Action Plan for Clean Ghaggar

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

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 sourthern 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 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.

1.2.2. Therefore, the quality of water flowing in the water bodies has deteriorated as these water bodies 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.

1.3. About Ghaggar

1.3.1. The Ghaggar, an intermittent, Endorheic river flows only during the monsoon season. The river is known as Ghaggar before the Ottu barrage near Sirsa and as the Hakra downstream of the barrage. The basin is classified in two parts, Bangar and Khadar. The higher area which is not flooded in rainy season is called Bangar and the lower flood-prone area is called Khadar.

1.3.2. It originates in the village Dagshai in the Shivalik Hills of Himachal Pradesh at an elevation of 1,927 metres (6,322 ft) above mean sea level and flows through Punjab and Haryana states into Rajasthan just southwest of Sirsa, Haryana and by the side of Talwara Lake in Rajasthan. From Ottu barrage near Sirsa, Ghaggar feeds two irrigation canals that extend into Rajasthan.

1.3.3. Initially, it receives municipal sewage of various towns located in Himachal Pradesh and Haryana namely Parwanoo, Kalka and Pinjore through Sukhna Nallah merging into Kaushalya river tributary of Ghaggar near Amravati Enclave. Besides, Ghaggar river also receives the sewage of various towns of Haryana including that of Panchkula before entering into the State of Punjab. It enters Punjab near Village Mubarikpur, District Mohali.

1.3.4. After passing through District Mohali, District Patiala and District Sangrur, river Ghaggar carrying sewage of some of the towns of Punjab, re-enters State of Haryana and then enters into Sardulgarh, District Mansa of Punjab before finally re-entering into Haryana.

1.3.5. The drains meeting with the river are non-perennial and treated / partially treated / untreated sewage / sullage of some of the cities, towns and villages situated nearby these drains as well as surface run off from fields falling in their catchment area during rainy season is discharged into river Ghaggar directly or indirectly through various drains / choes etc.

1.4. **State's past efforts to control pollution in Ghaggar**

1.4.1. Keeping in view deterioration in the water quality of Ghaggar, the Government of Punjab (GOP) intiated action in 2008 to identify the sources of its pollution in coordination with Punjab Pollution Control Board (PPCB). Meetings were regularly held under the chairmanship of Chief Minister, Punjab from the year, 2008 onwards. Eight meetings have been held by the higher authorities of the State of Punjab, UT Chandigarh, Haryana, and Himachal Pradesh.

1.4.2. The State Government is serious to control the pollution in river Ghaggar and the concerned departments have already identified the sources of wastewater falling into river Ghaggar at various towns and cities located in the catchment area of the river. As of now, out of 30 towns, which are discharging their wastewater into river Ghaggar, a total of 43 STPs need to be installed out of which 20 STPs have already been installed, 4 are under installation and remaining 19 are under various stages of planning for establishment.

1.5. **Directions issued by NGT**

1.5.1. National Green Tribunal (NGT) vide its order dated 7.08.18 passed in case OA no. 138 of 2016 and O.A. no. 139 of 2016 directed to restore the standard of water quality in the river Ghaggar to the prescribed level. NGT also constituted an 'Executing Committee' under Chairmanship of Justice Pritam Pal, State level Special Task Force under Chief Secretary and District level Special Task Force under Deputy Commissioner to monitor the compliance of the order.

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 number of 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. It has been directed 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 Tandrust Punjab

The Government of Punjab has launched Mission Tandrust Punjab to make Punjab a healthy State with healthy people by ensuring the quality of air, water, food and a good living Environment. Mission Tandrust Punjab comprises of nine sub missions namely Clean Air, Clean Water, Improve Waste Management, Safe Food, Safe Drugs, Preventive Health, Khedo Punjab, Green Punjab, Conservation Agriculture.

2.2. Vision for Clean Ghaggar

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

2.3. Mission Clean Ghaggar

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

(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 Ghaggar

2.4.1. Identification of the Stakeholders

The State of Punjab envisages a comprehensive plan for cleaning of river Ghaggar 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). Muncipal Corporations/ Municipal Councils/ Nagar Panchayats
  (b). Punjab Water Supply and Sewerage Board
(iv). Department of Housing and Urban Development
  (a). Greater Mohali Area Development Authority
  (b). Patiala Development Authority
(v). Department of Rural Development and Panchayat
  (a). Direcorate 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 Agricultrue
  (a). Directorate of Soil and Water conservation

(viii). Department of Health and Family Welfare

(ix). District Administration

2.4.2. **Nodal Department**

The Department of Science, Technology and Environment will be the nodal department for coordinating and monitoring activites 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

Chapter 3 – Current Status and Trends of Water Quality in Ghaggar

3.1. Monitroing Locations

The water quality of river Ghaggar is being monitored at 14 locations, starting from upstream of Mubarikpur (where it enters State of Punjab) upto Sardulgarh in Distt. Mansa on monthly basis:

(i). Ghaggar at Mubarikpur Rest House
(ii). Ghaggar at Bhankarpur, Dera Bassi
(iii). Ghaggar at D/s Chattbir
(iv). Ghaggar at U/s Jharmal Nadi
(v). Ghaggar at D/s Jharmal Nadi
(vi). Ghaggar at U/s Dhakansu Nallah
(vii). Ghaggar at D/s Dhakansu Nallah
(viii). Ghaggar at Rattanheri D/s of Patiala Nadi
(ix). Ghaggar at 100 m D/s of Khanauri
(x). Ghaggar at Moonak
(xi). Ghaggar at U/s Sardulgarh
(xii). Ghaggar at D/s Sardulgarh
(xiii). Ghaggar at U/s Sagarpara (wef May 2018)
(xiv). Ghaggar at D/s Sagarpara (wef May 2018)

3.2. CPCB's norms for designated best use

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 µs/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 Ghaggar

3.3.1. The representative quality of water of river Ghaggar at 14 locations for the month of October, 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 Ghaggar. The river Ghaggar being an unlined water body and the polluted water flowing in it might have deteriorated the groundwater quality in the catchment area. In order to ascertain the extent of effect of polluted water of river Ghaggar on the health of inhabitants, the State Government has planned to hold health check camps in the catchments areas of river Ghaggar.

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.** It is evident that Class-D quality of water enters the State of Punjab, which becomes Class-E, thereafter, while travelling a distance of approximately 165 Km. The deterioration of water quality is due to untreated waste being discharged in the river directly or indirectly.

3.3.3. It is pertinent to mention here that earlier the river Ghaggar was a perennial water body, but, due to construction of check dams and watersheds, it has become an non-perennial water body carrying sewage and sullage of the habitation areas located in its catchment area. It finally terminates near Sardulgarh.

3.4. Ground Water Quality in the catchment area of river Ghaggar

3.4.1. Samplng by Central Ground Water Board

The Central Ground Water Board (CGWB) has carried out ground water sampling in the catchment area of river Ghaggar and the information supplied by CGWB regarding quality of ground water is as under:

(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 (CO_3, HCO_3, Cl, NO_3, SO_4) in addition to pH, EC, F, SiO_2, PO_4 and TH as $CaCO_3$ and Heavy Metals such as Cd, Cu, Mn, Pb, Zn in the Regional Chemical Laboratory by following 'Standard analytical procedures' 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 7.44 at Sirsini in SAS Nagar district to 9.71 at Fatta Maluka in Mansa district. Hardness reported in terms of $CaCO_3$ ranges from 31 at Bhikhi in Mansa to 936 mg/l at Raipur in Mansa district. EC value of ground water in the area varies from 233 at

Dehri in SAS Nagar district to 4898 µS/cm at Raipur in Mansa district. Chloride content of ground water normally follows the distribution pattern of EC and it ranges from 14 mg/l to 681 mg/l in the Ghaggar Basin of the State. Chloride concentration above 400 mg/l gives salty taste to water, Nitrate in ground water above 5.0 mg/l reflects contamination at some stage of its percolation and circulation. Nitrate in water samples varies from traces to 208 mg/l at Burj Bhalaike in Mansa district, whereas the fluoride concentration in ground water ranges from BDL to 5.63 mg/l at Bhateri in Fatehgarh Sahib 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 monitored 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:

(a). Cadmium in shallow ground water varies from 0.00006 mg/l at Goga in district SAS Nagar to 0.02 mg/l at Raipur in district Mansa. Copper in shallow ground water has been found to be within permissible limits of 1.5 mg/l (as per BIS Limit) except at Issapur in Dera Bassi Block of district SAS Nagar.

(b). Manganese in shallow ground water ranges from 0.0024 mg/l at Sunam in district Sangrur to 1.457 mg/l at Bassama Pipla in district Patiala. Concentration of Lead in shallow ground water ranges from 0.0008mg/l at Handesra in district SAS Nagar to 1.896 mg/l at Lachru Kalan in district Patiala.

(c). Zinc in shallow ground water ranges from 0.002 mg/l at Patran in district Patiala to 5.615 mg/l at Bhutan in district Sangrur. 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 locations has been observed within permissible limits.

3.4.2. **Ground water sampling in the vicinity of river Ghaggar**

The Punjab Pollution Control Board has carried out ground water sampling at 79 locations in and around 62 industries (in some industries, more than one sample was drawn) to ascertain the quality of ground water in respect of parameters such as fluoride, sulphate, cadmium, copper, lead, nickel, zinc, arsenic, mercury and oil & grease. Out of these, 71 samples were found conforming to the prescribed standards as laid down in IS: 10500 – 2012. In 8 samples, the concentration of either fluoride or sulphate or both was found beyond the prescribed standards. The Board will take necessary action and monitor the quality of ground water regularly and the same will be reviewed at the district and state level.

Chapter 4 – Sources of Water Pollution in River Ghaggar

4.1. Major Drains

4.1.1. There are 13 major drains/ choes/ nallahs which are directly discharging into the river Ghaggar The details of these drains/ choes/ nallahs are given in **Annexure-C**. There are 29 creeks which are discharging into 13 major drains, which are given in **Annexure-D**. It is also mentioned here that wastewater of 47 Local Bodies/ Villages is directly discharged into river Ghaggar. The list of the same is given in **Annexure –E**. The list of urban and rural habitations discharging indirectly through various drains/nallahs/creeks is given in **Annexure-F.**

4.1.2. There are following major sources polluting the river Ghaggar:

(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

4.2.1. There are 30 local bodies which are discharging their wastewater either directly or indirectly into river Ghaggar. STPs have been installed and commissioned in 14 towns meeting their full requirements. STPs have been installed in another 4 towns meeting partial requirement. The details of fully completed and partially completed STPs are given in **Annexure-G (A) and G(B).** Status regarding total sewage generation, available capacity of the STPs, additional STPs to be installed and balance quantity of sewage to be treated is given in **Annexure-G (C)**.

4.3. Sewage/ sullage generated from Rural Areas

There are 389 villages, which are discharging wastewater through various creeks and drains into Ghaggar. The Details of these villages are given in **Annexure-F**. In order to install necessary treatment facilities to treat the wastewater of rural areas, 389 villages will be prioritise into following phases:

Phase 1: Villages having discharge more than 300 KLD – 114 villages

Phase 2: Villages having discharge between 100 KLD and 300 KLD – 157 villages

Phase 3: Villages having discharge less than 100 KLD – 118 villages

4.4. Industrial Sources

4.4.1. Industrial units located at Dera Bassi and adjoining areas

(i). There are 41 water polluting industries in the catchment area of river Ghaggar at Dera Bassi and adjoining areas. None of the industries is allowed to discharge the untreated / treated wastewater into the drains/ choes leading to river Ghaggar. A list of these industries is as per **Annexure-H.** 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 continous monitoring system

1)	Pharmaceutical industries	11	11	5
2)	Pharmaceutical formulation units	3	3	0
3)	Dyeing units	8	8	0
4)	Pulp & Paper mills	2	2	2
5)	Electroplating industries	5	CETP*	0
6)	Engineering goods units	3	CETP	
7)	Pesticide manufacturing	1	1	1
8)	Distillery unit	1	1	1
9)	Brewery unit	1	1	0
10)	Meat Plant	2	2	0
11)	Gelatine manufacturing unit	1	1	0
12)	Organic Chemical manufacturing units	2	2	0
13)	Resin Manufacturing	1	1	0

** Tied up with M/s JBR Technologies (P) Ltd., Ludhiana, who is the operator of the CETP at Ludhiana meant for treatment of wastewater containing heavy metals.*

(ii). However, the screening plants of Dera Bassi area are partly discharging their wastewater into river Ghaggar, but, their wastewater neither contains any organic materials contributing BOD/ COD nor any chemicals. Therefore, the PPCB envisages 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 in the catchment area of Patiala Nadi**

(i). There are 7 water polluting industries in Distt. Patiala in the catchment area of river Ghaggar. A list of these industries is attached herewith as **Annexure-I**. 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 continous monitoring system**

1	Pulp & Paper mills	4	4	3
2	Distillery unit	1	1	1
3	Board mills	2	2	0

(ii). Since, all these industries are located near the bank of Patiala Nadi/ Jacob drain, 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.

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 Ghaggar 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 Ghaggar 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 Ghaggar.

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 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 Tetratech 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 Ghaggar 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 Ghaggar.

5.2.6. Data of quantity of hazardous waste generated during the period January, 2018 to December, 2018 is as under :

S.N.	Name of District	Quantity of hazardous waste generated (in TPA)		
		Incinerable	Disposable	Recyclable
1	Sangrur	72.53	664.176	332.426
2.	Mansa	92.08	2.2	170.33 & 8400 drums
3.	SAS Nagar	1453.148	7263.23	120
4.	Patiala	243.18	1053.39	5355.75

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 Dera Bassi, 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 Ghaggar.

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.

Chapter 6 – Utilization of Treated Wastewater and Sludge from STPs

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 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 Ghaggar River

6.2.1. The Department of Soil and Conservation has already commissioned irrigation projects from 8 STPs to utilise the treated wastewater of the STPs located in the catchment area of River Ghaggar. Two more projects are under progress. The details are given in **Annexure-K**. These projects utilise about 33 MLD of treated wastewater and about 959 hectares of agricultural land is being irrigated.

6.2.2. 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.

6.3. Management of sludge from STPs

The management of sludge from STPs will be carried out as per the standards laid down by the Board from time to time. The quality of sludge and compliance will be moitored by the Board and reported for review at the district and State level.

Chapter 7 – Measures for control of water pollution and timelines

7.1. Categories of Projects

7.1.1. The action plan envisages the following facilities to be set up/ upgraded to meet the challenges of pollution in river Ghaggar:

(i). Setting up of treatment facilities for sewage/sullage in Urban areas

(ii). Setting up of online system for monitoring STPs

(iii). Setting up of treatment facilities for sewage/sullage in Rural areas

(iv). Setting up of facilities for reuse of treated wastewater

(v). Setting up of treatment facilities in Industrial Areas

(vi). Setting up of online system for monitoring industrial effluents

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			
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		

7.2. Timelines for Setting up of treatment facilities for sewage/sullage in Urban areas

(i). **Department of Local Government**

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-L.**

(ii). **Military Engineering Service, Patiala**

Militatry Engineering Service, Patiala has given the plan for completing the STP, which is given at **Annexure-M**.

7.3. **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 Ghaggar 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. 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 –N.**

7.4. **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.

7.5. **Timelines for 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 wastewarer. The details are given in **Annexure-P.**

7.6. **Timelines for setting up of treatment facilities in Industrial Areas**

The Department of Industries and Commerce through Punjab State Industries & Export Corporation (PSIEC) is currently executing two projects. The details are given in **Annexure-Q.**

7.7. **Timelines for installing online continuous monitoring system by Industries**

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 48 industries, 15 fall in the list of 17 categories of industries, have already installed online continuous monitoring system. As such, the remaining 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 -R**

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 Ghaghar
(v). Monitorin of Ground Water quality
(vi). Monitoring of adverse impact on health of the people in surrounding areas due to water pollution
(vii). Monitoring of Awareness campaign
(viii). 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 adhere to the timelines given for setting up of new/upgraded treatment facilities, the departments shall submit progress of the project on monthly basis in the proforma attached as **Annexure-S** 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-T & U** 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 Ghaggar 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-V.**

8.5. Monitoring of Quality of Water of River Ghaghar

The Punjab Pollution Control Board shall continue to monitor the quality of water of River Ghaggar at 14 locations under National Water Monitoring Programme and shall report to State Level Special Task Force on monthly basis in the proforma as per **Annexure-W**. Further, the 6 continuous monitoring systems will be installed to get the real time data regarding quality of water of river Ghaggar, which will be put in public domain for information of public in general.

8.6. Monitoring of Ground Water Quality

The Punjab Pollution Control Board will monitor the ground water quality by taking samples in the Industrial areas. The data from Central Ground Board will also be taken. The reports will be presented for review at the district and state level.

8.7. **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 Ghaggar and shall submit the monthly report in proforma as per **Annexure-X**, which will be reviewed by State Level Special Task Force and the Executing Committee.

8.8. **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 Ghaggar to educate them about the harmful effects of water pollution. The PPCB shall submit monthly report in the proforma as per **Annexure-Y**.

8.9. **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 Special Task Force and Executing Committee.

8.10. **Role of Nodal officers of Stakeholder departments**

The Nodal officers of the stakeholder departments will be responsible to send the status reports of the projects related to their departments and monitoring reports in the prescribed proformas. The Departments will appoint Nodal Officers, who would have necessary authority and influence to collect and provide reports. Once the centralised web based IT system is developed, the relevant officers shall directly update the information on the portal and Nodal officer shall monitor the same.

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 Special Task Force

(ii). River Rejuvenation Committee

(iii). State Level Special Task Force / Executing Committee

9.1.3. 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 Ghaggar 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 will monitor the Status of implementation of the Action Plan at the State Level.

9.4. State Level Special 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

(ii). The State Level Special Task Force will accordingly hold regular meetings to review the progress and taken necessary action against the defaulters.

9.5. **Executing Committee**

(i). The National Green Tribunal (NGT) has constituted an 'Executing Committee' with the following mandate:

(a). The Committee is entitled to issue appropriate directions to concerned authorities for ensuring compliance of the orders of the Hon'ble Tribunal.

(b). The target of the Committee will be to restore the standard of water quality in the river to the prescribed level.

(c). The Committee may carry out personal visits, if necessary or call for information or reports.

(d). The Committee may also consider need for getting organised health camps and need for providing clean drinking water for the affected inhabitants.

(e). The sampling of ground water may also be done apart from the sampling of the river water periodically.

(f). Submit fortnightly basis report to the Hon'ble NGT through e-mail i.e. filing.ngt@gmail.com

(ii). The Executing Committee will accordingly review the progress from time to time and issue necessary directions to the concerned authorities.

Chapter 10 – Risk Mitigation Plan

10.1. **Identification of Major Risks in the Action Plan**

10.1.1. The Action Plan to clean Ghaggar 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 compleness 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 comletness of Project timelines, each Administrative Department would be aksed 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 Ghaggar. The concerned authroities for urban and rural areas will be asked to identify such localities and plan for their connectivitiy 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 projets 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 it 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 Ghaggar 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 succesfuly 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

There are some other administrative and technical issues, which may hold up the progress of the implementation of the Action Plan:

(i). Acquisition of land,

(ii). Usage of water being more than the designed norm of 135 lpcd

(iii). Mixing of treated/ untreated industrial effluents with domestic sewage system

(iv). Left out residential pockets need to be integrated with the System

(v). Treatment technologies

The Program management team will continuous 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 for the month of October, 2018

S. N.	Point of Sample Collection	pH	DO mg/l	BOD mg/l	T.Coli MPN/ 100ml	Cond µs/Cm	Boron mg/l	DBU Classification
1.	Ghaggar at Mubarikpur Rest House	7.9	5.2	6	24000	528	0.08	D
2.	Ghaggar at Bhankarpur	7.7	4.2	11	35000	623	0.10	D
3.	Ghaggar at Chattbir	7.7	3.3	9	28000	606	0.10	E
4.	U/s Jharmal Nadi	7.4	3.9	8	22000	610	0.11	E
5.	D/s Jharmal Nadi	7.6	3.7	10	28000	756	0.09	E
6.	U/s Dhakanshu Nallah	7.6	4.3	10	15000	877	0.09	D
7.	D/s Dhakanshu Nallah	7.5	3.9	13	21000	898	0.10	E
8.	Ghaggar at Rattanheri	7.5	3.7	14	22000	774	0.11	E
9.	U/s Sagar Para	7.5	4.0	14	21000	760	0.11	D
10.	D/s Sagar Para	7.7	2.9	36	28000	1069	0.12	E
11.	Ghaggar at Khanauri	7.3	3.4	42	35000	987	0.10	E
12.	Ghaggar at Moonak	7.4	3.0	39	28000	755	0.15	E
13.	U/s Sardulgarh	7.8	3.5	9	21000	871	0.14	E
14.	D/s Sardulgarh	7.8	3.3	11	24000	991	0.14	E

Annexure B - Analysis Resuts of Surface Water Monitoring 2015-16 to 2017-18

Sno.	Sampling points at river Ghaggar	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
		DO (mg/l)			pH			BOD (mg/l)			T.Coliform (MPN/100 ml)			D.B.U. classification		
1	Mubarkpur Rest House	6.2	5.6	5.13	7.4	8.1	7.9	8.8	4.2	6.07	6862	16642	21000	D	D	D
2	Bhankarpur, DeraBassi	4.7	4.6	3.61	7.5	7.6	7.5	13	7.9	12.93	19485	25667	26417	D	D	E
3	D/S Chattbir	4.9	4.5	4.17	7.4	7.6	7.6	12	6.5	8.11	19825	24273	19417	D	D	D
4	U/S JharmalNadi	4.7	3.9	2.83	7.4	7.6	7.6	14	10.2	14.92	17350	21583	20083	D	E	E
5	D/S JharmalNadi	3.9	2.4	1.97	7.7	7.6	7.7	21	17.8	25.58	27625	26917	25250	E	E	E
6	U/S Dhakansu Nallah	4.3	3.6	3.24	7.4	7.6	7.7	16	9.6	10.25	22100	14091	14500	D	E	E
7	D/S Dhakansu Nallah	3.7	3.1	2.94	7.3	7.7	7.7	18	11.8	12.23	30375	20709	18667	E	E	E
8	Rattanheri D/S of PatialaNadi	3.7	2.9	1.76	7.5	7.7	7.7	20	51.7	33.06	31500	24333	24333	E	E	E

9	100 m D/s of Khanauri	3.5	2.1	1.42	7.6	7.7	7.8	25	30.3	41.08	39200	26833	34083	E	E	E
10	Moonak	3.2	2.2	1.75	7.6	7.8	7.9	33	25.5	25.50	52625	29333	24000	E	E	E
11	U/S Sardulgarh	3.7	2.7	2.23	7.4	7.9	7.8	18	19.4	18.83	56700	19258	17417	E	E	E
12	D/S Sardulgarh	3.6	2.5	2.03	7.4	7.9	7.9	20	19.8	20.83	55975	24733	21583	E	E	E

Annexure C - List of 13 major drains directly discharging into river Ghaggar

Sno.	Name of the drain	Point of origin	Approx. Length (in Km)	Coordinates at which the drain meets river Ghaggar	Location at which it meets river Ghaggar	Approx. Discharge (MLD)
1.	Sukhna Choe	Sukhna Lake	8.17	30^{O} 36'49'' N 76^{O} 50'09'' E	450 m upstream of Bhankhapur Bridge	105
2.	Dera Bassi Choe	Near Village Haripur Hinduan, Dera Bassi	8.75	30^{O} 36'13'' N 76^{O} 48'51'' E	Near upstream of Village Satabgarh	17.5
3.	Jharmal Choe	Near village Rampur Sainian, Tehsil Dera Bassi, Distt. SAS Nagar	22.86	30^{O} 28'27'' N 76^{O} 46'11'' E	Near Village Tiwana	17.5
4.	Basauli Drain	Near Village Jaula Khurd, Distt. SAS Nagar	24.39	30^{O} 26'39'' N 76^{O} 44'54'' E	Near Village Sadhanpur	12.5
5.	Bagna Drain	Near Village Salempur, Distt. SAS Nagar	19.5	30.3397 76.6986	Village Nanheri, Rajpura	-
6.	Pachisdara Drain (Dakansu Choe)	Near PCS, Sector-2, Chandigarh under the name of N-choe	22	30.305197 76.627918	Near Village Sarala-Khurd	125
7.	Patiala Nadi	Village Cholti Kheri, Distt. Fatehgarh Sahib	73	30.078934 76.243909	Village Ratanheri	150
8.	Sagarpara Drain	Kurkshetra (Haryana)	7.92	29.8975741 76.169735	Village Sagara	180
9.	Kaithal Drain	From Keorak, Distt. Kaithal (Haryana)	6.4	29^{O} 50'50'' N 76^{O} 06'00'' E	Near Khanauri Bridge	15
10.	Jhambowali choe	Village Chanarthal Kalan, Distt. Fatehgarh Sahib	72	29.8291 76.0011	Village Chandu, Tehsil Moonak	32.5
11.	Lehragagga Main	Near Kalajar	67	29^{0}50'03'' 75^{0} 45' 41''	Near Village Bakshiwala, Distt. Sangrur	82.5
12.	Sirhind Choe	Near Bassi Pathana	166	29.7460 75.4726	Near Village Kheri, Haryana	245
13.	Miranpur Choe	Near Village Haripur, Sub Tehsil Ghanour	58.69	30.0980 76.3069	Near Village Khambera, Haryana	125

Note: Analysis of water of two points of origin i.e. at Sr. No. 1 & 8 has been carried out, whereas, for other points the same is to be determined in due course of time.

Annexure D - List of 29 creeks discharging into main drains

Sr. No.	Name of the creek
1.	Drain passing through K-area
2.	Singh Nallah
3.	Gazipur Drain
4.	Dhabi Nallah
5.	Banur Drain
6.	Chhoti Nadi
7.	Khadoli Drain
8.	Jacob Drain
9.	Model Town Drain
10.	Kalwano Drain
11.	L-6 Drain
12.	Nabha Drain
13	Sangrur Drain
14	Bareta Drain
15	Ladal Drain
16	Mander Drain
17	Toderpur Drain
18	Hargobindpura Datewas Drain
19	Khiwa Sahajada Drain
20	Dodra Drain
21	Bahadur Singh Wala Drain
22	Balian Drain
23	Bhagwanpura Link Drain
24	Dhuri Drain
25	Sahoke Main Drain
26	Jassarwal Drain
27	Buggar Link Drain
28	Shekhupura Adalatipura Drain
29	Hassanpura Drain

Annexure E- List of urban and rural areas discharging directly into river Ghaggar

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	Village Mubarikpur, Distt. SAS Nagar	D-1	30.618993 76.852268	250	No
2	Village Bhankharpur, Distt. SAS Nagar	D-2	30°36'16 "N 76°49'23"E	1100	No
3	MC, Zirakpur	D-3	30.3609 76.4904	15000	Installed
4	Village Manoli Surat, Distt. Patiala	D-4	30.515277 76.765277	668	No
5	Village Nanheri, Distt. Patiala	D-5	30.277222 76.692777	196	No
6	Village Samaspur, Distt. Patiala	D-6	30.365833 76.688333	196	No
7	Village Utsar, Distt. Patiala	D-7	30.365833 76.70716	225	No
8	Village Chamaru, Distt. Patiala	D-8	30.335555 76.661111	457	No
9	Village Rampur, Distt. Patiala	D-9	30.3302777 76.644722	349	No
10	Village Maru, Distt. Patiala	D-10	30.288424 76.6011796	451	No
11	Village Mandi/ Pur, Distt. Patiala	D-11	30.271858 76.550271	186	No
12	Village Sirkapra, Distt. Patiala	D-12	30.287427 76.580975	219	No
13	Village Hadana, Distt. Patiala	D-13	30.248568 76.545608	488	No
14	Village Hasanpur Kamboj, Distt. Patiala	D-14	30.209991 76.529837	320	No
15	Village RurkiBudh Singh, Distt. Patiala	D-15	30.198125 76.524154	355	No
16	Village Ram Nagar Chuniwala, Distt. Patiala	D-16	30.188423 76.517152	1202	No
17	Village Badla, Distt. Patiala	D-17	30.171519 76.487979	109	No
18	Village Kapuri, Distt. Patiala	D-18	30.183286 76.514487	278	No
19	Village Kheri Raju Singh, Distt. Patiala	D-19	30.15762 76.480933	207	No
20	Village Bhasmara, Distt. Patiala	D-20	30.151285 76.468842	192	No
Total				22448	

21	Village Mehmudpur, Distt. Patiala	D-21	30.149398 76.454012	315	No
22	Village SadhunagarurfJalahkheri, Distt. Patiala	D-22	30.142181 76.450986	22	No
23	Village Kotbhai Lakheya, Distt. Patiala	D-23	30.7788 76.2423	135	No
24	Village Ratanheri, Distt. Patiala	D-24	30.07788 76.2423	326	No
25	Village Marori, Distt. Patiala	D-25	30.6798 76.22828	754	No
26	Village Harchandpura Town, Distt. Patiala	D-26	30.03198 76.19351	94	No
27	Village HarchandpuraHavali, Distt. Patiala	D-27	30.02684 76.15519	75	No
28	Village Seona Kath, Distt. Patiala	D-28	29.983211 76.196813	825	No
29	Village Arnetu, Distt. Patiala	D-29	29.958466 76.196936	652	No
30	Village Karim Nagar Urf Chicarwala, Distt. Patiala	D-30	29.903727 76.171937	807	No
31	Village Rasoli, Distt. Patiala	D-31	29.903438 76.170917	320	No
32	Village Shatrana, Distt. Patiala	D-32	29.877390 76.137291	3447	No
33	Village Matoli, Distt. Patiala	D-33	29.871764 76.136660	520	No
34	Vill. Dera Jheel, Distt. Patiala.	D-34	29.940701 76.170949	110	No
35	Vill. Makror Sahib, Distt. Sangrur (three outlets)	D-35	29°47'30.8"N 75°57'12.8"E	268.10	No
			29°47'26.7"N 75°56'50.3"E		
			29°47'22.2"N 75°56'44.8"E		
36	Vill. Mandvi, Distt. Sangrur (three outlets)	D-36	29°49'05.6"N 75°59'21.8"E	427.35	No
			29°48'40.3"N 75°59'11.3"E		
			29°48'29.8"N 75°59'01.2"E		
37	Vill. Fulad, Distt. Sangrur	D-37	29°47'07.4"N 75°56'02.2"E	120.40	No
38	Vill. Shahpur Their, Distt. Sangrur	D-38	29°49'48.1"N 76°01'00.0"E	63.84	No
39	Vill. Chandu, Distt. Sangrur	D-39	29°49'41.7"N 75°59'58.8"E	112.28	No
	Total			9393.97	

40	M.C., Moonak, Distt. Sangrur	D-40	29.812017 5.889865	1500	STP of 3 MLD capacity installed
41	Village Phoos Mandi, Distt. Mansa	D-41	29.7025 75.2755	75	No
42	MC, Sardulgarh, Distt. Mansa	D-42	29.6991 75.2391	4000	WSP installed
43	Village Rorki, Distt. Mansa	D-43	29.6892 75.2096	105	WSP installed
44	Village Jhanda Khurd, Distt. Mansa	D-44	29.6703 75.1783	210	No
45	Village Bhunder 1, Distt. Mansa	D-45	29.697150 75.226098	5	No
46	Village Bhunder 2, Distt. Mansa	D-46	29.695267 75.224569	11	No
47	Vill. Bhagwanpur Higna Distt. Mansa	D-47	29.685953 75.332885 29.687 75.335	7 3	No No
	Total			5916	
	Grand Total			**37757.97**	

Annexure F - List of urban / rural areas discharging indirectly into Ghaggar

1. Sukhna Choe						
1.1 Drain passing near K-area						
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	K-area (MC, Zirakpur)	IN-2.1.1.1	Bridge near Gurudwara Sahib	30.64 9651 76.83 71 57	180	Not connected to STP of 17.3 MLD capacity
1.2. Singh Nallah						
1.	Green City, Mamta Enclave / Baltana Area	IN-2.1.2.1	Dera Bassi, Kalka Road, Near Green city bridge	30.664357 76.843824	50	Not connected to STP of 17.3 MLD capacity
1.3 Gazipur Drain						
1.	Gazipur (MC, Zirakpur)	IN-2.1.3.1	Confluence point of Gazipur Drain and Sukhna Choe	30.63 54 29 76.84 05 75	1000	Not connected to STP of 17.3 MLD capacity
Total					1230	

2 Dera Bassi Choe						
S.N.	**Name of the Source**	**Identification mark**	**Location of the outfall into drain**	**Coordinates at the outfall into drian**	**Apprx. Discharge in KLD**	**Present treatment facility installed, if any.**
1.	Vill. Haibatpur	IN-2.2.1	Up steam of village Haibatpur approx. 1.5 Km	30°35'48"N 76°53'07"E	192	No
2.	M.C., Dera Bassi	IN-2.2.2	Near over bridge (two no. outlets)	30.593051 76.846355	2500	STP of 4 MLD capacity installed & commissioned on 17.11.2018
3.	Vill. Issapur located within MC	IN-2.2.3	Habitpur drain passing into Issapur Road, near bridge.	30.60486 76.831447	140	No
2.1 Dhabi Nallah						
1.	Domestic effluent of industry through storm water sewer of Focal Point	IN-2.2.1.1	Bridge near M/s. Nibber Castings	30°36'26" 76°51'37"	20	The industries will connect by 15.1.19.
2.	STP (2 MLD), Industrial Area, Focal point Dera Bassi	IN-2.2.1.2	Industrial Area, Dera Bassi	30.604039 76.854303	500	2 MLD
3.	Silver City	IN-2.2.1.3	Near PCCPL bridge	30.603779 76.849283	480	STP installed
3 Jharmal Choe						
1.	Vill.Gulabgarh located within limits of MC, Dera Bassi, Distt. SAS Nagar.	IN-2.3.1	D/s of Vill. Gulabgarh Near GBP Flats	30.577264 76.863174	100	No
Total					3932	

2.	Vill.Mahiwala located within limits of MC, Dera Bassi, Distt. SAS Nagar.	IN-2.3.2	D/s of Vill. Mahiwala Near Bridge	30.570767 76.855121	40	No
3.	Vill. Jawaharpur, Distt. SAS Nagar. (within MC limits)	IN-2.3.3	Near Bridge	30.557355 76.832997	235	No
4.	Vill. Gholumajra, Distt. SAS Nagar. . (within MC limits)	IN-2.3.4	Near Vill. Gholumajra	30°31'56''N 76°49'35''E	100	STP of 0.3 MLD has been proposed
5.	Vill. Kheri Gujran, Distt. SAS Nagar.	IN-2.3.5	Near bridge Vill. Kheri Gujran	30.557381 76.872394	180	No
6.	Vill. Bijanpur, Distt. SAS Nagar.	IN-2.3.6	Near bridge of Bijanpur	30°31'42''N 76°51'27''E	142	No
7.	Vill. Dapper within MC limits of Lalru, Distt. SAS Nagar.	IN-2.3.7	Near vill. Dapper	30°31'08''N 76°48'55''E	600	STP of 1.0 MLD has been proposed
8.	Vill. Chaundheri located within MC limits of Lalru, Distt. SAS Nagar.	IN-2.3.8	Near Bridge of Chaundheri	30.512129 76.812967	115	STP of 0.3 MLD has been proposed
Total					1412	

9.	Nagar Panchayat, Lalru, Distt. SAS Nagar.	IN-2.3.9	Entering into Jharmal Choe	30°29’21’’N 76°47’29’’E 30°29’14”N 76°47’32”E	2500	STP of 1.5 MLD capacity installed but operated to treat 0.5 MLD of wastewater. Another STP of 1.5 MLD is yet to be installed at Grain Market, Lalru
10.	Vill. Dehar within MC limits of Lalru, Distt. SAS Nagar.	IN-2.3.10	At the bridge, where from Jharmal Choe passes	30.478121 76.777919	170	No
11.	Vill. Tiwana, Distt. SAS Nagar	IN-2.3.11	Near village Tiwana	30^{o}28’27” 76^{o}46’10”	130	No
3.1 Hassanpura Drain						
1.	Village Hassanpur	IN-2.3.1.1	From Vill. Hassanpur	30°30’53’’N 76°47’38’’E	120	No
2.	Dappar Colony (Within MC limits of Lalru)	IN-2.3.1.2	In Garden Estate	30°31’00’’N 76°47’00’’E	100	STP of 0.2 MLD proposed
Total					3020	

4 Basauli Choe						
1	Vill. Jaula Khurd, Distt. SAS Nagar	IN-2.4.1	Up stream of Cad Chem Industry bridge	30.461867 76.878166	100	No
2.	Vill. Basauli, Distt. SAS Nagar	IN-2.4.2	Near bridge of village Basauli	30.449688 76.861485	150	No
3.	Vill. Kurli, Distt. SAS Nagar	IN-2.4.3	Near Vill. Kurli	30° 26'32" 76°47'35"	250	No
5 Bhagna Nadi						
1.	Village Bhasma, Distt. SAS Nagar	IN-2.5.1	Near village Bhasma	30.46555 76.72666	442	No
2.	Village Tepla, Distt. Patiala.	IN-2.5.2	Near Village Tepla	30.440000 77.003611	818	No
6 Pachisdara Drain (Dhakansu Choe)						
1.	Village Jagatpura, Distt. SAS Nagar	IN-2.6.1	Near Gurudwara Sahib	76.4537 30.4051	101	No
2.	Village Ambsahib Colony, Distt. SAS Nagar	IN-2.6.2	Near Culvert	76.4513 30.4044	300	No
3.	Village Kambala, Distt. SAS Nagar	IN-2.6.3	Bridge on Rudewal Road	76.4458 30.3953	300	No
	Total				2461	

4.	Village Kambali, Distt. SAS Nagar	IN-2.6.4	Near Hot mix plant	76.4509 30.4031	250	No
5.	Village Papri, Distt. SAS Nagar	IN-2.6.5	Bridge on drain	76.4437 30.3923	150	No
6.	MC, SAS Nagar	IN-2.6.6	Near the STP	76.7238 30.6522	45000	45 MLD capacity STP installed
7.	Village Manoli, Distt. SAS Nagar (Two outlets)	IN-2.6.7	Near S. Pyara Singh Field	76.4320 30.3343	320	No
			Bridge on Drain	76.4327 30.3829		
8.	Village Chachumajra Distt. SAS Nagar	IN-2.6.8	Bridge on Drain	76.4441 30.3922	100	No
9.	Village Sainimajra (Prem Nagar), Distt. SAS Nagar	IN-2.6.9	Near Pakka Outlet to drain	76.4309 30.3801	70	No
10.	Village Chahumajra, Distt. SAS Nagar	IN-2.6.10	Near H/o Sewa Singh	76.4251 30.3736	160	No
	Total				46050	

11.	Village Dehri, Distt. SAS Nagar	IN-2.6.11	Bridge on Drain	76.4133 30.3705	60	No
12.	Village Nageri, Distt. SAS Nagar	IN-2.6.12	Bridge on Drain	76.4109 30.3631	80	No
13.	Village Kaloli, Distt. SAS Nagar	IN-2.6.13	Bridge on Drain	76.4059 30.3508	85	No
14.	MC, Banur	IN-2.6.14	Near the STP	76.6925 30.5608	4000	4 MLD STP installed
15.	MC, Rajpura and Focal Point area of Rajpura	IN-2.6.15	At Ambala Road Rajpura	30.47936, 76.60753	3700	STP of 7 MLD capacity installed at Ambala Road Rajpura
6.1 Banur Drain						
1.	Village Kaloli, Distt. Patiala	IN-2.6.1.1	Near village Kaloli	30.585555, 76.68277	378	No
7 Patiala Nadi						
1.	Village Gauspur	IN-2.7.1	Near habitation area	30.255722 76.303608	105	No
Total					8408	

2.	Village Shankarpura	IN-2.7.2	-do-	30.255881 76.303644	300	No
3.	Village FatehpurJattan	IN-2.7.3	-do-	30.25728 76.294283	247	No
4.	Village Mohabatpura	IN-2.7.4	-do-	30.255787 76.285561	89	No
5.	Village Kauli	IN-2.7.5	-do-	30.25555 76.302215	629	No
6.	Village Alampur	IN-2.7.6	-do-	30.245757 76.293879	312	No
7.	Village Bhateri	IN-2.7.7	-do-	30.23396 76.262062	353	No
8.	Village Doun Kalan	IN-2.7.8	-do-	30.24278 76.281014	940	No
9.	Village DounKhurd	IN-2.7.9	-do-	30.24233 76.24449	359	No
10.	Village Rasulpur Joran	IN-2.7.10	-do-	30.233654 76.262487	226	No
11.	Village Daulatpur	IN-2.7.11	-do-	30.222779 76.254515	150	No
12.	Village Kalwa	IN-2.7.12	-do-	30.423076 76.423715	320	No
13.	Village Mirjapur	IN-2.7.13	-do-	30.40663 76.43478	143	No
14.	Village Sefdipur	IN-2.7.14	-do-	30.2149039 76.2623697	202	No
15.	Village MehmoodpurAraian	IN-2.7.15	-do-	30.2149039 76.2623697	52	No
16.	Village Faloli	IN-2.7.16	-do-	30.211363 76.254298	83	No
17.	Focal Point, Patiala	IN-2.7.17	-do-	30.3756310 76.4292680	1250	No
Total					5655	

18.	Outlet of Shanti Nagar & Virk Colony within MC limits of Patiala	IN-2.7.18	-do-	30.356682 76.429527	150	Outlet in Badi Nadi
19.	Nagar Panchayat, Sanour, Distt. Patiala.	IN-2.7.19	-do-	30.320038 76.417061	2500	No
20.	Outlet of treated sewage of Urban Estate Patiala	IN-2.7.20	-do-	30.335933 76.425814	5000	STP of capacity 13 MLD installed by PUDA
21.	Outlet of Storm water carrying sewage / sullage of habitation area near Patiala Nadi	IN-2.7.21	-do-	30.336438 76.425488	1875	No
22.	Two no. Nalas falling into Badi Nadi from Internal area of Patiala City	IN-2.7.22	-do-	30.299030 76.390280	3000	No
23.	Village Rewas Brahmna	IN-2.7.23	-do-	30.28, 76.38	323	No
24.	Village Jalal Khera	IN-2.7.24	-do-	30.142181 76.450986	127	No
25.	Village Kalar Bhani	IN-2.7.25	-do-	30.24 76.33	471	No
26.	Village Dhurad	IN-2.7.26	-do-	30.26 76.35	335	No
27.	Village Passiana	IN-2.7.27	-do-	30.29 76.37	809	No
Total					14590	

28.	Village Sher Majra	IN-2.7.28	-do-	30.22 76.32	501	No
29.	Village Main	IN-2.7.29	-do-	30.25 76.32	590	No
30.	Village Bhanra	IN-2.7.30	-do-	30.24 76.31	688	No
31.	Village Bhanri	IN-2.7.31	-do-	30.25 76.32	497	No
32.	Village Langroi	IN-2.7.32	-do-	30.24 76.31	375	No
33.	Village Dakala (two outlets)	IN-2.7.33	-do-	30.13 76.32 30.23 76.19	1240	No
34.	Village Mavi Sappan	IN-2.7.34	-do-	30.18 76.28	397	No
35.	Village Daroli	IN-2.7.35	-do-	30.21 76.29	267	No
36.	Village Darola	IN-2.7.36	-do-	30.34 76.34	250	No
37.	Village Madho Majra	IN-2.7.37	-do-	30.21 76.37	234	No
38.	Village Train	IN-2.7.38	-do-	30.23 76.32	433	No
39.	Village Harinagar Khedki (two outlets)	IN-2.7.39	-do-	30.10 76.28 30.18 76.16	481	No
	Total				5953	

7.1 Chhoti Nadi						
1.	Badha Road, Tej Bagh Colony, Patiala (Near slaughter House)	IN-2.7.1.1	Near Mathura Colony	30.328738 76.412954	1250	This outlet is to be connected with existing STP
2.	SST Nagar, Patiala Near, Chotti Masjid Muslim Colony	IN-2.7.1.2	Near transport area	30.334128 76.413971	750	-do-
3.	Shree Santoshi Mata Mandir area	IN-2.7.1.3	Near Mandir	30.331478 76.413876	1675	-do-
7.2 Khadoli Drain						
1.	A part of the sewage of Rajpura town located towards Patiala side	IN-2.7.2.1	Near the Habitation area	30.46910 76.56616	6000	STP of 10 MLD capacity is under stabilization.
Total					9675	

7.3	**Jacob Drain**					
1.	Outlet of Dhillon Colony & Kesar Bagh, Patiala	IN-2.7.3.1	-do-	30.315532 76.399751	06	Individual untapped points on the embankments of Jacob drain will be connected with the STP of Shermajra of capacity 46 MLD sewer is already laid in these colonies.
2.	Moti Bagh, Patiala & Darru Kutia area	IN-2.7.3.2	-do-	30.308700 76.381793	06	Individual untapped points on the embankments of Jacob drain will be connected with the STP of Shermajra of capacity 46 MLD sewer is initially laid in these colonies.
	Total				12	

3.	Dakala, Terin, Bhanari, Main Road, Sullar Colony, (From Military Area) Within MC limit, Patiala	IN-2.7.3.3	Near Dargah of Sullar Colony	30.301800 76.375237	30	No
7.	Outlet of MES Patiala	IN-2.7.3.4	-do-	76.373482 76.373482	5500	MES has submitted the proposal to install STP based on MBBR technology of capacity 6 MLD by August, 2020.
8.	Outlet of STP Shermajra (46 MLD)	IN-2.7.3.5	-do-	30.283308 76.365508	46000	STP of 46 MLD capacity installed at Shermajra
7.3.1 Model Town Drain						
1.	Outlet of STP Ablowal (10 MLD)	IN-2.7.3.1	Adjoining to STP	30.349564 76.349342	7000	STP of 10 MLD capacity installed at Ablowal
	Total				58530	

8 Sagarpara Drain						
1.	Vill. Jhagir, Distt. Patiala.	IN-2.8.1	Near habitation area	29H885155 76H207242	28	No
9 Kaithal Drain						
1.	Village Guru Nanakpura	IN-2.9.1	Near Habitation area	29.840699 76.116888	205	No
2.	Village Dhabi Gujran (two outlets)	IN-2.9.2	Near Habitation area	29.81280 76.12101 29.80451 76.12161	904	No
3.	Village Jalalpur (Basti Plata)	IN-2.9.3	Near Habitation area	29.970819 76.183261	32	No
4.	Sewage of Nagar Panchaya, Khanauri	IN-2.9.4	In front of STP Khanauri	29.840619 76.117315	1500	STP of capacity 3 MLD installed
	Total				2669	

10	**Jhambowali Choe, Patiala**					
1	Village PhaganMajra Distt. Patiala	IN-2.10.1	Near the Habitation area	30.440265, 76.390524	570	No
2	Village Kathmathi Distt. Patiala	IN-2.10.2	Near the Habitation area	30.43234576.334371	311	No
3	Village KheriManian Distt. Patiala	IN-2.10.3	Near the Habitation area	30.389693, 76.292799	218	No
4	Village Dharmkot Distt. Patiala	IN-2.10.4	Near the Habitation area	30.380004, 76.291354	114	No
5	Village Jhambo alias Balipur Distt. Patiala	IN-2.10.5	Near the Habitation area	30.38004, 76.291354	103	No
6	Village Kalyan Distt. Patiala	IN-2.10.6	Near the Habitation area	30.357895, 76.300945	614	No
7	Village Chuharpur Marasian Distt. Patiala	IN-2.10.7	Near the Habitation area	30.291359, 76.277879	83	No
	Total				2013	

8	Village Mehmadpur Distt. Patiala	IN-2.10.8	Near the Habitation area	30.290464, 76.28149	221	No
9	Village Kakrala Distt. Patiala	IN-2.10.9	Near the Habitation area	30.2818102 76.3076544	212	No
10	Village Fatehpur Distt. Patiala	IN-2.10.10	Near the Habitation area	30.284833, 76.255942	247	No
11	Village Tarora Kalan Distt. Patiala	IN-2.10.11	Near the Habitation area	30.267335, 76.228732	216	No
12	Village Tarora Khurd Distt. Patiala	IN-2.10.12	Near the Habitation area	30.26822976.216484	132	No
13	Village Gajumajra Distt. Patiala	IN-2.10.13	Near the Habitation area	30.25689476.205275	508	No
14	Village Lalochhi Distt. Patiala	IN-2.10.14	Near the Habitation area	30.244227, 76.18786	949	No
15	Village Majri Distt. Patiala	IN-2.10.15	Near the Habitation area	30.21058, 30.21371 76.1745 76.17575	477	No
	Total				2962	

16	Village Danipur (Jeto patti Dera) Distt. Patiala	IN-2.10.16	Near the Habitation area	30.21058 76.1745	443	No
17	Village Gajipur Distt. Patiala	IN-2.10.17	Near the Habitation area	30.19956 76.16409	446	No
18	Village Kahangarh Bhootna Distt. Patiala	IN-2.10.18	Near the Habitation area	30.18485 76.15552	499	No
19	Village Bhamna Distt. Patiala	IN-2.10.19	Near the Habitation area	30.18468 76.15524	1296	No
20	Village Basti Bhamna Distt. Patiala	IN-2.10.20	Near the Habitation area	30.18468 76.15524	119	No
21	Village Bhedpuri Distt. Patiala	IN-2.10.21	Near the Habitation area	30.15309 76.14985	307	No
22	Village Dodra Distt. Patiala	IN-2.10.22	Near the Habitation area	30.14501 76.15463	274	No
23	Village Sehjpur Kalan Distt. Patiala	IN-2.10.23	Near the Habitation area	30.12435 76.15232	241	No
Total					3625	

24	Village Sehjpur Khurd Distt. Patiala	IN-2.10.24	Near the Habitation area	30.12951 76.16383	254	No
25	Outlet of Samana STP of 10 MLD capacity	IN-2.10.25	Near the Habitation area	30.00825 76.191833	7500	STP of 10 MLD capacity installed at Samana
26	Village Kularan Distt. Patiala	IN-2.10.26	Near the Habitation area	30.12213 76.13134	1810	No
27	Village Ghagroli Distt. Patiala	IN-2.10.27	Near the Habitation area	30.12002 76.1175	323	No
28	Village Dharmgarh Distt. Patiala	IN-2.10.28	Near the Habitation area	30.11773 76.12323	128	No
29	village Baras Distt. Patiala	IN-2.10.29	Near the Habitation area	30.047986 76.055797	933	No
30	village Dugal Kalan Distt. Patiala	IN-2.10.30	Near the Habitation area	29.994244 76.041356	1008	No
	Total				11956	

31.	village Dugal Khurad Distt. Patiala	IN-2.10.31	Near the Habitation area	29.988309 76.041255	921	No
32.	village Jeonpura Distt. Patiala	IN-2.10.32	Near the Habitation area	29.95728 76.0394	145	No
33.	village Chunagran Distt. Patiala	IN-2.10.33	Near the Habitation area	29.948901 76.039708	690	No
34.	Outlet of Patran STP of 4 MLD capacity at Chunagra Road Patran	IN-2.10.34	Near the Habitation area	29.948667, 76.039667	2800	STP of 4 MLD capacity installed at Patran
35.	Village Deogarh Distt. Patiala	IN-2.10.35	Near the Habitation area	29.937973 76.037758	584	No
36.	village Hariau Khurd Distt. Patiala	IN-2.10.36	Near the Habitation area	29.91162 76.02029	446	No
37.	village Hariau Kalan Distt. Patiala	IN-2.10.37	Near the Habitation area	29.9079 76.02066	1134	No
Total					6720	

38.	village Khanewal Distt. Patiala	IN-2.10.38	Near the Habitation area	29.88455 76.02144	756	No
39.	Bharaj (Distt. Sangrur) (Th. Rohti Drain)	IN-2.10.39	Near the Habitation area	30°17'31"N 76°10'52"E	66	Seechewal Model STP (Work being Started)
40.	Lakhewal (Distt. Sangrur)	IN-2.10.40	Near the Habitation area	30°17'16"N 76°9'31"E	43	Seechewal Model STP (Work being Started)
41	Channo (Distt. Sangrur)	IN-2.10.41	Near the Habitation area	30°16'30"N 76°10'13"E	126	Seechewal Model STP (Work being Started)
42	Baghrol (Distt. Sangrur)	IN-2.10.42	Near the Habitation area	30°6'09"N 75°6'12"E	130	No
43	Safipur Kalan (Distt. Sangrur)	IN-2.10.43	On Kakrala Road	30°5'04"N 75°6'37"E	147	No
44	Sihal (Distt. Sangrur)	IN-2.10.44	On Gagga Road	30°3'56"N 75°04'31"E	106	No
45	Dhandia l(Distt. Sangrur)	IN-2.10.45	Jeonpur Near Avtar Singh Fields.	29°57'26"N 76°1'52"E	129	No
Total					1503	

46.	Bangan (Distt. Sangrur)	IN-2.10.46	D/S of Bridge Near Chandu	29°51'26"N 76°0'53"E	183	No
47.	Nawan Gaon (Distt. Sangrur)	IN-2.10.47	D/S of Bridge Near Chandu	29°51'26"N 76°0'53"E	186	No
10.1. Kalwanu Drain						
1.	Village Kalwanu, Distt. Patiala	IN-2.10.1.1	Near Habitation area	29.996608 76.136216	1331	No
2.	Village Daroli, Distt. Patiala	IN-2.10.1.2	-do-	29.973939 76.115354	634	No
3.	Village Tambuwala, Distt. Patiala	IN-2.10.1.3	-do-	29.965649 76.096308	304	No
4.	Village Banwala, Distt. Patiala	IN-2.10.1.4	-do-	29.96051 76.09069	432	No
5.	Village Kahngarh Ghracho, Distt. Patiala	IN-2.10.1.5	-do-	29.941986 76.081488	400	No
6.	Village Khaspur, Distt. Patiala	IN-2.10.1.6	-do-	29.941986 76.081488	305	No
7.	Village Hamjheri, Distt. Patiala	IN-2.10.1.7	-do-	29.919371 76.049844	831	No
Total					4606	

11	**Lehragagga Main**					
1.	Sewage of M.C., Lehra, Distt. Sangrur	IN-2.11.1	Bacside STP Lehragaga	29.937728 75.8058515	1500	STP of 4 MLD capacity of installed
2	Kalia Distt. Sangrur	IN-2.11.2	Near Ghaggar Escape.	29°49'03"N 75°45'13"E	136	No
3	Alisher Distt. Sangrur	IN-2.11.3	RHS of L/gaga Link Drain	29°52'02"N 75°46'35"E	111	No
4	Kotra Lehal Distt. Sangrur	IN-2.11.4	RHS of L/gaga Link Drain	29°54'20"N 75°46'39"E	180	No
5	Chotian Distt. Sangrur	IN-2.11.5	LHS of Lehragaga Main near Bridge.	29°50'33"N 75°47'26"E	232	Seechewal Model STP (Work being Started)
6	Gurne Distt. Sangrur	IN-2.11.6	LHS of Drain Near Bus Stand of Alampur.	29°52'39"N 75°48'03"E	58	No
7	Bakhora Kalan Distt. Sangrur	IN-2.11.7	Near Bus Stand	29°56'15"N 75°48'39"E	316	No
8	Bakhora Khurd Distt. Sangrur	IN-2.11.8	Near School	29°53'11"N 75°48'42"E	89	No
9	Gobindpura Jawaharwala Distt. Sangrur	IN-2.11.9	Near Gurudawara Sahib	29°53'42"N 75°48'07"E	130	No
10	Rampura Jawaharwala Distt. Sangrur	IN-2.11.10	Near Gurudawara Sahib	29°54'02"N 75°48'11"E	100	No
11	Balran Distt. Sangrur	IN-2.11.11	Near Chular Road	29°50'26"N 75°50'39"E	460	Seechewal Model STP (Work being Started)
	Total				3312	

12	Lehal Kalan Distt. Sangrur	IN-2.11.12	Near Peer	29°50'36"N 75°51'22"E	416	No
			Near Tower	29°52'52"N 75°51'7"E		
13	Lehal Khurd Distt. Sangrur	IN-2.11.13	LHS of Lehragaga Link Drain	29°55'24"N 75°50'06"E	218	No
14	Khai Distt. Sangrur	IN-2.11.14	RHS of Lehragaga Link Drain	29°56'19"N 75°44'39"E	92	No
15	Kalbanjara Distt. Sangrur	IN-2.11.15	Near Water Works	29°55'58"N 75°53'36"E	188	No
16	Jhaloor Distt. Sangrur	IN-2.11.16	Near SC Shamshanghat	29°56'15"N 75°55'22"E	227	No
17	Bhutal Kalan Distt. Sangrur	IN-2.11.17	Near Guga Marri	29°54'14"N 75°52'11"E	391	No
			Near Commnity Centre	29°54'14"N 75°52'11"E		
18	Ramgarh Sandhuan Distt. Sangrur	IN-2.11.18	RHS Lehragaga Link Drain	29°56'53"N 75°50'58"E	186	No
19	Sekhuwas Distt. Sangrur	IN-2.11.19	RHS L-3 Link Drain	29°58'44"N 75°51'47"E	193	No
20	Ghorenab Distt. Sangrur	IN-2.11.20	LHS Lehragaga Link Drain	29°57'35"N 75°52'46"E	254	No
21	Bhai Ki Pishor Distt. Sangrur	IN-2.11.21	RHS L-3 Link Drain	29°56'53"N 75°50'58"E	243	No
22	Rorewala Distt. Sangrur	IN-2.11.22	RHS South Side.	29°57'20"N 75°54'57"E	133	No
23	Harigarh Distt. Sangrur	IN-2.11.23	Jhaloor Road Near Bhagwant Singh Fields	29°57'22"N 75°56'12"E	142	No
24	Shadihari Distt. Sangrur	IN-2.11.24	Near Hari Singh Fields.	29°56'12"N 75°56'53"E	344	No
25	Kohrian Distt. Sangrur	IN-2.11.25	On Bhai Ki Pishor Road.	29°59'38"N 75°54'26"E	259	No
26	Ubhia Distt. Sangrur	IN-2.11.26	On Ladbanjara Road	29°59'13"N 75°58'10"E	185	No
Total					3471	

27	Khetla Distt. Sangrur	IN-2.11.27	On Kheri Naga Road.	30°1'28"N 75°59'3"E	288	No
28	Rogla Distt. Sangrur	IN-2.11.28	Near Mukhtiar Singh Fields	30°0'48"N 75°56'14"E	411	No
29	Diwangarh Kempar Distt. Sangrur	IN-2.11.29	On Khetla Road.	30°1'50"N 75°59'0"E	163	No
30	Kadial Distt. Sangrur	IN-2.11.30	On Dirba Road	30°3'47"N 75°01'13"E	202	No
31	Kamalpur Distt. Sangrur	IN-2.11.31	Near Satyabharti School	30°6'45"N 76°2'31"E	226	No
			Near Bus Stand	30°6'49"N 76°2'45"E		
			On Ghanaur Rajputtan Road	30°6'50"N 76°2'43"E		
32	Munshiwala Distt. Sangrur	IN-2.11.32	LHS on Masani Road.	30°15'9"N 76°8'33"E	53	Seechewal Model STP (Work being Started)
33	Kheri Gillan Distt. Sangrur	IN-2.11.33	Near Pond.	30°17'16"N 76°9'27"E	75	Seechewal Model STP (Work being Started)
34	Kalajhar Distt. Sangrur	IN-2.11.34	Near Pond.	30°6'15"N 76°9'11"E	141	Seechewal Model STP (Work In-progress)
11.1 L-6 Drain						
1.	Bhootgarh Distt. Patiala	IN-2.11.1.1	Directly	75.93201 29.91247	674	No
12 Sirhind Choe						
1.	Village Mahadiyan, Tehsil Sirhind Distt. Fatehgarh Sahib	IN-2.12.1	Outlet of village pond	30.4001, 76.2514	107	No
Total					2340	

2.	Village Badali, Tehsil Amloh Distt. Fatehgarh Sahib	IN-2.12.2	Near bridge on road leading to Amoh	30.36083, 76.17116	73	No
3.	Sirhind Mandi, Tehsil Sirhind	IN-2.12.3	Sirhind Mandi	30.635696, 76.380802	2200	No
4.	Sirhind City Road (Zone-II)	IN-2.12.4	Near Pully of sirhind city road	-		No
5.	Focal Point Mandi Gobindgarh	IN-2.12.5	Near village Ambey Majra, Tehsil Amloh	30.627004, 76.319103	3000	No
6.	STP, Mandi Gobindgarh outlet, Tehsil Amloh	IN-2.12.6	village Kumbra, Tehsil Amloh	30.620825, 76.299315	19000	STP- 25 MLD
7.	MC, Bassi Pathana	IN-2.12.7	Namdev Road	30.687287 76.406558	600	STP of 3.0 MLD is under installation
			Near ITI	30.681626 46.403936	300	
			Mohalla Singhpura Chungi	30.687681 76.397627	500	
			Brota Majri Chowk	30.687384 76.395645	300	
			Near BSNL Exchange	30.685063 76.402374	300	
8.	MC, Amloh	IN-2.12.8	Village Bir Tehsil Amloh	30.57312 76.27297	2000	STP of 3.0 MLD is proposed under HUDCO
	Total				28273	

9.	Village Mehsampur Distt. Sangrur	IN-2.12.9	U/S of Vill. Dittupur RHS.	30°20'57"N 75°59'35"E	76	Seechewal Model STP (Work being Started)
10.	Village Dittupur Distt. Sangrur	IN-2.12.10	RHS on South-East	30°20'09.7"N 75°59'16.8"E	18	Seechewal Model STP (Work In-progress)
11.	Village Nandgarh Distt. Sangrur	IN-2.12.11	RHS U/S of Dittupur Road.	30°20'51"N 75°59'46"E	52	Seechewal Model STP (Work In-progress)
			RHS On Dittupur Road Culvert	30°20'44"N 75°59'49"E		No
12.	Village Gehlan Distt. Sangrur	IN-2.12.12	LHS Towards North Near Bhalwan Road	30°19'10"N 75°59'01.0"E	58	No
13.	Village Rasoolpur Channa Distt. Sangrur	IN-2.12.13	RHS Towards South-East	30°19'11"N 75°58'58"E	44	Seechewal Model STP (Work In-progress)
14.	Village Kheri Chandwan Distt. Sangrur	IN-2.12.14	RHS Towards South-East	30°18'27.8"N 75°58'27.2"E	52	Seechewal Model STP (Work being Started)
15.	Village Santokhpura Distt. Sangrur	IN-2.12.15	RHS Towards South-East	30°17'34.9"N 75°58'22.4"E	31	Seechewal Model STP (Work In-progress)
16.	Village Jalan Distt. Sangrur	IN-2.12.16	RHS Near Basti on Drain Bank	30°17'10"N 75°57'51"E	85	Seechewal Model STP (Work being Started)
17.	Village Jollian Distt. Sangrur	IN-2.12.17	Near Pond	30°19'27"N 76°2'58"E	74	Seechewal Model STP (Work being Started)
18.	Village Fatehgarh Bhadson Distt. Sangrur	IN-2.12.18	Near Bridge on Panwan Road.	30°18'55"N 76°2'1"E	96	Seechewal Model STP (Work In-progress)
Total					586	

19.	Village Panwan Distt. Sangrur	IN-2.12.19	Near Brigde on F.G. Bhadson Road.	30°18'55"N 76°1'53"E	101	Seechewal Model STP (Work being Started)
20.	Village Sakroudi Distt. Sangrur	IN-2.12.20	South Side of Village.	30°18'22"N 76°0'36"E	142	Seechewal Model STP (Work being Started)
21	Village Ghabdan Distt. Sangrur	IN-2.12.21	RHS Near Fish Farm.	30°16'12.8"N 75°57'19.7"E	233	No
22	Village Kalaudi Distt. Sangrur	IN-2.12.22	RHS on Gharachon Road.	30°13'55.0"N 75°56'33.0"E	93	No
23	Village Balwar Kalan Distt. Sangrur	IN-2.12.23	RHS on Gharachon Road.	30°13'27.0"N 75°55'56.3"E	56	No
24	Village Gharachon Distt. Sangrur	IN-2.12.24	Near Bridge on Sangrur-Grachon Road.	30°13'54"N 75°56'34"E	674	Seechewal Model STP (Work being Started)
25	Village Sajuma Distt. Sangrur	IN-2.12.25	Near Bridge on Ealwal Road.	30°11'17"N 75°55'18"E	60	No
26	Village Gaggarpur	IN-2.12.26	LHS On Sajuma Road.	30°11'18.7"N 75°55'18.7"E	188	No
27	Village Bishanpura Distt. Sangrur	IN-2.12.27	LHS on Near Bridge on Sangrur-Sunam Road.	30° 8' 35'' N 75° 50' 24'' E	126	No
28	Village Chowas Distt. Sangrur	IN-2.12.28	LHS On Ghassiwala Road.	30° 3' 377'' N 75° 43' 47'' E	319	No
29	Village Dhaliwalwas Distt. Sangrur	IN-2.12.29	LHS On Tolawal Road.	30°03'57.4"N 75°43'25.4"E	154	No
Total					2146	

30	Village Ghasiwala Distt. Sangrur	IN-2.12.30	RHS on North Side.	30°06'02.5"N 75°45'05.5"E	156	No
31	Village Satoj Distt. Sangrur	IN-2.12.31	RHS On South Side.	30°03'11.8"N 75°38'48.2"E	229	Seechewal Model STP (Work being Started)
32	Village Kotra Amru Distt. Sangrur	IN-2.12.32	RHS U/S Jakhepal Road Bridge.	30°04'17"N 75°43'53"E	110	No
33	Village Sheron Model Town-1 Distt. Sangrur	IN-2.12.33	LHS On South Side.	30°06'49.8"N 75°45'23.6"E	710	No
34	Village Tibbi Ravidaspura Distt. Sangrur	IN-2.12.34	LHS Near Sitassar Sunam.	30° 7' 52'' N 75° 47' 30'' E	96	No
35	Village Humbalwas Distt. Sangrur	IN-2.12.35	LHS On Ghassiwala Road.	30° 3' 35'' N 75° 44' 3'' E	310	No
36	VillageJakhepalwas	IN-2.12.36	LHS D/S of Humbal was disp. Pt.	30° 3' 44'' N 75° 43' 44'' E	120	No
37	Village Mehlan, Distt. Sangrur	IN-2.12.37	LHS Down Stream of Sangrur-Mehlan Bridge.	30°09'34"N 75°52'58"E	391	No
38	Chathe Nake Distt. Sangrur	IN-2.12.38	RHS D/S of Bridge	30°08'47"N 75°50'06"E	45	No
39	Akalgarh Distt. Sangrur	IN-2.12.39	RHS D/S of Bridge	30°08'47"N 75°50'06"E	45	No
40	Tolawal Distt. Sangrur	IN-2.12.40	RHS D/S Dharamgarh Road Bridge.	30°03'39"N 75°40'40"E	268	No
41	Dharamgarh Distt. Sangrur	IN-2.12.41	LHS Water Works.	30°03'12"N 75°40'22"E	118	Seechewal Model STP (Work being Started)
Total					2598	

42	Nagar Panchayat, Cheema Distt. Sangrur	IN-2.12.42	Jakhepal Road, Cheema	30.065643 75.722730	500	STP of 2.0 MLD is proposed under HUDCO
43	M.C., Sunam	IN-2.12.43	Sunam Budhlada Byepass	30.121086 75.789754	8000	STP of capacity 8 MLD installed
44	Village Farid ke Distt. Mansa	IN-2.12.44	Near Shamshan ghat	29.791361, 75.4483	15	No
45	Village Malkon Distt. Mansa	IN-2.12.45	kacha rasta ladduwas road (Haryana)	29.803666, 75.449450	7	No
46	Village Uddat Saidewala Distt. Mansa	IN-2.12.46	backside SC Dharmshalla	29.822309 75.479533	32	No
47	Akkanwali Distt. Mansa	IN-2.12.47	main pull rasta joian	29.867959 75.428836	50	No
48	Village Piplian Distt. Mansa	IN-2.12.48	Kacha rasta Mandhali	29.898368 75.453998	50	No
49	Village Ahmedpur Distt. Mansa	IN-2.12.49	Ahmedpur Road Bridge	29.941037 75.499767	50	No
50	Nagar Panchayat Budhlada Distt. Mansa	IN-2.12.50	Railway Line crossing over drain	29.941037 75.499767	5300	No
Total					14004	

51	Village Hasanpur Distt. Mansa	IN-2.12.51	near playground	29.962936 75.526926	7	No
52	Village Gurne Kalan Distt. Mansa	IN-2.12.52	Main pull on drain Rasta phaphre bhai ke	29.977479 75.529897	60	No
53	Village Borawal Distt. Mansa	IN-2.12.53	main pull rasta bhikhi	30.003417 75.545233	7	No
54	Village Borawal Distt. Mansa	IN-2.12.54	Near Shamshan ghat	30.001762 75.539893	14	No
55	Village Dhalewan Distt. Mansa	IN-2.12.55	near playground	30.023340, 75.580270	20	No
56	Village Khiwa Khurd Distt. Mansa	IN-2.12.56	near pond	30.128038, 75.570434	2	No
57	Village Hodla Khurd Distt. Mansa	IN-2.12.57	near petrol pump	30.046644, 75.614067	2	No
58	Village Mangewal, Distt. Mansa	IN-2.12.58	Near Habitation area	30.483192 76.200978	320	No
59	Village Sohndewal, Distt. Mansa	IN-2.12.59	Near Habitation area	29.630100 74.720043	334	No
60	Village Chaswal, Distt. Mansa	IN-2.12.60	Near Habitation area	30.494018 76.216606	433	No
61	Village Shamashpur, Distt. Mansa	IN-2.12.61	Near Habitation area	30.528035 76.254106	112	No
Total					1311	

62	Village Khijjerpur, Distt. Mansa	IN-2.12.62	Near Habitation area	30.543475 76.263961	105	No
63	Village Jhambali Sahni, Distt. Mansa	IN-2.12.63	Near Habitation area	30.527305 76.254352	132	No
64	Village Ram Garh, Distt. Mansa	IN-2.12.64	Near Habitation area	30.508812 76.243226	512	No
65	Village Bhari Panechan, Distt. Mansa	IN-2.12.65	Near Habitation area	30.543618 76.263981	413	No
66	MC, Bhadson, Distt. Mansa	IN-2.12.66	Near bridge on Amloh-Bhadson Road	30.514960 76.246270	730	No
67	Domestic effluent of village Gurdaspura, Distt. Sangrur	IN -2.12.67	South side of village	30°14'37.0"N 75°57'04.1"E	82	No
12.1 Nabha Drain						
1	MC, Nabha	IN-2.12.1.1	Near Dulladi	30.3650 76.1380	7200	Not installed
12.2 Sangrur Drain						
1.	Bhindran (Th. B/pura Drain) (Distt. Sangrur)	IN-2.12.2.1	Pond Near Anaj Mandi	30°15'48"N 75°54'49"E	159	No
Total					9333	

2.	Khurana (Distt. Sangrur	IN-2.12.2.2	LHS Main NH-7 Near Bridge.	30°14'51"N 75°54'05"E	114	No
			LHS Fields	30°14'36"N 75°53'56"E		
3.	Khurani (Distt. Sangrur)	IN-2.12.2.3	LHS Balwar Kalan Road.	30°14'10"N 75°52'37"E	52	No
4.	Village Kammomajra, Distt. Sangrur	IN-2.12.2.4	RHS of South Side.	30°12'24.9"N 75°52'10.4"E	87	No
5.	Ramnagar Sibian (Distt. Sangrur)	IN-2.12.2.5	LHS Main Sunam-Sangrur Road.	30°13'07"N 75°50'41"E	88	No
6.	Tungan (Distt. Sangrur)	IN-2.12.2.6	RHS Near Culvert	30°10'35"N 75°50'53"E	169	No
7.	Kanoi (Distt. Sangrur)	IN-2.12.2.7	LHS Main Sunam-Sangrur Road.	30°12'02"N 75°50'48"E	103	No
8.	Kularan (Distt. Sangrur)	IN-2.12.2.8	LHS through fields towards East.	30°09'27"N 75°51'33"E	45	No
9.	Village Kheri, Distt. Sangrur	IN-2.12.2.9	LHS On Kheri-Kanoi Road.	30°11'31.9"N 75°51'49.4"E	215	No
Total					873	

12.2.1 Balian Drain						
1.	M.C. Sangrur	IN-2.12.2.1.1	In front of MPS, Sunam Road, Sangrur	30.225152 75.842543	7000	STP of 11 MLD capacity is proposed under HUDCO
			Near Akalsar Sahib Gurudwara along with Sant Nagar Gali no. 2 Sunam Road, Sangrur	30.232506 75.839868	200	STP of 4 MLD capacity is proposed under HUDCO
2.	Rupaheri (Distt. Sangrur)	IN-2.12.2.1.2	LHS of Balian Drain.	30°17'56"N 75°54'34"E	93	No
3.	Mangwal (Distt. Sangrur)	IN-2.12.2.1.3	LHS Near Govt. School towards East.	30°15'15"N 75°51'59"E	634	No
12.3. Bareta Drain						
1.	Rattakhera (Distt. Sangrur)	IN-2.12.3.1	D/S of Village.	29°57'58"N 75°41'30"E	141	No
2.	Ladal (Distt. Sangrur)	IN-2.12.3.2	Near Stadium	29°54'49"N 75°43'38"E	193	No
3.	Hariaou (Distt. Sangrur)	IN-2.12.3.3	Near Bus Stand	29°45'53"N 75°43'08"E	356	No
4.	Gidriani (Distt. Sangrur)	IN-2.12.3.4	Near School	29°58'33"N 75°45'45"E	162	No
5.	Gaga (Distt. Sangrur)	IN-2.12.3.5	LHS B-5.	29°56'25"N 75°47'48"E	228	No
6.	Fatehgarh (Distt. Sangrur)	IN-2.12.3.6	RHS Near School on Kanakwal Road	30°29'21"N 75°43'40"E	171	No
			RHS Hariau Road	30°58'44"N 75°43'26"E		
			RHS U/S Lehra Road Bridge.	30°58'53"N 75°43'57"E		
Total					9178	

7.	Ganduan (Distt. Sangrur)	IN-2.12.3.7	RHS Focal Point Road.	30°0'10"N 75°45'25"E	366	No
			RHS Near Bridge Khokar Road.	29°59'25"N 75°45'35"E		No
8.	Bhaini Ganduan (Distt. Sangrur)	IN-2.12.3.8	RHS Khokhar Road Pipe Bridge.	29°59'57"N 75°47'04"E	66	No
9.	Maidewas (Distt. Sangrur)	IN-2.12.3.9	RHS Lehra Main Road Bridge.	30°0'46"N 75°47'43"E	113	No
10.	Chajjla (Distt. Sangrur)	IN-2.12.3.10	RHS Gobindgarh Jejjian road bridge.	30°1'58"N 75°47'58"E	145	No
11.	Gobindgarh Jejjian (Distt. Sangrur)	IN-2.12.3.11	LHS Khokhar Road Pipe Bridge.	29°59'57"N 75°47'04"E	218	No
			LHS Chajjla Road.	30°01'55"N 75°47'50"E		
12.	Nangla (Distt. Sangrur)	IN-2.12.3.12	LHS of B-6 Link Drain.	29°59'42"N 75°49'58"E	236	No
13.	Sangatiwala (Distt. Sangrur)	IN-2.12.3.13	RHS Bridge on Chajjli Road.	30°0'59"N 75°51'34"E	428	No
14.	Chajjli (Distt. Sangrur)	IN-2.12.3.14	RHS Bridge Nangla Road.	30°1'18"N 75°48'01"E	935	No
			RHS Bridge Sangtiwala Road.	30°1'58"N 75°49'58"E		
			RHS Near Gugga Marri	30°1'15"N 75°49'59"E		
			RHS Bridge Model Town Road.	30°1'15"N 75°49'59"E		
15.	Vill. Chatha Nanhera, Distt. Sangrur	IN-2.12.3.15	RHS Bank South Side.	30°03'34.1"N 75°52'52.9"E	358	No
	Total				2865	

16.	Chahhar (Distt. Sangrur)	IN-2.12.3.16	RHS On Bhai Ki Pishor Road.	30°1'27"N 75°54'22"E	428	No
17.	Dhandoli Kalan (Distt. Sangrur)	IN-2.12.3.17	On Rogla Road.	30°2'28"N 75°55'46"E	176	No
18.	Janal (Distt. Sangrur)	IN-2.12.3.18	On Gujjran Road.	30°4'18"N 75°57'6"E	293	No
19.	Taranji Khera (Distt. Sangrur)	IN-2.12.3.19	Near Culvert on Distributory	30°6'24"N 75°54'14"E	149	No
20.	Mauran (Distt. Sangrur)	IN-2.12.3.20	Naar Nagari	30°8'4"N 75°55'33"E	336	No
21.	Toorbanjara (Distt. Sangrur)	IN-2.12.3.21	Near Panchayat Land	30°5'39"N 75°57'53"E	154	No
			Dirba Sangtiwala Road	30°5'18"N 75°57'48"E		
22.	Gujjran (Distt. Sangrur)	IN-2.12.3.22	Near Grid on Mauran Road	30°7'34"N 75°57'44"E	104	No
			Near Anaj Mandi	30°7'09"N 75°58'29"E		
23.	Changaliwala (Distt. Sangrur)	IN-2.12.3.23	RHS of L/Gaga Link Drain.	29°56'46"N 75°47'50"E	77	No
24.	Khokhar Kalan (Distt. Sangrur)	IN-2.12.3.24	Near Bus Stand	29°57'32"N 75°48'21"E	159	No
25.	Khokhar Khurd (Distt. Sangrur)	IN-2.12.3.25	RHS of L/Gaga Link Drain.	29°58'57"N 75°49'02"E	56	No
26.	Domestic effluent of Village Khadial, Distt. Sangrur	IN-2.12.3.26	RHS Bank South Side.	30°05'45.2"N 75°53'10.8"E	450	No
27.	Domestic effluent of Village Reond Khurd, Distt. Mansa	IN-2.12.3.27	Near Shamshan ghat	29.759900, 75.585001	15	No
28.	Domestic effluent of Village Reond Kalan, Distt. Mansa	IN-2.12.3.28	main pull rasta birewala dogra	Lt. 29.76123, Long 75.590784	5	No
	Total				2402	

29.	Domestic effluent of Village Bhakrial, Distt. Mansa	IN-2.12.3.29	Near main pull rasta Ramgarh Shahpuria	Lt. 29.800565. Long 75.621263	5	No
30.	Domestic effluent of Village Dharmpura, Distt. Mansa	IN-2.12.3.30	Bhawa bareta road	29.826229, 75.648320	12	No
31.	Domestic effluent of Village Jalwara, Distt. Mansa	IN-2.12.3.31	Drain pull on bareta road	29.856722 75.662118	5	No
32.	MC, Bareta	IN-2.12.3.32	Near jalwara Bridge	29051'37'' 75040' 23"	2000	STP of capacity 3 MLD based on WSP technology is installed
33.	Domestic effluent of vill. Ramgarh Jawandhey, Distt. Sangrur	IN -2.12.3.33	On Chajjli Path D/s of Bridge	30°03'56"N 75°52'39"E	195	No facility
12.3.1 Ladal Drain						
1.	Kishangarh	IN-2.12.3.1.1	Near Drain pull Daska road	29.910752 75.724687	70	No
Total					2287	

12.3.2 Mander Drain						
1.	Village Mander, Distt. Mansa	IN-2.12.3.2.1	Main pull bareta road	29.824823 75.684634	50	No
2.	Village Juglan, Distt. Mansa	IN-2.12.3.2.2	Kacha rasta pond to drain along stadium	29.823109 75.699637	02	No
12.3.3 Toderpur Drain						
1.	Village Gamiwala, Distt. Mansa	IN-2.12.3.3.1	Drain pull main rasta Radha Swami Dera	29.806189 75.533512	04	No
2.	Village Gamiwala, Distt. Mansa	IN-2.12.3.3.2	near Drain pull	29.803932 75.530153	04	No
3.	Village Maghania, Distt. Mansa	IN-2.12.3.3.3	near pull rasta Saidewala	29.806853 75.577562	10	No
4.	Village Saidewala, Distt. Mansa	IN-2.12.3.3.4	pond to kacha rasta toderpur drain	29.630100, 74.720043	2	No
Total					72	

12.3.4 Hargobindpura Datewas Drain						
1	Village Manderna (Rampura mander), Distt. Mansa	IN-2.12.3.4.1	Near Bridge Village Satike	29.847898 75.556194	2	No
2	Village Satika, Distt. Mansa	IN-2.12.3.4.2	Near Bridge Village phulluwala Dod	29.862740 75.593327	8	No
3	Nagar Panchayat, Boha, Distt. Mansa	IN-2.12.3.4.3	Near Serkhal road	29.827 74.542	1200	No
12.4 Khiwa Sahajada Drain						
1.	Village Khiva Kalan, Distt. Mansa	IN-2.12.4.1	Near Anganwari	30.101256, 75.565631	15	No
			Near Pandit wali shamshanghat	30.108611 75.565555	10	No
12.5 Dodra Drain						
1.	Village Gurne Khurd, Distt. Mansa	IN-2.12.5.1	Kacha rasta upto drain from Balwinder singh Ex Sarpanch	29.965501 75.527674	12	No
2.	Village Chak bhai ke, Distt. Mansa	IN-2.12.5.2	Bachuuana road	30.585642 75.501149	10	No
3.	MC, Budhlada, Distt. Mansa	IN-2.12.5.3	Ahmadpur Bridge	29.941408 75.499763	5300	STP of 6.5 MLD capacity based on MBBR Technology is installed and in operation.
Total					6557	

12.6 Bahadur Singh Wala Drain						
1.	Jalalgarh (Distt. Sangrur)	IN-2.12.6.1	LHS	30°31'17"N 76°04'05"E	49	No
2	Chounda (Distt. Sangrur)	IN-2.12.6.2	LHS	30°30'54"N 76°03'15"E	45	No
3	Mohmadpura (Nawan Pind) (Distt. Sangrur)	IN-2.12.6.3	LHS	30°29'43"N 76°01'45"E	34	No
4	Jhall (Distt. Sangrur)	IN-2.12.6.4	RHS	30°28'40"N 76°00'31"E	134	No
5	Langrian (Distt. Sangrur)	IN-2.12.6.5	LHS	30°28'25"N 75°59'21"E	122	No
6	Niamatpura (Distt. Sangrur)	IN-2.12.6.6	RHS	30°27'23"N 75°58'51"E	93	No
7	Lohar Majra (Distt. Sangrur)	IN-2.12.6.7	LHS	30°25'32"N 75°56'43"E	34	No
8	Sherpur Sodian (Distt. Sangrur)	IN-2.12.6.8	LHS	30°23'26"N 75°55'49"E	55	No
9	Jakhlan (Distt. Sangrur)	IN-2.12.6.9	LHS	30°23'03"N 75°55'20"E	99	No
10	Harchandpura (Distt. Sangrur)	IN-2.12.6.10	LHS	30°22'03"N 75°54'07"E	132	No
	Total				797	

11	Village Mannwala, Distt. Sangrur	IN-2.12.6.11	LHS North Side of Village near Railway Line	30° 21’ 4.68’’ N 75° 52’ 21.22’’ E	56	No
12	Benra, Distt. Sangrur	IN-2.12.6.12	RHS	30°20’01”N 75°51’17”E	315	No
			RHS	30°19’51”N 75°51’09”E		
13	Ladda Nayak Basti Distt. Sangrur	IN-2.12.6.13	RHS Near Ladda Bus Stand	30°18’43”N 75°50’22”E	315	No
14	Mohmadpur Rassaldar, Distt. Sangrur	IN-2.12.6.14	RHS near Main Road.	30°17’46”N 75°50’03”E	33	No
15	Akoi Sahib, Distt. Sangrur	IN-2.12.6.15	RHS near Main Road.	30°16’52”N 75°50’03”E	116	No
16	Sarron, Distt. Sangrur	IN-2.12.6.16	RHS Near Culvert	30°18’49”N 75°53’36”E	280	No
			RHS Near Co-op Bank.	30°19’2”N 75°53’49”E		
17	Fatehgarh Channa, Distt. Sangrur	IN-2.12.6.17	RHS toward East in fields.	30°18’09”N 75°52’16”E	113	No
18	Thaleshan, Distt. Sangrur	IN-2.12.6.18	RHS of Drain at Nankiana Road	30°16’58”N 75°51’09”E	85	No
19	Hareri, Distt. Sangrur	IN-2.12.6.19	LHS of BS Wala.	30°16’16”N 75°48’39”E	604	No
20	Changal, Distt. Sangrur	IN-2.12.6.20	Near Badrukhan.	30°15’58”N 75°47’30”E	156	Seechewal Model STP (Work being Started)
Total					2073	

21	Badrukhan, Distt. Sangrur	IN-2.12.6.21	LHS of BS Wala.	30°15'26"N 75°47'14"E	73	No
			LHS of BS Wala.	30°15'26"N 75°47'13"E		
22	Bhamabaddi, Distt. Sangrur	IN-2.12.6.22	LHS of BS Wala.	30°14'10"N 75°45'19"E	79	Seechewal Model STP (Work being Started)
23	Ubhewal, Distt. Sangrur	IN-2.12.6.23	LHS of BS Wala.	30°13'57"N 75°44'36"E	489	No
24	Duggan, Distt. Sangrur	IN-2.12.6.24	RHS on Kila Road.	30°13'36"N 75°43'54"E	364	No
25	Kila Bharian, Distt. Sangrur	IN-2.12.6.25	LHS on Duggan Rd.	30°13'35"N 75°43'54"E	79	No
26	Sahoke, Distt. Sangrur	IN-2.12.6.26	LHS of Sahoke Drain.	30°10'41"N 75°35'36"E	140	No
			LHS of Sahoke Drain.	30°10'26"N 75°35'20"E		
27	Loha Khera, Distt. Sangrur	IN-2.12.6.27	LHS of Dhuri Drain.	30°12'42"N 75°37'07"E	211	No
28	Ratoke, Distt. Sangrur	IN-2.12.6.28	LHS of BS Wala.	30°10'46"N 75°56'54"E	79	No
29	Takipur, Distt. Sangrur	IN-2.12.6.29	LHS of BS Wala.	30°10'29"N 75°36'54"E	80	No
30	Togalwal, Distt. Sangrur	IN-2.12.6.30	LHS Near Village.	30°9'16"N 75°36'51"E	184	No
			LHS Near Village.	30°9'14"N 75°36'38"E		
			LHS Near Village.	30°9'15"N 75°36'29"E		
	Total				1778	

31	Shahpur, Distt. Sangrur	IN-2.12.6.31	LHS of BS Wala.	30°8'42"N 75°39'46"E0	45	No
32	Jharon, Distt. Sangrur	IN-2.12.6.32	LHS of Jainpur Road	30°7'17.23''N 75°37 56.34'' E	330	No
33	Village Dhura, Distt. Sangrur	IN-2.12.6.33	LHS near AP Solevex.	30°20'53"N 75°52'2"E	247	No
			LHS near AP Solevex	30°21'39"N 75°53'54"E		
34	Dohla, Distt. Sangrur	IN-2.12.6.34	RHS Near Harchandpura on Nabha Road	30°22'18.4"N 75°54'14.0"E	74	No
35	Issi, Distt. Sangrur	IN-2.12.6.35	LHS On Rajindrapuri Road	30°25'12.34"N 75°56'01.98"E	115	No
			LHS	30°24'59"N 75°55'56"E		
36	Kheri Jattan, Distt. Sangrur	IN-2.12.6.36	LHS Near School.	30°25'57.0"N 75°57'21.8"E	103	No
37	Dhadogal, Distt. Sangrur	IN-2.12.6.37	LHS On Jainpur Road.	30°26'15.63"N 75°57'48.23"E	203	No
38	Nagar Panchayat, Longowal, Distt. Sangrur	IN-2.12.6.38	Shahpur Road, Near Drain Bridge	30.188338 75.683476	1000	STP of 3.0 MLD is proposed under HUDCO
39	M.C., Dhuri, Distt. Sangrur	IN-2.12.6.39	Totapuri Mohalla	30.347929 75.867512	2000	2 no. STPs of 5 & 6 MLD are proposed under HUDCO
40	M.C., Bhikhi, Distt. Mansa	IN-2.12.6.40	At Dolwe Road, Bhikhi	30039’90’’ 75032’04’’	2500	STP of 3.0 MLD based on WSP technology is installed.
	Total				6617	

41	Diwane Kothe, Distt. Mansa	IN-2.12.6.41	Diwane Kothe	30.04’57” 75.35’04”	05	No
42	Dhaipai, Distt. Mansa	IN-2.12.6.4	Near Shamshan ghat	30.094444, 75.615555	15	No
43	Hiron Kalan, Distt. Mansa	IN-2.12.6.43	near pond	30.114044, 75.630581	10	No
44	Gurdaspura Basti (Sangrur)	IN -2.12.6.44	Dhuri Main Road U/s of Bridge Near Sun Rise	30°16’41.5”N 75°50’03.7”E	63	No facility
45	Sheron (Distt. Sangrur)	IN -2.12.6.45	LHS under HT Line	30°09’15”N 75°45’07”E	710	No facility
12.6.1 Bhagwanpura Link Drain						
1.	Vill. Dhandra, Distt. Sangrur	IN-2.12.6.1.1	On Meemsa-Bagrian Road	30°23'42.48'' N 75°55'57.89'' E	155	No
2.	Vill. Burj Sedha, Distt. Sangrur	IN-2.12.6.1.2	RHS on Bank.	30°24'06.8"N 75°58'34.6"E	864	No
3.	Vill.Meemsa, Distt. Sangrur	IN-2.12.6.1.3	RHS in Fields.	30°22'42.8"N 75°57'44.1"E	265	Seechewal Model STP (Work Being Started)
Total					2087	

12.6.2 Dhuri Drain						
1.	Vill. Pedhni Kalan (Distt. Sangrur)	IN-2.12.6.2.1	RHS in Fields.	30°21'48.67"N 75°47'57.95"E	117	No
2.	Vill. Banganwali (Distt. Sangrur)	IN-2.12.6.2.2	On Rajindrapuri Road	30°25'43.76"N 75°54'15.20"E	81	No
3.	Vill. Babbanpur (Distt. Sangrur)	IN-2.12.6.2.3	RHS Bank on Dhuri Road.	30°25'19.9"N 75°51'59.2"E	41	No
4.	Vill. Kanjhli (Distt. Sangrur)	IN-2.12.6.2.4	RHS Bank South Side.	30°18'08.13"N 75°44'25.47"E	94	No
5.	Vill. Batuha (Distt. Sangrur)	IN-2.12.6.2.5	RHS Bank Natt Road.	30°18'32.2"N 75°43'20.5"E	75	No
6.	Vill. Jahangir (Distt. Sangrur)	IN-2.12.6.2.6	RHS on Bank.	30°23'10.8"N 75°49'14.3"E	150	No
7.	Tolawal (Distt. Sangrur)	IN-2.12.6.2.7	LHS near Main Rd. Bridge.	30°28'54"N 75°58'24"E	268	No
8.	Banbhura (Distt. Sangrur)	IN-2.12.6.2.8	RHS	30°28'03"N 75°57'28"E	281	No
9.	Jainpur (Distt. Sangrur)	IN-2.12.6.2.9	LHS	30°27'05"N 75°56'37"E	78	No
	Total				1185	

10.	Vill. Ruldu Singh Wala (Distt. Sangrur)	IN-2.12.6.2.10	RHS on Bardwal Road.	30°24’23.88”N 75°53’49.06”E	68	No
11.	Bardwal (Distt. Sangrur)	IN-2.12.6.2.11	LHS	30°24’04”N 75°53’22”E	244	No
			LHS	30°24’03”N 75°53’13”E		
			LHS	30°23’59”N 75°52’48”E		
12	Daulatpur (Distt. Sangrur)	IN-2.12.6.2.12	RHS	30°23’39”N 75°51’19”E	70	No
13	Kaheru (Distt. Sangrur)	IN-2.12.6.2.13	RHS	30°23’20”N 75°49’58”E	181	No
			RHS	30°23’19”N 75°49’57”E		
			RHS	30°23’19”N 75°49’50”E		
14	Punawal (Distt. Sangrur)	IN-2.12.6.2.14	LHS	30°19’58”N 75°47’26”E	233	No
			LHS	30°19’34”N 75°47’16”E		
15	Vill. Kanjhla (Distt. Sangrur)	IN-2.12.6.2.15	LHS Bank on Ladda-Kila Hakima Road	30° 18’37.61’’ N 75° 46’ 44.84’’ E	358	Seechewal Model STP (Work Being Started)
16	Vill. Natt (Distt. Sangrur)	IN-2.12.6.2.16	LHS Bank Batuha Road.	30°17’35.4”N 75°43’25.7”E	109	No
17	Bhaini Mehraj (Distt. Barnala)	IN-2.12.6.2.17	RHS	30°17’41”N 75°42’48”E	326	No
			RHS	30°16’40”N 75°41’01”E		
			RHS	30°16’39”N 75°41’01”E		
18	Badbar (Distt. Barnala)	IN-2.12.6.2.18	LHS	30°15’47”N 75°38’49”E	479	No
19	A part of sewage of M.C, Dhuri Distt. Sangrur	IN-2.12.6.2.19	Village Doulatpur Road.	30.395218 75.858836	2500	Work for installation of STP of capacity 5 MLD is allotted
Total					4568	

20	Domestic effluent of Vill. Ladda (Distt. Sangrur)	IN-2.12.6.2.20	Ladda Kanjhla Road on Changal Junction	30°18’26.1”N 75°46’44.9”E	314	No facility
21	Harigarh (Distt. Barnala)	IN-2.12.6.2.21	Near Bus Stand	30°15’31”N 75°37’35”E	249	No facility
12.6.3 Sahoke Main Drain						
1.	Village Dhadrian Distt. Sangrur	IN-2.12.6.3.1	On LHS of Bank.	30° 10' 27'' N 75° 35' 20'' E	206	No
2.	Vill. Dullat Wala Distt. Sangrur	IN-2.12.6.3.2	On Mander Kalan Takipur Road	30°10'50.0"N 75°38'8.47"E	26	No
3.	Samao Distt. Mansa	IN-2.12.6.3.3	Near Gurdawara	30.081411 75.548214	18	No
4.	Gurthari Distt. Mansa	IN-2.12.6.3.4	near school	30.116850 75.539715	07	No
Total					820	

12.6.3.1 Jassarwal Drain						
1.	Vill. Dialgarh, Distt. Sangur	IN-2.12.6.3.1.1	On South-West Side of Village	30°08’55.9”N 75°34’46.5”E	114	No
2.	Vill. Mander Kalan, Distt. Sangur	IN-2.12.6.3.1.2	On LHS Bank.	30° 10’54.47’’ N 75° 38’ 8.47’’ E	144	No
12.6.3.2 Buggar Link Drain						
1.	Vill. Buggar, Distt. Sangrur	IN-2.12.6.3.2.1	On LHS Bank.	30° 12’46.15’’ N 75° 35’ 50.21’’ E	87	No
13	**Miranpur Choe**					
1.	Village Rathian, Distt. Patiala	IN-2.13.1	Near habitation area	30.185 76.315415	405	No
2.	Village Balamgarh, Distt. Patiala	IN-2.13.2	-do-	30.162667 76.2936.09	324	No
3.	Village Balla, Distt. Patiala	IN-2.13.3	-do-	30.164915 76.295513	227	No
4.	Village Bolri, Distt. Patiala	IN-2.13.4	-do-	30.174768 76.312579	105	No
5.	Village Ganour, Distt. Patiala	IN-2.13.5	-do-	30.155634 76.292372	154	No
	Total				1560	

6.	Village Khuda, Distt. Patiala	IN-2.13.6	-do-	30.153675 76.291219	487	No
7.	Village Katakheri, Distt. Patiala	IN-2.13.7	-do-	30.237292 76.488194	97	No
8.	Village Gangrola	IN-2.13.8	-do-	30.242082 76.4912	236	No
9.	Village Devi nagar Sivaye Singh wala, Distt. Patiala	IN-2.13.9	-do-	30.220709 76.482227	359	No
10.	Village Dolatpur Fakira, Distt. Patiala	IN-2.13.10	-do-	30.169743 76.458001	136	No
11.	Village Sassi Brahmna, Distt. Patiala (two outlets)	IN-2.13.11	-do-	30.6 76.34 30.11 76.20	186	No
12.	Village Haripura, Distt. Patiala (Two outlets)	IN-2.13.12	-do-	30.6 76.34 30.11 76.20	37	No
14	**Badi Tangri**					
1.	Village Mohalgarh, Distt. Patiala	IN-2.14.1	Near Habitation area	30.20422 76.635359	228	No
2.	Village Kharabgarh, Distt. Patiala	IN-2.14.2	-do-	30.103801 76.561817	292	No
	Total				2058	

14.1 Shekhupura Adalatiwala Drain						
1.	Village Isharheri, Distt. Patiala	IN-2.14.1.1	Near Habitation area	30.197553 76.596858	405	No
2.	Village Chuhat, Distt. Patiala	IN-2.14.1.2	-do-	30.18614 76.563624	244	No
3	Village Dudan Gujran, Distt.Patiala	IN-2.14.1.3	-do-	30.143929 76.541415	240	No
Total					889	
GRAND TOTAL					**313022 KLD**	

Annexure G – (A) Local Bodies which have installed STPs of full capacities

Sr. No	Name of Town	Sewage Generation in MLD (present)	Capacity of STP (MLD)	Technology of STP
1.	Banur	2.53	4.0	MBBR
2.	Baretta	2.13	3.0	WSP
3.	Bhikhi	2.52	3.0	WSP
4.	Budhlada	5.50	6.5	MBBR
5.	Khanauri	1.82	3.0	SBR
6.	Lehragaga	2.92	4.0	SBR
7.	Moonak	2.34	3.0	SBR
8.	SAS Nagar	24.35	45.4	UASB
9.	Pattran	3.70	4.0	SBR
10.	Samana	6.95	10.0	SBR
11.	Sardulgarh	2.69	4.0	WSP
12.	Sunam	8.37	8.0	MBBR
13.	Zirakpur	13.87	17.0	SBR

14.	Mandi Gobindgarh	19	25.0	SBR

Annexure G – (B) Local Bodies which have installed partially completed STPs

Sr. No.	Name of the Town	Capacity of the STP already installed (MLD)	Capacity of the STP yet to be installed/ commissioned (MLD)	Status of STP yet to be installed/ commissioned
1.	MC, Dera Bassi	4	2	Construction will be completed by 31.03.2020.
2.	MC Lalru	1.5	1.5	The nearby residents have filed a suit against MC for change of site of 1.5 MLD capacity STP. Construction of 0.3 + 0.3 MLD STP will be completed by 31.12.2020 and 1 MLD STP by 31.10.2020.
3.	Rajpura	7	10	Commissioned for Stablization
4.	Patiala	46	15	Additional module of 15 MLD is likely to be installed by 31.12.2020.
		10.0	-	Sufficient capacity
		13	-	Sufficient capacity

Annexure G - (C) Status regarding sewage treatment in urban areas

S.N.	Name of the Town	Population in year 2018	Water consumption (MLD)	Wastewater generation (MLD)	Existing capacity of STP (MLD)	Proposed capacity of the STP (MLD)	Balance quantity yet to be treated (MLD)
1.	Banur	22052	2.98	2.53	4.0	0.0	0.0
2.	Baretta	18533	2.50	2.13	3.0	0.0	0.0
3.	Bhikhi	21937	2.96	2.52	3.0	0.0	0.0
4.	Budhlada	47953	6.47	5.50	6.5	0.0	0.0
5.	Khanauri	15882	2.14	1.82	3.0	0.0	0.0
6.	Lehragaga	25457	3.44	2.92	4.0	0.0	0.0
7.	Mandi Gobindgarh	87323	11.79	10.02	25.0	0.0	0.0
8.	Moonak	20431	2.76	2.34	3.0	0.0	0.0
9.	Mohali	212242	28.65	24.35	45.4	0.0	0.0
10.	Patiala	506012	82.35	70.00	46	Additional module of STP of 15 MLD yet to be installed	14.0
					10		
				6.0	13		
11.	Pattran	32255	4.35	3.70	4.0	0.0	0.0
12.	Rajpura	124821	16.85	14.32	7.0	10.0	7.32
13.	Samana	60591	8.18	6.95	10.0	0.0	0.0
14.	Sardulgarh	23417	3.16	2.69	4.0	0.0	0.0
15.	Sunam	72963	9.85	7.00	8.0	0.0	0.0
16.	Zirakpur	120867	16.32	13.87	17.0	0.0	0.0

17.	Bassi Pathana	22090	2.98	2.53	-	3.0	2.53
18.	Boha	14206	1.92	1.63	-	2.0	1.63
19.	Lalru	41330	5.58	4.74	1.5	1.5, 1.0, 0.3 & 0.3	3.24
20.	Dera Bassi	50277	6.79	5.77	4.0	2.0 & 2.0	1.77
21.	Sirhind	65706	8.87	7.54	-	5.0, 4.0 & 2.0	7.54
22.	Amloh	19837	2.7	2.28	-	3.0	2.28
23.	Cheema	13087	1.8	1.50	-	2.0	1.5
24.	Dhuri	62614	8.6	7.19	-	5.0 & 6.0	7.19
25.	Sangrur	98671	13.6	11.32	-	11.0 & 4.0	11.32
26.	Nabha	68031	9.4	7.81	-	12.0	7.81
27.	Longowal	28418	3.9	3.26	-	3.0	3.26
28.	Sanaur	24390	3.36	2.80	-	4.0	2.80
29.	Bhadson	8063	1.11	0.93	-	3.0	0.93
30.	Ghanour	7500	1.0	0.8	-	2.0	0.8
	TOTAL		**276.36**	**238.76**	**221.4**	**103.10**	**75.92**

Annexure H - List of Industries located in Dera Bassi area

Sr. No.	Name and Address of industry	Type of industry	Water consump-tion (KLD)	Effluent discharge (KLD)		ETP component	Mode of Disposal of treated wastewater authorized by the Board.
				Trade (KLD)	Domestic Effluent		
1.	T.C. Terrytex Limited, Village Sarsini, PO Lalru, Dera Bassi	Dyeing	2200	1800	50	Physico chemical followed by aerobic biological treatment and tertiary treatment	Onto land for plantation
2.	Bhandari Export Industries Ltd., Village Sarsini, Dera Bassi	Dyeing	200	160	10	Physico chemical followed by aerobic biological treatment and tertiary treatment	Onto land for plantation
3.	Rana Polycot Ltd. (Dyeing Unit), Village Alamgir, Dera Bassi	Dyeing	600	500	3	Physico chemical followed by aerobic biological treatment and tertiary treatment	Onto land for plantation
4.	Nahar Spinning Mills Ltd.(M & D Unit), Village Lehli, PO Dappar, Lalru, Dera Bassi	Dyeing	1850	1700	50	Physico chemical followed by aerobic biological treatment.	Onto land for plantation
5.	Nahar Industrial Enterprises Ltd. (Process House-I), Village Jalalpur, PO Dappar, Dera Bassi	Dyeing	2800	2300	200	Aerobic biological treatment followed by tertiary treatment.	Onto land for plantation
6.	Nahar Industrial Enterprises Ltd. (Process House-2),	Dyeing	3500	2750	200	Aerobic biological treatment.	Onto land for plantation

	Village Jalalpur, PO Dappar, Dera Bassi						
7.	Oswal Denims, Village Dappar, Lalru, Dera Bassi	Dyeing	1100	710	150	Physico chemical followed by aerobic biological treatment and tertiary treatment.	Onto land for plantation
8.	Rainbow Denim Ltd., Village Chaundheri, Dera Bassi (98140-88924)	Dyeing	590	455	55	Physico chemical followed by aerobic biological treatment and tertiary treatment.	Onto land for plantation
9.	Mirha Exports (P) Ltd., Village Jaula Khurd, Dera Bassi (84276-77844)	Meat Plant	1910	1620	23.5	An-aerobic followed by aerobic biological treatment and tertiary treatment.	Onto land for plantation
10.	SHL Agro foods INC, Village Jaula Khurd, Dera Bassi	Meat Plant	100	75	13.68	Aerobic biological treatment and tertiary treatment.	Onto land for plantation
11.	Cad Chem Laboratories Ltd Village Jaula Kalan, Dera Bassi	Pharmaceutical	36	11	2.6	The industry is generating two type of effluent stream i.e. High TDS and Low TDS. The industry has installed MEE for the treatment of High TDS and installed ETP based on physio-chemical treatment for the low TDS.	Onto land for plantation
12.	Parabolic Drugs Ltd., Village Chachrouli, Dera Bassi	Pharmaceutical	15	12	1.5	MEE for high TDS stream and aerobic biological treatment system for low TDS stream.	Lying closed.
13.	Punjab Chemical & Crop Protection Ltd	Pharmaceutical	118	27	10	MEE installed.	ZLD

	(Pharma Division), (Old name Alpha Drugs Ltd.), Village Samalheri, Dera Bassi						
14.	Nectar Lifesciences Ltd. Unit-2 (Old Name Surya Medicare Ltd.), Village Saidpura, Dera Bassi	Pharmaceutical	220	200	15	MEE for high TDS stream and aerobic biological treatment system for low TDS stream.	Onto land for plantation
15.	Allychem Laboratories (P) Ltd, E-68-69, focal point, Dera Bassi	Pharmaceutical	38	12	3	MEE installed.	The unit was closed by the Hon'ble NGT vide order dated 25.10.2018 passed in OA no. 30 & 33 of 2013.
16.	Essix Biosciences Ltd., B-4 & 5, Focal Point, Dera Bassi	Pharmaceutical	10	7.2	2	Single stage evaporator for high TDS stream and aerobic biological for low TDS stream.	Onto land for plantation
17.	Vardhman Chemtech Ltd., Focal Point, Dera Bassi.	Pharmaceutical	50	39.5	4.5	MEE installed.	Lying Closed.
18.	Anuja Healthcare Ltd. (Old name Anuja Impex (P) Ltd.), C-26 & C-31, Focal Point, Dera Bassi	Pharmaceutical	176.5	9.5	1.764	MEE installed.	The unit was closed by the Hon'ble NGT vide order dated 25.10.2018 passed in OA no. 30 & 33 of 2013.

19.	Nectar Lifesciences Ltd. Unit-1 (Old Name Surya Medicare Ltd), Village Saidpur, Dera Bassi	Pharmaceutical	175	29	6	ETP common with Nectar Life Sciences Unit-2.	Please see the status of Nectar Life Scineces Unit-2 at S.No. 14.
20.	ARK Healthcare, D-12, Focal Point, Dera Bassi	Pharmaceutical	2.4	1.07	0.5	Low TDS treated through ETP based on physico chemical followed by biological treatment and high TDS teated through Single effect evaporator	The unit was closed by the Hon'ble NGT vide order dated 25.10.2018 passed in OA no. 30 & 33 of 2013.
21.	Panacea Biotech Ltd., Village Samalheri, Near Lalru, Dera Bassi	Pharmaceutical	100	83	13	The industry has installed ETP based on biological treatment.	Onto land for plantation
22.	Punjab Chemicals & Crop Protection Ltd (Agro Division)., Village Bhankharpur, Dera Bassi	Pesticide	193	21	10	MEE installed.	ZLD
23.	Sarwal Pharmaceuticals, F-14, Focal Point, Dera Bassi	Pharmaceutical Formulation	3.4	0.2	1.2	Pan type evaporator	The unit was closed by the Hon'ble NGT vide order dated 25.10.2018 passed in OA no. 30 & 33 of 2013.
24.	Austin Pharmaceuticals, E-40, Focal Point, Dera Bassi	Pharmaceutical Formulation	7	0.1	0.8	Pan type evaporator	The case of this industry has been fixed for next hearing on 9.1.19 before the

							Hon'ble NGT.
25.	Ticoma Pharmacia, E-47, focal Point Dera Bassi	Pharmaceutical Formulation	1.2	0.06	0.4	Pan type evaporator	ZLD
26.	Steel Strips Wheels Ltd., Village Smalheri, Dera Bassi	Engineering Goods	500	293	75	Physico-chemical treatment.	Onto land for plantation
27.	Prerna Strips, Village Bhankharpur, Dera Bassi	Engineering Goods	1.2	0.5	0.3	Joined CETP	Closed temporarily
28.	A.R. Fastners, E-71, Indl. Focal Point, Dera Bassi	Engineering Goods	2	0.35	0.5	Joined CETP	-
29.	Kiran Industries (Vipan Kumar), F-19, Focal Point, Dera Bassi	Electroplating	0.45	0.15	0.3	Joined CETP	-
30.	Kamal Hi-tech Engineers (P) Ltd, B-10-11, Focal Point, Dera Bassi	Electroplating	10	7.5	2	Joined CETP	-
31.	Morff International, E-27, Focal Point, Dera Bassi	Electroplating	1	0.1	0.4	Joined CETP	The unit was closed by the Hon'ble NGT vide order dated 25.10.2018 passed in OA no. 30 & 33 of 2013.
32.	Kaura Inds.Corp., D-2, Focal Point, Dera Bassi	Electroplating	0.525	0.4	0.1	Joined CETP	-

33.	Yashwani Enterprises, F-28, Focal Point, Dera Bassi	Electroplating	0.5	0.24	0.1	Joined CETP	-
34.	Piyanshu chemicals (P) Ltd., D-22A & D-23, Focal Point, Dera Bassi	Resin manufacturing	5	0.3	0.5	No ETP installed as the quantity of generation of effluent is quite less. Therefore, the industry has installed electric heater.	ZLD
35.	Varindra Organica (P) Ltd., D-24, Focal Point, Dera Bassi	Organic Chemical industry	12	8	2.4	Physico-chemical treatment.	Treated wastewater is used in cooling water as make up water.
36.	Power Chem Plast Ltd.(Formerly Power Drugs Ltd), C-25, Focal Point, Dera Bassi	Organic Chemical industry	1	0	1	Reuse in Cooling Tower	The unit was closed by the Hon'ble NGT vide order dated 25.10.2018 The next date of hearing in the case is 9.1.19.
37.	Vishal Papertech (India) Ltd., Village Mubarikpur, Dera Bassi	Pulp & Paper	1250	1224	8	Primary treatment followed by secondary aerobic biological treatment.	Onto land for plantation
38.	Nachiketa Papers Ltd., Village Mubarikpur, Dera Bassi	Pulp & Paper	196	6	5	Settling tank and sedi cell.	Reused
39.	Molson Coors india (P)	Brewery	800	700	72	The industry has installed	Onto land for

	Ltd. (Old name Mount Shivalik Breweries), Village Bhankharpur, Dera Bassi					ETP based on physico chemical followed by biological treatment.	plantation
40.	Chandigarh Distillers & Bottlers Ltd., Banur	Distillery	2500	2310	120	MEE followed by drier for spent wash. Aerobic Biological treatment system for other streams.	ZLD
41.	Rama Industries Ltd., Village Chaundheri, Lalru, Dera Bassi	Gelatine	4810	1615	10	Physico chemical followed by aerobic biological treatment and tertiary treatment.	Onto land for plantation

Annexure I - List of Industries located in Patiala area

S. No.	Name and Address of industry	Type of industry	Water consumption (KLD)	Effluent discharge (KLD)		ETP component	Mode of Disposal of treated wastewater authorized by the Board.
				Trade (KLD)	Domestic (KLD)		
1	Vishal Coater Pvt. Ltd., Vill. Khusropur, Patiala	Pulp & Paper	627	510	6	Aerobic biological treatment.	Onto land for plantation
2	Vishal Paper Industries Pvt. Ltd., Vill. Khusropur, Patiala	Pulp & Paper	1075	510	9	Aerobic biological treatment.	Onto land for plantation
3	SSG Paper Mills, Vill. Khusropur, Maine Road, Patiala	Pulp & Paper	235	90	10	Aerobic biological treatment.	Onto land for plantation
4	Shree Swami Card Board Mills, Bhanri Road, Vill. Main, Distt. Patiala	Paper Board	21	0	0.5	Recirulation system provided.	Reused in the process
5	Mittal Card Board Mills, Vill. Main, Tehsil and Distt. Patiala	Paper Board	18	0	0.5	Recirulation system provided.	Reused in the process
6	DSG Paper Mill, Vill. Bhanri	Pulp & Paper	1076	1000	18	Aerobic biological	Onto land for

	Road, Maine Road, Patiala					treatment	plantation
7	Patiala Distillers & Mfrs. Pvt. Ltd., Vill. Main, Patiala	Distillery	4000	3000	5	Anaerobic treatment followed by aerobic biological treatment	Onto land for plantation

Annexure J - Status of HCFs operating in catchment areas of Ghaggar

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	SAS Nagar	170	119	51	33
2	Patiala	499	319	180	39
3	Sangrur	151	125	26	57
4	Mansa	147	92	55	7
5	Fatehgarh Sahib	138	100	38	0

Annexure K - List of schemes for utilization of treated wastewater

STP no.	Name of Town where STPs operational	Capacity of STP (MLD)	STP Technology	Area Irrigated (Hectares)	Remarks
1	Banur	4	MBBR	65	Irrigation Project Commissioned
2	Baretta	3	WSP	130	Irrigation Project Commissioned
3	Bhikhi	3	WSP	145	Irrigation Project Commissioned
4	Mansa	14	MBBR	350	Irrigation Project Commissioned
5	Moonak	3	SBR	88	Irrigation Project Commissioned
6	Pattran	4	SBR	120	Irrigation Project Commissioned
7	Sardulgarh	4	WSP	108	Irrigation Project Commissioned
8	Lehragaga	4	SBR	138	Irrigation Project

					Commissioned
9	Sunam	8	MBBR	165	Irrigation Project Commissioned

Annexure L - Timelines for setting up of treatment facilities by Local Bodies

(1) PWSSB			
(i) Name of the Project: Providing Sewerage & Construction of 10 MLD STP at Rajpura			
Brief Scope of Work		**1 No**. STP of 10 MLD	
Sr.No.	**Stage**	**Start Date**	**Completion Date**
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up under HUDCO loan.	
3	Tendering of the work including allotment	Started	Completed
4	Commencement of work	Started	28.2.2019
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	1.3.2019	30.6.2019
(ii) Name of the Project: Providing Sewerage & Construction of 2 MLD STP at Boha			
Brief Scope of Work		**1 No. S**TP of 2 MLD	
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up under HUDCO loan	
3	Tendering of the work including allotment	Tender allotted	
4	Commencement of work	Started	31.03.2020
5	Quarterly Milestones during the construction stage	-	-
6	Completion and Commissioning	01.04.2020	31.07.2020
(iii) Name of the Project: Providing Sewerage & Construction of 2 MLD STP at Cheema			
Brief Scope of the Project		**1 No STP of 2 MLD**	
Sr. No.	**Stage**	**Start Date**	**Completion Date**
1	Preparation of DPR	Prepared	Approved.
2	Financial Closure	Funds being tied up under HUDCO loan	
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%	25%
6	Completion and Commissioning	01.08.2020	31.10.2020
(iv)	**Name of the Project: Providing Sewerage & Construction of 3 MLD STP at Bhadson**		
	Brief Scope of the Project	**1 No STP of 3 MLD**	
1	Preparation of DPR	1.7.2019	31.3.2019
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.
(v)	**Name of the Project: Providing Sewerage & Construction of 12 MLD STP at Nabha**		
	Brief Scope of the Project	**1 No STP of 12 MLD**	
1	Preparation of DPR	Prepared	Already approved
2	Financial Closure	Funds being tied up under HUDCO Loan	
3	Tendering of the work including allotment	Land being finalized 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%	25%
6	Completion and Commissioning	T + 18 months	T + 21 months
(vi)	**Name of the Project: Providing Sewerage & Construction of 5 MLD & 6 MLD STP at Dhuri**		
	Brief Scope of the Project	**Scope: 1 No. STP of 5 MLD**	
Sr. No.	**Stage**	**Start Date**	**Completion Date**
1	Preparation of DPR	Prepared	Approved.

2	Financial Closure	Funds tied up under HUDCO loan	
3	Tendering of the work including allotment	Tender allotted	
4	Commencement of work	Started	31.03.2020
5	Quarterly Milestones during the construction stage	-	-
6	Completion and Commissioning	01.04.2020	31.07.2020
	Brief Scope of the Project	Scope: 1 No. STP of 6 MLD	
Sr. No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved.
2	Financial Closure	Funds tied up under HUDCO loan	
3	Tendering of the work including allotment	Tender allotted but land is being finalized	
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 + 18 months
Name of the Project: Providing Sewerage & Construction of 4 MLD and 11 MLD STP at Sangrur			
Brief Scope of the Project		Scope: 1 No. STP of 04 MLD	
1	Preparation of DPR	Prepared	Approved.
2	Financial Closure	Funds tied up under HUDCO loan	
3	Tendering of the work including allotment	Tender allotted	
4	Commencement of work	Started	31.03.2020
5	Quarterly Milestones during the construction stage	-	-
6	Completion and Commissioning	01.04.2020	31.07.2020
Brief Scope of the Project		Scope: 1 No. STP of 11 MLD	
1	Preparation of DPR	Prepared	Approved.
2	Financial Closure	Funds tied up under HUDCO loan	
3	Tendering of the work including allotment	Tender allotted but land is being finalized	
4	Commencement of work	Work will be started	T + 12 months

		after possession of land - T	
5	Quarterly Milestones during the construction stage	-	-
6	Completion and Commissioning	T + 12 months	T + 18 months
Name of the Project:- Providing Sewerage & Construction of 3 MLD STP at Bassi Pathana			
Brief Scope of the Project		Scope:- 1 No. STP 3 MLD	
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved.
2	Financial Closure	Funds tied up under HUDCO loan	
3	Tendering of the work including allotment	Tender allotted	
4	Commencement of work	Started	31.03.2020
5	Quarterly Milestones during the construction stage	-	-
6	Completion and Commissioning	01.04.2020	31.07.2020
Name of the Project: Providing Sewerage & Construction of 3 MLD STP at Longowal			
	Brief Scope of the Project	1 No STP of 3 MLD	
1	Preparation of DPR	Prepared	Approved.
2	Financial Closure	Funds being tied up under HUDCO loan	
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%	25%
6	Completion and Commissioning	01.08.2020	31.10.2020
Name of the Project: Providing Sewerage & Construction of 3 MLD STP at Amloh			
	Brief Scope of the Project	1 No STP of 3 MLD	
Sr. No.	Stage	Start Date	Completion Date
1	Preparation of DPT	Prepared	Already approved
2	Financial Closure	Funds being tied up under HUDCO Loan	

3	Tendering of the work including allotment	Land being finalized 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%	25%
6	Completion and Commissioning	T + 18 months	T + 21 months
Name of the Project:- Providing Sewerage & Construction of two number STps of 2 MLD each at Issapur & Mirpur, Mubarakpur at Derabassi			
Brief Scope of the Project		2 No STPs of 2 MLD capacity each	
Sr. No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved.
2	Financial Closure	Funds being tied up under HUDCO loan	
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%	25%
6	Completion and Commissioning	01.08.2020	31.10.2020
Name of the Project:- Providing Sewerage & Construction of 1 MLD STP at Dappar Lalru			
	Brief Scope of the Project	1 No STP of 1 MLD	
Sr. No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved.
2	Financial Closure	Funds being tied up under HUDCO loan	
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%	25%
6	Completion and Commissioning	01.08.2020	31.10.2020
Name of the Project: Construdtion of 1.5 MLD STP at Lalru Mandi			
	Brief Scope of the Project	1 No STP of 1.5 MLD	
1	Preparation of DPR	Prepared	Approved

2	Financial Closure	Funds being tied up with GMADA
3	Tendering of the work including allotment	The residents of Village Lalru have filed a suit in the Court of Law at Dera Bassi for change of site to another location.
4	Commencement of work	
5	Quarterly Milestones during the construction stage	
6	Completion and Commissioning	

Name of the Project:- Providing Sewerage & Construction of 4 MLD STP at Sanour			
Brief Scope of the Project		1 No STP of 4 MLD	
Sr. No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Land for STP yet not available and DPR will be prepared after identification of land.	
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.

Name of the Project: Providing Sewerage & Construction of 2 MLD STP at Ghanaur

Brief Scope of the Project		1 No STP of 2 MLD	
Sr. No.	Stage	Start Date	Completion Date
1	Preparation of DPT	Prepared	Already approved
2	Financial Closure	Funds being tied up under HUDCO Loan	
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%	25%
6	Completion and Commissioning	01.08.2020	31.10.2020

Name of the Project: Providing Sewerage & Construction of 2 MLD, 4 MLD and 5 MLD STPs at Sirhind

Brief Scope of Work		3 No. STPs 2 MLD, 4 MLD and 5 MLD for Sirhind	
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up under HUDCO loan.	
3	Tendering of the work including allotment	Tender allotted	
4	Commencement of work	Started	31/03/2020
5	Quarterly milestones during the construction stage	--	--
6	Completion and commissioning	01/04/2020	31/07/2020
Name of the Project: Providing Sewerage & Construction of 2 number STPs of 0.3 MLD capacity each at Gholu Majra and Chaundheri & Samalheri			
Brief Scope of Work		2 No. STPof 0.3 MLDeach for Gholumajra and Chaunderi & Samalheri	
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Prepared	Approved
2	Financial Closure	Funds tied up under HUDCO loan.	
3	Tendering of the work including allotment	01/07/2019	30/09/2019
4	Commencement of work	01/10/2019	30/09/2020
5	Quarterly milestones during the construction stage	25%	25%
6	Completion and commissioning	01/10/2020	31/12/2020
Name of the Project: Upgradation of Existing WSP based STPs to achieve latest CPCB norms at Bareta, Bhikhi and Sardulgarh.			
Brief Scope of Work		Upgrdations of 3 STPs	
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	1.2.2019	30.4.2019
2	Financial Closure	T	
3	Tendering of the work including allotment	T + 2 months	T + 5 months
4	Commencement of work	T + 5 months	T + 11 months
5	Quarterly milestones during the construction stage	-	-
6	Completion and commissioning	T + 11 months	T + 13 months
Municipal Corporation, Patiala			
Name of the Project : Upgradation of STP Shermajra from 46 MLD to 61 MLD			
Brief Scope of Work		Upgradation of STP shermajra from 46 MLD to 61 MLD	
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	Already approved	Completed
2	Financial Closure	17 crores	Completed
3	Tendering of the work including allotment	Tendering process is completed and allotment is under	Completed yet to allot.

		process	
4	Commencement of work	-	Likely to be commenced on 31.1.2019
5	Quarterly milestones during the construction stage	-	
6	Completion and commissioning	Two years from the date of allotment	Two years from the date of allotment.

Annexure M - Timelines for setting up of treatment facilities by MES, Patiala

Name of the Project: Military Engineering Services, Patiala – STP of 6 MLD capacity

Brief Scope of Work		**STP based on MBBR Technology of capacity 6 MLD.**	
Sr.No.	**Stage**	**Start Date**	**Completion Date**
1	Preparation of DPR	August, 2016	January, 2017
2	Financial Closure	Govt. sanctioned Final Report for provision of 6 MLD STP on 27th March, 2017	August, 2020
3	Tendering of the work including allotment	Technical sanction issued for tendering by CECZ (Chief Engg. Chd Zone) on 18th October, 2018	February, 2019
4	Commencement of work	15th March, 2019	August, 2020
5	Quarterly milestones during the construction stage	1st Quarter = 15% 2d Quarter = 20% 3rd Quarter = 30% 4th Quarter = 20% 5th Quarter = 20% In remaining time = 5%	
6	Completion and commissioning	August, 2020	August, 2020

Annexure N - (A) Times lines for installation of online continuous effluent monitoring system

(1) PWSSB for the STPs already in operation in the towns nanely Banur, Baretta, Bhikhi, Budhlada, Khanuari, Lehragaga, Moonka, Pattran, Rajpura, Samana, Sardulgarh, Sunam, Zirakpur and Mandi Gobindgarh.			
Name of the Project		**All Existing STPs where maintenance is with PWSSB**	
Sr.No.	**Stage**	**Start Date**	**Completion Date**
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
(2) GMADA			
	Name of the Project	**STP of 45 MLD capacity at Sector 83, SAS Nagar.**	
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
	Name of the Project	**STP of 4 MLD capacity at Dera Bassi.**	
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
Name of the Project		**STP of 1.5 MLD capacity at Lalru**	
Sr.No.	**Stage**	**Start Date**	**Completion Date**
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
(3) PSIEC			
	Name of the Project	**STP of 2 MLD capcity atFocal Point, Dera Bassi**	
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
	Name of the Project	**STP of 3 MLD at Focal Point, Mandi Gobindgarh**	
1	Financial Closure	15.2.2019	31.3.2019
2	Tendering of the work including allotment	1.4.2019	30.4.2019
3	Commencement of the work	1.5.2019	31.5.2019
4	Completion and commissioning	1.6.2019	15.6.2019

Note : For STP to be installed for Focal Point, Nabha, the installation of online continuous effluent monitoring system is a part of the main project and the same will be installed alongwith installation of STP.

(4) Municipal Corporpation, Patiala			
Name of the Project		**STP Shermajra and STP Ablowal**	
Brief Scope of the Project		**Online Cotinuous Monitoring System**	
Sr.No.	**Stage**	**Start Date**	**Completion Date**
1	Preparation of DPR	11.1.2019	18.1.2019
2	Financial Closure	About 50 lakh	-
3	Tendering of the work including allotment	Within one month	Within four months
4	Commencement of the work	Within four months	Within four months
5	Completion and	11.4.19	11.5.19

	commissioning		
(5) Patiala Development Authority			
	Name of the Project	**STP of 13 MLD capacity at Urban Estate, Patiala**	
	Brief Scope of the Project	**Online Continuous Monitoring System**	
1	Financial Closure	1.1.2019	31.1.2019
2	Tendering of the work including allotment	1.2.2019	15.2.2019
3	Commencement of the work	20.2.2019	15.3.2019
4	Completion and commissioning	16.3.2019	31.3.2019

Annexure N - (B) Times lines for installation of CCTV cameras in already operational STPs

(1) PWSSB for the STPs already in operation in the towns nanely Banur, Baretta, Bhikhi, Budhlada, Khanuari, Lehragaga, Moonka, Pattran, Rajpura, Samana, Sardulgarh, Sunam, Zirakpur and Mandi Gobindgarh.			
Name of the Project		**All Existing STPs where maintenance is with PWSSB**	
Sr.No.	**Stage**	**Start Date**	**Completion Date**
1	Financial Closure	5.1.2019	15.2.2019
2	Tendering of the work including allotment	15.2.2019	31.3.2019
3	Commencement of the work	1.4.2019	15.4.2019
4	Completion and commissioning	15.4.2019	30.4.2019
(2) **GMADA**			
	Name of the Project	**STP of 45 MLD capacity at Sector 83, SAS Nagar.**	
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
	Name of the Project	**STP of 4 MLD capacity at Dera Bassi.**	
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
Name of the Project		**STP of 1.5 MLD capacity at Lalru**	
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	15.5.2019	30.6.2019

	work		
4	Completion and commissioning	30.6.2019	30.6.2019
(3) PSIEC			
	Name of the Project	**STP of 2 MLD capacity at Focal Point, Dera Bassi**	
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
	Name of the Project	**STP at Focal Poinat, Mandi Gobindgarh**	
1	Financial Closure	1.3.2019	15.3.2019
2	Tendering of the work including allotment	16.3.2019	15.4.2019
3	Commencement of the work	16.4.2019	15.5.2019
4	Completion and commissioning	16.5.2019	31.5.2019
	Name of the Project	**STP at Focal Point, Nabha**	
1	Financial Closure	1.4.2019	15.4.2019
2	Tendering of the work including allotment	16.4.2019	15.5.2019
3	Commencement of the work	16.5.2019	31.5.2019
4	Completion and commissioning	1.6.2019	15.6.2019

(4) **Municipal Corporpation, Patiala**			
Name of the Project		STP (Shermajra and Ablowal)	
Sr.No.	Stage	Start Date	Completion Date
1	Financial Closure	20-25 thousands	10-15 days
2	Tendering of the work including allotment	CCTV cameras and monitor already have been installed and the new wiring work will be completed within 10-15 days.	
3	Commencement of the work		

4	Completion and commissioning	

(5) Patiala Development Authority

Name of the Project		**STP of 13 MLD capacity at Urban Estate, Patiala**	
Brief Scope of the Project		CCTV camera	
Sr.No.	**Stage**	Start Date	Completion Date
1	Financial Closure	1.1.2019	31.1.2019
2	Tendering of the work including allotment	1.2.2019	15.2.2019
3	Commencement of the work	20.2.2019	15.3.2019
4	Completion and commissioning	16.3.2019	31.3.2019

Annexure O - Timelines for setting up of treatment facilities in Rural areas

The phase wise timelines are given as under:

Phase – I			
Brief Scope of Work		**Treatment facilities for villages having discharge more than or equal to 300 KLD**	
Sr.No.	**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 300 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.No.	**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 P - 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 Ghaggar 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.	
S.No.	**Stage**	**Start Date**	**Completion Date**
1	Preparation of DPR	Under Progress	30.6.2019
2	Financial Closure	Projects already proposed to GoI and State for funding (49.87 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 Town	Capacity of STP (MLD)	STP Technology	Irrigation system Cost (Rs. In Lakh)
	STP's Operational			
1	Khanauri	3	SBR	110
2	Mandi Gobindgarh	25	SBR	673
3	Patiala	46	SBR	Under Feasibility Study
	Total (A)	**74**		**783**
	STP's under Construction			
4	Bassi Pathana	3	SBR	115
5	Boha	2	SBR	65
6	Lalru (GMADA)	3	SBR	85
7	Dera Bassi (GMADA)	3.5	SBR	108
8	Sirhind	5	SBR	225
		4	SBR	109
		2	SBR	80
9	Rajpura	10	SBR	390
	Total (B)	**32.5**		**1177**
	STP's Proposed to be Constructed			
	Amloh	3		115
10	Cheema	2		70
11	Dera Bassi	2		75
12	Dhuri	6		225
13		5		175
14	Ghanaur	2		74
15	Sangrur	11		385
16		4		150
17	Nabha	10		325
18	Lalru	1.5		60
19	Longowal	3		105
20	Lalru Dappar	1		25
21	Lalru Gholumajra	0.6		20
22	Dera Bassi	2		70
	Total (C)	**53.1**		**1874**
GRAND TOTAL (A+B+C)		**159.6**		**3834**

Irrigation Projects from STP Mohali (46 MLD), Zirakpur (17 MLD), Patiala (10MLD), Budhlada (6.5 MLD) are not feasible because of non-availability of Irrigation command as STP is located in urbanized area

Annexure Q – Installation of STPs by PSIEC

Name of the Project		**Operation and Maintenance STP, IFP, Mandi Gobindgarh**	
Sr.No.	**Stage**	**Start Date**	**Completion Date**
1	Preparation of DPR	NA	NA
2	Financial Closure	NA	NA
3	Tendering of the work including allotment	NA	NA
4	Commencement of the work	In progress	31.3.2019
5	Quarterly Milestones during the construction stage	-	-
6	Completion and commissioning	1.4.2019	30.5.2019
	Name of the Project	**Operation and Maintenance of STP, IFP, Nabha (work already in progress)**	
1	Preparation of DPR	NA	NA
2	Financial Closure	NA	NA
3	Tendering of the work including allotment	NA	NA
4	Commencement of the work	In progress	30.9.2019
5	Quarterly Milestones during the construction stage	-	-
6	Completion and commissioning	1.10.2019	30.11.2019

Annexure R – Timelines for Online Continuous Monitoring System for Industries

Sr No.	Activity	Date of Start	Date of completion
1	Procurment 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 S - 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**	**Current Status**
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 T - Performa for operational record of the STP

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 dozing 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 U – Performa for keeping reocord of analaysis result of 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)

Annexure V - Proforma regarding inspection of industries by PPCB

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 W - Proforma for monitoring of water quality of River Ghaggar

Sr. no.	Sampling points at river Ghaggar	Date of Sampling	DO (mg/l)	pH	BOD (mg/l)	T.Coliform (MPN/100 ml)	D.B.U. classification

Annexure X - 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 Y - Proforma for submission of report regarding awareness programme

Sr. No.	City / Town / Location where the awareness pgoramme is organized	Name of the Officer(s) who hold this programme	Date	No. of participants	Brief detail about awareness detail