officials inspecting the STPs for further discussion, if required. PPCB officials should take sample at the out let of STP as well as sludge sample in presence of the representative (s) of the O & M agency of the STP.

- 4) There is no PETS standards prescribed by PPCB for the industries discharging their effluent through CETP. Therefore, PPCB is required to prescribed PETS standards for all CETPs in Punjab, within three months' time.
- 5) Random inspection of 10% grossly polluting major industries located in the catchment area of river Sutlej and Beas should be carried by PPCB for verification of compliance to the notified norms and performance assessment reports should be prepared and submitted in original as per the format circulated by the Monitoring Committee along with the analysis results of the ETP outlet as well as the ground water samples collected by the inspecting team. Monitoring Committee may also monitor certain industries surprisingly at its own.
- 6) A digital map pertaining to river Sutlej and river Beas showing location of STPs with capacity in MLD shall be submitted by Dept. of Local Govt. and Punjab Water Supply and Sewerage Board.
- 7) Treated waste water usage policy already proposed by State Govt. be mentioned and the action plans be amended by Urban Bodies/agencies accordingly.
- 8) The Monitoring Committee once again suggested all the concerned departments to prepare action plans with time lines by examining the existing scenario, existing infrastructure, gaps identified, data gaps in the form of pictorial and statistical form, action plans with time lines including the action taken report on the recommendations of the monitoring committee. A detailed report prepared covering the above aspects and duly approved by Competent Authority of the respective Department shall be submitted (both in hard copy and soft copy) by all the concerned departments/authorities to the Monitoring Committeemembers and Nodal Officer, CPCB (i.e., Shri J.ChandraBabu, Scientist 'D', Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-110 032, M:9868278903, E.mail: [jcb.cpcb@nic.in](mailto:jcb.cpcb@nic.in)) latest by 26-12-2018.

The Monitoring Committee will review the Action plans and the Action taken reports submitted by all the concerned Departments on 1st Saturday of January, 2019, for finalisation of the draft report and for placing in CPCB website seeking comments or views from the public and for filing the finalised report of the committee before the Hon'ble NGT on or before 31.01.2019.

**Upon deliberation on the issues on 05.12.2018 (Second day), following decisions were taken by the monitoring committee for further necessary action by all the concerned Departments: -**

1. The committee directed M/s Chadha Sugar and Industries Pvt. Ltd., Kiri Afghana, Gurdaspur to submit various documents which include the following:- (i) A copy of the Consent and authorisation obtained from PPCB, Cane Crushing License, Sugar Cane Purchasing licence and a copy of the permission obtained from Excise Department for sale /purchase of molasses (ii) letters issued by Cane Commissioner to Sugar Mill to crush additional cane (both in Punjabi and Translated in English), (iii) details such as cane crushed, molasses generation, molasses consumed for captive distillery and sale of molasses on monthly basis with effect from November 2016 to April, 2018; (iv) Photographs and videos of ETP and molasses storage tanks before and after the incident, (v) procedure/approval for the movement of molasses from sugar unit to distillery unit, (vi) Practices being followed for storage of molasses and disaster management plans being followed in developed countries by the sugar industries, (vii) various action plans submitted and remedial activities carried out by the industry on 16.05.2018 and 17.05.2018 and at present to avoid/stoppage of spillage of molasses from open storage tanks within the industry premises with proofs.
2. The Committee felt that valuable time has been already lost and PPCB is still in the process of finalising the project proposals submitted by the PCCF, PAU and GADVASU. The study should have been awarded soon after the incident and such study would have given the trend in water quality of river Beas, therefore the Committee suggested PPCB to award a "short term activity" i.e., not more than 3 weeks time period to PAU and afore-said organisation to arrive at the present status of river Beas with regard to the Bio-diversity survey so as to arrive at pathogenicity index, plankton profile, Fish diversity as a part of the ecological health survey including water quality of the river Beas for physico-chemical and biological and heavy metals and these departments shall submit the study/outcome of the 3 week project by 3<sup>rd</sup> Jan 2019 to the Monitoring Committee indicating the present status of river Beas and a comparison with the findings with the historical data. PPCB shall take immediate action on the afore-said matter to enable the concerned departments to complete the studies and for submission of the reports by 03.01.2019.
3. Action plans for restoration of river Beas finalised in consultation through its departmental committees should be submitted to the Committee by PPCB on or before December 31, 2018.

4. The Department of Fisheries shall furnish the data relating the list of species observed by their department during the period May 2017 to November 2018.
5. Cane Commissioner, Punjab State Government is required to submit a brief note to the committee within fifteen days on the situation which lead to issue an order for additional cane crushing by the industry namely M/s Chadha Sugar and Industries Pvt. Ltd and what powers such an order was issued without ascertaining the safety and cane crushing capacity of the Unit and without consulting the regulatory authorities including PPCB.
6. The Wild Life Department was requested to submit their report with regard to the historical and present status of aquatic species data in river Beas by December 31, 2018 to the Committee.
7. The Committee also suggested M/s Chadha Sugar and Industries Pvt. Ltd to get the study conducted through any reputed organisation with regard to the present status of river Beas. Also, Committee suggested M/s Chadha Sugar and Industries Pvt. Ltd to submit detailed action plans to avoid future accidents of molasses discharges from their premises into the environment including the measures taken during the discharge of molasses into river Beas on May 16, 2018
8. As Director of Factories will be fully responsible on aspects relating to safety aspects and will ensure all safety measures are in place by the sugar industry so as to ensure that spill over and molasses or any other miss-happening does not occur in future. The measures suggested by Director of Factories to the sugar industries to be submitted to the committee within fifteen days.
9. Department of Forest and Wildlife Preservation, Punjab shall share the information and findings of the studies with regard to aquatic river Beas species survey (including comparison with the historical data of river Beas during the last year, prior to and after incidence of molasses discharge in river Beas as well as the latest findings) to the Committee on or before 03 January 2019.
10. It was decided by the Committee members to visit the site of M/s Chadha Sugar and Industries Pvt. Ltd., Kiri Afghana, Gurdaspur, after the meeting to know the present conditions with regard to the provision made for storage of molasses within the industry premises.

**(g) Seventh meeting of the Monitoring Committee held on 08.01.2019 at Chandigarh**

Main decisions taken in the remaining meetings are as follows: -

The Monitoring Committee directed that the action plans with timelines and financial estimates prepared by the concerned departments of Punjab State should be compiled by the PPCB and Member of Monitoring Committee representing from the local government and only after approval of the Punjab State Government the action plans should be submitted to the Monitoring Committee by 15.01.2019 for filing before the Hon'ble NGT for consideration.

**(C) Inspection of STPs located in the catchment of river Sutlej and River Beas located in Punjab State.**

As a follow-up of the decisions taken in first meeting of the monitoring committee, Shri. Balbir Singh Seechewal, Member of the Committee and Member, Punjab Pollution Control Board along with concerned regional offices of Punjab Pollution Control Board conducted a survey of 43 out of 61 Sewage Treatment Plants (STPs) located in the catchment areas of the rivers Sutlej and River Beas in Punjab State in August 2018. As per directions of Monitoring Committee, PPCB teams also inspected remaining 18 STPs during November to December 2018

Detailed visit reports and the photographs taken during the visits to STPs located in catchment area of Rivers Sutlej and Beas both by the Monitoring Committee (in August 2018) and the PPCB (during November to December 2018) are enclosed as **Annexure-XVI**. The treated waste water characteristics of 61 STPs located in the catchment area of river Sutlej and river Beas based on the visits carried out both by the member authorised by the Monitoring Committee and PPCB officials in August 2018 and PPCB teams during November to December 2018 are enclosed as **Annexure-XVII**.

*The observations made by the Monitoring Committee already been filed before the Hon'ble NGT in its interim report filed on 30.10.2018 and subsequently, Hon'ble NGT considered the matter and passed an order on 14.11.2018 based on the observations made by the Monitoring Committee and directed the concerned authorities for taking action.*

**(D) Visit to CETPs and one STP made by the Monitoring Committee**

Monitoring Committee also inspected two CETPs located at Jalandhar and Ludhiana on 26.09.2018 and 06.10.2018 respectively. CETP-wise observations made are as follows: -

### **Visit to CETP at Leather Complex, Jalandhar and one STP adjacent to Leather Complex, Jalandhar**

As a follow-up of the decisions taken in III Meeting of the Monitoring Committee which was held on 26.09.2018 at Jalandhar, Committee members comprising Shri Balbir Sing Seechewal, Member, Shri J.C.Babu, Sc 'D' and Nodal Officer, CPCB and Shri Niraj Mathur, SEE and representative of RSPCB and the officials of PPCB, Jalandhar inspected the STP located at Peer Daad so as to verify the claims of Shri Kishor Bansal, Superintending Engineer, Municipal Corporation Jalandhar and also the committee inspected a Common Effluent Treatment Plant (CETP) pertaining to the leather complex located at Jalandhar. During the visit to CETP at Leather Complex, Jalandhar (owned by Punjab Effluent Treatment Society), the observations made by the Committee members are as follows: -

- (i) CETP in leather complex was not in operation but under maintenance;
- (ii) Chromium bearing sludge removed from the sludge drying beds is kept in open yard adjacent to the sludge drying beds which may lead to soil and ground water contamination;
- (iii) Housekeeping in CETP was very poor;
- (iv) Workers were found to be replacing the new aerators in place of old aerators without any safety precautions (without wearing any PPE);
- (v) There is no provision of surface run off collection drain within the premises of CETP and thereby surface run off is leading towards preliminary storage tank;
- (vi) OCEMS including flow monitoring provision at the ETP outlet not yet provided for continuous monitoring of the treated effluent before its discharge, which is a serious violation of the directions issued by CPCB.
- (vii) Outlet of CETP is located close to the Kala Singhian drain and possibility of untreated industrial effluent into the drain cannot be ruled out.
- (viii) Considering the likely impacts due to improper disposal of chromium bearing sludge in Open Yard, the Committee directed the CETP authorities to lift and dispose of the chromium bearing sludge immediately through a TSDF, Nimbua following the manifest as per Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016 as amended.
- (ix) The CETP authorities could not show any documents relating to the CETP.

- (x) The Committee also directed CETP authorities to inform once the CETP become operational for re-inspection.

Photographs taken during the visit to CETP at Leather Complex, Jalandhar is given in **Figure 6**



**Improper Industrial Effluent Holding Tank**



**Workers replacing aerators without PPE**



**Improper Storage of Chromium Bearing Sludge-Stored in Open Yards**



**Effluent Discharge Point into Kala Sanghian Drain**

**Figure 6. Photographs taken during the visit to CETP at Leather Complex, Jalandhar**

### **Visit to CETP at Ludhiana (M/s. JBR Technologies Pvt. Ltd.,)**

The monitoring committee members comprising Shri. Balbir Singh Seechewal, Shri J Chandra Babu, Scientist-D (Nodal Officer), CPCB and other officials of PPCB Viz., Sh. Rajeev Sharma, Senior Environmental Engineer, PPCB, Zonal Office-2, Ludhiana; Sh. D.K. Singla, Environmental Engineer, PPCB, Regional Office-4, Ludhiana; Sh. Sushil Kumar, Junior Environmental Engineer, PPCB, Regional Office-4, Ludhiana visited CETP on 06.10.2018 which is operated by M/s JBR Technologies Pvt. Ltd located at Focal Point, Phase-VIII, Ludhiana for treatment of effluent being lifted from small scale electroplating industries of Ludhiana, Jalandhar, Amritsar, Mohali etc.

**Photographs taken during the visit to CETP at Ludhiana is given in Figure 7**



**Improper collection tanks used for collection of industrial effluent from member industries**



**Provision for Transfer of Industrial effluent from the Transportation vehicle**



**O & G Removal Tank**



**Effluent Holding Tank**



**Setting Tanks for settling of solids**

**Sludge Drying Bed**

**Figure 7 Photographs taken during the visit to CETP at Ludhiana on 06.10.2018**

The CETP Operator informed that there are 1615 members providing their trade effluent to the CETP. About 45 KLD of trade effluent from 150-200 industries is being lifted daily. 80% of the trade effluent received and treated goes to the adjoining dyeing industry. Vehicle used by the CETP for collection of industrial effluent from member industries is fitted with GPS.

Following suggestions were made by the monitoring committee members for carrying out necessary improvements by the CETP Operator within two months: -

- (i) The CETP Operator is required to provide information on industry-wise information regarding quantity for which agreement has been made, quantity actually lifted on monthly basis for the last one year. PPCB shall also provide the list of all these electroplating industries along with consented quantity of trade effluent to be generated.
- (ii) The transportation vehicles used for collection of industrial effluent should be lined with acid proof lining on sides and at bottom with a spill collection provision at the bottom for collection of spillages during the transportation or may also use closed type of tanker with all necessary provisions. Such collected spillages may be ensured further treatment.
- (iii) The transportation vehicles should be provided with name and contact details of the CETP Operator on all the four sides so that the information can be provided in case of any eventuality/accident.
- (iv) PPCB should direct all the member industries of CETP to provide only neutralised industrial effluent to the CETP Operator, considering the

safety aspects during transportation and handling of such industrial waste water.

- (v) Automatic dosage system in place of the manual dosage of lime be practiced by the CETP operator for neutralisation of untreated effluent.
- (vi) All the CETP areas should be properly earmarked by providing proper sign boards and also a layout of ETP at the entrance and also display board at the entrance indicating validity of consent and authorisation, wastewater treatment capacity and contact details of the CETP, should be provided by the Operator.
- (vii) The CETP should provide acid proof lining in the collection tank and the trenches in which the effluent is collected from the tankers, with proper sealing to avoid soil contamination.
- (viii) House keeping needs improvement.
- (ix) Instead of sludge drying beds, drum filter or centrifuge may be used for sludge handling prior to the disposal through TSD Operator.
- (x) Proper records should be maintained by the CETP Operator and submitted.

*The observations made by the Monitoring Committee already been filed before the Hon'ble NGT in its interim report filed on 30.10.2018 and subsequently Hon'ble NGT considered the matter and passed orders on 14.11.2018.*

**(E) Awareness programmes organized by the Monitoring Committee**

Awareness programmes organized by the monitoring committee under the chairmanship of Shri Balbir Singh Seehewal are given in the following



**Public Meeting in Kapurthala City for Pollution free Kali Bein, tributary of Beas River Organised on 07-09-2018**



**Awareness campaign at Sidhwan Bait (Ludhiana) for Sutlej River(29-07-2018)**



**Awareness Program at Seechawal Collage about east Bein tributery of Sutlej (02-08-2018)**



**Speach to students for Clean Environment (04-08-2018)**



**A program on Avtar Radio discussion about River Pollution (03-08-2018)**



**Awareness speech to citizen of Ludhiana about Budda Nallah pollution during Marathon race held in Ludhiana on 12-08-2018**



**Awareness Campign Organized By Monitoring Committee On 23-11-2018:-  
Kala Sanghia Drain And Chitti Bein**



**Awareness Campaign Organized By Monitoring Committee On 22-01-2019-  
Budha Nallah**

#### **8. Health Impacts Study: -**

The Monitoring Committee directed Health Department to carryout preliminary health survey covering surrounding areas of major drains (Budha Nallah, East Bein, Kala Singhian) carrying sewage and contributing to the pollution load in river Sutlej and River Beas.

Assessment report on Health Impacts in the catchment areas of river Sutlej and River Beas prepared and submitted by the Health Department of Government of Punjab is enclosed as **Annexure-XVIII**.

## **9 Observations and Recommendations of the Monitoring Committee: -**

Main observations and recommendations of the monitoring Committee are as follows: -

### **(i) Water supply: -**

- Presently water is abstracted and supplied more than 300 lpcd by the local and urban bodies which are more than the prescribed per capita water demand and leading to sewage generation more than the existing capacities of STPs. Also, the groundwater resources are depleting day-by-day, Government of Punjab should take a policy decision with regard to the supply of meter water to the public as per the demand or supply prescribed under the guidelines issued by Ministry of Urban Development.
- Based on the random collection of the groundwater samples in the catchment of river Sutlej and river Beas by the Monitoring Committee, 04 out of the 09 ground water samples collected are observed that the arsenic and iron content is exceeding the acceptable limit for drinking water specification of IS:10500-2012. *There is an urgent need to conducting detailed assessment of groundwater for assessment of suitability of drinking water purposes in the catchment area of river Sutlej and river Beas in association with the Central Ground Water Authority and all such groundwater tube wells or bore wells should be capped or closed immediately and in such areas alternate water supply be made by the Punjab Water Supply and Sewerage Board/Rural Drinking Water Supply and Sanitation Department or any other concerned Department, Government of Punjab.*

### **(ii) Sewage treatment and its management: -**

- Existing Sewage Treatment Plants in STPs have not obtained Consent under the Water (Prevention and Control of Pollution) Act, 1974 from the Punjab Pollution Control Board. Existing Sewage Treatment Plants in STPs should obtain Consent under the Water (Prevention and Control of Pollution) Act, 1974 from the Punjab Pollution Control Board, with immediate effect.
- STP's which have already been installed at different places in Punjab are neither working properly nor operating at all. As a result, the sewage of towns and Cities is either not treated or partially treated and are flowing directly into natural water resources which is mainly due to the lack of training to the personnel operating the STPs. Main reason for this is shortage of funds. Many times the employees are not been paid salaries and the operators are not operating the STPs for want of fuel and treatment plants remain idle. Government should allocate budget for management of sewage and solid waste management in the State and this allocated budget should be

released as and when required. Periodic training of all the officials i.e., O & M Staff, field staff or supervisors of the concerned departments involved in operation of the STPs should be organized by PPCB in association with the reputed organisations.

- Presently, STPs are under the control of the different organisations (as given in **Table 10**) and different organisations are planning in their own way and there is no proper co-ordination. Therefore, Punjab Government should bring all the STPs under one authority so that it becomes easy for planning, commissioning and for ensuring proper operation and maintenance of the existing or upcoming STPs.

**Table-10. No. of STPs, Installed Capacity and Agency responsible for Operation and Maintenance of the STPs installed in Urban Local bodies in the catchment of River Sutlej**

S. No	No. of STPs	Installed Capacity in MLD	Agency responsible of Operation and Maintenance of the STPs
1	29	276.10	Punjab Water Supply & Sewerage Board (PWS & SB)
2	5	29.90	Department of Water Supply & Sanitation (DWSS)
3	1	8.00	Municipal Committees (MC)
4	10	666.00	Municipal Corporations
5	1	5.00	Department of Housing & Urban Development
6	1	6.75	Bhakra Beas Management Board
7	5	9.40	Military Engineering Services, Ministry of Defence
<b>Total</b>	<b>52</b>	<b>1001.15</b>	

- Auxiliary power back-up facility is not provided at all the intermediate (IPS) & main pumping stations (MPS) of all the STPs. Therefore, all the STPs should have a provision of uninterrupted power supply or DG Set of adequate capacity for ensuring proper treatment of sewage during power failures.
- All the STPs are not having a laboratory facility for analysis of STP treated effluent for routine parameters as prescribed by the PPCB under Consent and all other parameters may be get analysed through Punjab State Water Testing Laboratory as per the frequency prescribed by PPCB. The operational parameters are not regularly analyzed hence the day-to-day variation in performance is not evaluated at most of the STPs.
- Treated water should not be thrown into natural resources as they are recharging source of underground water and the water is directly being used for drinking purpose. So alternative arrangements should be made to use the treated water for agriculture. The treated water could be thrown into into natural sources if it is drinkable. Beside that the samples of treated water

to use for agriculture should be regularly taken and its fertilizer chart should be given to farmers regularly.

- The ground water table of Punjab is depleting continuously and the most blocks of the state are declared dark zone. But even then the ground water is being pumped out at a large scale for agriculture purpose. The treated water of cities and villages can be used for agriculture. At present, untreated waste water is being thrown into natural resources of water which is the main cause of river pollution. If the waste water is used for agriculture, it would save our precious drinkable ground water and our natural water resources would remain pollution-free. The treated water of Sultanpur Lodhi is being used for agriculture in 14 kms area and treated water of Dasuya (in Hoshiarpur District) is also being used in 5 km area. Similarly, in Seechewal village, the treated water is being used for agriculture for the last 18 years. Same model can be implemented in all villages and cities. From every city, a drain of waste water originates. Punjab is a land of agriculture and therefore, the treated sewage complying to the sewage discharge norms may be encouraged for beneficial purposes which include agriculture, construction activity and green development so as to reduce abstraction and consumption of the ground water resources.
- Drains carrying sewage generated from the towns and cities located in the catchment of river Sutlej and river Beas should be stopped by having properly designed sewerage network connectivity to the existing and the proposed STPs, for ensuring treatment of generated sewage to comply with the discharge norms and thereafter only such treated sewage may be used for irrigation or any other beneficial use as per policy of Department of Local Government, Government of Punjab.
- For ensuring compliance to the effluent discharge norms notified under the Environment (Protection) Act, 1986, all the STPs should be connected with electromagnetic flow meters at all the salient points (i.e., inflow, at the bye-pass arrangements, after treatment and before discharge of treated water within the STPs) as well as continuous online effluent monitoring system with a provisions of CC Cameras and real time data also be transferred to the servers of CPCB and PPCB within next three months.
- STP sludge presently generated from 61 STPs (Analysis results of the STP Sludge Samples collected from the existing STPs in the catchment of river Sutlej by PPCB officials in December 2018 is given in **Annexure-XIX**) which is not fit for use as manure as it contains toxic constituents probably due to mixture of industrial

effluent discharges or illegal disposal of hazardous waste along with the sewage leading to STPs, which cannot be ruled out.

- STPs may include a provision of 'Sludge Digester' as a part of STP or a Common sludge digester for methane recovery and such generated sludge from the sludge digester may be used as manure and STPs shall ensure that the sludge does not become a part of the river system.
- Presently, all the STPs are not having standby arrangements in STPs and during maintenance; STPs are indulged in bye-passing untreated sewage intentionally into the nearby drains. Therefore, all the STPs should take prior permission from PPCB for carrying out any such maintenance activity. Also, all the STPs should have adequate capacity of holding tank (s) or standby arrangements for storage of untreated sewage during maintenance or shut down if any. All upcoming STPs also should have the above provisions.
- Any STP indulged in Bye-passing of untreated sewage, action against concerned officers should be taken by PPCB which include levying of fine under Environment (Protection) Act, 1986.
- In rural areas, generated sewage may be treated either by anaerobic system followed by constructed wet lands or Oxidation Ponds with preliminary treatment provision before it is discharged or stored in ground water recharge tanks and this aspect be examined by the Water Supply and Sanitation Department in association with the PPCB within three months period.
- Sewage water of eastern side of Jalandhar is directly flowing into Garha Drain. The dairies along its banks also discharge their cow dung into it leading to faecal contamination of river Sutlej. There is a need for construction of a Bio-gas plant.
- The STP for private colonies opposite of RCF (Kapurthala), which was sanctioned, has not yet been installed and their sewage water is directly flowing into the Holy Kali Bein and contaminating it. Early progress with regard to the commissioning of STP should be ensured by the concerned authorities.
- Irrigation pipeline of Sultanpur Lodhi has been established and is being maintained by Shri Balbir Singh Seechewal. But at all other places no government department is willing to take this responsibility. This responsibility should be given to suitable department to ensure the success of the system.
- Industrial effluents of the cities or towns should not be allowed to mix up with the domestic sewage. In the industrial cities like

Ludhiana, Jalandhar and Amritsar where industrial effluents have been allowed to mix with domestic sewage, the whole machinery of STP's is interfering with the working capacity. Therefore, dedicate sewerage network for carrying industrial effluent should be laid for which action plans should be implemented by all the concerned departments.

- Most of the treatment plants have been installed so far are on the banks of natural water resources. There is possibility of deliberate discharge of untreated sewage into the water bodies. Guidelines or a policy decision should be taken with regard to the establishment of treatment plants by having a buffer distance so that the risk of bypassing untreated water could be reduced.

### iii) Industrial effluent management

- Safe disposal of treated effluent of large scale/ scattered industries within the cities located on the banks of river Sutlej and River Beas has not been planned, as a result the effluent of the industrial estate is discharged into municipal sewer, which results into over loading of domestic sewers/ STPs. The excess flow in Budda Nallah is also due to industrial effluent discharges or indirectly by the industries and all such large scale/scattered industries should be tapped while establishing the CETPs in the respective industrial estates
- There is no PETP Standards prescribed by PPCB for the industries discharging their effluent through CETP. Therefore, PPCB is required to prescribe PETP Standards for all the CETPs in Punjab ***within three months.*** (Eg. In case of Electroplating industries, all the electroplating industries should be directed to have a captive equalisation or neutralization facility before such wastewater is discharged through CETP at Ludhiana and in Case of Leather complex at Jalandhar, all the Tanneries be insisted to have captive Chrome recovery plants)
- Entire house keeping of Leather complex is very poor. CETP of Leather Complex outlet effluent is also further contaminating Kala Singhian Drain apart from discharge of untreated sewage. Therefore, CETPs should be connected with the real time effluent monitoring systems with a provision of flow measurement and CC cameras and the real time data needs to be transferred to the servers of PPCB and CPCB by all the STPs and CETPs.
- Industries of Focal Point and Surgical Complex do not have any CETP. Industrial effluents of Focal Point at present is discharged directly into Kala Singhian Drain and Surgical Complex is also discharged into domestic sewerage system which affects subsequent STPs. Necessary measures to be taken by the concerned authorities for control of such discharges.

- In every industrial area, CETP of suitable capacity and based on state-of-the-art-technology should be established as a part of rejuvenation of river Sutlej and River Beas with the financial support of State Government as well as contribution by all the concerned industry.
- All the member industries of CETPs should be directed to have a flow measuring devices at all the outlet of the individual industries and records should be maintained with regard to the total wastewater generated from each industry.
- ETPs and CETPs should be operated by trained/ skilled professionals having diploma in engineering or certificate course from ITI in relevant field and must be supervised by Environmental Engineers.
- Each industry having captive ETP as well as each CETP should have a laboratory facility for analysis of basic parameters essential for ascertaining proper operation of treatment plants to ensure compliance to the discharge norms prescribed by PPCB.
- PPCB should regularly conduct organise training programmes/ refresher courses for upgrading skills of operators of treatment plants. Later on it may be made mandatory for all industry associations/ operators of CETPs to engage professionals for such training programmes/ refresher course.
- The knowledge of promoters of CETPs with regard to new technologies/ changes in laws/ rules needs to be upgraded regularly through seminars / workshops, which may be conducted by PPCB in association with the expert institutions.
- The need of the hour is that the treated effluent is reused/ recycled to the maximum extent and discharge in rivers is minimised. This can be achieved by hiking price of raw water and supplying treated water free of cost to users. It may be worked out, if treated water can be used by some other type of industry.
- The site of CETP should be so selected that it is away from banks of river/ natural stream.
- All the industries should be insisted to provide electromagnetic flow meters to measure the discharges and its records maintenance and its submission periodically to PPCB.
- PPCB should constitute a task team or environmental surveillance squad comprising of PPCB officials, Department Industries, NGO, representative Expert Institution for carrying out random inspections of CETPs or industries once in two weeks and any industry found violating the norms should be closed under the Environment (Protection) Act, 1986 or levied penalty as per the Environment (Protection) Act, 1986.

- Industries which claims following 'ZLD', all such industries should be inspected and verified the adopted 'ZLD' system through 'expert institution' by PPCB and a report in this regard should be filed by PPCB before the Hon'ble NGT and action be taken against all such industries with a penalty for faulty declarations.
- If any industry intends to enhance its capacity, it should be ensured granting permission inline with the availability of the adequate treatment capacity of CETP, if not no new industry be allowed by PPCB.
- The cost of establishing and running of CETP is borne ultimately by the industries. Therefore, the industrial units, which are connected to a CETP should be encouraged to regularly visit of CETPs to keep a watch on its operation. In case of any violations, concerned industry may inform the PPCB.
- There is a considerable gap with regard to hazardous waste generation and its disposal through Common Hazardous Waste Treatment, Storage and Disposal Facility located at Nimbua. PPCB should take action against all such industries as reported by the TSDF operator in accordance with law of the land.
- PPCB should also take action, if not taken, against the industries which have not complied with the effluent discharge norms or conditions of Consents issued by PPCB under the Environment (Protection) Act, 1986 in compliance to the directions issued by Hon'ble NGT vide order dated 14.11.2018.

#### IV) Organising Health Camps

- Health Department, Punjab Government should organize periodic health camps in the catchment areas of river Sutlej and river Beas and all the surrounding areas of the major drains contrinuating to pollution in river Sutlej/Beas.
- Health Department and PPCB shall also direct all the Government Health Care Facilities (HCFs) as well as Private Health Care Facilities or Indian Medical Association or Local Medical Associations to organise health camps periodically on voluntary basis or under corporate responsibility respectively, in the afore-said areas.

#### V) Action plans for rejuvenation of river Sutlej and river Beas

Action Plans proposed by the Punjab State Government as a part of rejuvenation of river Sutlej and river Beas are enclosed as **Annexure -XX**. *In addition to the action plans prepared by the Government of Punjab, following action plans also be included with timelines: -*

- Setting up of Bio-diversity parks at suitable places in the catchment of river Sutlej or Beas.

- Water shed management and maintaining E-flows in the river Sutlej and river Beas
- Effective implementation of sand mining policy of the Government of Punjab.
- Dredging and maintenance of all the drains contributing to river pollution. Restoration of all the drains as natural drains for carrying only storm water.
- Adoption of in-situ remediation techniques for improvement of water quality, wherever feasible.
- Provision of measurement of flows in all the drains through Irrigation Department, Government of Punjab.
- Installation of real time water quality monitoring stations at all the outfalls and at the salient points of the river water body within the jurisdiction of the Punjab State and for displaying of data as dissemination of information to the public.
- Septage management in the catchment areas of river Sutlej and river Beas

**VI) Mechanism for utilisation of fine of Rs. 50 Crores levied on the Government of Punjab: -**

Hon'ble National Green Tribunal vide its order dated 14.11.2018 has imposed fine of Rs 50 Crores on Punjab Government and para 15 and 18 of the order is reproduced as follows:-

*"There is no reason not to accept the findings in the report to the effect that huge damage has been caused to the environment particularly the water bodies as well to the inhabitants. The Committee has representatives from all concerned authorities. Even on a conservative estimate, learned counsel for the parties suggest and we find no reason to disagree that the damage in monetary terms will not be less than Rs. 50 crores. On "Polluter Pays" principle, the State of Punjab is directed to deposit a sum of Rs. 50 crores with the Central Pollution Control Board within one month from today for being spent on restoration of the environment as well for relief to the victims. The State of Punjab is at liberty to prepare an action plan to recover the amount from the erring industries, local bodies, individuals and also the erring officers.*

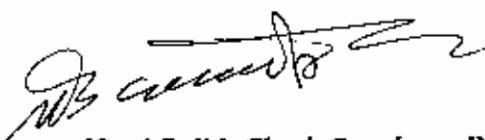
*The Monitoring Committee constituted by this Tribunal may suggest a mechanism for spending the above amount in proper proportion for restoration of the environment and for public health or other issues in the area."*

Based on the observations of the monitoring committee, the river Sutlej water quality is not complying with the water quality criteria for bathing at few monitored locations and hence not fit for bathing.

Also, as per limited assessment report of the Health Department, Government of Punjab, it is reported that the prevalence of the diseases which can be attributed to more pollution if any in the catchment areas of river Sutlej and river Beas is not alarming. However, the Committee observed that 04 out of 09 monitored ground water locations are having arsenic and iron content more than the drinking water specifications as prescribed under IS:10500-2012. Therefore, factual assessment of epidemiological studies covering all aspects need to be carried out through an expert institution for ascertaining the health impacts due to water pollution in the catchment areas.

*The Monitoring Committee is of the opinion that upon depositing Rs. 50 Crores (Rs. Fifty Crores only) by the Government of Punjab to CPCB in compliance to Hon'ble NGT order dated 14-11-2018, the mechanism for spending the above amount in proper proportion for restoration of the environment and for public health or other issues in the area, will be suggested subsequently after ascertaining the facts from the Government of Punjab.*

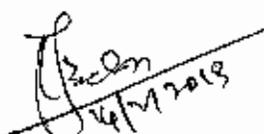
**The report of the Monitoring Committee is submitted herewith for perusal of Hon'ble NGT and this Monitoring Committee shall abide by any order or directions if any passed by the Hon'ble Tribunal.**



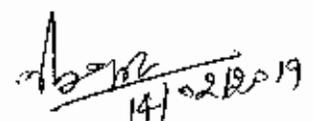
**(Sant Balbir Singh Seechewal)**  
Member and  
Member, Punjab Pollution Control Board



**(Amardeep Dhalivai)**  
Member,  
Department of Local Government



**(J. Chandra Babu)**  
Scientist 'E' and Nodal Officer, CPCB



**(Niraj Mathur)**  
Sr. Envi. Engineer, Representative of RSPCB

**Annexure-I**

**Hon'ble National Green Tribunal, Principal Bench, New Delhi (NGT) Order dated 24.07.2018 in the matter of Original Application No.101/2014 (Sobha Singh & Ors. (Vs) State of Punjab & Ors.**



<p>Item No. 01</p> <p>July 24, 2018</p> <p>ag</p>	<p>Solid (TDS). Accumulation of Chromium, Nickel, Zinc and pesticides is high in the sediment of <i>Chitti Bein</i>. Traces of metals like Chromium, Nickel and Zinc were detected in soil samples of the fields irrigated by the waters of the Bein. There is high level of inorganic and organic pollution in both the east <i>Bein</i> and the <i>Kala Sanghia</i> drain, as per the Punjab Pollution Control Board (PPCB) reports. Further, the report by SERI on Buddha Stream is also relevant. A study was also carried out on the impact of pollutants on water quality of river Satluj in Nangal Area which has been published in 'Biological Forum' - an International Journal. Sant Seechewal led a movement for cleaning <i>Buddha Nallah</i> for which he was honoured. He has recorded his findings in his book <i>Sikh Religion &amp; Environment Conservation</i> especially depicting municipal sewage water contamination at Ludhiana. The Punjab Pollution Control Board (PPCB) prepared an action plan for critically polluted area of Ludhiana City stipulating ban on new industrial units for 8 months. There are 1332 hazardous waste generating industries engaged in dyeing, electroplating, induction furnaces etc. Presently, these industries are generating total hazardous waste of 5498 MT, out of which 275 MT is recyclable and incinerable. The Central Pollution Control Board issued a direction dated 5<sup>th</sup> February, 2014 to all Pollution Control Boards and Pollution Control Committees under Section 18 (1) of the Water (Prevention &amp; Control of Pollution) Act 1974 and 18 (1) B of the Air (Prevention &amp; Control of Pollution) Act 1981 to deal with the pollution by 17 categories of the highly polluting industries. The directions required</p>
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<p>Item No. 01</p> <p>July 24, 2018</p> <p>ag</p>	<p>installation of online monitoring systems, The Chief Minister of Rajasthan conveyed the magnitude of the problem and sufferings of the people to the Chief Minister of Punjab but it had no effect.</p> <p>3. The Punjab Pollution Control Board filed its status report as on 21<sup>st</sup> September, 2014 in terms of the direction of this Tribunal dated 22<sup>nd</sup> April, 2014. The report mentioned the sources of waste water being discharged in rivers Satluj and Beas and suggested that STP was required to treat the sewage of Kala Sanghian Drain which required a sum of Rs. 9 Crores and 8-9 months period for completion. Sewage of Jalandhar city has also been flowing in Kala Sanghian Drain. 3 STPs were under constructions which were to be commissioned by 30<sup>th</sup> September, 2014. One STP was under construction for Phagwara Drain. CETP was set up at Jalandhar to take care of electroplating units which was to be commissioned by 31<sup>st</sup> December, 2014. The dairies were also discharging the liquid waste into the drains. There are tanneries discharging pollutants but there are only 2 CETPs. The other details of discharge of pollutants have also been given.</p> <p>4. In its reply, the State of Rajasthan referred to a Joint Inspection conducted by the Central Pollution Control Board observing that water quality of River Satluj and Beas was deteriorating. It proposed that the Punjab Pollution Control Board should ensure treatment of pollutants through the STPs. In Joint Inspection on 1<sup>st</sup> - 3<sup>rd</sup> May, 2012, it was found that BOD are not meeting the</p>
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<p><b>Item No.</b> <b>01</b></p> <p><b>July 24,</b> <b>2018</b></p> <p><b>ag</b></p>	<p>standards for discharging of environmental pollutants into the inland surface. With respect to COD and TSS, it was observed that STP are meeting the standard for inland surface, public sewers and land for irrigation marine coastal areas. With regard to CETP at Ludhiana and Jalandhar, it was observed that the CETP was not meeting the standards. The 35 Municipal Councils/Nagar Panchayats are discharging sewage into river Satluj and in discharge of <i>Buddha Nallaha</i> and <i>East Bein</i> heavy metals and large BoD load exists. Another inspection was done on 1<sup>st</sup> May, 2014 and it suggested no significant improvement in the situation. The Ludhiana Municipal Corporation stated that it has installed STPs for discharge of domestic sewage and mentions some other steps to check dumping of pollutants in the river Satluj.</p> <p>5. The Punjab Pollution Control Board has stated that 5 green bridges were proposed to be constructed at the cost of Rs. 15.28 crores funded by the Ministry of Environment, Forest and Climate Change. The effluent treatment plants are being monitored.</p> <p>6. The Punjab Water Supply and Sewerage Board stated that 5 STPs has been installed in Ludhiana at a cost of Rs. 233.33 crores.</p> <p>7. The matter came up for hearing before the Tribunal on 7<sup>th</sup> May, 2015 and this Tribunal considered the observation of the Central Pollution Control Board with respect to the water quality of the river Satluj at different regulations. The observations of the Central Pollution Control Board noted in the said order are as follows:</p> <ol style="list-style-type: none"> <li>1. "With respect to DO and BOD, water quality of river Sutlej before confluence of Buddha Nallah confirms to primary water quality criteria.</li> </ol>
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<p>Item No. 01</p> <p>July 24, 2018</p> <p>ag</p>	<ol style="list-style-type: none"> <li>2. Water quality of River Sutlej deteriorates after confluence of Buddha Nalla. Industrial units in small scale sector like Electroplating, Hosiery, Steel Rolling Mills etc mainly contribute to the wastewater in Buddha Nalla. The River water quality does not confirm to any of the designated use.</li> <li>3. Trace amount of Chromium, Arsenic was found in river Sutlej after confluence of Buddha Nallah.</li> <li>4. Some improvement in the water quality of river was observed before confluence of East Bein drain.</li> <li>5. The river water quality with respect to BOD, DO, Total coliform and Fecal coliform again deteriorates after confluence of the East Bein.</li> <li>6. It is observed from the analyzed result that the water quality of River Sutlej improves after confluence of river Beas and it lies in best use category A, except for coliforms.</li> <li>7. Water quality of River Beas meets the primary water quality criteria and lies in best use category A, except coliforms.</li> <li>8. Water quality of Rajasthan feeder does not meet the primary water quality criteria with respect to category A (Drinking Water Source without conventional treatment but after disinfection). However, water quality was within the prescribed limit with respect to category B and C.</li> <li>9. Water quality of Ferozpur/ Sirhind Feeder meets the prescribed standard and lies in best use category A (Drinking Water Source without conventional treatment but after disinfection), except for coliforms.</li> </ol> <p>8. Thereafter, the recommendations of the Central Pollution Control Board were noted to be as follows:</p> <ol style="list-style-type: none"> <li>1. Punjab State Pollution Control Board (PSPCB) shall ensure that sewage of Ludhiana, Jalandhar, Phagwara is conveyed to Sewage Treatment Plants (STPs)</li> <li>2. STPs shall run with full capacity and optimum performance.</li> <li>3. PSPCB and concerned Punjab Authorities shall explore the possibility to reuse the treated wastewater.</li> <li>4. PSPCB shall issue directions under section 33 (A) of the Water (Prevention &amp; Control of Pollution) Act, 1974 to Sewage Treatment plants installed at Ludhiana and Jalandhar and Common Effluent Treatment Plant installed at Leather complex, Jalandhar</li> </ol>
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<p><b>Item No.</b> <b>01</b></p> <p><b>July 24,</b> <b>2018</b></p> <p><b>ag</b></p>	<p>5. PSPCB shall ensure that no industrial unit discharges its untreated/partially treated effluent either into Sutlej and Beas River or into drains.</p> <p>6. Concerned Authorities of Punjab shall ensure that all the wastewater is conveyed to STPs and CETPs so that only treated wastewater is discharged into drains or river.</p> <p>7. PSPCB with concerned authorities shall evolve an action plan for abatement and control of pollution of river Sutlej and Beas.</p> <p>8. Concerned Authorities of Rajasthan shall ensure that water of Rajasthan feeder and other canal be given conventional treatment with disinfection for drinking purpose."</p> <p>9. It was noted that following directions were given by Central Pollution Control Board on 10<sup>th</sup> November, 2014:</p> <ol style="list-style-type: none"> <li>1. "Buddha Nallah and East Bein are major point sources discharging treated/untreated wastewater to river Sutlej. Buddha Nallah contributes about 16,672 kg/day of BOD load whereas East Bein contributes about 20,900 kg/day of BOD load.</li> <li>2. Buddha Nalla and East Bein deteriorate the water quality of river Sutlej as BOD level of river Sutlej after confluence of East Bein was observed as 10 mg/l whereas DO was 0.0 mg/l which does not confirm to any designated use during lean period of April, 2014.</li> <li>3. Water Quality of River Sutlej improves after confluence of river Beas as BOD level at d/s of Harike Barrage was 01 mg/l and DO was 7.2 mg/l.</li> <li>4. Total wastewater generation from major town of Ludhiana, Jalandhar and Phagwara is about 767 MLD (domestic + industrial).</li> <li>5. The water quality of river and canal does not confirm to the prescribed norms for total coliform. Total Coliform in Rajasthan feeder was in the range of 2000 to 1300000 MPN/100ml whereas in Sirhind Feeder was in the range of 4000 to 92000 MPN/100ml.</li> </ol> <p>10. After noticing the above, the Tribunal directed the concerned Pollution Control Boards to prepare an action plan for remedial situation.</p> <p>11. On 9<sup>th</sup> October, 2015, the Tribunal considered the action plan of the Punjab Water Supply &amp; Sewage Board (PWSSB) for which the funds were to be released by the</p>
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<p>Item No. 01</p> <p>July 24, 2018</p> <p>ag</p>	<p>Ministry of Urban Development, Government of India as per details noted in the order of the Tribunal.</p> <p>12. On 18<sup>th</sup> December, 2015, the Tribunal directed a Joint Inspection of Central Pollution Control Board and Punjab Pollution Control Board. It was also directed that samples of the effluents be taken and a report furnished. The said report was considered on 13<sup>th</sup> January, 2016 and it was noticed that the effluent discharged from the outlets of Sultanpur Lodhi and Basti Peerdaad exceeded the prescribed norms for BOD, CoD, TSS and Phosphates.</p> <p>13. On 9<sup>th</sup> January, 2017, the Tribunal directed the PPCB to file an affidavit in support of the stand that the industries have achieved zero discharge. Again the matter was considered on 19<sup>th</sup> April, 2017 and also subsequently.</p> <p>14. As per status report filed by the Punjab Pollution Control Board as on 23<sup>rd</sup> July, 2018, out of 18 towns in Nangal-Ropar belt, 17 STPs have already been installed and eighteenth is likely to be commissioned by 30<sup>th</sup> September, 2018. The Board is monitoring the industrial discharge and they have installed ETBs based on Zero Liquid Discharge technology (ZLD). CETPs catered to the industries based on ZLD technology. This has resulted in reduction in pollution in terms of metal content. The dyeing industries have installed ETBs and there is a proposal to install 3 CETPs. M/s Bahadurke Textile and Knitwear Association is installing a CETPs which has been approved by the Government of India for 50 % funding. The Punjab Dyers Association (Focal Point Module and Tajpur-Rahon road Module) is installing CETPs. It is stated that out of these 5 STPs, 3 STPs of capacity 48</p>
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<p>Item No. 01</p> <p>July 24, 2018</p> <p>ag</p>	<p>MLD, 152 MLD and 111 MLD STPs are based on UASB technology and have become old and needs upgradation to achieve the stringent parameters prescribed by Punjab Pollution control Board. There is also need to enhance the overall capacity of STPs to 650 MLD against the existing capacity of 466 MLD. Furthermore, there are some outlets carrying sewage of Ludhiana city, which directly falls into Buddha Nallah without any treatment for which Municipal Corporation, Ludhiana has to connect these outlets with main sewerage system leading to STPs. For closing these outlets and enhancement of capacity of STPs, Municipal corporation, Ludhiana has engaged the services of Engineers India ltd., (EIL), New Delhi and M/s Shah Technical Consultant, Chandigarh. The study of whole stretch of Buddha Nallah is being carried out to check the feasibility of interceptor sewer along the stretch of Buddha Nallah.</p> <p>With regard to Kala Singhia Drain and Garha Drain it is stated that there is a proposal for upgradation of the existing CETPs and to install third module of CETPs.</p> <p>15. Further, Status reports have also been filed indicating the status at Jalandhar and Ludhiana with regard to the setting up of the STPs.</p> <p>16. The above resume of the facts appearing in the inspection reports and the steps taken by local bodies, it does not give a clear picture of the result achieved at the ground level. Though, it is stated that there is need to upgrade STPs/CETPS and there are other challenges, time bound solution has not been suggested. The matter is pending for four years and almost 50 adjournments have</p>
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<p>Item No. 01</p> <p>July 24, 2018</p> <p>ag</p>	<p>been granted. We are now satisfied that there is immediate need for a dedicated and qualified monitoring committee for constant monitoring so as to ensure improvement on the ground level. The untreated effluents cannot be allowed to be dumped into any river or water bodies as it will violate fundamental right to life of the inhabitants were entitled to pollution free and clean water.</p> <p>17. Accordingly, we direct as follows:</p> <p>i) The Central Pollution Control Board may forthwith constitute a Monitoring Committee with the involvement of Mr. Balbir Singh Seechewal who has rendered remarkable voluntary service for creating awareness of checking pollution. The Representative of the CPCB will be the Nodal Officer and a representative of the Rajasthan Pollution Control Board may also be included in the Monitoring Committee. The Monitoring Committee must have one Engineer and one Scientist and also a Member of the Punjab Pollution Control Board and a Nomince of the Urban Development of the State of Punjab.</p> <p>ii) The Monitoring Committee must have first meeting latest by 10<sup>th</sup> August, 2018 and take stock of the action taken report so far. It may also prepare time bound Action Plan for handling the situation. Short term action plan may be for three months and longer plan may have three monthly targets.</p> <p>iii) Action Plan may be put on the website of the</p>
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<p><b>Item No.</b> 01</p> <p><b>July 24,</b> <b>2018</b></p> <p>ag</p>	<p>PPCB/CPCB enabling suggestions from stake holders and involvement of such volunteers as are considered relevant and genuine. Educational institutions may be encouraged to create awareness among children.</p> <p>18. With the above observation, the application is disposed off. The report of the Monitoring Committee may be filed by October 31, 2018 and registered as an independent application.</p> <p>19. List for consideration of the report of the Committee on 14<sup>th</sup> November, 2018.</p> <p>....., CP (Adarsh Kumar Goel)</p> <p>....., JM (S.P. Wangdi)</p> <p>....., EM (Dr. Nagin Nanda)</p> <p>24.07.2018</p>
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**Annexure-II**

**Hon'ble National Green Tribunal, Principal Bench, New Delhi (NGT) Orders dated 14.11.2018 in the matter of Original Application No.101/2014 (Sobha Singh & Ors. (Vs) State of Punjab & Ors.**

BEFORE THE NATIONAL GREEN TRIBUNAL  
PRINCIPAL BENCH, NEW DELHI

Original Application No. 916/2018  
(Earlier O.A. No. 101/2014)

Sobha Singh & Ors. Applicant(s)  
Versus

State of Punjab & Ors. Respondent(s)

Date of hearing: 14.11.2018

CORAM : HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON  
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER  
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

For Applicant(s):

For Respondent (s): Mr. Rajkumar, Advocate for CPCB  
Mr. A. Raj, Advocate for State of Rajasthan

**ORDER**

1. We have perused the interim report submitted by the Monitoring Committee, in compliance with the order of this Tribunal dated 24.07.2018 in *Original Application No. 101/2014, Sobha Singh & Ors. Vs. State of Punjab & Ors.*

2. The original application raised the issue of pollution of rivers Sutlej and Beas in Jalandhar and Ludhiana Districts on account of discharge of untreated pollutants - industrial as well as municipal. On testing the water samples, it was found that Total Dissolved Solid (TDS), Accumulation of Chromium, Nickel, Zinc and pesticides were high in the sediment of *Chitti Bein*. Traces of metals like Chromium, Nickel and Zinc were detected in soil samples of the fields irrigated by the waters of the Bein. There was high level of inorganic and organic pollution in both the east *Bein* and the *Kala Sanghia* drain, as per the Punjab Pollution Control Board (PPCB) reports. Further, the report by SERI on Buddha Stream was also to that effect.

3. In the last order dated 24.07.2018, we noted that there are 1332 hazardous waste generating industries as well as 17 categories of industries highly polluting. As a result of such pollution, eight districts of Rajasthan were found to be adversely affected, apart from Ludhiana and Jalandhar Districts of State of Punjab. We are informed that Mukhtar District is also affected by the pollution. The industries and local bodies failed to install and make functional the requisite treatment plants. 35 municipal Councils/Nagar Panchayats are discharging sewage with heavy metal and BOD loads in the said rivers.

4. We noted the stand of the Punjab Pollution Control Board and the Punjab Water Supply and Sewerage Board (PWSSB) with regard to installation of the STPs and taking of other steps. But in spite of the said steps, the water quality did not meet the laid down standards. Action plan of the PWSSB with the funds provided by the Ministry of Urban Development, Government of India were considered. It was noted that more STPs and CETPs were required to be set up.

5. After noting that the matter had been monitored by the Tribunal in the last four years on almost 50 dates, it was considered appropriate to have a closer monitoring at ground level.

6. Accordingly, a Monitoring Committee was directed to be constituted by the Central Pollution Control Board as Nodal Agency and having Mr. Balbir Singh Sicheval who had rendered voluntary service as a member, apart from representatives from the Rajasthan Pollution Control Board, PPCB and the Urban Development Department of the State of Punjab. The Committee was required to frame a shortterm action plan for three months and a longer plan with three monthly targets. The Committee

could also consider suggestion from stakeholders and involve volunteers as well as the educational institutions.

7. The Committee has conducted several proceedings and given its interim report, highlighting the issues noted and seeking three months more time up to 31.01.2019.

8. The Committee has taken stock of the situation and noted lack of sewage system, non-availability of STPs and lack of appropriate technology and capacity, lack of waste water treatment, lack of skilled man power, non-sustainable approach in designing of sewage management projects. The sources of industrial water pollution in the catchment of the river Sutlej include M/s National Fertilizers Limited, Nangal; M/s Punjab Alkali and Chemicals Ltd., Naya Nangal, M/s Guru Gobind Singh Super Thermal Plant (GGSSTP)/Ropar and M/s Gujrat. Ambuja Ltd. Village Daburji, Ropar at stretch Nangal to Ropar and electroplating industries, dyeing industries, leather complex, Kapurthala Road, Jalandar, Effluent from industries located at Phagwara, effluent from industries located at Phillaur as well as M/s Pioneer Industries (Distilleries Division) and M/s Pioneer industries (Gluten Division), Pathankot, M/s Indian Sucrose, Mukerian and M/s Chadha Sugar Ltd. The committee also noted that solid waste is not properly handled and is dumped on open sites causing a serious threat to the environment and also choking the flow of the water bodies. Bio-medical waste as well as hazardous waste are not properly managed. There is also illegal mining in the flood plain/river basins.

9. The Committee held meetings on 10.08.2018, 06.09.2018, 26.09.2018 and 17.10.2018 and noted the issues to be addressed. It was noted that sludge generated from STPs was not being pre-treated, STPs were not having stand-by arrangement during

maintenance, STPs are bye-passing the untreated sewage into drains and do not have adequate capacity, industrial effluents are mixed up with the domestic sewage resulting in damage to the STPs. All the STPs should be under one authority. Health camps are required to be conducted in the affected areas.

10. As a result of the testing of the samples from the STPs, it was found as follows:

*"a. Samples were collected from 34 out of 43 STPs inspected by the Committee.*

*b. 01 out of 43 STPs is having valid Consent.*

*c. 17 out of 43 STPs are bye-passing the sewage without imparting any treatment.*

*d. 36 STPs have installed flow meters at the inlet and only 12 out of 43 STPs have installed flow meters at the outlet.*

*e. Out of 34 samples, 33 are not complying with the sewage discharge norms.*

*f. 39 STPs are discharging their effluent either in rivers or drains and 3 STPs are using for onland irrigation. 01 STP gate found locked during the visit.*

*g. Most of the STPs located at Bhattian, Jamalpur, Eastipirdadd, Phillaur, Ropar Waddi, MaujewalNangal, Makhueither lying defunct or the effluent was being bye-passed (STPs at Jagraon, Balloki, NakodarPhillaur, Moga, Anandpur Sahib, Kapurthala, Phagwara etc.) without imparting any treatment for the generated sewage. At some STPs, operators were not present."*

11. With regard to CETPs, it was found that:

(i) CETP in leather complex was not in operation but under maintenance;

(ii) Chromium bearing sludge removed from the sludge drying beds is kept in open yard adjacent to the sludge drying bed which may lead to soil and ground water contamination;

(iii) Housekeeping in CETP was very poor;

(iv) Workers were found to be replacing the new aerators in place of old aerators without any safety precautions (without wearing any PPE);

(v) There is no provision of surface run off collection drain provision within the premises of CETP and thereby surface run off is leading towards preliminary storage tank;

(vi) OCEMS at the ETP outlet not yet provided for continuous monitoring of the treated effluent before its discharge, which is a serious violation of directions issued by Central Pollution Control Board;

(vii) Outlet of CETP is located close to the Kala Singhian drain and possibility of untreated industrial effluent into the drain cannot be ruled out.

(viii) Considering the likely impacts due to improper disposal of chromium bearing sludge in Open Yard, the Committee directed the CETP authorities to lift and dispose of the chromium bearing sludge immediately through a TSDF, Nimbua following the manifest as per Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016 as amended.

(ix) The CETP authorities could not show any documents relating to the CETP."

12. Observations with regard to 50 MLD capacity STP adjacent to the leather complex at Jalandhar are as follow:

(i) There is no sign of proper operation of the STP;

(ii) Automatic skimming provision is not in working condition;

(iii) STP is having bye-pass arrangement without any electromagnetic flow measuring unit to record any discharge through bye-pass arrangement

(iv) The sludge generated from the press filter arrangement were surprised to find that the cake of sludge had long

dried up and efforts had been made to drench it by throwing water on it.

(v) Sludge lying in the STP premises is not at par with the efficiency of the STP w.r.to removal of solids present in the raw sewage;

(vi) OCEMS installed in the STP outlet is not in working condition;

(vii) Authorities are not having thorough knowledge on operation aspects of STP due to lack of adequate training and skilled man power for proper operation of the STP;

(viii) Requisite records are not maintained properly."

13. With regard to CETP at Ludhiana, it was observed:

(i) The CETP Operator is required to provide information on industry-wise information regarding quantity for which agreement has been made, quantity actually lifted on monthly basis for the last one year. PPCB shall also provide the list of all these electroplating industries along with consented quantity of trade effluent to be generated.

(ii) The transportation vehicles used for collection of industrial effluent should be lined with acid proof lining on sides and at bottom with a spill collection provision at the bottom for collection of spillages during the transportation or may also use closed type of tanker with all necessary provisions. Such collected spillages may be ensured further treatment.

(iii) The transportation vehicles should be provided with name and contact details of the CETP Operator on all the

four sides so that the information can be provided in case of any eventuality/accident.

(iv) PPCB should direct all the member industries of CETP to provide only neutralized industrial effluent to the CETP Operator, considering the safety aspects during transportation and handling of such industrial waste water.

(v) Automatic dosage system in place of the manual dosage of lime be practiced by the CETP operator for neutralization of untreated effluent.

(vi) All the CETP areas should be properly earmarked by providing proper sign boards and also a layout of ETP at the entrance and also display board at the entrance indicating validity of consent and authorisation, wastewater treatment capacity and contact details of the CETP, should be provided by the Operator.

(vii) The CETP should provide acid proof lining in the collection tank and the trenches in which the effluent is collected from the tankers, with proper sealing to avoid soil contamination.

(viii) House keeping needs improvement.

(ix) Instead of sludge drying beds, drum filter or centrifuge may be used for sludge handling prior to the disposal through TSDF Operator.

(x) Proper records should be maintained by the CETP Operator and submitted."

14. We have heard learned senior counsel Mr. H.S. Phoolka appearing in connected matter, counsel for CPCB, PPCB and State of Rajasthan.

15. There is no reason not to accept the findings in the report to the effect that huge damage has been caused to the environment particularly the water bodies as well to the inhabitants. The Committee has representatives from all concerned authorities. Even on a conservative estimate, learned counsel for the parties suggest and we find no reason to disagree that the damage in monetary terms will not be less than Rs. 50 crores. On "Polluter Pays" principle, the State of Punjab is directed to deposit a sum of Rs. 50 crores with the Central Pollution Control Board within one month from today for being spent on restoration of the environment as well for relief to the victims. The State of Punjab is at liberty to prepare an action plan to recover the amount from the erring industries, local bodies, individuals and also the erring officers.

16. We direct that the Secretary, Local Bodies, Punjab, the Municipal Commissioners of Ludhiana and Jalandhar, PWSSB to jointly take responsibility for taking further steps to prevent any further damage and to take remedial steps so that the quality of water in the affected areas of rivers Sutlej and Beas is brought within the prescribed standards within 6 months.

17. The nodal officer for coordinating all actions will be the Secretary, Local Bodies.

18. The Monitoring Committee constituted by this Tribunal may suggest a mechanism for spending the above amount in proper proportion for restoration of the environment and for public health or other issues in the area.

19. The authorities may initiate prosecution against violators of law in accordance of law and take such other steps may be found appropriate, including closure of polluting industries, disciplinary and penal action against erring officers, etc.

20. Time for furnishing further report is extended till 31.01.2019, as suggested.

21. Put up for further consideration on 22.02.2019.

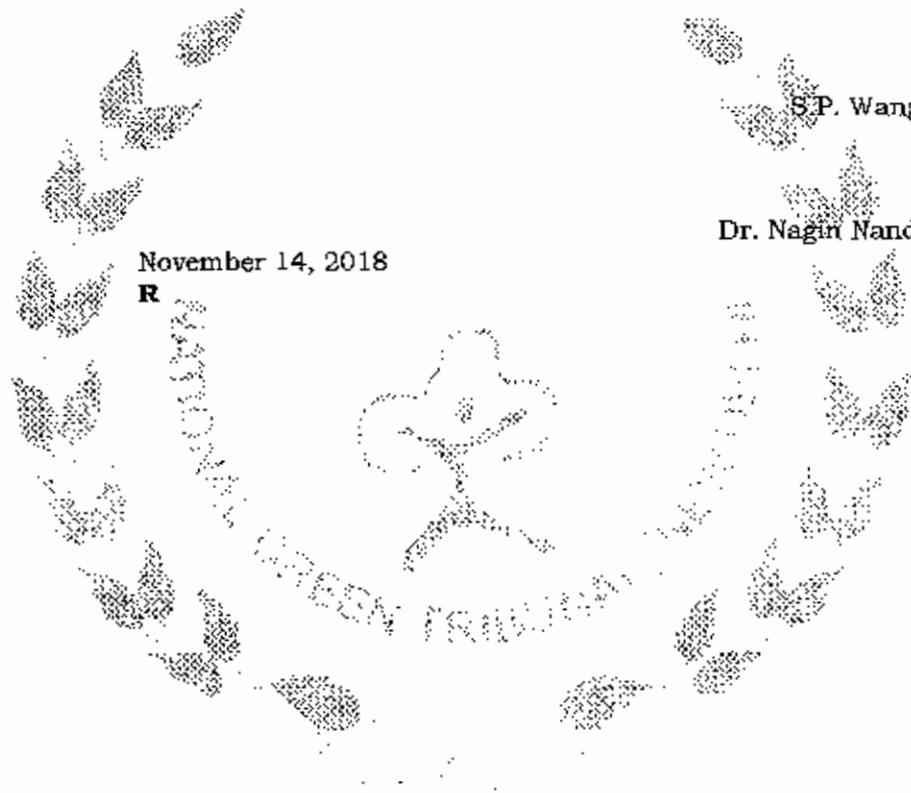
Adarsh Kumar Goel, CP

S.P. Wangdi, JM

Dr. Nagin Nanda, EM

November 14, 2018

**R**



**List of 30 Major Drains Directly Discharging Untreated or Treated Waste Water into River Sutlej**

S. No	Name of the drain	Point of Origin	Appr. Length (in Km)	Coordinates at which the drain meets river Sutlej	Location at which it meets river Sutlej	Aactual Discharge /Carrying Capacity (MLD)*
1	Adhera Choe /Siswan nadi /Dulchi nadi	Siswan Dam	38.11	30.956821 N 76.397454 E	Village beli kalan, Sri Chamkaur Sahib	200570
2	Hussainpura Drain	Village Ladal and Hussainpur	3.04	30° 59'23" N 76°31'28" E	village Katli,through ropar wet land	244.5
3	Phool Drain	village phool	3.06	30° 58'45" N 76°28'58" E	village Bara Phool	244.5
4	Budh ki nadi	Himachal	36.58	30° 58'47" N 76°27'25" E	Village Nanowal	129637
5	Sarsa Nadi	Himachal Pradesh	6.10	31° 03'55.5" N 76°33'8.9" E	Village Avaan Kot	-
6	Ladl Choe	Himachal Pradesh	3.04	30° 59'47.5" N 76°31'57" E	Village Katli	537.90
7	Main Seepage	Village Lodhipur	8.15	31° 10'35.6" N 76°33'40.6" E	Through Nakia Khadd near Gurudwara Patalpuri Sahib	579.46
8	Kiratpur Choe	From hills near Kiratpur Sahib	1.0	31° 10'31.4" N 76°33'14.3" E	Through Nakia Khadd near Gurudwara Patalpuri Sahib	36.68
9	Charan Ganga	From Nallah of Sri Anandpur Sahib	3.5	31° 15'28.6" N 76°25'31.7" E	Near Village Lodhipur	22
10	M.C.M. Drain (Lower)	Near Chamkaur Sahib	21.65	31° 00'06" N 75°59'05" E	Mattewara Forest	909.876
11	Budha Nallah	Near Machhiwara	40	30° 58'30" N 75° 37'36" E	Near Vill. Walipur	2768
12	Jassowal Extension Drain	Khadoor	1.07	30°58'01" N 75°24'21" E	Near Vill. Sherewal	20730.754
13	Kishanpura outfall drain	Near Village Kamaal ke, Tehsil Dharamkot, Distt. Moga	11.28	31° 02'17.36"N 75° 12'21.63"E	Near Satluj, Village Sherewala, Tehsil Dharamkot, Distt. Moga	638.55
14	Makhu drain	Near Village Nangal / Jogewala, Distt. Ferozepur	17.98	31° 07'55.17"N 74° 54'48.90"E	Near Village Dinne ke, downstream of Harike Head Works, Tehsil Zira, Distt. Ferozepur.	320.5
15	Sukkar Nala Drain	Village Badawal, Distt. Moga	99.10	31° 04'29.18"N 74° 42'28.36"E	Near Village Masteke, Tehsil & Distt. Ferozpur	2083.76
16	Phidda drain	Near Village Burj Duna, Distt. Moga	68.29	31° 00'44.04"N 74° 36'16.04"E	Near Village Langeana, close to international boundry, Tehsil & Distt. Ferozepur.	1663.67
17	Luthar Drain	Village Luthar, Tehsil & Distt. Ferozpur	5.18	Out fall closed	Near Village Waghe Wala	280.6
18	Mamdot Drain	Village Changa Makhana, Tehsil & Distt. Ferozpur	11.89	Out fall closed	Near Village Mamdot Hithar	409.92

S. No	Name of the drain	Point of Origin	Appr. Length (in Km)	Coordinates at which the drain meets river Sutlej	Location at which it meets river Sutlej	Aactual Discharge /Carrying Capacity (MLD)*
19	Phidda outfall drain	Near Village Sehjadi, Tehsil & Distt. Ferozepur.	52.59	30° 47'20.98"N 74° 18'26.34" E	Near Village Gajni Wala, Tehsil Guru Har Sahai, Distt. Ferozepur.	12428.6
20	Jiwan Arain Drain	Village Mohan Ke Uttar, Tehsil Guru Har Sahai, Distt. Ferozpur	12.95	Out fall closed	Near Village Issa Panj Grain, Tehsil Guru Har Sahai, Distt. Ferozpur	
21	Jalalabad mauzzam drain	Near Village Chak Janisar, Tehsil Jalalabad, Distt. Fazilka	19	30° 30'05" N 74° 02'26" E	This drain fall into creek of river Satluj, at Village Walle Shah Uttar / Hasta Kalan, Tehsil & Distt.	--
22	Salemshah Drain	Near Village Theh Qulandar, Tehsil & Distt. Fazilka	11.7	30° 27'58" N 73° 56'24" E	This drain falls into creek of river Satluj at village Muhar Jamsher, Tehsil & Distt. Fazilka	--
23	Fazilka Drain	Near to Fazilka town	5.3	Out fall closed	Actual meeting poing with Sutlej in is Pakistan terriatory 2 km from international boundary near to sulemanke headworks	--
24	Rahon Drain	Usmanpur to Kazampur Road	8.47	30°59'28.85" N 76° 8'46.39 " E	Near Vill. Saidpur Kalan	5.62
25	Balachaur Choe	South side of the road balachaur to ropar road	7.1	31° 3'9.92"N 76°17'55.50"E	Balachaur discharge into Balachaur choe and does not reach to River Sutlej.	450
26	Lasara Kadiana	Village Pandrawai	10.67	31° 00'55" N 75° 52'48.2" E	Near Darbar Baba Jhandpir	-
27	Theing Drain	Village Theing, Phillaur	5.4	30° 59'49" N 75° 47'28" E	Near Crossing Dhusi Bandh at Phillaur	03
28	East Bein	Nawan Shaha	214.62	31° 08'07" N 75° 06'41" E	Near Mandala Pind	5000
29	Patti Nalah	Village Rampur, District Gurdaspur	103.4	31° 08'10" N 74° 46'47" E	Village Kot Budha	625
30	Kasur Nalah	Village Tibbar, District Gurdaspur	157.276	31° 10'13" N 74° 31'01" E	Village Kalas	1125

## List of 13 Major Drains Directly Discharging Wastewater into River Beas

S.NO	Name of the Drain	Point of Origin	Approx. Length (In Km)	Location at which It meets River Beas	Approx. Discharge (MLD)
1.	Swan Khadh	Sansarpur-Terrace (Kangra, H.P)	7	Near Headworks Talwara	2
2.	Chak Phandian Drain	Vill Chak Phandian	40	Vill Khanpur	12.2
3.	Bhangala Drain	Village Chak Sarwani	15.5	Vill Kalichpur Kalota	2
4.	Gazi Drain	Village Landey	8.5	Talluwal	1
5.	Nikas Mansar Drain	Village Baghowal Nikas	6.88	Taggar Kalan	2.5
6.	Tanda Ram Sahai Drain	Village Muradpur	8.2	Near Dhanoa Bridge	4
7.	River Chakki	Himachal Pardersh	40	Vill Blanpur	20
8.	Gaddi Nallah	Village Bhagwanpur	18.89	Vill Taragarh, Mukerian	934
9.	Kahnuwan Swamp Drain	Village Pandori Bainsan	39.32	Bhait Pattan Near Vill Kiri Afgana	1651
10.	Dhirowal Drain	Village Santosh Nagar	6.10	Near Shri Hargobind Pur Bridge	367
11.	Open Channel Near Industrial Estate, Goindwal Sahib*	Focal Point, Goindwal Sahib	1.5	Vill Khakh	2
12.	Holy Bein	Vill Dhanoa, Dasuya Distt Hoshiarpur	120	Vill Mand Fatehpur	30,000
13.	Open Nallah along Shah Nehar Canal leading to River Beas	Talwara Town	2	Vill Bhera	2

Note:- \*Presently whole water from Focal Point Goindwal Sahib is getting stagnated in an open pond, however during rainy season, the River Beas water gets mix up with the stagnated water of the Goindwal Sahib Town and that of the Industrial Estate Goindwal Sahib

## Annexure-V

## Details on Town-wise discharge of wastewater - directly / indirectly in River Sutlej

S.No	Towns	Sewerage generated in MLD	STP Exist (Yes/No) if yes, No of STP	Installed Capacity of STP (MLD)	Quantity of Sewage discharged without treatment (MLD)	Disposal (Land, River, Drain or any other)
<b>A) Local Government</b>						
1	Ludhiana city	659	Yes (05)	466 (48-UASB, 50-SBR, 152-UASB, 111-UASB, 105-SBR)	11 * 2 new STP of capacity 50 MLD each at Jamalpur & Balloke proposed. Rehabilitation of existing 3 STPs at Village Bhattian, Balloke and Jamalpur, Ludhiana also proposed. 3 CETPs of	Budha nalla
2	Jalandhar City	314	Yes (06)	235 (100-UASB, 25-SBR, 25-SBR, 50-SBR, 10-SBR & 25-SBR)	79 * 2 new STP of capacity 50 MLD and 25 MLD proposed at Pholriwal and Basti Peer Dad respectively. Replacement of STP of capacity 100 MLD at Pholriwal also proposed.	Kala Sanghian drain, Garha drain, jaindusingh drain & MES drain
3	Phagwara	28	Yes (03)	36 (20-UASB, 8-MBBR & 8-MBBR)	0	Phagwara drain
4	Phillaur	3.6	Yes (02)	5.6 (3-MBBR & 2.6-WSP)	0	Tehang
5	Nakodar	5	Yes (01)	6-SBR	0	East bein
6	Nawanshahar	6	Yes (01)	6-SBR	0	East bein
7	Banga	2.5	Yes (01)	3-SBR	0	East bein
8	Hoshiarpur	20	Yes (01)	30-MBBR	0	Nasrala drain to East drain
<b>B) Deptt. of Water Supply &amp; Sanitation</b>						
9	Shri Muktsar sahib	12.9	Yes (03)	17.9 (8.7-MBBR, 5.7-MBBR & 3.5-MBBR)	0	Chand bhan drain
10	Anandpur sahib	2.14	Yes (01)	8-MBBR	0	Sutlej
11	Baghapurana	3.41	Yes (01)	4-SBR	0	Local drain
<b>C) Deptt. of Housing &amp; Urban Development (GMADA)</b>						
12	Kurali	3	Yes (01)	5-SBR	0	Partially for irrigation and rest in Adhera Choe

S.No	Towns	Sewerage generated in MLD	STP Exist (Yes/No) if yes, No of STP	Installed Capacity of STP (MLD)	Quantity of Sewage discharged without treatment (MLD)	Disposal (Land, River, Drain or any other)
<b>D) Punjab Water Supply &amp; Sewerage Board</b>						
13	Nangal	6	Yes (02)	13 (8-ASP & 5-ASP)	0	Directly into Sutlej
14	Garhshankar	2.5	No	0	2.5 * one new STP proposed	East bein
15	Machhiwara	3	Yes (01)	4-SBR	0	Budha nalla
16	sahnewal	3	Yes (01)	7-SBR	0	Budha nalla
17	Ropar	8	Yes (03)	14.5 (10-SBR, 2.5-SBR & 2-SBR)	0	Phool drain, budhkinadi hussainpur drain
18	Morinda	4	No	0	4* one new STP proposed	Dulchi Nadi
19	Balachaur	2.5	No	0	2.5* one new STP proposed	Gadhi Drain
20	Rahon	2	No	0	2* one new STP proposed	Machhiwara Drain
21	Kiratpur sahib	1	No	0	1* one new STP proposed	Lohundkhud
22	Jagraon	10	Yes (02)	28 (12-SBR & 16-SBR)	0	Nanaksar & Malik drain
23	Goniana	1.8	Yes (01)	3-WSP	0	Chanchan drain
24	Faridkot	12	No	0	12* one new STP proposed	Chand Bhan drain
25	Jaitu	5	No	0	5* one new STP proposed	Jaitu drain-chand bhan drain
26	Moga	50	Yes (01)	27-SBR	23* one new STP proposed	Fidda drain
27	Abohar	20	Yes (01)	25-SBR	0	Abulkhurana drain
28	Amiwala	1	No	0	1* one new STP proposed	Baam drain-ditch drain
29	Firozpur	14	No	0	14* one new STP proposed	Local drain
30	Kotkapura	12	No	0	12* one new STP proposed	Deviwala drain
31	Malout	10	Yes (02)	13 (3-WSP & 10-MBBR)	0	Ennakhera link drain
32	Dharamkot	3	Yes (01)	4-SBR	0	Masita drain
33	Patti	5.5	No	0	5.5* one new STP proposed	Rohi
34	Makhu	2	Yes (01)	4-SBR	0	Makhu drain
35	Guruharsahai	3.5	No	0	3.5* one new STP proposed	Jalalabad -maujam drain
36	Talwandi Bhai	2	Yes (01)	4-SBR	0	Ferozshah drain
37	Zira	5	Yes (01)	8-MBBR	0	Zira drain
38	Maluka	1	No	0	1* one new STP proposed	Chanchan drain
39	Jalalabad	6	Yes (01)	8-MBBR	0	Jalalabad drain
40	Raikot	4	No	0	4* one new STP proposed	Local drain

S.No	Towns	Sewerage generated in MLD	STP Exist (Yes/No) If yes, No of STP	Installed Capacity of STP (MLD)	Quantity of Sewage discharged without treatment (MLD)	Disposal (Land, River, Drain or any other)
41	Barriwala	1	No	0	1* one new STP proposed	SaraiNaya drain to chandbhan drain
42	Mamdot	2	No	0	2* one new STP proposed	mamdot drain
43	Mallanwala	2	No	0	2* one new STP proposed	jattanwali drain
44	Mudki	1	No	0	1* one new STP proposed	Mudki drain
45	Bhai Roopa	1.5	No	0	1.5* one new STP proposed	Chand bhan drain
46	Bhagta Bhaika	1.5	No	0	1.5* one new STP proposed	Chand bhan drain
47	Kothaguru	1	No	0	1* one new STP proposed	Chand bhan drain
48	Mahilpur	1	No	0	1* one new STP proposed	Barsati Drain
49	Nihal Singh wala	1	No	0	1* one new STP proposed	jwaharsinghwala drain
50	Gidarbaha	4.6	No	0	4.6* one new STP proposed	Bawania drain leading to Malout drain
<b>E) Bhakra Beas Management Board</b>						
51	Nangal	5.4	Yes (01)	6.75	0	Onto land for plantation (overflow)
<b>F) Military Engineering Services</b>						
52	M/s Garrison Engineer (East), MES Jalandhar Cantt	6	Yes	6.4 (3-MBBR, 3-MBBR, 0.4-MBBR)	0	Drain near village Sufi Pind, Jalandhar and further into ChittiBein near village Bambian
53	M/s Garrison Engineer (West), MES Jalandhar Cantt	2.5	Yes	3.0 (1.5-MBBR, 1.5-MBBR)	0	concrete oxidation pond through which effluent is discharged to Nallah leading to Garha drain
<b>G) PSIEC, Focal Point, Jalandhar</b>						
54	Focal Point, Jalandhar	1	No	0	1 *one STP proposed by PSIEC, Jalandhar	Into drain
<b>Total</b>		<b>1290.85 MLD</b>		<b>1001.15 MLD</b>	<b>382.6 MLD</b>	

**Details of Urban Local Bodies Generating Sewage, STPs Installed and their Installed Capacities in the Catchment of River Beas**

S. No.	Name of Town	Sewage Generation in MLD (Present)	Capacity of STP (MLD)	Technology of STP
1.	Talwara (BBMB)	4.0	8.0	SBR
2.	Pathankot	18.0	27.0	SBR
3.	Shri Hargobindpur	1.0	1.0	WSP
4.	Mukerian	4.0	5.0	MBBR
5.	Dasuya	3.0	4.0	WSP
6.	Tanda	3.0	4.0	MBBR
7.	Begowal	1.5	2.5	SBR
8.	Bholath	1.5	4.0	WSP
9.	Kapurthala	24.0	25.0	UASB
10.	Sultanpur Lodhi	3.24	2.6	WSP
11.	Sham Chuarasi	1.0	1.0	WSP
	<b>Total</b>	<b>64.24 MLD</b>	<b>84.1 MLD</b>	

**List of Partially Completed STPs/ ULBs/JDA/MES/PSIEC which have commissioned or proposed to be Installed STPs**

Sr. No	Name of the Town	Disposal of generated sewage	Capacity of the STP proposed to be installed/ Commissioned (in MLD)
<b>A</b>	<b>Local Bodies</b>		
1	MC Sultanpur Lodhi	Into Holy Bein	4.0
2	MC Sultanpur Lodhi	Into Holy Bein	1.0
3	MC Kapurthala (Upgradation of Technology)	Into Holy Bein	-
4	MC Kartarpur	Into Holy Bein	4.0
5	MC Dhilwan	Wastewater discharged into Pond adjoining River Beas which remain stagnated and carry discharge in Monsoon Season to River Beas	2.5
6	MC Pathankot	Into Chakki River	2.0
7	MC Pathankot	Into Chakki River	1.2
8	MC Hariana	Into Holy Bein	2.0
9	MC Sujampur	Near Bridge no.5, Sujampur	5.5
10	Talwara Town	Near Old Talwara Road from Mukerain Hydel Canal	4.0
11	Goindwal Sahib	Wastewater discharged into Pond adjoining River Beas which remain stagnated and carrying discharge in Monsoon Season to River Beas	1.3
12	Jalandhar Development Authority (JDA)	Wastewater generated from Vill Rawal and adjoining Colonies of Distt Kapurthala	1.0
13	MES	Garrison Engineering Services Kapurethala	1.0
14	PSIEC	Industrial Growth Centre Pathankot	2.0
15	PSIEC	Industrial Focal Point Goindwal Sahib	2.0

## Annexure-VII

## (a) Industrial sector-wise, area-wise water consumption and waste water discharge (in MLD) by the Industries located in the catchment area of river Sutlej

S. No.	Industrial sector	No. of Industries	Ludhiana		Jalandhar		Phagwara		Nawanshahr		Ropar		Moga		Final Mode of Disposal of Effluent
			Water Consumption	Waste water discharge											
1	Dyeing	232	88.44	87.54	9.5	8.28	1.1	1	0	0	0	0	0	0	Disposal into public sewer after captive ETP
2	Pulp & Paper	2	0.64	0.58	0	0	0	0	0	0	0	0	0	0	do
3	Thermal	1	0	0	0	0	0	0	0	0	3	0	0	0	do
4	Chlor Alkali	1	0	0	0	0	0	0	0	0	0.43	0.3	0	0	do
5	Cement	1	0	0	0	0	0	0	0	0	0.65	0	0	0	do
6	Fertilizer	1	0	0	0	0	0	0	0	0	74.7	0	0	0	do
7	Sugar Mills	2	0	0	0	0	1.8	1.24	0.93	0.85	0	0	0	0	do
8	Electroplating / surface treatment	1903	0.6295	0.555	0.35	0.051	0	0	0	0	0	0	0	0	Through CETP located at Ludhiana
9	Tannery	87	0	0	4.673	4.239	0	0	0	0	0	0	0	0	61 units Through CETP Jalandhar and 26 units through CETP Phillaur
10	Others (washing of garments / service station etc.,	193	4.56	4.23	13.02	10.07	1.79	1.57	0	0	0	0	2.8	2.7	Disposal into public sewer after captive ETP
<b>Total</b>		<b>2423</b>	<b>94.27</b>	<b>92.91</b>	<b>27.54</b>	<b>22.64</b>	<b>4.69</b>	<b>3.81</b>	<b>0.93</b>	<b>0.85</b>	<b>78.78</b>	<b>0.3</b>	<b>2.8</b>	<b>2.7</b>	

**(b) Industrial sector wise and area wise water consumption and waste water discharge (in MLD) by the industries located in the catchment area of river Beas**

S. No.	Industrial sector	No. of Industries	Pathankot		Gurdaspur		Mukerian		Dasuya		Goindwal Sahib		Beas		Kapurthala		Final Mode of disposal
			Water Consumption	Waste water discharge													
1	Brewery	1	-	-	1.000	0.700	-	-	-	-	-	-	-	-	-	-	Onto land
2	Distillery	5	1.360	0.678	2.356	1.288	-	-	2.500	ZLD	-	-	-	-	-	-	
3	Sugar Mill	3	-	-	1.850	0.450	2.200	0.002	2.590	2.500	-	-	-	-	-	-	
4	Paper/ Board Mill	2	0.645	0.035	-	-	-	-	-	-	-	-	-	-	-	-	Recirculation
5	Gluten	1	0.450	0.311	-	-	-	-	-	-	-	-	-	-	-	-	Onto land
6	Thermal Plant	1	-	-	-	-	-	-	-	-	56.612	0.652	-	-	-	-	Recirculation & Onto land for irrigation
7	Vanaspati	1	-	-	-	-	-	-	-	-	0.050	0.045	-	-	-	-	PSIEC Sewer
8	Educational Institute	1	-	-	-	-	-	-	-	-	0.010	0.000	-	-	-	-	PSIEC Sewer
9	Health Care Facility	1	-	-	-	-	-	-	-	-	-	-	0.256	0.230	-	-	Onto land for plantation
10	Dera Beas	1	-	-	-	-	-	-	-	-	-	-	1.210	1.200	-	-	Onto land for plantation
10	Misc	4	-	-	-	-	-	-	-	-	0.351	0.107	-	-	1.700	0.022	PSIEC Sewer/Onto land for plantation
<b>Total</b>		<b>21</b>	<b>2.455</b>	<b>1.024</b>	<b>5.206</b>	<b>2.438</b>	<b>2.200</b>	<b>0.002</b>	<b>5.090</b>	<b>2.500</b>	<b>57.023</b>	<b>0.804</b>	<b>1.466</b>	<b>1.430</b>	<b>1.700</b>	<b>0.022</b>	
<b>Total Water Consumption in MLD</b>					<b>75.14</b>												
<b>Total Waste water generation in MLD</b>					<b>8.22</b>												

*Note: - The major consumption of Water of 56.6 MLD is by thermal plant and all the values are in MLD*









S. No	Name and Address of the Industry	Sector	pH	TSS in mg/l	TDS in mg/l	COD in mg/l	BOD in mg/l	Ammonical Nitrogen in mg/l	SAR	Sulphide in mg/l	O & G in mg/l	Phenolic Compound	Cr. In mg/l	Nickel in mg/l	Iron in mg/l	Total Phosphate in mg/l	Colour	Phenol in mg/l	Chloride in mg/l	Compliance Status
45	M/s Arora Brothers Creations, Tajpur Road, Jaswal Complex, Ludhiana	Dyeing	8.12	1	983	52	8.3	BDL	7.9	1.8	BDL	0.5	BDL	-	-	-	-	-	-	Complying
46	M/s Ganesh Dyeing Mills, G.T. Road, Dhandari Kalan, Ludhiana	Dyeing	7.6	42	1449	167	25	BDL	5.7	BDL	BDL	1.6	BDL	-	-	-	80	-	-	Not Complying
47	M/s Vardhman Spinning & Gen Mills, Chandigarh Road, Ludhiana.	Dyeing	8.38	BDL	2946	22	5	BDL	9.16	BDL	BDL	-	BDL	-	-	-	-	BDL	-	Not Complying
48	Om Processors Pvt. Ltd. K-3, Textile Colony, Industrial Area- A Ludhiana	Dyeing	7.4	84	3364	112	16	BDL	14.7	BDL	BDL	1.9	BDL	-	-	-	-	-	-	Not Complying
49	M/s Raunaq Fabrics C-30, Phase-2, Focal Point, Ludhiana	Dyeing	7.45	29	2351	204	34	BDL	2.63	BDL	BDL	-	BDL	-	-	-	-	BDL	-	Not Complying
50	M/s Supreme Agro Foods (P) Ltd. (Unit-II), C-181, Phase-VI, Focal Point, Ludhiana	Misc.	7.9	9	1026	24	<5	-	-	-	BDL	-	-	-	-	-	-	0.8	32	Complying
51	M/s Ashoka Dyeing, C-132-133, Focal Point, Phase-5, Ludhiana.	Dyeing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No discharge at the outlet of ETP
52	M/s Nav Bharat Dyeing Works, Sardar Nagar, Rahon Road, Ludhiana.	Dyeing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Closed due to non-availability of raw material.
53	M/s Ponahari Dyeing Works, Jaswal Complex, Tajpur Road, Ludhiana	Dyeing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Non-operational (construction/repair work in progress)
54	M/s C.K. Processors, Jaswal Complex, Tajpur Road, Ludhiana	Dyeing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not in operation at the time of inspection.
55	M/s Oswal Knit India, 230, Industrial Area-A, Ludhiana	Dyeing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not in operation at the time of inspection.
56	M/s Capital Dyeing, 176, Industrial Area-A, Ludhiana	Dyeing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not in operation at the time of inspection.

S. No	Name and Address of the Industry	Sector	pH	TSS in mg/l	TDS in mg/l	COD in mg/l	BOD in mg/l	Ammonical Nitrogen in mg/l	SAR	Sulphide in mg/l	O & G in mg/l	Phenolic Compound	Cr. In mg/l	Nickel in mg/l	Iron in mg/l	Total Phosphate in mg/l	Colour	Phenol in mg/l	Chloride in mg/l	Compliance Status
57	M/s National Scientific Dyers, 37, Industrial Area-A, Ludhiana.	Dyeing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not in operation at the time of inspection. Re-circulation tank was under construction.
58	M/s Blue Star Processors Pvt. Ltd., D-57,58, Phase-5, Focal Point, Ludhiana	Dyeing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lying closed
59	M/s Sanjeev Dyeing Works, 1004/9, Circular Road, Ludhiana	Dyeing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	There was no discharge at the outlet of ETP at the time of inspection.
60	M/s Gian Chand & Sons, Vill. Bajra, Rahon Road, Ludhiana	Dyeing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lying closed temporarily.
61	M/s Madhok Scientific Dyers, 104, Mahavir Jain Colony, Tajpur Road, Ludhiana.	Dyeing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lying closed temporarily since last two- three days.
62	M/s Madan Dyeing & Finishing Factory, 31, Textile Colony, Industrial Area-A, Ludhiana	Dyeing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Dyeing not in operation due to technical snag.
63	M/s Libra Autocar Co. Ltd., Transport Nagar, Opp. Moti Nagar, Ludhiana	Misc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ETP was not in operation.
64	M/s Udhera Mechanical Works (Car Board Unit)C-66, Phase-3, Focal Point, Ludhiana	Misc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Effluent was being recirculated and no effluent at the outlet of ETP.

- (a) Random inspections of CETP member industries carried out by PPCB in December 2018 as per decision taken by the Monitoring Committee constituted by CPCB in compliance of orders dated 24.07.2018 passed by Hon'ble NGT, New Delhi in the matter of O.A. no. 101/2014 titled as Sobha Singh & Ors. Vs. State of Punjab & Ors.

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
1.	M/s V.S. Auto Industries, 11-R, Industrial Area-B, Ludhiana.	19-12-2018	1. Sh. Arun Kakkar, EE 2. Sh. Guneet Sethi, AEE	In Operation	1. House-keeping and flooring of electroplating section needs further up-gradation.	Complying
2.	M/s B.S. Enterprises, 126-R, Industrial Area-B, Ludhiana.			In Operation	1. House-keeping was poor and flooring of electroplating section needs modification/ acid proof lining.	Complying
3.	M/s Acme Engineers (India), BXXI-3747, St. No. 2, Daba Road, Shimlapuri, Ludhiana			In operation	1. House-keeping was very poor. 2. Electroplating effluent storage tank was not lined. 3. Caustic cleaning effluent was being discharged directly into sewer and also found stagnated on road. 4. Flooring of electroplating and caustic cleaning section not properly lined. 5. The industry could not produce the record regarding the status of validity of consents granted to it under the Water Act, 1974. 6. The industry is not maintaining record regarding consumption of fresh water, utilization of acid in process and generation/disposal of waste water.	Not complying
4.	M/s D.A. Electroplaters, 49-B, Industrial Estate, Ludhiana.			In Operation	1. House-keeping needs further up gradation.	Complying
5.	M/s Bharti Techno Crat, F-208, Phase-8, Focal Point, Ludhiana	19-12-2018	1. Ms. Samita, EE 2. Sh. Bachanpal Singh, AEE	In Operation	1. The industry has provided two no tanks for storage of effluent generated from plating section. 2. Both collection tanks were almost full during visit. The industry should increase the size of the storage tank. 3. Rough patches of floor area were observed in the pickling section. 4. As per audit for the month of November, 2018, the water consumption is proportionate to the quantity lifted by the CETP Operator.	Complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
6.	M/s Citizen Product, E-611, Phase-VIII, Focal Point, Ludhiana			In Operation	<ol style="list-style-type: none"> <li>The untreated effluent from the process area (zinc plating, nickel-chrome plating, stripping, pickling) is collected into two no. of underground tanks.</li> <li>There are fresh water taps and bathroom for domestic use near the stripping section and same needs to be shifted.</li> <li>Outlet from the stripping section is open from some points and needs to be closed and also regular cleaning is required.</li> </ol>	Not Complying
7.	M/s Ess Ess Industries, Kanganwal, Jaspal Bangar Road, Industrial Area-C, Ludhiana	19-12-2018	<ol style="list-style-type: none"> <li>Sh. Vijay Kumar, EE</li> <li>Sh. Ramandeep Singh Sidhu, AEE</li> </ol>	Industry lying closed	Industry lying closed.	Closed
8.	M/s Accord Industries, Industrial Area-C, Sua Road, Dhandari Kalan, Ludhiana			In Operation	<ol style="list-style-type: none"> <li>The industry is required to provide adequate suction system at pickling section (HCl) to reduce the emission of acid mist.</li> <li>The industry is required to install only two storage tanks of waste water and spent acid.</li> <li>The industry was advised to reduce the evaporation losses.</li> </ol>	Complying
9.	M/s Jain Manufacturing Co., 840, Industrial Area-A, Ludhiana	19-12-2018	<ol style="list-style-type: none"> <li>Sh. GursharanDass, EE</li> <li>Sh. Vipin Jindal, AEE</li> </ol>	In operation	<ol style="list-style-type: none"> <li>The trade effluent of the industry is being lifted by JBR technology, Ludhiana.</li> <li>The industry is maintaining the record of lifting of its trade effluent.</li> <li>The industry is maintaining record of water consumption (mechanical water meter provided) on daily basis.</li> <li>The industry is discharging the reject of DM plant into MC Sewer.</li> </ol>	Not Complying
10.	M/s K.K. Mechanical & Engg. C-7, Textile Colony, Industrial Area-A, Ludhiana.			During visit not in operation	Not in operation since long	Closed
11.	M/s Appu International, C-75, Phase-5, Focal Point, Ludhiana.	20-12-2018	<ol style="list-style-type: none"> <li>Sh. Vijay Kumar, EE</li> <li>Sh. Ramandeep Singh Sidhu, AEE</li> </ol>	In Operation	<ol style="list-style-type: none"> <li>The industry could not produce the record of the acid used in the process.</li> <li>Also the collection tanks meant for the storage of waste water and spent acid were fill up to brim level.</li> <li>The industry has not installed water meter at the pipe line leading to its pickling and washing section.</li> </ol>	Not complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
12.	M/s Aarti Steels Ltd., Focal Point, Phase-2, Metro Road, Ludhiana.	20-12-2018	1. Sh. Arun Kakkar, EE 2. Sh. GuneetSethi, AEE	In Operation	<ol style="list-style-type: none"> <li>1. The industry has installed ETP for treatment effluent generating from pickling, galvanizing, bead wire section and B.M reject etc.</li> <li>2. The industry has provided pipe line and storage tank for permeate of RO-1 and 2 for reusing in pickling and galvanizing section and RO reject is disposed for evaporation through splashing in tank provided in arc division.</li> <li>3. Both the ETP and RO plant were in operation during the visit.</li> <li>4. Hazardous waste i.e. ETP sludge drying section were found with sloping floor towards movement road with in the premises.</li> <li>5. The industry is not maintaining record regarding utilization of acid consumption in the process</li> </ol>	Complying
13.	M/s Vishal Cycle Pvt. Ltd., 544/2, Guru Ram Bass Road, Dhandari Kalan, Ludhiana.			In Operation	<ol style="list-style-type: none"> <li>1. House-keeping around the storage tanks and electroplating &amp; Caustic cleaning section was poor.</li> <li>2. Effluent lifting pipeline and pumping system from storage tanks requires modifications.</li> <li>3. The industry is not maintaining record regarding consumption of fresh water and generation/disposal of waste water</li> </ol>	Not complying
14.	M/s Bhogal Sales Corporation, 1104/1, Dhandari Kalan, G.T. Road, Ludhiana			In operation	<ol style="list-style-type: none"> <li>1. The industry has installed ETP for treatment of effluent generating from auto blackening and phosphating section.</li> <li>2. The industry has provided pipe line and storage tank for permeate of RO in auto blackening.</li> <li>3. Line is provided to reusing part of RO reject in quenching process and part of RO reject is collect in syntax tanks from where it is given to M/s J.B.R. (CETP operator).</li> <li>4. In ETP area open channel is provided for disposal of rain water but same needs to be closed/plugged as mixing of effluent with rain water can't be ruled out.</li> </ol>	Complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
15.	M/s Acme Forgings, A-14 Focal Point, Jalandhar	20-12-2018	1. Ms. Samita, EE 2. Sh. Bhisam Singh, AEE	In operation	1. The industry has provided 4 No. collection tanks for storage of trade effluent to be lifted by M/s JBR, Technology Pvt Ltd, Ludhiana. 2. The industry need to improve house- keeping. 3. The industry need to provide proper drainage system in pickling section and near storage tank area.	Not Complying
16.	M/s Kalsi Pumps (P) Ltd., B-6, SSGC, Jalandhar			In Operation	1. The industry has made an agreement with M/s JBR Technology Pvt. Limited, Phase-8, Ludhiana for lifting its effluent.	Complying
17.	M/s ESS PEE Industrial Corporation, C-55, SSGC, Jalandhar			In Operation	1. The industry is required to improve house- keeping at site. 2. The industry is required to provide proper cover over the effluent storage area to avoid entry of rain water in this tank.	Complying
18.	M/s Ambika Overseas, Model House Road, Jalandhar			In Operation	1. Presently the industry is in operation at 40% capacity. 2. The industry has provided a flexible pipe line from boiler section to electroplating section & this line is without any metering system. Which shows that the industry is consuming unmetered fresh water into electroplating section. 3. The industry has not provided any meter with inlet fresh water line as well as, re-use effluent carrying line, in the barrel section. 4. The industry is required to improve house- keeping in the barrel section.	Not Complying
19.	M/s Cute Products (India), Plot No. 21-22, Phase-6, Focal Point, Ludhiana	21-12-2018	1. Sh. GursharanDass, EE 2. Sh. Vipin Jindal, AEE	In operation	1. A soakage pit was observed near the frame cleaning section and the frame are being cleaned with the help of H <sub>2</sub> SO <sub>4</sub> . It is apprehended that some effluent generated from frame cleaning section is discharged into this soakage pit. 2. The industry has not provided water meter on the line leading to frame cleaning section. 3. The industry has installed 2 no. diesel fired furnaces without APCD and also the industry has not provided any scrubbing system for fumes/emissions arising from phosphating section as well as frame cleaning section.	Not complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
20.	M/s Aditya Industries, E-528, Phase-VI, Focal Point, Ludhiana			In operation	1. There is no separate collection tank, the effluent is being lifted directly from pickling bath by operator of CETP.	Complying
21.	M/s Bansal Industries, Plot No. C-27, Phase-2, Focal Point, Ludhiana.			In operation	1. House-keeping was poor as the effluent generated might be discharged in the plot due to poor handling. 2. The industry is maintaining proper record regarding utilization of acid consumption in the process.	Complying
22.	M/s Ashoka Industrial Fastners, E-116, Phase-4, Focal Point, Ludhiana			In operation	1. The industry is not maintaining record regarding utilization of acid consumption and total waste water generation at site.	Not complying
23.	M/s Govind Industries (Unit-II), C-13-A, Phase-3, Focal Point, Ludhiana.	21-12-2018	1. Sh. Ashok Grag, EE 2. Sh. Ravdeep Singh, AEE	In Operation	1. The industry has provided two storage tanks of size 10 KL each and about 15 KL of effluent was lying stored. 2. The effluent was also observed in the underground pakka tank where the storage tank were placed. 3. The recirculation tanks made for sand barreling and vibrator effluent were under repair/cleaning and the effluent was being stagnated in the industry. 4. The sewer line at the main gate of the industry was checked and pH was observed to be near 7 or neutral.	Not Complying
24.	M/s Awal Engineering Co., Adjoining Police Post Railway Flyover, Dhandari Kalan, Ludhiana.			Not in operation	1. The industry was not in operation during visit. 2. The industry has provided storage tank of size 10 KL and about 2 KL effluent was stored in it. 3. Some stagnation of over head tank (storage of fresh water) was seen at the back side of the industry. 4. The industry is in process of laying new sewer line with in premises.	Closed

Sr. No.	Name & Address of the Industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
25.	M/s Eastman Industries Ltd. (Unit-2), C-88, Phase-5, Focal Point, Ludhiana.			In operation	<ol style="list-style-type: none"> <li>The industry was in operation during visit along with phosphating section. However the wet scrubber attached to the phosphating was not in operation and it appeared that the same is not in operation since long.</li> <li>The record maintained by the industry was checked. The industry is generating hazardous waste i.e. paint containers and sludge which was stored in hazardous waste room.</li> <li>About 44 KL i.e 36% of trade effluent is un accounted and may have been disposed off in an unauthorized manner.</li> </ol>	Not complying
26.	M/s Ayush International, 117, Lakshman Nagar, Miller Ganj, Ludhiana.	21-12-2018	<ol style="list-style-type: none"> <li>Ms. Anuradha Sharma, EE</li> <li>Ms. Geeta Chawla, ASO</li> </ol>	Locked	Found locked	-
27.	M/s Birdi International, 623-624, Industrial Area-B, Ludhiana.			In operation	<ol style="list-style-type: none"> <li>The industry has two waste water generation streams one from phosphating section and other from Ni-Cr electroplating.</li> <li>Two different collection tanks are provided for these section.</li> <li>Floor of the phosphating as well plating/ drying section need to be repaired &amp; preferably provided with acid-proof tiles, so as to reduce the chances of any seepage into ground water.</li> <li>The industry has not maintained record of acid to be used for pickling/surface treatment processes.</li> </ol>	Complying
28.	M/s BAM Cycle Industries, 707, Nirankari St. No. 4, Miller Ganj, Ludhiana.	21-12-2018	<ol style="list-style-type: none"> <li>Ms. Anuradha Sharma, EE</li> <li>Sh. Rubal Goyal, AEE</li> </ol>	Not in Operation	<ol style="list-style-type: none"> <li>The industry was not in operation during the visit and the barrel used for acid wash was being repaired at that time.</li> <li>Waste water was found stagnated on the floor (broken floor) as there is no pipe line/ channel provided for transferring waste water into storage tank.</li> <li>Storage tank for storing plating waste water is of 1 KL capacity and the industry has been advised to provide bigger storage tank.</li> <li>The industry is not maintaining record regarding utilization of acid consumption in the process.</li> </ol>	Complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
29.	M/s Gemco Cycles, G.T. Road, Dhandarikalan, Ludhiana	21-12-2018	1. Sh. Paramjeet Singh, EE 2. Sh. Rajesh Kumar, AEE	In Operation	1. Only domestic effluent was observed to be discharged into sewer. 2. The industry could not produce the record regarding the status of validity of consents granted to it under the Water Act, 1974.	Complying
30.	Ms Will Power Cycle Industries, Station Road, Dhandari Railway Station, Ludhiana.			In Operation	Only domestic effluent was observed to be discharged into sewer.	Complying
31.	M/s Batra Cycle India Pvt. Ltd., Station Road, Dhandari Railway Station, Ludhiana.			In Operation	Only domestic effluent was observed to be discharged into sewer.	Complying
32.	M/s Gambhir Cycle Industries, 71-R, Industrial Area-B, Ludhiana.	21-12-2018	1. Sh. D.K. Singla, EE 2. Sh. Vicky Bansal, AEE	In Operation	1. Record maintained upto 30-11-2018 only. 2. The recorded meter reading does not match with the actual reading, 3. The toilets area near process area; the unit should remove tap from toilets so as to avoid chances of unmetered water supply.	Not Complying
33.	M/s M.D. Industries, 78/86-R, Industrial Area-B, Ludhiana.			In Operation	1. The industry has installed batch reactor followed by RO plant to treat the trade effluent generated from process. 2. The RO reject is lifted and sent to CETP whereas, RO permeate is reused in process. 3. The industry has installed the water meter and is recycling water and has maintained record on daily basis. 4. The industry has not been maintaining proper record regarding utilization and consumption of acid in process.	Complying
34.	M/s Jeet Aqua Control C-27, Focal Point, Jalandhar	21-12-2018	1. Ms. Samita, EE Sh. Bachanpal Singh, AEE	In operation	1. The industry has provided two collection tanks followed by one underground tank (capacity 5000 Ltr) for storage of trade effluent to be lifted to M/s JBR, Technology Pvt Ltd, Ludhiana.	Complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
35.	M/s Vishal Tools C-19, Focal Point, Jalandhar			In Operation	<ol style="list-style-type: none"> <li>1. The industry could not produce the record regarding acid consumption is the month of Nov, 2018.</li> <li>2. The industry has provided one collection tank for storage of trade effluent to be lifted to M/s JBR, Technology Pvt Ltd, Ludhiana.</li> <li>3. The industry has also provided an additional underground collection tank near the domestic sewer.</li> </ol>	Not Complying
36.	M/s Hind Pump C-87, Focal Point, Jalandhar			In Operation	<ol style="list-style-type: none"> <li>1. The industry has provided haudies followed by one collection tank for collection of untreated trade effluent and the same has been constructed near the bathroom and sewer connection.</li> <li>2. The industry has provided underground drainage system.</li> </ol>	Complying
37.	M/s Amar Battery Industry, Near Smith Exports, Eastman Chowk, Jaspal Bangar Road, Industrial Area-C, Ludhiana.	25-12-2018	<ol style="list-style-type: none"> <li>1. Sh. Ashok Sharma, EE</li> <li>2. Sh. Maninderjit Singh, AEE</li> </ol>	In Operation	<ol style="list-style-type: none"> <li>1. The record shows that lifting of trade effluent in a month is only @ 5000 Ltr.</li> <li>2. The industry has disposed of its trade effluent in CETP during 7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup> and 11<sup>th</sup> month of 2018. However the month 10<sup>th</sup> of 2018 is missing and representative could not explain the reason of gap.</li> <li>3. Fresh water meter is newly fitted and no record is available w.r.t fresh water consumption.</li> <li>4. House-keeping w.r.t cleanliness is very poor.</li> <li>5. The industry could not produce any record regarding acid consumed in the process and no record was available regarding generation of Waste Water.</li> </ol>	[[[[[[[Not Complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
38.	M/s Aman Udyog, B-XXIII, 1943/14, Industrial Area-C, Ludhiana.			In Operation	<ol style="list-style-type: none"> <li>The industry is engaged in powder coating including phosphating process.</li> <li>The industry has not provided any water meter on fresh supply of water.</li> <li>The industry is discharging its untreated trade effluent from the tank inside the premises for stagnation by providing a pump.</li> <li>The industry has joined with CETP recently on 26.10.2018.</li> <li>No record of fresh water consumption and generation of trade effluent is maintained.</li> <li>The industry has not yet started lifting of waste water by CETP operator. The industry has joined with CETP recently, till now industry was having its own ETP and disposal was on to land for plantation. Sewer has been laid recently.</li> <li>The industry is in operation without valid consent to operate under the water Act, 1974.</li> </ol>	Not complying
39.	M/s Amar Udyog, Near Mittal Dharam Kanda, Link Road, Adj. G.T. Road, Ludhiana.			In operation	<ol style="list-style-type: none"> <li>The industry was in operation and engaged in zinc plating.</li> <li>The industry could not produce the copy of NOC/CTO obtained.</li> <li>The industry is not maintaining the record the fresh water consumption, acid consumption and of waste water generation/disposal</li> <li>The industry has got lifted 5 KL of trade effluent to CETP operator in December 2017.</li> </ol>	Not Complying
40.	M/s Bharti Enterprises, E-359, Phase-6, Focal Point, Ludhiana	25-12-2018	1. Sh. Charanjit Singh, Sc	Closed		-
41.	M/s Flying Bikes (India), D-319, Phase-8, Focal Point, Ludhiana		Sh. Bachanpal Singh, AEE	Closed		-
42.	M/s B.R.K. Industries, C-65, Focal Point, Phase-5, Ludhiana.			In operation	<ol style="list-style-type: none"> <li>It is engaged in Hot-Dip galvanizing of nuts/ Bolts.</li> <li>It is engaged in the process of Hot-Dip galvanizing and has made an agreement with M/s JBR Technology Pvt Ltd, Ludhiana for lifting its trade effluent .</li> </ol>	Complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
43.	M/s G.S. Auto International Limited, G.T. Road, Ludhiana	25-12-2018	1. Sh. Paramjeet Singh, EE. 2. Sh. Jaspal Singh, AEE	In operation	<ol style="list-style-type: none"> <li>1. It has four water polluting process zinc plating, acid pickling, phosphating and auto black.</li> <li>2. The effluent generated from plating (zinc) and acid pickling is being lifted by CETP (M/s JBR, Phase-8, Ludhiana).</li> <li>3. The effluent of auto black phosphating section is being treated in the captive ETP of industry which is further disposed of onto land for plantation.</li> <li>4. The industry is required to clean &amp; maintain its plantation area properly.</li> <li>5. The wet sludge after filter press was lying in the ETP area. The industry is required to fill the same in HDPE bags after drying, and the industry has been advised for the same.</li> <li>6. The effluent lifted to the CETP operator is in proportionate to the water consumption.</li> </ol>	Complying
44.	M/s Charu Auto Industries, C-74, Phase-5, Focal Point, Ludhiana.			In operation	<ol style="list-style-type: none"> <li>1. It has two water polluting process acid pickling, and electroplating.</li> <li>2. The effluent generated from acid pickling is being lifted by CETP (M/s JBR, unit-2). Ludhiana and effluent of electroplating section is being lifted by M/s. JBR Tech unit-1, Ludhiana.</li> <li>3. The effluent from the stone barreling section is reused by the industry.</li> <li>4. The water consumption, lifting of effluent and lying in storage tanks at site is almost in proportion.</li> </ol>	Complying
45.	M/s Anand Industries, 688, Industrial Area-B, Ludhiana.	25-12-2018	1. Sh. Arun Kakkar, EE 2. Sh. GuneetSethi, AEE	In operation	<ol style="list-style-type: none"> <li>1. During visit, there was no material in pickling tank and pickling process was not in operation.</li> <li>2. Level of area around pickling tank was lower than level of pickling tank and discharge of rinsed effluent from this area into sewer can't be ruled out.</li> </ol>	Complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
46.	M/s Dugri Industrial Corporation, 2631, St. No. 13, Dashmesh Nagar, Ludhiana.			In operation	<ol style="list-style-type: none"> <li>Pickling tank and collection tank have no pipeline connection. Representative of the industries informed that pickling effluent (spent acid) is shifted to collection tank through buckets as and when required.</li> <li>House-keeping and maintenance around pickling tanks needs improvements.</li> <li>The industry in operation without valid consent to operate under the Water Act, 1974.</li> </ol>	Not complying
47.	M/s Gagan Steels, 10919/1, Basant Road, Bhagwan Chowk, Ludhiana.			In operation	<ol style="list-style-type: none"> <li>Pickling tank and collection tank for acid pickling effluent have no pipeline connection. Representative of the industry informed that acid pickling effluent is shifted from pickling tank to collection tank through buckets as and when required.</li> <li>Level of area around pickling tank was lower and discharge of rinsed effluent into sewer (Connection just adjoining) can't be ruled out.</li> <li>The industry is not maintaining record regarding consumption of fresh water, utilization of acid in process and generation/ disposal of waste water.</li> </ol>	Not complying
48.	M/s Guru Nanak Enterprises, 2537, St. No. 4, Janta Nagar, Ludhiana.			In operation	<ol style="list-style-type: none"> <li>Industry has made agreement with M/s J.B.R Tech Pvt. Ltd. (Unit 2), Kohara, Machhiwara road, Ludhiana i.e. reprocessor of spent acid, whereas the industry is engaged in anodizing process hence required to make new agreement with M/s J.B.R Tech Pvt. Ltd, Focal point, Phase-8, Ludhiana.</li> </ol>	Complying
49.	M/s D.M. Dolly & Co., S-206, Industrial Area, Jalandhar.	25-12-2018	<ol style="list-style-type: none"> <li>Sh. Shiv Kumar, EE</li> <li>Sh. Sandeep Kumar, AEE</li> </ol>	In operation	<ol style="list-style-type: none"> <li>The industry has provided one plastic storage tank for effluent having capacity of 1000 Ltr from where it has made arrangement for lifting of effluent with flexible pipe and pump and collects effluent into two plastic tanks of size 2000 Ltr each.</li> <li>The industry is required to replace flexible pipe system with fixed pipe line for conveying effluent.</li> </ol>	Complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
50.	M/s Nayyar Engg. Works, M-4, Industrial Area, Jalandhar.			In operation	1. The industry is required to provide proper coating layer in electroplating section to avoid seepage in the ground. 2. The industry is required to improve house-keeping at site. 3.	Complying
51.	M/s Amit fasteners, E-17, Phase-4, Ludhiana	25-12-2018	1. Sh. Charanjit Singh, SSO 2. Sh. Bachanpal Singh, AEE	In operation	1. It is engaged in the acid pickling of auto parts. 2. The lifting of spent acid to re-processor was done on 12/12/2018 .	Complying
52.	M/s Sant Industries, 14-R, Industrial Area-B, Back Side Avon Cycle, Ludhiana.	26-12-2018	1. Sh. D.K. Singla, EE 2. Sh. Vicky Bansal, AEE	In operation	1. The industry is engaged in electroplating (Ni and Cr) of cycle parts on job basis. 2. The industry is a member of CETP and maintaining record of fresh water viz-a-viz Trade effluent lifting to CETP on daily basis. 3. The industry has not been maintaining proper record regarding acid consumption in the process.	Complying
53.	M/s R.R. Industries, 113-C, Industrial Estate, Ludhiana.			In operation	1. The industry is engaged in electroplating of cycle parts on job basis. 2. The industry is a member of CETP and maintaining record of fresh water viz-a-viz Trade effluent lifting to CETP. 3. The industry needs improvement in house-keeping of process area. 4. The industry has not maintained proper record regarding utilization acid consumption in the process.	Complying
54.	M/s R.S. Industries, 726, Niramkari Mohalla, St. no. 4, Opp. Industrial Estate, Ludhiana.			Lying closed for last 3 months	1. The industry was not in operation during visit. The representative of industry told that the unit is non-operational from three months. The physical condition of the unit also shows that unit is not operated for a long time.	--
55.	M/s Nachatar Electroplating, 363, Dashmesh Nagar, Gill Road, Ludhiana.		1. Sh. D.K. Singla, EE 2. Sh. Shushil Kumar, JEE	In operation	1. The Industry is maintaining record of fresh water and trade effluent lifted by M/s J.B.R Technology Pvt. Ltd., Ludhiana. 2. The industry is maintaining proper record regarding utilization of acid in process.	Complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
56.	M/s S.R. Engg. Works (J.N.), Plot No. 6304/1, St. No. 1, New Janta Nagar, Ludhiana.	26-12-2018	1. Sh. Arun Kakkar, EE 2. Sh. GuneetSethi, AEE	In operation	1. House Keeping was poor. 2. Two number Drums with cleaning solution/ Salt bearing solution were placed outside, on street (outside the industrial premises). 3. The industry is not maintaining record regarding consumption of fresh water and generation/disposal of waste water. 4. The industry could not produce record regarding the status of validity of consents granted to it under the Water Act, 1974.	Not complying
57.	M/s Rocky Industries, 1438, St. No. 31, Janta Nagar, Ludhiana.			In operation	1. Zinc barreling section was not having any pipeline connection with effluent storage tank. 2. Flooring in certain portion of electroplating section was lower, from where disposal of rinsing effluent into sewer can't be ruled out. 3. Housekeeping in electroplating section was poor. 4. Apart from metered supply, other sources of water consumption (Which were un-metered) were also present in process shed.	Not Complying
58.	M/s R.K. Engg. Works, 3349, St. No. 4, New Janta Nagar, Ludhiana.			In operation	1. House Keeping was poor. 2. The industry could not produce record regarding the status of validity of consents granted to it under the Water Act, 1974. 3. The industry is not maintaining record regarding consumption of fresh water and generation/disposal of waste water.	Not complying
59.	M/s Dhaand Cycle Industries, Kalsian Street No. 3, Sewakpura, Gill Road, Ludhiana.			In operation	1. Area round pickling tank is kaccha (unlined) and level is also lower hence discharge of rinsed effluent into sewer can't be ruled out. 2. CTO expired on 30-06-2017. 3. Renewal applied and under process.	Complying
60.	M/s Vallabh Steels Ltd., G.T. Road, Sahnewal, Ludhiana.	26-12-2018	1. Sh. Paramjeet Singh, EE 2. Sh. Rajesh kumar, AEE	In Operation	1. The industry has provided ETP for treatment of effluent being generated from washing in cold rolling section and pipe section and same was in operation at the time of visit.	Complying
61.	M/s Manjla Heat Processes, 13-B, Friends Industrial Estate, Ludhiana.		3. Sh. Amandeep singh, AEE	In Operation	1. No water polluting process being carried out from the month of Aug, 2017 as per the record of the industry.	Complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
62.	M/s Pioneer Nuts Bolts (P) Ltd., 13-B, Friends Industrial Estate, Focal point, Ludhiana.			In Operation	1. No water polluting process being carried out from the month of Aug, 2018 as per the record of the industry.	Complying
63.	M/s Manjula Laboratory Divn (unit of Pioneer Nuts Bolts (P) Ltd.), 20-B, , Friends Industrial Estate, Ludhiana.			In Operation	1. The industry has not provided water meter on the pipe line leading from tube well to acid dip section and also industry has not maintained any record regarding quantity of fresh water consumed in the process for the month of Nov, 2018.	Not Complying
64.	M/s Bhagwati Steels, E-68, Phase-IV, Focal Point, Ludhiana.			In Operation	1. The industry has not maintained proper record of the consumption of fresh water as there is mismatch of the data maintained and actual meter reading.	Not Complying
65.	M/s ARK Engg. Pvt. Ltd., E-497, Phase-6, Focal Point, Ludhiana	26-12-2018	1. Sh. Ashok Sharma, EE 2. Sh. Ravdeep Singh, AEE	In Operation	1. The industry was in operation during visit. 2. The industry has provided water meter in the process area. 3. The industry has provided one unmetered tap in the process area near surface treatment section and fresh water was being collected through flexible pipe in tanks provided in the process. However, the representative submitted that the same has been provided for drinking purposes and the flexible pipe was removed during visit. 4. The industry is not maintaining proper record regarding utilization of acid in the process.	Not Complying
66.	M/s Arrow Industries, E-438, Phase-6, Focal Point, Ludhiana.			Not in operation during visit due to power cut	1. The industry has provided water meter in the process area However, the industry has also provided flexible pipe before the metered supply line to use fresh water from unmetered source. 2. The storage tanks provided by the industry were also almost full during visit and flexible pipe were observed in the process area, which may be used for unauthorized discharge. Also the agreement with CETP operator for 12 kl per month seems to be very less, seeing the size of electroplating plant installed by the industry. 3. The industry is not maintaining proper record regarding consumption of fresh water, acid and total quantity of waste water generated/ disposed	Not Complying

Sr. No.	Name & Address of the Industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
67.	M/s Ashish International, D-254, Phase-6, Focal Point, Ludhiana.			In Operation	<ol style="list-style-type: none"> <li>1. The industry was in operation during visit as well as the hot dip galvanizing and zinc plating. The hot dip galvanizing is provided with wet scrubber which was in operation during visit.</li> <li>2. Poor house-keeping was observed in the process area.</li> <li>3. The actual lifting of waste water is less in comparison to the quantity of agreement.</li> <li>4. The record shows that the generation of waste water is actually less due to less work.</li> </ol>	Complying
68.	M/s C.R. Auluck & Sons, 426, Industrial Area-A, Ludhiana	26-12-2018	<ol style="list-style-type: none"> <li>1. Sh. M.L. Chauhan, EE.</li> <li>2. Sh. Bachanpal Singh, AEE</li> </ol>	In Operation	<ol style="list-style-type: none"> <li>1. The industry was in operation during the visit and engaged in the manufacturing of sewing machines.</li> <li>2. The trade effluent is generated from the washing of sewing machines before paint and also from the zinc plating.</li> <li>3. Hoods provided at the induction furnace were found rusty. The representative of the industry was advised to change the same.</li> </ol>	complying
69.	M/s The Bombay Metal Works, 703, Industrial Area-A, Ludhiana.			In Operation	<ol style="list-style-type: none"> <li>1. The water polluting process of industry are phosphating, Barrelling and electroplating.</li> <li>2. The industry was advised to cover channel of domestic effluent.</li> </ol>	complying
70.	M/s Bansal Steel Udyog, Phase-5, Ludhiana.			In Operation	<ol style="list-style-type: none"> <li>1. The major polluting process is acid pickling/ wire darning.</li> <li>2. The spent acid is lifted to re-processor.</li> <li>3. The slope of drain from the washing section of the pickling section is leading to the open channel apparently made for storm water. Though at the time of visit no trade effluent was leading to this channel.</li> </ol>	complying
71.	M/s Victor Forgings, A-4 Focal Point, Jalandhar .	26-12-2018	<ol style="list-style-type: none"> <li>1. Ms. Samita, EE</li> <li>2. Sh. Bhisham, AEE</li> </ol>	In Operation	<ol style="list-style-type: none"> <li>1. The industry has provided three collection tanks for storage of trade effluent to be lifted to M/s JBR, Technology Pvt Ltd, Ludhiana.</li> </ol>	Complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
72.	M/s Oay kay Forgings Pvt Ltd, B-26 F.P Jalandhar			In Operation	<ol style="list-style-type: none"> <li>The industry needs to improve housekeeping.</li> <li>The industry has provided underground drainage system in plating section.</li> <li>During visit it was observed that the industry has made entries in record of fresh water consumption even for future days (upto 30.12.2018), which means that record is manipulated.</li> </ol>	Not complying
73.	M/s BTC Appliances, D-171, Jalandhar			In Operation	<ol style="list-style-type: none"> <li>During visit, it was found that the tank of capacity 1000 Ltr for storage of trade effluent generated from the electroplating section was fully filled.</li> <li>The industry has not provided any record regarding quantity of fresh water consumption and total waste water generated in the month of Nov, 2018.</li> </ol>	Not complying
74.	M/s Paulbro Leather, 11, Leather Complex, Jalandhar	26-12-2018	<ol style="list-style-type: none"> <li>Sh. Shiv Kumar, EE</li> <li>Sh. Sandeep Kumar, AEE</li> </ol>	In Operation	<ol style="list-style-type: none"> <li>The industry has provided pre treatment consisting collection cum settling tank followed by clarifier.</li> <li>The pretreatment section was in operation during the visit.</li> <li>The industry could not produce record regarding acid consumption of month of Nov, 2018.</li> </ol>	Complying
75.	M/s Amson Leather, 66, Leather Complex, Jalandhar			In Operation	<ol style="list-style-type: none"> <li>The industry has provided pre treatment consisting collection cum settling tank and after primary clarifier the industry discharges its effluent into drain leading to CETP.</li> <li>The industry is required to repair its clarifier meant for pre treatment and also required to improve housekeeping.</li> <li>The water meter provided for fresh water consumption was out of order and as such no record of consumption of fresh water has been maintained for Nov, 2018.</li> </ol>	Not complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
76.	M/s Geco Industrial Corporation, 191, Dada Colony, Jalandhar			In Operation	<ol style="list-style-type: none"> <li>The industry is engaged in the process of electroplating and phosphating.</li> <li>The industry was granted consent to operate under the provision of Water Act, 1974 which expired on 30.06.2018.</li> <li>Total water consumption during November, 2018 is 2050 Ltrs and lifting by CETP Operator is 3000 Ltrs.</li> </ol>	Not Complying
77.	M/s Gripwell Forging & Tools, E-35, Industrial Area, Jalandhar			In Operation	<ol style="list-style-type: none"> <li>The industry has made an agreement for lifting of trade effluent with M/s JBR Technology, Ludhiana.</li> <li>The industry is required to remove junk material lying over collection tank where trade effluent has been stored.</li> </ol>	Complying
78.	M/s Venus industrial corporation, 424, industrial area-A, Ludhiana	26-12-2018	<ol style="list-style-type: none"> <li>Sh. M.L Chauhan, EE</li> <li>Sh. Bachanpal Singh, AEE</li> </ol>	In operation	<ol style="list-style-type: none"> <li>Water polluting presses are electroplating and barreling. The trade effluent from barreling section is being re-circulated. The untreated effluent from electroplating acting is lifted to Common Effluent Treatment Plants operator.</li> <li>The approach leading to process area is muddy which gives impression of bad house -keeping.</li> <li>The industry is needed to enhance drying mechanism of drying slurry from sand barreling.</li> <li>The waste water and mud from barreling section is discharged/disposal of into open drain and on backside of industry.</li> </ol>	Not Complying
79.	M/s Jai Shiv Shakti, 183, Industrial Area-A, Ludhiana.	27-12-2018	<ol style="list-style-type: none"> <li>Sh. Ashok Sharma, EE</li> <li>Sh. Maninderjit Singh, JEE</li> </ol>	In Operation	<ol style="list-style-type: none"> <li>The industry could not produce the record of consumption of fresh water, acid utilization and generation/disposal of waste water.</li> <li>The industry could not produce record regarding the status of validity of consents granted under the Water Act, 1974.</li> </ol>	Not Complying
80.	M/s Deep Tools Pvt. Ltd., 320-21, Industrial Area-A, Ludhiana.	27-12-2018	<ol style="list-style-type: none"> <li>Sh. Ashok Sharma, EE</li> <li>Sh. Ravdeep Singh, AEE</li> </ol>	In Operation	<ol style="list-style-type: none"> <li>The housekeeping of the electroplating section was poor.</li> <li>The industry was advised to install dust collector in the buffing cum grinding section.</li> </ol>	Complying
81.	M/s K.K. Mechanical & Engg., C-7, Textile Colony, Industrial Area-A, Ludhiana.			Not in operation	Not in operation	

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
82.	M/s Malkit Singh & Sons, C-7, Textile Colony, Industrial Area-A, Ludhiana.			In operation	<ol style="list-style-type: none"> <li>1. The industry is using unmetered supply for consumption of fresh water.</li> <li>2. The housekeeping of the industry is very poor.</li> <li>3. The effluent from hard chrome is not being handled in a proper way, as lot of untreated effluent was found stagnated on the kutcha area near the processing area.</li> <li>4. The industry has not provided record of consumption of fresh water, acid consumption and generation/disposal of waste water</li> </ol>	Not Complying
83.	M/s Good Good Manufacturer, Sua Road, Makkar Colony, Near Eastman Impex, Ludhiana				<ol style="list-style-type: none"> <li>1. The industry has made agreement with M/s JBR Technology, Ludhiana for lifting for effluent.</li> </ol>	Complying
84.	M/s Gurdip Cycle Industries, Station Road, Dhandari Kalan, Ludhiana	27-12-2018	Sh. M.L. Chauhan, EE Sh. Jatinder Kumar, AEE	In Operation	<ol style="list-style-type: none"> <li>1. The industry has made agreement with M/s JBR Technology, Ludhiana for lifting for effluent.</li> </ol>	Complying
85.	M/s Balwinder Tools, Sua Road, Dhandari Kalan, Industrial Area-C, Ludhiana.	27-12-2018	<ol style="list-style-type: none"> <li>1. Sh. Paramjeet Singh, EE</li> <li>2. Sh. Jaspal Singh, AEE</li> </ol>	In operation	<ol style="list-style-type: none"> <li>1. The industry has maintained the record of water consumption and effluent lifting by M/s JBR Technology (operator of CETP), However the reading of water meter of electroplating section as observed during inspection does not match with the record maintained by the industry.</li> <li>2. The industry failed to submit any record regarding acid consumption in the process for the month of Nov, 2018.</li> <li>3. The industry failed to produce the record regarding the validity of consent granted under the Water Act, 1974.</li> </ol>	Not Complying
86.	M/s Bhatia Auto Engineers, 536/6/1, Station Road, Dhandari Kalan, Ludhiana.				<ol style="list-style-type: none"> <li>1. Industry has provided meter on pipe line feeding raw water to water storage tank.</li> <li>2. Industry is taking water from this storage tank to the process. Lifting of effluent is proportionate to the MOU.</li> </ol>	Complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (If closed, brief reasons)	Observations	Remarks
87.	M/s Ess Ess Wheels (India), Industrial Area-C, Kanganwal, Ludhiana.			In operation	<ol style="list-style-type: none"> <li>The industry has water polluting process as causting barreling, phosphating and acid pickling. Effluent from causting, phasphating is being lifted by M/ JBR Technology unit-1 and effluent from acid pickling process is being lifted by M/s JBR Technology unit-2, Ludhiana from storage tanks.</li> <li>The water consumption, effluent lifting and lying in storage tanks is almost in proportion.</li> </ol>	Complying
88.	M/s Fitex Industries Ltd., B-29/1060, Industrial Area-C, Opp. Turbo Tools, Ludhiana.			In operation	<ol style="list-style-type: none"> <li>The industry has two water polluting process i.e acid pickling and zinc plating.</li> <li>The storage tanks are provided for the collection of the effluent of both the process.</li> <li>The effluent generated from zinc plating is being lifted by M/s JBR Technology, Ludhiana.</li> <li>The effluent generated from acid pickling is being lifted by M/s JBR Technology unit-2, Kohara, Ludhiana.</li> <li>The water consumption, effluent lifting and lying in tank is almost in proportion.</li> </ol>	Complying
89.	M/s Freeman Measures Ltd., G.T. Road, Jugiana, Ludhiana				<ol style="list-style-type: none"> <li>Industry has provided meter on the pipe line for taking fresh water in process.</li> <li>There was also a flexible pipe provided by industry which is being used for floor washing and washing effluent also leads to collection tank.</li> <li>This flexible pipe is not linked with meter.</li> </ol>	Complying
90.	M/s Asia Cycle Industries, D-50,51,52, Focal Point, Ludhiana.	27-12-2018	Dr. Charanjit Singh, SO Er. Ramandeep Singh Sidhu, AEE	In operation	<ol style="list-style-type: none"> <li>The industry is not operating phosphating section for past one year.</li> <li>The industry has been advised to improve the house keeping around the washing area.</li> <li>The industry has been advised to maintain proper record for utilization of acid in process.</li> </ol>	Complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
91.	M/s Bansal Technocraft, D-49, Focal Point, Phase-5, Ludhiana.			In operation	<ol style="list-style-type: none"> <li>The industry has final collection tank in adjoining industry (M/s Nishant Steel Industry) and waste water from both industries was being collected in the said tank.</li> <li>The industry has been advised to keep record of consumption of fresh water, acid consumption and lifting of waste water</li> <li>The industry has been advised to provide separate final collection tank for waste water for its own industry.</li> </ol>	Not Complying
92.	M/s Flying Stag Bikes (P) Ltd., F-102, Phase-7, Focal Point, Ludhiana			In operation	<ol style="list-style-type: none"> <li>The industry has been advised to keep the record for utilization of acid in the process.</li> <li>The final collection tank was completely filled at the time of visit.</li> <li>Last lifting was carried out by M/s JBR Tech Pvt Ltd on 26.12.2018.</li> <li>The industry has been advised to increase the holding capacity of final collection tank.</li> </ol>	Not complying
93.	M/s Beeson Industries, 9578, St. No. 17, Kot Mangal Singh Nagar, Ludhiana.	27-12-2018	Er. Arun Kakkar, EE Er. Gunit Sethi, AEE	In operation	<ol style="list-style-type: none"> <li>Nickle and chrome plant was not in operation, Zinc plating was in operation during visit.</li> <li>Housekeeping in plating area requires improvement.</li> </ol>	Complying
94.	M/s BRIJ Cycle Industries, 2056, St. No. 33, Janta Nagar, Ludhiana.			In operation	<ol style="list-style-type: none"> <li>Zinc plating section is on first floor and effluent collection tank is on ground floor.</li> <li>House-keeping needs improvement.</li> </ol>	Complying
95.	M/s Dalip Singh & Sons, H.No. 1331, St. No. 12/6, Dashmesh Nagar, Gill Road, Ludhiana.			In operation	<ol style="list-style-type: none"> <li>Housekeeping in electroplating section was poor.</li> <li>The industry could not produce the record regarding status of validity of consents under the Water Act, 1974.</li> </ol>	Complying

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
96.	M/s Asian Bikes, Pvt, Ltd, socha road, dhari kala, Ludhiana	27-12-2018	1. Sh. M.L Chauhan, EE 2. Sh. Jatinder kumar, AEE	In operation	1. The agreement for lifting of trade effluent is of 40 KL. However industry in getting trade effluent lifted @ 22 KL approx. 2. As per representative of the industry their agreement is on higher side than actual generation of trade effluent and production was on lower side. However production record not made available. 3. The industry could not produce any record regarding consumption of acid in the process. 4. The industry has maintained record of fresh water consumption only upto Oct, 2018.	Not complying
97.	M/s Chandani Industries, 307 industrial area-A, Ludhiana			In operation	1. The industry has maintained record for water consumption and effluent lifted to M/s JBR Technology P Ltd.	Complying
98.	M/s Gagan Udyog Pvt, Ltd E-9-10, industrial area, Jalandar.	27-12-2018	1. Sh. Ravinder Batti, EE 2. Sh,. Rantej sharma, AEE	In Operation	1. The industry has installed bag house with the induction furnace, However, the APCD was found non operational during visit. 2. The industry has not maintained record regarding total consumption of fresh water at source and also consumption of acid for surface treatment. 3. Housekeeping needs to be improved. 4. The industry need to install flow measuring devices to adjudge the consumption of fresh water.	Not Complying
99.	M/s Jolly Overseas (P) Ltd., C-101, Focal Point, Jalandhar	27-12-2018	1. Ms. Samita, EE 2. Sh. Sandeep Kumar, AEE	Not in Operation	Not in Operation	-
100	M/s Aero Club, Plot no.72, Leather Complex, Jalandhar			In Operation	1. The industry has installed pre treatment consisting of collection tank followed by clarifier and the same was in operation. 2. The industry has made agreement with M/s Ramky Infrastructure Pvt, Ltd, Leather Complex, Jalandhar.	Complying
101.	M/s Jay Dee Leather Pvt, Ltd, Leather Complex, Jalandar			In Operation	1. The industry has installed pre treatment consisting of collection tank followed by clarifier and the same was in operation. 2. The industry has made agreement with M/s Ramky Infrastructure Pvt, Ltd, Leather Complex, Jalandhar.	Complying

Sr. No.	Name & Address of the Industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
102	M/s Anand Steels, Gaspura, Suaroad, Ludhiana	28-12-2018	1. Sh. M.L. Chauhan, EE 2. Sh. Bachanpal Singh, AEE	In operation	1. The industry is engaged in the process of wire-drawing and has made agreement with M/s JBR Technology Pvt Ltd, Ludhiana for lifting its trade effluent.	Complying
103	M/s Garg Cycles, Sua Road, Ludhiana			In operation	1. The records regarding consumption of fresh water and generation/disposal of waste water were not made available by the industry. 2. The industry could not produce any record regarding status of validity of consents under the Water Act, 1974.	Not Complying
104	M/s Rahul Enterprises, Single cycle road, Dhandari Kalan, Ludhiana.			In operation	1. The industry was in operation but electroplating section was found closed at the time of visit. 2. The haulies of electroplating section were found choked and the industry was advised to clean up the same. 3. The records regarding consumption of fresh water, acid consumed and generation/disposal of waste water were not made available by the industry. 4. All the process area were unlined except pickling section.	Not Complying
105	M/s Amar Steel industries, 536/4C, Single Cycle Road, Industrial Area, Ludhiana			In operation	1. As per records (1.10.2018 to 28.12.2018) the consumption of fresh water is 25 KL and lifted to re-processor is 24.8 KL.	Complying
106	M/s Bharat Metal works, Hoshiarpur road, Jalandhar.	28-12-2018	1. Sh. Samita, EE 2. Sh. Bhisham, AEE	In operation	1. Degreasing process of the unit was not in operation. 2. Unit has provided one underground tank for storage of effluent. Tank was filled with sludge and no effluent was stored in the tank. 3. Industry has lifted its effluent to M/s JBR on 5-11-2018 and thereafter no lifting has been done as per the record.	Not Complying
107	M/s Gagan Electroplating, saini colony, Jalandhar			In operation	1. Both tanks are not connected with each other and no mechanical mechanism provided for lifting of effluent from one tank to another. 2. Last lifting on 05-12-2018.	Complying
108	M/s Hardip Metal Industry, # 806, A-B, Ludhiana	28-12-2018	1. Sh. D.K Singla, EE 2. Sh. Sushil kumar, JEE	Not in operation	1. During visit the Industry was not in operation. 2. No responsible person was available during the visit and as such no record provided. 3. About 800 Ltr of effluent was lying stored in underground PVC tank.	

Sr. No.	Name & Address of the industry	Date of Visit	Visiting Team	Operation status (if closed, brief reasons)	Observations	Remarks
109	M/s Hindustan metal industries, # 743, A-B, Ludhiana			Closed	1. During visit it was observed that industry has closed its process and no machinery was lying at site. 2. As per representative of the industry the entire manufacturing activity has been closed from last 2 years.	Closed
110	M/s Aarti steels Ltd, G.T Road, Miller ganj, Ludhiana			No manufacturing activity	During visit, it was observed that there is only office of M/s Aarti Steels, Ltd, of Focal Point, Ludhiana and no manufacturing activity is executed.	Closed
111	M/s Bansal forging industries, 1972, Himmatpura, St. NO.2, Dara kalsian road, Ludhiana			In operation	The industry has not maintained any record regarding consumption of acid in the process for the month of Nov, 2018.	Complying
112	M/s Apex electrical, E-18 industrial area, Jalandhar	29-12-2018	1. Sh. Ravinder Bhatti, EE 2. Sh. Gurmit Singh,	In operation	1. During visit, electroplating section was found lying closed and its condition was such that it has not been operated since long. 2. In the phosphating section, the industry has installed 07 tanks.	Complying
113	M/s SMC Sanitation, plot no. S-13 industrial area, Jalander			In operation	1. The industry is engaged in process of Nickel/ chrome plating. 2. The industry has installed di-casting furnace (coal based) in its premises.	Complying
114	M/s P.K Industries, Plot no. O-8, Jalandhar formerly Fit Well Industries (closed now)			In operation	1. M/s Fitwell Industry has closed its unit and at present M/s P.K industries is operating the unit at this plot since April 2018. 2. M/s P.K Industry is operating only nickel/ chrome coating section. No zinc plating section was there in the premises. 3. M/s P.K Industry has not signed revised agreement with M/s JBR Technology Ltd for present premises. However M/s JBR Tech. Ltd. is lifting the effluent on the basis of its previous agreement signed for plot no. S-174. 4. M/s P.K industries has not obtained revised consent for present location.	Not Complying

b) Random inspections of electroplating industries (ZLD Based) carried out by PPCB in December 2018 as per decision taken by the Monitoring Committee constituted by CPCB in compliance of orders dated 24.07.2018 passed by Hon'ble NGT, New Delhi in the matter of O.A. no. 101/2014 titled as Sobha Singh & Ors. Vs. State of Punjab & Ors.

S. No	Name and Address of the Industry	Sector	pH	TSS in mg/l	TDS in mg/l	COD in mg/l	BOD in mg/l	Ammonical Nitrogen in mg/l	SAR	Sulphide in mg/l	O & G in mg/l	Phenolic Compound	Total Cr. In mg/l	Nitrate Nitrogen in mg/l	Nickel in mg/l	Iron in mg/l	Total Phosphate in mg/l	Copper	Phenol in mg/l	Chloride in mg/l	Remarks
	<b>Standards</b>	<b>Textile/Dyeing</b>	<b>5.5 to 9.0</b>	<b>600</b>		<b>-</b>	<b>350</b>	<b>50</b>		<b>-</b>	<b>20</b>	<b>5</b>	<b>-</b>	<b>-</b>	<b>3</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	
1	M/s Avon Cycle Ltd., G.T. Road, Ludhiana.	Electroplating (ZLD)	6.97	50	1631	310	47	-	-	-	-	-	BDL	-	0.03	1.93	-	0.19	-	-	Complying
2	M/s Hero Cycle Ltd., G.T. Road, Ludhiana	Electroplating (ZLD)	6.69	120	4002	392	44	-	-	-	3.9	-	0.26	-	1.7	28	-	-	-	-	Not Complying

## Annexure-IX

**Analysis results (in mg/l) of the Ground Water Samples Collected in the catchment of river Sutlej and River Beas  
by the Punjab Pollution Control Board in December 2018**

S. No.	Name & Address of the Industry	GPS Coordinates	Nickel	Zinc	Copper	Lead	Chromium	Arsenic	Mercury	Cadmium	Fluoride	Sulphate	Compliance status
	<b>Drinking Water Specifications as per IS:10500-2012 (in mg/l)</b>		<b>0.02</b>	<b>5</b>	<b>0.05</b>	<b>0.01</b>	<b>0.05</b>	<b>0.01</b>	<b>0.001</b>	<b>0.003</b>	<b>1</b>	<b>200</b>	
1	M/s Sunrise Dyers & Processors, Tajpur Road, Ludhiana	30.921557 75.908702	BDL	0.25	0.03	BDL	BDL	BDL	BDL	BDL	0.2	3	Complying
2	M/s Vardhman Yarn & thread Ltd., Focal Point, Phase-VIII, Ludhiana	30.881937, 75.934902	BDL	BDL	BDL	BDL	<b>0.52</b>	BDL	BDL	BDL	0.45	31	<b>Not Complying</b>
3	M/s Color Fab, Jaiswal Complex, Tajpur Road, Ludhiana	30.881937 75.934902	BDL	BDL	BDL	BDL	<b>0.53</b>	BDL	BDL	BDL	0.42	76	<b>Not Complying</b>
4	M/s Oswal Woolen Mills Ltd., G.T. Road, Sherpur, Ludhiana	Lat: 30.88011, Lng: 75.88948	BDL	0.008	BDL	BDL	0.01	BDL	BDL	BDL	0.2	BDL	Complying
5	M/s Eveline International, G.T. Road, Dhandari Kalan, Ludhiana	30.86777 75.91513	BDL	0.005	BDL	BDL	BDL	BDL	BDL	BDL	0.43	25	Complying
6	M/s Sunshine Dyeing Pvt. Ltd., 261, Industrial Area-A, Ludhiana	Not mentioned	BDL	0.02	0.03	BDL	0.009	BDL	BDL	BDL	0.45	39	Complying
7	M/s H.C. Dyeing Works, 3595-96, Baba Deep Singh Nagar, Opp. Trunk Union, Bypass road, Moti Nagar, Ludhiana	30°54' 13.48", 75°53' 10.709"	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.34	<b>462</b>	<b>Not Complying</b>

S. No.	Name & Address of the Industry	GPS Coordinates	Nickel	Zinc	Copper	Lead	Chromium	Arsenic	Mercury	Cadmium	Fluoride	Sulphate	Compliance status
	<b>Drinking Water Specifications as per IS:10500-2012 (in mg/l)</b>		<b>0.02</b>	<b>5</b>	<b>0.05</b>	<b>0.01</b>	<b>0.05</b>	<b>0.01</b>	<b>0.001</b>	<b>0.003</b>	<b>1</b>	<b>200</b>	
8	M/s Gulab Dyeing, D-83, Phase-5, Focal Point, Ludhiana	30.877196, 75.914033	BDL	0.16	0.008	BDL	BDL	BDL	BDL	BDL	0.29	15	Complying
9	M/s Ramal Dyeing, Jalandhar bypass, Opp. Shakti Nagar, Ludhiana	30.92656, 75.87258	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.55	76	Complying
10	M/s M.M. Dyeing & Finishing Mills Pvt. Ltd., Jassian Road, G.T. Road (West), Ludhiana.	30.92651, 75.87244	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.41	48	Complying
11	M/s Kay Raj Poddar & Co., Tajpur Road, Ludhiana	Lat: 30.92437, Lng: 75.90286	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.35	40	Complying
12	M/s Krishna Processors, Tajpur Road, Ludhiana.	Lat: 30.9248, Lng: 75.90177	BDL	0.007	BDL	BDL	BDL	BDL	BDL	BDL	0.37	34	Complying
13	M/s Krishna Industries, Opp. Central Jail, Tajpur Road, Ludhiana	Lat: 30.92279, Lng: 75.90923	BDL	0.04	BDL	BDL	BDL	BDL	BDL	BDL	0.32	23	Complying
14	M/s Adinath Dyeing & Finishing Mills Pvt. Ltd., Dyeing Complex, Bahadurke Road, Ludhiana.	30.952618, 75.841753	BDL	0.17	BDL	BDL	BDL	BDL	BDL	BDL	0.51	39	Complying
15	M/s Seachi Processors (P) Ltd., 3-A, Adjoining Focal Point, Ludhiana.	30.878371 75.908088	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.49	9	Complying

S. No.	Name & Address of the Industry	GPS Coordinates	Nickel	Zinc	Copper	Lead	Chromium	Arsenic	Mercury	Cadmium	Fluoride	Sulphate	Compliance status
	<b>Drinking Water Specifications as per IS:10500-2012 (in mg/l)</b>		<b>0.02</b>	<b>5</b>	<b>0.05</b>	<b>0.01</b>	<b>0.05</b>	<b>0.01</b>	<b>0.001</b>	<b>0.003</b>	<b>1</b>	<b>200</b>	
16	M/s Ganpati Industry, D-355, Focal Point, Phase-8, Ludhiana	30.648031, 76.313932	BDL	BDL	BDL	BDL	BDL	BDL	0.0005	BDL	0.31	3	Complying
17	M/s Suvidhi Cotsyn, C-189-A & E-450, Phase-VI, Focal Point, Ludhiana	30.877445, 75.929251	BDL	0.08	BDL	BDL	BDL	BDL	BDL	BDL	0.35	82	Complying
18	M/s Ashoka Dyeing, C-132-133, Phase-5, Focal Point, Ludhiana	30.87452 75.9188889	BDL	0.04	BDL	BDL	BDL	BDL	BDL	BDL	0.4	70	Complying
19	M/s JCT Limited, G.T. Road, Phagwara, Distt. Kapurthala.	31.20404 75.77971	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.47	7	Complying
20	M/s Metro Milk Product Pvt. Ltd., C-44, Sports Surgical Complex, Jalandhar	31.33479 75.52998	BDL	0.005	BDL	BDL	BDL	BDL	BDL	BDL	0.18	58	Complying
21	M/s Sukhjit Starch & Chemicals Ltd., Sarai Road, Phagwara, Distt. Kapurthala.	31°19'33"N 75°34'34"E	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.61	65	Complying
22	M/s Food Coast International, A-23A, Focal Point, Jalandhar.	31°21'59"N 75°34'28"E	BDL	0.02	BDL	BDL	BDL	BDL	BDL	BDL	0.53	BDL	Complying
23	M/s Mrs. Bactor Food Specialties Ltd., Tehsil Road, Phillaur, Jalandhar.	31.033424 75.793871	BDL	0.16	BDL	BDL	BDL	BDL	BDL	BDL	0.35	34	Complying
24	Globe Tractor Ltd., G.T. Road, Near BSF Chowk, Jalandhar.	31.31025, 75.61038	BDL	0.05	0.005	BDL	BDL	BDL	BDL	BDL	0.26	53	Complying

S. No.	Name & Address of the Industry	GPS Coordinates	Nickel	Zinc	Copper	Lead	Chromium	Arsenic	Mercury	Cadmium	Fluoride	Sulphate	Compliance status
	<b>Drinking Water Specifications as per IS:10500-2012 (in mg/l)</b>		<b>0.02</b>	<b>5</b>	<b>0.05</b>	<b>0.01</b>	<b>0.05</b>	<b>0.01</b>	<b>0.001</b>	<b>0.003</b>	<b>1</b>	<b>200</b>	
25	M/s Cremica Food Industries Ltd., Theing Road, Phillaur.	31.03275, 75.79447	BDL	0.01	BDL	BDL	BDL	BDL	BDL	BDL	0.34	23	Complying
26	M/s National Fertilizer Limited, Nanagal Unit, Anandpur Sahib, Rupnagar	31.353452 76.357152	BDL	0.01	BDL	BDL	BDL	BDL	BDL	BDL	0.26	80	Complying
27	M/s The Ludhiana Distt. Co-op., Milk Producers Union Ltd., Verka Milk Plant Ferozepur Road, Ludhiana.	30.89373, 75.8009	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.5	47	Complying
28	M/s Udhera Mechanical Works (Car Board Unit)C-66, Phase-3, Focal Point, Ludhiana	30.88660, 75.91136	BDL	0.01	BDL	BDL	BDL	BDL	BDL	BDL	0.31	58	Complying
29	M/s Evershine Papers, C-81, Phase-5, Focal Point Ludhiana	30°52'46"N 75°55'26"E	BDL	BDL	0.006	BDL	BDL	BDL	BDL	BDL	0.35	94	Complying
30	M/s Swani Motors (Earlier M/s Stan Wheels Pvt. Ltd., Main Threekay Road, Ayali Chowk, Ferozepur Road, Ludhiana	30°52'25"N 75°46'30"E	BDL	BDL	0.02	BDL	BDL	BDL	BDL	BDL	0.25	35	Complying
31	M/s Gulzar Motors Pvt. Ltd., Dholewal Chowk, Ludhiana	30.869675, 75.879987	BDL	0.38	<b>0.02</b>	0.02	<b>4.12</b>	BDL	BDL	BDL	0.6	4	<b>Not Complying</b>
32	M/s Metro Tyres Ltd., Industrial Area-B, Ludhiana	30.894841, 75.861194	BDL	BDL	BDL	BDL	0.04	BDL	BDL	BDL	0.74	136	Complying

S. No.	Name & Address of the Industry	GPS Coordinates	Nickel	Zinc	Copper	Lead	Chromium	Arsenic	Mercury	Cadmium	Fluoride	Sulphate	Compliance status
	<b>Drinking Water Specifications as per IS:10500-2012 (in mg/l)</b>		<b>0.02</b>	<b>5</b>	<b>0.05</b>	<b>0.01</b>	<b>0.05</b>	<b>0.01</b>	<b>0.001</b>	<b>0.003</b>	<b>1</b>	<b>200</b>	
33	M/s Ludhiana Beverages, G.T. Road, Ludhiana.	N 30.8767450 E 75.9016130	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.49	2	Complying
34	M/s Garyson Motors Pvt. Ltd., G.T. Road, Ludhiana	N: 30.883299 E: 75.886453	BDL	0.01	BDL	0.006	BDL	BDL	BDL	BDL	0.42	45	Complying
35	M/s Libra Autocar Co. Ltd., Transport Nagar, Opp. Moti Nagar, Ludhiana	30.899883, 75.882975	BDL	0.03	BDL	BDL	BDL	BDL	BDL	BDL	0.46	45	Complying
36	M/s Jay Cee Automobiles Pvt. Ltd., Opp. Dhandari Kalan Railway Station, Dhandari Kalan, Ludhiana	N 30°52' 16.292", E 75°54' 44.787"	BDL	0.03	BDL	BDL	BDL	BDL	BDL	BDL	0.27	48	Complying
37	M/s Centex Fabrics Exports Unit-2, D-220, Focal Point, Phase-7, Ludhiana.	N: 30.880028 E: 75.932750	BDL	0.02	BDL	BDL	BDL	BDL	BDL	BDL	0.29	10	Complying
38	M/s Garg Acrylics Ltd, Kanganwal Road, G.T Road, Ludhiana	30.857363 75.934849	BDL	0.01	BDL	BDL	BDL	BDL	BDL	BDL	0.11	BDL	Complying
39	M/s Joshi Auto Zone (P) Ltd., G.T. Road, Jugiana	30.85631, 75.937486	BDL	0.62	BDL	BDL	<b>3.7</b>	BDL	BDL	BDL	0.23	BDL	<b>Not Complying</b>
40	M/s Grover Automobiles (P) Ltd., G.T. Road, Dhandari Kalan, Ludhiana.	30.872949, 75.909149	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.23	12	Complying

S. No.	Name & Address of the Industry	GPS Coordinates	Nickel	Zinc	Copper	Lead	Chromium	Arsenic	Mercury	Cadmium	Fluoride	Sulphate	Compliance status
	<b>Drinking Water Specifications as per IS:10500-2012 (In mg/l)</b>		<b>0.02</b>	<b>5</b>	<b>0.05</b>	<b>0.01</b>	<b>0.05</b>	<b>0.01</b>	<b>0.001</b>	<b>0.003</b>	<b>1</b>	<b>200</b>	
41	M/s Krishna Auto Mobiles, G.T. Road, Dhandari Khurd, Ludhiana	30°51'44"N 75°55'49"E	BDL	0.01	BDL	BDL	BDL	BDL	BDL	BDL	0.14	16	Complying
42	M/s Stan Auto Pvt Ltd, G.T. Road, Sherpur Chowk, Ludhiana	30°52'59"N 75°53'20"E	BDL	0.08	BDL	BDL	BDL	BDL	BDL	BDL	0.39	118	Complying
43	M/s Octave Clothing, B-33, 325/5, G.T. Road (West), Near Jalandhar Bye Pass, Ludhiana.	30.944404, 75.832472	BDL	0.08	BDL	BDL	BDL	BDL	BDL	BDL	0.31	42	Complying
44	M/s Top Gear Garments (Unit-II), B-XXXII, E-14/1675/1, Bahadurke Road, Ludhiana	30.948837, 75.846182	BDL	0.95	BDL	BDL	BDL	BDL	BDL	BDL	0.14	41	Complying
45	Goyal Auto Motive Ltd, VPO Jugiana, Indl Area-C, Ludhiana	30.85964, 75.93361	BDL	0.02	0.01	BDL	BDL	BDL	BDL	BDL	0.26	49	Complying
46	M/s A.K. Dyeing, Jaswal Complex, Tajpur Road, Ludhiana.	30.92434, 75.91775	BDL	0.11	BDL	BDL	BDL	BDL	BDL	BDL	0.28	3	Complying
47	M/s Eakta Dyeing & Finishing Mill, Bahadurke Road, Dyeing Complex, Industrial Zone, Ludhiana.	30°57'18"N 75°50'27"E	BDL	0.01	BDL	BDL	BDL	BDL	BDL	BDL	0.24	44	Complying
48	M/s Arora Brothers Creations, Tajpur Road, Jaswal Complex, Ludhiana	30°54'50"N 75°53'47"E	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.28	104	Complying

S. No.	Name & Address of the Industry	GPS Coordinates	Nickel	Zinc	Copper	Lead	Chromium	Arsenic	Mercury	Cadmium	Fluoride	Sulphate	Compliance status
	<b>Drinking Water Specifications as per IS:10500-2012 (in mg/l)</b>		<b>0.02</b>	<b>5</b>	<b>0.05</b>	<b>0.01</b>	<b>0.05</b>	<b>0.01</b>	<b>0.001</b>	<b>0.003</b>	<b>1</b>	<b>200</b>	
49	M/s Ganesh Dyeing Mills, G.T. Road, Dhandari Kalan, Ludhiana	30°51'42"N 75°54'42"E	BDL	0.01	BDL	BDL	BDL	BDL	BDL	BDL	0.28	180	Complying
50	M/s Vardhman Spinning & Gen Mills, Chandigarh Road, Ludhiana.	30.909304, 75.892653	0.01	0.01	BDL	BDL	0.04	BDL	BDL	BDL	0.11	98	Complying
51	Om Processors Pvt. Ltd.K-3, Textile Colony, Industrial Area-ALudhiana	30.89255, 75.88086	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.37	BDL	Complying
52	M/s Raunaq Fabrics C-30, Phase-2, Focal Point, Ludhiana	30°52'55"N 75°55'37"E	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.23	15	Complying
53	M/s Supreme Agro Foods (P) Ltd. (Unit-II), C-181, Phase-VI, Focal Point, Ludhiana	30°52'37"N 75°55'36"E	BDL	0.07	BDL	BDL	<b>2</b>	BDL	BDL	BDL	0.3	BDL	<b>Not Complying</b>
54	Avon Cycle Ltd., G.T. Road, Ludhiana	30.873040 75.902717	BDL	0.01	0.01	BDL	BDL	BDL	BDL	BDL	0.44	48	Complying
55	Hero Cycle Ltd., G.T. Road, Ludhiana	30°53'06"N 75°52'35"E	BDL	0.01	BDL	BDL	BDL	BDL	BDL	BDL	0.46	BDL	Complying

## Annexure-X

## Details of Solid Waste Generation in towns falling under the Catchment area of river Satluj and Beas

S. No	Name of Town	Population	Solid Waste Generated	Availability of land Landfilling of inerts (Acres)
		Existing		
1	Abohar	175556	61	2
2	Banga	24089	8	Waryana (Jalandhar) Common Sanitary engineered land fill facility)
3	Goniana	16135	6	3
4	Hoshiarpur	195366	68	23
5	Jalandhar	950000	500	14 at Waryana Site
6	Jalalabad	41000	14	6
7	Jagraon	74201	26	Jamalpur, Ludhiana
8	Kurali	35504	12	2
9	Ludhiana	2130000	1100	50 at Jamalpur (Common Sanitary engineered land fill facility For 14 ULBs)
10	Machhiwara	28507	10	Jamalpur, Ludhiana
11	Malout	88746	31	5
12	Mukatsar	106235	37	4
13	Moga	173078	61	4
14	Nakodar	42236	15	2
15	Nangal	52072	18	4
16	Nawanshahar	51469	18	2
17	Phagwara	146002	51	Waryana (Jalandhar)
18	Phillaur	31042	11	Jamalpur, Ludhiana
19	Ropar	64688	23	5
20	Sahnewal	27061	9	Jamalpur, Ludhiana
21	Anandpur Sahib (DWSS)	18669	7	1
22	Zira	43898	15	leased
23	Jaitu	44614	16	6
24	Amiwala	10936	4	2
25	Baghapurana	29686	10	3 kanal
26	Kotkapura	109830	38	At Bathinda Common Sanitary engineered land fill facility)
27	Ferozepur	128461	45	4
28	Gidderbaha	48091	17	At Bathinda
29	Guruharsahai	30960	11	2 kanal
30	Makhu	18573	7	15 kanal
31	Morinda	33378	12	Leased 3
32	Nurmahal	16476	6	4 kanal
33	Shahkot	16567	6	1
34	Talwandi Bhai	20954	7	7 kanal
35	Dharamkot	22845	8	14 kanal

S. No	Name of Town	Population	Solid Waste Generated	Availability of land Landfilling of inerts (Acres)
		Existing		
36	Adampur	18776	7	Air Force Station 33 kanal
37	Balachaur	24408	9	1
38	Rahon	16979	6	14 kanal
39	Patti	47512	17	Leased 2
40	Goraya	18022	6	2 kanal
41	Samrala	22957	8	Jamalpur, Ludhiana
42	Faridkot	104805	37	18
43	Garhshankar	20636	7	11 kanal
44	Maluka	6408	2	2
45	Kiratpur Sahib	8573	3	1
46	Raikot	33165	12	22 kanal
47	Maloud	8331	3	1
48	Mullanpur	16356	6	1
49	Doraha	25424	9	Jamalpur, Ludhiana
50	Barriwala	9200	3	1
51	Mamdot	19423	7	1
52	Mallanwala	18943	7	2
53	Mudki	11919	4	1
54	Bhai Roopa	15345	5	1
55	Bhagta Bhaika	14687	5	1
56	Kothaguru	11088	4	At Bhagta Bhaika
57	Fatehgarh Panjtoor	5478	2	At Kot Isse Khan
58	Bilga	10745	4	4 Kanal
59	Lohian	11547	4	1 kanal
60	Mahilpur	13367	5	2 Kanal
61	Nihal Singh wala	12467	4	4 Kanal
62	Kot Ise Khan	15494	5	2
63	Mahitpur	15406	5	8 Kanal
64	Sham Churasi	4871	2	Air Force Station 33 kanal
		<b>Total SWM (TPD)</b>	<b>2485</b>	
<b>Details of towns whose waste water finds its way to river Beas</b>				
1	Bhulath	10548	4	3
2	Dasuya	26540	9	8
3	Kapurthala	107266	38	4
4	Mukerian	35250	12	1
5	Pathankot	286721	100	10
6	Sri Hargobindpur	9360	3	3
7	Sultanpur Lodhi	18540	6	Leased 26 kanal
8	Tanda	27411	10	7 kanal
9	Rayya	16333	6	7 kanal
10	Dhilwan	9328	3	1
11	Hariana	9710	3	3

S. No	Name of Town	Population	Solid Waste Generated	Availability of land Landfilling of inerts (Acres)
		Existing		
12	Begowal	11225	4	3
13	Kartarpur	28122	10	Leased 1.5
14	Alawalpur	8606	3	At airport station Adampur 33 Kanals
15	Bhogpur	15432	5	2
16	Sujanpur	32645	11	1
17	Nadala	7588	3	1
18	Talwara	20216	7	1
19	Gardhiwala	8994	3	1
		<b>Total SWM (TPD)</b>	<b>241</b>	

**Analysis results of the river Sutlej and River Beas samples collected during 07-08.10.2018 by the Monitoring Committee  
(Physico-chemical and Biological Parameters)**

S. No	Sampling Date	Sampling Location	Latitude Longitude	DO	pH	EC	TDS	COD	BOD	Cl	Total Alkalinity	Hardness CaCO <sub>3</sub>	Calcium CaCO <sub>3</sub>	Mg CaCO <sub>3</sub>	NO <sub>2</sub> -N	NO <sub>3</sub> -N	P	NH <sub>3</sub>	F.C	T.C.
1	07.10.2018	River Sutlej A/c East Bein	31.1367 75.105076	10.3	7.9	450	274	37	9	71	197	180	64	5	0.12	0.3	0.8	6.8	4000	4000
2	07.10.2018	River Sutlej B/c East Bein	31.127639 75.120127	15.4	8.3	380	228	31	7	57	156	162	48	10	0.12	0.5	0.2	1.9	700	330
3	07.10.2018	River Beas B/c to Sutlej at Harike	31.15077 74.951119	6.8	8.3	160	92	11	1	9	86	98	32	4	0.01	0.5	0.1	0.3	27000	9300
4	07.10.2018	Ferozpur Canal at Harike	31.12692 74.94854	7	8.2	162	94	11	1	10	96	108	34	6	0.01	0.5	0.1	BDL	2200	790
5	07.10.2018	Rajasthan Feeder Canal at Harike	31.126047 74.949742	6.9	8.1	168	96	12	3	12	103	102	34	4	0.01	0.6	0.1	0.5	13000	200
6	08.10.2018	River Sutlej B/c Kasabad drain	30.990884 75.841459	7.1	8.4	220	130	5	2	16	103	136	30	15	0.01	0.2	0.1	BDL	240000	6800
7	08.10.2018	River Sutlej A/c Kasabad drain & B/c Budda Nallah	30.996731 75.788141	5.2	7.9	314	182	13	4	31	148	164	58	5	0.02	0.2	0.3	2.9	4500	1.8
8	08.10.2018	River Sutlej A/c Budda Nallah	30.964016 75.481496	1.1	7.7	530	318	47	10	101	199	198	33	28	BDL	0.2	0.5	6.4	330000	330000
9	08.10.2018	Beas River at Mirthal Bridge, Bela Mastgarh, Punjab	32.098149 75.61143	7.3	8.5	208	116	7	1	10	141	140	21	21	BDL	0.9	0.9	BDL	9200	3500
10	08.10.2018	River Chakki at Pathankot	32.251233 75.657379	7.3	8.7	226	134	BDL	1	10	148	154	15	28	BDL	1	0.1	0.2	4500	1.8
11	08.10.2018	Ravi Canal at Pathankot	32.263295 75.621779	8	8	141	82	11	2	6	71	92	28	5	0.02	0.7	0.1	0.4	350000	170000
12	08.10.2018	River Beas A/c Kanhuwan Swan drain at Gandhawal	31.69431 75.52278	7.6	8.1	161	94	11	2	10	88	112	32	7	BDL	0.7	0.1	0.2	2000	2000

*Note: All the values are in mg/l except pH, EC (in in Micro-mhos/cm) and TC & FC (in MPN/100 ml)*

**Analysis results of the river Sutlej, River Beas, Rajasthan Feeder and Ferozpur Canal samples collected during 07-08.10.2018 by the Monitoing Committee (For Pesticides in µg/l)**

S.No	Sampling Date	Sampling Location	Latitude Longitude	O,P'-DDT	P,P'-DDT	P,P'-DDE	α-Endosulphan	β-Endosulphan	Aldrin	Dieldrin	2,4-D	Chloropyrifos	Methyl Parathion	α-HCH	β-HCH	γ-HCH	Ethion	Dimethoate	Malathion
1	07.10.2018	River Sutlej A/c East Bein	31.1367 75.105076	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	07.10.2018	River Beas B/c to Sutlej at Harike	31.15077 74.951119	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
4	07.10.2018	Ferozpur Canal at Harike	31.12692 74.94854	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
5	07.10.2018	Rajasthan Feeder Canal at Harike	31.126047 74.949742	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
9	08.10.2018	Beas River at Mirthal Bridge, Bela Mastgarh, Punjab	32.098149 75.61143	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

**Note:- All the values are in µg/l**

**Analysis results of the river Sutlej, River Beas, River Chakki, Rajasthan and Ferozpur Canals samples collected during 07-08.10.2018 by the Monitoing Committee (For Heavy metals)**

S.No	Sampling Date	Sampling Location	Latitude Longitude	Arsenic in mg/l	Cadmium in mg/l	Chromium (Total) in mg/l	Copper in mg/l	Total Iron in mg/l	Nickel in mg/l	Lead in mg/l	Zinc in mg/l
1	07.10.2018	River Sutlej A/c East Bein	31.1367 75.105076	BDL	BDL	0.02	BDL	3.12	0.01	BDL	0.03
2	07.10.2018	River Sutlej B/c East Bein	31.127639 75.120127	BDL	BDL	0.01	0.01	4.93	0.01	BDL	0.04
3	07.10.2018	River Beas B/c to Sutlej at Harike	31.15077 74.951119	BDL	BDL	0.02	0.02	13.53	0.01	BDL	0.04
4	07.10.2018	Ferozpur Canal at Harike	31.12692 74.94854	BDL	BDL	0.01	0.01	9.09	0.01	BDL	0.03
5	07.10.2018	Rajasthan Feeder Canal at Harike	31.126047 74.949742	BDL	BDL	0.01	0.02	8.15	0.01	BDL	0.14
6	08.10.2018	River Sutlej B/c Kasabad drain	30.990884 75.841459	BDL	BDL	BDL	BDL	0.59	BDL	BDL	0.05
7	08.10.2018	River Sutlej A/c Kasabad drain & B/c Buddha Nallah	30.996731 75.788141	BDL	BDL	BDL	BDL	1.08	BDL	BDL	0.16
8	08.10.2018	River Sutlej A/c Buddha Nallah	30.964016 75.481496	BDL	BDL	0.02	0.01	5.97	0.02	BDL	0.09
9	08.10.2018	Beas River at Mirthal Bridge, Bela Mastgarh, Punjab	32.098149 75.61143	BDL	BDL	BDL	BDL	1.28	BDL	BDL	0.02
10	08.10.2018	River Chakki at Pathankot	32.251233 75.657379	BDL	BDL	0.01	BDL	4.97	BDL	BDL	0.02
11	08.10.2018	Ravi Canal at Pathankot	32.263295 75.621779	BDL	BDL	BDL	BDL	1.8	BDL	BDL	0.04
12	08.10.2018	River Beas A/c Kanhuwan Swan drain at Gandhowal	31.69431 75.52278	BDL	BDL	BDL	BDL	4.54	BDL	BDL	0.03

**Analysis results of the major drains contributing to the pollution load in river Sutlej and River Beas  
(samples collected during 07-08.10.2018 by the Monitoing Committee- (For Physicochemical and Heavy metals-in mg/l)**

S. No	Sampling Date	Sampling Location	Latitude	Longitude	pH	EC in $\mu\text{mho/cm}$	TDS in mg/l	COD in mg/l	BOD in mg/l	Phosphate in mg/l	Amonia-N in mg/l	TSS in mg/l	As in mg/l	Cd in mg/l	Total Cr in mg/l	Cu in mg/l	Fe (Total) In mg/l	Ni in mg/l	Pb in mg/l	Zn in mg/l
1	07.10.2018	Kala Singhania drain	31.151369	75.346516	8.28	1800	1120	252	51	3.35	39	242	BDL	BDL	2.15	0.1	10.27	0.1	0.12	0.57
2	07.10.2018	East Bean B/c Kala Singha drain	31.14977	75.346571	7.98	888	388	211	46	3.93	20	404	BDL	BDL	0.05	0.03	17.99	0.03	0.02	0.13
3	07.10.2018	East Bean A/c Kala Singha drain	31.134778	75.337781	8.04	1050	548	173	39	3.92	20	147	BDL	BDL	0.54	0.03	4.4	0.03	0.02	0.13
4	08.10.2018	STP drain in Kasabad	30.989811	75.833157	7.7	1420	660	177	38	3.08	22	128	BDL	BDL	0.05	0.03	5.25	0.02	BDL	0.16
5	08.10.2018	Buddha Nallah B/c River Sutlej at Walipur	30.972837	75.651173	7.61	1425	740	440	136	2.34	22	339	BDL	BDL	0.4	0.12	26.13	0.14	0.04	1.37
6	08.10.2018	Phagwara drain at Saprora	31.258708	75.715573	7.75	1590	752	200	50	3.85	26	96	BDL	BDL	0.04	0.03	3.28	0.13	BDL	0.13
7	08.10.2018	East Bein at Chaheru Bridge	31.271086	75.690907	7.99	618	352	25	12	0.66	6	41	BDL	BDL	BDL	BDL	1.68	BDL	BDL	0.02
8	08.10.2018	Garha drain at Saprora	31.231136	75.609353	7.7	988	568	709	283	3.59	18	430	BDL	BDL	0.06	0.03	3.87	0.03	0.01	0.17
9	08.10.2018	Mukheria drain B/c River Beas at village Khichian	31.950129	75.598604	7.58	740	384	208	58	2.41	16	95	BDL	BDL	BDL	0.06	1.05	BDL	BDL	0.08
10	08.10.2018	Kanhuwan Swan drain at Bhait	31.759594	75.536893	8.17	463	168	3	1	0.11	BDL	23	BDL	BDL	BDL	BDL	1.18	BDL	BDL	0.02

**Analysis results of the Ground Water Samples collected during 07-08.10.2018 in the catchment of river Sutlej and River Beas (For Chemical and Heavy metals in mg/l)**

S.No	Sampling Date	Sampling Location	Latitude Longitude	Sulphate in mg/l	Fluoride in mg/l	As in mg/l	Cd in mg/l	Cr (Total) In mg/l	Cu in mg/l	Iron (Total) in mg/l	Ni in mg/l	Pb in mg/l	Zn in mg/l	Hg in mg/l
1	07.10.2018	Hand Pump near Railway Bridge No 84	31.138047 75.108542	19	0.4	0.05	BDL	BDL	0.02	1.22	BDL	0.01	0.24	BDL
2	07.10.2018	Hand Pump in Village Mahle Wala	31.124628 75.118977	9	0.3	0.12	BDL	BDL	BDL	4.32	BDL	BDL	0.09	BDL
3	07.10.2018	Hand Pump between Ferozpur & Rajasthan Canal at Harike	31.126773 74.948882	11	0.3	0.04	BDL	BDL	BDL	0.58	BDL	BDL	0.05	BDL
4	08.10.2018	Submersible in Kasabad village	30.978453 75.844854	33	0.5	BDL	BDL	BDL	BDL	0.07	BDL	0.01	0.08	BDL
5	08.10.2018	Hand Pump in Shanidev Temple near Phillaur Toll, Talwandi Kalan	30.996905 75.788082	8	0.5	BDL	BDL	BDL	BDL	0.79	BDL	0.01	0.15	BDL
6	08.10.2018	Hand Pump in Village Walipur	30.970153 75.623144	21	0.4	BDL	BDL	BDL	BDL	1.32	BDL	BDL	0.28	BDL
7	08.10.2018	Hand Pump in Village Khurshedpur	30.955507 75.481261	55	0.3	0.06	BDL	BDL	BDL	4.73	BDL	BDL	0.09	BDL
8	08.10.2018	Hand pump at Parthapura Road, Jhamsher Khas, Sepral, Punjab	31.231457 75.611417	10	0.5	BDL	BDL	BDL	BDL	0.03	BDL	BDL	0.09	BDL
9	08.10.2018	Hand Pump in Bhait village	31.759061 75.53188	104	0.4	BDL	BDL	BDL	0.01	0.43	BDL	BDL	0.56	BDL
<b>Measured values (range in mg/l)</b>				8 to 104	0.3 to 0.5	BDL to 0.12	BDL	BDL	BDL to 0.02	0.03 to 4.73	BDL	BDL to 0.01	0.05 to 0.56	BDL
<b>BIS Drinking Water Specifications as per IS:10500-2012 (Acceptable Limits) In mg/l</b>				200	1	0.01	0.003	0.05	0.05	0.3	0.02	0.01	5	0.001
<b>Compliance Status</b>				Complying	Complying	Non-Complying	Complying	Complying	Complying	Non-Complying	Complying	Complying	Complying	Complying

PPCB had stipulated its own effluent discharge standards for STPs till 30.01.2019 and PPCB now adopted STP discharge standards notified under the E (P) Act, 1986 by MoEF & CC. Assessment and compliance status is based on the old STP standards implemented by PPCB.

**A. Assessment Reports of STPs carried out Jointly by the Members of the Monitoring Committee (comprising Shri Balbir Singh Seechewal and the Officials of Punjab Pollution Control Board)**

**1) 105 MLD STP installed at Vill. Balloke, Distt. Ludhiana**

Technology of STP:- SBR

Date of Visit: 12-08-2018

**Main Observations:-**

- Sewage Treatment Plant (STP) is providing treatment services of sewage generated from Ludhiana Town.
- Consent has not obtained from Punjab Pollution Control Board (PPCB).
- The part of sewage going to STP was about 152 MLD was directly being by passed into Budha Nallah. The STP of 105 MLD was in operation. However, the record of the effluent treatment per day of previous and present month was not produced during the visit and thereafter.
- The STP was in operation during the visit.
- Total 8 no. motors were installed in inlet/ lifting section, out of which only 2 motors were in operation & maintenance of one motor was under process. The sludge in sludge collection area was found almost dry condition, which reflects that the sludge is not being removed on regular basis.
- Main unit operations of STP comprise of screening, aeration followed by settling, decanting etc. as per SBR technology.
- Flow meter devices on the inlet and outlet are provided.
- As per analysis results of STP outlet sample collected on 12.08.2018, observed STP effluent characteristics are not meeting with prescribed standards of the Board. The results are as under:- pH= 7.11, COD= 137 mg/l, BOD= 32 mg/l, TSS= 104 mg/l, Electrical Conductivity= 1186  $\mu$ s/cm, Ammonical Nitrogen = 19.0mg/l, Total Kjeldahl Nitrogen=21.2mg/l, T.Phosphorous PO<sub>4</sub>-P= 0.8 mg/l, Solium Absorption Ratio= 2.21, Residual Sodium Carbonate= -0.86meq/l, Iron= 10.1 mg/l, Nickel= BDL, Total Chrome= BDL, Lead= BDL, Cadmium= BDL, Zinc= 0.40mg/l, Arsenic= BDL, Mercury= BDL, Manganese= 0.34mg/l, Sodium= 94 mg/l, Potassium= 37 mg/l, Total Coliform= 170000 MPN/100 ml, Faecal Coliform= 33000 MPN/100 ml.
- Mode of disposal of treated sewage-into the river Sutlej through Budha Nallah
- Operation and Maintenance of STP is poor, and
- Record keeping is poor.

**2) 152 MLD STP installed at Vill. Balloke, Distt. Ludhiana**

Technology of STP:- UASB

Date of Visit: 12-08-2018

**Main Observations:-**

- STP is providing treatment services of sewage generated from Ludhiana Town.
- Consent has not obtained from PPCB.

- ⦿ No measuring devices are provided at inlet and outlet to check the quantity of total influent and effluent treated/day.
- The STP was not in operation during visit. The motor no. 7 of main pumping section is out of order. During visit, the maintenance of the same was under process at the site.
- The bye-pass of the STP was found open and the untreated sewage of the STP was being discharged into Buddha Nallah. Hence, the Municipal Corporation (MC), Ludhiana has not provided adequate arrangement for operation of the STP even at the time of any maintenance of the pump / motor of the main pumping section.
- STP is based on UASB technology.
- Flow measuring devices on the inlet and outlet are not provided.
- On 12.08.2018, entire untreated effluent leading to this STP was being bye passed into Budhan Nallah. Hence, the samples were not collected during the visit.
- STP failed to achieve effluent discharge standards of the Board and has not obtained Consent of the Board.
- Mode of disposal of treated sewage into the river Sutlej is about 152 MLD.
- Operation and Maintenance of STP is Poor.
- Record keeping is poor.

### 3) **111 MLD STP installed at Vill. Bhattian, Distt. Ludhiana**

Technology of STP:- UASB

Date of Visit: 12-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Ludhiana Town.
- Not applied for Consent from PPCB.
- App. sewage treated per day at present is about 111 (MLD)
- The STP was in operation during visit.
- The STP has only one final polishing unit & sludge was lying inside it.
- The STP is not having standby (FPU) final polishing unit for the cleaning of existing (FPU).
- Main unit operations in STP comprises of screening, UASB reactor, settling etc. (as per UASB technology).
- Flow meter devices are provided on the outlet but not provided on the inlet of the STP.
- As per analysis results of STP outlet sample collected on 12.08.2018, STP effluent characteristics are not meeting with prescribed standards of the Board. The results are as under:- pH= 7.30, COD= 142 mg/l, BOD= 34 mg/l, TSS= 62 mg/l, Electrical Conductivity= 1857  $\mu$ S/cm, Ammonical Nitrogen = 22.1 mg/l, Total Kjehldal Nitrogen= 27.4mg/l, T.Phosphorous PO<sub>4</sub>-P= 1.0 mg/l, Solium Absorption Ratio= 5.68, Residual Sodium Carbonate= 2.8 meq/l, Iron= 3.84 mg/l, Nickel= BDL, Total Chrome= BDL, Lead= BDL, Cadmium= BDL, Zinc= 0.24mg/l, Arsenic= BDL, Mercury= BDL, Manganese= 0.28mg/l, Sodium= 222 mg/l, Potassium= 24 mg/l, Total Coliform= 94000 MPN/100 ml, Faecal Coliform= 17000 MPN/100 ml.
- STP failed to achieve effluent standards of the Board.
- Mode of disposal of treated sewage in into the river Sutlej and about sewage quantity 111 MLD is disposed

- Operation and maintenance of STP is Poor.
- Record keeping is poor.

#### **4) 50 MLD STP installed at Vill. Bhattian, Distt. Ludhiana**

Technology of STP:- SBR

Date of Visit: 12-08-2018

##### **Main Observations:-**

- STP is providing treatment services of sewage generated from Ludhiana Town.
- Consent not obtained from PPCB.
- The STP was in operation during visit. App. sewage treated per day at present is 50 MLD
- The effluent samples were collected during visit from the final outlet of the STP.
- Main unit operations in STP comprise of screening, aeration, settling, decanting etc. as per SBR technology.
- Flow meter devices are provided on the outlet but not provided on the inlet of the STP.
- As per analysis results of STP outlet sample collected on 12.08.2018, observed STP effluent characteristics are not meeting with prescribed standards of the Board. The results are as under:- pH= 7.5, COD= 53 mg/l, BOD= 13 mg/l, TSS= 29 mg/l, Electrical Conductivity= 1678  $\mu$ S/cm, Ammonical Nitrogen = 13 mg/l, Total Kjeldahl Nitrogen= 6.0 mg/l, T.Phosphorous PO<sub>4</sub>-P= 0.2, Solium Absorption Ratio= 6.6, Residual Sodium Carbonate= 0.8 meq/l, Iron= 0.94 mg/l, Nickel= BDL, Total Chrome= BDL, Lead= BDL, Cadmium= BDL, Zinc= 0.12mg/l, Arsenic= BDL, Mercury= BDL, Manganese= 0.22 mg/l, Sodium= 270 mg/l, Potassium= 21 mg/l, Total Colifor= 79000 MPN/100 ml, Feacal Coliform= 13000 MPN/100 ml.
- About sewage quantity 50 MLD is disposed into the river Sutlej.
- Operation and maintenance of STP is average and requires improvement.
- Record keeping is upto average level only.

#### **5) 48 MLD STP installed at Vill. Jamalpur, Distt. Ludhiana**

Technology of STP:- SBR

Date of Visit: 12-08-2018

##### **Main Observations:-**

- STP is providing treatment services of sewage generated from Ludhiana Town.
- Consent has not obtained from PPCB.
- The major components of the STP are lying defunct. The capacity of the STP is 48 MLD. No measuring devices provided at inlet and outlet to check the quantity of total inflow and effluent treated/ day.
- During visit, STP was not in operation and effluent was directly being bye-passed into Buddha Nallah without any treatment.
- The UASB reactor was found chocked and was not working properly. The screen was also not working.
- Main unit operations in STP comprise as per UASB technology.

- As per analysis results of final outlet sample collected on 12.08.2018, observed STP effluent characteristics are not meeting with prescribed standards of the Board. The results are as under:- pH= 7.5, COD= 363 mg/l, BOD= 132 mg/l, TSS= 239 mg/l, Electrical Conductivity= 1729  $\mu$ S/cm, Ammonical Nitrogen = 18.0 mg/l, Total Kjeldahl Nitrogen= 22.0 mg/l, T.Phosphorous PO<sub>4</sub>-P= 0.1, Solium Absorption Ratio= 6.4, Residual Sodium Carbonate= 2.0 meq/l, Iron= 8.42 mg/l, Nickel= BDL, Total Chrome= BDL, Lead= BDL, Cadmium= BDL, Zinc= 2.24 mg/l, Arsenic= BDL, Mercury= BDL, Manganese= 0.27 mg/l, Sodium= 271 mg/l, Potassium= 53 mg/l, Total Coliform= 79000 MPN/100 ml, Feacal Coliform= 13000 MPN/100 ml.
- Mode of disposal of treated sewage into the river Sutlej through Budha Nallah.
- Operation and maintenance of STP is Poor.
- Record keeping is poor.

#### 6) 16 MLD STP installed at Tehsil Jagraon, Distt. Ludhiana

○ Technology of STP:- SBR

Date of Visit: 23-08-2018

##### Main Observations:-

- STP is providing treatment services of sewage generated from Jagraon Town.
- Obtained Consent which is valid upto 31.3.2019.
- Approximate sewage treated per day at present is 16MLD.
- Main observations are as follows:
- The STP was not in operation during visit.
- The whole untreated effluent was being bye-passed into drain.
- The sludge thickener was found half-filled and was non-operational.
- Main unit operations in STP comprise as per SBR technology.
- Flow measuring devices at the inlet and outlet are provided.
- As per analysis results of STP outlet sample collected on 23.08.2018, observed STP effluent characteristics are not meeting with prescribed standards of the Board. The results are as under:- pH= 6.35, COD= 512 mg/l, BOD= 120 mg/l, TSS= 118 mg/l, TDS= 886 mg/l, T.Coliform= 90000 MPN/100 ml, F.Coli= 50000 MPN/100 ml, Oil & Grease= 8.8 mg/l, Sulphide= 1.8 mg/l, Sulphate= 45 Chloride= 140 SAR= 8.2, Fe= 4.32 mg/l, Zn=BDL, Mn= ND, Na= 298 mg/l, K= 24 mg/l, Total Cr.= ND, Ni= ND, Cd= ND, Pb= ND.
- STP failed to achieve standards of the Board.
- about sewage quantity 16, MLD is disposed into the drain Nanaksar; and
- Operation and maintenance of STP is Poor.
- Record keeping is poor.

#### 7) 12 MLD STP installed at Tehsil Jagraon, Distt. Ludhiana

○ Technology of STP:- SBR

Date of Visit: 23-08-2018

##### Main Observations:-

- STP is providing treatment services of sewage generated from Jagraon Town.
- Consent has not obtained from PPCB.App. sewage treated per day at present is 12(MLD)

- Main observations are as follows:
  - The STP was in operation during visit.
  - The effluent samples were collected during the visit from the final outlet of the STP.
- Main unit operations in STP comprise as per SBR technology.
- Flow measuring devices on the inlet and outlet are provided.
- As per analysis results of STP outlet samples collected on 23.08.2018, observed STP effluent characteristics are not meeting with prescribed standards of the Board. The results are as under:- pH= 7.43, COD= 52 mg/l, BOD= 10 mg/l, TSS= 18 mg/l, TDS= 716 mg/l, T.Coliform= 2000 MPN/100 ml, F.Coliform= 780 MPN/100 ml, Oil & Grease= 4.5 mg/l, Sulphide= 0.6 mg/l, Sulphate= 45 mg/l, Chloride= 62, SAR= 4.79, Fe= 0.2547 mg/l, Zn= 0.043 mg/l, Mn= 0.15 mg/l, Na= 139 mg/l, K= 14 mg/l, Total Chromium (Cr)= ND, Ni= ND, Cd= ND, Pb= ND.
- Sewage quantity 12 MLD is disposed into the Jassowal drain .
- Operation and maintenance of STP is Poor.
- Record keeping is poor.

#### 8) 100 MLD STP installed at Pholriwal, Distt. Jalandhar

- Technology of STP:- UASB
- Date of Visit: 13-08-2018

##### Main Observations:-

- STP is providing treatment services of sewage generated from Jalandhar Town.
- Not applied for Consent so far.
- Approximate sewage treated per day at present is approximately -100 MLD.
- The STP was in operation during visit.
- Main observation during the visit was that the final polishing pond of STP was almost filled with sludge and needs to be cleaned.
- No Flow measuring devices provided at the inlet and at the outlet of STP
- As per analysis results of STP outlet sample collected on 13.08.2018 observed STP effluent characteristics are as follows: pH= 7.1, COD = 121 mg/l, BOD = 33 mg/l, TSS = 45 mg/l
- STP effluent is not complying with the effluent discharge norms
- About 100 MLD of treated sewage is disposed of into the Garha drain.
- Operation and Maintenance of STP is Poor and Record keeping is poor

#### 9) 25 MLD STP installed at Pholriwal, Distt. Jalandhar

- Technology of STP:- SBR
- Date of Visit: 13-08-2018

##### Main Observations:-

- STP is providing treatment services of sewage generated from Jalandhar Town.
- Not applied for Consent.
- App. sewage treated per day at present is approx. 15 to 20 MLD.
- The STP was in operation during the visit. However, centrifuge system of STP was not in operation.
- Flow measuring devices provided at the inlet and not provided at the outlet.

- As per analysis results of STP outlet sample collected on 13.08.2018 observed STP effluent characteristics are as follows: pH= 7.3, COD = 68 mg/l, BOD = 18 mg/l, TSS = 18 mg/l.
- STP effluent is not complying with the discharge norms
- About sewage quantity 20 MLD is disposed into the Garha drain.
- Operation and maintenance of STP is poor and Record keeping is poor.

#### **10) 25 MLD STP installed at Pholriwal, Distt. Jalandhar**

Technology of STP:- SBR

Date of Visit: 13-08-2018

##### **Main Observations:-**

- STP is providing treatment services of sewage generated from Jalandhar Town.
- Not applied for Consent.
- App. sewage treated per day at present is approx. 15 to 20 (MLD)
- Centrifuge system and 2 no. blowers in aeration tank were not in operation.
- STP was not in operation during the visit.
- No Flow measuring devices provided at the inlet and at the outlet of STP.
- As per analysis results of STP outlet samples collected on 13.08.2018 observed STP effluent characteristics are as follows: pH= 7.3, COD = 42 mg/l, BOD = 14 mg/l, TSS = 19 mg/l
- STP effluent is not complying with the effluent discharge norms
- About, sewage quantity of 20 MLD is disposed of into the Garha Drain .
- Operation and Maintenance of STP is Poor.
- Record keeping is poor.

#### **11) 50 MLD STP installed at Basti Peer Dad, Distt. Jalandhar**

○ Technology of STP:- SBR

Date of Visit: 13-08-2018

##### **Main Observations:-**

- STP is providing treatment services of sewage generated from Jalandhar Town.
- Not applied for Consent by the STP.
- App. sewage treated per day at present is approx. 40 MLD
- During the visit, it was observed that centrifuge machine and screens were not in operation.
- STP was not in operation during the visit.
- Flow measuring devices provided at the inlet and not at the outlet of STP
- As per analysis results of STP outlet sample collected on 13.08.2018 observed STP effluent characteristics are as follows: pH= 7.3, COD = 105 mg/l, BOD = 23 mg/l, TSS = 70 mg/l.
- STP effluent is not complying with the discharge norms
- Sewage quantity about 40 MLD is disposed of into the Kala Singhian drain.
- Operation and Maintenance of STP is Poor.
- Record keeping is poor

#### **12) 25 MLD STP installed at Jaitewali, Hoshiarpur Road, Jalandhar**

○ Technology of STP:- SBR

Date of Visit: 13-08-2018

##### **Main Observations:-**

- STP is providing treatment services of sewage generated from Jalandhar Town.
- Not applied for Consent from PPCB
- App. sewage treated per day at present is approx. 8 (MLD)
- The STP was in operation during visit.
- Flow measuring devices provided at the inlet but not at the outlet of STP
- As per analysis results of STP outlet sample collected on 13.08.2018 observed STP effluent characteristics are as follows: pH= 7.41, COD = 31 mg/l, BOD = 7 mg/l, TSS = 10 mg/l. STP outlet effluent is complying with the discharge norms
- Sewage quantity 8 MLD is disposed of into the Jandhu Singha drain.
- Operation and Maintenance of STP is good
- Record keeping is good.

### **13) 2.6 MLD STP installed at Phillaur (North), Distt. Jalandhar**

Technology of STP:- Duck-weed

Date of Visit: 14-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Phillaur Town.
- Not applied for Consent by the STP authorities
- App. sewage treated per day at present is approx. 2.6 (MLD)
- STP lagoons were filled with sludge and untreated effluent was also being by-passed into the drain.
- The STP was in operation during the visit.
- No Flow measuring devices provided at the inlet and at the outlet.
- As per analysis results of bye-passed effluent sample collected on 14.08.2018 observed effluent characteristics are as follows: pH= 7.2, COD = 196 mg/l, BOD = 49 mg/l, TSS = 112 mg/l. STP effluent is not complying with the discharge norms
- Mode of disposal of treated sewage is into the Theing drain with and about sewage quantity 2.6 MLD is disposed
- Operation and maintenance of STP is Poor.
- Record keeping is poor.

### **14) 3 MLD STP installed at Phillaur (South), Distt. Jalandhar**

Technology of STP:- MBBR

Date of Visit: 14-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Phillaur Town.
- Not applied for Consent by the STP authorities
- App. sewage treated per day at present is approx. 3 (MLD)
- STP was not in operation during the visit as suction pumps of STP were out of order.
- No Flow measuring devices provided at the inlet and at the outlet
- During visit effluent samples could not be collected as there was no discharge of effluent at outlet of STP as the STP was not in operation.
- About sewage quantity 3 MLD is disposed of into the drain.
- Operation and maintenance of STP is Poor.
- Record keeping is poor.

**15) 6 MLD STP installed at Nakodar, Distt. Jalandhar**

Technology of STP:- SBR Date of Visit: 14-08-2018

**Main Observations:-**

- STP is providing treatment services of sewage generated from Nakodar Town.
- Not applied for Consent.
- App. sewage treated per day at present is approx. 5 (MLD)
- Mechanical screen were not in operation, during the visit.
- STP was in operation during the visit, however, untreated effluent was also being by-passed.
- Flow measuring devices provided at the inlet and not at the outlet of STP
- The analysis results of by-passed sample collected on 14.08.2018 observed STP effluent characteristics are as follows: pH= 7.6, COD = 40 mg/l, BOD = 10 mg/l, TSS = 15 mg/l.
- STP effluent is not complying with the effluent discharge norms
- Sewage quantity 5 MLD is disposed of into the Bein.
- Operation and maintenance of STP is Poor.
- Record keeping is poor.

**16) 2.5 MLD STP installed at Noor Mahal, Jalandhar**

Technology of STP:- MBBR Date of Visit: 14-08-2018

**Main Observations:-**

- STP is providing treatment services of sewage generated from Noormahal Town.
- During visit, STP was not in operation and premises found locked and no person available at site.

**17) 20 MLD STP installed at Palahi Road at Phagwara.**

Technology of STP:- UASB Date of Visit: 14-08-2018

**Main Observations:-**

- STP is providing treatment services of sewage generated from Phagwara Town.
- Not applied for Consent from PPCB. .
- App. sewage treated per day at present is approximately 20 MLD
- The STP was in operation during visit.
- Final polishing unit was filled with sludge and leakage was observed in the by-passed valve.
- No Flow measuring devices provided at the inlet and at the outlet
- As per analysis results of STP outlet sample collected on 14.08.2018 observed STP effluent characteristics are as follows: pH= 7.46, COD = 110 mg/l, BOD = 31 mg/l, TSS = 46 mg/l
- STP effluent is not complying with the consent discharge norms
- About sewage quantity 20 MLD is disposed of into the Phagwara drain.
- Operation and Maintenance of STP is Poor.



- No flow measuring devices provided at the inlet but not at the outlet.
- As per analysis results of STP outlet sample collected on 21.08.2018 observed STP effluent characteristics are as follows: pH= 8.41, COD = 118 mg/l, BOD = 30 mg/l, TSS = 24 mg/l
- STP effluent is not complying with the effluent discharge norms
- Mode of disposal of treated sewage is into Bein and partly onto land for irrigation and about sewage quantity 4 MLD is disposed
- Operation and maintenance of STP is Poor
- Record keeping is poor

### **21) 2.6 MLD STP installed at Sultanpur Lodhi.**

Technology of STP:- WSP

Date of Visit: 21-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Sultanpur Lodhi Town.
- Not applied for the Consent.
- App. sewage treated per day at present is approx. 2.6 (MLD)
- Screen bars found damaged and one pump out of three was not in operation.
- STP was in operation during visit.
- No Flow measuring devices provided at the inlet and at the outlet.
- As per analysis results of STP outlet sample collected on 21.08.2018 observed STP effluent characteristics are as follows: pH= 7.50, COD = 128 mg/l, BOD = 32 mg/l, TSS = 30 mg/l. STP effluent is not complying with the effluent discharge norms
- Mode of disposal of treated sewage is onto land for irrigation/plantation and about sewage quantity 2.6 MLD is disposed
- Operation and maintenance of STP is Poor.
- Record keeping is poor

### **22) 25 MLD STP installed at Kapurthala.**

Technology of STP:- MBBR

Date of Visit: 21-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Kapurthala Town.
- Not applied for Consent.
- App. sewage treated per day at present is approx. 25 (MLD)
- Only one pump out of 4 no. lifting pumps were not in operation and untreated effluent was being bye-passed into Bein.
- The STP was in operation during visit.
- No Flow measuring devices provided at the inlet and at the outlet
- As per analysis results of STP outlet sample collected on 21.08.2018 observed STP effluent characteristics are as follows: pH= 6.9, COD = 884 mg/l, BOD = 140 mg/l, TSS = 42 mg/l
- STP effluent is not complying with the effluent discharge norms
- Mode of disposal of treated sewage as well as bye-passed untreated effluent are into the Bein with and about sewage quantity 25 MLD is disposed
- Operation and maintenance of STP is Poor.
- Record keeping is poor

### **23) 8 MLD STP installed at Phagwara (South) Hadiabad.**

Technology of STP:- MBBR

Date of Visit: 14-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Phagwara Town.
- Not applied for Consent.
- App. sewage treated per day at present is approx. 8 (MLD)
- The STP was in operation during visit. Sludge sepeator was not in operation.
- No flow measuring devices provided at the inlet and at the outlet .
- As per analysis results of STP outlet sample collected on 14.08.2018 observed STP effluent characteristics are as follows: pH= 7.7, COD = 86 mg/l, BOD = 18 mg/l, TSS = 34
- STP effluent is not complying with the consent discharge norms
- About sewage quantity 8 MLD is disposed of treated sewage into the Phagwara drain
- Operation and maintenance of STP is Poor
- Record keeping is poor

### **24) 4 MLD STP installed at Municipal Council, Tanda.**

Technology of STP:- MBBR

Date of Visit: 21-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from 01 Town. Town-wise Sewage generation in Tanda Town is 2.5 MLD.
- Not applied for Consent from PPCB.
- App. sewage treated per day at present is 2.5 (MLD)
- STP is based on MBBR Technology. 4 MLD sewage treatment plant of Tanda has been installed by Thermix Pvt. Ltd. The survey team found that the sludge system of the Plant was not working. The water was being drained bye-pass.
- The team took samples of treated water. Some water was also flowing into the drain connecting the treatment plant with the Holy Bein.
- Main unit operations in STP comprise of inlet chamber, Mechanical Screen, grit chamber, MBBR tanks, clarifier, chlorine contact tank.
- Flow measuring devices provided at the inlet , but not at the outlet.
- As per analysis results of STP outlet sample collected on 21.08.2018 , observed STP effluent characteristics are as follows: pH -7.1, TSS - 19 mg/l, TDS - 443 mg/l, COD - 75 mg/l, BOD- 20 mg/l, Phosphate - 1.4 mg/l, T. Phshphorus - 0.46 mg/l, Sulphide - BDL mg/l, Ammonical Nitrogen - 6.0 mg/l, TKN - 8.4 mg/l, T.Coliform- 7900 MPN/100 ml, F.Coliform- 2200 MPN/100 ml.
- STP effluent is not complying with the effluent discharge norms.
- About sewage quantity 2.5 MLD is disposed into the local drain leading to Holy Bein
- Operation and maintenance of STP is Poor
- Record keeping is Poor.

## **25) 1 MLD STP installed at Municipal Council, Sham Churasi.**

Technology of STP:- Stabilization Pond

Date of Visit: 16-08-2018

### **Main Observations:-**

- STP is providing treatment services of sewage generated from 01 Town. Sewage generation from Sham Churasi is @ 0.8 MLD.
- No Consent obtained from PPCB by the STP Authorities
- App. sewage treated per day at present is 0.8 (MLD).
- 1 MLD sewage treatment plant has been installed in Sham Churasi by L & T Co. No operator has been appointed at the plant and it remains non-functional most of the time. The team found the untreated water was flowing through a gutter by the boundary wall of the Plant into the Nasrula Choe. Although a pipeline has been laid down by Irrigation Department and a Motor Pump has also been installed to supply this water for irrigation, but its operation has not yet been started.
- Unit operation of STP comprise of inlet chamber, Mechanical Screen, anaerobic pond, facultative ponds, maturation ponds.
- No Flow measuring devices provided at the inlet and at the outlet
- As per analysis results of STP outlet sample collected on 16.08.2018 , observed STP effluent characteristics are as follows: pH 8.6, COD-140 mg/l, BOD -37 mg/l, Sulphide -2.0 mg/l, T.Coliform-9400 MPN/100ml, F.Coliform- 2300 MPN/100ml, Amn. Nitrogen-24.8 mg/l, TKN. 26.9 mg/l, T. Phosphorus -1.9 mg/l, TDS- 431 mg/l, TSS -26 mg/l, Electrical Conductivity - us/cm 68.2, Sulphide -2 mg/l
- STP effluent is not complying with the effluent discharge norms.
- About sewage quantity 0.8 MLD is disposed of into the Nasrula Choe
- Operation and maintenance of STP is Poor
- Record keeping is Poor.

## **26) 6 MLD STP installed at Municipal Council, Nawanshahr.**

➤ Technology of STP:- SBR

Date of Visit: 16-08-2018

### **Main Observations:-**

- STP is providing treatment services of sewage generated from 01 Town. Town-wise sewage generation are as follows: Nawanshahr City 5 MLD.
- Consent not obtained from PPCB
- App. sewage treated per day at present is 5(MLD). 3 MLD water treatment plant has been installed in Banga. It is being run by GSJ Envo Ltd., Sludge system was started only at the time of the visit of the survey team. Untreated water was found being thrown from Pump House bye-pass into the drain. Sample of this water were taken.
- Main unit operations in STP comprise of Collection tank, Grit Chamber, SBR tanks (2no.), Chlorine Contact tank, Sludge Sump, outlet
- Flow measuring devices provided at the inlet but not provided at the outlet
- As per analysis results of STP outlet sample collected on 16.08.2018, observed STP effluent characteristics are as follows: pH 7.6, COD 84 mg/l , BOD -124 mg/l , TKN -12 mg/l, T. Phosphorus 1.4 mg/l , TKN -12 mg/l, Ammonical Nitrogen - 19 mg/l, Sulphide 1.2 mg/l, T- Coli -2100 MPN/100ml , F-Coli 610 MPN/100 ml .
- STP effluent is not complying with the discharge norms.

- Mode of disposal of treated sewage in into the east bain and about sewage quantity 5 MLD is disposed
- Operation and maintenance of STP is poor.
- Record keeping is poor.

### **27) 5 MLD STP installed at Municipal Council, Mukerian.**

Technology of STP:- MBBR

Date of Visit: 21-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from 01 Town i.e., Mukerian Town @ 3MLD.
- Consent not obtained from PPCB .
- App. sewage treated per day at present is 3 (MLD)
- 5 MLD Treatment Plant based on MBBR Technology has been installed in Mukerian by Thermix Pvt. Ltd. The survey team found that the sludge system was not being operated regularly.
- Samples of treated water were taken. Contaminated water from upstream area was found flowing in a nearby drain, down directly into the Beas River.
- Main unit operations in STP comprise of inlet chamber, Mechanical Screen, grit chamber, MBBR tanks, clarifier, chlorine contact tank.
- Flow measuring devices provided at the inlet , but not at the outlet
- As per analysis results of STP outlet sample collected on 21.08.2018, observed STP effluent characteristics are as follows: pH 7.2, TSS - 34 mg/l., BOD-18 mg/l., TDS-719 mg/l., COD - 76 mg/l., T. Phosphrous - 1.2 mg/l., Sulphide - 1.4 mg/l., Amn. Nitrogen - 8.0mg/l., TKN - 11.0 mg/l., T.Coli - 2100 and F.Coli - 610 MPN/100 ml.
- STP effluent is not complying with the effluent discharge norms.
- Mode of disposal of treated sewage into the local drain leading to Holy Bein
- Operation and maintenance of STP is Poor.
- Record keeping is Poor

### **28) 30 MLD STP installed at Municipal Corporation, Hoshiarpur.**

Technology of STP:- MBBR

Date of Visit: 16-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Hoshiarpur City. Sewage generation from Hoshiarpur City is about 15 MLD.
- No Consent obtained from PPCB.
- App. sewage treated per day at present is 15 (MLD)
- 30 MLD treatment plant has been installed on the Western side of Hoshiarpur. Based on MBBR Technology, this plant has been built up by Thermix Co. It is treating only 15 MLD water, which is half of its total capacity. Sludge separation system was not working, no pipe line had been laid to use treated water for irrigation.
- Main unit operations in STP comprise of inlet chamber, Mechanical Screen, grit chamber, MBBR tanks, clarifier, chlorine contact tank.
- Flow measuring devices provided at the inlet and not at the outlet
- As per analysis results of STP outlet sample collected on 16.08.2018, observed STP effluent characteristics are as follows: pH 7.16, Chloride-9.2 mg/l, COD-80 mg/l, Total Suspended Solids -14 mg/l, BOD -16 mg/l, TDS -746 ng/l, T.



- mg/l, BOD-15 mg/l, TKN -12.0 mg/l, T. Phosphorus -1.4 mg/l, TKN – 20 mg/l, Ammonical Nitrogen 10.8 mg/l, Sulphide 2.2 mg/l, T- Coli – 5800 MPN/100ml .
- STP effluent is non complying with the effluent discharge norms
- Mode of disposal of treated sewage into Happowal Choe and about sewage quantity 2.8 MLD is disposed
- Operation and maintenance of STP is poor.
- Record keeping is poor

### **31) 4 MLD STP installed at STP Dharamkot.**

Technology of STP:- SBR

Date of Visit: 20-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Dharamkot Town.
- Consent not obtained from PPCB.
- App. sewage treated per day at present is 2.5 MLD
- Sludge system not working properly, however log books have been maintained
- Main unit operations in STP comprise of Sequential Batch Reactor (SBR) components.
- Flow measuring device provided at the inlet, but not at the outlet
- As per analysis results of STP outlet sample collected on 20.08.2018, observed STP effluent characteristics are as follows: BOD = 16 mg/l, TSS = 30 mg/l, COD = 48 mg/l, Phosphate = 0.2 mg/l, FC = 1200 MPN/100ml. STP effluent is not complying with the effluent discharge norms
- Mode of disposal of treated sewage in into the river
- Operation and maintenance of STP is not satisfactory
- Record keeping is poor.

### **32) 4 MLD STP installed at STP Makhu.**

Technology of STP:- SBR

Date of Visit: 20-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Makhu Town.
- Consent not obtained from PPCB.
- App. sewage treated per day at present is 1.2 MLD
- Some parts of Makhu town have not been tapped to treat in the STP
- Main unit operations in STP comprise of Sequential Batch Reactor (SBR) components.
- Flow measuring device provided at the inlet, but not at the outlet
- As per analysis results of STP outlet sample collected on 20.08.2018, observed STP effluent characteristics are as follows: BOD = 68 mg/l, TSS = 276 mg/l, COD = 242 mg/l, Phosphate = 0.2 mg/l, FC = 220000 MPN/100ml for the untreated water discharged directly into the drain as MPS was not working. STP effluent is not complying with the consent discharge norms
- Mode of disposal of treated sewage in into the drain
- Operation and maintenance of STP is not satisfactory
- Record keeping is good

### **33) 27 MLD STP installed at STP Moga.**

Technology of STP:- SBR

Date of Visit: 20-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Moga Town.
- Consent not obtained from PPCB.
- App. sewage treated per day at present is 20 MLD
- Partial effluent is being bypassed into drain directly without treatment from MPS and partially after treatment in STP into Moga drain.
- Main unit operations in STP comprise of Sequential Batch Reactor (SBR) components.
- Flow measuring device provided at the inlet, but not at the outlet
- As per analysis results of STP outlet sample collected on 20.08.2018, observed STP effluent characteristics are as follows: BOD = 15 mg/l, TSS = 32 mg/l, COD = 61 mg/l, Phosphate = 0.9 mg/l, FC = 2100 MPN/100ml for the treated water discharged into the drain
- STP effluent is not complying with the consent discharge norms
- Mode of disposal of treated sewage- into the drain
- Operation and maintenance of STP is not satisfactory
- Record keeping is poor.

### **34) 4 MLD STP installed at STP Talwandi Bhai.**

Technology of STP:- SBR

Date of Visit: 20-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Talwandi Bhai Town.
- Consent not obtained from PPCB.
- App. sewage treated per day at present is 1.6 MLD
- There is a need of pipeline for irrigation purpose.
- Main unit operations in STP comprise of Sequential Batch Reactor (SBR) components.
- Flow measuring device provided at the inlet, but not at the outlet
- As per analysis results of STP outlet sample collected on 20.08.2018, observed STP effluent characteristics are as follows: BOD = 17 mg/l, TSS = 32 mg/l, COD = 52 mg/l, Phosphate = 0.8 mg/l, FC = 920 MPN/100ml for the treated water discharged into the drain
- STP effluent is not complying with the discharge norms
- Mode of disposal of treated sewage is into the drain
- Operation and maintenance of STP is not satisfactory
- Record keeping is poor.

### **35) 8 MLD STP installed at STP Zira.**

Technology of STP:- MBBR

Date of Visit: 20-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Zira Town.
- Consent not obtained from PPCB.
- App. sewage treated per day at present is 4.1 MLD

- ☉ Sludge system was not working properly and there is need of pipeline for irrigation purpose.
- Main unit operations in STP comprise of Moving Bed Bio Reactor (MBBR) components.
- Flow measuring device provided at the outlet, but not at the inlet
- As per analysis results of STP outlet sample collected on 20.08.2018, observed STP effluent characteristics are as follows: BOD = 11 mg/l, TSS = 20 mg/l, COD = 32 mg/l, Phosphate = 0.3 mg/l, FC = 820 MPN/100ml for the treated water discharged into the drain
- STP effluent is just complying (except BOD=11 mg/L against required standard of 10 mg/L) with the consent discharge norms
- Mode of disposal of treated sewage in into the drain
- Operation and maintenance of STP is not satisfactory
- Record keeping is poor.

### **36) 5 MLD STP installed at MC Kurali .**

Technology of STP:- SBR

Date of Visit: 31-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Kurali Towns.
- Consent not obtained from PPCB
- App. Sewage treated per day at present is 2.5-3.0 (MLD)
- Main unit operations in STP comprises of O& G removal, SBR tank, centrifuge.
- Flow measuring devices provided at the inlet of STP
- As per analysis results of STP outlet sample collected on 05/10/2018 and as per the analysis report, the STP was found complying with the standards prescribed by the Board.
- Mode of disposal of treated sewage into Siswan drain and operations and maintenance of STP is not satisfactory.poor.
- Record keepings is poor.

### **37) 6.75 MLD STP installed at BBMB, Naya Nangal.**

Technology of STP:- MBBR

Date of Visit: 30-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from BBMB Nangal Township Towns.
- Consent not obtained from PPCB
- App. sewage treated per day at present is 5.4 (MLD)
- Main unit operations in STP comprise of Screener, Clarifier, MBBR Reactor and CCT Tank.
- Flow measuring devices provided at the inlet , but not at the outlet.
- Effluent sample were not taken during visit as the sample has already collected in the previous time.
- STP effluent is not complying with the discharge norms
- Mode of disposal of treated sewage is used for irrigation of agriculture fields as per the demand of the farmers. Remaining water is discharged into the river Sutlej.
- Operation and maintenance of STP is poor.
- Record keeping is good.

### **38) 8 MLD STP installed at MC Nangal ( STP Maujowal)**

Technology of STP:- ASP

Date of Visit: 30-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Nangal Towns.
- Consent not obtained from PPCB
- App. sewage treated per day at present is 2.5(MLD)
- STP, Maujowal @ 8 MLD was found not in operation as the clarifier was under maintenance.
- The untreated effluent sample taken.
- Main unit operations in STP comprise of Primary Clarifier, ASP Reactor, Secondary Clarifier and CCT Tank.
- Flow measuring devices provided at the inlet was not operational and at the outlet was operational.
- STP outlet sample collected on 30.08.2018. Analysis results of the ETP Outlet is observed as pH-6.8, TSS – 104 mg/l, COD – 138 mg/l, BOD-41 mg/l, Ammonical Nitrogen- 7.7 mg/l, SAR-0.7, Residual Sodium Carbonate-0.3 meq/l, T.Phosphorus -0.8 mg/l, Elec. Conductivity- 434 us/cm, F.Coli-3300 MPN/100 ml.
- As per the analysis report the STP failed to comply with the effluent discharge standards
- Mode of disposal of treated sewage into the river Sutlej.
- Record keeping is poor.

### **39) 5 MLD STP installed at STP Brari ( MC Nangal).**

Technology of STP:- ASP

Date of Visit: 30-08-2018

#### **Main Observations:-**

- STP is providing treatment services of sewage generated from Nangal Towns.
- Consent not obtained from PPCB - Not Obtained
- App. sewage treated per day at present is 2.5(MLD)
- The main observation regarding sludge system not operated regularly.
- Main unit operations in STP comprise of Primary Clarifier, ASP Reactor, Secondary Clarifier and CCT Tank.
- Flow measuring devices provided at the inlet was not operational and at the outlet was operational.
- STP outlet sample collected on 30.08.2018 and the analysis results of STP indicates Analysis results of the ETP Outlet is observed as pH-7.2, TSS – 26 mg/l, COD – 28 mg/l, BOD-9 mg/l, Ammonical Nitrogen- 3.5 mg/l, SAR-1.2, Residual Sodium Carbonate-0.9 meq/l, Phosphorus -0.5 mg/l, Elec. Conductivity- 622 us/cm, F.Coli-1400 MPN/100 ml.
- STP effluent is not complying with the discharge norms
- Mode of disposal of treated sewage into the river Sutlej.
- Operation and maintenance of STP is not satisfactory.
- Record keeping is poor.

**40) 8 MLD STP installed at MC Sri Anandpur Sahib.**

Technology of STP:- MBBR

Date of Visit: 30-08-2018

**Main Observations:-**

- STP is providing treatment services of sewage generated from Anandpur Sahib Towns.
- Consent not obtained from PPCB
- App. sewage treated per day at present is 1.9 (MLD)
- STP was found not in operation. The untreated effluent is being directly discharged into adjoining drain. The physical appearance shows that the plant was not in operation since long time.
- Main unit operations in STP comprise of Screener, Clarifier, MBBR Reactor and CCT Tank.
- Flow measuring devices provided at the inlet - Yes. At the outlet - Yes.
- STP outlet sample collected on 30.08.2018 and as per the analysis report the STP failed to confirming the standards
- STP effluent is complying/ or non complying with the consent discharge norms - Not Complying.
- Mode of disposal of treated sewage into the river Sutlej.
- Operation and maintenance of STP is not satisfactory.
- Record keeping is poor.

**41) 2 MLD STP installed at MC Roopnagar (Sada Barth).**

Technology of STP:- SBR

Date of Visit: 31-08-2018

**Main Observations:-**

- STP is providing treatment services of sewage generated from Rupnagar Towns.
- Consent not obtained from PPCB
- App. sewage treated per day at present is 0.3 (MLD)
- STP was found not in operation. The untreated effluent is being directly discharged into adjoining drain. The physical appearance shows that the plant was not in operation since long time.
- Main unit operations in STP comprise of Bar Screen, SBR Chambers and Chlorine Contact tank.
- Flow measuring devices provided at the inlet and at the outlet
- STP was found not in operation. The untreated effluent is being directly discharged into adjoining drain. The physical appearance shows that the plant was not in operation since long time.
- STP effluent is not complying with the consent discharge norms - Not Complying.
- Mode of disposal of treated sewage into the river Sutlej.
- Operation and maintenance of STP is not satisfactory.
- Record keeping is poor.

#### **42) 10 MLD STP installed at Bari Haveli, Ropar.**

Technology of STP:- SBR

Date of Visit: 31-08-2018

##### **Main Observations:-**

- STP is providing treatment services of sewage generated from Rupnagar Towns.
- Consent not obtained from PPCB
- App. sewage treated per day at present is 4.5 (MLD)
- STP was found not in operation. The untreated effluent is being directly discharged into adjoining drain leading to 1.5 -2.0 KM away from the STP for stagnation in open plot. Effluent sample collected from the MPS bypass line. The soil conservation department has provided separate line for the utilization of treated effluent for irrigation purpose but, the physical appearance shows that the pump was lying defunct.
- Main unit operations in STP comprise of Bar Screen, SBR Chambers and Chlorine Contact tank.
- Flow measuring devices provided at the inlet and at the outlet
- STP was found not in operation. The untreated effluent is being directly discharged into adjoining drain leading to 1.5 -2.0 KM away from the STP for stagnation in open plot. Effluent sample collected from the MPS bypass line. The soil conservation department has provided separate line for the utilization of treated effluent for irrigation purpose but, the physical appearance shows that the pump was lying defunct.
- STP effluent is not complying with the discharge norms
- Mode of disposal of treated sewage is onto the land for irrigation. Provision has been made to discharge the remaining water into the river Sutlej.
- Operation and maintenance of STP is not satisfactory.
- Record keeping is poor.

#### **43) 2.5 MLD STP installed at Rasulpur, Ropar.**

Technology of STP:- SBR

Date of Visit: 31-08-2018

##### **Main Observations:-**

- STP is providing treatment services of sewage generated from Rupnagar Towns.
- Consent not obtained from PPCB
- App. sewage treated per day at present is 0.5 (MLD)
- STP was found in operation. The main observation noted by the team that they were not regularly operating its sludge/centrifuge system.
- No sample were taken by the team during the visit
- Main unit operations in STP comprise of Bar Screen, SBR Chambers and Chlorine Contact tank.
- Flow measuring devices provided at the inlet and at the outlet.
- STP was found in operation.
- Mode of disposal of treated sewage into the river Bhudki Nadi is 0.3 MLD and the wastewater reaches Sutlej only in rainy season.
- Operation and maintenance of STP is not satisfactory.
- Record keeping is poor.



**Polluted water by passing at Balloki Treatment Plant and untreated water is discharged into Buddha Nallah**



**Ponds of Balloki Treatment Plant filled with Sludge**



**111 MLD Bhattian Treatment Plant Ludhiana is not working and Dirty water flows into Sutlej**



**Untreated industrial effluent of factories of Focal Point at Tajpur road discharge into Buddha Nallah, Ludhiana.**



**Sewage of Tajpur Road throwing in budda Naala Ludhiana directly.**



**Untreated sewage of Gita Colony discharge into Buddha Nallah directly.**



**Untreated Sewage is Tibba road discharged into Budda Nallah Ludhiana directly**



**Untreated Sewage and Industrial Effluent is discharged into Buddha Nallah Ludhiana at backside of Lord Krishna Ayurvedic College**



**Dirty water flowing into Budda Nallah near Gurdwara Gau Ghat at Ludhiana**



**The whole untreated effluent of Jagraon 16 MLD was being by-passed into drain**



**Dirty water flowing into Budda Nallah Backside of D.M.C Ludhiana**



**Dirty water flowing into Budda Nallah Backside of Ramsharan Mandir Ludhiana**



**Jamalpur Treatment Plant is out of order, Polluted water is flowing direct into Buddha Nullah Ludhiana**



**Dirty water of Mahavir Complex and dying industries coming directly in Budda Nalla Ludhiana**



**Sludge system of West Jagraon Treatment Plant is not working.( 16 MLD STP)**



**Sludge system of Jagraon East Treatment Plant is not working.(12 MLD)**



**Sludge System of STP 50 MLD of Basti pir daad Jalandhar is not working regularly.**



**M.P.S of Basti Pirdaad Treatment Plant screen system is out of order from long time ago.**



**Ponds of 111 M.L.D Pholriwal Treatment Plants Jalandhar are full of Sludge.**



**Dried up beds of 111 M.L.D Treatment Plant at Pholriwal Jalandhar which were meant for disposing off sludge**



**Sludge system of newly built Treatment Plant at Nakodar Jalandhar is not working**



**Contaminated water being thrown bye pass into white Bein from Nakodar S.T.P Jalandhar**



**Treatment Plant of Nurmehal Jalandhar is not working and the gate is locked.**



**Foundation stone of Nurmehal Treatment Plant Jalandhar was laid without starting its operation**



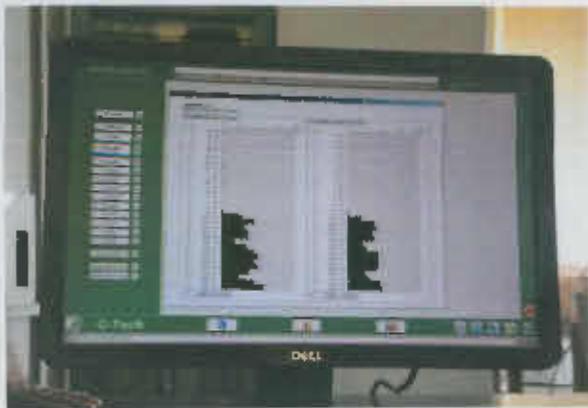
**S.T.P of Phillaur Jalandhar (South**



**bye pass pipes of untreated water**

Area) being not in operation, dirty water spreads on the road and goes directly into Sutlej river.

of Treatment Plant of Phillaur Jalandhar (North Area)



According to SCADA system Moga treatment plant is not working regularly and properly.

Sludge system of Moga treatment plant is not working



Dirty water flowing by pass into the drain from Moga STP.

Dirty water being thrown direct into by pass raft from Moga STP's Bypass



Sludge system of Dharamkot treatment Plant Moga is not working

Dharamkot STP Moga with facility to dispose off by pass into drain for dirty water



**Sludge system of Ropar Waddi Haveli treatment plant is not working**



**Dirty water by passing the treatment plant near Ropar Waddi Haveli Roper**



**Pump system of Treatment Plant at Nangal road Ropar is not working from long time ago.**



**Dirty water of Nangal road Ropar flowing into drain**



**Sludge system of Rasoolpur Treatment Plant Ropar is not working**



**M.P.S of Kurali Treatment Plant Mohali is out of order**



**Sludge system of treatment plant at Anandpur Sahib Ropar is not operating**



**Sludge system of treatment plant of Anandpur Sahib Roper is not working**



**Dried up sludge beds at Maujewal Nangal Treatment Plant**



**Treatment Plant of Maujewal Nangal is not working**



**Pond of Brari Nangal STP Roper is full of sludge**



**Sludge press at Brari Nangal treatment Plant is not working**



**Sludge system of treatment plant of B.B.M.B colony Nangal Roper is not working**



**Dirty water of Nikku Nangal**



**Sludge system of Hushiarpur Treatment Plant is not working**



**Dirty water being thrown direct into Nasrala Choe**



**Pumping station of Shamchurasi is not working**



**Sludge system of Mukerian treatment Plant is not working**



**Sludge system of Tanda treatment Plant is not working**



**Dirty water of Tanda flowing into the Kali Bein**



**Ponds of Dasuya treatment Plant are full of sludge**



**Boundry of Dasuya treatment plant require cleaning**



**Dirty water bye passing from Kapurthala STP**



**Taking Samples of dirty water of Kapurthala bypassing treatment plant**



**Irrigation system of Bhulath is not working**

**Sludge system of Begowal treatment plant is not working**



**Dirty water being by passed into phagwara drain from M.P.S of Hadiabad treatment plant**

**Sludge system of Hadiabad treatment plant is not working**



**Screening Belt of 30 M.L.D Phagwara S.T.P is not working**

**Ponds of 30 M.L.D Phagwara STP are full of Sludge**



**Sludge system of M.L.D Phagwara (North Area) treatment plant is not working**

**Pipes conveying untreated water to Phagwara Drain**



**Ponds of Sultanpur Lodhi treatment plant are full of sludge**



**Dried up sludge system of Nawan Shehar treatment plant**



**Dirty water being bye passed into the drain from Banga Treatment Plant**



**Sludge system of Makhu Treatment Plant is not working**



**Sludge system of Zira treatment plant is not working**



**Sludge system of treatment plant of Talwandi Bhai is not working**

**Survey Report of STPs Conducted during 05 January 2019 to 07 January 2019**



**Sludge System out of order of STP Phagwara South (Dated 05 January 2019)**



**The pond of STP Phagwara North is full of sludge (Dated 05 January 2019)**



**A little amount of the sludge is removed in four months at STP Phagwara south 25MLD (Dated 05 January 2019)**



**Sludge Ponds are not emptied in last four months at STP Phagwara North 25 MLD (Dated 05 January 2019)**



**The Maturation pond of STP Kapurthala is empty (Dated 06 January 2019)**



**Over flow of the water from the manhole near STP Dharmkot (Dated 07 January 2019)**



**Sludge System is out of order at STP Moga (Dated 07 January 2019)**



**The Sludge being thrown into sewer line using flexibal pipe at STP Moga (Dated 07 January 2019)**



**Sludge System Is out of order of STP Jagraon (Dated 07 January 2019)**



The untreated water is being bypassed from MPS at STP Jagraon (Dated 07 January 2019)



STP of Jagraon is not being operated regularly and properly (Dated 07 January 2019)



Sludge system is out of order of STP Jagraon (16 MLD) (Dated 07 January 2019)



Sludge Thicker is out of order of STP Phagwara North (Dated 05 January 2019)



Centrifuge out of order at STP Phagwara North (8MLD) (Dated 05 January 2019)



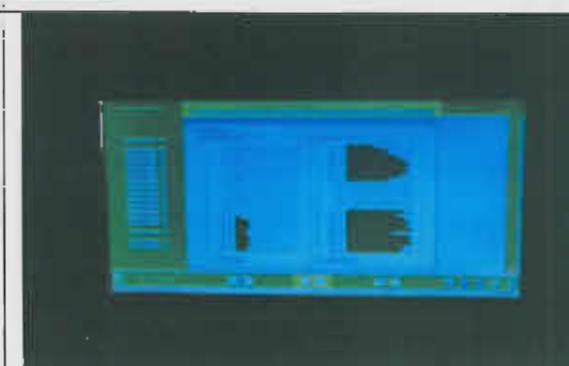
The Dirty Water flowing in Graha Drain Phagwara (Dated 05 January 2019)



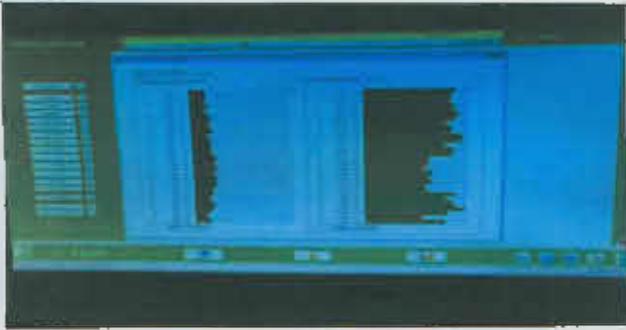
Sludge Thicker is out of order at STP Pholriwal (25 MLD) (Dated 07 January 2019)



The sludge is being flowed by dissolving using air pressure at STP Pholriwal 25 MLD (Dated 05 January 2019)



Scada Display of Pholriwal 25 MLD (Dated 05 January 2019)



Scada Display of Pholriwal 25 MLD (Dated 05 January 2019)



The ponds Full of sludge at STP Jalandhar (100 MLD) (Dated 05 January 2019)



The Sludge System Is out of order of STP Tanda (Dated 06 January 2019)



The Sludge System Is out of order STP Tanda (Dated 06 January 2019)



The dry bed full of old sludge at STP Kapurthala (Dated 06 January 2019)



The Sludge System Out of order at STP Begowal (Dated 06 January 2019)



The well of sludge is empty of STP Kapurthala (Dated 06 January 2019)

## **B. Assessment Reports of 18 STPs carried out by the Officials of Punjab Pollution Control Board)**

### **1) 10 MLD STP installed at M.C. Malout/ Danewala Disposal Works, Malout.**

Technology of STP:- MBBR

Date of Visit: 29-11-2018

#### **Main Observations:-**

1. STP is providing treatment services of sewage generated from Malout Town.
2. Not applied for Consent by the STP authorities
3. The actual treatment capacity of the STP is 5 MLD.
4. The STP was in operation during the visit.
5. No bye-pass arrangement has been provided by the STP.
6. As per analysis results of effluent sample collected on 29.11.2018 observed effluent characteristics are as follows: BOD = 76 mg/l, TSS = 51 mg/l, F.C. = 1300 MPN/100 ml. STP is **not complying** with the discharge norms.
7. Mode of disposal of treated sewage is into the nearby drain.
8. Operation and maintenance of STP is satisfactory.
9. Record keeping is up to date.

### **2) 3 MLD STP installed at M.C. Malout/ Bhagwanpura Disposal Works, Malout.**

Technology of STP:- WSP  
(Waste stabilization pond)

Date of Visit: 29-11-2018

#### **Main Observations:-**

1. STP is providing treatment services of sewage generated from Malout Town.
2. Not applied for Consent by the STP authorities.
3. App. sewage treated per day at present is about 3 MLD.
4. The STP was in operation during the visit.
5. As per analysis results of effluent sample collected on 29.11.2018 observed effluent characteristics are as follows: BOD = 32 mg/l, TSS = 26 mg/l, F.C. = 3800 MPN/100 ml. STP is **not complying** with the discharge norms.
6. Mode of disposal of treated sewage is into local drain.
7. Operation and maintenance of STP is unsatisfactory.
8. The representative of the STP could not produce the record of operation of STP.

### **3) 5.7 MLD STP installed at M.C. Sri Muktsar Sahib/ Jalalabad Road, Sri Muktsar Sahib.**

Technology of STP:- MBBR

Date of Visit: 11-06-2018

#### **Main Observations:-**

1. STP is providing treatment services of sewage generated from Sri Muktsar Sahib Town.
2. Not applied for Consent by the STP authorities.
3. App. sewage treated per day at present is about 5.7 MLD.
4. The STP was in operation during the visit.

5. As per analysis results of effluent sample collected on 11.06.2018 observed effluent characteristics are as follows: BOD = 29 mg/l, TSS = 26 mg/l, F.C. = 130 MPN/100 ml. STP is **complying** with the discharge norms..
6. Mode of disposal of treated sewage is into local drain.
7. Operation and maintenance of STP is unsatisfactory.
8. The representative of the STP could not produce the record of operation of STP.

**4) 8.7 MLD STP installed at M.C. Sri Muktsar Sahib/ Balamgarh Road, Sri Muktsar Sahib.**

Technology of STP:- MBBR

Date of Visit: 16-03-2018

**Main Observations:-**

1. STP is providing treatment services of sewage generated from Sri Muktsar Sahib Town.
2. Not applied for Consent by the STP authorities.
3. App. sewage treated per day at present is about 8.7 MLD.
4. The STP was in operation during the visit.
5. As per analysis results of effluent sample collected on 16.03.2018 observed effluent characteristics are as follows: BOD = 15 mg/l, TSS = 37 mg/l, F.C. = 920 MPN/100 ml. STP is **complying** with the discharge norms.
6. Mode of disposal of treated sewage is into local drain.
7. Operation and maintenance of STP is unsatisfactory.
8. The representative of the STP could not produce the record of operation of STP.

**5) STP being installed at M.C. Sri Muktsar Sahib.**

The STP has not been commissioned yet.

**6) 3 MLD STP installed at M.C. Goniana/ Jaitu Road, Goniana, Distt. Bathinda.**

Technology of STP:- WSP  
(Waste stabilization pond)

Date of Visit: 29-11-2018

**Main Observations:-**

1. STP is providing treatment services of sewage generated from Goniana Town.
2. Not applied for Consent by the STP authorities.
3. App. sewage treated per day at present is about 3 MLD.
4. The STP was in operation during the visit. Main unit operations in STP are :-  
Wastewater → Anaerobic pond → Facultative pond → Maturation ponds (2 nos.) → Outlet.
5. As per analysis results of effluent sample collected on 29.11.2018 observed effluent characteristics are as follows: BOD = 60 mg/l, TSS = 64 mg/l, F.C. = 2600 MPN/100 ml. STP is **not complying** with the discharge norms.
6. Mode of disposal of treated sewage is into local drain.
7. Operation and maintenance of STP is unsatisfactory.

7) **25 MLD STP installed at M.C. Abohar/ Near Railway Station, Abohar, Distt. Fazilka.**

Technology of STP:- SBR

Date of Visit: 29-11-2018

**Main Observations:-**

1. STP is providing treatment services of sewage generated from Abohar Town.
2. Not applied for Consent by the STP authorities.
3. The actual treatment capacity of the STP is 18-19 MLD.
4. The STP was in operation during the visit.
5. As per analysis results of effluent sample collected on 29.11.2018 observed effluent characteristics are as follows: pH = 7.7, BOD = 63 mg/l, TSS = 112 mg/l, F.C. = 5800 MPN/100 ml, SAR = 6.8 mg/l, EC = 3990  $\mu$ s/cm. STP is **not complying** with the discharge norms.
6. Mode of disposal of treated sewage is into Abul Khurana drain through 9 KM long pipe line.
7. Operation and maintenance of STP is unsatisfactory.
8. The record keeping is done.

8) **8 MLD STP installed at M.C. Jalalabad/ Tiwana Road, Jalalabad (W), Distt. Fazilka.**

Technology of STP:- MBBR

Date of Visit: 29-11-2018

**Main Observations:-**

1. STP is providing treatment services of sewage generated from Jalalabad Town.
2. Not applied for Consent by the STP authorities.
3. The actual treatment capacity of the STP is 4.5 MLD.
4. The STP was in operation, however, due to excess inlet effluent, the part of effluent is treated in STP and part was being bye-passed during the visit. Both (treated effluent of STP & untreated bye-pass) the steams then combined together into common drain and effluent sample from this drain were collected.
5. As per analysis results of effluent sample collected on 29.11.2018 observed effluent characteristics are as follows: pH = 7.1, BOD = 131 mg/l, TSS = 204 mg/l, F.C. = 6300 MPN/100 ml. STP is **not complying** with the discharge norms.
6. Mode of disposal of treated sewage is into adjoining drain.
7. The bye-pass arrangement has been provided by the STP.
8. Operation and maintenance of STP is unsatisfactory.
9. The record keeping is done.

9) **2.75 MLD STP installed at Zone-I, Doraha, Distt. Ludhiana.**

Technology of STP:- MBBR

Date of Visit: 29-11-2018

**Main Observations:-**

1. STP is providing treatment services of sewage generated from Doraha Town.
2. Not applied for Consent by the STP authorities.
3. The actual treatment capacity of the STP is 2 MLD.
4. The STP was in operation during the visit.
5. The STP was in operation during the visit. Main unit operations in STP are :-  
Collection tank  $\rightarrow$  screen chamber  $\rightarrow$  MBBR  $\rightarrow$  Flocculator  $\rightarrow$  Clarifier  $\rightarrow$  Filters  $\rightarrow$  Outlet.

6. As per analysis results of effluent sample collected on 29.11.2018 observed effluent characteristics are as follows: pH = 7.66, BOD = 16 mg/l, TSS = 26 mg/l, F.C. = 1200 MPN/100 ml. STP is **not complying** with the discharge norms.
7. Mode of disposal of treated sewage is onto land for irrigation.
8. Operation and maintenance of STP is unsatisfactory.
9. Record keeping is done.

**10) 1 MLD STP installed at Zone-II, Doraha, Distt. Ludhiana.**

Technology of STP:- MBBR

Date of Visit: 26-12-2018

**Main Observations:-**

1. STP is providing treatment services of sewage generated from Doraha Town.
2. Not applied for Consent by the STP authorities.
3. The actual treatment capacity of the STP is 0.5 MLD.
4. The STP was in operation during the visit. Main unit operations in STP are :-  
Collection tank → screen chamber → MBBR → Flocculator → Clarifier → Filters → Outlet.
5. The bye-pass arrangement has not been detected, however overflow is being collected in village pond.
6. As per analysis results of effluent sample collected on 26-12-2018 observed effluent characteristics are as follows: pH = 7.02, COD=84 mg/l, BOD = 15 mg/l, TSS = 26 mg/l, TDS = 591 mg/l, F.C. = 1300 MPN/100 ml. STP is **not complying** with the discharge norms.
7. Mode of disposal of treated sewage is onto land for irrigation.
8. Operation and maintenance of STP is satisfactory.
9. Record keeping is being done.

**11) 3 MLD STP installed at Mullanpur, Distt. Ludhiana.**

Technology of STP:- MBBR

Date of Visit: 30.11.2018

**Main Observations:-**

1. STP is providing treatment services of sewage generated from Mullanpur Town.
2. Not applied for Consent by the STP authorities.
3. The actual treatment capacity of the STP is 2 MLD.
4. The STP was in operation during the visit.
5. As per analysis results of effluent sample collected on 30.11.2018 observed effluent characteristics are as follows: BOD = 16 mg/l, TSS = 780 mg/l, F.C. = 1100 MPN/100 ml. STP is **not complying** with the discharge norms.
6. Mode of disposal of treated sewage is into nearby drain and onto land for irrigation as and when required.
7. Operation and maintenance of STP is satisfactory.
8. Record keeping is being done.

## 12) 1.5 MLD STP installed at Maloudh, Distt. Ludhiana

Technology of STP:-MBBR

Date of Visit: 04-12-2018

### Main Observations:-

- STP is providing treatment services of sewage generated from MaloudhTown, District Ludhiana.
- Not applied for Consent from Punjab Pollution Control Board.
- App. sewage treated per day at present is about 0.75 (MLD)
- The STP was in operation during visit. Main unit operations in STP comprise of Collection Tank-> Screening-> MBBR Reactor-> Secondary Clarifier->Sludge Drying Bed->Filter -> Chlorination via Hypochlorite etc. as per MBBR technology.
- The treated effluent is being disposed onto land for irrigation in the nearby fields and also a small kacha pond within the STP premises.
- No Flow measuring devices provided at the inlet and at the outlet.
- As per analysis results of STP outlet sample collected on 04.12.2018, observed STP effluent characteristics are **not meeting** with prescribed standards of the Board. The results are as under:- pH= 7.2, BOD= 12 mg/l, TSS= 22 mg/l, Faecal Coliform= 1700 MPN/100 ml.
- Operation and maintenance of STP is satisfactory.
- The sludge drawing beds were filled with sludge. The representative submitted that the dried sludge is given to nearby farmers as manure, however no record shown by the representative.
- Record keeping is poor.

## 13) 1.5 MLD STP installed at Payal, Distt. Ludhiana

Technology of STP:-MBBR

Date of Visit: 04-12-2018

### Main Observations:-

- STP is providing treatment services of sewage generated from PayalTown, District Ludhiana.
- Not applied for Consent from Punjab Pollution Control Board.
- App. sewage treated per day at present is about 0.4 (MLD)
- The STP was in operation during visit. Main unit operations in STP comprise of Collection Tank-> Screening-> MBBR Reactor-> Secondary Clarifier->Sludge Drying Bed->Filter -> Chlorination via Hypochlorite etc. as per MBBR technology.
- The treated effluent is being disposed onto land for irrigation in the nearby fields and also a small kacha pond within the STP premises.
- The sludge drawing beds were empty. The representative submitted that the influent is coming to STP via overflow of Vill Ponds as such the sludge is coming in very less quantity.
- The sand and carbon filter, chlorination were not operation during visit.
- No Flow measuring devices provided at the inlet and at the outlet.
- As per analysis results of STP outlet sample collected on 04.12.2018, observed STP effluent characteristics are **not meeting** with prescribed standards of the Board. The results are as under:- pH= 7.2, BOD= 13 mg/l, TSS= 19 mg/l, Faecal Coliform= 2300 MPN/100 ml.
- Operation and maintenance of STP is not satisfactory as the filters and chlorination was not in operation during visit and being discharge into pond before it.
- Record keeping is poor. No technical person is deputed for its operation and maintenance.

#### 14) 4 MLD STP installed at Machhiwara, Distt. Ludhiana

Technology of STP:-SBR

Date of Visit: 30-11-2018

##### Main Observations:-

- STP is providing treatment services of sewage generated from MachhiwaraTown, District Ludhiana.
- Not applied for Consent from Punjab Pollution Control Board.
- App. sewage treated per day at present is about 3 (MLD)
- The STP was in operation during visit. Main unit operations in STP comprise of Collection tank, Grit Chamber, SBR tanks, Decanting, Chlorine Contact tank, Sludge Sump, outlet
- The treated effluent is being disposed into drain leading to budhanallah, butdried up before entering to budhanallah.
- The dried sludge was there in the premises. The representative submitted that the dried sludge is given to nearby farmers as manure, however no record shown by the representative.
- As per analysis results of STP outlet sample collected on 30.11.2018, observed STP effluent characteristics are **not meeting** with prescribed standards of the Board. The results are as under:- pH= 7.26, BOD= 07 mg/l, TSS= 17mg/l, Faecal Coliform= 1100 MPN/100 ml.
- Operation and maintenance of STP is satisfactory.
- Record keeping is satisfactory.

#### 15) 7 MLD STP installed at Sahnewal, Distt. Ludhiana

Technology of STP:-SBR

Date of Visit: 30-11-2018

##### Main Observations:-

- STP is providing treatment services of sewage generated from Sahnewal Town, District Ludhiana.
- Not applied for Consent from Punjab Pollution Control Board.
- App. sewage treated per day at present is about 4 (MLD)
- The STP was in operation during visit. Main unit operations in STP comprise of Collection tank, Grit Chamber, SBR tanks, Decanting, Chlorine Contact tank, Sludge Sump, outlet
- The treated effluent is being disposed into underground pipeline leading to budha nallah.
- The dried sludge was there in the premises. The representative submitted that the dried sludge is given to nearby farmers as manure, however no record shown by the representative.
- As per analysis results of STP outlet sample collected on 30.11.2018, observed STP effluent characteristics are **meeting** with prescribed standards of the Board. The results are as under:- pH= 7.26, BOD= 15 mg/l, Faecal Coliform= 800 MPN/100 ml,.
- Operation and maintenance of STP is satisfactory.
- Record keeping is satisfactory.

16) **1 MLD STP installed at Doraha, Distt. Ludhiana**

Technology of STP:-MBBR

Date of Visit: 30.11.2018

**Main Observations:-**

- STP is providing treatment services of sewage generated from Doraha Town, District Ludhiana.
- Not applied for Consent from Punjab Pollution Control Board.
- App. sewage treated per day at present is about 0.5 (MLD)
- The STP was in operation during visit. Main unit operations in STP comprise of Collection Tank-> Screening-> MBBR Reactor-> Secondary Clarifier->Sludge Drying Bed->Filter -> Chlorination via Hypochlorite etc. as per MBBR technology.
- The treated effluent is being disposed onto land for irrigation in the nearby fields and also a small kacha pond within the STP premises.
- The sludge drawing beds were filled. The representative submitted that the influent is coming to STP via overflow of Vill Ponds as such the sludge is coming in very less quantity.
- No Flow measuring devices provided at the inlet and at the outlet.
- As per analysis results of STP outlet sample collected on 30.11.2018, observed STP effluent characteristics are **not meeting** with prescribed standards of the Board. The results are as under:- pH= 7.41, BOD= 16 mg/l, TSS= 27mg/l, Faecal Coliform= 4500 MPN/100 ml,.
- Operation and maintenance of STP is satisfactory.
- Record keeping is poor.

17) **27 MLD STP installed at Vill Ladhochak, District Pathankot.**

Technology of STP:-SBR

Date of Visit: 16-07-2018

**Main Observations:-**

- STP is providing treatment services of sewage generated from Pathankot Town.
- Not applied for Consent from Punjab Pollution Control Board.
- The STP was not in operation during visit. The untreated effluent was by passed from the STP. The entire untreated effluent being disposed into water body namely Farida Nagar feeder, which ultimately meets with river Beas.
- The analysis results of by pass untreated sample collected are **not meeting** with prescribed standards of the Board. The results are as under:- pH= 7.5, BOD= 120 mg/l, TSS = 240 mg/l, Faecal Coliform= 46000 MPN/100 ml.
- The STP is lying non-operational since long.

18) **1 MLD STP installed at Vill Rampur Talwara, Shri Hargobindpur, District Gurdaspur.**

Technology of STP:- WSP

Date of Visit: 16.07.2018

**Main Observations:-**

- STP is providing treatment services of sewage generated from Shri Hargobindpur Town.
- Not applied for Consent.
- App. sewage treated per day at present is approx. 1 (MLD)
- The STP was in operation during visit.



No flow measuring devices provided at the inlet but not at the outlet.

- As per analysis results of STP outlet sample collected on 30.11.2018, observed STP effluent characteristics are **not meeting** with prescribed standards of the Board. The results are as under:- pH= 8.1, BOD= 34 mg/l, TSS = 40 mg/l, Faecal Coliform= 2600 MPN/100 ml,.
- Mode of disposal of treated sewage is onto land for stagnation near the outlet of STP, however the authorities has made provisions to discharge its effluent into river Beas through underground pipeline network laid.
- Operation and maintenance of STP is satisfactory.
- Record keeping is poor.

## Annexure-XVII

Analysis results of the treated sewage collected from 61 STPs located in the catchment area of river Sutlej and river Beas (as per assessment of PPCB)

S. No.	Name & Address of STP	Date of Visit	Capacity	pH	BOD in mg/l	TSS in mg/l	Faecal Coliform in MPN/ 100 ml	Status of compliance (Complying or Non-Complying-NC)
Effluent Discharge Limits prescribed by PPCB (applicable till 30.01.2019)				6.5 to 9.0	30 in mg/l	< 100 in mg/l	<1000 MPN/ml	
1	Vill. Balloke, Distt. Ludhiana	8/12/2018	105 MLD	7.11	32	104	33000	NC
2	Vill. Balloke, Distt. Ludhiana	12/8/2018	152 MLD	-	-	-	-	-
3	Vill. Bhattian, Distt. Ludhiana	8/12/2018	111 MLD	7.3	34	62	17000	NC
4	Vill. Bhattian, Distt. Ludhiana	8/12/2018	50 MLD	7.5	13	29	13000	CN
5	Vill. Jamalpur, Distt. Ludhiana	8/12/2018	48 MLD	7.5	132	239	13000	NC
6	Tehsil Jagraon, Distt. Ludhiana	8/23/2018	16 MLD	6.35	120	118	50000	NC
7	Tehsil Jagraon, Distt. Ludhiana	8/23/2018	12 MLD	7.43	10	18	780	C
8	Pholriwal	8/13/2018	100 MLD	7.1	33	45	32000	NC
9	Pholriwal Operated by Girdharial Aggarwal Contractor	8/13/2018	25 MLD	7.3	18	18	930	C
10	Pholriwal Operated by Ecochem Sale & services	8/13/2018	25 MLD	7.3	14	19	1100	NC
11	Basti Peer Dad, Jalandhar	8/13/2018	50 MLD	7.3	23	70	1300	NC
12	Jaitewali, Hoshiarpur Road, Jalandhar	8/13/2018	25 MLD	7.41	7	10	1000	C
13	Phillaur (North)	8/14/2018	2.6 MLD	7.2	49	112	9400	NC
14	Phillaur (South)	8/14/2018	3 MLD	-	-	-	-	-
15	Nakodar, Jalandhar	8/14/2018	6 MLD	9.6	10	15	930	CN
16	Noor Mahal, Jalandhar	8/14/2018	2.5 MLD	-	-	-	-	-
17	Palahi Road at Phagwara	8/14/2018	20 MLD	7.46	31	46	2000	NC
18	Palahi Road at Phagwara	8/14/2018	8 MLD	7.7	18	34	1400	NC
19	Begowal	8/21/2018	2.5 MLD	7.73	8	15	910	C
20	Bholath	8/21/2018	4 MLD	8.41	30	24	1300	NC
21	Sultanpur Lodhi	8/21/2018	2.6 MLD	7.5	32	30	2100	NC
22	Kapurthala	8/21/2018	25 MLD	6.9	45	42	110000	NC
23	Phagwara (South) Hadjabad	8/14/2018	8 MLD	7.8	19	29	1700	NC
24	Municipal Council, Tanda	8/21/2018	4 MLD	7.1	20	19	2200	NC
25	Municipal Council, Sham Churasi	8/16/2018	1 MLD	8.6	37	26	2300	NC
26	Municipal Council, Nawanshahr	8/16/2018	06 MLD	7.6	24	-	610	C
27	Municipal Council, Mukerian	8/21/2018	5 MLD	7.2	18	34	610	C
28	Municipal Corporation, Hoshiarpur	8/16/2018	30 MLD	7.16	16	14	2100	NC
29	Municipal Council, Dasuya	8/21/2018	4 MLD	7.52	16	23	1300	NC
30	Municipal Council, Banga	8/16/2018	03 MLD	7.56	15	-	1200	NC
31	STP Dharamkot	8/20/2018	4 MLD	7.5	16	30	1200	NC
32	STP Makhu	8/20/2018	4 MLD	6.1	68	276	220000	NC
33	STP Moga	8/20/2018	27 MLD	7.5	15	32	2100	NC
34	STP Talwandi Bhai	8/20/2018	4 MLD	8.2	17	32	920	C
35	STP Zira	8/20/2018	8 MLD	7.4	11	20	820	C
36	MC Kurali	8/31/2018	5 MLD	-	-	-	-	-
37	BBMB, Naya Nangal	8/30/2018	6.75 MLD	-	-	-	-	-
38	MC Nangal( STP Maujowal),	8/30/2018	8 MLD	6.8	41	104	3300	NC
39	STP Brari ( MC Nangal)	8/30/2018	5 MLD	7.2	9	26	1400	NC
40	MC Sri Anandpur Sahib	8/30/2018	8 MLD	7.2	8	14	810	C
41	MC Roopnagar (Sada Barth)	8/31/2018	2 MLD	-	-	-	-	-
42	Bari Haveli, Ropar	8/31/2018	10 MLD	7.1	70	146	-	NC
43	Rasulpur, Ropar	8/31/2018	2.5 MLD	-	-	-	-	-



**Report on Health Impacts in the catchment areas of river Sutlej and River Beas prepared and submitted by the Health Department of Government of Punjab**

ਡਾਇਰੈਕਟਰ ਸਿਹਤ ਤੇ ਪਰਿਵਾਰ ਭਲਾਈ ਵਿਭਾਗ  
ਪੰਜਾਬ, ਚੰਡੀਗੜ੍ਹ

No. PC/PS/CLD 99

Date 11/2/19

To

Shri J.C. Basu, Nodal Officer,  
Central Pollution Control Board,  
Delhi.

Subject:- Action taken report in matter of O.A. No. 101/2014 titled as Sobha Singh  
V/s State of Punjab & ors.

Reference to subject above, Punjab Health Department has got the required  
survey done. The report of door to door survey of areas/villages around East Bein, West Bein,  
Garha Drain and Kala Singha Drain is attached.

As per the report, prevalence of the diseases which can be related to more  
pollution (if any) in these areas is not alarming.

Director Health Services, Punjab.

No. PC/PS/CLD 100

Date 11/2/19

Copy to:-

1. Er. Rajeev Sharma, Senior Environment Engineer, Zonal Office-II, PPCB, Ludhiana  
for information, please. (Email id - jcb.cpcb@nic.in and seezo2ldhppcb@yahoo.com)

11/2/19  
Director Health Services, Punjab.

Jay



Areas Around West (Holi) Bein, Kapurthala Distt (cont.)

21	Dograowal	2694	2	4	0	3	0	4	0	0	2000 and above, 1000-1999, 500-999
22	Charbhak	257	1	2	3	1	1	3	0	0	1000 and above, 500-999
23	Kanjli	1150	2	3	2	1	2	1	4	0	1000 and above, 500-999
24	Thekanji	60	0	1	0	0	1	0	0	0	?
25	Badshahpur	911	1	2	0	0	3	0	2	0	Diabetes, 2000-4999, BP
26	Vijala	800	3	2	1	0	2	0	2	0	1000 and above, 500-999
27	Daburji	1000	0	1	0	0	0	1	0	0	10 diabetes
28	Deejan	185	0	0	0	0	0	0	0	0	5 Diabetes and BP
29	Nadafi	1154	0	2	1	0	0	0	0	0	10-17, Diabetes: 25
30	Bhades	1539	1	2	2	1	1	1	0	0	17-42, Diabetes: 58
31	Saido Bhullana	1976	5	1	0	0	3	0	0	2	26
32	Ludhi Bhullana	1516	0	0	0	0	2	3	0	2	7
33	Miltha	302	4	13	1	0	6	1	0	0	12
34	Kheera Dora	1855	18	16	2	0	5	14	0	1	61
35	Bhandalanga	2421	12	8	3	0	7	5	0	1	95
36	Tongawal	738	6	1	3	0	1	0	0	0	10
37	Maliyan	960	5	8	2	2	2	10	0	0	50
38	Durgapur	734	5	20	10	0	5	5	0	0	15

Areas Around west (Holi) Bein, Distt Kapurthala (Cont.)

39	Talwandi Rai	685	4	10	5	0	7	5	0	0	34
40	Dograanwal	1130	2	3	2	2	0	5	10	0	27
41	Nangarpur	371	0	1	0	0	2	3	4	0	7
42	Kahna	784	15	150	100	0	46	20	20	0	0
43	Mithra	410	3	100	25	1	1	15	15	0	0
44	Nizampur	394	6	10	5	0	0	0	0	0	0
45	Mainwa	830	0	4	7	0	0	1	0	0	22
46	Noorpur Dona	1330	0	9	6	0	0	7	1	0	16

Areas Around West (Holi) Rein. Distt Hoshiarpur  
HEALTH SURVEY UNDER NATIONAL GREEN TRIBUNAL DELHI

DISTRICT		HOSHIARPUR									
AREA	POPULATION	SKIN DISEASE	EYE DISEASE	GI DISEASE	CANCER	ENT DISEASE	RESPIRATORY DISEASE	PULMONARY DISEASE	DIARRHOEAL DISEASE	ANY OTHER	
STABKOT	499	3	4	0	0	3	5	1	0	15	
BUDHOBARKAT	887	7	10	0	1	4	5	0	0	28	
GALOWAL	867	3	11	0	1	3	4	0	0	32	
SAFDARPUR	1137	5	10	0	2	10	7	2	0	23	
HIMMATPUR	1446	8	12	0	0	3	4	0	0	12	
VADHIYA											
TERKIANA	1149	10	7	0	2	7	4	1	0	22	
NARAYANGARH	1589	2	1	0	2	0	0	0	0	0	
MANGAT	370	3	2	0	0	2	4	2	0	2	
DHANOA	1974	28	33	52	2	41	65	1 treated	27	82	
THAKRI	333	7	3	7	3	7	7	3	1	0	
TALWANDI SALLAN	1230	18	31	25	37	43	49	61	10	0	
PATTI MIRPUR	705	14	14	18	28	21	14	21	0	0	
PUL PUKHTA	924	17	23	18	28	37	14	37	0	0	
SHEHBAZPUR	1577	31	47	44	47	31	31	47	3	0	
GILL	649	19	13	19	16	10	19	26	1	0	
PREMPUR	715	25	11	21	21	18	29	14	0	0	
FEROZPUR ROLIA	1082	27	22	32	32	25	32	32	0	0	

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Areas Around East Bein & Gashe Drain

Sr.No.	Area	Population	Skin Disease	Eye Disease	GI Disease	Cancer	ENT Disease	Respiratory Disease	Pulmonary Diseases	Diarrhoeal Disease	Any other
1	Nawa Bind Khalewal	932	9	7	2	0	2	3	0	0	8
2	Meda	740	5	1	3	0	0	2	4	2	5
3	Namazpur	424	6	8	2	1	1	5	1	0	7
4	Kangna	2282	8	4	2	0	5	7	0	4	12
5	Schowal	560	3	2	10	0	1	2	0	4	2
6	Jahangir	666	2	1	8	0	2	2	0	1	1
7	Mallan	891	4	2	11	0	3	1	0	2	2
8	Chak vendhal	1900	5	2	15	3	2	3	0	3	3
9	Khuskhura	786	2	0	1	0	0	0	0	0	0
10	Kangniwal	1210	1	0	0	0	0	0	0	0	0
11	Kakkarpind	1621	3	0	2	0	0	0	0	0	0
12	Urban Estate-28 Surrounding Colonies	841	0	0	0	0	0	0	0	0	2
13	Subhana Village	1193	0	0	0	0	0	0	1	0	0
14	Kalgidhar Colony	661	0	0	0	0	0	0	0	0	0
15	Pholriwal	2687	8	0	1	0	0	0	0	0	0
16	Jalandhar cantt. at D/S side of Pholriwal bridge	620	10	0	1	0	0	2	0	0	0
17	Dairy Complex Jamshar	318	0	0	0	0	0	0	0	0	0

East Bein

Gashe Drain

Civil Surgeon,  
Tuberculosis

Areas Around  
Kala Singha Drain

Kala Singha  
Drain

18	Athaula	2473	3	8	0	1	0	8	0	0	0
19	Sazipur	968	14	5	0	0	3	0	0	0	2
20	Chamloro	1277	29	1	2	0	9	1	0	1	18
21	Nahal	1420	5	2	0	0	1	5	0	2	1
22	Gadaipur	1890	27	3	5	1	8	2	1	17	22
23	Leather Complex	3864	0	0	0	0	0	0	0	0	0
24	Panj Peer Colony	1495	7	1	0	0	0	2	0	4	1
25	Surgical Complex	1096	0	0	0	0	0	0	0	0	0
26	Rattan Nagar	1965	0	1	5	1	4	4	1	0	23
27	New Anant nagar	1106	3	1	0	1	0	7	0	0	0
28	Sheetal Nagar	1682	1	0	0	0	0	0	0	0	7
29	Shahced Bhugat Singh Colony	2599	7	1	0	2	2	12	0	0	0
30	Matasuda (Hukam Chand Colony)	276	0	0	0	0	0	2	0	0	0
31	Kalla Colony	1388	7	2	0	1	0	0	0	0	0
32	Focal Point	1965	2	0	0	0	0	1	0	0	3
33	Bulandpur	4450	94	28	13	3	17	4	3	0	65
34	Raowali	2650	4	2	2	0	9	4	2	0	8

Civil Engineer,  
Kala Singha

## Analysis results of the STP Sludge Samples collected from the existing STPs in the catchment of river Sutlej

S. No.	Name & Address of the Industry	Color	Bulk Density		pH	Conductivity in mg/kg	Zinc in mg/kg	Copper in mg/kg	Chromium in mg/kg	Cadmium in mg/kg	Nickel in mg/kg	Lead in mg/kg	Moisture (%)	Total Phosphate (% by weight)	Total Organic carbon as % by weight	Total Kjeldahl Nitrogen as %	Potassium as % by weight	Carbon: and Nitrogen Ratio	Arsenic I In mg/kg	Mercury in in mg/kg
			Tapped	Untapped																
	Standards as per FCO 2009	Dark brown to black			6.5-7.5	4	1000	300	50	5	50	100	15-25	0.4	12	0.8	0.4	<20	10	0.15
1.	Basti Peerdad, 50 MLD, Jalandhar	Brown	3.1	0.61	7.76	1.6	296	87	193	BDL	53	208	61.1	115	95.87	0.63	686	59.25	0.9	BDL
2.	Pholriwal 100 MLD, Jalandhar	Light Brown	1.4	0.49	7.66	2.24	289	57	92	2.9	39	34	43.4	129	63.08	0.93	753	38.55	1.6	BDL
3.	Pholriwal Girdharilal 25 MLD, Jalandhar	Dark brown	2.4	0.73	7.35	0.68	221	41	86	2.7	28	21	45.3	167	93.68	0.67	627	76.22	0.9	BDL
4.	Pholriwal Ecochem 25 MLD, Jalandhar	Dark brown	1.7	0.6	7.35	0.785	91	18	35	1.2	12	915	49.7	381	95.69	1.09	498	44.28	0.5	BDL
5.	Philaour Aallowal Road, 3 MLD, Jalandhar	Light Brown	2.5	0.64	7.65	1.18	184	29	94	BDL	9.8	18	33.3	112	43.53	0.79	1060	36.85	1.4	BDL
6.	Phagwara South 8 MLD, Kapurthala	Light Brown	2.2	0.78	7.41	2.61	261	37	38	BDL	12	15	48.2	582	86.68	0.55	709	81.69	0.8	BDL
7.	Phagwara North 20 MLD, Kapurthala	Dark brown	0.7	0.26	6.32	1.19	474	129	115	BDL	573	30	47.1	127	71.86	0.68	662	55.64	0.7	BDL
8.	Phagwara North 8 MLD, Kapurthala	Black	2.7	0.57	7.39	2.08	262	65	42	BDL	1565	19	49.9	95	93.51	0.9	860	51.83	1.7	BDL
9.	Jamalpur, Ludhiana, 48 MLD	Dark brown	1.4	0.64	6.69	2.46	1442	121	223	BDL	455	32	55	59	88.62	0.2	972	197.84	1.4	BDL
10.	Bhattian, 111 MLD, Ludhiana	Dark brown	1.5	0.48	7.25	3.61	731	96	132	15	78	31	54.6	71	94.65	0.87	700	49.32	2	BDL
11.	Bhattian, Ludhiana, 50 MLD	light Blakish	1.9	0.48	7.45	1.56	327	51	65	5.8	38	24	58	108	90.18	0.21	752	183.48	1.4	BDL
12.	Balloke, Ludhiana, 152 MLD	Brown	0.8	0.33	5.02	3.15	137	12	61	BDL	16	4.8	50.9	115	75.04	0.67	224	55.16	BDL	BDL
13.	Balloke, Ludhiana, 105 MLD	Dark brown	1.5	0.63	7.45	2.57	292	12	41	BDL	68	5	55.9	116	76.52	0.48	357	70.08	BDL	BDL

**Action Plans for Rejuvenation of River Sutlej and River Beas submitted  
by the Government of Punjab**

# Action Plan for Clean River Sutlej



31<sup>st</sup> January 2019

Directorate of Environment and Climate Change  
Department of Science, Technology and Environment,  
Government of Punjab

# Action Plan for Clean River Sutlej



31<sup>st</sup> January 2019

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## Chapter 1 - Introduction

### 1.1 Punjab – Land of Rivers

1.1.1 The word Punjab is a compound of two Persian words, panj ("five") and āb ("water"), thus signifying the land of five waters. The erstwhile Punjab State had five rivers namely Beas, Chenab, Jhelum, Ravi, and Sutlej. However, after the partition of India in 1947, only two rivers, the Sutlej and the Beas, lie within Punjab's territory, while the Ravi flows only along part of its western border.

1.1.2 The rivers in the State have been used as a source of irrigation, drinking purpose especially in southern Punjab, development of hydro-electric projects to meet the energy requirements in the State and various activities including industrial purposes. The rivers have played a significant role in the socio-economic and industrial development of the State.

### 1.2 Rapid Urbanization and Industrialization – Main cause of River Pollution

1.2.1 The rapid urbanization and industrialization during the last few decades have adversely affected the environment of the State. The quantum of sewage and sullage generated from the habitation areas has significantly increased and finding its way into natural drains, eventually leading to river line system of the State. In the rural areas, due to increase in the population, the capacity of most of the ponds has been exhausted due to which this sewage and sullage has also started flowing into the natural drains and finally becoming a part of river waters.

1.2.2 Therefore, the quality of water flowing in the water bodies has deteriorated as these water lack sufficient assimilation capacity for self purification. This has been not only due to increase in the quantum of discharge of untreated sewage/ sullage, but, also due to decrease in the quantum of water in the water bodies owing to construction of dams & regulatory headworks on the upstream side.

### 1.3 About River Sutlej

1.3.1 The River Sutlej enters India near Mansarovar and flows North Westwards. It crosses great Himalayan ranges on its way from the Shipki pass. It flows upto Gobind Sagar Lake over which Bhakra dam is constructed. About 14 Kms. downstream of Bhakra dam, Nangal head-works are constructed at Nangal. From here onwards, the river takes southern direction. After flowing for another about 50 kms, it enters the plains near Ropar.

1.3.2 At Ropar, there is a Head-Works for canal system to provide irrigation to large parts of the state. The gradient in the plains is very gentle. The river flows slowly downstream head-works due to broad bed width and meager flow, its major part having been diverted to the irrigation canals.

## Action Plan for Clean River Sutlej

- 1.3.3 It finally reaches Harike where it meets river Beas. During the monsoon period, the areas on both sides of river are prone to floods. The river leaves Punjab plains near Ferozpur and enters Pakistan.
- 1.3.4 The total length of river Sutlej in the state of Punjab is approximately 440 km. Average discharge of river Sutlej in the state of Punjab as measured at Ropar is approximately 500 m<sup>3</sup>/ sec. The total catchment area of river Sutlej in the state of Punjab is approximately 20303 Sq. km.
- 1.4 State's efforts to control pollution in River Sutlej**
- 1.4.1 Keeping in view deterioration in the water quality of River Sutlej, the Government of Punjab (GOP) initiated action in 2008 to identify the sources of its pollution in coordination with Punjab Pollution Control Board (PPCB). Meetings have regularly been held under the Chairmanship of Chief Minister, Punjab from the year, 2008 onward.
- 1.4.2 The State Government is serious to control the pollution in river Sutlej and the concerned departments have already identified the sources of wastewater falling into river Sutlej at various towns and cities located in the catchment area of the river. As of now, out of 65 towns, which are discharging their wastewater into river Sutlej, a total of 101 STPs need to be installed out of which 59 STPs have already been installed, 8 are under installation and remaining 34 are under various stages of planning for establishment.
- 1.4.3 Ludhiana City falls within the catchment area of River Sutlej and is contributing significantly to the water pollution of River Sutlej through Buddha Nallah, which passes through the heart of Ludhiana city. Ludhiana city was declared as critically polluted areas by the Ministry of Environment & Forests vide office memorandum J-11013/5/2010-IA II (I) dated 13/1/2010, thereby imposing restrictions on setting up of new / expansion of existing projects attracting the provisions of EIA notification, 2006.
- 1.4.4 Punjab Pollution Control Board took it as a challenge as well as an opportunity, in order to achieve significant improvement in environmental quality and pave the road for sustainable development in the area. A comprehensive remedial environmental action plan titled as "Ludhiana Action Plan regarding abatement of Environmental Pollution in Critical Polluted Areas of Ludhiana" was prepared in consultation with all the stakeholders, including Industrial Associations. The same has been regularly monitored at the State and District level.
- 1.4.5 Cleaning of Buddha Nallah has been listed amongst the projects of key concerns in the State of Punjab being monitored at the level of Chief Secretary.
- 1.4.6 The Govt. of Punjab in the Department of Local Government vide notification no. 14/89/2018-3LG1/2065 dated 26.10.2018 has constituted a task force under the chairmanship of Satguru Uday Singh Ji of Namdhari Sampardhai for execution of the programme/ interventions for tackling pollution in Buddha Nallah approved by Government.

**1.5 Directions issued by NGT**

1.5.1 National Green Tribunal in the matter of original application no. 101/2014 titled as Sobha Singh & Ors. Vs State of Punjab & Ors. vide orders dated 24-07-2018 has directed the Central Pollution Control Board to constitute a monitoring committee with the involvement of Sh. Balbir Singh Seechewal. CPCB has accordingly vide office order dated 06-08-2018 constituted a monitoring committee comprising following members:

- (i) Shri Balbir Singh Seechewal
- (ii) Representative of Rajasthan State Pollution Control Board
- (iii) Representative of Punjab Pollution Control Board
- (iv) One Engineer & One Scientist (Central Pollution Control Board)
- (v) Representative of Urban Development, State of Punjab
- (vi) Shri J.Chandra Babu, Sc'D', WQM-1, Central Pollution Control Board

1.5.2 NGT vide another order dated 20.09.18 passed in OA no. 673/2018 titled as news item published in "The Hindu" authored by Shri. Jacob Kosuhy titled "More river stretches are now critically polluted: CPCB" has directed to prepare Action Plans within two months for bringing all the polluted river stretches to be fit at least for bathing purposes (i.e BOD <3 mg/l and FC < 500 MPN/100 ml) within six months from the date of finalization of the action plans.

1.5.3 There are 4 polluted river stretches falling under the jurisdiction of State of Punjab as per the details given in the judgement:

- (i) Ghaggar (Sardulgarh to Mubarkpur)
- (ii) Sutlej (Roopnagar to HARIKE bridge)
- (iii) Kali Bein (SultanpurLodhi to Confluence point to Beas)
- (iv) Beas (along Mukerian)

1.5.4 NGT has directed the State Government that the action plans be prepared by four-member Committee comprising Director, Environment; Director, Urban Development; Director Industries; Member Secretary, State Pollution Control Board of concerned State. This Committee will also be the Monitoring Committee for execution of the action plan. The Committee may be called "River Rejuvenation Committee" (RRC). The RRC will function under the overall supervision and coordination of Principal Secretary, Environment. The Chief Secretaries of the State and Administrators / Advisors to Administrators of the Union Territories will be personally accountable for failure to formulate action plan, as directed.



**Chapter 2- Vision, Mission and Strategy**

**2.1 Overarching Vision of the State - Mission Tandarust Punjab**

The Government of Punjab has launched Mission Tandarust Punjab to make Punjab a healthy State with healthy people by ensuring the quality of air, water, food and a good living Environment.

**2.2 Vision for Clean River Sutlej**

To restore the quality of water in River Sutlej to prescribed standards to ensure ecological balance and socio-economic well-being of the people.

**2.3 Mission Clean River Sutlej**

To prepare and implement a comprehensive action plan to clean River Sutlej:

- (i). Creating awareness about the adverse impact of water pollution
- (ii). Identifying the sources of water pollution
- (iii). Setting up facilities for treating the pollutants
- (iv). Ensuring effective operations of the facilities
- (v). Ensuring effective monitoring of the quality of water
- (vi). Mitigating adverse impact on health of the people in the surrounding areas

**2.4 Strategy for Clean River Sutlej**

The strategy for clean River Sutlej includes:

- (i). Identification of Stakeholders
- (ii). Identification of sources of pollution
- (iii). Measures to control pollution and timelines
- (iv). Nodal Department
- (v). Integration of Departmental Plans
- (vi). Monitoring and Review
- (vii). Risk Mitigation Plan

**2.5 Identification of the Stakeholders and their roles**

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

**2.5.1 Department of Science, Technology and Environment**

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

- (i). Overall coordination of the Action Plan and ensuring its successful implementation
- (ii). Setting up comprehensive online monitoring portal connecting all the executing and monitoring agencies
- (iii). Setting up of infrastructure to monitor the quality of water
- (iv). Monitoring of quality of water of River Sutlej & ground water
- (v). Monitoring of discharge from Industries including ETPs and CETPs
- (vi). Monitoring of discharge from STPs and other disposal facilities
- (vii). Monitoring of management of solid waste and other waste

### 2.5.2 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

- (i). Design projects to cover entire population with sewerage network system and its connection with STP.
- (ii). Design Sewage Treatment Plants of adequate capacity
- (iii). Design as per the prescribed standards

#### Construction

- (iv). Monitor land acquisition closely as it is pre-requisite for setting up of STPs
- (v). Ensure reputed professional contractors
- (vi). Construction of STPs as per timelines mentioned in the action plan
- (vii). Ensuring regular flow of funds during construction

#### Operation and Maintenance

- (viii). Arranging funds for operation and maintenance of STPs to ensuring regular operation and maintenance of STPs in a professional manner
- (ix). Providing proper in-house laboratory facilities at each STP for maintaining record of characteristics of analysis of untreated as well as treated waste water
- (x). 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

- (xi). Proper management & handling of municipal solid waste so as not to be thrown in river

### 2.5.3 Department of Housing and Urban Development

The Department and all the Development authorities under its control are 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. In all cases, where the Urban Development Authorities are discharging the functions, they shall have all the responsibilities listed out in clause 2.5.3 for Department of Local Government.

### 2.5.4 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. PSIEC shall have all the responsibilities listed out in clause 2.5.3 for Department of Local Government in respect of Industrial Focal points.

**2.5.5 Department of Rural Development and Panchayat**

The Department of Rural Development has to provide for necessary treatment facilities in village ponds so that no untreated or polluted water enters river directly or indirectly through various drains or creeks. The Department has the following responsibilities:

- (i). Finalization of appropriate technology
- (ii). Arrangement of Funds for treatment technology in various villages identified in the Action Plan
- (iii). Reuse of water for agriculture purpose
- (iv). Proper operation and maintenance of treatment facilities installed in village ponds

**2.5.6 Department of Water Supply and Sanitation**

The Department of Water Supply and Sanitation along with Department of Rural Development and Panchayat will be responsible for treatment and sanitation facilities in rural areas. It has also been given some of the works in urban areas. It will accordingly discharge relevant responsibilities for rural and urban areas in respects of projects, which may be assigned to the Department.

**2.5.7 Department of Agriculture**

The Department of Agriculture through the Directorate of Soil and Water conservation is 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:

- (i). Design the project as per the standards
- (ii). Follow up with various funding agencies to arrange funds
- (iii). Executing the schemes as per the timelines provided in the plan

**2.5.8 Department of Health and Family Welfare**

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

- (i). Checking of health indices of the In-habitants & maintaining database
- (ii). Holding awareness camps in the catchment area of River Sutlej to make the public aware regarding water borne diseases

**2.5.9 Department of Water Resources**

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

- (i). Measurement of flow at different locations
- (ii). To stop unauthorised discharge in the drains.

**2.5.10 District Administration**

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

**2.6 Nodal Department**

The Department of Science, Technology and Environment is the nodal department for coordinating and monitoring activities of the plan.

**2.7 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 and will coordinate its execution by tracking the progress through a centralized IT platform.

**2.8 Monitoring and Governance**

- (i). There will be rigorous monitoring of implementation of the comprehensive plan:
  - (a). Monitoring of physical and financial progress of works being executed
  - (b). Monitoring of operations and management of facilities set up
  - (c). Monitoring of quality of water
  - (d). Monitoring of health and diseases in the surrounding areas
  - (e). Monitoring of awareness campaign
- (ii). Setting up of IT platform for tracking progress and analysis
- (iii). The monitoring will be done at the District level, State Level.

### Chapter 3 – Status and Trends of Water Quality in River Sutlej

#### 3.1 Monitoring Locations for Water Quality

The water quality of river Sutlej is being monitored at 16 locations, starting from upstream of Nangal (where it enters State of Punjab) upto Hussainiwala in Distt. Ferozepur on monthly basis:

- (i). River Sutlej at U/S Nangal
- (ii). River Sutlej at D/S NFL
- (iii). River Sutej at 100m D/s PAQL Nangal
- (iv). River Sutlej at D/s Nangal
- (v). River Sutlej at Kiratpur Sahib
- (vi). Ropar Head-Works
- (vii). River Sutlej D/S of Rishab- Paper Mills
- (viii). River Sutlej U/S Buddha Nallah
- (ix). River Sutlej at 100 mts D/s after Budha Nallah confluence, Ludhiana
- (x). River Sutlej at Boat Bridge, Dharamkot Nakodar Road
- (xi). RiverSutlej at D/s East Belh
- (xii). RiverSutlej at Harike
- (xiii). Harike Lake D/S from canal
- (xiv). D/S Harike lake
- (xv). U/S Hussainiwala H/W Ferozepur
- (xvi). D/S Hussainiwala H/W Ferozepur

#### 3.2 CPCB's norms for designated best use of water bodies

The Central pollution Control Board has laid down criteria for designated best use class of the water of the water bodies, which is as under:

S.N.	Constituent Parameters	Designated Best Use Class				
		A	B	C	D	E
1.	Dissolved oxygen, mg/l, Min	6	5	4	4	-
2.	Biochemical Oxygen Demand, mg/l, Max	2	3	3	-	-
3.	Total coliform Organisms MPN/100 ml, Max	50	500	5000	-	-
4.	pH value	6.5-8.5	6.5-8.5	6-9	6.5-8.5	6-8.5
5.	Free ammonia (As N) mg/l, Max	-	-	-	1.2	-
6.	Electrical conductivity $\mu$ s/cm max.	-	-	-	-	2250
7.	Sodium absorption ratio, Max.	-	-	-	-	2.6
8.	Boron, mg/l, Max	-	-	-	-	2

**Note:**

Class A: Drinking water sources without conventional treatment, but after disinfection

Class B: Organized outdoor bathing

Class C: Drinking water sources with conventional treatment followed by disinfection

Class D: Propagation of wild life and fisheries

Class E: Irrigation, Industrial cooling and controlled water disposal

### 3.3 Current Status of Quality of Water in River Sutlej

3.3.1 The representative quality of water of river Sutlej at 16 locations for the month of December, 2018 is given in Annexure-A. The quality of water at few locations has degraded which may pose threat of water borne diseases to the health of people residing in the catchment area of river Sutlej. The river Sutlej being an unlined water body and the polluted water flowing in it might have deteriorated the groundwater quality in the catchment area.

3.3.2 The details of analysis results of surface water monitoring under National Water Monitoring Program (NWMP) for the year 2015-16, 2016-17 & 2017-18 are given in Annexure-B.

3.3.3 It is evident that

- (i). Class-B quality of water enters the State, which becomes Class-C while crossing Nangal-Ropar Belt and District Hoshiarpur.
- (ii). It remains Class-C before point of confluence of Budha Nallah with river Sutlej.
- (iii). It becomes Class-E after the confluence of the Budha Nallah with River Sutlej.
- (iv). After reaching at Dharamkot Nakodar Road, Jalandhar (which is upstream of point of confluence of East Bein with River Sutlej) its quality becomes Class-D.
- (v). At the downstream point of confluence East Bein with River Sutlej, its quality becomes again Class-E.

### 3.4 Status of Ground Water in the catchment area of Sutlej

The Central Ground Water Board monitors the status of ground water in the catchment area of river Sutlej and the current status of ground water is as follows:

(i). Ground Water Quality.

During the month of May/ 2017, ground water samples were collected from the structures spread uniformly over the area. The water samples were analyzed for major cations (Ca, Mg, Na, K) and anions ( $\text{CO}_3$ ,  $\text{HCO}_3$ , Cl,  $\text{NO}_3$ ,  $\text{SO}_4$ ) in addition to pH, EC, F,  $\text{SiO}_2$ ,  $\text{PO}_4$  and TH as  $\text{CaCO}_3$  and heavy metals such as Cd, Cu, Mn, Pb, Zn in the Regional Chemical Laboratory by following 'Standard Analytical Procedure' as given in APHA 2017.

(ii). Composition of Water.

Chemical analysis shows that the ground water is slightly to moderately alkaline in nature. The pH values range from 7.01 at Bajakhana in Faridkot district to 8.54 at Machiwara in Ludhiana district. Hardness reported in terms of  $\text{CaCO}_3$  ranges from 52 mg/l at Darapur in Moga district to 1446 mg/l at Sadiqe in Faridkot district. EC value of ground water in the area varies from 200  $\mu\text{S}/\text{cm}$  at Nawapind in Pathankot district to 8806  $\mu\text{S}/\text{cm}$  at Sadiqe in Faridkot district.

Chloride content of ground water in the area varies from 7 mg/l at Kot ishe Kha in Moga district to 1341 mg/l at Arianwala in Faridkot district. Chloride concentration above 400 mg/l gives salty taste to water, Nitrate in ground water above 5.0 mg/l reflects contamination at same stage of its percolation and circulation. Nitrate in water samples varies from BDL to 410 mg/l at Arianwala in Faridkot district.

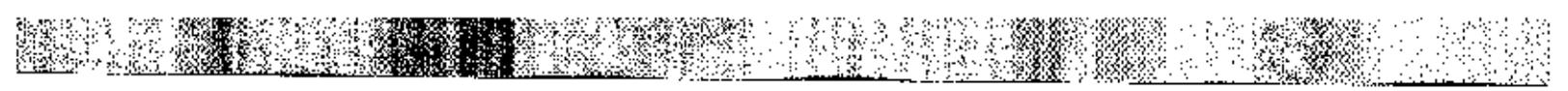
Whereas the fluoride concentration in ground water ranges from BDL to 5.34 mg/l at Dehlon in Ludhiana district. Fluoride concentration upto 1.0 mg/l in drinking water is desirable, upto 1.5 mg/l is permitted and above 1.5 mg/l is injurious.

(iii). Heavy Metals

Presence of heavy metals in ground water is also mentioned by CGWB and studies were carried out during the year 2017. Some elements such as Fe, Mn, Zn, Cu, Se, Sn, Mo are essential in trace amounts for growth and development of living organisms as well as plants. Nevertheless, these are hazardous in large amounts. The details are as under:-

Cadmium in shallow ground water varies from 0.0008 mg/l at Sidhwan Bet in Ludhiana district to 0.089 mg/l at Sadiq in Faridkot district. Copper in shallow ground water has been found to be within permissible limits of 1.5 mg/l (as per BIS limit).

- (a). Manganese in shallow ground water ranges from 0.0014 mg/l at Chak Dera in Ropar district to 2.391 mg/l at Bamial in Pathankot district. Concentration of Lead in shallow ground water ranges from 0.0034 mg/l at Anandpur Sahib in Ropar district to 0.1458 mg/l at Balachour in Nawanshehar district.
- (b). Zinc in shallow ground water ranges from 0.0008 mg/l at Dalsingwala in Faridkot district to 6.915 mg/l at Udhapur in Jalandhar district. All locations show that Zinc has been observed within permissible limit of 15 mg/l (as per BIS limit). Arsenic in shallow ground water at all location has been observed within permissible limits.



### Chapter 4- Sources of Water Pollution in River Sutlej

#### 4.1 Major Drains

There are 30 major drains/ choes/ nallahs, which are directly discharging into the river Sutlej. The details of these drains/ choes/ nallahs are given in Annexure-C. Apart from this, there are 84 sub drains, which are meeting with above 30 major drains. The details of these sub drains are given in the Annexure-D. It is also mentioned here that wastewater of 11 Local Bodies/ Villages is directly discharged into river Sutlej. A list of the same is given in Annexure-E. The urban and rural habitations, which are discharging their wastewater indirectly in the River Sutlej through various drains / nallahs / creeks are given in Annexure-F (available on PPCB website [www.ppcb.gov.in](http://www.ppcb.gov.in)).

#### 4.2 Major Sources of Pollution

There are following major sources polluting the river Sutlej:

- (i). Sewage/ sullage generated from Urban Areas
- (ii). Sewage/ sullage generated from Rural Areas
- (iii). Industrial sources
- (iv). Discharge of wastewater from dairies
- (v). Waste water from carcass handling unit

#### 4.3 Sewage/ sullage generated from Urban Areas

4.3.1 There are 54 local bodies in the catchment area of River Sutlej, which are discharging their effluent directly or indirectly into river Sutlej (Annexure-G). 26 local bodies have installed STPs of adequate capacity while 3 local bodies have installed STPs meeting partial requirement and remaining 25 local bodies are yet to install STPs. Out of 25 local bodies, which have not installed STPs, 9 local bodies are without sewage conveyance system (Annexure-H).

4.3.2 It is pertinent to mention that as per estimation of Municipal Corporation Ludhiana, present domestic sewage generation is about 477MLD and sewage generation by year 2033 will be 525 MLD. The treatment capacity of domestic sewerage at present is 466 MLD. The STPs are discharging sewage into Budda Nalla/Sutlej river and their status is given in table below:

Name of STP	Technology	Water consumed (MLD) (Based on tubewells operated by MCL & Private tubewells)	Domestic Sewage Generation in MLD 2018 (85% of water consumed)	Addition Discharge of villages adjacent to the periphery of city	Total	Domestic Sewage Generation in MLD 2033 (10% increase from 2018 levels)	STP Installed Capacity (In MLD)	Gap in sewage Treatment for 2033 (Domestic of city) in MLD	Proposed Action
Balloke	UASB	234	219	50	269	296	152	39	50 MLD Proposed
Balloke	SBR						105		
Bhattian	UASB	168	143	5	148	163	111	1.56	Will be reduced after implementation of volumetric metering policy.
Bhattian	SBR						50		
Jamalpur	UASB	59	55	5	60	66	48	18	50 MLD Passed
<b>Total</b>		<b>461</b>	<b>417</b>		<b>477</b>	<b>525</b>	<b>466</b>	<b>59</b>	

- 4.3.3 Further discharge of BuddhaNallah was measured by Municipal Corporation, Ludhiana along with Drainage department over the duration of 72 hours with details as under:

Name of STP/ Catchment Area	Average (72 hours) discharge of BuddhaNalla (in MLD)	Current Sewage Discharge (in MLD)	Excess Unaccounted Sewage Current in BuddhaNallah
Balloke	317	269	48
Balloke			
Bhattian	279	148	131
Bhattian			
Jamalpur	168	60	108
<b>Total</b>	<b>764</b>	<b>477</b>	<b>287</b>

- 4.3.4 Out of 287 MLD, 90 MLD will be tapped by CETPs which are under construction and 15 MLD will be catered by ETPs of dairies. So current net balance comes out to be (287-(90+15)) i.e. 182 MLD.

- 4.3.5 The hourly variations of COD levels at inlet points of STP at Bhattian and Buddha Nallah at Baranhara bridge were got analyzed by M.C. Ludhiana and it was found that COD levels vary from 944 to 1440 mg /l at Baranhara and from 352 to 736 mg/l at Bhattian STP. Similarly, Grab Samples taken from Jamalpur STP inlet and Bhattian STP inlet by Punjab Biotechnology Incubator indicate that there are lot of industries, which have not been traced and are discharging untreated effluent directly into Municipal sewers. This not only overloads the capacity of Municipal sewers but industrial effluent also damages the equipment at these STPs.

- 4.3.6 The safe disposal of treated effluent of large scale/ scattered industries within the City has not been planned, as effluent of the same is being discharged into municipal sewer, which results into overloading of Domestic sewers/ STPs. The excess flow in Buddha Nallah is due to industrial effluent being directly discharged by the industries and all such large scale/scattered industries should be tapped while establishing their CETPs.

- 4.3.7 This issue needs to be resolved jointly with Punjab Pollution Control Board and Municipal Corporation, Ludhiana.

#### 4.4 Sewage/ sullage generated from Rural Areas

There are 336 villages, which are discharging their wastewater either directly or indirectly through various drains / nallahs/ creeks. The details of these villages are already given in Annexure-E & F. In order to install necessary treatment facilities to treat the wastewater of rural areas, the villages will be prioritized into following phases:

- (i). Phase 1: Villages having discharge  $\geq$  200 KLD – 137
- (ii). Phase 2: Villages having discharge between 100 KLD and 200 KLD – 85
- (iii). Phase 3: Villages having discharge  $\leq$  100 KLD – 114

## 4.5 Industrial Sources

4.5.1 There are 2423 industries in the catchment area of River Sutlej, which are discharging their trade effluent either directly or indirectly into River Sutlej. Category and area wise detail of these units are as under:

Sr. No.	Industrial sector	No. of industries					
		Ludhiana	Jalandhar	Phagwara	Nawanshahr	Ropar	Moga
1.	Dyeing	228	3	1	0	0	0
2.	Pulp & Paper	2	0	0	0	0	0
3.	Thermal	0	0	0	0	1	0
4.	Chlor Alkali	0	0	0	0	1	0
5.	Cement	0	0	0	0	1	0
6.	Fertilizer	0	0	0	0	1	0
7.	Sugar Mills	0	0	1	1	0	0
8.	Electroplating / surface treatment	1649	254	0	0	0	0
9.	Tannery	0	87	0	0	0	0
10.	Others (washing of garments / service station / food processing/ milk plant etc.	149	40	3	0	0	1
TOTAL		2028	384	5	1	4	1
Grand Total		2423					

4.5.2 Out of 2423 industries, 433 industries have installed their captive ETPs.

4.5.3 The remaining 1990 industries, mentioned at Sr. No. 8 & 9 of the table given herein above have joined to the CETP, the details of which are as under:

- (i). Small & Medium scale electroplating industries & pickling units using HCl are supplying their untreated trade effluent to CETP (based on ZLD technology) installed at Focal Point, Ludhiana. The RO permeate and condensate of MEE is supplied by CETP operator to the adjoining dyeing units. The quantity of trade effluent from such industries is about 0.5 MLD. This CETP is also accepting and treating the wastewater generated by electroplating industries situated in the other parts of the State such as Amritsar, Jalandhar & Mohali etc.
- (ii). Small scale wire drawing/pickling industries using Sulphuric Acid ( $H_2SO_4$ ) are providing their untreated trade effluent/spent acid to re-processing plant installed for these industries at Kohara, Ludhiana. Re-processing plant produces Ferrous

Sulphate ( $Fe_2SO_4$ ) as product & no trade effluent is discharged by the said plant as it is based on ZLD technology. The quantity of trade effluent from such industries is about 0.055 MLD.

- (iii). There are 10 large scale electroplating industries and these units have adopted their own Zero Liquid Discharge Treatment Technology and no effluent from these industries is discharged into sewer leading to Buddha Nallah, which merges with River Sutlej.
- (iv). There are 61 tannery units at Leather Complex, Jalandhar, the wastewater of which is treated in the CETP installed in the Leather Complex. There is a proposal for upgradation of this CETP. Besides, there are 26 bag tanning unit at Phillour, the wastewater of which is treated in CETP installed at Phillour.

#### 4.6 Various Outlets discharging into Buddha Nallah

4.6.1 Buddha Nallah carries pollution caused by untreated industrial effluents and domestic sewage to river Sutlej. The following 16 outlets, which are not connected to any sewage treatment plant / common effluent treatment plant, are discharging their waste water directly into Buddha Nallah (within City limits of Ludhiana) which ultimately joins river Sutlej:

- (i). Multiple outlets of about 10 Dairies near Jaswal Complex, Tajpur Road (Outside MC limit)
- (ii). Final outlet of Jamalpur STP having partially treated discharge of 48 MLD and excess untreated
- (iii). Disposal near Amrit Dharam Kanda Bridge at Tajpur Road having two outlets carrying sewage/ industrial effluent from Focal Point, Sector-32 & 33, Urban Estate Phase-I & II, Chandigarh Road, Ludhiana
- (iv). Disposal of EWS Colony near Geeta Nagar Bridge along Tajpur Road. This outlet has been closed but used during rains.
- (v). Multiple outlets from various Dairies at Tajpur Road between Amrit Dharam Kanda, EWS disposal upto Tibba Road disposal and at Haibowal Dairy Complex
- (vi). Individual disposal points of slum area between EWS disposal and Tibba Road disposal
- (vii). MC Tibba Road Disposal on G.T. Road bye-pass, Ludhiana
- (viii). MC Disposal carrying effluent of Transport Nagar (near Cremation Ground)
- (ix). MC Disposal near Atam Nagar/ Sunder Nagar
- (x). MC Disposal near New Shivpuri (Opp. Shani Mandir)
- (xi). MC Disposal near Chand Cinema, G.T. Road
- (xii). MC Disposal near Chhauri Mohalla and Manna Singh Nagar. This outlet has been closed but being used during rains.
- (xiii). MC Disposal near Upkar Nagar

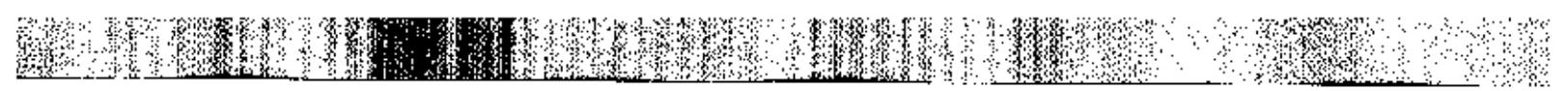
- (xiv). MC Disposal backside of Life line Hospital (DMC Culvert)
- (xv). MC disposal at the backside of Lord Mahavira Ayurvedic Hospital
- (xvi). MC Disposal at the backside of Ram Shamam Satsang Bhawan. This outlet has been closed but being used during the rains.

4.6.2 It is pertinent to note that Municipal Corporation has allowed connection to the industries to discharge their treated effluents into municipal sewer. The quantity and quality of discharge of treated effluents into municipal sewer has been a cause of disagreement between Municipal authorities and Punjab Pollution Control Board.

4.6.3 Various mitigating measures to control discharge from these outlets have been given in Chapter 7.

#### 4.7 Discharge from dairy complexes

There are 2 dairy complexes at Ludhiana and 1 dairy complex at Jalandhar. In addition, there are scattered dairies in both the cities. At present, the untreated wastewater from these sources is discharged indirectly into River Sutlej. There are proposals to setup ETPs to treat the wastewater and proposal to install biogas plant for handling cattle faecal matter.



## Chapter 5 - Other Sources of Pollution and Their Management

### 5.1 Bio Medical Waste

- 5.1.1 The bio-medical waste of all the Healthcare Facilities in the State is collected, transported, treated and disposed of by 4 authorized Common Bio-Medical Waste Treatment Facilities (CBWTF) located at Ludhiana, SAS Nagar, Amritsar and Pathankot. The Bio-Medical Waste generation in the State is in the range of 14-15 tons per day (TPD) depending upon patient load. The status of HCFs operating in towns falling in catchment areas of river Sutlej is given in Annexure I.
- 5.1.2 The collection vehicles of the CBWTF operators are equipped with Global Positioning System (GPS) with access to Punjab Pollution Control Board (PPCB). The CBWTF operators are using Bar-code based software system for collection of bio-medical waste from Healthcare Facilities since 2012 and the data of collection of bio-medical waste from the healthcare facility is sent online to server within 1-2 minutes and the access of same is available with PPCB. CCTV cameras are also installed in the processing areas of all the 4 CBWTF operators with access to PPCB to monitor the working of the facility.
- 5.1.3 The stack of the incinerator installed in all the 4 CBWTFs have been provided with Online Continuous Emission Monitoring System and the data is transferred online to PPCB and CPCB. This system helps in observing/monitoring the emissions discharged while treatment of bio-medical waste is being done.
- 5.1.4 Since, the Bio-Medical Waste generated in the catchment area of River Sutlej is handled and managed in proper manner through the Common Bio-Medical Waste Treatment Facilities (CBWTF), as such, there is no impact of this waste on the water quality of River Sutlej. Facility wise details of area catered by the CBWTFs is given in Annexure-J.

### 5.2 Hazardous Waste

- 5.2.1 The Government of India has framed Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 for the scientific handling of hazardous waste. The occupier of the facility is to apply for authorization for handling, generation, collection, storage, packaging, transportation, use, treatment, processing, recycling, recovery, pre-processing, co-processing, utilization, offering for sale, transfer or disposal of the waste to the Board. A passbook is issued along-with authorization to the actual user of the hazardous waste.
- 5.2.2 As per the interim order dt. 14-10-2003 of Hon'ble Supreme Court in Writ Petition (Civil) No. 657 of 1995, regarding handling of hazardous waste and development of common treatment, storage and disposal facility, a Common Treatment, Storage and Disposal Facility (CTSDF) at Village Nimbuan, Tehsil Dera Bassi, Distt. SAS Nagar was constructed by M/s Nimbuan Green Field Punjab Limited (NGPL) and commissioned in October, 2007.
- 5.2.3 The facility has been designed for 15 years capacity considering the generation of storable quantity of hazardous waste as 36,000MTA based on the assessment study carried out by M/s Tetrattech India Limited. The total capacity of the facility is 5,40,000 MT. The capacity

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to store hazardous waste in the existing CTSDF is sufficient upto year 2030 at the present rate of generation. The vehicles used by the common facility operator for transportation of hazardous waste are equipped with GPS system.

5.2.4 The status of hazardous waste generated in the industries in area of river Sutlej as on 31.3.2018 is given in Annexure-K.

5.2.5 At present no common incinerator has been installed at CTSDF and the same is under planning. Some industries generating incinerable hazardous waste have installed captive incinerator in their premises for disposal of incinerable waste. Ten such captive incinerators are in operation for the disposal of incinerable waste. In addition to the above, the incinerable waste from the remaining industries is received by the operator of CTSDF and is incinerated at the incinerator installed by the CTSDF at its another unit at Kanpur.

5.2.6 Since, the Hazardous Waste generated by the industries in the catchment area of River Sutlej is handled and managed in proper manner through the Common Treatment, Storage & Disposal Facility installed at Vill. Nimbuan, Tehsil Dera Bassi, Distt. SAS Nagar, as such, there is no impact of this waste on the water quality of River Sutlej.

### 5.3 E-Waste

5.3.1 Government of India has framed E-Waste (Management & Handling) Rules, 2016 as amended on 22.3.2018. PPCB has granted NOC / 'Consent to Operate' to one dismantling facility, M/s Ramky Enviro Engineers Limited, Vill. Nimbua, Tehsil DeraBassi, Distt. SAS Nagar with capacity to handle 4 TPD of E-waste.

5.3.2 PPCB has granted 'Consent to Establish' to two industries i.e. M/s Black Diamond Cements Pvt. Ltd., Tehsil DeraBassi, district SAS Nagar and M/s Spreco Recycling, Tehsil Raikot, District Ludhiana to establish E-Waste recycling facility of capacities 30 TPD and 0.8 TPD respectively. These said industries have yet not commissioned the said facility. Two parties each in Amritsar and Jalandhar, have also been given go ahead by PPCB for setting up of the E-Waste recycling facilities.

5.3.3 Although, the channelization of E-Waste has recently been started, disposal of such waste has never been noticed in the River Sutlej.

### 5.4 Solid Waste

5.4.1 The Department of Local Government (DLG) vide notification dated 09.07.2018 has notified the Punjab State Solid Waste Management Policy, 2018. In view of the past experience, it has been decided to adopt both decentralized and centralized solid waste management approach depending upon the profile of the locality.

5.4.2 Further, in compliance to the orders of the Hon'ble Punjab and Haryana High Court in CWP No. 7039 of 2010, a Common Action Plan containing 10 points was prepared in 2012 for viable alternative measures for disposal of garbage till setting up of Solid Waste

Management Plants. The Directorate of Local Government is the implementing agency for this Action Plan and PPCB is monitoring the status of compliance. Out of 65 Urban Local Bodies (ULBs), 04 ULBs are complying, 43 ULBs are partially complying with the Common action plan and remaining 18 ULBs are yet to comply with the same.

- 5.4.3 The habitation areas along the banks of Budha Nallah are disposing off their solid waste into Budha Nallah due to improper collection mechanism in place by the Municipal Corporation, Ludhiana in the city. Besides, this solid waste generated by the dairy units is also disposed off in the Budha Nallah. Therefore, disposal of such solid waste in the said nallah is further degrading the quality of its water and has become a major problem for the city.
- 5.4.4 The Ministry of Environment and Forests, GOI has notified Solid Waste Management Rules, 2016. Implementation of these Rules is being monitored by the Board. As per Rule 24 of the Solid Waste Management Rules, 2016, the local body shall submit its annual report to the Board on or before the 30th day of June every year. Further, the Board is required to submit the consolidated annual report to the Central Pollution Control Board and Ministry of Urban Development by the 31<sup>st</sup> day of July of each year. The same are regularly uploaded on the official website of the Board also.



## Chapter 6 - Utilization of Treated Wastewater

### 6.1 The State Treated Waste Utilization Policy

- 6.1.1 The Department of Local Govt. has notified "The State Treated Waste Policy -2017" to promote the recycling and reusing the treated sewage for non-potable application and to make sewage projects economical and environmentally sustainable.
- 6.1.2 The policy envisages to tackle the issues pertaining to the provisions of adequate wastewater collection and treatment facilities, consideration of treated effluent as resource for reuse in irrigation/industrial/other fields and thereby improvement of the socio-economic conditions in the areas to served by the proposed systems.
- 6.1.3 The Department of Soil and Water Conservation, Punjab is executing projects for utilization of treated wastewater for irrigation of various towns/cities across the State by laying network of underground pipelines in agricultural fields.

### 6.2 Utilization of treated wastewater in the catchment area of Sutlej River

- 6.2.1 The Department of Soil and Water Conservation has already commissioned irrigation projects to utilise the treated wastewater of 16 STPs located in the catchment area of River Sutlej. Two more projects are under progress. The details are given in Annexure-L. These projects utilise about 101.5 MLD of treated wastewater about 2509 hectares of agricultural land is being irrigated.
- 6.2.2 From the experience of using STP's treated wastewater for irrigation purposes, the following issues emerge, which need to be addressed:
- (i). In case of STPs based on SBR technology, the discharge of treated wastewater is not continuous and for the gap period of about 45 minutes, the pump through which the treated wastewater is pumped for utilization onto land for irrigation is required to be shutdown, which discourages the farmers to utilize the treated wastewater. Therefore, there is a need to provide a storage tank of sufficient capacity for treated wastewater so that without shutting down the pumping station, the wastewater can be made available to the farmers.
  - (ii). The payment of electricity bill is required to be regulated by fixing the responsibility of the concerned department and funds for this purpose need to be made available with the operating agency.
  - (iii). The farmers need to be educated and made aware about the advantages of use of treated wastewater for irrigation purpose.

### 6.3 Utilization of treated waste water of Ludhiana City through Buddha Nallah

The Lower Budha Nallah can be revived to use the treated waste water of Ludhiana City carried by Buddha Nallah (presently being discharged into River Sutlej) for irrigation purposes. The State Level Steering Committee in its meeting held on 30.11.2018 has decided that Department of Water Resources shall prepare a detailed action plan for this purpose in a period of 2 months in consultation with Commissioner, Municipal Corporation, Ludhiana and Punjab Pollution Control Board.



### Chapter 7 – Various measures for control of water pollution & timelines

#### 7.1 Various Measures

7.1.1 In order to control water pollution in river Sutlej, following measures have been chalked out to stop the flow of untreated waste water or other waste into river directly or indirectly.

- (i). Construction of New STPs in Urban Areas
  - (a). Setting up of STPs by ULBs in various cities
  - (b). Setting up of STP by PSIEC for Focal Point, Jalandhar
  - (c). Setting up of STPs by Military Engineering Service, Jalandhar
  - (d). Closure of various direct sewage outlets in Buddha Nallah, Ludhiana
- (ii). Construction of CETPs/ ETPs
  - (a). Installation of CETPs for dyeing industries located in Ludhiana
  - (b). Upgradation of existing ETPs installed by large scale dyeing units in Ludhiana
  - (c). Shifting of small scale scattered dyeing units in Ludhiana
  - (d). Installation of CETP for electroplating units in Jalandhar
  - (e). Upgradation/modification of 5 MLD CETP of Tanneries by Punjab Effluent Treatment Society for Tanneries, Leather Complex, Jalandhar
- (iii). Construction of facilities of biogas plant and ETPs for dairies
- (iv). Construction of Slaughter house and Carcass plant.
  - (a). Modernization of existing slaughter house located at Ludhiana
  - (b). Installation of Carcass utilization plant.
- (v). Construction of Treatment facilities in village ponds in Rural Areas
- (vi). Setting up of facilities for reuse of treated wastewater
- (vii). Operation and Management of Facilities
  - (a). Setting up of online system for monitoring STPs
  - (b). Setting up online system for monitoring industrial effluents
- (viii). Stopping solid waste/ garbage being thrown into Buddha Nallah

7.1.2 Each project will have timelines for various stages of the project. Following stages have been identified to monitor the progress:

Name of the Project			
Brief Scope of the Project			
S. no.	Stage	Start Date	Completion Date
1	Preparation of DPR		
2	Financial Closure		
3	Tendering of the Work including allotment		
4	Commencement of Work		
5	Quarterly Milestones during the construction Stage		
6	Completion and Commissioning		

**7.2 Setting up of STPs by ULBs in various cities**

The Department of Local Government will install necessary treatment facilities to treat the wastewater of various towns. The Department of Local Government has chalked out plans for setting up of new STPs, upgrading STPs and laying down sewerage system for left out areas. The details are given in Annexure-M.

**7.3 Setting up of STP by PSIEC for Focal Point, Jalandhar**

The PSIEC has proposed to install an STP for the treatment of the sewage generated from the Focal Point, Jalandhar. The timelines for installation of this CETP are given in Annexure-N.

**7.4 Measures to stop direct discharge from Various Outlets into Buddha Nallah**

Following measures are proposed to stop direct discharge from various outlets into Buddha Nallah:

- (i). Multiple outlets of about 10 Dairies near Jaswal Complex, Tajpur Road  
This outlet is outside MC Limit. PPCB will take action against the owners.
- (ii). Final outlet of Jamalpur STP having partially treated discharge of 48 MLD and excess untreated

The wastewater reaching at STP installed at Jamalpur, is a mix of domestic and industrial effluent. Hence excess quantity of wastewater reaching at the inlet of this STP is bypassed directly into Buddha Nallah. Moreover, due to mixing of industrial effluent with domestic sewage the performance of the STP is affected. There is a proposal for rehabilitation of existing 48 MLD STP and setting up of an additional module of 50 MLD capacity at Jamalpur. Further, to take care of industrial effluent of small scale dyeing units, two CETPs of 50 MLD and 40 MLD capacity are under installation. The DPR of additional capacity has been approved and this module is likely to be installed by 31.12.2020.

- (iii). Disposal near Amrit Dharam Kanda Bridge at Tajpur Road having two outlets carrying sewage/ Industrial effluent from Focal Point, Sector-32 & 33, Urban Estate Phase-I & II, Chandigarh Road, Ludhiana

The sewer carrying mainly industrial effluent of focal point area mixed with domestic sewage has been connected with storm water sewer near Police Colony Chowk on Chandigarh Road due to inadequate capacity of sewerage system in Jamalpur Catchment area. Thus mixed effluent is discharged into Buddha Nallah through storm water sewer. Separate sewerage system is being laid down to enhance the carrying capacity of sewage system in Jamalpur catchment area. In order to take care of industrial effluent of small scale dyeing units, two CETPs of 50 MLD and 40 MLD capacity are under installation. Also, there is a proposal for rehabilitation of existing 48 MLD STP and setting up of an additional module of 50 MLD capacity at Jamalpur. The DPR of additional capacity has been approved and this module is likely to be installed by 31.12.2020.

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- (iv). Disposal of EWS Colony near Geeta Nagar Bridge along Tajpur Road. This outlet has been closed but used during rains.

The outlets of domestic sewage, which were earlier connected with storm water sewer, have been disconnected by the Municipal Corporation, Ludhiana. The same needs to be re-verified by Punjab Pollution Control Board.

- (v). Multiple outlets from various Dairies at Tajpur Road between Amrit Dharam Kanda, EWS disposal upto Tibba Road disposal and at Haibowal Dairy Complex

There are multiple outlets of dairies located at Tajpur dairy complex and Haibowal dairy complex through which the wastewater is discharged directly into Budha Nallah. There is a proposal to install an ETP of 5 MLD capacity at Tajpur road and 10 MLD at Haibowal dairy complex. DPR for installation of said ETPs has been approved by the State Level Technical Committee and these STPs are likely to be installed by 31.12.2020.

- (vi). Individual disposal points of slum area between EWS disposal and Tibba Road disposal

The slum colonies established along Budha Nallah, which are presently discharging untreated domestic sewage to multiple outlets into Budha Nallah, shall be relocated to BSUP flats at Gaspura, Mundian kalan and Dhandari under RAY Scheme. The tendering procedure in this regard has been initiated and these slum households will be shifted by 31.03.2020.

- (vii). MC Tibba Road Disposal on G.T. Road bye-pass, Ludhiana

Since the sewerage system leading to STP at Bhattian is carrying mix of industrial effluent and domestic sewage and the quantity of mixed wastewater is more than the capacity of conveyance system of this STP, therefore, mixed effluent is directly discharged into Budha Nallah. Since there are scattered industrial units in the catchment area of this STP and the industrial effluent of these units is also coming in the sewerage system of this STP. There is a need to provide separate conveyance system by the joint action of PPCB and Municipal Corporation, Ludhiana. Excess domestic effluent shall be taken care of after introduction of Volumetric Water Tariff policy by Deptt. of Local Govt.

Timeline for completion is T + 18 months (T is the date for finalization of action plan for excess effluent).

- (viii). MC Disposal carrying effluent of Transport Nagar (near Cremation Ground)

Same as stated in Para (vii) above.

- (ix). MC Disposal near Atam Nagar/ Sunder Nagar

Same as stated in Para (vii) above.

- (x). MC Disposal near New Shilpuri (Opp. Shani Mandir)

Same as stated in Para (vii) above.

## Action Plan for Clean River Sutlej

- (xi). MC Disposal near Chand Cinema, G.T. Road  
Same as stated in Para (vii) above.
- (xii). MC Disposal near Chhauni Mohalla and Manna Singh Nagar.  
This is an open storm water drain in which no sewage is now being discharged. It needs to be re-verified by Punjab Pollution Control Board.
- (xiii). MC Disposal near Upkar Nagar  
Multiple domestic connections have been made in the storm water sewer over the years. 50 MLD capacity STP has been proposed at Balloke to take care of this excess effluent which is targeted to be completed by 31.12.2020.
- (xiv). MC Disposal backside of Life line Hospital (DMC Culvert)  
Same as stated in Para (xiii) above.
- (xv). MC disposal at the backside of Lord Mahavira Ayurvedic Hospital  
Same as stated in Para (xiii) above.
- (xvi). MC Disposal at the backside of Ram Sharnam Satsang Bhawan.  
This outlet has been permanently closed but being used during the rains. The same needs to be re-verified by Punjab Pollution Control Board.

### 7.5 Installation of CETPs for dyeing industries located in Ludhiana

- (i). All the dyeing units have installed captive ETPs. However, treated wastewater of these industries is discharged into municipal sewers along with domestic sewage which affects the functioning of STPs. These industrial effluents need to be treated separately.
- (ii). In order to treat the cluster wise industrial waste water at one place & to achieve the revised standards laid down for CETPs by the Board, 3 common effluent treatment plants (CETP) are being installed and after commissioning of these CETPs, it will be easier to monitor the treatment facility as well as quality of the effluent at one place rather than monitoring individual units, which are large in number.
- (iii). 3 CETPs of capacity 50 MLD, 40 MLD and 15 MLD for small and medium scale dyeing industries located at Tajpur Road & Rahon Road; Focal Point dyeing Industries clusters and Bahadurke Road dyeing industries cluster, Ludhiana are being installed at Ludhiana. The timelines for installation and commissioning of these CETPs are given in Annexure-N-1.

### 7.6 Upgradation of ETPs of large units

In case of large scale dyeing units, which are 14 in number, the individual industries shall upgrade their existing ETPs to achieve the revised standards at par with the proposed CETPs. Timelines to be worked out by PPCB.

**7.7 Scattered small/ medium scale dyeing units in non-designated areas**

All the scattered small/ medium scale dyeing units located in various non-designated areas of the city are required to be shifted to the designated industrial areas connected with the upcoming CETPs. Timelines will be worked out in consultation with all the stakeholders.

**7.8 Scattered small/ medium scale dyeing units in designated areas**

All the scattered small scale dyeing units located in various designated areas of the city not having any feasibility to connect with the proposed CETPs are also required to be shifted to some designated industrial areas having feasibility to connect with the upcoming CETPs. Timelines will be worked out in consultation with all the Stakeholders.

**7.9 Installation of CETP for electroplating units in Jalandhar area**

In Jalandhar, there are around 254 nos. electroplating industries, which are presently supplying their effluent to Common Effluent Treatment Plant operational at Focal Point, Phase-8, Ludhiana. However, there is a proposal to setup a Common Effluent Treatment Plant of capacity 150 KLD at plot no. E-41 to E-46, Focal Point Extn Jalandhar for handling the waste water of these units. A Special Purpose Vehicle (SPV) under the name of Jalandhar Effluent Treatment Society (JETS) has been constituted, who has obtained Environmental Clearance on 24.04.2017 under EIA notification. The timelines for the same are to be provided by SPV, JETS.

**7.10 Upgradation of 5 MLD CETP of Tanneries, Leather Complex, Jalandhar**

Punjab Effluent Treatment Society has proposed upgradation of existing 5 MLD capacity Common Effluent Treatment Plant. The preparation of DPR has been assigned to M/s Chennai Environmental Management Company of Tanners, Chennai vide letter No. PETS/18-19/2287 dated 18.12.2018 which shall be ready by 15<sup>th</sup>Feb, 2019 and the same shall be submitted for appraisal to Project Management Consultant viz. CLRI, Chennai and after appraisal, the DPR shall be submitted to DIPP, Govt. of India for according approval of the Project by 31st March, 2019. The timeline for the same is given at Annexure-D.

**7.11 Setting up of biogas plants and ETPs for Dairy Units**

There are 2 dairy complexes at Ludhiana and one dairy complex at Jalandhar. In addition, there are scattered dairies in both the cities. At present, the untreated wastewater from these sources is discharged indirectly into River Sutlej. There are proposals to setup ETPs to treat the wastewater and proposal to install biogas plant for handling cattle faecal matter. The timelines for the installation of these projects are given as per Annexure-P.

**7.12 Modernization of existing slaughter house and Carcass plant at Ludhiana**

(i). Slaughter House

The Municipal Corporation Ludhiana has proposed to modernize the existing slaughter house and its treatment facility. The Municipal Corporation has given the timelines for the same. The details are given in Annexure-Q.

(ii). Installation of Carcass handling plant.

Presently, there is no mechanized carcass handling plant for proper disposal of the carcass of dead animals. Regular public complaints are being received from the nearby residents regarding the improper disposal of carcass at Ladhowal, Near River Sutlej, Distt. Ludhiana, which creates pollution in River Sutlej.

The Municipal Corporation, Ludhiana has given a proposal to install carcass utilization plant at Village Noorpur Bet, Humbran Road, Ludhiana. The MC has also obtained the site clearance from the Competent Authority (SCA-cum-SAC) for establishment of carcass utilization plant at Noorpur Bet, Ludhiana. Accordingly, Director of Factories, Punjab vide letter no. 3822-27 dated 31-03-2017 has issued the approval of Site to Municipal Corporation, Ludhiana for the establishment of carcass utilization plant at Noorpur Bet, Ludhiana.

Thereafter, Punjab Pollution Control Board vide NOC no. ZO-II/LDH/RO-III/NOC/ZO17/F-246 dated 03-05-2017 had issued consent to establish (NOC) for the establishment of the carcass utilization plant at Noorpur Bet, Ludhiana. The timelines for installation of mechanized system for handling of carcasses are yet to be supplied by the Municipal Corporation, Ludhiana.

**7.13 Setting up of treatment facilities for sewage/sullage in Rural areas**

The Department of Rural Development and Panchayat has to prioritise the villages for setting up of treatment facilities. The timelines for providing treatment facility in villages are given in Annexure-R. The Department has yet to finalize the treatment technology to be adopted in rural areas.

**7.14 Setting up of Reuse of treated wastewater**

The Department of Soil and Water Conservation has given the timelines for setting up of reuse of treated wastewater. The details are given in Annexure-S.

**7.15 Installation of online continuous monitoring system & CCTVs for STPs**

In order to get real time data of the quality of treated wastewater, there is need to install Online Continuous Monitoring System with facility of flow meter at the outlet of all the STPs of the towns / cities located in the catchment area of River Sutlej. The system should be connected with server of the concerned department as well as PPCB so that quality of treated wastewater can be put in the public domain. Further CCTV cameras will be installed to monitor the operation of STPs. All concerned agencies, which are operating the facilities will ensure online system as per the timelines. The timelines for installing online systems and CCTVs is given in Annexure -T-1 & T-2.

**7.16 Installing online continuous monitoring system by Industries**

Although, all the 17 categories of industries have installed online continuous monitoring system, which are attached with server of CPCB as well as PPCB. Further, all the small scale

dyeing units will join the CETP, hence the OCMS is not required for individual dyeing units, however, OCMS will be installed on the respective CETP. Further, OCMS will be installed on the CETP installed for electroplating industries. As such, the remaining 62 industries having discharge of trade effluent 50 KLD or more are required to install Online Continuous Monitoring System with facility of flow meter at the outlet of their ETPs. The time schedule for installing online system is given in Annexure-U.

**7.17 Timelines for stopping disposal of solid waste in Buddha Nallah**

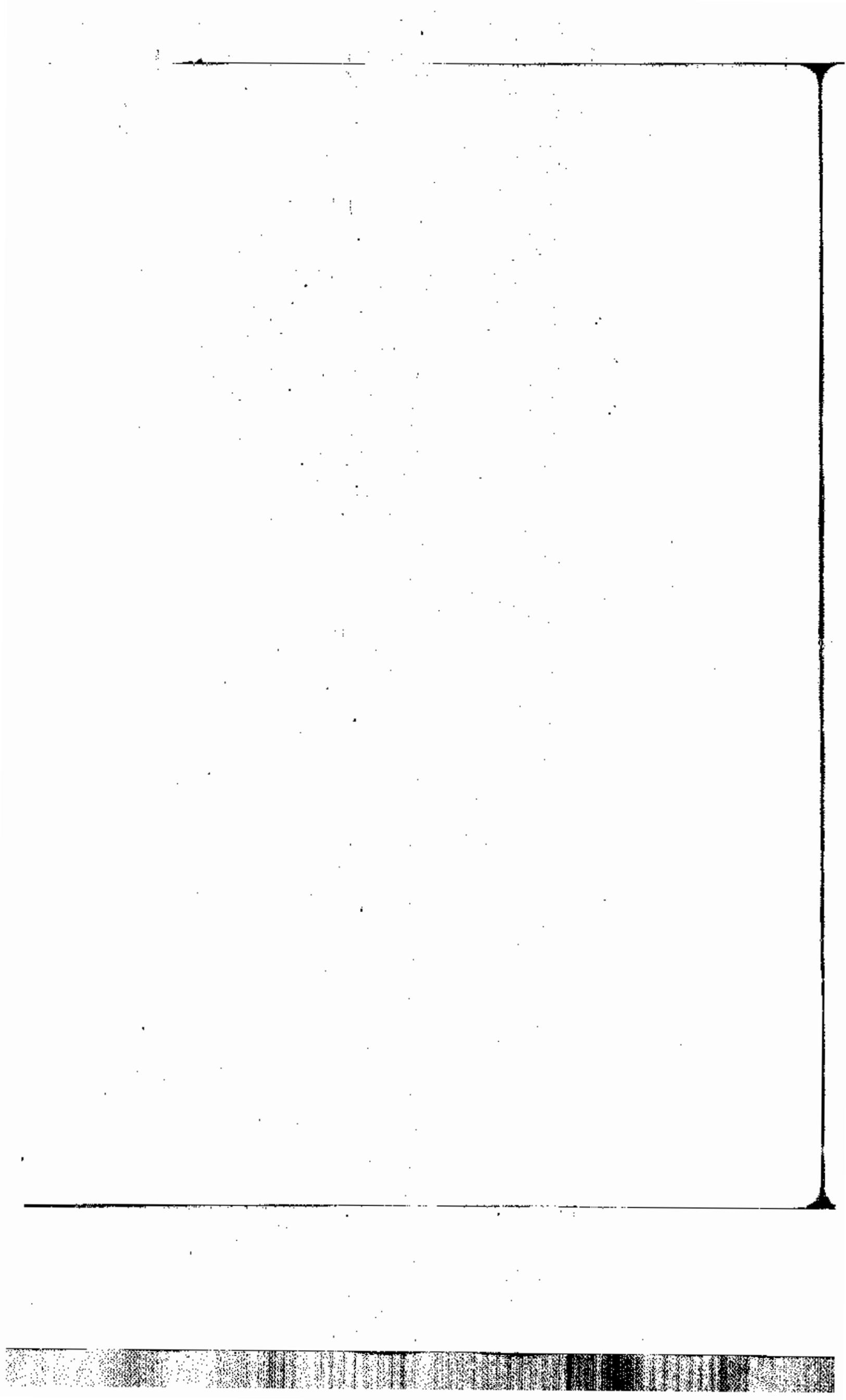
The surrounding areas of Buddha Nallah being inhabited by economically weaker section, lot of waste generated in the vicinity is disposed of in Buddha Nallah. Municipal Corporation will ensure suitable arrangements for prohibiting disposal of solid waste in Buddha Nallah.

**7.18 Measures related to operation and maintenance (O&M)**

- (i). O&M of the STPs & CETPs should be entrusted to reputed companies and scope should be comprehensive to ensure that O&M is carried out effectively and no untreated or treated waste beyond prescribed norms is discharged.
- (ii). All the STPs should have in-house laboratory facilities at each STP for maintaining record of characteristics of analysis of untreated as well as treated waste water.
- (iii). Sludge generated from STPs is required to be analyzed for the parameters as mentioned in the schedule 2 of Municipal Solid Waste, 2016 to find out its usage/ route for disposal of the same. The operator of the STP is required to maintain database in this regard. In case the sludge is required to be treated to make it fit as usage/ disposal, the concerned authority shall provide suitable treatment technology after consulting the matter with an expert agency.
- (iv). All the STPs should have standby arrangements for smooth functioning during maintenance period and there should be standard operating procedure for the same. All the STPs should have adequate capacity of holding tank (s) or standby arrangements for storage of untreated sewage during maintenance or shut down if any. All upcoming STPs also should have the above provisions.
- (v). All STPs should have a provision of uninterrupted power supply or power backup system including standby electrical and mechanical components for ensuring proper and effective operation of the STPs.

**7.19 Release of fresh water in Buddha Nallah**

Since Buddha Nallah is a non-perennial water body, as such it does not have sufficient assimilation capacity to achieve Class-B quality water even after implementation of measures mentioned herein above. Therefore, there is a need to release at least 200 cusec of water from Sirhind Canal to achieve the mandate with regard to quality of water meant for organized outdoor bathing.



## Chapter 8 – Monitoring Requirements and Formats

### 8.1 Key components of monitoring

There are following key components of monitoring

- (i). Monitoring of progress of projects for setting up of new STPs/CETPs/ETPs and upgradation of existing STPs/CETPs
- (ii). Monitoring of operations and management of STPs/CETPs
- (iii). Monitoring of ETPs and Industrial Effluents
- (iv). Monitoring of Quality of Water of River Sutlej
- (v). Monitoring of adverse impact on health of the people in surrounding areas due to water pollution
- (vi). Monitoring of Awareness campaign
- (vii). Monitoring of other violations of laws/ regulations
- (viii). Monitoring of characteristics of sludge of STPs
- (ix). Monitoring of release of fresh water in Buddha Nallah
- (x). Monitoring of solid waste disposal in Buddha Nallah

### 8.2 Monitoring of progress of setting up of new/ upgradation STPs/CETPs/ETPs

The progress of projects for setting up of new STPs in various Urban Local Bodies, CETPs by Special Purpose Vehicles (SPVs) and ETPs for the treatment of Dairy effluents will be monitored on regular basis. In order to ensure that all the stakeholder departments adheres to the timelines given for setting up of new STPs/CETPs/ETPs and upgradation of existing STPs/CETPs facilities, the department shall submit progress of the project on monthly basis in the proforma attached as Annexure-V for monitoring.

### 8.3 Monitoring of operations and management of STPs/CETPs

To ensure proper functioning of the STPs/CETPs, regular availability of funds for operation and maintenance has to be ensured. All the STPs/CETPs should also have standby source of power. The O&M contracts shall clearly define the responsibilities of the Operator. Monthly reports as per Annexure-W & W-1 will be submitted for monitoring.

### 8.4 Monitoring of ETP's and Industrial Effluents

Punjab Pollution Control Board shall visit the industries located in the catchment area of River Sutlej as per protocol regarding frequency of visit to the industries to carry out monitoring of Effluent Treatment Plants & ground water and maintain proper record of all these visits. PPCB will submit report as per the proforma given in Annexure-X

### 8.5 Monitoring of Quality of Water of River Sutlej

The Punjab Pollution Control Board shall continue to monitor the quality of water of River Sutlej at 16 locations under National Water Monitoring Programme and shall submit report on monthly basis in the proforma as per Annexure-Y.

**8.6 Monitoring of adverse impact on health of the people in surrounding areas**

The District Level Special Task Force shall get organized / conducted the health check up camps of the people in the catchment area of River Sutlej and shall submit the monthly report in proforma as per Annexure-Z.

**8.7 Monitoring of Awareness campaign**

The PPCB will organize awareness programme in partnership with the Department of Health & Family Welfare and other stakeholders in the habitation area falling in the catchment area of River Sutlej to educate them about the harmful effects of water pollution. The PPCB shall submit monthly report in the proforma as per Annexure-Z-1.

**8.8 Monitoring of characteristics of sludge of STPs**

The PWSSB/ concerned authority and the operating agency shall get the sample of sludge of STPs analyzed for the parameters mentioned in schedule 2 of MSW Rules, 2016 to find out its characteristics, atleast once in six months so that its usage/ disposal route may be adopted accordingly.

**8.9 Monitoring of release of fresh water in Buddha Nallah**

The Department of Water Resources is preparing a DPR for release of fresh water into Buddha Nallah from Sirhind Canal to achieve the mandate w.r.t quality of water meant for organized outdoor bathing.

**8.10 Monitoring of solid waste disposal in Buddha Nallah**

The disposal of solid waste into Buddha Nallah by the habitation areas located along its banks due to improper collection mechanism and by the dairy units would be monitored on regular basis.

**Chapter 9 – Governance and Supervision**

**9.1 Three Tier Monitoring**

9.1.1 Monitoring will be done by the concerned Departments/ Agencies, which are executing or responsible for particular activities and it will be their primary responsibility to ensure compliance of the Action Plan.

9.1.2 In addition, there will be three level of Committees to review and monitor the status:

(i). District Level Task Force

- a) **Ludhiana**— As mentioned in para 1.4.4, the State Government has already constituted a Task Force for cleaning of Buddha Nallah, headed by Satguru Uday Singh Ji of Namdhari Sampardhai. This task force shall also monitor the timelines for implantation of part of action plan pertaining to district Ludhiana.
- b) **Other Districts** — The District Level Task Force already constituted under RRC, shall monitor the timelines for implantation of action plan pertaining to respective other districts.

(ii). River Rejuvenation Committee

(iii). State Level Task Force / Monitoring Committee

9.1.3 Department of Science, Technology and Environment and PPCB will set up a dedicated team for supporting coordination and monitoring of the Action Plan. The team will collate and analyse data from all the concerned agencies and escalate the issues and challenges to the appropriate level for resolution. It will also develop suitable IT platform for monitoring purposes.

**9.2 District Level Special Task Force (DLSTF)**

(i). The mandate of this task force as per order dated 14.11.2018 issued by the Govt. of Punjab, Deptt. of Science, Technology & Environment is as under:

- (a). It shall identify all persons responsible for violation of law and norms relating to pollution in Sutlej river and the drains joining it.
- (b). It shall review action by the Competent Authority w.r.t. Civil and Criminal action against the violators as well as those who fail to perform their duties in this regard.
- (c). It shall submit a monthly report on all actions taken by it to the State Level Special Task Force (SLSTF), by first week of every month.
- (d). It shall assist the SLSTF in preparation of the action plan and finalizing the timelines.
- (e). It shall involve Civil Society Organizations and public participation in preparing the action plan in all the relevant areas.
- (f). It shall ensure periodic sampling of river water as well as ground water to check water quality.

**9.3 River Rejuvenation Committee**

The River Rejuvenation Committee under the Chairmanship of Principal Secretary, Science, Technology and Environment will monitor the Status of implementation of the Action Plan at the State Level.

**9.4 State Level Task Force**

- (i). The mandate of this task force as per order dated 14.11.2018 issued by the Govt. of Punjab, Deptt. of Science, Technology & Environment is as under:
  - (a). It shall finalize the Action Plan with firm timelines and review the same.
  - (b). It shall submit quarterly report on action taken during the quarter to the Central Pollution Control Board.
  - (c). It will also ensure that the quarterly Action Taken Reports are uploaded on the website of Punjab Pollution Control Board.
  - (d). It shall Co-ordinate with the Executing Committee, appointed by NGT
  - (e). The State Level Task Force will accordingly hold regular meetings to review the progress and taken necessary action against the defaulters

**9.5 Monitoring Committee by NGT**

As per directions of NGT vide order dated 24-7-2018, CPCB has accordingly vide office order dated 06-08-2018 constituted a monitoring committee comprising following members:

- (i) Shri Balbir Singh Seechewal
- (ii) Representative of Rajasthan State Pollution Control Board
- (iii) Representative of Punjab Pollution Control Board
- (iv) One Engineer & One Scientist (Central Pollution Control Board)
- (v) Representative of Urban Development, State of Punjab
- (vi) Shri J.Chandra Babu, Sc'D', WQM-1, Central Pollution Control Board

The monitoring committee will monitor the project as per the mandate of the NGT.

## Chapter 10 - Risk Mitigation Plan

### 10.1 Identification of Major Risks In the Action Plan

10.1.1 The Action Plan to clean Sutlej and restore the quality of water to the prescribed standards is a complex multi sectoral and multi agency action plan. Successful implementation would face many challenges. Following major risks have been identified

- (i). Accuracy and completeness of Baseline Data
- (ii). Accuracy and completeness of Project timelines
- (iii). Financial closure and timely releases of funds
- (iv). Discharge from unapproved habitation areas
- (v). Tracking the Progress and program management
- (vi). Resolution of Administrative and Technical Issues
- (vii). Mixing of industrial effluent with domestic wastewater

### 10.2 Mitigation Plan for identified Risks

It is important to devise strategies and plans to mitigate the identified risks. Action plan will remain on paper if the bottlechecks and the risks are not dealt satisfactorily. Mitigation plan for each of the identified risk has been prepared in the following paras.

### 10.3 Accuracy and completeness of Baseline Data

Due to paucity of time, the information about the sources of pollution, current treatment facilities, quantity and quality of discharges etc. could not be properly validated and there could be gaps in the same, which may lead to substantial alterations in the plans. In order to ensure accuracy and completeness of baseline data, another round of validation of the same would be got done through the respective Administrative Departments and Action plan updated accordingly. This will be completed in 30 days.

### 10.4 Accuracy and completeness of Project timelines

Due to paucity of time, the information about the project timelines could not be properly validated and deliberated and there could be gaps in the same. In order to ensure accuracy and completeness of Project timelines, each Administrative Department would be asked to validate the project timelines carefully after taking into account all the relevant factors. The needful will be done in 45 days in parallel to the activity in para 10.3 and Action plan updated accordingly.

### 10.5 Discharge from unapproved habitation areas

There are certain unapproved colonies or villages, which have come under municipal limit, which are currently not covered in the plans but are discharging their untreated sewage directly or indirectly into river Sutlej. The concerned authorities for urban and rural areas will be asked to identify such localities and plan for their connectivity with the main sewer or development of the sewer system shall be worked out.

#### **10.6 Financial closure and timely releases of funds**

Availability of funds for completing the projects on time is a major risk. Some of the projects have still not achieved financial closure. It has also been observed that the release of funds is often not regular even though the project had appropriate financial approval. In case of operation and maintenance of the facilities, substantial blame has been apportioned to lack of regular release of funds for maintenance, which resulted in failure of STPs to treat the wastewater and as a result untreated water has been discharged in the drain. In order to overcome the challenges, efforts will be made towards:

- (i). Seeking a firm commitment of Department of Finance to release the funds for the projects on priority.
- (ii). In case of operation and maintenance, seeking firm commitment of ULBs/ Department of Local Government to treat this as committed expenditure according to highest priority and release the funds regularly. Further, arrangement may be worked out with the Administrative Department and Department of Finance that in case of default of ULB to pay to the operator, funds will be deducted from the grant to be released to ULB and paid directly to the Operator.

#### **10.7 Tracking the Progress and program management**

The action plan for clean Sutlej is a complex, multi department and multi agency program and the current capacity and skill sets in Directorate and PPCB are not adequate to track the progress of various milestones and carry out effective program management for successfully implementing the program. In order to mitigate the risk, a dedicated team with requisite Program Management and IT skills will be positioned to collate data, analyse the same, prepare status updates, escalate issues and assist various committees in review and issue resolution.

#### **10.8 Resolution of Administrative and Technical Issues**

Some of the issues such as acquisition of land, design parameters or treatment technologies can hold up the progress of the implementation of the Action Plan. The Program management team will continuously track and identify such issues and escalate to the appropriate level. The three tier monitoring and review system will help in resolving the issues.

#### **10.9 STPs under one Department**

Presently, STPs are under the control of the different organisations and different organisations are planning in their own way and there is no proper co-ordination. All STPs should be under one authority so that it becomes easy for planning, commissioning and ensuring proper operation and maintenance of the existing or upcoming STPs. In year 2013, the state government has taken a decision that the work related to construction, operation and maintenance of the STPs shall be taken over by the respective Municipal Corporations within their jurisdiction and by Punjab Water Supply and Sewerage Board (PWSSB) in respect of other local bodies. However, this policy decision has not been fully implemented, which

needs to be implemented and streamlined. There are few cities, where STPs are being run by the GLADA, which should be taken over by the respective local bodies/ PWSSB.

**10.10 Mixing of Industrial effluent with domestic wastewater**

- (i). Industrial effluents of the cities or towns should not be allowed to mix up with the domestic sewage. In the industrial cities like Ludhiana and Jalandhar where industrial effluents have been allowed to mix with domestic sewage, the whole machinery of STPs has been damaged decreasing their working capacity. Therefore, dedicated sewerage network for carrying industrial effluent should be laid.
- (ii). MC Ludhiana carried out sampling from various industries discharging their effluent into Municipal Sewer system to gauge the quantum of industrial outflow being discharged and its quality. PPCB objected to this that this sampling is incorrect as this falls outside the purview of MC Ludhiana. The sampling was got done by PBTI Mohali in presence of administration officials. The excess flow of about 182 MLD in Buddha Nallah still remains unresolved since MC Ludhiana claims it to be effluent coming from industries. Further, it needs to be worked out whether MC Ludhiana or any Municipal Corporation can carry out sampling from industries since industries are discharging their effluent into Municipal Sewer system and their monitoring by Corporations is essential to ensure that sewer system/STPs function properly.
- (iii). A number of scattered industries (running from households) are discharging their effluent directly into Municipal Sewer. A foolproof mechanism needs to be formulated for tapping the effluent of these industries.
- (iv). This issue needs to be resolved with Punjab Pollution Control Board and Municipal Corporation, Ludhiana.



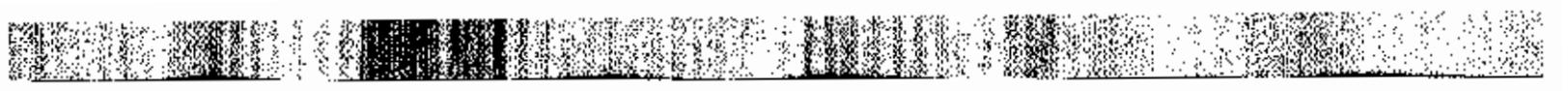
## Annexure A – Analysis results of Surface water monitoring under NWMP for Dec, 2018

S.N.	Point of Sample Collection	pH	DO mg/l	BOD mg/l	Cond $\mu$ s/Cm	T.Coli MPN/100ml	B mg/l	Quality of water as per DBU
1	River Sutlej at U/S Nangal	7.66	8.6	<1	215	170	0.13	B
2	River Sutlej at D/S NFL	7.76	8.4	<1	265	210	0.14	B
3	River Sutej at 100m D/s PACL Nangal	7.81	8.3	<1	262	210	0.17	B
4	River Sutlej at D/s Nangal	7.98	8.4	<1	234	150	0.24	B
5	River Sutlej at Kiratpur Sahib	7.86	8.1	<1	246	940	0.22	C
6	Roper Head-Works	7.13	7.9	<1	253	1400	0.13	C
7	River Sutlej D/S of Rishab- Paper Mills	7.86	7.3	1.6	460	2100	0.29	C
8	River Sutlej U/S Buddha Nallah	7.14	7.0	1.4	436	3200	0.16	C
9	River Sutlej at 100 mts D/s after Budha Nallah confluence, Ludhiana	7.07	3.6	26	723	7,90,000	0.25	E
10	River Sutlej at Boat Bridge, Dharamkot Nakodar Road	7.03	5.2	9	542	94,000	0.22	D
11	River Sutlej at D/s East Bein	7.7	3.8	10.2	610	35000	0.12	E
12	River Sutlej at Harike	8.1	6.2	4.2	306	14000	0.15	D
13	Harike Lake D/S from canal	7.9	7.5	1.8	234	3500	0.20	C
14	D/S Harike lake	7.7	7.4	2.0	242	3300	0.14	C
15	U/S Hussainiwala H/W Ferozepur	7.20	6.9	1.0	268	2200	0.10	C
16	D/S Hussainiwala H/W Ferozepur	7.41	7.0	1.1	275	2100	0.14	C

Note. 1. BDL means Below Method Detection Limit

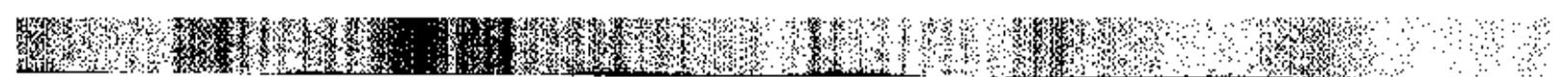
2. WQI means Water Quality Index (S means Satisfactory, N means not Satisfactory).

3. DBU means Designated Best Use (Class-A,B,C,D& E)



## Annexure B – Data of surface water monitoring under NWMP (Average values)

Year	Location	pH	DO mg/l	COD mg/l	BOD mg/l	Total Colliform MPN/10 0ml	FecalCollifor m MPN/100ml	Class as per DBU
2015	River Sutlej at U/S Nangal	7.7	8.3	<5	<1	57	27	B
2016		7.7	8.1	<5	<1	324	148	B
2017		7.8	8.0	<5	<1	369	174	B
2018		7.8	8.3	<5	<1	323	61	B
2015	Sutlej at 1 km D/S of Shree Rishab Papers	7.6	7.3	11	2.2	933	513	C
2016		7.8	7.6	8.1	1.3	855	355	C
2017		7.7	7.5	6.0	<1	1107	572	C
2018		7.8	7.9	<5	<1	1158	428	C
2015	Sutlej at U/S Budha Nallah (Upper)	7.5	6.3	5.9	1.3	500	228	B
2016		7.9	7.3	9.2	<1	895	324	C
2017		7.5	6.7	12.3	<1	2286	1119	C
2018		7.6	6.8	9.3	<1	2550	1053	C
2015	Sutlej at 100m D/S Budha Nallah Confl., Ludhiana	7.2	4.2	54	17	56000	38250	D
2016		7.5	4.1	69	21	41100	17140	D
2017		7.4	3.0	251	75	123083	71167	E
2018		7.3	3.0	218	54	535000	235556	E
2015	Sutlej at Boat Bridge Dharamkot Nakodar Road, Jalandhar	7.5	6.3	23	5	20410	9820	D
2016		7.7	6.3	44	11	28629	11838	D
2017		7.6	5.5	61	17	65167	31333	D
2018		7.5	5.3	72	19	107800	43333	D
2015	Sutlej at D/S East Bein	7.5	3.0	35	6.1	8750	4125	E
2016		6.8	2.3	49	9	2430	838	E
2017		7.2	1.1	54	12	2353	1145	E
2018		7.5	3.1	50	11	24742	15208	E
2015	Sutlej at Bridge Harike	7.6	5.3	11	2.6	920	550	C
2016		7.2	5.2	23	2.8	657	260	C
2017		7.1	4.9	25	3.1	1053	562	D
2018		7.6	5.6	26	3.7	14167	9517	D



## Annexure C – List of 30 Major drains directly discharging into River Sutlej

S.No.	Name of the drain	Point of origin	Approx length (in Km)	Location at which it meets river Sutlej	Approx. Discharge (MLD)
1.	Adhera Choe/Siswan nadi/Dulchi nadi	Siswan Dam	38.11	village beli kalan, Sri Chamkaur Sahib	200570
2.	Hussainpura Drain	Village Ladal and Hussainpur	3.04	village Katli, through ropar wet land	244.5
3.	Phool Drain	village phool	3.06	village Bara Phool	244.5
4.	Budh ki nadi	Himachal	36.58	Village Nahowal	129637
5.	Sarsa Nadi	Himachal Pradesh	6.10	Village Avaan Kot	
6.	Ladi Choe	Himachal Pradesh	3.04	Village Katli	537.90
7.	Main Seepage	Village Lodhipur	8.15	Through Naki Khadd near Gurudwara Patalpuri Sahib	579.46
8.	Kiratpur Choe	From hills near Kiratpur Sahib	1.0	Through Naki Khadd near Gurudwara Patalpuri Sahib	36.68
9.	Charan Ganga	From Nallah of Sri Anandpur Sahib	3.5	Near Village Lodhipur	22
10.	M.C.M. Drain (Lower)	Near Chamkaur Sahib	21.65	Mattewara Forest	909.876
11.	Budha Nallah	Near Machhiwara	40	Near Vill. Walipur	2768
12.	Jassowal Extension Drain	Khadoor	1.07	Near Vill. Sherewal	20730.754
13.	Kishanpura outfall drain	Near Village Karnal ke, Tehsil Dharamkot, Distt. Moga	11.28	Near Satluj, Village Sherewala, Tehsil Dharamkot, Distt. Moga	638.55
14.	Makhu drain	Near Village Nangal / Jogewala, Distt. Ferozepur	17.98	Near Village Dinne ke, downstream of Harike Head Works, Tehsil Zira, Distt. Ferozepur.	320.5
15.	Sukkar Nala Drain	Village Badowal, Distt. Moga	99.10	Near Village Masteke, Tehsil & Distt. Ferozpur	2083.76
16.	Phidda drain	Near Village Burj Duna, Distt. Moga	68.29	Near Village Langeana, close to international boundry, Tehsil & Distt. Ferozepur.	1663.67

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17.	Luthar Drain	Village Luthar, Tehsil & Distt. Ferozpur	5.18	Near Village Waghe Wala	280.6
18.	Mamdot Drain	Village Changa Makhana, Tehsil & Distt. Ferozpur	11.89	Near Village Mamdot Hithar	409.92
19.	Phidda outfall drain	Near Village Sehjadi, Tehsil & Distt. Ferozpur.	52.59	Near Village Gajni Wala, Tehsil Guru Har Sahai, Distt. Ferozpur.	12428.6
20.	Jiwan Arain Drain	Village Mohan Ke Uttar, Tehsil. Guru Har Sahai, Distt. Ferozpur	12.95	Near Village Issa Panj Grain, Tehsil Guru Har Sahai, Distt. Ferozpur	
21.	Jalalabad mauzzam drain	Near Village Chak Janisar, Tehsil Jalalabad, Distt. Fazilka	19	This drain fall into creek of river Satluj, at Village Walle Shah Uttar / Hasta Kalan, Tehsil & Distt. Fazilka.	--
22.	Salemshah Drain	Near Village Theh Qulandar, Tehsil & Distt. Fazilka	11.7	This drain falls into creek of river Satluj at village Muhar Jansher, Tehsil & Distt. Fazilka	--
23.	Fazilka Drain	Near to Fazilka town	5.3	Actual meeting poing with Sutlej in is Pakistan terrlatory 2 km from International boundary near to sulemanke headworks	--
24.	Rahon Drain	Usmanpur to Kazampur Road	8.47	Near Vill. Saidpur Kalan	5.62
25.	Balachaur Choe	South side of the road balachaur to ropar road	7.1	Balachaur discharge into Balachaur choe and does not reach to River Sutlej.	450
26.	Lasara Kadiana	Village Pandrawal	10.67	Near Qarbar Baba Jhandipir	-
27.	Theing Drain	Village Theing, Phillaur	5.4	Near Crossing Dhusi Bandh at Phillaur	03
28.	East Bein	Nawan Shahar	214.62	Near Mandala Pind	5000
29.	Patti Nalah	Village Rampur, District Gurdaspur	103.4	Village Kot Bughha	625
30.	Kasur Nalah	Village Tibbar, District Gurdaspur	157.276	Village Kalas	1125

## Annexure D – Subdrains leading to Main drains directly discharging into River Sutlej

Sr. No.	Name of the Sub drain	Point of origin	Approx Length (In Km)	Location at which the sub drain meets main drain	Approx. Discharge (MLD)
<b>M.C.M. Drain (lower)</b>					
1	M.C.M. Drain	Chamkaur Sahib	23.78	Near Panjgaraiyan	1891.846
2	Powat Drain	Near Village Powat	1.37	Near Powat	4.972
3	Old Machhiwara Drain	Near Machhiwara	5.12	Near Ropar Road, Machhiwara City	156.618
4	Burj Drain	Burj	6.10	Lakhowal Khurd	315.722
<b>Buddha Nallah</b>					
5	Kum Link Drain	Near Panjgaraiyan	14.29	Koom Kalan	933.45
6	Rakh Drain	near kum kalan	11.12	Village Koom	716.88
7	Rajgarh Drain	Village Rajgarh	3.65	Village Bhaman Kalan	363.42
8	Rakh feeder	Near	1.52	Marewal	154.33
9	Neelon Drain	Neelon Khurd	12.92	Near village Kum	1195.766
10	Dhande Drain	Near Neelon	4.27	Near village Kum on Ropar, Rahon Road	9.944
11	Dhande L/Drain	Near Neelon	1.37	Near village Kum on Ropar, Rahon Road	-
12	Neelon Feeder	Near Neelon	1.52	Near Neelon	4.972
13	Koom Drain	Near Koom	4.08	Near village Kum	295.834
14	Sherian 15 Drain	Near Neelon	4.42	Near Village Kum Kalan	94.468
15	Koom Feeder Drain	Near Kum Khurd	1.52	Near Kum Kalan	79.552
16	Jamalpur Drain	Jamalpur awana	3.66	Ludhiana	49.72
17	Barewal Drain	Near Barewal	2.90	Near Barewal	62.15
18	Birmi Drain	Near Birmi	4.5	Bardar Road, Kurali	89.496
19	Buddha Nallah (lower)	Near Jamalpur	32.62	Near Walipur	626.472
20	Porain Drain	Near Walipur	4.73	Near Walipur	310.75
21	Porain Link Drain	Near Walipur	3.96	Near Walipur	218.768
22	Bhaini Arayian Drain	Near Arayian	2.38	Near Arayian	154.132
23	Jassowal Drain	Chhokra	55.4	Hayatwala	11823.416
24	Sidhwan Bet Drain	Baraich	24.45	Malsian Bhaike	591.668
25	Swaddi Drain	Swaddi Kalan	9.45	Chimara	2120.558
26	Lalton Parnal Drain	Baddowal	14.27	Raqba	867.614
27	Jassowal Extension Drain	Bliah	8.38	Mohi	1362.328
<b>Kishanpura Outfall Drain</b>					
28	Kishanpura Drain	Near village Kishanpura Kalan, Tehsil Dharamkot, District Moga	9.1	Near village Ferozewala Bada, Tehsil Dharamkot	

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Sukkarnala Drain				
29	Zira Link Drain		15.2	Into Sukkarnala drain at Village Alipur.
30	Sarhali Drain	Near Village Fatehgarh Sabrawan	19.6	Into Sukkarnala drain at town Mallanwala.
Phidda Drain				
31	Ferozeshah Drain	Near Village Ratol Rohi, Tehsil Zira, Distt. Ferozepur	19.5	Village Bhamba Landa, Tehsil & Distt. Ferozepur.
32	Talwandi Bhai Drain	Vill. Kaliwala, Tehsil & Distt. Moga	12.4	vill. Haraj, Tehsil & Distt. Ferozpur
33	Daulatpura drain	Vill. Daulatpura, Tehsil & Distt. Moga	11.6	Into Talwandibhai Drain at vill. Mahesari sandhwan, Tehsil & Distt. Moga.
34	Moga Drain	Near Jagraon town	48.5	Village Chota Ghar, Tehsil Baghapurana Distt. Moga.
35	Ajitwal Drain	Near Jagraon town	21.3	Into Moga drain near village Mehna, Tehsil & District Moga.
36	Dagru Drain	Near village Khosa Kotla, Tehsil & District Moga	14.1	Near Village Phidda, Tehsil & District Ferozepur
37	Buttar Drain	From Pond of village Buttar, Tehsil Nihal Singh Wala, District Moga	33.2	At Village Chota Ghar, Tehsil Baghapurana Distt. Moga.
38	Attari Drain	Near vill attari		Near Village Phidda. 590.4
Jalalabad Mauzzam Drain				
39	Jalalabad main drain	Near Village Mare Khurd, Tehsil Guruharsahal, Distt. Ferozepur	39	Village Saide ke uttar, Tehsil Jalalabad, Distt. Fazilka. 2006.55
40	Barkat Wah Drain	Near Village Saido ke, Tehsil Guruharsahal Distt. Ferozepur.	31.6	Into Jalalabad main drain at Village Chak Sontaria, Tehsil Jalalabad, Distt. Fazilka. 921.2
41	Ladhuka drain	Near Village chack Sona Sandhar, Tehsil Jalalabad & Distt. Fazilka.	11	Into Jalalabad main drain at Village Chak Khunde, Tehsil Jalalabad, Distt. Fazilka. 774.2
42	Tarobari drain	Near Village Nurpur Kirpal ke, Tehsil & Distt. Muktsar.	18.4	Into Jalalabad main drain at Village Chak Hamid, Tehsil Jalalabad, Distt. Fazilka. 2557.8

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43	Langeana drain	Near Village Nathoke, Near to Channu wala Head Works of Abohar Branch, Tehsil Baghapurana Distt. Moga.	45.3	Into Langeana drain at Village Nurpur Kirpal ke, Tehsil & Distt. Muktsar, and combined drain is named as Tarobari drain.	1773.8
44	Langeana drain - 2	Near Village Nathoke, Near to Channu wala Head Works of Abohar Branch, Tehsil Baghapurana Distt. Moga.	12.3	Into Langeana Drain at village Demru Kalan, Tehsil Baghapurana.	997.15
45	Kaleka drain	Near Village Kaleka, Tehsil Baghapurana, Distt. Moga	6.4	Into Langeana drain at Village Kotla Mehar Singh, Tehsil Baghapurana, Distt. Moga.	3600
46	Gholia Drain	Near Village Gholia, Tehsil Baghapurana, District Moga	5.8	Into Langeana - 2 drain at Village Kotla Mehar Singh, Tehsil Baghapurana, Distt. Moga.	510
47	Deviwala drain	Near Village Deviwala, Tehsil Kotkapura Distt. Faridkot	9.6	Into Langeana drain at Village Nangal, Tehsil & Distt. Faridkot.	12369
48	Golewala drain	Near Village Sappanwali, Tehsil & Distt. Ferozepur	42.1	Into Langeana drain at Village Nurpur Kirpal ke, Tehsil & Distt. Muktsar and combined drain is named as Tarobari drain.	1000
49	Mudki drain	Near town Mudki, Tehsil & Distt. Ferozepur.	31.5	Into Golewala drain at Village Shivpura, Tehsil & Distt. Muktsar.	1000
50	Pacca diversion drain	Near Village Mahla Kalan, Tehsil Baghapurana, Distt. Moga	35	Into Langeana drain at Village Landa Roda, Tehsil & Distt. Muktsar.	12000
51	Mahla Drain	From Village Pond of village Mahla Khurd	7.6	Into Pacca Diversion Drain at village Jandwala, Tehsil & District Ferozepur.	505
52	Chandbhan Diversion drain	From vill. Chandbhan, Tehsil Gangsar Jaito Distt. Faridkot	28	Vill. Chak suhelawala, Tehsil Jalalabad Distt. Fazilka	17084.946

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53	Bhullar Link Drain	From Vill. Bhullar Tehsil & Distt. Sh. Mukatsar Sahib	5.11	Into Chandbhan Diversion drain near vill. Sotha, Tehsil & Distt. Sh. Mukatsar Sahib.	1100
54	Bassian Drain	From Vill. Bassian, Near Jagraon Distt Ludhiana	29.4	Into Chandbhan Diversion drain near vill. Krishangarh, Distt. Moga.	8569
55	Badhni Drain	Start from near abohar branch near Golian Kalan		Into Bassian drain near Village Minian	3000
56	Smadh Bhai Drain	Near Village Manooke Gill, Tehsil Nihal Singh Wala, District Moga	19.0	Into Chandbhan Diversion Drain at village Chandbhan, Tehsil Jaito, District Faridkot	728
57	Mari Drain	Near village Mari Mustfa, Tehsil Baghapurana, District Moga	12.8	Into Smadh Bhai Drain, Near Village Kothe Santa Singh Wala.	1500
58	Bura Gujjar drain	From Vill. Bura Gujjar, Tehsil & distt. Mukatsar Sahib	19.21	Into Jalalabad Mauzzam drain at vill. Chak subelawala, Tehsil Jalalabad Distt. Fazilka	-
59	Akal garh Link Drain	From Vill. Kotali Dewan, Tehsil & Distt. Sh. Mukatsar Sahib	5.10	Into Bura Gujjar drain at vill. Badhai, Tehsil & Distt. Sh. Mukatsar Sahib	-
<b>Fazilka Drain</b>					
60	Sabuana Drain	From Vill. Sabuana, Tehsil & distt. Fazilka	7.1	Near vill. Karian, Tehsil & Distt. Fazilka.	-
61	Abhul Khurana out fall Drain	Upscale of Bikaner kanal near Vill. Daneala Tehsil Abhor, Distt. Fazilka.	13.8	Into Sabuana Drain Near vill. Sabuana, Tehsil & Distt. Fazilka.	-
62	Abhul Khurana Drain	From Vill. Abhul Khurana, Tehsil Malout, Distt. Sh. Mukatsar Sahib	66.9	Into Abhul Khurana out fall Drain Near vill. Danewala, Tehsil Abhor & Distt. Fazilka.	-
63	Wahab Wala Drain	From Vill. Raike Kalan, Tehsil & Distt. Bathinda.	54.27	Into Abhul Khurana Drain Near vill. Wahab Wala, Tehsil Abhor & Distt. Fazilka.	-

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64	Malout Drain	From Vill. Ghumhar khera, tehsil Malout, Distt. Sh. Mukatsar Sahib	23.6	Into Abhul Khurana Drain Near vill. Bhadur Khera, Tehsil Abhor & Distt. Fazilka.	-
65	Aspal Drain	Vill. Karriwala, Tehsil Malout, Distt. Sh. Mukatsar Sahib	37.33	Into Khuikhera drain near vill. Khuikhera.	578
66	Bam Drain	Vill. Bam, Tehsil Malout, Distt. Sh. Mukatsar Sahib	20.28	Into Aspal drain near vill. Dharingwala, Distt. Fazilka.	149
67	Mehraj Link Drain	Near Vill. Lakhmirwala, Distt. Sh. Mukatsar Sahib	19.79	Into Aspal drain near vill. Gaddandob, Distt. Fazilka.	222
<b>East Bein</b>					
68	Kala Singhia Drain	Near vill Raowali	45.58	At Dhadha Lehna	672.8
69	City Outfall Drain	Near Urban Estate, Jalandhar	10.06	Village Pondari Rajputan	200
70	Taragarh Choe	Adampur	16.76	Bohari	3204.71
71	Jhandu Singhia Drain	Kishangarh	17.8	Nangal Fateh Khan	885.66
72	Lessriwal Drain	Dholike	11.70	Kapur Pind	2035.55
73	Alwalpur Drain	Alwalpur	4.6	Lessriwal	282.5
74	Chomman Drain	Chomman	3.0	Satowali	1
75	Nasrala Choe	starts in hoshiarpur	15.24	Dug	
76	Phagwara Sullage Drain	Plahi Gate Phagwara	14	Kukkar Pind	50
76	Jandiala Drain	Rurka Kalan	17.68	Chanapur	5
77	Kail Nallah	Behram	22.85	Madhopur	732.5
78	Khalwara Bahua	Bishanpur	6.24	Dhak Khalwara	1
79	Langroya Drain	Langroya	5.85	Near Gujjarpur Kalan	3.75
80	Bangi Gopalpur Drain	Kangraur	14.63	Near Goplapur	8.125
81	Mehlanwali Choe	Vil Chaunni Kalan	36		73.5
82	Chounni Choe	Vill Chak Sadhu	10		24.5
83	Changgran Choe	Vill Mal Mazara	09		19.6
84	Rajni Devi Choe	Vill cheta	36		49.0



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Annexure E – List of urban and rural areas discharging directly into river Sutlej

Sr No	Name of the source	Identification mark	Location / Coordinates at the outfall (latitude & Longitude)	Approximate Discharge (KLD)	Present treatment facility installed, if any
1	Nangal	D1	31°22'14" 76°22'02"	10200	Installed
			31°21'50" 76°22'17"		
2	Shri Anandpur Sahib	D2	31°13'33" 76°30'20"	2140	Installed
3.	Shri Kiratpur Sahib	D3	31°10'52" 76°33'35"	1000	STP proposed
4.	Roopnagar	D4	30°59'23" 76°31'28"	8000	Installed
			30°55'55" 76°31'11"		
5	Village Rattanpura Distt. Ropar	D5	31.02°06.2"N 76.34°20.2"E	90	Treatment proposed
6	Village Brahmipur Lower & Bandlehri Distt. Ropar	D6	31.649582°N 76.23°18.7"E	192	Treatment proposed
7.	Ferozepur	D7	30°57'07" 74°33'17"	14000	Installed
8.	Ludhiana (Bhattlah)	D8	30°59'38.1"N 75°49'58.2"E	161000	Installed
9.	Out fall of Bazigar Colony, Phillaur	D9	30°59'49"N 75°27'26"E	100	to be connected with STP Phillaur
10.	Out fall of STP 3 MLD South area of Phillaur	D10	30°59'27"N 75°46'08"E	1500	Installed
11.	Village Gag Dhagara	D11	75.59589 E 30.97611 N	50	Treatment proposed



**Annexure F – List of urban/ rural areas discharging indirectly into River Sutlej**

The list being voluminous has been uploaded on the website of Punjab Pollution Control Board i.e. [www.ppcb.gov.in](http://www.ppcb.gov.in).



## Annexure G - Total Towns discharging directly / Indirectly In River Sutlej

S.No	Towns	Sewerage generated in MLD	STP Exist (Yes/No) if yes, No of STP	Installed capacity of STP (MLD)	Quantity of Sewage discharged without treatment (MLD)	Disposal (Land, River, Drain or any other)
<b>A) Local Government</b>						
1	Ludhiana city	659	Yes(05)	466 (48-UASB, 50-SBR, 152-UASB, 111-UASB, 105-SBR)	11 * 2 new STP of capacity 50 MLD each at Jamalpur & Balloke proposed. Rehabilitation of existing 3 STPs at Village Bhattian, Balloke and Jamalpur, Ludhiana also proposed. 3 CETPs of	Budha nallah
2	Jalandhar City	314	Yes(06)	235 (100-UASB, 25-SBR, 25-SBR, 50-SBR, 10-SBR & 25-SBR)	79 * 2 new STP of capacity 50 MLD and 25 MLD proposed at Pholriwal and Basti Peer Dad respectively. Replacement of STP of capacity 100 MLD at Pholriwal also proposed.	Kala Sanghian drain, Garha drain, jaindusingh drain & MES drain
3	Phagwara	28	Yes(03)	36 (20-UASB, 8-MBBR & 8-MBBR)	0	Phagwara drain
4	Phillaur	3.6	Yes(02)	5.6 (3-MBBR & 2.6-WSP)	0	Tehang

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5	Nakodar	5	Yes(01)	6-SBR	0	East bein
6	Nawanshahar	6	Yes(01)	6-SBR	0	East bein
7	Banga	2.5	Yes(01)	3-SBR	0	East bein
8	Hoshiarpur	20	Yes(01)	30-MBBR	0	Nasrala drain to east drain
<b>B) Deptt. of Water Supply &amp; Sanitation</b>						
9	Shri Muktsar sahib	12.9	Yes(03)	17.9 (8.7-MBBR, 5.7-MBBR & 3.5-MBBR)	0	Chand bhan drain
10	Anandpur sahib	2.14	Yes(01)	8-MBBR	0	Sutlej
11	Baghapurana	3.41	Yes(01)	4-SBR	0	Local drain
<b>C) Deptt. of Housing &amp; Urban Development (GMADA)</b>						
12	Kurali	3	Yes(01)	5-SBR	0	Partially for irrigation and rest in Adhera Choe
<b>D) Punjab Water Supply &amp; Sewerage Board</b>						
13	Nangal	6	Yes(02)	13 (8-ASP & 5-ASP)	0	Directly into Sutlej
14	Garhshankar	2.5	No	0	2.5 * one new STP proposed	East bein
15	Machhiwara	3	Yes(01)	4-SBR	0	Budha nalla
16	sahnewal	3	Yes(01)	7-SBR	0	Budha nalla
17	Ropar	8	Yes(03)	14.5 (10-SBR, 2.5-SBR & 2-SBR)	0	Phool drain, budhkinad i hussainpur drain
18	Morinda	4	No	0	4* one new STP proposed	Dulchi Nadi
19	Balachaur	2.5	No	0	2.5* one new STP proposed	Gadhi Drain
20	Rahon	2	No	0	2* one new STP proposed	Machhiwara Drain
21	Kiratpur sahib	1	No	0	1* one new STP proposed	Lohundkhud
22	Jagraon	10	Yes(02)	28 (12-SBR & 16-SBR)	0	Nanaksar & Malik drain
23	Goniana	1.8	Yes(01)	3-WSP	0	Chanchan drain
24	Faridkot	12	No	0	12* one new STP proposed	Chand Bhan drain

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25	Jaitu	5	No	0	5* one new STP proposed	Jaitu chand bhan drain
26	Moga	50	Yes (01)	27-SBR	23* one new STP proposed	Fidda drain
27	Abohar	20	Yes (01)	25-SBR	0	Abulkhurana drain
28	Arniwala	1	No	0	1* one new STP proposed	Baam drain-ditch drain
29	Firozpur	14	No	0	14* one new STP proposed	Local drain
30	Kotkapura	12	No	0	12* one new STP proposed	Deviwala drain
31	Malout	10	Yes (02)	13 (3-WSP & 10-MBBR)	0	Ennakhera link drain
32	Dharamkot	3	Yes (01)	4-SBR	0	Masita drain
33	Pattl	5.5	No	0	5.5* one new STP proposed	Rohi
34	Makhu	2	Yes (01)	4-SBR	0	Makhu drain
35	Guruharsahai	3.5	No	0	3.5* one new STP proposed	Jalalabad - maujam drain
36	Talwandi Bhai	2	Yes (01)	4-SBR	0	Ferozshah drain
37	Zira	5	Yes (01)	8-MBBR	0	Zira drain
38	Maluka	1	No	0	1* one new STP proposed	Chanahan drain
39	Jalalabad	6	Yes(01)	8-MBBR	0	Jalalabad drain
40	Raikot	4	No	0	4* one new STP proposed	Local drain
41	Barriwala	1	No	0	1* one new STP proposed	SaraiNaya drain to chandbhan drain
42	Mamdöt	2	No	0	2* one new STP proposed	mamdöt-drain
43	Mallanwala	2	No	0	2* one new STP proposed	jattanwali drain
44	Mudki	1	No	0	1* one new STP proposed	Mudki drain
45	Bhai Roopa	1.5	No	0	1.5* one new STP proposed	Chand bhan drain
46	Bhagta Bhaika	1.5	No	0	1.5* one new STP proposed	Chand bhan drain
47	Kothaguru	1	No	0	1* one new STP proposed	Chand bhan drain
48	Mahilpur	1	No	0	1* one new STP proposed	Barsati Drain

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49	Nihal Singh wala	1	No	0	1* one new STP proposed	jwaharsinghwala drain
50	Gidarbaha	4.6	No	0	4.6* one new STP proposed	Bawania drain leading to Malout drain
<b>E) Deptt. of Bhakra Beas Management Board</b>						
51	Nangal	5.4	Yes(01)	6.75	0	Onto land for plantation (overflow)
<b>F) Deptt. of Military Engineering Services</b>						
52	M/s Garrison Engineer (East), MES Jalandhar Cantt	6	Yes	6.4 (3-MBBR, 3-MBBR, 0.4-MBBR)	0	Drain near village Sufi Pind, Jalandhar and further into ChittiBein near village Bambian
53	M/s Garrison Engineer (West), MES Jalandhar Cantt	2.5	Yes	3.0 (1.5-MBBR, 1.5-MBBR)	0	concrete oxidation pond through which effluent is discharged to Nallah leading to Garha drain
<b>G) PSIEC, Focal Point, Jalandhar</b>						
54	Focal Point, Jalandhar	1	No	0	1 *one STP proposed by PSIEC, Jalandhar	Into drain

## Annexure H - List of local bodies, which are without sewage conveyance system

Sr. No	Towns	Sewage Generation in MLD	STP Exist (Yes/NO) If Yes, no. of STPs	STP installed Capacity in MLD	Gap In Sewage Treatment in MLD	Disposal (Land, River, Drain or any other)	Catchment area (Sutlej/Beas)
1	Barriwala	1	No	0	1	SaraiNaya drain to chandbhan drain	Sutlej
2	Mamdot	2	No	0	2	mamdot drain	Sutlej
3	Mallahwala	2	No	0	2	jattanwali drain	Sutlej
4	Mudki	1	No	0	1	Mudki drain	Sutlej
5	Bhai Roopa	1.5	No	0	1.5	chanchan drain	Sutlej
6	Bhagta Bhaika	1.5	No	0	1.5	chanchan drain	Sutlej
7	Kothaguru	1	No	0	1	chanchan drain	Sutlej
8	Mahilpur	1	No	0	1	Barsat/ Drain	Sutlej
9	Nihal Singh wala	1	No	0	1	jwaharsinghwala drain	Sutlej

## Annexure I – HCF operating in the catchment area of River Sutlej

Sr. No	Town Name	No. of HCFs covered	No. of bedded HCFs	No. of non-bedded HCFs	No. of HCFs not made agreement with CBWTF
1	Nangal	40	18	22	0
2	Sri Anandpur Sahib	37	7	30	2
3	Ropar	90	25	65	0
4	Jalandhar	512	208	304	16
5	Ludhiana	807	402	405	50
6	Moga	142	90	52	0
7	Phagwara	150	56	94	11
8	Phillaur	42	18	24	0
9	Kurali	36	4	32	0
10	Banga	57	30	27	11
11	Hoshiarpur	214	74	140	0
12	SBS Nagar	94	45	49	9
13	Sri Kiratpur Sahib	10	5	5	0
14	Ferozpur	287	144	143	0
15	Zira	18	7	11	0
16	Machiwara	30	16	14	0
17	Dharamkot	3	0	3	0
18	Makhu	5	1	4	0
19	Talwandi Bhai	19	9	10	0



## Annexure I – Status of CBWTFs Facility wise details of area catered by the CBMWTF's

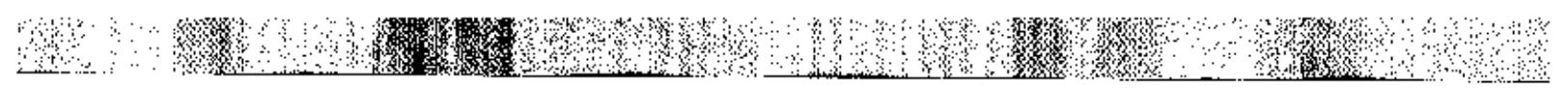
S. N.	Name & Address of the CBMWTF with contact person name and telephone no.	Name of the cities/ areas covered by CBMWTF	Total no. of beds covered	Total no. of HCFs covered	BMW Treatment kg/day	Installed Capacity
1.	M/s Rainbow Environment Pvt. Ltd. , Village Balyali, Mohali	SAS Nagar, Rupnagar, Fatehgarh Sahib, Nawa Shahar and partially from Jalandhar, Hoshiarpur & Kapurthala districts	17710	2867	Incineration-4730 Autoclaving-2925 Shredding-18000	
2.	M/s Amritsar Enviro Care System (P) Ltd. Village Ibban Kalan, Chabhal Road, Amritsar	Amritsar, Tarn Taran, Ferozepur, Faridkot and Mukatsar	16526	1572	Incineration-4400 Autoclaving-5850 Shredding-7200	
3.	M/s BMWT Trust, Vill. Pangoli, Defence Road, Distt. Pathankot	Distt. Pathankot & Distt. Gurdaspur, Jalandhar City 50 % + G T Road, Dasuya, Tanda, Mukerian & Kapurthala City.	8613	897	Incineration-3300 Autoclaving-4950 Shredding-15600	
4.	M/s Medicare Environmental Management (P) Ltd., Opp. Central Jail, Ludhiana	Ludhiana, Bathinda, Patiala, Sangrur, Barnala, Mansa, Moga.	27710	2790	Incineration-8800 Autoclaving-2790 Shredding-18000	
<b>Total</b>			<b>70559</b>	<b>8126</b>	Incineration-21230 Autoclaving-16515 Shredding-58800	



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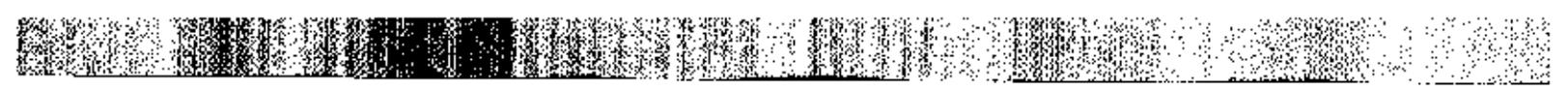
Annexure K – Status of hazardous waste generated as on 31.3.2018

S. N	Name of the District	No. Industries	Authorized Quantity of Hazardous Waste (Metric Tonne)				Quantity of Hazardous Waste generated as per Annual Return within the State/ UT (Metric Tonne)				
			1	2	3	4	5	6	7	8	9
				Landfillable	Incinerable	Recyclable	Utilizable	Landfillable	Incinerable	Recyclable	Utilizable
1	Hoshiarpur	12	1553	20	2140	25500	830.248	3.3	1288.95	20682.625	
	Shaheed Bhagat Singh Nagar	8	6470	3819.5	10883	350	4095	992.397	3535.3	289.9	
2	Jalandhar	593	3342.524	32.68	1869.11	0	3305.57	28.56	1829.11	0	
	Phagwara	52	125.76	158.2	1.25	-	24.8	141.18	0.57	-	
3	Faridkot	10	7.68	0	180.8	0.024	1.475	0	180	0	
	Moga	13	13.472	16	1326.48	1.33	10.0304	0.25	397.035	0	
	Ferozepur	4	0.135	0	120.84	0	0	0	120.72	0	
	Fazilka	3	6	0	1.25	21	1.92	0	0	0.32	
4	Ludhiana-1	485	4957.8	174.4	1714.76	62940.79	5336.34	78.875	1396.25	13573.1	
5	Ludhiana-2	253	2622.2	513.86	6307.48	328.87	2866.35	185.32	1574.05	135.6	
6	Ludhiana-3	232	1183.92	120.3	337.84	0	823.92	40	182.93	0	
7	Ludhiana-4	304	1764.735	211.097	297.07	1200	882.515	205.33	246.37	0	
8	Rupnagar	4	272.557	1.1	3322	1600	51.14	0	2144.319	1465.56	
	<b>Total</b>	<b>1973</b>	<b>22319.783</b>	<b>5067.137</b>	<b>28501.88</b>	<b>66092.014</b>	<b>18229.3084</b>	<b>1675.212</b>	<b>12895.604</b>	<b>15174.58</b>	



## Annexure I – List of schemes for utilization of treated wastewater

S.No.	Name of STP/Town	STP Capacity (MLD)	STP Technology	Area Irrigated (Hectares)	Remarks
<b>Irrigation Projects Commissioned</b>					
1.	Dharamkot	4	SBR	160	Irrigation Project Commissioned
2.	Goniana	3	WSP	102	Irrigation Project Commissioned
3.	Kurali (GMADA)	5	MBBR	130	Irrigation Project Commissioned, Damage to pipeline due to bypass construction, Repair Underway
4.	Malout, Distt. Shri Muktsar Sahib	3	WSP	160	Irrigation Project Commissioned
5.	Mukatsar (DWSS & AMRUT)	8.7	MBBR	480	Irrigation Project Commissioned
6.	Mukatsar -II	5.7	MBBR	185	Irrigation Project Commissioned
7.	Machhiwara, Distt. Ludhiana	4	SBR	40	Irrigation Project Commissioned
8.	Nakodar	6	SBR	180	Irrigation Project Commissioned
9.	Naya Nangal (STP NFL)	5	ASP	200	Irrigation Project Commissioned
10.	Phagwara, Distt. Kapurthala	20	UASB	455	Irrigation Project Commissioned
11.	Phagwara -II, Distt. Kapurthala	8	MBBR		Irrigation Project Commissioned
12.	Ropar-I	10	SBR	100	Irrigation Project Commissioned
13.	Ropar-II	2.5	SBR	80	Irrigation Project Commissioned
14.	Ropar-III	2	SBR	72	Irrigation Project Commissioned
15.	Phillaur, Distt. Jalandhar	3	WSP	75	Irrigation Project Commissioned
16.	Sham Churasi, Distt. Hoshiarpur	1	WSP	90	Irrigation Project Commissioned
17.	Jalalabad (DWSS)	8	WSP	--	Irrigation Project under Progress
18.	Phillaur-I	2.6	DWP	--	Irrigation Project under Progress



## Annexure M – Timelines for setting up of treatment facilities by Local Bodies

<b>(1) Municipal Corporation Ludhiana</b>			
<b>(i) Name of the Project: Commissioning of New STP of 50 MLD at Jamalpur, Ludhiana.</b>			
<b>Brief Scope of Work</b>		<b>Scope : 1 No. STP 50 MLD</b>	
<b>Sr.No</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds of Rs. 61.71 crores approved by SLTC.	
3	Tendering of the work including allotment	DNIT under preparation	
4	Commencement of work	DNIT under preparation	
5	Quarterly milestones during the construction stage	DNIT under preparation	
6	Completion and commissioning	31.12.2020	
<b>(ii) Name of the Project: Rehabilitation of Existing STP of Village Bhattian, Balloke and Jamalpur</b>			
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds of Rs. 18.91 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	
<b>(iii) Name of the Project: Construction of new additional STP of 50 MLD at Village Balloke, Ludhiana</b>			
<b>Sr. No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	15.01.2019	
2	Financial Closure	-	
3	Tendering of the work including allotment	-	
4	Commencement of work	-	
5	Quarterly Milestones during the construction stage	-	
6	Completion and Commissioning	01.04.2020	31.12.2020
<b>(2) Municipal Corporation, Jalandhar</b>			
<b>(i) Name of the Project: Replacement of STP located at Village Phofriwal, Jalandhar</b>			
<b>Brief Scope of Work</b>		<b>From 100 MLD UASB Technology with 100 MLD SBR Technology</b>	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	01.01.2019	28.02.2019
2	Financial Closure	30.11.2019	
3	Tendering of the work including allotment	01.12.2019	30.06.2020
4	Commencement of work	01.07.2020	
5	Quarterly milestones during the construction stage	01.12.2020	30.04.2020

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6	Completion and commissioning	31.10.2021	31.12.2021
<b>(ii) Name of the Project: Installation of STP of capacity 25 MLD at Basti Peer Dad, Jalandhar</b>			
1	Preparation of DPR	01.01.2019	28.04.2019
2	Financial Closure	30.11.2019	
3	Tendering of the work including allotment	01.12.2019	30.06.2020
4	Commencement of work	01.07.2020	
5	Quarterly Milestones during the construction stage	01.12.2020	30.04.2020
6	Completion and Commissioning	31.10.2021	31.12.2021
<b>(iii) Name of the Project: Installation of New STP at Village Pholriwal, Jalandhar</b>			
<b>Brief Scope of Work</b>		Installation of STP of 50 MLD SBR Technology	
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	01.01.2019	28.04.2019
2	Financial Closure	30.11.2019	
3	Tendering of the work including allotment	01.12.2019	30.06.2020
4	Commencement of work	01.07.2020	
5	Quarterly milestones during the construction stage	01.12.2020	30.04.2020
6	Completion and commissioning	31.10.2021	31.12.2021
<b>(3) Punjab Water Supply &amp; Sewage Board</b>			
<b>(i) Name of the Project : STP under installation at Arniwala.</b>			
<b>Brief Scope of Work</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	
3	Tendering of the work including allotment	Started	Completed
4	Commencement of work	Started	31.12.2019
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	01.01.2020	31.03.2020
<b>(ii) Name of the Project : STP under Installation at Ferozepur.</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	
3	Tendering of the work including allotment	Started	Completed
4	Commencement of work	Started	31.12.2019
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	01.01.2020	31.03.2020
<b>(iii) Name of the Project : STP under installation at Guru Har Sahai</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	

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3	Tendering of the work including allotment	Started	Completed
4	Commencement of work	Started	31.12.2019
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	01.01.2020	31.03.2020

(iv) Name of the Project : STP under installation at Jaito

Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	
3	Tendering of the work including allotment	Started	Completed
4	Commencement of work	Started	30.04.2019
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	01.05.2019	31.07.2019

(v) Name of the Project : STP under installation at Kotkura

Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	
3	Tendering of the work including allotment	Started	Completed
4	Commencement of work	Started	30.06.2019
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	01.07.2019	30.09.2019

(vi) Name of the Project : STP under installation at Morinda

Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	
3	Tendering of the work including allotment	Started	Completed
4	Commencement of work	Started	31.03.2019
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	01.04.2019	30.06.2019

vii) Name of the Project : STP under installation at Gidderbaha

Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	
3	Tendering of the work including allotment	Started	Completed
4	Commencement of work	Started	30.06.2019
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	01.07.2019	30.09.2019

<b>ix) Name of the Project : Construction of STP whose work is yet to be started-Balachaur</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	
3	Tendering of the work including allotment	Started	31.07.2019
4	Commencement of work	01.08.2019	31.07.2020
5	Quarterly milestones during the construction stage	25 %	-
6	Completion and commissioning	01.08.2020	31.10.2020
<b>x) Name of the Project : Construction of STP whose work is yet to be started-Garhshankar</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	
3	Tendering of the work including allotment	Started	31.07.2019
4	Commencement of work	01.08.2019	31.07.2020
5	Quarterly milestones during the construction stage	25 %	-
6	Completion and commissioning	01.08.2020	31.10.2020
<b>xi) Name of the Project : Construction of STP whose work is yet to be started-Maluka</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	
3	Tendering of the work including allotment	Started	31.07.2019
4	Commencement of work	01.08.2019	31.07.2020
5	Quarterly milestones during the construction stage	25 %	-
6	Completion and commissioning	01.08.2020	31.10.2020
<b>xii) Name of the Project : Construction of STP whose work is yet to be started-Rahon</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	
3	Tendering of the work including allotment	Started	31.07.2019
4	Commencement of work	01.08.2019	31.07.2020
5	Quarterly milestones during the construction stage	25 %	-
6	Completion and commissioning	01.08.2020	31.10.2020
<b>xiii) Name of the Project : Construction of STP whose work is yet to be started-Samrala</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	
3	Tendering of the work including allotment	Started	31.07.2019
4	Commencement of work	01.08.2019	31.07.2020
5	Quarterly milestones during the construction stage	25 %	-
6	Completion and commissioning	01.08.2020	31.10.2020

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xiv) Name of the Project : Construction of STP whose work is yet to be started-Faridkot			
Sr.No	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	
3	Tendering of the work including allotment	Tender allotted but land is being finalised.	
4	Commencement of work	Work will be started after possession of land - T	T+12 months
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T+12 months	T+15 months
xv) Name of the Project: Construction of STP whose work is yet to be started - Patti			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	
3	Tendering of the work including allotment	Land being finalised and tendering will be started after possession of land - T	T+6 months
4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	-
6	Completion and commissioning	T+18 months	T+21 months
xix) Name of the Project : Towns where sewage system does not exist - Barriwala			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure	T	
3	Tendering of the work including allotment	T + 3 months	T+6 months
4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
xx) Name of the Project : Towns where sewage system does not exist - Bhagta Bhaika			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure	T	
3	Tendering of the work including allotment	T + 3 months	T+6 months
4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
xxi) Name of the Project : Towns where sewage system does not exist - Bhai Roopa			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure	T	
3	Tendering of the work including allotment	T + 3 months	T+6 months

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4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
<b>xxiv) Name of the Project : Towns where sewage system does not exist - Kotha Guru</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure		T
3	Tendering of the work including allotment	T + 3 months	T+6 months
4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
<b>xxvii) Name of the Project : Towns where sewage system does not exist - Mahilpur</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure		T
3	Tendering of the work including allotment	T + 3 months	T+6 months
4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
<b>xxix) Name of the Project : Towns where sewage system does not exist - Mallan Waia</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure		T
3	Tendering of the work including allotment	T + 3 months	T+6 months
4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
<b>xxx) Name of the Project : Towns where sewage system does not exist - Mamdot</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure		T
3	Tendering of the work including allotment	T + 3 months	T+6 months
4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
<b>xxxi) Name of the Project : Towns where sewage system does not exist - Mudki</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure		T
3	Tendering of the work including allotment	T + 3 months	T+6 months

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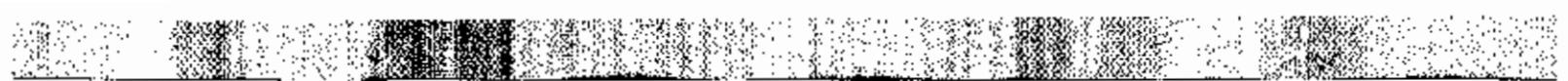
4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
<b>xxxii) Name of the Project : Towns where sewage system does not exist - Nihal Singh Wala</b>			
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure		T
3	Tendering of the work including allotment	T + 3 months	T+6 months
4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
<b>xxxiii) Name of the Project : Towns where sewage system does not exist - Ralkot</b>			
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure		T
3	Tendering of the work including allotment	T + 3 months	T+6 months
4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
<b>xxxiv) Name of the Project : STP Moga</b>			
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure		T
3	Tendering of the work including allotment	T + 3 months	T+6 months
4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
<b>xxxv) Name of the Project : STP Phillaur</b>			
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure		T
3	Tendering of the work including allotment	T + 3 months	T+6 months
4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
<b>xxxvi) Name of the Project : STP Sham Churasi</b>			
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure		T
3	Tendering of the work including allotment	T + 3 months	T+6 months

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4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
<b>xxxvi) Name of the Project : STP Goniana</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure	T	
3	Tendering of the work including allotment	T + 3 months	T+6 months
4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
<b>xxxvii) Name of the Project : STP Malout</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	14.01.2019	31.03.2019
2	Financial Closure	T	
3	Tendering of the work including allotment	T + 3 months	T+6 months
4	Commencement of work	T+6 months	T+18 months
5	Quarterly milestones during the construction stage	25 %	T + 18 months
6	Completion and commissioning	T+18 months	T+21 months
<b>4) Department of Water Supply Of Sanitation</b>			
<b>(i) Name of the Project: Repair of existing STPs installed Shri Muktsar Sahib and installation of continuous online effluent monitoring system.</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Under preparation (AMRUT Project)	31.01.2019
2	Financial Closure	836.66 Lakhs	
3	Tendering of the work including allotment	15.03.2019	15.05.2019
4	Commencement of work	01.06.2019	-
5	Quarterly milestones during the construction stage	01.06.2019 01.07.2019 01.10.2019	01.07.2019 01.08.2019 30.11.2019
6	Completion and commissioning	30.11.2019	31.12.2019
<b>(ii) Name of the Project: Sewage facility in complete city (Shri Muktsar Sahib).</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Under preparation (AMRUT Project)	31.01.2019
2	Financial Closure	Rs. 58.63 Crores	
3	Tendering of the work including allotment	15.03.2019	15.05.2019
4	Commencement of work	01.06.2019	-
5	Quarterly milestones during the construction stage	01.06.2019 01.06.2020 01.06.2021	01.06.2020 01.06.2021 01.11.2021

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6	Completion and commissioning	30.11.2021	31.12.2021
<b>(iii) Name of the Project: Upgradation of existing STP installed at Shri Anandpur Sahib</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Under preparation	31.03.2019
2	Financial Closure	8 Crore	
3	Tendering of the work including allotment	15.05.2019	30.06.2019
4	Commencement of work	31.07.2019	-
5	Quarterly milestones during the construction stage	01.08.2019 01.11.2019 01.02.2020 01.05.2020	01.11.2019 01.02.2020 01.05.2020 01.08.2020
6	Completion and commissioning	30.11.2021	31.12.2021
<b>(iv) Name of the Project: Upgradation of sewage system of Shri Anandpur Sahib.</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Under preparation	15.02.2019
2	Financial Closure	Rs. 8.28 Crore	
3	Tendering of the work including allotment	15.03.2019	15.05.2019
4	Commencement of work	01.06.2019	-
5	Quarterly milestones during the construction stage	01.06.2019 16.08.2019 01.10.2019 16.11.2019	15.08.2019 30.09.2019 15.11.2019 31.12.2019
6	Completion and commissioning	30.11.2019	31.12.2019
<b>xiii) Name of the Project : Construction of STP whose work is yet to be started-Kiratpur Sahib</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up with HUDCO	
3	Tendering of the work including allotment	Started	31.07.2019
4	Commencement of work	01.08.2019	31.07.2020
5	Quarterly milestones during the construction stage	25 %	-
6	Completion and commissioning	01.08.2020	31.10.2020



## Annexure N - Timelines for installation of STP for Focal Point, Jalandhar

1) Name of the Project: STP for Focal Point, Jalandhar			
Brief Scope of Work		--	
Sr.No	Stage	Start Date	Completion Date
1	Preparation of DPR	Yet to prepare	
2	Financial Closure	Pending	
3	Tendering of the work including allotment	Pending	
4	Commencement of work	Yet to start	
5	Quarterly milestones during the construction stage	Yet to start	
6	Completion and commissioning	Yet to provide by PSIEC	

## Annexure N1 - Timelines for installation of CETPs of Dyeing units

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	80% completed.	
6	Completion and commissioning	31.03.2019	
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	70 % completed.	
6	Completion and commissioning	31.08.2019	
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	30% completed.	
6	Completion and commissioning	31.01.2020	

## Annexure O –Upgradation of 5 MLD CETP of Tanneries, Leather Complex, Jalandhar

1) Name of the Project: Punjab Effluent Treatment Society for Tanneries, Leather Complex, Jalandhar-Upgradation/modification of 5 MLD CETP of Tanneries.			
Brief Scope of Work		Scope : Upgradation/modification of 5 MLD CETP.	
Sr.No	Stage	Start Date	Completion Date
1	Preparation of DPR	Preparation of DPR for the up-gradation/modification has been assigned to M/s Chennai Environmental Management Company of Tanners, Chennai vide letter No. PETS/18-19/2287 dated 18.12.2018 and the draft DPR shall be ready by 15 <sup>th</sup> Feb.2019 and the same shall be submitted for appraisal to Project Management Consultant viz. CLRI, Chennai and after appraisal, the DPR shall be submitted to DIPP, Govt. of India for according approval of the Project by 31 <sup>st</sup> March,2019.	
2	Financial Closure	-----	
3	Tendering of the work including allotment	Open tender is expected to be floated to invite bids through e-tendering in the 1 <sup>st</sup> week of April, 2019.	
4	Commencement of work	Commencement of work is expected to be undertaken by the end of 1 <sup>st</sup> quarter of 2019-20.	
5	Quarterly milestones	GOI as per Central Sector Scheme-"Indian Footwear, Leather & Accessories Development Programme" (IFLADP scheme) shall release 70% of the Project Cost as grant in aid in four equal instalments and thus the quarterly achievements shall be 25% for each quarter.	
6	Completion and commissioning	Modification/Upgradation of the CETP is expected to be completed by 31 <sup>st</sup> March, 2020 and the upgraded/modified CETP simultaneously start its commencement of effluent treatment on continuous basis.	



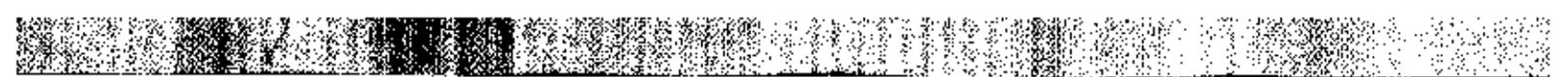
## Annexure P – Timelines for ETP for Dairy Complex, Ludhiana

<b>(i) Name of the Project: Treatment of Effluent generated from dairy complex located at Tajpur and Haibowal, Ludhiana</b>			
<b>Brief Scope of Work</b>		<b>Scope: 2 No. ETPs of 05MLD capacity and 10 MLD Capacity</b>	
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
<b>(ii) Name of the Project: Installation of Bio-gas power plant Jamsher Dairy Complex, Jalandhar</b>			
1	Preparation of DPR	Prepared	Already approved
2	Financial Closure	-	-
3	Tendering of the work including allotment	Started.	Done
4	Commencement of work	-	-
5	Quarterly Milestones during the construction stage	-	-
6	Completion and Commissioning	30.11.2019	31.12.2019
<b>(iii) Name of the Project: Installation of ETP of 5 MLD Capacity at Jamsher Dairy Complex, Jalandhar</b>			
1	Preparation of DPR	01.01.2019	28.04.2019
2	Financial Closure	30.11.2019	
3	Tendering of the work including allotment	01.12.2019	30.06.2020
4	Commencement of work	01.07.2020	
5	Quarterly Milestones during the construction stage	01.12.2020	30.04.2020
6	Completion and Commissioning	31.08.2021	30.09.2021



## Annexure Q – 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 will be complete as on 30.06.2019. 100% commissioning will be complete as on 30.09.2019.
6	Completion and Commissioning	-	30.09.2019



## Annexure R – Timelines for setting up of treatment facilities in Rural areas

Phase – 1			
Brief Scope of Work		Treatment facilities for villages having discharge more than or equal to 200 KLD	
Sr.N o.	Stage	Start Date	Completion Date
1	Preparation of DPR	1.3.2019	31.5.2019
2	Financial Closure	1.6.2019	31.7.2019
3	Tendering of the work including allotment	1.8.2019	30.9.2019
4	Commencement of work	1.10.2019	31.12.2019
5	Quarterly milestones during the construction stage		
6	Completion and commissioning	1.1.2020	31.1.2020
Phase – 2			
Brief Scope of Work		Treatment facilities for villages having discharge between 100 KLD to 200 KLD	
1	Preparation of DPR	1.1.2020	31.3.2020
2	Financial Closure	1.4.2020	30.6.2020
3	Tendering of the work including allotment	1.7.2020	31.8.2020
4	Commencement of work	1.9.2020	31.12.2020
5	Quarterly milestones during the construction stage		
6	Completion and commissioning	1.1.2021	31.1.2021
Phase – 3			
Brief Scope of Work		Treatment facilities for villages having discharge less than 100 KLD	
Sr.N o.	Stage	Start Date	Completion Date
1	Preparation of DPR	1.2.2021	30.4.2021
2	Financial Closure	1.5.2021	30.6.2021
3	Tendering of the work including allotment	1.7.2021	31.8.2021
4	Commencement of work	1.9.2021	31.12.2021
5	Quarterly milestones during the construction stage		
6	Completion and commissioning	1.1.2022	31.1.2022



## Annexure 5 – Timelines for providing irrigation schemes to utilize the treated sewage

Name of Project		Utilization of Treated Water from Sewerage Treatment Plants (STP's) situated in Sutlej Catchment	
Brief Scope of Project		The project involves laying network of underground pipelines from Sewerage Treatment Plants for conveyance of treated water for irrigation in agricultural fields. Of total planned STP's in Sutlej catchment, installation of irrigation projects from 70 completed, under progress or planned STP's an amount of Rs. 132.82 cr shall be required for installation of irrigation infrastructure from these STP's. This requirement does not include STP's wherein irrigation projects are not feasible mainly due to non availability of irrigation command near these STP's because of these being located in urbanized area. The department has already commissioned irrigation projects from 16 STP's whereas 4 irrigation projects are under progress in STP's located in Sutlej catchment	
S.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Projects already proposed to Govt and State for funding (132.82 cr required)	T
3	Tendering of Work including allotment	T+1 month	T+4 months
4	Commencement of Work	T+5 months*	T+11 months*
5	Quarterly Milestone during construction Stage	NA	NA
6	Completion and Commissioning	T+11 to T+18 months	T+14 to T+20 months

\*Delay in commencement of work after funding and tendering process is mainly because as irrigation pipeline has to be laid in agricultural fields, due to which irrigation projects can be installed during harvest season. It shall depend upon month of availability of funds for projects, i.e. why period of 1 month upto 6 month has been identified in commencement of work

## Fund Requirement for Individual Irrigation Projects from STP's

S.No.	Name of STP/Town	STP (MLD)	STP Technology	Irrigation Project Status		Remarks
				Yes/No	Funds Requirement	
<b>STPs FUNCTIONAL</b>						
<b>Irrigation Projects Commissioned</b>						
1	Anandpur Sahib (DWSS)	8	MBBR	Yes/Partially Functional		Irrigation Project was functional for 5 years, Railways changed the crossing point of pipeline. Revised permission obtained from Railways. Work underway
2	Dharamkot	4	SBR	Yes		Irrigation Project Commissioned
3	Goniana	3	WSP	Yes		Irrigation Project Commissioned
4	Kurali (GMADA)	5	MBBR	Yes		Irrigation Project Commissioned, Damage to pipeline due to bypass construction, Repair Underway
5	Malout	3	WSP	Yes		Irrigation Project Commissioned
6	Mukatsar (DWSS & AMRUT)	8.7	MBBR	Yes		Irrigation Project Commissioned
7	Mukatsar-II	5.7	MBBR	Yes		Irrigation Project Commissioned
8	Machhiwara	4	SBR	Yes		Irrigation Project Commissioned
9	Nakodar	6	SBR	Yes		Irrigation Project Commissioned
10	Nangal	8	ASP	Yes		Irrigation Project Commissioned
11	Phagwara	20	UASB	Yes		Irrigation Project Commissioned
12	Phagwara -II	8	MBBR	Yes		Irrigation Project Commissioned
13	Ropar-I	10	SBR	Yes		Irrigation Project Commissioned
14	Ropar-II	2.5	SBR	Yes		Irrigation Project Commissioned
15	Ropar-III	2	SBR	Yes		Irrigation Project Commissioned
	<b>Total</b>	<b>97.9</b>				
<b>Irrigation Projects under Progress</b>						
16	Jalalabad (DWSS)	8	WSP	Yes		Irrigation Project under Progress

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17	Phillaur-I	2.6	DWP	Yes		Irrigation Project under Progress
	<b>Total</b>	<b>10.6</b>				
	<b>Funding Required for Irrigation Projects</b>					
18	Abohar (AMRUT)	25	SBR	No	685.00	Funds to be tied up, Proposed under NABARD-RIDF-24
19	Hoshiarpur (AMRUT)	30	MBBR	No	925.00	Funds to be Tied up
20	Jalandhar-III	25	SBR	No	910.00	Funds to be Tied up
21	Jalandhar-IV	25	SBR	No	875.00	Funds to be Tied up
22	Jalandhar-V	25	SBR	No	890.00	Funds to be Tied up
23	Jalandhar-VI	10	SBR	No	425.00	Funds to be tied up, Proposed under NABARD-RIDF-24
24	Jagraon-I	16	SBR	No	625.00	Funds to be tied up, Proposed under NABARD-RIDF-24
25	Jagraon-II	12	SBR	No	470.00	Funds to be tied up, Proposed under NABARD-RIDF-24
26	Malout-II	10	MBBR	No	385.00	Funds to be Tied up
27	Moga (AMRUT)	27	SBR	No	1293.00	Funds to be tied up, Proposed under NABARD-RIDF-24
28	Mukatsar -III	3.5	MBBR	No	125.00	Funds to be Tied up
29	Nangal-II	5	ASP	No	225.00	Funds to be Tied up. Blind line to be laid as command in away from STP
30	Nawanshahar	6	SBR	No	204.00	Funds to be Tied up
31	Phillaur-II	3	MBBR	No	83.00	Funds to be Tied up
32	Sahnewal	7	SBR	No	227.00	Funds to be Tied up
33	Zira	8	MBBR	No	306.00	Funds to be tied up, Proposed under NABARD-RIDF-24
	<b>Total</b>	<b>237.5</b>			<b>8653.00</b>	
	<b>Irrigation Projects Not Feasible</b>					
34	Jalandhar -I	100	UASB	No		Irrigation Project Not Feasible
35	Jalandhar-II	50	SBR	No		Feasibility Study being Conducted
36	Ludhiana-I	152	UASB	No		Irrigation Project Not Feasible
37	Ludhiana-II	111	UASB	No		Irrigation Project Not Feasible
38	Ludhiana-III	48	UASB	No		Irrigation Project Not Feasible
39	Ludhiana-IV	105	SBR	No		Irrigation Project Not Feasible
40	Ludhiana-V	50	SBR	No		Irrigation Project Not Feasible
41	Phagwara-III	8	MBBR	No		Farmers not willing to use treated water
	<b>Total</b>	<b>624</b>				
	<b>Grand Total</b>	<b>970</b>			<b>8653.00</b>	
<b>B</b>	<b>STPs UNDER CONSTRUCTION</b>					
	<b>Funding Required for Irrigation Projects</b>					
42	Jaftu	6	SBR	No	196.00	Funds to be Tied up
43	Arniwala	2	SBR	No	56.00	Funds to be Tied up
44	Baghapurana (DWSS)	3.8	MBBR	No	145.00	Funds to be Tied up
45	Kotkapura-I	8	SBR	No	304.00	Funds to be Tied up

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46	Kotkapura-II	6	SBR	No	265.00	Funds to be Tied up
47	Ferozepur (AMRUT)	18	SBR	No	825.00	Funds to be Tied up
48	Gidderbaha	7	MBBR	No	225.00	Funds to be Tied up
49	Guruharsahai-I	4	SBR	No	106.00	Funds to be Tied up
50	Guruharsahai-II	1	SBR	No	38.00	Funds to be Tied up
51	Makhu	4	SBR	No	170.00	Funds to be Tied up
52	Morinda	5.5	SBR	No	185.00	Funds to be Tied up
53	Talwandi Bhai	4	SBR	No	165.00	Funds to be tied up, Proposed under NABARD-RIDF-24
	<b>Total (B)</b>	<b>69.3</b>			<b>2680</b>	
<b>C</b>	<b>STPS PROPOSED TO BE CONSTRUCTED</b>					
	<b>Funding Required for Irrigation Projects (Tentative)</b>					
54	Ferozepur (AMRUT)	1		No	32.00	Funds to be Tied up
55	Balachaur	4		No	113.00	Funds to be Tied up
56	Rahon	3		No	95.00	Funds to be Tied up
57	Patti	8		No	200.00	Funds to be Tied up
58	Samrala	4		No	109.00	Funds to be Tied up
59	Faridkot	14		No	410.00	Funds to be Tied up
60	Garhshankar	3		No	94.00	Funds to be Tied up
61	Maluka	1		No	32.00	Funds to be Tied up
62	Mukatsar	10		No	375.00	Funds to be Tied up
63	Kiratpur Sahib	2		No	55.00	Funds to be Tied up
	<b>Total (C)</b>	<b>50</b>			<b>1515</b>	
	<b>GRAND TOTAL</b>	<b>1089.3</b>			<b>12848</b>	

## Annexure T - (1) Installation of online continuous effluent monitoring system on STPs

<b>(1) PWSSB for the STPs already in operation in the towns namely Phagwara, Phillaur, Nakodar, Nawanshehar, Hoshiarpur, Banga, Machiwara, Nangal, Sahnewal, Ropar, Jagraon, Moga, Abohar, Malout, Dharamkot, Makhu, Talwandi Bhai, Zira, Gonia</b>			
<b>Name of the Project</b>		<b>All Existing STPs where maintenance is with PWSSB</b>	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Financial Closure	7.1.2019	31.03.2019
2	Tendering of the work including allotment	1.4.2019	30.06.2019
3	Commencement of the work	1.7.2019	30.9.2019
4	Completion and commissioning	1.10.2019	30.11.2019
<b>PWSSB for the STPs already in operation in the towns namely Jalalabad</b>			
<b>Name of the Project</b>		<b>All Existing STPs where maintenance is with PWSSB</b>	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Financial Closure		
2	Tendering of the work including allotment	10.3.2019	2.4.2019
3	Commencement of the work	7.4.2019	6.7.2019
4	Completion and commissioning	6.7.2019	10.7.2019
<b>(1) Department of Water supply &amp; sanitation</b>			
<b>(i) Name of the Project: Installation of continuous online effluent monitoring system of STP Shri Anandpur Sahib.</b>			
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under preparation	15.2.2019
2	Financial Closure		Rs. 8.28 Crore
3	Tendering of the work including allotment	15.03.2019	15.05.2019
4	Commencement of work	01.06.2019	-
5	Quarterly milestones during the construction stage	01.06.2019	15.08.2019
		16.08.2019	30.09.2019
		01.10.2019	15.11.2019
		16.11.2019	31.12.2019
6	Completion and commissioning	30.11.2019	31.12.2019
<b>(2) Grater Mohali Area Development Authority, Department of Housing and Urban Development</b>			
<b>(i) Name of the Project: Installation of continuous online effluent monitoring system of STP Kurafi</b>			
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	-	-
2	Financial Closure	10.1.2019	31.3.2019
3	Tendering of the work including allotment	5.4.2019	10.5.2019
4	Commencement of work	15.5.2019	30.6.2019
5	Quarterly milestones during the		

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	construction stage		
6	Completion and commissioning	30.6.2019	30.6.2019

(i) Name of the Project: Installation of continuous online effluent monitoring system of STP Shri Muktsar Sahib

Sr. No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Under Preparation (AMRUT Project)	31.1.2019
2	Financial Closure	836.66 Lakhs	
3	Tendering of the work including allotment	15.3.2019	15.5.2019
4	Commencement of work	01.06.2019	-
5	Quarterly milestones during the construction stage	01.06.2019 01.07.2019 01.10.2019	01.07.2019 01.08.2019 30.11.2019
6	Completion and commissioning	30.11.2019	31.12.2019

(2) Municipal Corporation, Ludhiana

Name of the Project		All STPs of Ludhiana	
Brief Scope of the Project		Online Continuous Monitoring System	
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR		28.12.2018 (Completed)
2	Financial Closure	31.12.2018	01.02.2019
3	Tendering of the work including allotment	14.02.2019	28.03.2019 (Issue of LOA)
4	Commencement of the work		15.04.2019
5	Completion and commissioning		30.06.2019

(3) Municipal Corporation Jalandhar

Name of the Project		STP 100 MLD Pholriwal & 25 MLD Pholriwal	
Brief Scope of the Project		Online Continuous Monitoring System	
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	01.01.2019	31.01.2019
2	Financial Closure		31.03.2019
3	Tendering of the work including allotment	01.04.2019	22.04.2019
4	Commencement of the work		08.07.2019
5	Completion and commissioning	01.10.2019	31.12.2019

## Annexure T - (2) Installation of CCTV cameras for the STPs already in operation

<b>(1) PWSSB for the STPs already in operation in the towns namely Phagwara, Phillaur, Nakodar, Nawanshehar, Hoshiarpur, Banga, Machiwara, Nangal, Sahnewal, Ropar, Jagraon, Moga, Abohar, Malout, Dharamkot, Makhu, Talwandi Bhai, Zira, Goniana</b>			
<b>Name of the Project</b>		All Existing STPs where maintenance is with PWSSB	
<b>Brief Scope of the Project</b>		Installation of CCTV cameras	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Financial Closure	05.01.2019	15.02.2019
2	Tendering of the work including allotment	15.02.2019	31.03.2019
3	Commencement of the work	01.04.2019	15.04.2019
4	Completion and commissioning	15.04.2019	30.04.2019
<b>PWSSB for the STPs already in operation in the towns namely Jafalabad</b>			
<b>Name of the Project</b>		All Existing STPs where maintenance is with PWSSB	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Financial Closure		
2	Tendering of the work including allotment	10.3.2019	2.4.2019
3	Commencement of the work	7.4.2019	6.7.2019
4	Completion and commissioning	6.7.2019	10.7.2019
<b>(2) Greater Ludhiana Area Development Authority</b>			
<b>Name of the Project</b>		Kurali, Distt. Mohall.	
<b>Brief Scope of the Project</b>		Installation of CCTV cameras	
<b>1</b>	<b>Financial Closure</b>	<b>10.01.2019</b>	<b>31.03.2019</b>
<b>2</b>	<b>Tendering of the work including allotment</b>	<b>05.04.2019</b>	<b>10.05.2019</b>
<b>3</b>	<b>Commencement of the work</b>	<b>15.05.2019</b>	<b>30.06.2019</b>
<b>4</b>	<b>Completion and commissioning</b>	<b>30.06.2019</b>	<b>30.06.2019</b>
<b>(3) Department of Water Supply &amp; Sanitation</b>			
<b>(i)</b>	<b>Name of the Project</b>	<b>STP of Shri Anandpur Sahib</b>	
<b>Brief Scope of the Project</b>		Installation of CCTV cameras	
<b>1</b>	<b>Financial Closure</b>	<b>Rs. 1.20 Lacs</b>	
<b>2</b>	<b>Tendering of the work including allotment</b>	<b>15.02.2019</b>	<b>15.04.2019</b>
<b>3</b>	<b>Commencement of the work</b>	<b>22.04.2019</b>	
<b>4</b>	<b>Completion and commissioning</b>		<b>10.05.2019</b>
<b>(ii)</b>	<b>Name of the Project</b>	<b>STP Shri Muktsar Sahib</b>	
<b>Brief Scope of the Project</b>		Installation of CCTV cameras	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	The said work is part of repair of existing STP to be	

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2	Financial Closure	taken under AMRUT Project	
3	Tendering of the work including allotment		
4	Commencement of the work		
5	Completion and commissioning		
<b>(3) Grater Mohali Area Development Authority, Department of Housing and Urban Development</b>			
<b>(i) Name of the Project: Installation of CCTV Camera at STP Kurali</b>			
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	-	-
2	Financial Closure	10.1.2019	31.3.2019
3	Tendering of the work including allotment	5.4.2019	10.5.2019
4	Commencement of work	15.5.2019	30.6.2019
5	Quarterly milestones during the construction stage		
6	Completion and commissioning	30.6.2019	30.6.2019
<b>(4) Municipal Corporation, Ludhiana</b>			
	Name of the Project	All STPs of Ludhiana	
	Brief Scope of the Project	Installation of CCTV cameras	
1	Financial Closure	Complete (Part of ICT project)	
2	Tendering of the work including allotment	04 - 03 - 2019 (Issue of LOA)	
3	Commencement of the work		
4	Completion and commissioning	31.08.2019	
<b>(5) Municipal Corporation, Jalandhar</b>			
(i)	Name of the Project	STP of Pholriwai	
	Brief Scope of the Project	Installation of CCTV cameras	
1	Financial Closure	31.03.2019	
2	Tendering of the work including allotment	01.04.2019	22.04.2019
3	Commencement of the work	10.07.2019	
4	Completion and commissioning	01.10.2019	31.12.2019
(ii)	Name of the Project	STP of Basti Peer Daq	
	Brief Scope of the Project	Installation of CCTV cameras	
1	Financial Closure	31.03.2019	
2	Tendering of the work including allotment	01.04.2019	22.04.2019
3	Commencement of the work	10.07.2019	
4	Completion and commissioning	01.10.2019	31.12.2019

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(iii)	Name of the Project	STP of Jaitewali	
	<b>Brief Scope of the Project</b>	<b>Installation of CCTV cameras</b>	
1	Financial Closure	31.03.2019	
2	Tendering of the work including allotment	01.04.2019	22.04.2019
3	Commencement of the work	10.07.2019	
4	Completion and commissioning	01.10.2019	31.12.2019
<b>6) Local Government, Jalandhar</b>			
	<b>Name of the Project</b>	<b>STP located at MC Shamcurasi</b>	
	<b>Brief Scope of the Project</b>	<b>Installation of CCTV cameras</b>	
1	Financial Closure	-	-
2	Tendering of the work including allotment	20.02.2019	15.04.2019
3	Commencement of the work	30.04.2019	15.05.2019
4	Completion and commissioning	15.05.2019	31.05.2019



## Annexure - U Timelines for installation of online monitoring system for industries

Sr No.	Activity	Date of Start	Date of completion
1	Procurement Process	01.02.2019	28.02.2019
2	Finalization of Supply orders	01.03.2019	31.03.2019
3	Installation of online continuous monitoring system	01.04.2019	31.05.2019
4.	Caliberation of online continuous monitoring system	01.06.2019	30.06.2019
5.	Connecting the online continuous monitoring system with the server of PPCB	01.07.2019	31.07.2019



## Annexure V – Monitoring of Progress of projects for setting up of new/up graded facilities

Name of the Project		Progress achieved at the end of the month		
Brief Scope of the Project				
S. No.	Stage	Start Date	Completion Date	
1	Preparation of DPR			
2	Financial Closure			
3	Tendering of the Work including allotment			
4	Commencement of Work			
5	Quarterly Milestones during the construction / development Stage			
6	Completion and Commissioning			



Annexure W – Performa for operational record of the STP/ CETP

Location of STP/ CETP	Capacity of STP/ CETP (MLD)	Reading of Water meter at 8 am	Quantity of waste water treated (in KLD)	Sludge wasted (kg/ day)	Qty. of Chlorine used/ DAY (Kg/ day)	Details of chemical used for dosing purpose and the component at which the same was imparted.	Name of the component remained out of order during the day and reasons thereof.	Qty of treated w/w reused for irrigation of agricultural land / irrigation of green area / construction purpose (KLD)	Qty of treated w/w discharged into drain leading to river Ghaggar (KLD)

Annexure W- (1) Performa for keeping record of analysis result of STP/ CETP

Date of Sampling	Point of sampling	Values of the parameters in mg/l except pH						
		pH	TSS (mg/l)	BOD (mg/l)	COD (mg/l)	T.Coli (MPN/100 ml)	F.Coli (MPN/100 ml)	Metals

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Annexure X – Proforma regarding visit of Industries located in catchmen area

S.No.	Name & location of the industry	Date of visit	Observations noticed during visit	Analysis results of trade effluent samples	Whether meeting with the effluent standards or not	Remarks, if any



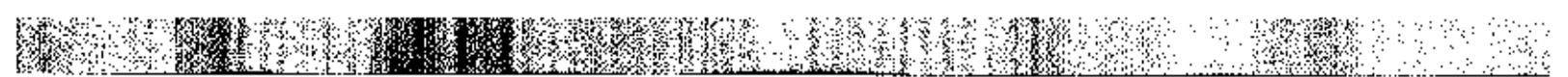
## Annexure Y - Proforma for monitoring of water quality of River Sutlej.

Sr. no.	Sampling points at river Sutlej	Date of Sampling	DO (mg/l)	pH	BOD (mg/l)	T.Coliform (MPN/100 ml)	D.B.U. classification



## Annexure Z – Proforma for submission of report regarding Health Check Camps

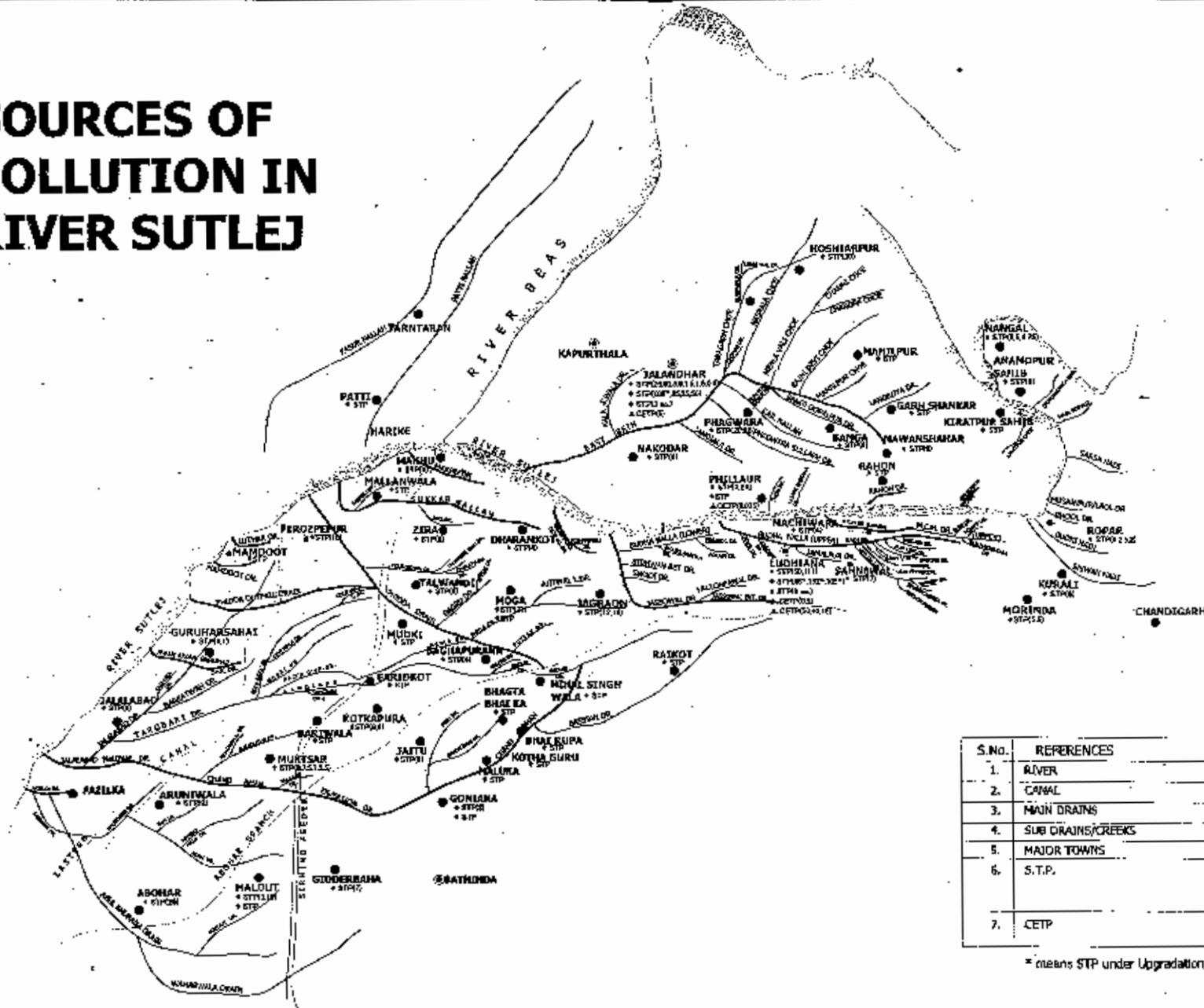
Sr. No.	Location of the camp	Date on which camp was organized	Name of the Doctor(s) & name of their organization	No. of people examined	No. of people found effected with water borne disease



Annexure Z – (1) Proforma for submission of report regarding awareness programme

Sr. No.	City / Town / Location where the awareness programme is organized	Name of the Officer(s) who hold this programme	Date	No. of participants	Brief detail about awareness detail

# SOURCES OF POLLUTION IN RIVER SUTLEJ



S.No.	REFERENCES	SIGNS
1.	RIVER	
2.	CANAL	
3.	MAIN DRAINS	
4.	SUB DRAINS/CREEKS	
5.	MAJOR TOWNS	
6.	S.T.P.	<ul style="list-style-type: none"> <li> EXISTING</li> <li> PROPOSED</li> <li> PARTIALLY INSTALLED</li> </ul>
7.	CETP	<ul style="list-style-type: none"> <li> EXISTING</li> <li> PROPOSED</li> </ul>

\* means STP under Upgradation/Rehabilitation

# Action Plan for Clean River Beas



25<sup>th</sup> January, 2019

Directorate of Environment and Climate Change,  
Department of Science, Technology and Environment,  
Government of Punjab

# Action Plan for Clean River Beas



25<sup>th</sup> January, 2019

Directorate of Environment and Climate Change,  
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Government of Punjab

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## Chapter 1 - Introduction

### 1.1. Background

- 1.1.1. The word Punjab is a compound of two Persian words, panj ("five") and āb ("water"), thus signifying the land of five waters. The erstwhile Punjab State had five rivers namely Beas, Chenab, Jhelum, Ravi, and Sutlej. However after the partition of India in 1947, only two rivers, the Sutlej and the Beas, lie within Punjab's territory, while the Ravi flows only along part of its western border.
- 1.1.2. The rivers in the State have been used as a source of irrigation, drinking purpose especially in southern Punjab, development of hydro-electric projects to meet the energy requirements in the State and various activities including industrial purposes. The rivers have played a significant role in the socio-economic and industrial development of the State.
- 1.1.3. The rapid growth of urbanization and industrialization during the last few decades has adversely impacted the environment of the State. The quantum of sewage and sullage generated from the habitation areas has significantly increased and finding its way into natural drains, eventually leading to riverine system of the State. In the rural areas, due to increase in the population, the capacity of most of the ponds has been exhausted due to which this sewage and sullage has also started flowing into the natural drains and finally becoming a part of river waters.
- 1.1.4. Therefore, the quality of water flowing in the water bodies has deteriorated as these water lack sufficient assimilation capacity for self purification not only due to increase in the quantum of discharge of untreated sewage/ sullage, but, also due to decrease in the quantum of water in the water bodies owing to construction of check dams on the upstream side.

### 1.2. About River Beas

- 1.2.1. Beas is an important contributory river of the Indus System. It is 460 km long originates from two sources, Beas Kund (4060 m asl) on the South and, Beas Rishi on the right of Rohtang Pass within North-Western Himalaya. The two streams meet at Palchan village, 10 km north of Manali to form river Beas.
- 1.2.2. After leaving Pong Dam in Himachal Pradesh, the river enters plains of Punjab at Talwara (District Hoshiarpur) where it is immediately subjected to further manipulation for irrigation by carving a Shah Nehar Canal where in water in the range of 4170-8611 cusecs is diverted, depending upon the season. The river with depleted water resources takes a loop like course to reach Mirthal (District Gurdaspur).
- 1.2.3. In district Gurdaspur, river Beas regains some water resources made available from river Ravi through another Ravi Beas Link Canal originating from Madhopur and a tributary Chakki coming from north side joining it around Mirthal. The river regains its resources fully at village Terrikein (District Hoshiarpur) through reinduction of Shah Nehar Canal. Thereafter river flows unrestricted for approximately 100 km and in between it receives many small

Nailas amongst which the important one is Holy Bein (Kali or West Bein) around its culmination point at Harike, to its culmination with River Sutlej near Village Lohian at Hari-Ke-Pattan. The length of River Beas in the area of jurisdiction of State of Punjab is about 165 Km.

- 1.2.4. Govt of Punjab, Deptt. of Forest and Wildlife Preservation (Forest Branch) due to the ecological floral and faunal significance of River Beas and for the purpose of protecting, proppating and developing wild life and aquatic fauna and its environment has declared the area of River Beas from 52 head Talwara to Harike Barrage as "CONSERVATION RESERVE" under the Wildlife (Protection) Act, 1972 vide notification no: 34/13/2017-FT-5/1052756/1 dated 29.08.2017.

### 1.3. State's efforts to control pollution in River Beas

- 1.3.1. Keeping in view the scenario of River Beas with regards to its water quality, Government of Punjab (GOP) from the year 2008, started taking action to identify the sources of its pollution in coordination with Punjab Pollution Control Board (PPCB). In this regard, meetings were regularly held under the chairmanship of Hon'ble Chief Minister, Punjab from the year, 2008 onward. Meetings have been held by the higher authorities of the State of Punjab, UT Chandigarh and Himachal Pradesh.

- 1.3.2. The State Government is serious to control the pollution in River Beas. With the proactive role of Govt. of Punjab, the concerned departments have already identified the sources of wastewater falling into the River Beas at various towns and cities located in the catchment area of the river. As of now, out of 10 towns, which are discharging their wastewater into River Beas, a total of 11 STPs need to be installed out of which 10 STPs have already been installed, and remaining 01 is under various stages of planning for establishment.

### 1.4. Directions Issued by National Green Tribunal

- 1.4.1. National Green Tribunal (NGT) in application no 916/2018, 344/2018 and 345/2018 regarding the pollution of River Satluj and River Beas on account of discharge of untreated pollutants, which is impacting eight districts of Rajasthan apart from Ludhiana and Jalandhar districts of State of Punjab has taken note of following main issues:

- (i). The industries and local Bodies failed to install and make functional the requisite treatment plants, 35 Municipal Corporation/Nagar Panchyat are discharging sewage with heavy metal and BOD loads in the Rivers.
- (ii). As per the standards of Punjab Pollution Control Board and Punjab Water Supply Sewerage Board regarding installation of the STPs and taking other steps. But inspite of the steps, the water quality did not meet the laid down standards.
- (iii). It was noted that sludge generated from STPs was not being pretreated, STPs were not having stand-by arrangement during maintenance, STPs are bye-passing the untreated sewage into drains and do not have adequate capacity, industrial effluents are mixed up with the domestic sewage resulting in damage to the STPs.

- 1.4.2. NGT vide its order dated 14.11.2018 in the application no: 916/2018 directed that the Secretary, Local Bodies, Punjab, the Municipal Commissioners of Ludhiana and Jalandhar, PWSSB to jointly take responsibility for taking further steps to prevent any further damage and to take remedial steps so that the quality of water in the affected areas of rivers Sutlej and Beas is brought within the prescribed standards within 6 months. The nodal officer for coordinating all actions will be the Secretary, Local Bodies.
- 1.4.3. NGT vide another order dated 20.09.18 passed in QA no. 673/2018 titled as news item published in "The Hindu" authored by Shri. Jacob Kosuhy titled "More river stretches are now critically polluted: CPCB" has directed to prepare Action Plans within two months for bringing all the polluted river stretches to be fit at least for bathing purposes (i.e BOD <3 mg/l and FC < 500MPN/100 ml) within six months from the date of finalization of the action plans.
- 1.4.4. There are 4 number of polluted river stretches falling under the jurisdiction of State of Punjab as per the details given in the judgement:
- (i). River Ghaghar (Sardulgarh to Mubarkpur)
  - (ii). Sutlej (Roopnagar to Marike bridge)
  - (iii). Kali Bein (Sultanpur Lodhi to Confluence point to Beas)
  - (iv). River Beas (along Mukerian)
- 1.4.5. The action plans may be prepared by four-member Committee comprising Director, Environment; Director, Urban Development; Director Industries; Member Secretary, State Pollution Control Board of concerned State. This Committee will also be the Monitoring Committee for execution of the action plan. The Committee may be called "River Rejuvenation Committee" (RRC). The RRC will function under the overall supervision and coordination of Principal Secretary, Environment. The Chief Secretaries of the State and Administrators / Advisors to Administrators of the Union Territories will be personally accountable for failure to formulate action plan, as directed.

\*\*\*\*\*

## Chapter 2 –Vision, Mission and Strategy

### 2.1 Overarching Vision of the State - Mission Tandarust Punjab

The Government of Punjab has launched Mission Tandarust Punjab to make Punjab a healthy State with healthy people by ensuring the quality of air, water, food and a good living Environment.

### 2.2 Vision for Clean River Beas

To restore the quality of water in River Beas to prescribed standards to ensure ecological balance and socio-economic well being of the people.

### 2.3 Mission Clean River Beas

To prepare and implement a comprehensive action plan for clean River Beas:

- (i). Creating awareness about the adverse impact of water pollution
- (ii). Identifying the sources of water pollution
- (iii). Setting up facilities for treating the pollutants
- (iv). Ensuring effective operations of the facilities
- (v). Ensuring effective monitoring of the quality of water
- (vi). Mitigating adverse impact on health of the people in the surrounding areas

### 2.4 Strategy for Clean River Beas

#### 2.4.1 Identification of the Stakeholders

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

- (i). Department of Science, Technology and Environment
  - (a). Directorate of Environment and Climate Change
  - (b). Punjab Pollution Control Board
- (ii). Department of Water Resources
  - (a). Chief Engineer, Drainage
- (iii). Department of Local Government
  - (a). Municipal Corporations/ Municipal Councils/ Nagar Panchayats
  - (b). Punjab Water Supply and Sewerage Board
- (iv). Department of Housing and Urban Development
  - (a). Jalandhar Development Authority
- (v). Department of Rural Development and Panchayat
  - (a). Directorate of Rural Development and Panchayat

- (b). District/ Block Development and Panchayat Officers and Village Panchayats
- (vi). Department of Industries and Commerce
  - (a). Punjab Small Industries and Export Corporation
- (vii). Department of Agriculture
  - (a). Directorate of Soil and Water conservation
- (viii). Department of Forest and Wildlife Conservation
  - (a). Principal Chief Conservator of Forest (WL) and Chief Wildlife Warden
- (ix). Department of Health and Family Welfare
- (x). District Administration
- (xi). Director Fisheries Punjab
- (xii). Military Engineering Services, Govt of India for Pathankot and Kapurthala.

#### 2.4.2 Nodal Department

The Department of Science, Technology and Environment will be the nodal department for coordinating and monitoring activities of the plan.

#### 2.4.3 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 and will coordinate its execution by tracking the progress through a centralized IT platform.

#### 2.4.4 Monitoring and Governance

- (i). There will be rigorous monitoring of implementation of the comprehensive plan:
  - (a). Monitoring of physical and financial progress of works being executed
  - (b). Monitoring of operations and management of facilities set up
  - (c). Monitoring of quality of water
  - (d). Monitoring of health and diseases in the surrounding areas
  - (e). Monitoring of awareness campaign
- (ii). Setting up of IT platform for tracking progress and analysis.
- (iii). The monitoring will be done at the District level, State Level and Executing Committee set up by NGT

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### Chapter 3 – Current Status and Trends of Water Quality in River Beas

#### 3.1 Monitoring Locations

The water quality of river Beas is being monitored at 10 locations, starting from Beas at Talwara H/W upto Beas at harike on monthly basis under National Water Quality Monitoring Programme (NWMP):

- (i). Beas at Talwara H/W
- (ii). Beas at Mirthal Bridge Gurdaspur
- (iii). U/s Pathankot
- (iv). D/s Pathankot
- (v). Beas 1km D/S effluent discharge point at Mukerian
- (vi). Beas Bridge at village Bheate Patan Tehsil Batala Distt. Gurdaspur (w.e.f July 2018)
- (vii). Beas at G.T. Road, under Bridge Near Kapurthala
- (viii). Beas at U/s Goindwal
- (ix). Beas at D/s Goindwal
- (x). Beas at Harike

#### 3.2 CPCB's Norms for designated Best use

The Central Pollution Control Board has laid down criteria for designated best use class of water of the water bodies, which is as mentioned below:

S.N.	Constituent Parameters	Designated Best Use Class					
		A	B	C	D	E	Below E
1.	Total Coliforms Organism, MPN/100ml, Max	50	500	5000	-	-	Not meeting A, B, C, D & E criteria
2.	pH value	6.5-8.5	6.5-8.5	6-9	6.5-8.5	6-8.5	
3.	Dissolved Oxygen, mg/l, Min	6	5	4	4	-	
4.	Biochemical Oxygen Demand, mg/l, 5 days 20C, Max	2	3	3	-	-	
5.	Free Ammonia (as N) mg/l, Max	-	-	-	1.2	-	

6.	Sodium absorption Ratio, Max	-	-	-	-	26
7.	Electrical Conductivity at 25C micro mhos/cm, Max	-	-	-	-	2250
8.	Boron, mg/l, Max	-	-	-	-	2

Note:

Class A: Drinking Water Source without conventional treatment but after disinfection

Class B: Outdoor bathing (Organised)

Class C: Drinking water source after conventional treatment and disinfection

Class D: Propagation of Wild life and Fisheries

Class E: Irrigation, Industrial Cooling, Controlled Waste disposal

### 3.3 Current status of quality of water in River Beas

3.3.1 The representative quality of water of river Beas at various locations for the month of December, 2018 is given in Annexure A. The river Beas enters in Punjab at Talwara from Himachal Pradesh. The quality of river Beas at Talwara is 'B Class'. The BOD of Beas varies from 1.0 mg/l to 2.1 mg/l. The Dissolved oxygen varies from 7.3 mg/l to 8.3 mg/l for the month of December 2018. The quality of Beas at 1 km from discharge point at Mukerian upto Harike is of 'Class C' due to the pollutant Total coliforms Organism (T.Coli). The permissible limit of T.Coli MPN/100 ml for 'Class B' is 500 or less but T.Coli varies from 580 to 840 at above mentioned stretch/points of river Beas.

3.3.2 The details of analysis results of surface water monitoring under NWMP for the year 2016-17, 2017-18 and 2018-19 (upto Dec, 2018) are given in Annexure B.

3.3.3 It is evident that Class- B quality of water enters the State of Punjab, the water quality remains in class-B and in class-C at some of the location in jurisdiction of State of Punjab.

3.3.4 Thus, to improve the water quality of River Beas, there is need to identify all the outlets through which the untreated wastewater is discharged into river Beas either directly or indirectly and to install adequate arrangements to treat the wastewater of these outlets either by installing separate STPs or by diverting these outlets to the existing STPs having sufficient capacity to accommodate the additional hydraulic loading of these outlets. Also, there is need to improve upon the quality of treated wastewater of the present STPs by upgrading them.

3.3.5 Keeping in view the current and future scenario of pollution of water of River Beas and their usage, this action plan has been prepared to control the pollution of water of river Beas so as to ensure that all the outlets carrying wastewater directly or indirectly into river Beas must conform to the prescribed standards.

## Chapter 4 –Sources of Water Pollution in River Beas

### 4.1 Major Drains

4.1.1 There are 13 major drains/choes/nallahs which are directly discharging wastewater into the River Beas. The details of these drains/choes/ nallahs are given in **Annexure C(1)**. The water quality of the 13 major drains has also being carried out by the PPCB and the details are given in **Annexure C(2)**. There are 22 creeks/nallahs which are discharging into 02 major drains namely Kahnuwan Swamp Drain and Holy Bein. Details are given in **Annexure D**.

4.1.2 The list of urban and rural habitation discharging wastewater directly into River Beas is given in **Annexure-E**. The list of urban and rural habitation discharging wastewater indirectly through various drain/nallahs/creeks leading to River Beas is given in **Annexure F**.

4.1.3 There are following major sources polluting the River Beas:

- (i) Sewage/ sullage generated from Urban Areas
- (ii) Sewage/ sullage generated from Rural Areas
- (iii) Industrial Sources

### 4.2 Sewage/sullage generated from Urban Areas

There are 16 local bodies which are discharging their wastewater either directly or indirectly into River Beas. In addition, 6 MES authorities, 2 Industrial Focal Points, 01 Jalandhar Development Authority and one Industrial Complex of Himachal Pradesh are also discharging directly or indirectly into River Beas. Out of 16 local bodies, 11 STPs have been installed in 11 towns and 10 new STPs are proposed to be installed in the 7 towns and 1 STP is proposed to be upgraded in one of the towns. The details of STPs installed, STPs under installation, new STPs proposed to be installed are given in **Annexure G(1) & Annexure G(2)**.

### 4.3 Sewage/sullage generated from Rural Areas

4.3.1 There are 75 villages, which are discharging wastewater through various creeks and drains into River Beas. The details of these villages are given in the **Annexure E & Annexure F** and the discharge wise details of the villages is as below:

- (i) 17 Villages are having discharge more than 300 KLD
- (ii) 43 Villages having discharge between 100 KLD and 300 KLD
- (iii) 15 Villages having discharge less than 100 KLD

### 4.4 Industrial Sources in the Catchment Area of River Beas

#### 4.4.1 Industrial units located at Pathankot, Gurdaspur, Mukerian and Dasuya Area in the Catchment Area of River Beas

There are 12 water polluting industries in the catchment area of River Beas at Pathankot, Gurdaspur, Mukerian and Dasuya. None of the industries is allowed to discharge the untreated / treated wastewater into the drains/ choes leading to River Beas. A list of these

industries is as per AnnexureH(1) and Annexure H(2). The brief detail about these industries is as under:

Sr. No.	Type of industry	No. of units	No. of industries installed ETPs	No. of industries installed online continuous monitoring system
1)	Brewery	1	1	-
2)	Distillery unit	5	5	-
3)	Sugar Mill	3	3	3
4)	Paper/Board Mill	2	2	-
5)	Gluten	1	1	-

However, the screening plants of Pathankot are partly discharging their wastewater into River Beas. But their wastewater neither contains any organic materials contributing BOD/COD nor any chemicals. Therefore, the PPCB envisaged to pursue the industries to devise a mechanism for 100% recirculation of the wastewater generated from the washing of river bed material.

#### 4.4.2 Industrial units located at Goindwal Sahib, Beas & Kapurthala Area in the Catchment Area of River Beas

There are 9 water polluting industries in Goindwal Sahib, Beas and Kapurthala in the catchment area of River Beas. A list of these industries is attached herewith as Annexure I(1) & Annexure I(2). The break-up of these industries is as under:

Sr. No.	Type of industry	No. Of units	No. Of industries installed ETPs	No. Of industries installed online continuous monitoring system
1	Thermal Plant	1	1	-
2	Food Industries	1	1	-
3	Pharmaceuticals (Formulation)	1	1	-

4	Vanaspati	1	1	-
5	Educational Institutions	1	1	-
6	Health Care Facilities (HCF)	1	1	-
7	Dera Beas	1	1	-
8	Miscellaneous	2	2	-

Since, all these industries are located near the bank of Goindwal Sahibdrain, Beas River & Holy Bein, as such, there is need to monitor all these industries in odd hours to rule out the possibility for discharge of wastewater into said drains during odd hours.

#### 4.4.3 Industrial Complex located at Sansarpur-Terrace, Distt Kangra (Himachal Pradesh)

An Industrial Cluster under the name of Industrial Complex, Sansarpur-Terrace, Distt Kangra located near to Talwara Headworks (Punjab) and the waste water disposal of this industrial complex is in the Swan Choe leading to River Beas at Talwara Headworks.

Sr. No.	Type of industry	No. of units	No. of industries installed ETPs	No. of industries installed online continuous monitoring system
1	Industrial Complex	15	Not Available	Not Available

It is proposed to request Government of HP to take following action:

- (i) As the wastewater of the Industrial Complex, Terrace-Sansarpur, Distt Kangra, H.P is being discharged into Swan Khad leading to River Beas, there is immediate need to direct the Govt of Himachal Pradesh to provide adequate treatment facility for the treatment of wastewater generated from the Industrial Complex and also to utilize the treated wastewater, such that neither untreated or nor treated wastewater is discharged into Swan Khad.
- (ii) It is proposed that a Continuous Surface Water Monitoring Equipment alongwith CCTV Camera may be installed by Govt of Himachal Pradesh at the outlet of the Complex and connect it with website of CPCB, PPCB and HPPCB for the 24x7 monitoring of the discharge of wastewater into Swan Khad.



## Chapter 5 –Other Sources of Pollution and their Management

### 5.1 Bio Medical Waste

- 5.1.1 The bio-medical waste of all the Healthcare Facilities in the State is collected, transported, treated and disposed of by 4 authorized Common Bio-Medical Waste Treatment Facilities (CBWTF) located at Ludhiana, SAS Nagar, Amritsar and Pathankot. The Bio-Medical Waste generation in the State is in the range of 14-15 tons per day (TPD) depending upon patient load. The status of HCFs operating in towns falling in catchment areas of River Beas is given in Annexure-J
- 5.1.2 The collection vehicles of the CBWTF operators are equipped with Global Positioning System (GPS) with access to Punjab Pollution Control Board (PPCB).The CBWTF operators are using Bar-code based software system for collection of bio-medical waste from Healthcare Facilities since 2012 and the data of collection of bio-medical waste from the healthcare facility is sent online to server within 1-2 minutes and the access of same is available with PPCB.CCTV cameras are also installed in the processing areas of all the 4 CBWTF operators with access to PPCB to monitor the working of the facility.
- 5.1.3 The stack of the incinerator installed in all the 4 CBWTFs have been provided with Online Continuous Emission Monitoring System and the data is transferred online to PPCB and CPCB. This system helps in observing/monitoring the emissions discharged while treatment of bio-medical waste is being done.
- 5.1.4 Since, the Bio-Medical Waste generated in the catchment area of River Beas is handled and managed in proper manner through the Common Bio-Medical Waste Treatment Facilities (CBWTF), as such, there is no impact of this waste on the water quality of River Beas.

### 5.2 Hazardous Waste

- 5.2.1 The Government of India has framed Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 for the scientific handling of hazardous waste. The occupier of the facility is to apply for authorization for handling, generation, collection, storage, packaging, transportation, use, treatment, processing, recycling, recovery, pre-processing, co-processing, utilization, offering for sale, transfer or disposal of the waste to the Board. A pass book is issued along-with authorization to the actual user of the hazardous waste.
- 5.2.2 As per the interim order dt. 14-10-2003 of Hon'ble Supreme Court in Writ Petition (Civil) No. 657 of 1995, regarding handling of hazardous waste and development of common treatment, storage and disposal facility, a Common Treatment, Storage and Disposal Facility (CTSDF) at Village Nimbuan, Tehsil DeraBassi, Distt. SAS Nagar was constructed by M/s Nimbuan Green Field Punjab Limited (NGPL) and commissioned in October, 2007.
- 5.2.3 The facility has been designed for 15 years capacity considering the generation of storable quantity of hazardous waste as 36,000MTA based on the assessment study carried out by M/s Tetrattech India Limited. The total capacity of the facility is 5,40,000 MT.The capacity to

store hazardous waste in the existing CTSDF is sufficient upto year 2030 at the present rate of generation. The vehicles used by the common facility operator for transportation of hazardous waste are equipped with GPS system.

5.2.4 At present no common incinerator has been installed at CTSDF and the same is under planning. All the major industries generating incinerable hazardous waste have installed captive incinerator in their premises for disposal of incinerable waste. Eighteen such captive incinerators are in operation for the disposal of incinerable waste. In addition to the above, the incinerable waste from the remaining industries is received by the operator of CTSDF and is incinerated at the incinerator installed by the CTSDF at its another unit at Kanpur.

5.2.5 Since, the Hazardous Waste generated by the industries in the catchment area of River Beas is handled and managed in proper manner through the Common Treatment, Storage & Disposal Facility installed at Vill. Nimbuan, Tehsil DeraBassi, Distt. SAS Nagar, as such, there is no impact of this waste on the water quality of River Beas.

### 5.3 E-Waste

5.3.1 Government of India has framed E-Waste (Management & Handling) Rules, 2016 as amended on 22.3.2018. PPCB has granted NOC/ 'Consent to Operate' to one dismantling facility, M/s Ramky Enviro Engineers Limited, Vill. Nimbua, Tehsil DeraBassi, Distt. SAS Nagar with capacity to handle 4 TPD of E-waste.

5.3.2 PPCB has granted 'Consent to Establish' to two industries i.e. M/s Black Diamond Cements Pvt. Ltd., Tehsil DeraBassi, district SAS Nagar and M/s Spreco Recycling, Tehsil Raikot, District Ludhiana to establish E-Waste recycling facility of capacities 30 TPD and 0.8 TPD respectively. These said industries have yet not commissioned the said facility. One party naming M/s K.J. Recyclers, Plot no C38, Sanjay gandhi nagar, industrial Area Jalandhar has been issued NOC for setting up E-Waste Recycling facility and the other one party in Amritsar has also been given go ahead by PPCB for setting up of the E-Waste recycling facility.

5.3.3 Although, the channelization of E-Waste has recently been started, disposal of such waste has never been noticed in the River Beas.

### 5.4 Solid Waste

5.4.1 The Department of Local Government (DLG) vide notification dated 09.07.2018 has notified the Punjab State Solid Waste Management Policy, 2018. In view of the past experience, it has been decided to adopt both decentralized and centralized solid waste management approach depending upon the profile of the locality.

5.4.2 Further, in compliance to the orders of the Hon'ble Punjab and Haryana High Court in CWP No. 7039 of 2010, a Common Action Plan containing 10 points was prepared in 2012 for viable alternative measures for disposal of garbage till setting up of Solid Waste Management Plants. The Directorate of Local Government is the implementing agency for this Action Plan and PPCB is monitoring the status of compliance. Out of 167 Urban Local

Bodies (ULBs), 113 ULBs are partially complying with the Common action plan and remaining 54 ULBs are yet to comply with the same.

- 5.4.3 The Ministry of Environment and Forests, GOI has notified Solid Waste Management Rules, 2016. Implementation of these Rules is being monitored by the Board. As per Rule 24 of the Solid Waste Management Rules, 2016, the local body shall submit its annual report to the Board on or before the 30th day of June every year. Further, the Board is required to submit the consolidated annual report to the Central Pollution Control Board and Ministry of Urban Development by the 31st day of July of each year. The same are regularly uploaded on the official website of the Board also.

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## Chapter 6 – Utilization of Treated Wastewater

### 6.1 The State Treated Waste Policy

- 6.1.1 The Department of Local Govt. has notified "The State Treated Waste Policy -2017" to promote the recycling and reusing the treated sewage for non-potable applications and to make sewage project economical and environmentally sustainable.
- 6.1.2 The policy envisages to tackle the issues pertaining to the provisions of adequate wastewater collection and treatment facilities, consideration of treated effluents as resource for reuse in irrigation/industrial/other fields and thereby improvement of the socio-economic conditions in the areas to served by the proposed systems.
- 6.1.3 The Department of Soil and Water Conservation, Punjab is executing projects for utilization of treated wastewater for irrigation of various towns/cities across the State by laying network of underground pipelines in agricultural fields.

### 6.2 Utilization of treated wastewater in the catchment area of River Beas

- 6.2.1 The Department of Soil and Conservation has already commissioned irrigation projects for 09 STPs in 09 towns to utilize the treated wastewater of the STPs located in the catchment area of River Beas. The details are given in Annexure-K(2).
- 6.2.2 The Department has also prepared irrigation management plans for the two towns namely Pathankot and Tanda where STPs have been commissioned but irrigation network is yet to be laid. The details is as per Annexure-K(1) and K(2).
- 6.2.3 The Department has also prepared irrigation management plans for the 09 towns, where 11 STPs are proposed to be installed and accordingly 11 schemes have been prepared. The details is as per Annexure-K(1) and K(2).
- 6.2.4 The MES Authorities are also operating 5 STPs at Pathankot and discharging their wastewater into drains leading to River Chakki and one STP is being installed at Kapurthala. The wastewater of Kapurthala is also being discharged into MC Sewer leading to Holy Bein But, no irrigation management plan has been prepared by MES Authorities for any of the STPs. The details is as per Annexure-K(1) and K(2).
- 6.2.5 The PSIEC Authorities have proposed two STPs of 2MLD capacity each for Industrial Growth Centre Pathankot and Industrial Focal Point Goidwal Sahib. The irrigation network in these areas is yet to be laid. The timeline and financial requirement for the same are indicated in Annexure K(1) and K(2).
- 6.2.6 From the experience of using STP's treated wastewater for irrigation purposes, following issues emerge, which need to be addressed:
  - (i) In case of STPs based on SBR technology, the discharge of treated wastewater is not continuous and for the gap period of about 45 minutes, the pump through which the treated wastewater is pumped for utilization onto land for irrigation is required to

be shutdown, which discourages the farmers to utilize the treated wastewater. Therefore, there is a need to provide a storage tank of sufficient capacity for treated wastewater so that without shutting down the pumping station, the wastewater can be made available to the farmers.

- (ii) The payment of electricity bill is required to be regulated by fixing the responsibility of the concerned department and funds for this purpose need to be made available with the operating agency.
- (iii) The farmers need to be educated and made aware about the advantages of use of treated wastewater for irrigation purpose.

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## Chapter 7- Measures for Control of Pollution and Timelines

### 7.1 Setting up of new Treatment Facilities

The existing treatment facilities are not adequate. In order to completely stop the untreated waste being discharged directly or indirectly into river Beas, additional new facilities and upgradation of existing facilities is required. The action plan envisages the following facilities to be set up/ upgraded to meet the challenges of pollution in River Beas:

- (i) Setting up of Sewage Treatment Plants in Urban areas
- (ii) Setting up of treatment facilities for sewage/sullage in Rural areas
- (iii) Setting up of facilities for reuse of treated wastewater
- (iv) Setting up treatment facilities in Industrial Areas
- (v) Cleaning of Holy Bein

### 7.2 Setting up of Online Effluent Monitoring Systems for STPs and ETPs

It has also been observed that the treatment facilities have not been operated as per norms and therefore there is strong need to effectively monitor the treatment facilities. In order to ensure effective monitoring, it is envisaged to install online systems for monitoring:

- (i) Setting up of online system for monitoring STPs
- (ii) Setting up online system for monitoring of industrial effluents

### 7.3 Timelines for Projects

Each project will have timelines for various stages of the project. Following stages have been identified to monitor the progress:

Name of the Project			
Brief Scope of the Project			
Sno.	Stage	Start Date	Completion Date
1	Preparation of DPR		
2	Financial Closure		
3	Tendering of the Work including allotment		
4	Commencement of Work		

5	Quarterly Milestones during the construction Stage		
6	Completion and Commissioning		

#### 7.4 Timelines for Setting up of Sewage Treatment Plants in Urban areas

##### 7.4.1 Department of Local Government/Jalandhar Development Authority

The Department of Local Government & Jalandhar Development Authority have chalked out plans for setting up of new STPs, upgrading STPs and laying down sewerage system for left out areas. The details are given in Annexure L.

##### 7.4.2 Military Engineering Service, Pathankot and Kapurthala

Military Engineering Service (MES), Pathankot has installed 5 no: STPs out of which one is of 3 MLD capacity and remaining 4 are 2 MLD capacity each and the wastewater is being discharged into Nallahs leading to River Chakki and ultimately River Beas. MES Kapurthala is discharging its wastewater into the sewerage system of MC Kapurthala and MES Kapurthala is installing 1 STP of capacity 1 MLD. The details is as per Annexure M.

##### 7.4.3 Department of Industries and Commerce/ Punjab Small Industries and Export Corporation

The Department of Industries and Commerce through Punjab State Industries & Export Corporation (PSIEC) needs to execute two projects of installation of STPs in Industrial Focal Points of Pathankot and Goidwal Sahib for domestic sewage. The details are given in Annexure N.

#### 7.5 Timelines for Setting up of treatment facilities for sewage/sullage in Rural areas

The Department of Rural Development and Panchayat has to prioritise the villages for setting up of treatment facilities. The complete list of villages identified is given in Annexure O. The Department has yet to finalize the treatment technology to be adopted in rural areas.

#### 7.6 Timelines for setting up of projects for reuse of treated wastewater

The Department of Soil and Conservation has given the timelines for setting up of reuse of treated wastewater. The details are given in Annexure K(1) and Annexure K(2).

#### 7.7 Timelines for setting up of treatment facilities in Industrial Areas

No Common Effluent Treatment Plants (CETPs) have been proposed. PPCB will ensure upgradation of individual ETPs wherever required.

## **7.8 Cleaning of Holy Bein**

7.8.1 The Holy Bein, one of the major drain carrying wastewater from urban/rural areas and having confluence with the River Beas generally carries lot of silt. Due to eutrophication, there is lot of growth of water hyacinth, which chokes the flow of Water in some of the stretches of Holy Bein. The Department of Water Resources, should regularly clean the Holy Bein as major drain and remove silt and water hyacinth so that unrestricted flow of water is maintained in the Holy Bein.

7.8.2 The State Government has allowed intake of 350 cusecs of water from mukeria hydel channel to be released into Bein to maintain the water quality and to regulate the flow of Water in Holy. The Department of Water Resources, Punjab will ensure that the water from Mukerian Hydel Channel is released into Holy Bein regularly.

## **7.9 Timelines for installing online continuous monitoring system for STPs**

In order to get real time data of the quality of treated wastewater, there is need to install Online Continuous Monitoring System with facility of flow meter at the outlet of all the STPs of the towns / cities located in the catchment area of River Beas and this system should be attached with server of the concerned department as well as PPCB so that quality of treated wastewater can be put in the public domain. Further CCTV cameras will be installed to monitor the operation of STPs. The timelines for installing online systems and CCTVs is given in **Annexure P(1) and Annexure P(2)**.

## **7.10 Timelines for installing online continuous monitoring system by Industries**

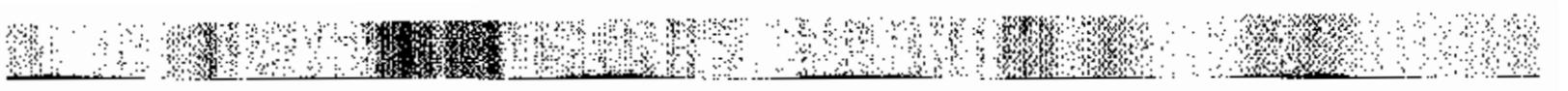
7.10.1 All the 17 categories of industries have installed online continuous monitoring system, which are attached with server of CPCB as well as PPCB. Therefore, out of 14 industries, 3 industries, which are falling in the list of 17 categories of industries, have already installed online continuous monitoring system.

7.10.2 PPCB has now mandated that all industries having discharge of trade effluent 50 KLD or more are required to install Online Continuous Monitoring System with facility of flow meter at the outlet of their ETPs for Industries in the catchment area of rivers. The time schedule for installing online system is given in **Annexure Q(1)**.

## **7.11 Timelines for installing Real Time Water Quality Monitoring Station at River Beas**

PPCB being the nodal agency for the rejuvenation of River Beas in the case of incidence of M/s Chaddha Sugar Mills, Kiri Afgana has decided to install Real Time Water Quality Monitoring Station by PPCB at River Beas. The time schedule for installing Real Time Water Quality Monitoring Station by PPCB at River Beas is given in **Annexure Q(2)**.

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## Chapter 8—Monitoring Requirements and Formats

### 8.1 Monitoring Requirements

There are following key components of monitoring

- (i) Monitoring of progress of projects for setting up of new/upgraded facilities
- (ii) Monitoring of operations and management of STPs
- (iii) Monitoring of ETPs and Industrial Effluents
- (iv) Monitoring of Quality of Water of River Beas
- (v) Monitoring of adverse impact on health of the people in surrounding areas due to water pollution
- (vi) Monitoring of Awareness campaign
- (vii) Monitoring of other violations of laws/ regulations

### 8.2 Monitoring of Progress of projects for setting up of new/up graded facilities

In order to ensure that the stakeholder departments adheres to the timelines given for setting up of new/upgraded treatment facilities, the department shall submit progress of the project on monthly basis in the proforma attached as Annexure R for monitoring.

### 8.3 Monitoring of operations and management of STPs

To ensure proper functioning of the STPs, regular availability of funds for operation and maintenance has to be ensured. All the STPs should also have standby source of power. The O&M contracts shall have the responsibilities of the Operator clearly defined. Monthly reports as per Annexure S & Annexure T will be submitted for monitoring.

### 8.4 Monitoring of ETP's and Industrial Effluents

Punjab Pollution Control Board shall visit the industries located in the catchment area of River Beas as per protocol regarding frequency of visit to the industries to carry out monitoring of Effluent Treatment Plants & ground water and maintain proper record of all these visit. PPCB will submit report as per the proforma given in Annexure U.

### 8.5 Monitoring of Quality of Water of River Beas

The Punjab Pollution Control Board shall continue to monitor the quality of water of River Beas at 10 locations under National Water Monitoring Programme and shall report to State Level Special Task Force on monthly basis in the proforma as per Annexure V.

### 8.6 Monitoring of adverse impact on health of the people in surrounding areas

The District Level Special Task Force shall get organized / conducted the health check up camps of the people in the catchment area of River Beas and shall submit the monthly report in proforma as per Annexure W, which will be reviewed by State Level Special Task Force and the Executing Committee.

**8.7 Monitoring of Awareness campaign**

The PPCB will organize awareness programme in partnership with the Department of Health & Family Welfare and other stakeholders in the habitation area falling in the catchment area in River Beas to educate them about the harmful effect of water pollution. The PPCB shall submit monthly report in the proforma as per Annexure X.

**8.8 Monitoring of other violations of laws/ regulations**

The PPCB will monitor any violation not covered above and shall take appropriate action against the violator and report in this regard to the State Level Task Force and Executing Committee.

## Chapter 9—Governance and Supervision

### 9.1 Three Tier Monitoring

9.1.1 Monitoring will be done by the Departments concerned, which are executing or responsible for particular activities. In addition, there will be three level of Committees to review and monitor the status:

- (i) District Level Task Force
- (ii) River Rejuvenation Committee
- (iii) State Level Task Force /Executing Committee

9.1.2 PPCB will set up a dedicated team for supporting coordination and monitoring of the Action Plan. The team will collate and analyse data from all the concerned agencies and escalate the issues and challenges to the appropriate level for resolution. It will also develop suitable IT platform for monitoring purposes.

### 9.2 District Level Special Task Force (DLSTF)

9.2.1 The mandate of this task force as per order dated 14.11.2018 issued by the Govt. of Punjab, Deptt. of Science, Technology & Environment is as under:

- (i) It shall identify all persons responsible for violation of law and norms relating to pollution in River Beas river and the drains joining it.
- (ii) It shall review action by the Competent Authority w.r.t. Civil and Criminal action against the violators as well as those who fail to perform their duties in this regard.
- (iii) It shall submit a monthly report on all actions taken by it to the State Level Special Task Force (SLSTF); by first week of every month.
- (iv) It shall assist the SLSTF in preparation of the action plan and finalizing the timelines.
- (v) It shall involve Civil Society Organizations and public participation in preparing the action plan in all the relevant areas.
- (vi) It shall ensure periodic sampling of river water as well as ground water to check water quality.

### 9.3 River Rejuvenation Committee

The River Rejuvenation Committee will monitor the Status of implementation of the Action Plan at the State Level. It will also be responsible for River Rejuvenation Plan Monitoring as well as Endowment Fund. It may invite any special invitee as may be required.

### 9.4 State Level Task Force

The mandate of this task force as per order dated 14.11.2018 issued by the Govt. of Punjab, Deptt. of Science, Technology & Environment is as under:

- (i) It shall finalize the Action Plan with firm timelines and review the same.
- (ii) It shall submit quarterly report on action taken during the quarter to the Central Pollution Control Board.

- (iii) It will also ensure that the quarterly Action Taken Reports are uploaded on the website of Punjab Pollution Control Board.
- (iv) It shall Co-ordinate with the Executing Committee, appointed by NGT
- (v) The State Level Task Force will accordingly hold regular meetings to review the progress and taken necessary action against the defaulters.

#### 9.5 Executing Committee

The National Green Tribunal (NGT) has constituted an 'Executing Committee' with the following mandate:

- (i) The Committee is entitled to issue appropriate directions to concerned authorities for ensuring compliance of the orders of the Hon'ble Tribunal.
- (ii) The target of the Committee will be to restore the standard of water quality in the river to the prescribed level.
- (iii) The Committee may carry out personal visits, if necessary or call for information or reports.
- (iv) The Committee may also consider need for getting organised health camps and need for providing clean drinking water for the affected inhabitants.
- (v) The sampling of ground water may also be done apart from the sampling of the river water periodically.
- (vi) Submit fortnightly basis report to the Hon'ble NGT through e-mail i.e. [filing.ngt@gmail.com](mailto:filing.ngt@gmail.com)
- (vii) The Executive Committee will accordingly review the progress from time to time and issue necessary directions to the concerned authorities.

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## Chapter 10-Risk Mitigation Plan

### 10.1 Identification of Major Risks in the Action Plan

The Action Plan to clean River Beas and restore the quality of water to the prescribed standards is a complex multi sectoral and multi agency action plan. Successful implementation would face many challenges. Following major risks have been identified

- (i) Accuracy and completeness of Baseline Data
- (ii) Accuracy and completeness of Project Timelines
- (iii) Financial closure and timely releases of Funds
- (iv) Discharge from unapproved Habitation Areas
- (v) Tracking the Progress and Program Management
- (vi) Resolution of Administrative and Technical Issues

### 10.2 Mitigation Plan for identified Risks

It is important to devise strategies and plans to mitigate the identified risks. Action plan will remain on paper if the bottlenecks and the risks are not dealt satisfactorily. Mitigation plan for each of the identified risk has been prepared in the following paras.

#### 10.3 Accuracy and completeness of Baseline Data

Due to paucity of time, the information about the sources of pollution, current treatment facilities, quantity and quality of discharges etc. could not be properly validated and there could be gaps in the same, which may lead to substantial alterations in the plans. In order to ensure accuracy and completeness of baseline data, another round of validation of the same would be got done through the respective Administrative Departments and Action plan updated accordingly. This will be completed in 30 days.

#### 10.4 Accuracy and completeness of Project timelines

Due to paucity of time, the information about the project timelines could not be properly validated and deliberated and there could be gaps in the same. In order to ensure accuracy and completeness of Project timelines, each Administrative Department would be asked to validate the project timelines carefully after taking into account all the relevant factors. In order to overcome the Risks identified above, the following plan would be followed. The needful will be done in 45 days in parallel to the activity in para 10.2.1 and Action plan updated accordingly.

#### 10.5 Discharge from unapproved habitation areas

There are certain unapproved colonies or villages, which have come under municipal limit, which are currently not covered in the plans but are discharging their untreated sewage directly or indirectly into river Beas. The concerned authorities for urban and rural areas will be asked to identify such localities and plan for their connectivity with the main sewer or development of the sewer system shall be worked out.

## **10.6 Financial closure and timely releases of funds**

Availability of funds for completing the projects on time is a major risk. Some of the projects have still not achieved financial closure. It has also been observed that the release of funds is often not regular even though the project had appropriate financial approval. In case of operation and maintenance of the facilities, substantial blame has been apportioned to lack of regular release of funds for maintenance, which resulted in failure of STPs to treat the wastewater and as a result untreated water has been discharged in the drain. In order to overcome the challenges, efforts will be made towards:

- (i) Seeking a firm commitment of Department of Finance to release the funds for the projects on priority.
- (ii) In case of operation and maintenance, seeking firm commitment of ULBs/ Department of Local Government to treat this as committed expenditure according to its highest priority and release the funds regularly. Further, arrangement may be worked out with the Administrative Department and Department of Finance that in case of default of ULB to pay to the operator, funds will be deducted from the grant to be released to ULB and paid directly to the Operator.

## **10.7 Tracking the Progress and program management**

The action plan for clean Beas is a complex, multi department and multi agency program and the current capacity and skill sets in PPCB are not adequate to track the progress of various milestones and carry out effective program management for successfully implementing the program. In order to mitigate the risk, a dedicated team with requisite Program Management and IT skills will be positioned to collate data, analyse the same, prepare status updates, escalate issues and assist various committees in review and issue resolution.

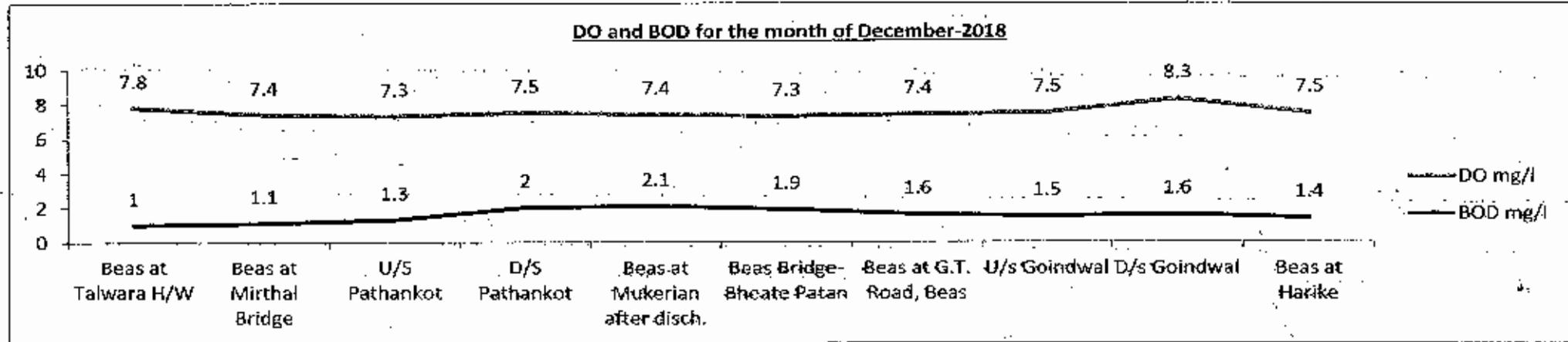
## **10.8 Resolution of Administrative and Technical Issues**

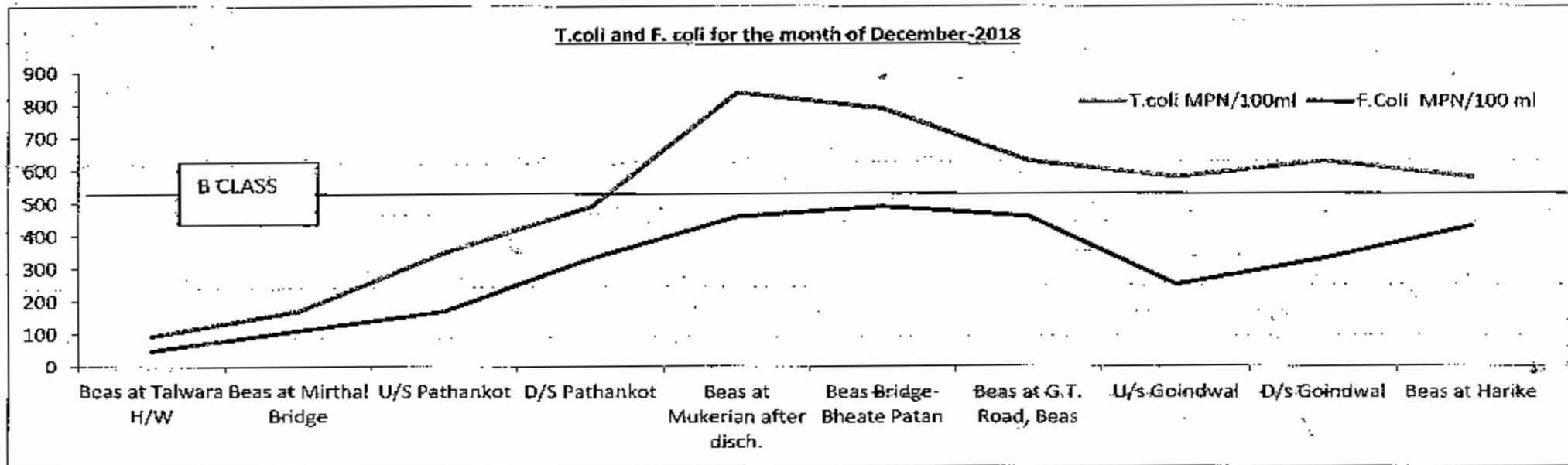
Some of issues such as acquisition of land, design parameters or treatment technologies can hold up the progress of the implementation of the Action Plan. The Program management team will continuously track and identify such issues and escalate to the appropriate level. The three tier monitoring and review system will help in resolving the issues.

**ANNEXURE A – Representative Quality Of Water of River Beas for December, 2018**

S.No.	Point of Sample Collection	pH	DO mg/l	COD mg/l	BOD mg/l	T.Coli MPN/100 ml	F.Coli MPN/100 ml	DBU Classification
1.	Beas at Talwara H/W	7.8	7.8	08	1.0	94	49	B
2.	Beas at Mirthal Bridge Gurdaspur	8.2	7.4	08	1.1	170	110	B
3.	U/S Pathankot	8.3	7.3	12	1.3	350	170	B
4.	D/S Pathankot	8.0	7.5	16	2.0	490	330	B
5.	Beas 1km D/S effluent discharge point at Mukerian.	7.7	7.4	18	2.1	840	460	C
6.	Beas Bridge at village Bheate Patan Tehsil Batala Distt. Gurdaspur	7.9	7.3	17	1.9	790	490	C
7.	Beas at G.T. Road, under Bridge Near Kapurthala	7.8	7.4	16	1.6	630	460	C
8.	U/s Goindwal	7.9	7.5	14	1.5	580	250	C
9.	D/s Goindwal	7.9	8.3	15	1.6	630	330	C
10.	Beas at Harike	7.6	7.5	12	1.4	580	430	C

ANNEXUE A(1) - Graphical Representation of parameters w.r.t Designated Best Use



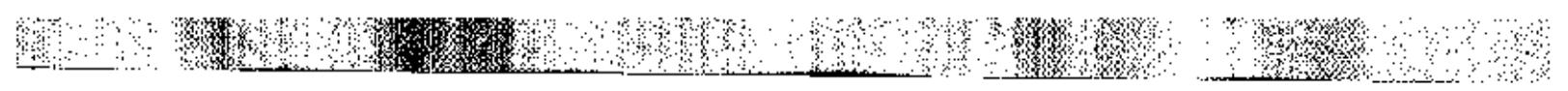




**ANNEXURE B - Analysis Results Of Surface Water Monitoring Under NWMP**

S.No.	Points at River Beas	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19
		DO			pH			BOD			T Form			DBU		
1.	Beas at Talwara H/W	7.6	7.9	7.6	7.5	7.3	7.5	BDL	BDL	1.0	151	84	94	B	B	B
2.	Beas at Mirthal Bridge Gurdaspur	7.2	7.4	7.6	7.2	7.3	7.6	1.2	1.1	1.2	272	127	193	B	B	B
3.	U/S Pathankot	7.4	7.6	7.4	7.2	7.1	7.6	0.8	1.0	1.3	251	120	340	B	B	B
4.	D/S Pathankot	7.3	7.5	7.2	7.4	7.2	7.5	1.1	1.1	1.7	357	156	490	B	B	B
5.	Beas 1km D/S at Mukerian	5.8	6.4	7.1	7.2	7.4	7.6	2.8	1.9	1.8	602	379	750	C	B	C
6.	Beas Bridge at village Bheate Patan	-	-	7.2	-	-	7.6	-	-	1.6	-	-	715	-	-	C
7.	Beas at G.T. Road, Beas	7.5	7.5	7.3	7.3	7.4	7.6	1.2	2.3	1.5	277	226	387	B	B	B
8.	U/s Goindwal	7.3	7.5	7.5	7.4	7.2	7.6	1.2	1.2	1.3	289	193	337	B	B	B
9.	D/s Goindwal	7.3	7.4	7.4	7.3	7.3	7.6	1.2	1.4	1.5	302	220	407	B	B	B
10.	Beas at Harike	7.6	7.7	7.6	7.2	7.2	7.6	1.1	1.3	1.4	229	214	453	B	B	B

Note 1. 2015-16- Quarterly sampling. 2. Station at SR. NO. 6 started from July 2018.



**ANNEXURE C(1)- List of 13 Major Drains Directly Discharging Wastewater Into River Beas**

S.N	Name of the Drain	Identification ID	Point of Origin	Approx. Length (in Km)	Location at which it meets River Beas	Approx. Discharge (MLD)
1.	Swan Khadh	IN:1.0	Sansarpur-Terrace (Kangra, H.P)	7	Near Headworks Talwara	2
2.	Chak Phandian Drain	IN:2.0	Vill Chak Phandian	40	Vill Khanpur	12.2
3.	Bhangala Drain	IN:3.0	Village Chak Sarwani	15.5	Vill Kalichpur Kalota	2
4.	Gazi Drain	IN:4.0	Village Landey	8.5	Talluwal	1
5.	Nikas Mansar Drain	IN:5.0	Village Baghowal Nikas	6.88	Taggar Kalan	2.5
6.	Tanda Ram Sahai Drain	IN:6.0	Village Muradpur	8.2	Near Dhanoa Bridge	4
7.	River Chakki	IN:7.0	Himachal Pardersh	40	Vill Bianpur	20
8.	Gaddi Nallah	IN:8.0	Village Bhagwanpur	18.89	Vill Taragarh, Mukerian	934
9.	Kahauwan Swamp Drain	IN:9.0	Village Pandori Bainsan	39.32	Bhait Pattan Near Vill Kiri Afgana	1651
10.	Dhirowal Drain	IN:10.0	Village Santosh Nagar	6.10	Near Shri Hargobind Pur Bridge	367
11.	Open Channel Near Industrial Estate, Goindwal Sahib*	IN:11.0	Focal Point, Goindwal Sahib	1.5	Vill Khakh	2
12.	Holy Bein	IN:12.0	Vill Dhanoa, Dasuya Distt Hoshiarpur	120	Vill Mand Fatehpur	30,000
13.	Open Nallah along Shah Nehar Canal leading to River Beas	IN:13.0	Talwara Town	2	Vill Bhera	2

\*Presently whole water from Focal Point Goindwal Sahib is getting stagnated in an open pond, however during rainy season, the River Beas water gets mix up with the stagnated water of the Goindwal Sahib Town and that of the Industrial Estate Goindwal Sahib

**ANNEXURE C(2) – Analysis of 13 Major Drains Directly Discharging Wastewater Into River Beas**

S.N	Name of the Drain	Identification ID	pH	COD (mg/L)	BOD (mg/L)	TSS (mg/L)	TDS (mg/L)
1.	Swan Khadh	IN:1.0	8.2	36	10	42	412
2.	Chak Phandial Drain	IN:2.0	8.3	28	7.0	20	205
3.	Bharigala Drain	IN:3.0	7.2	20	05	10	272
4.	Gazi Drain	IN:4.0	7.8	52	19	12	398
5.	Nikas Mansar Drain	IN:5.0	7.4	52	18	12	420
6.	Tanda Ram Sahai Drain	IN:6.0	7.2	32	10	10	310
7.	River Chakki	IN:7.0	8.1	20	3.0	14	210
8.	Gaddi Nallah	IN:8.0	7.2	20	3.0	13	232
9.	Kahnuwan Swamp Drain	IN:9.0	7.9	36	10	36	238
10.	Dhirowal Drain	IN:10.0	Sample Not Collected				
11.	Open Channel Near Focal Point, Goindwal Sahib	IN:11.0	Sample Not Collected				
12.	Holy Bein	IN:12.0	7.6	28	4.4	26	384
13.	Open Nallah along Shah Nehar Canal leading to River Beas	IN:13.0	Sample not Collected				

Note: Results of Sr. No. 1 Metals are Cr.=0.32, Zn.= 0.10, As.,Pb.,Hg.,Ni.,Cd., Oil And Grease = BDL

All results are in (mg/l) except pH , BDL (Below Detection Limit )

**ANNEXURE D - List of Creeks/Drains/Nallah/Khadh Leading to Major Drains**

Sr No	Name of Major Drain	Identification I.D
1	Kahnuwan Swamp Drain	IN:9.0
	Sr No	Creeks/Drains/Nallah/Khadh
	1	Bhaini Mian Khan Drain
	2	Fatehpur Drain
	3	Kot Khari Mohommad Drain
	4	Gunupur Drain
	5	Kotli Harchanda Drain
	6	Kokla Drain
2	Holy Bein	IN:12.0
	Sr No	Creeks/Drains/Nallah/Khadh
	1	Sadarpur Drain
	2	Nangal Sehgo Drain
	3	Safdar Drain
	4	Kurala Drain
	5	Tanda Drain
	6	Mehangrewal Choe
	7	Begowal Drain
	8	Kingranwala Choe
	9	Raipur Peer Bakash Drain
	10	Ramgarh Drain
	11	Beas Pind Rahimpur Drain
	12	Nizampur Drain
	13	Wadala Drain
	14	Bhulana Drain
	15	Khane & Khane Extension Drain
	16	Sultanpur Drain

**Note:** 12.6 and 12.18 identification has been given to Villages/MCs discharging its wastewater directly into Holy Bein.



**ANNEXURE E – List of Urban/ Rural Areas Discharging Directly Into River Beas**

<b>1. Swan Khad (IN:1.0)</b>						
<b>Sr No</b>	<b>Name of the Source</b>	<b>Identification mark</b>	<b>Location of the outfall into drain</b>	<b>Coordinates at the outfall into the drain</b>	<b>Apprx. Discharge (KLD)</b>	<b>Present treatment facility installed, If any.</b>
1.	Sansarpur-Terrace Industrial Complex (Himachal Pradesh)	IN:1.1	Vill. Changrwan	31°26'94" N 75°62'00" E	2000	No Treatment Provided
<b>2. Chak Pandial Drain (IN:2.0)</b>						
1.	BBMB Talwara	IN:2.1	Vill Chak Paelian	31°94'38" N 75°88'86" E	8000	Yes
2.	Vill Handwal	IN:2.2	Near Phirni of Vill Handwal	31°97'06" N 75°81'03" E	350	No Treatment Provided
3.	Vill Sathwan	IN:2.3	Near Left side of Canal	31°96'65" N 75°82'28" E	400	No Treatment Provided
4.	Vill Chaggravan	IN:2.4	Near temple of Vill Chaggravan	31°96'17" N 75°86'96" E	425	No Treatment Provided
<b>3. Bhangala Drain (IN:3.0)</b>						
1.	Vill Kalota	IN:3.1	Near Shani Mandir Road	31°99'61" N 75°56'08" E	100	No Treatment Provided
2.	Vill Salaraian Kalan	IN:3.2	Near Kalota Road towards North- West of the Salarian Kalan to Kalota Road	32°00'15" N 75°56'70" E	100	No Treatment Provided
3.	Vill Palaki, Mojowal	IN:3.3	Near Panchvati Dham	32°01'79" N 75°58'19" E	150	No Treatment Provided
4.	Vill Bhangala	IN:3.4	Near Manjpur Road	32°01'74" N 75°60'29" E	500	No Treatment Provided
5.	Vill Purana Bhangala	IN:3.5	East side of the road Village Purana Bhangala	32°01'02" N 75°61'97" E	350	No Treatment Provided

6.	Vill Dhaula Kehra	IN:3.6	North side of the vill. Dahula Kehra	30°00'02"N 75°63'75"E	150	No Treatment Provided
7.	Vill Chak Sarwani	IN:3.7	Near Nagal road from Vill. Chak Sarwani	31°99'60"N 75°65'29"E	30	No Treatment Provided
8.	Vill Mehtabpur	IN:3.8	North side of the road Vill Mehtabpur	31°03'13" N 75°56'93" E	250	No Treatment Provided
<b>4. Gaji Drain (IN: 4.0)</b>						
S.N.	Name of the Source	Identification mark	Location of the outfall into drain	Coordinates at the outfall into the drain	Apprx. Discharge (KLD)	Present treatment facility installed, if any.
1.	Vill Landey, Musahibpur	IN: 4.1	Near NH44	31°99'25"N 75°61'44"E	300	No treatment provided
2.	Vill Budhpur Colony & Budhpur Pind	IN:4.2	Near Hoshiarpur-Kalota Road	31°98'47"N 75°58'91"E	150	No treatment provided
<b>5. Nikas Mansar Drain (IN:5.0)</b>						
1.	M.C Mukerian	IN:5.1	Near Railway Crossing of Vill. Attalgarh	31°94'97" N 75°60'50" E	1000	STP Provided for sewage of M.C. Mukerian, but this effluent is bypassed and discharged into drain without any treatment
2.	M.C Mukerian	IN:5.2	Partially treated effluent is used for irrigation and partially treated is discharged into Nikas Mansar Drain	31°94'96" N 75°59'88" E	3000	STP Provided of capacity 5 MLD MMBB Technology.
3.	Vill Attalgarh	IN:5.3	North side of Vill. Attalgarh, 100 mtr. North of Attalgarh-Kalsan Road.	31°94'90" N 75°60'30"E	200	No treatment provided
4.	Vill Golra	IN:5.4	100 mtr. North of Gokra's from vill. Main Abadi/ Lal Lakir	31°94'79"N 75°58'04" E	200	No treatment provided
5.	Vill Ghallian	IN:5.5	North side of the village (West of Pallian to Purika road.)	31°95'14" N 75°57'04"E	150	No treatment provided
6.	Vill Taggar Kalan	IN:5.6	North side of the Vill. Phirni.	31°95'24"N 75°54'20"E	300	No treatment provided

6. Tanda Ram Sahai Drain (IN:6.0)						
S.N.	Name of the Source	Identification mark	Location of the outfall into drain	Coordinates at the outfall into the drain	Apprx. Discharge (KLD)	Present treatment facility installed, if any.
1.	Vill Muradpur Awana	IN:6.1	East side of Vill. Muradpur Awana Phirni	31°93'41"N 75°65'33"E	450	No Treatment Provided
2.	Vill Doogri Colony	IN:6.2	East side of Vill. Salrian Khurd – Tanda Ram Sahai Road.	31°91'91"N 75°62'25"E	350	No Treatment Provided
3.	Vill Dugri Rajputtan, Salrian Khurd	IN:6.3	East side of Vill. Salrian Khurd – Tanda Ram Sahai Road.	31°92'23"N 75°60'00"E	400	No Treatment Provided
4.	Vill Tanda Ram Sahai	IN:6.4	Near Radhe Krishna Mandir	31°92'84"N 75°58'28"E	500	No Treatment Provided
5.	Vill Barota	IN:6.5	South side of village Abdulapur.	31°93'58"N 75°57'53"E	250	No Treatment Provided
6.	Vill Abdulapur	IN:6.6	Near Bridge of Vill. Abadulapur	31°93'63"N 75°57'03"E	325	No Treatment Provided
7.	Vill Mauli	IN:6.7	Near Abdulapur – Mauli Road	31°93'58"N 75°54'86"E	400	No Treatment Provided
8.	Vill Bagrohi	IN:6.8	West side phirni of Bagrohi Vill.	31°92'37"N 75°54'87"E	250	No Treatment Provided
9.	Vill Amirpur Jattan	IN:6.9	West side of vill Amripur Jattan	31°91'71"N 75°56'70"E	350	No Treatment Provided

<b>7. Pipeline from STP of Sri Hargobindpur (IN:6A)</b>						
<b>S.N.</b>	<b>Name of the Source</b>	<b>Identification mark</b>	<b>Location of the outfall into drain</b>	<b>Coordinates at the outfall into the drain</b>	<b>Apprx. Discharge (KLD)</b>	<b>Present treatment facility installed, if any.</b>
1.	MC Hargobindpur	IN:6A.1	Near STP of Sri Hargobindpur	31°41'26"N 75°28'20"E	1000	Yes
<b>8. Pond of MC Dhillwan near the Bank of River Beas (IN:6B)</b>						
<b>S.N.</b>	<b>Name of the Source</b>	<b>Identification mark</b>	<b>Location of the outfall into drain</b>	<b>Coordinates at the outfall into the drain</b>	<b>Apprx. Discharge (KLD)</b>	<b>Present treatment facility installed, if any.</b>
1.	MC Dhillwan	IN:6B.1	Pond along River Beas	31°30'36" N 75°20'07" E	2500	STP Proposed
<b>9. Open Nallah along Shah Nehar Canal leading to River Beas (IN:13.0)</b>						
<b>S.N.</b>	<b>Name of the Source</b>	<b>Identification mark</b>	<b>Location of the outfall into drain</b>	<b>Coordinates at the outfall into the drain</b>	<b>Apprx. Discharge (KLD)</b>	<b>Present treatment facility installed, if any.</b>
1.	MC Talwara	IN:13.1	Near Old Talwara Road adjoining Mukerian Hydrel Canal	31°57'03" N 75°53'16" E	4000	STP Proposed

**ANNEXURE F – List Of Urban/ Rural Areas Discharging In-directly Into River Beas**

<b>1. Chakki River (IN:7.0)</b>						
<b>S.N.</b>	<b>Name of the Source</b>	<b>Identification mark</b>	<b>Location of the outfall into drain</b>	<b>Coordinates at the outfall into the drain</b>	<b>Apprx. Discharge (KLD)</b>	<b>Present treatment facility installed, if any.</b>
1	MC Pathankot	IN: 7.1	Bianpur	32° 16' 9"N 75° 38' 3"E	30200	STP of 27 MLD exist and 02 STPs of 2 MLD and 1.2 MLD proposed
2	Pathankot Industrial Focal Point of PSIEC	IN: 7.2	Haler Khadh	32° 19'31"N 75° 37'55"E	2000	No
3	MC Sujampur	IN: 7.3	Near Bridge no.5, Sujampur	32° 18' 46"N 75° 36' 7"E	3500	STP Proposed
4	Garrison Engineer (Air Force)	IN: 7.4	Near Madhopur Beas Link	32° 16' 47"N 75° 43' 06"E	3000	Yes
5	Garrison Engineer (South)	IN: 7.5	Near Madhopur Beas Link	32° 16' 47"N 75° 43' 06"E	2000	Yes
6	Garrison Engineer(West)	IN: 7.6	Near Madhopur Beas Link	32° 16' 47"N 75° 43' 06"E	2000	Yes
7	Garrison Engineer(Mammon)	IN: 7.7	Near Madhopur Beas Link	32° 16' 47"N 75° 43' 06"E	2000	Yes
8	Garrison Engineer(North)	IN: 7.8	Near Madhopur Beas Link	32° 16' 47"N 75° 43' 06"E	2000	Yes
<b>2. Gaddi Nallah (IN:8.0)</b>						
It carries the water of the catchment area comprising mainly of sub-surface water.						
<b>3. Kahnuwan Swamp Drain (IN:9.0)</b>						
<b>3.1 Bhani Mian Khan Drain(IN:9.1)</b>						
1	Vill Pakhowal	IN:9.1.1	Village Pakhowal	32°2'52"N 75°31'25"E	160	No
2	Vill Chandar Bhan	IN:9.1.2	Village Chandar Bhan	32° 1' 31"N 75° 30' 38"E	205	No
3	Vill Nanowal Jinder	IN:9.1.3	Village Nanowal Jinder	31° 50' 44"N 75° 29' 48"E	220	No

4	Vill Nadaia 647	IN:9.1.4	Near Bau Ram Karyana Store	31° 32' 41" N 75° 26' 19" E	53	No
5	Vill Gurudwara Ghallu Ghara	IN:9.1.5	Near Gurudwara Sahib	31° 57' 48" N 75° 28' 14" E	50	No
6	Vill Bhaini Mian Khan	IN:9.1.6	Near House of Chaman Lal Sarpanch	31° 52' 22" N 75° 31' 03" E	291	No
7	Vill Ghookla	IN:9.1.7	Near Karnail Singh and Madan Lal Haveli	31° 51' 58" N 75° 28' 46" E	44	No
8	Vill Nanowal Khurad	IN:9.1.8	Near Bridge of Vill Nanowal Khurad	31° 51' 47" N 75° 30' 10" E	98	No
<b>3.2 Fatehpur Drain(IN:9.2)</b>						
1	Vill Darapur	IN:9.2.1	Village Darapur	31° 54' 28" N 75° 26' 8" E	150	No
2	Vill Kot Bhalla	IN:9.2.2	Village Kot Bhalla	32° 4' 26" N 75° 29' 46" E	85	No
<b>3.3 Fatehpur Drain(IN:9.3)</b>						
1	Vill Gunopur	IN:9.3.1	Village Gunopur	31° 57' 18" N 75° 29' 16" E	75	No
2	Vill Kahnuwan	IN:9.3.2	Village Kahnuwan	31° 54' 22" N 75° 26' 39" E	210	No
<b>3.4 Gunupur Drain(IN:9.4)</b>						
<b>S.N.</b>	<b>Name of the Source</b>	<b>Identification mark</b>	<b>Location of the outfall into drain passing near area</b>	<b>Coordinates at the outfall into the drain</b>	<b>Apprx. Discharge (KLD)</b>	<b>Present treatment facility installed, if any.</b>
1	Vill Chawa	IN:9.4.1	Village Chawa	31° 59' 57" N 75° 28' 12" E	120	No
<b>3.5 Kotli Harchanda Drain(IN:9.5) : No village is discharging wastewater in this drain.</b>						
<b>3.6 Kokla Drain(IN:9.6)</b>						
1	Vill Bham	IN:9.6.1	Village Bham	31° 45' 55" N 75° 27' 5" E	615	No
2	Vill Bhorian	IN:9.6.2	Village Bhorian	31° 54' 14" N 74° 58' 4" E	90	No

3	Vill Kotli Harchanda	IN:9.6.3	Village Kotli Harchanda	31° 53' 0"N 75° 29' 21"E	185	No
<b>4. Dhirowal Drain (IN:10.0)</b>						
<b>S.N.</b>	<b>Name of the Source</b>	<b>Identification mark</b>	<b>Location of the outfall into drain passing near area</b>	<b>Coordinates at the outfall into the drain</b>	<b>Apprx. Discharge (KLD)</b>	<b>Present treatment facility installed, if any.</b>
1	Vill Kiri Afgana Distt Gurdaspur	IN:10.1	Near Vill Kiri Afgana	31° 46'17"N 75° 31'20"E	299	No
<b>5. Open Channel Near Industrial Estate Goindwal Sahib (IN:11.0)</b>						
1	Industrial Estate (PSIEC)	IN:11.1	Vill Khakh	31° 21' 01"N 75° 08' 26"E	2000	STP Proposed
2	MC Goindwal Sahib	IN:11.2	Pond adjoining River Beas	31° 21' 19"N 75° 08' 52"E	1300	STP installed but not yet commissioned
<b>9.0 Holy Bein (IN:12.0)</b>						
<b>6.1 Holy Bein (Hoshiarpur Area)</b>						
<b>6.1.1 Sadarpur Drain (IN:12.1)</b>						
1.	Vill Sadarpur Nagra	IN:12.1.1	Near pong main canal	31°84'58" N 75°59'48" E	200	No Treatment Provided
<b>6.1.2 Nangal Sehgo Drain(IN:12.2)</b>						
1.	Vill Sehge	IN:12.2.1	Along the road from sehge to NH 44	31°84'96"N 75°63'25"E	200	No Treatment Provided
<b>6.1.3 Safdarpur Drain (IN:12.3)</b>						
1	Vill Buchhan	IN:12.3.1	Directly into the drain	31°77'54"N 75°58'70"E	500	No Treatment Provided
2	Vill Chak Bansu	IN:12.3.2	Directly into the drain	31°75'88"N 75°58'57"E	200	No Treatment Provided
3	Vill Alampur	IN:12.3.3	Directly into the drain	31°74'35"N 75°58'31"E	500	No Treatment Provided
4	Vill Kahlwan	IN:12.3.4	Directly into the drain	31°73'54"N	500	No Treatment Provided

				75°58'15"E		
5	Vill Gilzian	IN:12.3.5	Directly into the drain	31°72'32"N 75°58'58"E	700	No Treatment Provided
6	Vill Ibrahimpur	IN:12.3.6	Directly into the drain	31°72'85"N 75°58'64"E	300	No Treatment Provided
7	Vill Mada	IN:12.3.7	Directly into the drain	31°71'26"N 75°58'87"E	150	No Treatment Provided
<b>6.1.4 Kurala Drain (IN:12.4)</b>						
1	Vill Kadari Chak	IN:12.4.1	Directly into the drain	31°70'24" N 75°59'78"E	200	No Treatment Provided
<b>6.1.5 Tanda Drain (IN:12.5)</b>						
1	Vill Kotli	IN:12.5.1	Near chauhan Palace	31°68'04"N 75°61'52"E	200	No Treatment Provided
<b>6.1.6 Villages/MCs directly discharging into Holy Bein (IN:12.6)</b>						
1	MC Tanda	IN:12.6.1	Into Holy Bein through pipeline	31°40'57.06"N 75°35'25.49"E	3150	STP Provided
2	MC Dasuya	IN:12.6.2	No outfall	31°46'48" N 75°37'57"E	4000	STP Provided
<b>6.1 Holy Bein (Jalandhar Area)</b>						
<b>6.2.1 Mehangrowal Choe (IN:12.7)</b>						
1	MC Hariana	IN 12.7.1	Opposite Hoshiarpur Road	31°62'26" N 74°84'65"E	2000	STP Proposed
<b>6.2.2 Begowal Drain (IN:12.8)</b>						
1	MC Begowal	IN 12.8.1	Near STP Begowal	31° 36' 16"N 75° 31' 35"E	2500	STP
<b>6.2.3 Kingrawalan Choe (IN:12.9)</b>						
1	MC Sham Chaurasi	IN 12.9.1	After STP	31° 49' 91"N 75° 75' 17"E	1000	STP (WSP)
<b>6.2.4 Raipur Peer Baksh Drain (IN:12.10)</b>						
1	Vill Bhadas	IN 12.10.1	Vill Bhadas	31° 35' 10"N 75° 30' 24"E	300	No

<b>6.2.5 Ramgarh Drain (IN:12.11)</b>						
1	Vill Littan	IN:12.11.1	Near Mobile Tower	31° 30' 19"N 75° 29' 12"E	258	No
<b>6.2.6 Beas Pind Rahimpur Drain (IN:12.12)</b>						
1.	Vill Bhikhan Nangal	IN:12.12.1	Vill Bhikhan Nangal	31° 28' 03"N 75° 28' 22"E	66	No
2	Vill Cheema	IN:12.12.2	Cheema Rahimpur Colony	30° 26' 42"N 75° 31' 48"E	120	No
3	Vill Ambgarh	IN:12.12.3	Near Church	31° 26' 26"N 75° 32' 33"E	170	No
4	MC Kartarpur	IN:12.12.4	Beas Pind Drain	31° 43' 58"N 75° 50' 09"E	4000	STP Proposed
<b>6.2.7 Nizampur Drain (IN:12.13)</b>						
1	Vill Bamuwal	IN:12.13.1	Vill Bamuwal	31°30'10"N 75°26'12"E	277	No
2	Vill Muddowal	IN:12.13.2	Vill Muddowal	31°29'57"N 75°24'58"E	143	No
3	Vill Tajpur	IN:12.13.3	Vill Tajpur	31°29'26"N 75°24'27"E	90	No
4	Vill Ramidi	IN:12.13.4	Vill Ramidi	31°28'36"N 75°23'42"E	263	No
<b>6.2.8 Wadala Drain (IN:12.14)</b>						
1.	MC Kapurthala	IN:12.14.1	Near Pulli	31°23'20"N 75°22'18"E	25000	STP
2.	Sunder Nagar	IN:12.14.2	Near Markfed	31°22'39"N 75°22'26"E	90	Various Colonies within
3.	Model Town	IN:12.14.3	Bimla Enclave pipeline	31°23'22"N 75°22'30"E	860	
4.	Guru Nanak Nagar	IN:12.14.4	Near Guru Nanak Nagar	31°23'22"N	670	

5.	Police Line	IN:12.14.5	houses Near Gurudwara Sahib	75°22'30"E 31°23'24"N 75°23'05"E	540	MC Kapurthala Area shall be connected with the existing STP of 25 MLD Capacity, MC Kapurthala	
6.	Suriya Endave and Grover Colony	IN:12.14.6	Pully opp. Green Wood Works	31°23'41"N 75°23'27"E	980		
7.	New Ajit Nagar	IN:12.14.7	Near residential area	32°23'34"N 75°23'32"E	585		
8.	Mohalla Seenpur	IN:12.14.8	Near Jhugies	32°23'33"N 75°23'34"E	330		
9.	New Court Complex	IN:12.14.09	Near pump house	31°23'13"N 75°25'23"E	240		
10.	New Colony (Ajit Nagar)	IN:12.14.10	Backside of Ajit Nagar	31°23'34"N 75°24'08"E	260		
11.	Vill Daburji and Kadupur	IN:12.14.11	Pullynear Gurudwara Sahib	31°23'25"N 75°24'38"E	283		No
12.	Vill Mainwan	IN:12.14.12	Near Jhugies	31°23'05"N 75°26'15"E	101		No
13.	Vill Kot Krar Khan	IN:12.14.13	Near house of Sh. Jarnail Singh	31°23'10"N 75°28'15"E	200		No
14.	Vill Chuharwal	IN:12.14.14	Near old house	31°23'34"N 75°23'44"E	140		No
<b>6.2.9 Bhulana Drain (IN:12.15)</b>							
1	Vill Bhulana	IN:12.15.1	Near Gurudwara Sahib	31°19'06"N 75°19'13"E	152	No	
<b>6.2.10 Khane &amp; Khane Extension drain (IN:12.16)</b>							
1	Vill Tudarwal	IN:12.16.1	Near Govt School	31°20'10"N 75°15'00"E	52	No	
<b>6.2.11 Sultanpur Drain (IN:12.17)</b>							
1	Vill Malian	IN:12.17.1	Malian	31°15'48"N 75°18'11"E	185	Pond	

6.2.12 List of Villages discharging directly into Holy Bein (IN:12.18)						
1	Vill Chanchok, Tehsil Bholath, Kapurthala	IN:12.18.1	Backside pucca houses near bein	31°34'20"N 75°30'55"E	47	No
2	Vill Dhogarwal, tehsil & Distt, Kapurthala	IN:12.18.2	Near overhead water tank	31°28'53"N 75°24'55"E	175	No
3	Vill Nanakpura, Tehsil, Kapurthala	IN:12.18.3	Near Shamshan Ghat	31°23'15"N 75°20'04"E	101	No
4	Vill Talwara, Tehsil Bholath, Distt. Kapurthala	IN:12.18.4	Near Atta Chaki	31°32'13"N 75°27'34"E	128	No
5	Vill Talwandi Purdal, Tehsil Bholath, Distt. Kapurthala	IN:12.18.5	Near Shamshan Ghat	31°31'28"N 75°27'23"E	101	No
6	Rawal and Colonies Tehsil and Distt. Kapurthala	IN:12.18.6	Near Gurdwara	31°18'57"N 75°19'07"E	845	STP of 1.0 MLD proposed by Jalandhar Development Authority
7	MC Bholath	IN:12.18.7	Near STP	31°32'32"N 75°30'20"E	4000	Yes
8	MC Sultanpur Lodhi	IN:12.18.8	Near STP	31°12'50"N 75°11'43"E	5600	Existing STP of 2.6 MLD to be replaced with proposed 4.0 MLD STP and another 1.0 MLD STP Proposed
9	Garrison Engineering, Kapurthala	IN:12.18.9	Near Kanjali	31°22'47"N 75°22'47"E	2000	STP Proposed



**ANNEXURE G(1)- Local Bodies Which Have Installed STPs of Full Capacities**

Sr. No	Name of Town	Sewage Generation in MLQ (present)	Capacity of STP (MLD)	Technology of STP
1.	Talwara (BBMB)	4.0	8.0	SBR
2.	Pathankot	18.0	27.0	SBR
3.	Shri Hargobindpur	1.0	1.0	WSP
4.	Mukerian	4.0	5.0	MBBR
5.	Dasuya	3.0	4.0	WSP
6.	Tanda	3.0	4.0	MBBR
7.	Begowal	1.5	2.5	SBR
8.	Bholath	1.5	4.0	WSP
9.	Kapurthala	24.0	25.0	UASB
10.	Sultanpur Lodhi	3.24	2.6	WSP
11.	Sham Chuarasi	1.0	1.0	WSP

**ANNEXURE G(2)- List of Partially Completed STPs/ ULBs/JDA/MES/PSIEC have not Installed  
STPs**

Sr. No.	Name of the Town	Disposal	Capacity of the STP proposed to be installed/ commissioned (MLD)
<b>A</b>	<b>Local Bodies</b>		
1	MC Sultanpur Lodhi	Into Holy Bein	4.0
2	MC Sultanpur Lodhi	Into Holy Bein	1.0
3	MC Kapurthala (Upgradation of Technology)	Into Holy Bein	
4	MC Kartarpur	Into Holy Bein	4.0
5	MC Dhilwan	Wastewater discharged into Pond adjoining River Beas which remain stagnated and carry discharge in Monsoon Season to River Beas	2.5
6	MC Pathankot	Into Chakki River	2.0
7	MC Pathankot	Into Chakki River	1.2
8	MC Haryana	Into Holy Bein	2.0
9	MC Sujanpur	Near Bridge no.5, Sujanpur	5.5
10	Talwara Town	Near Old Talwara Road from Mukerain Hydrel Canal	4.0
11	Goindwal Sahib	Wastewater discharged into Pond adjoining River Beas which remain stagnated and carrying discharge in Monsoon Season to River Beas	1.3
12	Jalandhar Development Authority (JDA)	Wastewater generated from Vill Rawal and adjoining Colonies of Distt Kapurthala	1.0
13	MES	Garrison Engineering Services Kapurethala	1.0
14	PSIEC	Industrial Growth Centre Pathankot	2.0
15	PSIEC	Industrial Focal Point Goindwal Sahib	2.0

ANNEXURE H(1) -Listof Industries in Mukerian and Dasuya inCatchment Area of River Beas

S. No.	Name and Address of industry	Type of industry	Water consumption (KLD)	Effluent discharge (KLD)		ETP component	Mode of Disposal of treated wastewater
				Trade (KLD)	Domestic (KLD)		
1	M/s AB Sugar Ltd.(Sugar Division), Village Randhawa, Dasuha, Distt. Hoshiarpur	Sugar Mill	2590	2800	30	Anaerobic followed by aerobic biological treatment	Onto land for plantation
2	M/s AB Sugar Ltd.(Distillery Division), Village Randhawa, Dasuha, Distt. Hoshiarpur	Distillery	Common with sugar division	ZLD	Common STP with Sugar Division as mentioned in Sr. No.1	Not Required	Not Applicable
3	Indian Sucrose Ltd., Mukerian, Distt. Hoshiarpur	Sugar Mill	428	2000	25	Anaerobic followed by aerobic biological treatment	Onto land for plantation

**ANNEXURE H(2) –List of Industries in Pathankot and Hoshiarpur Area of River Beas**

Sr. No.	Name and Address of Industry	Type of industry	Water consumption (KLD)	Effluent discharge (KLD)		ETP component	Mode of Disposal of treated wastewater
				Trade (KLD)	Domestic (KLD)		
1	Chadha Sugar and Industries (P) Ltd, Village-Kiri-Afgana, Tehsil-Batala, Distt-Gurdaspur	Sugar Mill	1850	450	50	Screen Bar, Oil & Grease trap, Equalization Tank, Primary Clarifier, Aeration Tank, Secondary Clarifier & Treated effluent storage tank	Onto land for plantation
2	A.B. Grain Spirits Private Limited, Village-KiriAfgana; Tehsil Batala, Distt. Gurdaspur	Distillery	1392	1128	10	Lagoon, Primary Aeration Tank, Primary Clarifier, Secondary Aeration tank and Secondary Clarifier	Onto land for plantation
3	Pioneer Industries Ltd (Distillery Division), Industrial Growth Centre, Defence Road, VPO Ranipur, Pathankot.	Distillery	1360	678	18	ZLD	Onto land for plantation
4	Pioneer Industries Ltd (Gluten Division), Industrial Growth Centre, Defence Road, VPO Ranipur, Pathankot.	Gluten Unit	450	311	10	Collection Tank- Aeration Tank- Clarifier- Collection Tank	Onto land for plantation
5	Chadha Sugar and Industries (P) Ltd, (Grain Based Distillery) Village-Kiri-Afgana, Tehsil-Batala, Distt-Gurdaspur.	Distillery	305	67	10	Not Required	Onto land for plantation

6	Chadha Sugar and Industries (P) Ltd, (Molasses Based Distillery) Village-Kiri-Afgana, Tehsil-Batala, Distt-Gurdaspur.	Distillery	659	93	10	Not Required	Onto land for plantation
7	Adie Broswon Breweries (P) Ltd., Village-KiriAfgana, Tehsil-Batala, District-Gurdaspur.	Brewery	1000	700	12.5	Collection Tank-Preclarifier-Buffer Tank- Final Clarifier-Aeration Tank-Digester	Onto land for plantation
8	Friends Paper Mill, IGC, Pathankot	Paper Mill	635	35	4	Collection Tank, Chemical Dosing, Primary Clarifier, Holding Tank, Spray Filter, Outlet for Recirculation	Recirculation cum Onto land for plantation
9	Aarav Board Mill, IGC, Pathankot	Board Mill	10	Nil	0.2	-	Recirculation



**ANNEXURE I(1) – List of Industries in Sri-Goindwal Sahib & Beas Area of River Beas**

S. No.	Name and Address of industry	Type of industry	Water consumption (KLD)	Effluent discharge (KLD)		ETP component	Mode of Disposal of treated wastewater
				Trade (KLD)	Domestic (KLD)		
1	GVK Power (Goindwal Sahib) Ltd., 2x270 MW, Coal Based Thermal Power Plant Project, Goindwal Sahib, Tarn Taran	Thermal Power Plant	56612	652	140	Physico-chemical followed by aerobic biological treatment and tertiary treatment	Onto land for plantation
2	G.D. Food Manufacturing (India) Pvt. Ltd (Old Name Punjab Processed Foods (P) Ltd), Village & Tehsil- Khadoor Sahib, Distt- Tarn Taran	Food Processing	225	102	1.8	Physico-Chemical followed by Biological	PSIEC Sewer
3	Regal Laboratories, Plot No. 119, Industrial Complex, Goindwal Sahib, Tarn Taran	Pharmaceutical Unit	6	5	0.6	Physico-Chemical followed by Biological	PSIEC Sewer
4	Goindwal Sahib Vanaspati Mills 409 Industrial Complex Goindwal Sahib, Distt- Tarn Taran	Vanaspati Ghee	50	45	2.0	Physiochemical	PSIEC Sewer
5	BHEL Goindwal Sahib, Distt. Tarn Taran	Industrial Valves	120	Nil	100	Biological	Partially into PSIEC sewer and Partially for horticulture
6	Jawahar Navodaya Vidyalaya, Goindwal Sahib, Distt. Tarn Taran	Boarding School	10	Nil	9	Septic Tank	PSIEC Sewer
7	M/s Maharaj Sawan Singh Charitable Hospital G.T. Road Beas, Distt. Amritsar, Punjab	Hospital	256	-	230	Biological	Onto land for plantation
8	Radha Soami Satsang Beas, P.O. Dera Baba Jaimal Singh, Teh. Baba Bakala, Distt. Amritsa	Dera	1210	-	1200	Oxidation Ponds	Onto land for plantation/irrigation

**ANNEXURE I(2) –List of Industries located in Kapurthala Area of River Beas**

S. No.	Name and Address of industry	Type of industry	Water consumption (KLD)	Effluent discharge (KLD)		ETP component	Mode of Disposal of treated wastewater
				Trade (KLD)	Domestic (KLD)		
1	Rail Coach Factory, Hussainpur, Kapurthala	Coach Factory	1700	22	1662	ETP based on physico chemical treatment technology	Onto land for plantation

**ANNEXURE J –Status of HCFs operating in Catchment Areas of Beas**

Sr. No	Name of the town	No. of HCFs covered	No. of bedded HCFs	No. of non-bedded HCFs	No. of HCFs not made agreement with CBWTF
1	Mukerian	31	17	14	NIL
2	Tanda	25	14	11	NIL
3	Dasuya	30	12	18	NIL
4	Beas	04	03	01	NIL
5	Goindwal Sahib	06	03	03	NIL
6	Nadala	19	9	10	NIL
7	Sultanpur Lodhi	23	8	15	NIL
8	Dhilwan	4	1	3	NIL
9	Kapurthala	24	9	15	NIL
10	Pathankot	24	22	2	NIL



**ANNEXURE K(1) – Timelines for Irrigation Schemes for reuse of Water**

The phase wise time lines are given as under:

<b>1. Installation of Irrigation Scheme from STP Pathankot: 27 MLD , Distt Pathankot</b>			
<b>Brief Scope of Work</b>		<b>Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation</b>	
<b>S.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (675.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month
<b>2. Installation of Irrigation Scheme from STP Tanda: 4 MLD Distt Jalandhar</b>			
<b>Brief Scope of Work</b>		<b>Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation</b>	
<b>S.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (Rs. 145.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month
<b>3. Installation of Irrigation Scheme from STP Sultanpur Lodhi: 4 MLD, Distt Jalandhar</b>			
<b>Brief Scope of Work</b>		<b>Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation</b>	
<b>S.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019

2	Financial Closure	Funds to be tied up (117.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month

#### 4. Installation of Irrigation Scheme STP Sultanpur Lodhi: 1 MLD, Distt Kapurthala

Brief Scope of Work		Laying of Underground pipeline based irrigation system from STP to supply treated water for Irrigation	
S.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (34.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month

#### 5. Installation of Irrigation Scheme from STP Kartarpur: 4 MLD, Distt Jalandhar

Brief Scope of Work		Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation	
S.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (109.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T,+ 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month

6. Installation of Irrigation Scheme from STP Dhillwan: 2.5 MLD, Distt Jalandhar			
Brief Scope of Work		Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation	
S. No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (62.50 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month
7. Installation of Irrigation Scheme from STP Pathankot: 2 MLD, Distt Pathankot			
Brief Scope of Work		Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation	
S.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (75.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month
8. Installation of Irrigation Scheme from STP Pathankot: 1.2 MLD, Distt Pathankot			
Brief Scope of Work		Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation	
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (38.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month

4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage		
6	Completion and commissioning	T + 18 month	T + 21 month
<b>9. Installation of Irrigation Scheme from STP Hariana: 2.0 MLD, Distt Hoshiarpur</b>			
<b>Brief Scope of Work</b>		Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation	
<b>S. No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (58.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage		
6	Completion and commissioning	T + 18 month	T + 21 month
<b>10. Installation of Irrigation Scheme from STP Sujanpur: 4 MLD, Distt Pathankot</b>			
<b>Brief Scope of Work</b>		Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation	
<b>S.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (135.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage		
6	Completion and commissioning	T + 18 month	T + 21 month

<b>11. Installation of Irrigation Scheme STP Talwara town: 4 MLD, Distt Hoshiarpur</b>			
<b>Brief Scope of Work</b>		<b>Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation</b>	
<b>S. No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (95.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage		-
6	Completion and commissioning	T + 18 month	T + 21 month
<b>12. Installation of Irrigation Scheme from STP GE,Air Force, MES, Pathankot: 3 MLD, Distt Pathankot</b>			
<b>Brief Scope of Work</b>		<b>Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation</b>	
<b>S. No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (90.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage		-
6	Completion and commissioning	T + 18 month	T + 21 month
<b>13. Installation of Irrigation Scheme from STP GE,South, , MES, Pathankot: 2 MLD, Distt Pathankot</b>			
<b>Brief Scope of Work</b>		<b>Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation</b>	
<b>S. No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (60.00 lakh)	T

3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month

**14. Installation of Irrigation Scheme from STP GE, West, , MES, Pathankot 2 MLD, Distt Pathankot**

<b>Brief Scope of Work</b>		Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation	
<b>S. No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (60.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month

**15. Installation of Irrigation Scheme from STP GE(Mammon) Pathankot 2 MLD, Distt Pathankot**

<b>Brief Scope of Work</b>		Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation	
<b>S. No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (62.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month

<b>16. Installation of Irrigation Scheme from STP GE,North, , MES, Pathankot 2 MLD, Distt Pathankot</b>			
<b>Brief Scope of Work</b>		<b>Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation</b>	
<b>S. No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (65.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month
<b>17. Installation of Irrigation Scheme from STP GE,MES, Kapurthala 1 MLD, Distt Kapurthala</b>			
<b>Brief Scope of Work</b>		<b>Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation</b>	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (35.00 lakh)	T
3	Tendering of the work including allotment	T +1 month	T +3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month
<b>15. Installation of Irrigation Scheme from STP Pathankot-PSIEC, 2 MLD, Distt Pathankot</b>			
<b>Brief Scope of Work</b>		<b>Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation</b>	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (67.00 lakh)	T

3	Tendering of the work including allotment	T + 1 month	T + 3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month

**19. Installation of Irrigation Scheme from STP Goindwal Sahib-PSIEC, 2 MLD**

<b>Brief Scope of Work</b>		Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (65.00 lakh)	T
3	Tendering of the work including allotment	T + 1 month	T + 3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month

**20. Installation of Irrigation Scheme from STP to be set by Jalandhar Development Authority, 1.0 MLD**

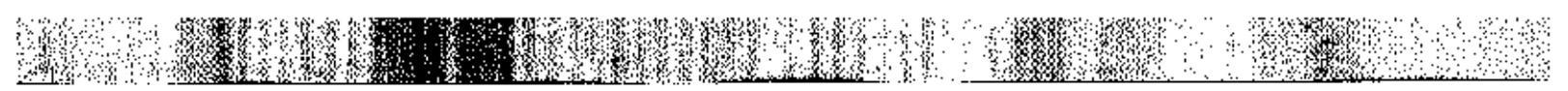
<b>Brief Scope of Work</b>		Laying of Underground pipeline based irrigation system from STP to supply treated water for irrigation	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Funds to be tied up (65.00 lakh)	T
3	Tendering of the work including allotment	T + 1 month	T + 3 month
4	Commencement of work	T + 4 month	T + 18 month
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 18 month	T + 21 month

**ANNEXURE K(2) – Towns where Irrigation Projects Commissioned/ under progress/to be taken up**

STP no.	Name of Town	Capacity of STP (MLD)	Technology of STP	Irrigation system (Rs. In Lakh)		Remarks
				(yes or no),	if no then cost)	
<b>A</b>	<b>STPs COMMISSIONED</b>					
	<b>Irrigation Projects Commissioned</b>					
1	BBMB Talwara	8	SBR	Yes		Irrigation Project Commissioned by BBMB
2	Sri Hargobindpur	1	WSP	Yes		Irrigation Project Commissioned
3	Mukerian	5	MBBR	Yes		Irrigation Project Commissioned
4	Dasuya	4	WSP	Yes		Irrigation Project Commissioned
5	Begowal	2.5	SBR	Yes/Extension being done		Irrigation Project Commissioned, Extension of project underway, Funds available with Deptt
6	Bholath	4	WSP	Yes		Irrigation Project Commissioned
7	Kapurthala	25	UASB	Yes/Extension being done		Irrigation Project Commissioned, Extension of Pipeline underway, Funds available with Deptt
8	Sultanpur Lodhi	2.6	WSP	Yes/Extension being done		Irrigation Project Commissioned, Extension of project underway, Funds available with Deptt
9	Sham Churasi	1	WSP	Yes		Irrigation Project Commissioned
	<b>Irrigation Projects not installed (STPs Commissioned)</b>					
1	Pathankot (AMRUT)	27	SBR	No	875.00	Funds to be tied up, Proposed under NABARD-RIDF-24
2	Tanda	4	MBBR	No	145.00	Funds to be Tied up
	<b>STPs PROPOSED TO BE CONSTRUCTED</b>					
	<b>Funds Required for Irrigation Projects</b>					

1	Sultanpur Lodhi	4	SBR	No	117.00	Funds for irrigation to be tied up
2	Sultanpur Lodhi	1	SBR	No	34.00	Funds for irrigation to be tied up
3	Kartapur	4	SBR	No	109.00	Funds for irrigation to be tied up
4	Dhilwan	2.5	SBR	No	62.50	Funds for irrigation to be tied up
5	Pathankot	2	SBR	No	75.00	Funds for irrigation to be tied up
6	Pathankot	1.2	SBR	No	38.00	Funds for irrigation to be tied up
7	Haryana	2	SBR	No	58.00	Funds for irrigation to be tied up
8	Sujanpur	5.5	SBR	No	135.00	Funds for irrigation to be tied up
9	Talwara Town	4	SBR	No	95.00	Funds for irrigation to be tied up
10	Rawal and Colonies	1	SBR	No	34.00	Funds for irrigation to be tied up
<b>Funds Requirement for Irrigation Projects from STPs Installed by MES</b>						
1	GE,Air Force, MES, Pathankot	3	WSP	No	90.00	*Detailed Irrigation scheme proposal shall be prepared within 6 months
2	GE, South, , MES, Pathankot	2	WSP	No	60.00	--do---
3	GE, West, , MES, Pathankot	2	WSP	No	60.00	--do---
4	GE(Mammon) Pathankot	2	WSP	No	62.00	--do---
5	GE,North, , MES, Pathankot	2	WSP	No	65.00	--do---
6	GE,MES, Kapurthala	1	SBR	No	35.00	--do---( STP is yet to be commissioned)
<b>PSIEC</b>						

1	Industrial Growth Centre Pathankot	2	MBBR	No	67.00	Funds for irrigation to be tied up
2	Industrial Focal Point, Goindwal Sahib	2	SBR	No	65.00	Funds for irrigation to be tied up



**ANNEXURE L- Timelines for setting up of Sewerage Treatment Facilities by Local Bodies**

<b>1. Name of the Project: Providing Sewerage &amp; Construction of STP of Capacity of 04 MLD STP at Bhagorahian Road, Sultanpur Lodhi.</b>			
<b>Brief Scope of Work</b>		<b>Scope : 04 MLD STP</b>	
<b>Sr. No</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Land Acquisition	Public notice issued 30.01.2019	-
2	Preparation of DPR	Being Prepared	-
3	Financial Closure	Provision of Funds from 550 <sup>th</sup> year Gurpurab Celebration Account	
4	Tendering of the work including allotment	Land being finalized and tendering will be started after possession of land-T	T+6 months
5	Commencement of work	T+6 months	T+18 months
6	Quarterly milestones during the construction stage	25%	-
7	Completion and commissioning	T+18 months	T+21 months
<b>2. Name of the Project: Providing Sewerage &amp; Construction of 01 MLD STP at Chaldhan Road, Sultanpur Lodhi.</b>			
<b>Brief Scope of Work</b>		<b>Scope : 01 MLD STP</b>	
1	Land Acquisition	Land Acquired	-
2	Preparation of DPR	Prepared	Approved
3	Financial Closure	Funds being tied up under HUDCO loan	
4	Tendering of the work including allotment	01.04.2019	31.05.2019
5	Commencement of work	01.06.2019	31.03.2020
6	Quarterly milestones during the construction stage	25%	-
7	Completion and commissioning	01.04.2020	30.06.2020
<b>3. Name of the Project: Up-gradation of Existing STP of 25 MLD Capacity of Kapurthala</b>			
<b>Brief Scope of Work</b>		<b>Scope : 25 MLD STP</b>	
1	Land Acquisition	Land Available	-
2	Preparation of DPR	Being prepared	31.03.2019
3	Financial Closure	Funds to be provided by MC Kapurthala	
4	Tendering of the work including allotment	01.04.2019	30.06.2019
5	Commencement of work	01.07.2019	31.12.2019
6	Quarterly milestones during the construction stage	-	-
7	Completion and commissioning	01.01.2020	31.03.2020
<b>4. Name of the Project: Providing Sewerage and Construction of 4 MLD STP at Bholath Road Kartarpur</b>			
<b>Brief Scope of Work</b>		<b>Scope : 04 MLD STP</b>	
1	Land Acquisition	MC Land Identified	-
2	Preparation of DPR	Prepared for Rs. 6.49 crore	Approved
3	Financial Closure	Funds tied up from HUDCO Loan	
4	Tendering of the work including allotment	Started	31.07.2019

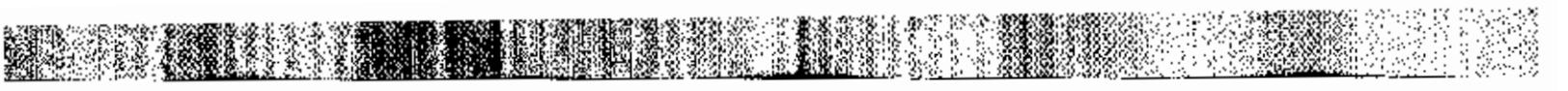
5	Commencement of work	01.08.2019	31.07.2020
6	Quarterly milestones during the construction stage	-	-
7	Completion and commissioning	01.08.2020	31.10.2020
<b>5. Name of the Project: Providing Sewerage and Construction of 2.5 MLD STP at Dhillwan</b>			
<b>Brief Scope of Work</b>		<b>Scope : 2.5 MLD STP</b>	
<b>Sr. No</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Land Acquisition	Not Acquired, Notice Issued	-
2	Preparation of DPR	Prepared for Rs. 15 crore	Approved
3	Financial Closure	Funds tied up under HUDCO loan	
4	Tendering of the work including allotment	Land being finalized and tendering will be started after possession of land-T	T+6 months
5	Commencement of work	T+6 months	T+18 months
6	Quarterly milestones during the construction stage	25%	-
7	Completion and commissioning	T+18 months	T+21 months
<b>6. Name of the Project: Providing Sewerage &amp; Construction of 02 MLD STP at Kothi Pandita, Pathankot.</b>			
<b>Brief Scope of Work</b>		<b>Scope : 02 MLD STP</b>	
1	Land Acquisition	Land Acquired	-
2	Preparation of DPR	Being Prepared	
3	Financial Closure	Funds from AMRUT scheme	
4	Tendering of the work including allotment	01.02.2019	30.04.2019
5	Commencement of work	01.05.2019	28.02.2020
6	Quarterly milestones during the construction stage	-	-
7	Completion and commissioning	01.03.2020	31.05.2020
<b>7. Name of the Project: Providing Sewerage &amp; Construction of 1.2 MLD STP at Adarsh Nagar, Pathankot.</b>			
<b>Brief Scope of Work</b>		<b>Scope : 1.2 MLD STP</b>	
1	Land Acquisition	Land Acquired	-
2	Preparation of DPR	Being Prepared	-
3	Financial Closure	Funds from AMRUT scheme	
4	Tendering of the work including allotment	01.02.2019	30.04.2019
5	Commencement of work	01.05.2019	28.02.2020
6	Quarterly milestones during the construction stage	-	-
7	Completion and commissioning	01.03.2020	31.05.2020

<b>8. Name of the Project: Providing Sewerage &amp; Construction of STP of Capacity of 02 MLD STP at Vill. Sikri Road, Haryana.</b>			
<b>Brief Scope of Work</b>		<b>Scope : 02 MLD STP</b>	
1	Land Acquisition	Land Acquired	
2	Preparation of DPR	Prepared	Already Approved
3	Financial Closure	Funds tied up under HUDCO loan	
4	Tendering of the work including allotment	Started	31.07.2019
5	Commencement of work	01.08.2019	31.07.2020
6	Quarterly milestones during the construction stage	25%	-
7	Completion and commissioning	01.08.2020	31.10.2020
<b>9. Name of the Project: Providing Sewerage &amp; Construction of STP of Capacity of 5.5 MLD STP at Sujampur Distt. Pathankot</b>			
<b>Brief Scope of Work</b>		<b>Scope : 5.5 MLD STP</b>	
1	Land Acquisition	Not acquired	
2	Preparation of DPR	14.01.2019	31.03.2019
3	Financial Closure	Funds to be tied up-T	
4	Tendering of the work including allotment	T+3 months	T+6 months
5	Commencement of work	T+6 months	T+18 months
6	Quarterly milestones during the construction stage	25%	-
7	Completion and commissioning	T+18 months	T+21 months
<b>10. Name of the Project: Providing Sewerage &amp; Construction of STP of Capacity of 4.0 MLD STP at Talwara Town, Distt Hoshiarpur</b>			
<b>Brief Scope of Work</b>		<b>Scope : 4.0 MLD STP</b>	
1	Land Acquisition	Not acquired	
2	Preparation of DPR	14.01.2019	31.03.2019
3	Financial Closure	Funds to be tied up-T	
4	Tendering of the work including allotment	T+3 months	T+6 months
5	Commencement of work	T+6 months	T+18 months
6	Quarterly milestones during the construction stage	25%	-
7	Completion and commissioning	T+18 months	T+21 months

<b>11. Name of the Project: Commissioning of STP of Capacity of 1.3 MLD STP at Goindwal Sahib Distt Tarntarn</b>			
<b>Brief Scope of Work</b>		<b>Scope : 1.3 MLD STP</b>	
1	Preparation of DPR	14.01.2019	31.03.2019
2	Tendering of the work including allotment	01.02.2019	01.03.2019
3	Commencement of work	01.03.2019	-
4	Quarterly milestones during the construction stage	25%	-
5	Completion and commissioning	30.06.2019	30.06.2019
<b>12. Name of the Project: Commissioning of STP of Capacity of 1.0 MLD STP for Rawal and Colonies Distt Kapurthala by Jalandhar Development Authority (JDA)</b>			
<b>Brief Scope of Work</b>		<b>Scope : 1.0 MLD STP</b>	
1	Land Acquisition	Not acquired	
2	Preparation of DPR	14.01.2019	31.03.2019
3	Financial Closure	Funds to be tied up-T	
4	Tendering of the work including allotment	T+3 months	T+6 months
5	Commencement of work	T+6 months	T+18 months
6	Quarterly milestones during the construction stage	25%	-
7	Completion and commissioning	T+18 months	T+21 months

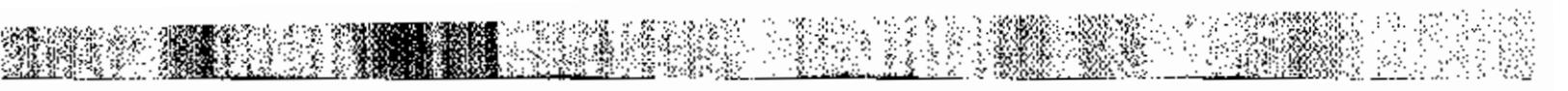
**AnnexureM – Timelines for setting up of treatment facilities by MES, Kapurthala**

1. Name of the Project: Garrison Engineering Services, Kapurthala – STP of 1.0 MLD capacity		
Brief Scope of Work		STP based on MBBR Technology of capacity 1.0 MLD
Sr.No.	Stage	Status
1	Preparation of DPR	Prepared
2	Financial Closure	31.03.2020
3	Tendering of the work including allotment	Work Alloted
4	Commencement of work	Started
5	Quarterly milestones during the construction stage	-
6	Completion and commissioning	31.03.2020



**ANNEXURE N - Installation of STPs by PSIEC for Industrial Estates**

<b>01</b>	<b>Name of the Project</b>	Installation of STP of 2 MLD based on MBBR Technology to be installed, for Industrial Growth Center Pathankot, DPR of which has been approved and process of calling the tenders is at final stage.	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Land	4 Acre available	
2	Preparation of DPR	Approved	-
3	Financial Closure	01.04.2019	31.03.2020
4	Tendering of the work including allotment	Issued	Work not Alloted
5	Commencement of the work	-	-
6	Quarterly Milestones during the construction stage	-	-
7	Completion and commissioning	1.4.2019	31.12.2020
<b>02</b>	<b>Name of the Project</b>	Installation of STP of 2.0 MLD, Industrial Focal Point, Goindwal Sahib	
1	Land	5 Acre available	
2	Preparation of DPR	Not prepared	NA
3	Financial Closure	NA	NA
4	Tendering of the work including allotment	NA	NA
5	Commencement of the work	-	-
6	Quarterly Milestones during the construction stage	-	-
7	Completion and commissioning	1.04.2019	31.12.2020



**ANNEXURE O – Timelines for setting up of treatment facilities for sewage / sullage in Rural areas**

The phase wise time lines are given as under:

<b>Phase – 1</b>			
<b>Brief Scope of Work</b>		<b>Treatment facilities for villages having discharge more than or equal to 300 KLD</b>	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	01.03.2019	31.05.2019
2	Financial Closure	01.06.2019	31.07.2019
3	Tendering of the work including allotment	01.08.2019	30.09.2019
4	Commencement of work	1.10.2019	31.12.2019
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	01.01.2020	31.01.2020
<b>Phase – 2</b>			
<b>Brief Scope of Work</b>		<b>Treatment facilities for villages having discharge between 100 KLD to 300 KLD</b>	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	01.01.2020	31.03.2020
2	Financial Closure	01.04.2020	30.06.2020
3	Tendering of the work including allotment	01.07.2020	31.08.2020
4	Commencement of work	01.09.2020	31.12.2020
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	01.01.2021	31.01.2021
<b>Phase – 3</b>			
<b>Brief Scope of Work</b>		<b>Treatment facilities for villages having discharge less than 100 KLD</b>	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Preparation of DPR	01.02.2021	30.04.2021
2	Financial Closure	01.05.2021	30.06.2021
3	Tendering of the work including allotment	01.07.2021	31.08.2021
4	Commencement of work	01.09.2021	31.12.2021
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	01.01.2022	31.01.2022



**ANNEXURE P(1) – Timeslines for installation of Online Continuous Effluent Monitoring System**

<b>1. PWSSB for the STPs already in operation in the towns namely Pathankot, Shri Hargobindpur, Mukerian, Sham Chaurasi, Dasuya, Tanda, Begowal, Bholath, Kapurthala and Sultanpur Lodhi.</b>			
<b>Name of the Project</b>		<b>All Existing STPs where maintenance is with PWSSB</b>	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Financial Closure	7.1.2019	31.3.2019
2	Tendering of the work including allotment	1.4.2019	30.6.2019
3	Commencement of the work	1.7.2019	30.9.2019
4	Completion and commissioning	1.10.2019	30.11.2019
<b>2. PWSSB for the STPs proposed to be installed in Pathankot (2MLD &amp; 1.2 MLD), Dhillwan (2.5 MLD), Kartarpur (4.0 MLD), Sultanpur Lodhi (1.0 MLD and 4.0 MLD), Hariana (2.0 MLD), Sujampur (5.5 MLD), Talwara (4.0)</b>			
<b>Name of the Project</b>		<b>All Proposed STPs where maintenance shall be with PWSSB</b>	
1	Financial Closure	31.03.2020	30.06.2020
2	Tendering of the work including allotment	01.07.2020	30.07.2020
3	Commencement of the work	01.08.2020	31.08.2020
4	Completion and commissioning	01.09.2020	30.09.2020
<b>3. BBMB for the STP already in operation in the town Talwara</b>			
<b>Sr No</b>	<b>Name of the Project</b>	<b>STP of 8 MLD at Talwara</b>	
1	Financial Closure	10.1.2019	31.3.2019
2	Tendering of the work including allotment	5.4.2019	10.5.2019
3	Commencement of the work	15.5.2019	30.6.2019
4	Completion and commissioning	30.6.2019	30.6.2019
<b>4. Department of Water Supply and Sanitation.</b>			
<b>Sr No.</b>	<b>Name of the Project</b>	<b>STP of 1.3 MLD capacity at Goindwal Sahib.</b>	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Financial Closure	15.2.2019	31.3.2019
2	Tendering of the work including allotment	1.4.2019	20.4.2019
3	Commencement of the work	21.4.2019	20.5.2019
4	Completion and commissioning	21.5.2019	30.5.2019
<b>5. MES for the STPs already in operation in the towns namely GE (Air Force), GE (South), GE(West), GE (Mammon) &amp; GE(North) of Pathankot &amp; GE Kapurthala.</b>			
<b>Name of the Project</b>		<b>All Existing STPs where maintenance is with MES</b>	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Financial Closure	7.1.2019	31.3.2019
2	Tendering of the work including allotment	1.4.2019	30.6.2019
3	Commencement of the work	1.7.2019	30.9.2019
4	Completion and commissioning	1.10.2019	30.11.2019

<b>6. PSIEC for the 2 no: STP proposed to be installed in Focal Point Pathankot and Goidwal Sahib.</b>			
<b>Name of the Project</b>		<b>All Proposed STPs where maintenance shall be with PSIEC</b>	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Financial Closure	31.03.2020	30.06.2020
2	Tendering of the work including allotment	01.07.2020	30.07.2020
3	Commencement of the work	01.08.2020	31.08.2020
4	Completion and commissioning	01.09.2020	30.09.2020
<b>7. Jalandhar Development Authority for STP of 1.0 MLD for Rawal and Colonies Distt Kapurthala.</b>			
<b>Name of the Project</b>		<b>STP of 1.0 MLD capacity for Rawal and Colonies by JDA</b>	
<b>Sr.No.</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Financial Closure	31.03.2020	30.06.2020
2	Tendering of the work including allotment	01.07.2020	30.07.2020
3	Commencement of the work	01.08.2020	31.08.2020
4	Completion and commissioning	01.09.2020	30.09.2020

**ANNEXURE P(2) – Timelines for installation of CCTV cameras for the STPs**

<b>1. PWSSB for the STPs already in operation in the towns namely Pathankot, Shri Hargobindpur, Mukerian, Sham Chaurasi, Dasuya, Tanda, Begowal, Bholath, Kapurthala and Sultanpur Lodhi.</b>			
<b>Name of the Project</b>		<b>All Existing STPs where maintenance is with PWSSB</b>	
<b>Sr.No</b>	<b>Stage</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Financial Closure	5.1.2019	30.1.2019
2	Tendering of the work including allotment	1.2.2019	28.2.2019
3	Commencement of the work	1.3.2019	15.3.2019
4	Completion and commissioning	15.3.2019	31.3.2019
<b>2. PWSSB for the STPs proposed to be installed in Pathankot (2 MLD &amp; 1.2 MLD), Dhillwan (2.5 MLD), Kartarpur (4.0 MLD), Sultanpur Lodhi (1.0 MLD and 4.0 MLD), Hariana (2.0 MLD), Sujampur (5.5 MLD), Talwara (4.0))</b>			
<b>Name of the Project</b>		<b>All Existing STPs where maintenance is with PWSSB</b>	
1	Financial Closure	31.03.2020	30.06.2020
2	Tendering of the work including allotment	01.07.2020	30.07.2020
3	Commencement of the work	01.08.2020	31.08.2020
4	Completion and commissioning	01.09.2020	30.09.2020
<b>3. BBMB for the STP already in operation in the town Talwara</b>			
<b>Name of the Project</b>		<b>STP of 8 MLD at Talwara</b>	
1	Financial Closure	10.1.2019	31.3.2019
2	Tendering of the work including allotment	5.4.2019	10.5.2019
3	Commencement of the work	15.5.2019	30.6.2019
4	Completion and commissioning	30.6.2019	30.6.2019
<b>4. Department of Water Supply and Sanitation.</b>			
<b>Name of the Project</b>		<b>STP of 1.3 MLD capacity at Goindwal Sahib.</b>	
1	Financial Closure	15.2.2019	15.3.2019
2	Tendering of the work including allotment	16.3.2019	31.3.2019
3	Commencement of the work	1.4.2019	20.4.2019
4	Completion and commissioning	21.4.2019	30.4.2019
<b>5. MES for the STPs already in operation in the towns namely GE (Air Force), GE (South), GE(West), GE (Mammon) &amp; GE(North) of Pathankot &amp; GE Kapurthala</b>			
<b>Name of the Project</b>		<b>All Existing STPs where maintenance is with MES</b>	
1	Financial Closure	15.2.2019	15.3.2019
2	Tendering of the work including allotment	16.3.2019	31.3.2019
3	Commencement of the work	1.4.2019	20.4.2019
4	Completion and commissioning	21.4.2019	30.4.2019

6. Jalandhar Development Authority for STP of 1.0 MLD for Rawal and Colonies Distt Kapurthala.			
Name of the Project		STP of 1.0 MLD capacity for Rawal and Colonies by JDA	
Sr.No.	Stage	Start Date	Completion Date
1	Financial Closure	31.03.2020	30.06.2020
2	Tendering of the work including allotment	01.07.2020	30.07.2020
3	Commencement of the work	01.08.2020	31.08.2020
4	Completion and commissioning	01.09.2020	30.09.2020

**ANNEXURE Q(1) –Timelines ForOnline Continuous Monitoring System For Industries**

Sr No.	Activity	Date of Start	Date of completion
1	Contacting to various suppliers for inviting quotations.	01.02.2019	28.02.2019
2	Finalization of orders with the supplier	01.03.2019	31.03.2019
3	Installation of online continuous monitoring system	01.04.2019	31.05.2019
4.	Caliberation of online continuous monitoring system	01.06.2019	30.06.2019
5.	Connecting the online continuous monitoring system with the server of the CPCB and PPCB	01.07.2019	31.07.2019

**ANNEXURE Q(2) – Timelines For Real Time Water Quality Monitoring Station by PPCB**

Sr No.	Activity	Date of Start	Date of completion
1	Contacting to various suppliers for inviting quotations.	01.02.2019	28.02.2019
2	Finalization of orders with the supplier	01.03.2019	31.03.2019
3	Installation of online continuous monitoring system	01.04.2019	31.05.2019
4.	Caliberation of online continuous monitoring system	01.06.2019	30.06.2019
5.	Connecting the online continuous monitoring system with the server of the CPCB and PPCB	01.06.2019	30.06.2019

**ANNEXURE R—Format for Monitoring of Progress of Projects**

Name of the Project		Progress achieved at the end of the month		
Brief Scope of the Project				
S. no.	Stage	Start Date	Completion Date	
1	Preparation of DPR			
2	Financial Closure			
3	Tendering of the Work including allotment			
4	Commencement of Work			
5	Quarterly Milestones during the construction / development Stage			
6	Completion and Commissioning			



**ANNEXURE S – Performance Operational Record of the STP**

Sr No	Location of STP	Capacity of STP (MLD)	Reading of Water meter at 8 am	Quantity of waste water treated (in KLD)	Sludge wasted (kg/day)	Qty. of Chlorine used/ DAY (Kg/day)	Details of chemical used for dosing purpose and the component at which the same was imparted.	Name of the component remained out of order during the day and reasons thereof.	Qty of treated w/w reused for irrigation of agricultural land / irrigation of green area / construction purpose (KLD)	Qty of treated w/w discharged into drain leading to river Beas (KLD)
1.	BBMB Talwara	8								
2.	Dasuya	4								
3.	Mukerian	5								
4.	Tanda	4								
5.	Kapurthala	25								
6.	Sultanpur Lodhi	2.6								
7.	Bholath	4								
8.	Begowal	2.5								
9.	Sham Chaurasi	1.0								
10.	MC Pathankot	27								
11.	MCSri Hargobindpur	1.3								
12.	GE(Air Force) Pathankot									
13.	GE (South)									
14.	GE (West)									
15.	GE (Mammon)									
16.	GE (North)									



**ANNEXURE T – Performa For Keeping Record Of Analysis Result of STP**

Sr No	STP	Date of Sampling	Point of sampling	Values of the parameters in mg/l except pH				
				pH	TSS (mg/l)	BOD (mg/l)	T.Coli (MPN/100 ml)	F.Coli (MPN/100 ml)
1.	BBMB Talwara	11/09.2017	Outlet	7.4	48	14	-	-
2.	Mukerian	27/12/2018	Outlet	7.8	17	12	2200	1100
3.	Pathankot	16/07/2018	Bypass	7.5	240	120	1,10,000	46,000
4.	Sri Hargobindpur	17/12/2018	Outlet	9.0	52	35	28000	8400
5.	Dasuya	27/12/2018	Outlet	7.8	17	12	2200	1100
6.	Tanda	27/12/2018	Outlet	7.3	10	08	790	330
7.	Sham Chaurasi	30/11/2018	Outlet	7.0	64	138	35000	17000
8.	Bholatn	11/12/2018	Outlet	8.1	36	24	6300	2600
9.	Begowal	11/12/2018	Outlet	7.6	29	9	1700	700
10.	Sultanpur Lodhi	21/12/2018	Outlet	7.5	58	36	22000	13000
11.	STP Kapurthala	21/12/2018	Outlet	7.8	72	40	7000	2100
12.	GE (Air Force) Pathankot	Sample yet to be collected						
13.	GE (South), Pathankot	Sample yet to be collected						
14.	GE (West), Pathankot	Sample yet to be collected						
15.	GE (Mammon), Pathankot	Sample yet to be collected						
16.	GE Engineer(North), Pathankot	Sample yet to be collected						







**ANNEXURE V- Proforma For Monitoring Of Water Quality Of River Beas**

S.No.	Point of Sample Collection	Date of Sampling	pH	DO mg/l	COD mg/l	BOD mg/l	T.Coli MPN/100 ml	F.Coli MPN/100 ml	DBU Classification
1.	Beas at Talwara H/W	Dec,2018	7.8	7.8	08	1.0	94	49	B
2.	Beas at Mirthal Bridge Gurdaspur		8.2	7.4	08	1.1	170	110	B
3.	U/S Pathankot		8.3	7.3	12	1.3	350	170	B
4.	D/S Pathankot		8.0	7.5	16	2.0	490	330	B
5.	Beas 1km D/S effluent discharge point at Mukerian		7.7	7.4	18	2.1	840	460	C
6.	Beas Bridge at village Bheate Patan Tehsil Batala Distt. Gurdaspur		7.9	7.3	17	1.9	790	490	C
7.	Beas at G.T. Road, under Bridge Near Kapurthala		7.8	7.4	16	1.6	630	460	C
8.	U/s Goindwal		7.9	7.5	14	1.5	580	250	C
9.	D/s Goindwal		7.9	8.3	15	1.6	630	330	C
10.	Beas at Harike		7.6	7.5	12	1.4	580	430	C



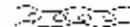
**ANNEXURE W - Proforma For Submission of Report Regarding Health Check Camps**

Sr. No.	Location of the camp	Date on which camp was organized	Name of the Doctor(s) & name of their organization	No. of people examined	No. of people found effected with water borne disease

**ANNEXURE X- Proforma For Submission Of Report Regarding Awareness Programme**

<b>Sr. No.</b>	<b>City / Town / Location where the awareness pgoramme is organized</b>	<b>Name of the Officer(s) who hold this programme</b>	<b>Date</b>	<b>No. of participants</b>	<b>Brief detail about awareness detail</b>

## SOURCES OF POLLUTION IN RIVER BEAS

S.No.	REFERENCES	SIGNS
1.	RIVER	
2.	CANAL/NALLAH	
3.	DRAINS/CREEKS	
4.	HOLY BEIN	
5.	MAJOR CITY	
6.	EXISTING S.T.P.	

