Corrigendum-2

DEPARTMENT OF WATER SUPPLY AND SANITATION, PUNJAB

(PUNJAB RURAL WATER & SANITATION SECTOR IMPROVEMENT PROJECT)

REQUEST FOR EXPRESSIONS OF INTEREST

(Consulting Services--- Firms Selections)

for

"Hiring an Independent Verification Agency (IVA) for the work of "Providing Three Large Surface Water Supply Schemes to Villages of Districts Amritsar, Tarn Taran and Gurdaspur"

Request for Expression of Interest (REoI) published in newspapers on 18-02-2021 and same was uploaded on Departmental Website URL: https://dwss.punjab.gov.in

Corrigendum: (i) For details, Terms of Reference (ToR) of the subject is attached as mentioned in "REQUEST FOR EXPRESSIONS OF INTEREST" published on 18-02-2021.

(ii) The last date for submission of EoIs is extended upto 30-03-2021 upto 4:30 PM.

"Note": Any corrigendum(s) to the Request for Expression of Interest shall be published on the website only.

From:-

Office of Head, DWSS, SAS Nagar-160055

Appendix-A

Terms of Reference

Hiring An Independent Verification Agency (IVA) For The Work Of "Providing Three Large Surface Water Supply Scheme To Villages Of Districts Amritsar, Tarn Taran & Gurdaspur by QCBS method.

1. Background:

Government of India has aimed to supply drinking water in adequate quantity and of prescribed quality to Rural habitations under Jal Jeevan Mission (JJM), with total outlay of 3,60,000 crores. To take long term corrective measures in quality affected areas, Department of Water supply and Sanitation is switching over to large surface water projects for meeting water requirement of beneficiaries. The Funds for constructing these projects shall be taken from JJM and NABARD. The Government of Punjab (GoP) intends to apply part of above proceeds for hiring the services of an Independent Verification Agency (IVA) to support DWSS in implementation of three Multi Village Water Supply Schemes in Punjab contracted out on Design Build, Operate and Transfer (DBOT) basis as noted below:

Sr. No	Project Description	Contract amount in Rs.(in Crores)	WTP Capacity MLD	Distrib-ution Line (Km)	Remarks
1)	Design, Build Surface Water Supply System & all Appurtenant Structures and allied works; and Operation and Maintenance of complete Works to supply surface water to 167 villages of Block Harcha Chhina, Ajnala & Majitha, District Amritsar with Tapping Point Kandowali for a period of 10 years.	274.66 (Capex 207.63 + Opex 67.03)	39	289.85	5 schemes merged to form 3 schemes
	Design, Build Surface Water Supply System & all Appurtenant Structures and allied works; and Operation and Maintenance of complete Works to supply surface water to 52 villages of Block Majitha, District Amritsar with Tapping Point Gaunsal Afghana, Distt Amritsar for a period of 10 years.		12	99.56	
	Design, Build Surface Water Supply System & all Appurtenant Structures and allied works; and Operation and Maintenance of complete Works to supply surface water to 38 villages of Block Attari and Gandiwind, District Amritsar and Tarn Taran with Tapping Point Sangna for a period of 10 years.		11	77.34	
2)	Design, Build Surface Water Supply System & all Appurtenant Structures and allied works; and Operation and Maintenance of complete Works to supply surface water to 99 villages of Block Gandiwind, Bhikhiwind, Patti, Tarn Taran and Valtoha District Tarn Taran with Tapping Point Buchar Kalan for a period of 10 years.	136.71 (Capex 102.06 + Opex 34.65)	30	215.54	

3)	Design, Build Surface Water Supply System & all Appurtenant Structures and allied works; and Operation and Maintenance of complete Works to supply surface water to 102 villages of Block Dhariwal, Kalanour, Dera Baba Nanak and Gurdaspur District Gurdaspur with Tapping Point Kunjar for a period of 10 years.	75.76 (Capex: 55.56 + Opex 20.20)	14	131	

2. Objective of Hiring IVA:

The objective of this consultancy shall be to undertake Independent Assessment of the Specifications, Quality Assurance of Construction Activities and Technical Guidance to DWSS in ensuring quality, standards and providing timely recommendations to ensure that the schemes deliver intended performance objectives.

3. Scope of Work:

The scope of Independent Verification Agency (IVA)is to support DWSS during implementation phase (*including 3 months trial run*) of 3 Large Surface Water Schemes for villages of Districts i) Amritsar, ii) Tarn Taran, iii) Gurdaspur to be constructed on DBOT *contract (likely Design & Build period: for large surface water schemes is 30 months).*

The Scope of Workis broadly stated as under:

A. Independent quality control over material and construction activities during the Design Build Period,
B. Independent check during completion of works for the Water Supply System;
C. Periodic check during Trial Run Period to assess service delivery with respect to performance standards.
D. Development of Project Progress Monitoring Tool.
E. Development of Project Safeguards Management- Review and Compliance with Environmental & Social Safeguards.
F. To review and verify the quantity of work / supply billed by contractors and recommend for payment.

In performing the above role, the IVA shall perform checks on sample basis to ensure broad coverage of all works, at critical junctures, and to verify achievement of performance indicators. All reports prepared by the IVA shall be submitted to the DWSS with the copy to the concerned Design Build Operations Engineer.

A. Independent quality control over material, construction activities and scheduling of project

- Review Operator's quality assurance documents and procedures as per IS specifications and best engineering practices.
- Examine the schedule submitted by the Operator for the entire design–build period starting from submission of documents to project completion period, analyse the same for its feasibility with respect to the overall project schedule and advise on modifications, if required. Assess the Operator's progress of works against the milestones under the contract.
- Verification of design specifications and design criteria adopted for the project as per contract document and Indian and/or International standards and best engineering practices w.r.t

procurement / execution / commissioning at site. In the absence of Indian standards advise the Operator and DWSS on international standards to be adopted.

- Verify setting out of critical works (such as fixing of levels of intake, level of different components of treatment plant units, OHSRs, Solar Power System, etc.) by the operator against the design build document during execution. In case of occurrence of any error in the position, level or alignment of the site by the operator, rectification of the same shall be closely examined by the IVA.
- Field review exploratory excavations for checking the exact position/location/co-ordinate of the existing services & verification of adequacy of arrangements made by the service provider for any diversion or removal of services required.
- Advice on specific problems/issues related to quality of construction.
- To perform sample checks and tests for ensuring quality of works and materials as specified in the contract document and best engineering practices.
- Report to DWSS and Design Build Operations Engineer any instances of non-conformity with regard to non-compliance of construction parameters.
- Review and advice on the progress reports submitted by the Operator.
- Review Contract, in reproducible form, to check the correctness and completeness of deviations from the submitted design.

B. Independent checks during completion of works

- Examine and advise on the test schedule, detailed test procedures and method statements for tests to be conducted by the Operator.
- Assess and ascertain whether the project or relevant part can attain technical standards set out in contract by witnessing tests conducted by the Operator.
- Witness and assess critical tests such as pre-completion tests, completion test and guarantee tests or inspections either at any part of the project/ worksite as per the contract document.
- Witness Operator's demonstration of ability of SCADA system to meet functional guarantee continuously for a period of three month. SCADA operation should be demonstrated for each equipment individually and as a complete system.
- Approval of the formats for various reports to be submitted to the Design Build Operations Engineer.
- Advise on acceptance/rejection of work in case of test /survey report indicating deviation from specified limits.
- Advice on Issuance of Operational Acceptance Certificate to the Operator within specified time after completion of tests on completion are completed.

C. Periodic check during Trial Run to assess service delivery with respect to performance standards:

- Check whether the plant can be operated in accordance with the O&M Manual submitted by the Operator and meets the requirements of the contract document.
- Develop a schedule for conducting periodic check on operation and maintenance of the system
- Conduct regular tests to ensure that the Water Supply System is meeting the performance standards.
- Review and check the maintenance of appropriate records that present the verification of the performance indicator.
- Conduct sample checks on water quality for all parameters as per IS Standards

- Witness whether the system pressure tests are carried out by the operator on a systematic basis.
- On request, determining the impact on achievement of performance standards, due to non-availability of power during regular pumping hours and advising the owner on the effect of payment for operator services.
- The periodicity for IVA to perform sample tests and checks as mentioned above shall be once in every month.
- Suggest/ advice corrective measures for O&M period based upon evaluation during the trial run period.

D. Project Progress Monitoring Tool:

Project Progress Monitoring Tool such as Primavera, MS Projects or equivalent may be used to report the progress of deliverables of the projects. The IVA shall develop detailed plans of all the projects on this tool. The IVA shall coordinate with the contractors and DWSS officers for developing these detailed plans for progress monitoring. The IVA shall update the progress daily through data collection by field engineers and contractors. Preparation of daily, weekly, fortnightly, monthly and quarterly progress reports, these reports should be extractable by DWSS officials through a dashboard. The Team Leader shall prepare presentations, forthcoming week's / month's targets and progress reports for meetings with DWSS officials and to support DWSS officials in meetings with other stakeholders.

E. Development of Project Safeguards Management- Review and Compliance with Environmental & Social Safeguards:

- Monitor environmental and Social Safeguard measures taken by the operator and develop a strong reporting structure for the same.
- Identify the role and responsibilities for carrying out mitigation measures.
- Indemnify the Department against any fines of penalties imposed under the applicable laws in respect of Environmental loss.
- Review & Compliance with Health and Safety Aspects in Environment & Social Management Plan (ESMP), ensure implementation of Health & Safety Environment (HSE) procedures on sites.
- Feedback Mechanism and Remedial Measures: IVA shall be assessing the effectiveness of ESMP and negative impacts on environment/ social/ health and safety.
- IVA will include corrective actions/ mitigation measures suggested to control the project progress. Based on the regular assessment and information received from ground zero. IVA assist in updating the documents, if need be in discussion with DWSS.
- To Monitor and sample checking of payment of labour by the executing agency and living condition of labour. To inspect compliance to relevant labour laws.

F. To review and verify the quantity of work / supply billed by contractors and recommend for payment.

- To carry out inspection of quantity and quality of works executed as per the bill for payment claimed.
- To provide recommendation for payment of invoice / bill for the works executed.

➢ **The task of the IVA will include, but not necessarily be limited to the following:**

I. Review & advise on Design Build specifications submitted by the Operator where by Water Supply Scheme delivers desired flow into service reservoir(or any other arrangement)of each village at sufficient head so as to meet with the hourly demand (peak and non-peak) of all habitations during hot summer season even for tail end villages.

II. Implementation of Contractual Conditions: Assess the Operator's progress of works against the milestones under the contract on sample basis at critical stages. Implementation of works according to the contractual conditions. Support DWSS Project engineer in implementing the schemes to the best possible quality through regular support on technical and contractual issues.

III. Verify and check the quality of material, quality of construction, plant and equipment being used.

IV. Review and verify the Operator's Quality Assurances procedures and implementation of the same.

V. Review achievement of Performance Standards on sample basis "sampling to be agreed".

VI. Verification of the survey report and Geo-technical report.

VII. Verification of layout plans, process designs and drawings for the intake works, raw water pumping main water treatment plant, pumping systems, sumps, reservoirs, disinfection system and transmission system with appurtenances and SCADA and all other relevant components contingent to the work submitted by the Operator from time to time w.r.t procurement / execution / commissioning at site.

VIII. Review of ESMP submitted by the contractor and various plans which are part of ESMP including safety plan, emergency response plan, environmental management related construction plan, debris disposal plan, etc.follows the Environmental Code of Practices as per Indian legislation guidelines. IVA shall review contractor's/ operator's compliance of ESMP during project implementation and O&M. IVA shall give due consideration to the ESIA study undertaken for each scheme as well while reviewing environmental and social safeguards and management plan of the contractor and review regulatory compliance by contractor and DDWS.

IX. IVA shall review the mandatory material tests done at the site by the agency as per contract agreement.

X. IVA shall assure overall workmanship of the works executed based on the best practices followed.

XI. To review and advise on design build specifications & drawings as well as installation of solar power plant of designed capacity as per specification of Punjab Energy Development Agency (PEDA) & guidelines of Ministry of New and Renewable Energy, GoI by Operator and generation of power and its transfer to grid of Punjab State Power Corporation Limited (PSPCL) as per its net-metering policy.

XII. IVA shall review & advise on adequacy of supervision mechanisms - resources, expertise and frequency of supervision and any gaps or constraints.

XIII. IVA shall carry out checks on designs with respect to capacities of civil including piping Works, mechanical equipment and units etc.

XIV. IVA shall be required to get testing of samples of selected materials done from NABL accredited Laboratories or as desired, in consultation with DWSS.

XV. Witnessing/ supervising and endorsing performance tests conducted during commissioning and completion by the Contractor. Scope of work of operator is attached at Appendix-3C.

XVI. Witness / supervise Tests on completion and tests after "Completion and commission" of the Works and New Facilities.

XVII. Review& advice on the operations and maintenance manuals for all installations as submitted by the operator.

XVIII. Review compliance by the operator for meeting the performance standards set out in appendix 3 A of Schedule.

XIX. Review& advice on operator's Response Plan for emergency response in case of any Pollution Events.

XX. Review & advice on any other scope of work related to the contract.

XXI. IVA shall attend the review meetings called by the owner.

XXII. Verify at the completion of the Water Supply Scheme that it delivers adequate flow and safe water into service reservoir (or any other arrangement) of each village at sufficient head so as to meet with the peak hourly demand of all habitations during hot summer season even for tail end villages.

4. Submission of Reports:

The consultant shall submit the following reports/ output through – *"project progress monitoring tool",* in hard as well as soft copy to Principal Secretary, DWSS

The IVA shall submit the monthly and quarterly progress report containing consultant's activities, staff deployed, findings and recommendations of activities mentioned in the scope of work. The contents of these reports shall be agreed with the DWSS on the commencement of the services. The IVA shall ensure timely submission of verification reports. The reports should be accurate, objective and backed-up by evidence and a clear rationale. The IVA will be required to make presentations as needed and clarify, in a timely manner, and issues and questions raised by DWSS.

The reporting officer for this consultancy assignment is the Secretary, DWSS. Since the task is to monitor the work of subordinate offices, IVA shall carry out the assignment under the overall supervision and control of Principal Secretary, DWSS. However, day-to-day activities for the verification process shall be managed and coordinated by an officer/ expert to be nominated by Secretary DWSS on their behalf. To avoid conflict of interest, IVA will limit its interactions with DWSS staff. All the contract management issues will be dealt by the Secretary or any person authorized by him/her.

5. Deliverables:

The IVA shall submit the monthly/ quarterly progress report containing findings and recommendations of activities mentioned in the scope of work. The contents of these reports shall be agreed with the DWSS on the commencement of the services. The consultant shall submit the following reports through hard as well as soft copy to Head, DWSS.

Sr. No.	Type of Report	Reporting frequency
1	Inception Report specifying methodology including the Detailed Monitoring and Verification Strategy, Work Plan, reporting timelines/frequency **(Separate for each of 3 schemes).**	Within 30 days of the commencement of the services

Sr. No.	Type of Report	Reporting frequency
2	Monthly Reports **(Separate for each of 3 schemes)** with findings and recommendations including: • Updated contract management plan on MS projects. • Detail of tests carried out on the materials and works • Photographic record of progress of works • Matters related to social safeguards, safety and environment management measures adopted by operator • Compliance of meeting the performance standards • Activities performed during the period • Staff deployed • Comments on the work progress • Comments on the contractual issues • Issues for DWSS consideration	Monthly
3	Quarterly presentation on Key issues and Recommendations to improve/ assure quality **(Separate for each of 3 schemes).**	Quarterly
4	Completion Report **(Separate for each of 3 schemes).**	Before end of the Consultancy Period or Contract

Note: Besides the submission of reports through Project Management Tool, Five hard copies of each report shall be submitted by the Agency.

6. Clients input and counterpart personnel:

The Project teams headed by Executive Engineers, DWSS for each of 3Schemesas noted in forgoing Para will be available for Consultation/ Clarification in respect of Project Component and shall also provide to consultant all the relevant documents such as project report, design calculation sheet, drawings and agreement copy as per requirement. Design, Build & Operation Engineer will ensure coordination between Operator and IVA personnel and will provide access to the site of work.

7. Team composition and qualification required for the key experts:

The assignment requires a firm or consortium with skills and experience in similar assignments (Third Party Inspections/IVA) in the water sector in India and having familiarity with the community led water supply_approaches. The team should also have diverse experience of working on similar projects. Following is the list of Key Professional positions whose CV and experience would be evaluated

Description	Minimum Qualification	Minimum Experience	Number of person	Man Months Tentative

Description	Minimum Qualification	Minimum Experience	Number of person	Man Months Tentative
Team Leader	Graduate in Civil Engineering and Post Graduate in with Public Health Engg. / Structures/ Environmental Engg. or equivalent specialization.	• More than 15 yrs of experience in design, construction, commissioning and management of large surface based water supply projects. • Preference will be given to experience on projects financed by multinational & International agencies with capability to handle environmentally sound construction method • Experience in quality assurance in design, construction and performance monitoring of water supply systems. • Experience of working on minimum two, third party quality assurance assignments of which one should be as a team leader.	1	30 man months.
Assistant Team Leader-cum-Quality Assurance Engineer (Field)	Graduate in Civil Engineering; preferably Post graduate in Public Health Engg. / Structures / Environmental Engg. or equivalent specialization.	• 10 yrs of relevant experience in design, construction& management of large water supply schemes. • At least five years of experience in construction management and quality assurance. • Familiar with various standards/ specifications, contract procedures, design & quality controls. • Must have at-least 3 years of experience in Quality Assurance Work	5 ATL for 3 schemes (As per below stated staffing plan)	150 MMs (**5 Schemes** 5x30 months = **150MM's**
Field Engineer	Graduate in Civil Engineering	• 5 yrs of relevant experience in construction of Water Supply project. • Familiar with documentation and MS projects	5 Field Engineer for 3 Schemes. (As per below stated staffing plan)	**150 MMs (5 Schemes** 5x30 months = **150MM's**
Expert Staff (to be supplied based on need/DWSS to indent)				
(i) Environment expert – 1 No.	Minimum graduation in the relevant field.	• Minimum experience of 10 years in the relevant field.	For all 3 schemes (As per below stated staffing plan)	(i) 27 man month
(ii) Social Safeguard expert – 1 No.				(ii) 18 man months
(iii) Surveyor – 1 No.				(iii) 5 man months

Description	Minimum Qualification	Minimum Experience	Number of person	Man Months Tentative
(iv) Electrical & Instrumentation Expert – 1 No.	Graduate in Electrical / Electronics / Instrumentation Engineering or equivalent specialization	• 10 yrs of relevant experience in Electrical & Instrumentation Engineering works • At least five years of experience in quality assurance in Electrical and instrumentation works. • Familiar with various standards/ specifications, contract procedures, design & quality controls in Electrical and instrumentation works. • Must have experience in Quality Assurance of SCADA	For all 3 schemes (As per below stated staffing plan)	(iv) 6 man months

Table depicting scheme wise deployment of key personnel:- The staffing plan of Key personnel & Expert staff are tentatively given as under:-

Sr No.	Key Personnel	No. of Person for 3 Sch.						Man Months (MMs)
		No. of persons for:					Total	
		DBO Project Amritsar (Kandhowali) (30 months)	DBO Project Amritsar (Gausal Afghana) (30 months)	DBO Project Amritsar (Sangna) (30 months)	DBO Project Tarn Taran (Bhuchar Kalan) (30 months)	DBO Project Gurdaspur (Kunjar) (30 months)		
1	**Key Personnel**							
	(i) Team Leader	1					**1**	30 MMs
	(ii)Assurance Team cum Quality Assurance Engineer	1	1	1	1	1	**5**	150 MMs (30 MMs each)
	(iii) Field Engineer	1	1	1	1	1	**5**	150 MMs (30 MMs each)
2	**Expert Staff** The '*Intermittent Expert Staff*', will be deployed based on requirement during the course of the project, in discussion with DWSS							man-months
	(i) Environmental Expert – 1 No.							27
	(ii) Social Safeguard Expert - 1 No.							18
	(iii) Surveyor – 1 No.							5
	(iv) Electrical & Instrumentation Expert – 1 No.							6
	Total Man-months							**56**

Note:

- In addition to above, supporting staff, Administrative Staff etc. office costs will not be paid separately.
- The Team/Staff shall also draw upon specific experience in carrying out its activities from Sectoral experts, as applicable.
- The CVs of intermittent staff to be submitted at-least 1 month before planned deployment of that expert.

8. Consultants Responsibility regarding Personnel:

Consultant can use DWSS office in Districts Amritsar, Tarn Taran & Gurdaspur to facilitate visits and reduce travel time & cost. Consultant will make its own arrangement for its staffs living and subsistence in these 3 districts or other suitable location as per requirement. This will include all travel and logistic arrangements required for its Team. Consultant will make his own arrangements for all the activities it has to perform in meeting the scope of services under this consultancy such as arrangements for office equipments and other essentials like computer, telephone, email connection, photocopying, Stationery, fax etc.

9. **Selection method of assignment:** The consultancy shall be by "Quality-and-Cost Based Selection" (QCBS) method.

10. **Consultancy duration:**

The Consultancy duration from start to commissioning of each scheme is 30 months.

Consultancy Duration can be further extended with mutual consent of both the parties on the same terms & conditions.

11. Terms of Payment:

Sr. No.	Deliverables	Payment
1	Submission and acceptance of agreed monthly reports (30 months) and attendance of Experts duly signed by Executive Engineer	Based on actual man days used plus fixed cost
2	Submission and acceptance of Final report	Release 10% on hold

Note: Sample testing of materials, if required will be paid as per actual.

12. Ownership:

The consultancy shall be funded from the JJM & NABARD funds and thereafter DWSS shall be the owner of the consultancy output. The consultant will have no right or claim to the consultancy after its completion. The Consultant shall not use the outputs of consultancy without prior consent of DWSS.

APPENDIX 3 A:

Performance Standards

1. Coverage

The Operator shall ensure that it has covered 100% of the villages, in accordance with the Appendix 3B: Water Supply Area, by Operational Acceptance of the scheme.

2. Continuity of Service

The Operator shall ensure that water is always available at all the villages served by the Water Supply System for 24 hours supply 7 days a week .He shall make his own assessment of equipment and works to be part of the project to ensure such requirements.

The Operator may temporarily interrupt supplies referred to above whenever:

a.) the Operator reasonably wishes to examine, alter, repair, maintain or construct works, provided the Operator has informed the Design Build Operations Engineer and the concerned village (s) in writing and on telephone / at least 48 hours in advance of the date upon which, and times between which, the supply will be interrupted; and such interruptions shall not exceed two in a consecutive period of 12 months; or

b.) there is, or is reasonably likely to be, a risk that would endanger human life or any part of the environment, or compromise the health or safety of any person, or the safety of any works.

c.) The Operator shall not be deemed to have failed to comply with the provision above whenever an interruption to supply occurs, because of:

i.) the action of a third party over which the Operator has no control;

ii.) failure of the national grid electricity supply system for more than 12 hours at any of the Operator's head works, treatment works or pumping stations

iii.) an act of God (force majeure).

Provided the Operator has informed the Design Build Operate Engineer / Owner's Representative in writing of such event within 12 hours of occurrence of such event.

3. Quality of Treated Water

The Operator shall treat all water supplied to in compliance with the Indian Standard Specifications for Drinking Water (IS: 10500, as amended). By adopting below mentioned frequency of analyzing/ testing of water sample, the Operator shall ensure that the quality of water throughout the Water Supply System does not exceed the acceptable given in IS:10500:2012. The guidelines of Uniform Drinking Water Quality Monitoring Protocol (2013) and Schedule 4 shall be followed for ensuring quality of treated water.

4. Pressure of Water Supplies

The Operator shall ensure that the pressure at the Existing Village Water Works of every village covered under the Water Supply System complies with

- Manual on Water Supply and Treatment (third edition - revised and updated) by Government of India Ministry of Urban development, New Delhi, March 1999.
- the pressure in the Water Supply System is always sufficient to prevent back-siphoning or infiltration of water into the system;
- Minimum terminal pressure at bulk supply point will be 3.0 meters at all time.

5. Availability of supply

The Operator shall ensure that compulsory water restrictions are not imposed in the Water Supply System for more than once in one year.

6. Maintenance and Repairs

The Operator shall on all works covered under the Operation and Maintenance agreement:

maintain and keep the works in good repair and working condition;
ensure that the Water Supply System operates effectively/ efficiently at all times; and
take appropriate action within shortest time but not exceeding five hours for any failure in any part of the Water Supply System being discovered by it, or brought to its attention.

7. Physical Losses

The Operator shall ensure that physical losses on the network are as follows

- Losses in raw water conveyance and at the water treatment plant primarily associated with backwash operations are less than 5 per cent per reporting period;
- Losses on the clear water conveyance system (including service reservoirs)are less than 5% per reporting period.

8. Prevention of pollution

The Operator shall comply with all state and national legislation in relation to discharges or disposal of any matter for which a waste discharge permit is required.

9. Customer Service

A representative of the Operator shall be available at "Complaint Redressal office at Treatment Plant" for minimum of 12 hours (7AM to 7 PM)per day to receive users who wish to make enquiries or submit complaints during the Operation and Maintenance Period. The Operator shall comply with the minimum performance level set out in the following table:

Indicator	**Minimum Performance Level**
• Complaints to be resolved within 24 hours: Complaints related to water quality, no water. • Complaints to be resolved within 48 hours: Complaints related to low pressure, leaks in transmission lines./ Defect in BF valve / Bulk metre repair or replacement	90% for all the indicators

10. Maintenance and Repairs

The Operator shall on all works (including machines, equipment, etc) covered under this Operation and Maintenance Schedule:

a) maintain and keep the works and equipment in good repair and working condition;

b) All reservoirs will be cleaned at least once per year or as necessary in order to prevent contamination of water supplies

c) ensure that the Water Supply System operates effectively at all times; and

d) take appropriate action within five hours of any failure in any part of the Water Supply System being discovered by it, or brought to its attention.

11. Environmental Compliance

The Operator shall prepare and include Environmental Management Plan in Schedule 0 following the Environmental Code of Practice set out in Schedule 4 and as subsequently updated. The initial Environmental Management Plan shall be approved by the Design Build Operations Engineer and IVA.

The Operator shall follow the Environmental Code of Practice set out in Environmental Management Framework and take all reasonable steps to protect the environment and to mitigate damage and nuisance to people and property resulting from pollution, noise and other negative impacts resulting from the services. The Operator shall ensure that air emissions and surface discharges in respect of the Project shall not exceed the standards prescribed by Applicable Laws and the Environment Management Plan. The Operator will be required to implement all aspects of this Environment Management Plan and for ensuring compliance with the Environment Management Plan by Sub-Contractors involved in implementing obligations of the Operator under the Operations And Maintenance Services.

The Operator shall comply with all state and national legislation in relation to discharges or disposal of any matter for which a waste discharge permit is required.
During the duration of Operations And Maintenance Services, the Operator shall indemnify and hold harmless the Owner against any fines or penalties imposed under the Applicable Laws in respect of environmental laws other than in the event of a Pollution Event. During operation and maintenance he will ensure that the Environmental Management Plan is followed.

12. Pollution Events

If there is a Pollution Event at any Raw Water intake, the Owner shall hold the Operator harmless of any legal and financial consequences arising from the Pollution Event provided that the Operator has:

- informed the Corporation of the Pollution Event within 2 hours of it being triggered;
- initiated the Emergency Response in accordance with the Agreed Emergency Response Plan; and
- exercised due care in the operation and maintenance of the Facilities and used all reasonable efforts to mitigate the impact of the Pollution Event.

A Pollution Event will be considered as an Allowable Exclusion in any related Performance Requirement under the Agreement.

1. **APPENDIX 3B: WATER SUPPLY AREA**

The Operator shall for the duration of the Contract have obligation and rights to supply water upto the Existing Village Water Works for the villages as detailed in the table below.

Tapping Point Kandowali					
Sr. No.	**District**	**Development Block**	**Scheme Name**	**Habitation**	**Population (2019)**
1	**2**	**3**	**4**	**5**	**6**
1	Amritsar	Ajnala	Chak dogran	Chak dogran (124)	134
				Chota Chack (642)	690
				Ganze de Chhanna (452)	486
				Wadha Chak (14314)	617
2	Amritsar	Ajnala	Dabur Basti	Dabur Basti (789)	848
3	Amritsar	Ajnala	Kuralian	Kuralian (1552)	1668
4	Amritsar	Harsha Chhina	Adliwal	Adliwal (3949)	4209
				Muglani Kot	379
5	Amritsar	Ajnala	Gujjapeer	Gujjapeer (507)	541
6	Amritsar	Harsha Chhina	Salempura	Salempura (587)	626
7	Amritsar	Harsha Chhina	Dudrai	Dudrai (1629)	1736
				Lalla Afgana (692)	738
8	Amritsar	Harsha Chhina	Dhariwal	Dhariwal (2462)	2645
9	Amritsar	Ajnala	Aliwal	Aliwal (693)	739
10	Amritsar	Harsha Chhina	Raipur khurd	Raipur khurd (740)	789
11	Amritsar	Ajnala	Gorey Nangal	Gorey Nangal (753)	803
12	Amritsar	Ajnala	Longomahal	Longomahal (771)	822
13	Amritsar	Ajnala	Bhakha hari singh	Bhakha Hari Singh (792)	844
14	Amritsar	Ajnala	Pairewal	Awan Near Ramdas (1244)	1326
				Pairewal (830)	885
				Lakhuwal-2 (699)	745
15	Amritsar	Ajnala	Dialpura	Dialpura (893)	952
16				Nasar	597
17	Amritsar	Ajnala	Kotli Amb	Kotli Amb (930)	992
18	Amritsar	Ajnala	Boharwala	Boharwala (977)	1042
19	Amritsar	Harsha Chhina	Macchi Nangal	Macchi Nangal (1025)	1093
20	Amritsar	Harsha Chhina	Sangtu Nangal	Sangtu Nangal (968)	1032
21	Amritsar	Harsha Chhina	Majjupura	Majjupura (1123)	1500
22	Amritsar	Ajnala	Hardo putli	Hardo putli (1149)	1225
23	Amritsar	Ajnala	Abu Said	Abu Said (1150)	2215
24	Amritsar	Ajnala	Gurala	Gurala (1166)	1243
25	Amritsar	Ajnala	panj grayian Nijjran	panj grayian Nijjran (1168)	1245
26	Amritsar	Harsha Chhina	Bua Nangali	Bua Nangali (1192)	1271
27	Amritsar	Ajnala	Nanoke	Nanoke (1196)	1275
28	Amritsar	Ajnala	Dial Bharang	Dial Bharang (1197)	1276
29	Amritsar	Ajnala	malikpura	malikpura (1247)	1329
	Amritsar	Ajnala	Bhuregill	Bhuregill (1363)	1453
30				Harrar Mustil Bhuregill (411)	438
31	Amritsar	Ajnala	Mattey Nangal	Mattey Nangal (1404)	1497
32	Amritsar	Ajnala	Kot Rajada	Kot Rajada (1406) HP	1499
33	Amritsar	Ajnala	Talwandi Nahar	Talwandi Nahar (1479)	1577
34	Amritsar	Ajnala	Dalam	Dalam (1505)	1604
35	Amritsar	Harsha Chhina	Jauns	Jauns (1528)	1629
36	Amritsar	Harsha Chhina	Kandowali	Kandowali (1539)	1641
	Amritsar	Ajnala	Khanowal	Khanowal (1081)	1152
37				Kotla Kazian (502)	535
38	Amritsar	Majitha	Kotla Gujjran	Kotla Gujjran (1678)	1789
39	Amritsar	Majitha	Nangal Pannuan	Nangal Pannuan (1810)	1929
40	Amritsar	Harsha Chhina	Chetanpura	Chetanpura (1912)	3467

Tapping Point Kandowali					
Sr. No.	**District**	**Development Block**	**Scheme Name**	**Habitation**	**Population (2019)**
1	**2**	**3**	**4**	**5**	**6**
41	Amritsar	Ajnala	Kamalpur	Kamalpur (2201)	2346
42	Amritsar	Ajnala	Sanguana	Sanguana (621)	662
43	Amritsar	Harsha Chhina	Nangal Tola	Nangal Tola (2216)	2362
44	Amritsar	Ajnala	Kiampura	Kiampura (2256)	2405
45	Amritsar	Ajnala	Gujjarpura	Gujjarpura (2341)	2495
46	Amritsar	Ajnala	Mohan Bhandarian	Mohan Bhandarian (2351)	2506
47	Amritsar	Ajnala	Mattian	Rokhey (1490)	1588
	Amritsar	Harsha Chhina		Mattian (1008)	1075
48	Amritsar	Harsha Chhina	Mallu Nangal	Mallu Nangal (2552)	2720
49	Amritsar	Harsha Chhina	Mehlanwala	Mehlanwala (2610)	2782
50	Amritsar	Ajnala	Makowal	Makowal (1466)	1563
				Jassar (1157)	1233
51	Amritsar	Harsha Chhina	Jhander	Jhander (2299)	2450
52	Amritsar	Harsha Chhina	Sabazepur	Sabazepur (Harsha Chhina) (2755)	2936
53	Amritsar	Harsha Chhina	Bohlian	Bohlian (2062)	2198
				Issapur (793)	846
54	Amritsar	Harsha Chhina	Jhanjoti	Jhanjoti (3035)	3235
55	Amritsar	Harsha Chhina	Bhalla Pind	Bhalla pind (3051)	3252
56	Amritsar	Ajnala	Thoba	Thoba (2288)	2439
				Momanpura 137)	146
57	Amritsar	Ajnala	Wachhoya	Wachhoya (3296)	3513
58	Amritsar	Harsha Chhina	Bhittewad	Bhittewad (3494)	3724
59	Amritsar	Ajnala	Dalla Rajputtan	Dalla Rajputtan (3596)	3833
				Bhutanpura (576)	614
60	Amritsar	Ajnala	Chamairi	Chamairi (5137)	5475
61	Amritsar	Ajnala	Tera Rajputtan	Ballarwal (5243)	5588
				Chanan Singh Wala	791
				Latuwali & Harnam	687
				Rabwali	622
				Wachhoya Singh	654
				Tera Rajputtan (115)	123
62	Amritsar	Ajnala	Mukam	Mukam (1058)	1128
63	Amritsar	Majitha	Gallowali Kullian	Gallowali Kullian (3652)	3892
64	Amritsar	Ajnala	Bath	Bath (1485)	1583
65	Amritsar	Harsha Chhina	Khatrai Kalan	Khatrai Kalan (1607)	1713
				Khatrai Khurd (652)	695
66	Amritsar	Majitha	Sohian Kalan	Sohian Kalan (6296)	6710
				Abadi Verpal (1430)	1524
67	Amritsar	Ajnala	Madhu Changa	Madhuchnaga (1406)	1499
68	Amritsar	Harsha Chhina	Rudala	Rudala (1220)	1301
69	Amritsar	Harsha Chhina	Sullodin	Sullodin (805)	858
70	Amritsar	Ajnala	Anaitpura (279)	Anaitpura (279) HP	298
71	Amritsar	Ajnala	Kot Kesar Singh (521)	Kot Kesar Singh (521)	556
72	Amritsar	Ajnala	Talwandi Bhangwan (785)	Talwandi Bhangwan (785)	837
73	Amritsar	Harsha Chhina	Ucha Qila (860)	Ucha Qila (860)	917
74	Amritsar	Ajnala	Urdhan (1002)	Urdhan (1002)	1068
75	Amritsar	Harsha Chhina	Ballagan (1531)	Ballagan (1531)	1632
76	Amritsar	Ajnala	Dial bhatti (1611)	Dial bhatti (1611)	1717
				Sammowal 264)	282
77	Amritsar	Harsha Chhina	Ugar aulakh (1907)	Ugar aulakh (1907)	2033
78	Amritsar	Majitha	Daburji (2870)	Daburji (2870)	3059
79	Amritsar	Harsha Chhina	Chhina Karam Singh (1514)	Chhina Karam Singh (1514)	1614
				Jastarwal (1555)	1684

Tapping Point Kandowali					
Sr. No.	**District**	**Development Block**	**Scheme Name**	**Habitation**	**Population (2019)**
1	**2**	**3**	**4**	**5**	**6**
				Chahia	294
80	Amritsar	Harsha Chhina	Othian (3236)	Othian (3236)	3532
				Rakh othian (282)	301
81	Amritsar	Ajnala	Chak Sikander (1428)	Chak Sikander (1428)	1522
				Loharka (106)	113
				Nizampura (457)	488
82	Amritsar	Ajnala	Gaggo mahal (3941)	Gaggo mahal (3941)	4200
83	Amritsar	Harsha Chhina	Sehnsara (5048)	Sehnsara (5048)	5380
84	Amritsar	Majitha	Nag Kalan (9348)	Nag Kalan (9348)	10042
85	Amritsar	Harsha Chhina	Mohar (1370)	Mohar (1370)	1460
86	Amritsar	Ajnala	Bajwa	Bajwa (148)	158
87	Amritsar	Ajnala	Samrai	Samrai (285)	304
				Bhandal (154)	165
				Sultan Mahal (483)	515
88	Amritsar	Ajnala	Rajian	Rajian (972)	1045
89	Amritsar	Harsha Chhina	Raneywali	Raneywali (992)	1058
90	Amritsar	Ajnala	Harar khurd	Harar khurd (1039)	1108
91	Amritsar	Majitha	Jethu Nangal	Jethu Nangal (1076)	1147
92	Amritsar	Ajnala	Teri	Teri (1115)	1189
				Dhariwal (1444)	1539
93	Amritsar	Ajnala	Khanwal	2. Khanwal (1440)	1535
94	Amritsar	Harsha Chhina	Ghukewali	Ghukewali (1595)	1700
95	Amritsar	Ajnala	Fatehwal	Fatehwal (1263)	1346
				Fatehwal Chota (567)	605
96	Amritsar	Ajnala	Nangal Wanjanwala	Nangal Wanjanwala (1555)	1658
	Amritsar	Harsha Chhina		Kotli Karotona (543)	579
97	Amritsar	Ajnala	Riar	Riar (958)	1021
				Chak Phoola (352)	376
				Pandori sukha singh (405)	432
				Sarai (1411)	1504
98	Amritsar	Ajnala	Lakhuwal (A)	Lakhuwal (1420)	1514
99	Amritsar	Ajnala	Tera kalan	Tera Kalan (2271)	2421
100	Amritsar	Ajnala	Tera Khurd	Tera Khurd (1474)	1571
101	Amritsar	Ajnala	Granthgarh	Granthgarh (125)	134
102	Amritsar	Ajnala	Kallomahal	Kallomahal (559)	596
103	Amritsar	Harsha Chhina	Pathan Nangal	Pathan Nangal (590)	629
104	Amritsar	Harsha Chhina	Ladeh	Ladeh (605)	645
105	Amritsar	Harsha Chhina	1. Sehsara Patti Rampura	Sehsara Patti Rampura (625)	667
106	Amritsar	Harsha Chhina	Kotli Sakkian wali	Kotli Sakkian wali (626)	668
107	Amritsar	Harsha Chhina	Kukranwala	Kukranwala (800)	853
108	Amritsar	Ajnala	Ibrahimpur	Ibrahimpur (873)	931
109	Amritsar	Ajnala	Dahurian	Dahurian (874)	932
110	Amritsar	Ajnala	Suffian	Suffian (892)	951
111	Amritsar	Ajnala	Chak Bala	Chak Bala (949)	1012
112	Amritsar	Ajnala	Dujjowal	Dujjowal (1090)	1162
113	Amritsar	Ajnala	Chaharpur	Chaharpur (1240)	1322
114	Amritsar	Ajnala	Sudhar	Sudhar (1309)	1395
115	Amritsar	Ajnala	Harrar Kalan	Harrar Kalan (1312)	1399
116	Amritsar	Ajnala	Bal Bawa	Bal Bawa (1353)	1442
117	Amritsar	Ajnala	Talwandi Rai Dadu	Talwandi Rai Dadu (1366)	1456
118	Amritsar	Harsha Chhina	Vichla Qila	Vichla Qila (1160)	1900
				2. Vernali (280)	299
119	Amritsar	Harsha Chhina	Lakshri Nangal	Lakshri Nangal (1449)	1545
	Amritsar	Ajnala	Wanjanwala	Wanjanwala (754)	804

Tapping Point Kandowali					
Sr. No.	**District**	**Development Block**	**Scheme Name**	**Habitation**	**Population (2019)**
1	**2**	**3**	**4**	**5**	**6**
120				Kamirpur (225)	240
121	Amritsar	Chogawan	Kotla Doom	Kotla Doom (1700)	1812
122	Amritsar	Ajnala	Bhoeywali	Bhoeywali (1736)	1850
123	Amritsar	Harsha Chhina	Umarpura	Umarpura (1902)	2044
124	Amritsar	Ajnala	Jagdev khurd	Jagdev khurd (1566)	1669
125	Amritsar	Harsha Chhina	Bagga khurd	Bagga khurd (2310)	2482
	Amritsar	Harsha Chhina	Bagga Kalan	Bagga kalan (3329)	3576
126	Amritsar	Ajnala		3. Nawan Pind (1737)	1852
127	Amritsar	Harsha Chhina	Jagdev Kalan	Jagdev Kalan (4554)	4853
128	Amritsar	Ajnala	Sarangdev	Sarangdev (4988)	6500
	Amritsar	Ajnala		Chhanna 4988)	5317

Tapping Point Gaunsal Afgana					
Sr. No.	**District**	**Development Block**	**Scheme Name**	**Habitation**	**Population (2019)**
1	**2**	**3**	**4**	**5**	**6**
1	Amritsar	Majitha	Nag Khurd	Nag Khurd	4053
				Rakh Nag	168
2	Amritsar	Majitha	Daddian	Daddina	1208
3	Amritsar	Majitha	Taragarh rampur	Taragarh rampur	626
				Kotla Pitu	74
4	Amritsar	Majitha	Supariwind	Supariwind	1189
				Qila	392
5	Amritsar	Majitha	Athwal	Athwal	999
6	Amritsar	Majitha	Budha Theh	Budha Theh	1116
7	Amritsar	Majitha	Umarpura	Umarpura	315
				Borewal Afgana	85
8	Amritsar	Majitha	Bhoma	Bhoma	2957
9	Amritsar	Majitha	Hamza	Hamza	1412
10	Amritsar	Majitha	Kaler Mangat	Kaler Mangat	1997
11	Amritsar	Majitha	Johal	Johal	623
12	Amritsar	Majitha	Ludhar	Ludhar	3214
13	Amritsar	Majitha	Begewal	Begewal	1891
14	Amritsar	Majitha	Viram	Viram	891
15	Amritsar	Majitha	Bhangwan	Bhangwan	2197
16	Amritsar	Majitha	Gallowali	Gallowali	3816
17	Amritsar	Majitha	Borewal Kang	Borewal Kang	961
18	Amritsar	Majitha	Dhing Nangal	Dhing Nangal	615
19	Amritsar	Majitha	Gujjarpura	Gujjarpura	2456
				Bhangali Khurd	180
20	Amritsar	Majitha	Jajjiani	Jajjiani	1349
21	Amritsar	Majitha	Karnala	Karnala	2098
22	Amritsar	Majitha	Mahadipur	Mahadipur	1560
23	Amritsar	Majitha	Marrari Kalan	Marrari Kalan	2065
24	Amritsar	Majitha	Pandher Kalan	Pandher Kalan	2091
				Pandher Khurd	476
25	Amritsar	Majitha	Ramana Chak	Ramana Chak	788
26	Amritsar	Majitha	Wadala	Wadala	4611

Tapping Point Gaunsal Afgana					
Sr. No.	**District**	**Development Block**	**Scheme Name**	**Habitation**	**Population (2019)**
1	**2**	**3**	**4**	**5**	**6**
27	Amritsar	Majitha	Patalpuri	Patalpuri	1217
				Kharaswala	483
28	Amritsar	Majitha	Sham naga	Sham naga	2472
29	Amritsar	Majitha	Thirewal	Thirewal	1134
30	Amritsar	Majitha	Chachowali	Chachowali	2444
31	Amritsar	Majitha	Bhangali	Bhangali	5325
32	Amritsar	Majitha	Tarpai	Tarpai	2372
33	Amritsar	Majitha	Kotla Sultan Singh	Kotla Sultan Singh	1259
34	Amritsar	Majitha	Jalalpur	Jalalpur	1551
35	Amritsar	Majitha	Gaunsal Afgana	Gaunsal Afgana	79
36	Amritsar	Majitha	Gaunsal Zimidara	Gaunsal Zimidara	1066
37	Amritsar	Majitha	Katla Majewal	Katla Majewal	391
38	Amritsar	Majitha	Burj Nau Abad	Burj Nau Abad	734
39	Amritsar	Majitha	Marrari Khurd	Marrari Khurd	1068
40	Amritsar	Majitha	Waryam Nangal	Waryam Nangal	2009
41	Amritsar	Majitha	Harrian	Harrian	1800
42	Amritsar	Majitha	Chande	Chande	959
43	Amritsar	Majitha	Bhaini Lidhar	Bhaini Lidhar	643
44	Amritsar	Majitha	Ajaibwali	Ajaibwali	1801
45	Amritsar	Majitha	Dialpur	Dialpur	2736

Tapping Point Sangana					
Sr No	**District**	**Block**	**Villages Covered (No. of Villages with Name and Hadbast No)**	**Village IDs**	**Population 2019**
1	**2**	**6**	**9**	**10**	**12**
1	Amritsar	Attari	SANGNA	2988	4317
2	Amritsar	Attari	Bohruwala pul	---	1011
3	Tarn Taran	Gandiwind	JAGATPURA	3315	2118
4	Tarn Taran	Gandiwind	DHAND	3309	4272
5	Tarn Taran	Gandiwind	MIANPUR	3323	2093
6	Tarn Taran	Gandiwind	GANGA NAGAGR	15813	1138
7	Tarn Taran	Gandiwind	KASEL	3317	**5492**
8	Tarn Taran	Gandiwind	HARBANSPURA	15173	**343**
9	Tarn Taran	Gandiwind	KASEL HAWELIAN	15499	459
10	Amritsar	Attari	BOHRU	4752	5064
11	Amritsar	Attari	MANDIALA	2975	2580
12	Amritsar	Attari	IBBAN KALAN	2961	4950
13	Amritsar	Attari	KOTLI NASIR KHAN	2972	1872
14	Amritsar	Attari	KOTLI MIAN KHAN	2971	216
15	Amritsar	Attari	BASARKE GILLAN	2949	3901
16	Amritsar	Attari	TAJUCHAK	2990	1134
17	Amritsar	Attari	MALUWAL	3113	241
18	Amritsar	Attari	NATHUPURA	3117	1242
19	Amritsar	Attari	DHATTAL	2953	1466
20	Amritsar	Attari	MULLA BEHRAM	2979	1026
21	Amritsar	Attari	BHAKNA KALAN	3094	3479
22	Amritsar	Attari	BHAKNA KHURD	3095	1799
23	Amritsar	Attari	CHEECHA	3098	3606

Tapping Point Sangana					
Sr No	**District**	**Block**	**Villages Covered (No. of Villages with Name and Hadbast No)**	**Village IDs**	**Population 2019**
1	**2**	**6**	**9**	**10**	**12**
24	Amritsar	Attari	MEHMOOD NAGAR	3114	390
25	Amritsar	Attari	HOSHIAR NAGAR	3106	1940
26	Amritsar	Attari	ACHINTKOT	3089	1210
27	Amritsar	Attari	KAUNKE	12752	2479
28	Amritsar	Attari	KALLEWAL	3109	1357
29	Amritsar	Attari	LADHEWAL	31111	1410
30	Amritsar	Attari	KHERA	3110	568
31	Amritsar	Attari	JATHAUL	3107	1178
32	Amritsar	Attari	MOHAWA	3116	3552
33	Amritsar	Attari	BAGARIAN	3091	377
34	Amritsar	Attari	NESTHA	3118	1987
35	Amritsar	Attari	RAJATAL	3119	2298
36	Amritsar	Attari	DAUKE	12212	1881
37	Amritsar	Attari	BHAINI RAJPUTTAN	3093	1121
38	Amritsar	Attari	BHAROPAL	3096	795

Tapping Point Bhuchar Kalan					
S No.	**District**	**Block**	**Name of Scheme Habitations**	**Habitationss Covered (Population)**	**Population 2019**
1	**2**	**3**	**4**	**5**	**6**
1	Tarn Taran	Bhikhiwind	Sidhwan	Sidhwan 1574	1678
2	Tarn Taran	Bhikhiwind	Mugal Chack	Mugal Chack 812	866
3	Tarn Taran	Bhikhiwind	Pahuwind	Pahuwind 3530	3762
4	Tarn Taran	Bhikhiwind	Pehalwanke	Pehalwanke 876	934
5	Tarn Taran	Bhikhiwind	Mari Gaur Singh	Mari Gaur Singh 2376	2532
	Tarn Taran	Bhikhiwind		Qazi Chack 403	430
6	Tarn Taran	Bhikhiwind	Mari Samra	Mari Samra 591	630
7	Tarn Taran	Bhikhiwind	Sugga	Sugga 1694	1806
	Tarn Taran	Bhikhiwind		Tatle 1128	1203
8	Tarn Taran	Bhikhiwind	Farandipur	Farandipur 740	789
9	Tarn Taran	Bhikhiwind	Chung	Chung 2137	2278
10	Tarn Taran	Bhikhiwind	Dall	Dall 4039	4305
11	Tarn Taran	Valtoha	Fatehpur	Fatehpur 1087	1159
12	Tarn Taran	Valtoha	Dhoul Kona	Dhoul Kona 1173	1251
13	Tarn Taran	Valtoha	Kalanger Uttar	Kalanger Uttar 1378	1469
14	Tarn Taran	Valtoha	Thathi Jaimal Singh	Thathi Jaimal Singh 1087	1159
15	Tarn Taran	Valtoha	Sankatra	Sankatra 1136	1211
16	Tarn Taran	Valtoha	Manawan	Manawan 1000	1066
17	Tarn Taran	Valtoha	Bhura Karimpura	Bhura Karimpura 1938	2066
18	Tarn Taran	Valtoha	Bhura Kona	Bhura Kona 3466	3694
19	Tarn Taran	Valtoha	Assal Uttar	Assal Uttar 4836	5154
20	Tarn Taran	Bhikhiwind	Bhaini Gurmukh Singh	Bhaini Gurmukh Singh 1860	1983
21	Tarn Taran	Valtoha	Dholan	Dholan 1204	1284
22	Tarn Taran	Bhikhiwind	Begepur	Begepur 756	806
23	Tarn Taran	Bhikhiwind	Manakpur	Manakpur 1624	1731
	Tarn Taran	Bhikhiwind		Paragpur 492	525
	Tarn Taran	Bhikhiwind		Akbarpur 1473	1570
24	Tarn Taran	Bhikhiwind	Dialpur	Dialpur 958	1021
25	Tarn Taran	Bhikhiwind	Theh Kalan	Theh Kalan	387
26	Tarn Taran	Bhikhiwind	Khalra	Khalra	6214

Tapping Point Bhuchar Kalan					
S No.	**District**	**Block**	**Name of Scheme Habitations**	**Habitationss Covered (Population)**	**Population 2019**
1	**2**	**3**	**4**	**5**	**6**
27	Tarn Taran	Bhikhiwind	Dode Sodian	Dode Sodian	1264
28	Tarn Taran	Bhikhiwind	Aminshah	Aminshah	2160
29	Tarn Taran	Bhikhiwind	Narli	Narli	4860
30	Tarn Taran	Patti	Chuslewar	Chuslewar	4834
31	Tarn Taran	Bhikhiwind	Bhagwanpura	Bhagwanpura	2692
32	Tarn Taran	Valtoha	Valtoha	Valtoha	9724
33	Tarn Taran	Bhikhiwind	Chela	Chela	706
34	Tarn Taran	Bhikhiwind	Bua	Bua	640
35	Tarn Taran	Bhikhiwind	Bhaini Massa Singh	Bhaini Massa Singh	1726
36	Tarn Taran	Bhikhiwind	Marginpura (3666)	Marginpura (3666)	3860
37	Tarn Taran	Bhikhiwind	1. Katcha Pacca (2123)	1. Katcha Pacca (2123)	2521
	Tarn Taran	Bhikhiwind		2. Theh Chahal (242)	150
38	Tarn Taran	Gandiwind	1.Bhuchar Kalan (3329)	Bhuchar Khurd (3329)	2676
	Tarn Taran	Gandiwind		Mahna (321)	205
	Tarn Taran	Gandiwind		Malian (3322)	356
39	Tarn Taran	Gandiwind	Bhuchar Khurd (3300)	Bhuchar Khurd (3300)	1928
40	Tarn Taran	Patti	Thakarpura	Abadi Harijan Basti Thakarpura	590
	Tarn Taran	Patti		Thakarpura (2130)	2270
41	Tarn Taran	Bhikhiwind	Algon Kalan	Algon Kalan	1187
42	Tarn Taran	Bhikhiwind	Algon Khurd	Algon Khurd	1460
43	Tarn Taran	Bhikhiwind	Bainka	Bainka	5971
	Tarn Taran	Bhikhiwind		Balehar	3027
44	Tarn Taran	Bhikhiwind	Dhun	Dhun	3026
	Tarn Taran	Bhikhiwind		Veeram	1203
45	Tarn Taran	Bhikhiwind	Gilpan	Gilpan	352
46	Tarn Taran	Bhikhiwind	Bur Chand	Bur Chand	939
47	Tarn Taran	Bhikhiwind	Ghurkwind	Ghurkwind	2236
48	Tarn Taran	Bhikhiwind	Makhi Kalan	Makhi Kalan	2954
49	Tarn Taran	Bhikhiwind	Phula	Phula	1346
50	Tarn Taran	Bhikhiwind	Surwind	Surwind	1500
51	Tarn Taran	Bhikhiwind	Wara Sher singh	Wara Sher singh	590
52	Tarn Taran	Patti	Thatha	Thatha	1841
53	Tarn Taran	Tarn Taran	Mamanke	Mamanke	772
54	Tarn Taran	Valtoha	Cheema Khurd	Cheema Khurd	6335
	Tarn Taran	Valtoha		Amirke	3506
55	Tarn Taran	Valtoha	Lakhna	Lakhna (Bhikhiwind)	4438
	Tarn Taran	Valtoha		Bhandal	1304
56	Tarn Taran	Valtoha	Mastgarh	Mastgarh	3082
	Tarn Taran	Valtoha		Dhoul Nau	188
	Tarn Taran	Valtoha		Kals	745
57	Tarn Taran	Valtoha	Mehmoodpura	Mehmoodpura	2953
	Tarn Taran	Valtoha		Abadi Amarkot	4236
58	Tarn Taran	Patti	Manihala Jai Singh	Manihala Jai Singh	3381
59	Tarn Taran	Patti	Jamalpur	Jamalpur	833
60	Tarn Taran	Bhikhiwind	Channa Sirja Mirja	Channa Sirja Mirja	590
61	Tarn Taran	Bhikhiwind	Darazke	Darazke	1216
62	Tarn Taran	Bhikhiwind	Kale	Kale	2923
	Tarn Taran	Bhikhiwind		Sandran	1545
63	Tarn Taran	Bhikhiwind	Kalsian Kalan	Kalsian Kalan	4492
	Tarn Taran	Bhikhiwind		Theh Naushehra	315
64	Tarn Taran	Valtoha	Kalsian Khurd	Kalsian Khurd	1621
65	Tarn Taran	Bhikhiwind	Lakhna	Lakhna (Valtoha)	3348
	Tarn Taran	Bhikhiwind		Tappa	609
	Tarn Taran	Bhikhiwind		Bargari	476

Tapping Point Bhuchar Kalan					
S No.	**District**	**Block**	**Name of Scheme Habitations**	**Habitationss Covered (Population)**	**Population 2019**
1	**2**	**3**	**4**	**5**	**6**
	Tarn Taran	Bhikhiwind		Fatehpur Sugga	735
66	Tarn Taran	Bhikhiwind	Mari Nau Abad	Mari Nau Abad	869
67	Tarn Taran	Flakhna	Singhpura	Singhpura	1401
68	Tarn Taran	Patti	Narla	Narla	1433
69	Tarn Taran	Tarn Taran	Dhariwal	Dhariwal	2442
70	Tarn Taran	Tarn Taran	Dial Rajputan	Dial Rajputan	1572
71	Tarn Taran	Valtoha	Shabajpur	Shabajpur	2684
72	Tarn Taran	Valtoha	Dibipura	Dibipura	2050
	Tarn Taran	Valtoha		Daudpura	304
	Tarn Taran	Valtoha		Balianwala	665
73	Tarn Taran	Valtoha	Kalia	Kalia	1109
74	Tarn Taran	Bhikhiwind	Patti Plow	Patti Plow	2086
75	Tarn Taran	Bhikhiwind	Sur Singh	Sur Singh	13612
	Tarn Taran	Bhikhiwind		Kotli Sur Singh	233
76	Tarn Taran		Bhikhiwind	Bhikhiwind	5339

Tapping Point Kunjar					
Sr. No.	**District**	**Development block**	**Name of Scheme**	**Name of Village**	**Population (2019)**
1	**2**	**3**	**4**	**5**	**6**
1	Gurdaspur	Dhariwal	Mandhar	Mandhar	101
2				Chhakri	688
3	Gurdaspur	Dhariwal	Kunjar	Narwan	344
4				Mugal	112
5				Kunjar	537
6	Gurdaspur	Dhariwal	Bhikowali	Bhikowali	803
7	Gurdaspur	Dhariwal	Gagowali	Gagowali	840
8	Gurdaspur	Dhariwal	Malogill	Malogill	350
9	Gurdaspur	Kalanaur	Virk	Sukha Raju	948
10				Virk	646
11				Paniar	104
12	Gurdaspur	Dhariwal	Bangowani	Bangowani	2164
13	Gurdaspur	Kalanaur	Kala Goraya	Kala Goraya	347
14				Athwal	650
15	Gurdaspur	Kalanaur	Ugru Khera	Ugru Khera	676
16	Gurdaspur	Kalanaur	Qazipur	Qazipur	393
17				Bhandal	1674
18	Gurdaspur	Kalanaur	Pairuwal	Pairuwal	266
19				Panwan	1254
20	Gurdaspur	Kalanaur	Hakimpur	Hakimpur	1343
21	Gurdaspur	Kalanaur	Deol	Deol	732
22				Sarai	127
23	Gurdaspur	Kalanaur	Bakhatpur	Kotla	110
24				Bakhatpur	775
25	Gurdaspur	Kalanaur	Lakhan Kalan	Lakhan Kalan	1201
26				Lakhan Khurd	269
27				Kamalpur	238
28	Gurdaspur	Kalanaur	Jagowal Bedian	Pindi Sadian	245

Tapping Point Kunjar					
Sr. No.	**District**	**Development block**	**Name of Scheme**	**Name of Village**	**Population (2019)**
1	**2**	**3**	**4**	**5**	**6**
29				Jagowal Bedian	562
30	Gurdaspur	Kalanaur	Wadala Bangar	Wadala Bangar	2461
31				Bhandwan	183
32	Gurdaspur	Kalanaur	Nano Harni	Nano Harni	953
33				Shahpur	885
34				Amargarh	292
35	Gurdaspur	Kalanaur	Mast kot	Mast kot	983
36	Gurdaspur	Kalanaur	Aujla	Aujla	385
37				Bhangwan	984
38	Gurdaspur	Kalanaur	Khushipur	Khushipur	1331
39	Gurdaspur	Kalanaur	Dalelpur	Dalelpur	590
40				Rasulpur	421
41	Gurdaspur	Kalanaur	Kot Mian Shaib	Kot Mian Sahib	1679
42	Gurdaspur	Kalanaur	Kalanour	Kalanour	14334
43	Gurdaspur	Kalanaur	Lopa	Lopa	859
44				Patti Ajaib Singh	107
45				Azampur	381
46				Pakeewan	600
47	Gurdaspur	Kalanaur	Rossey	Rossey	1141
48	Gurdaspur	Kalanaur	Barila Khurd	Barila Khurd	858
49				Dhidowal	443
50				Chanduwadala	1019
51	Gurdaspur	Kalanaur	Rudiana	Rudiana	941
52	Gurdaspur	Kalanaur	Boharwadala	Boharwadala	479
53	Gurdaspur	Kalanaur	Shalle Chack	Shalle Chack	1363
54				Jeo July	233
55				Chhohan	802
56	Gurdaspur	Kalanaur	Sahur	Sahur	1757
57	Gurdaspur	Kalanaur	Dostpur	Dostpur	2276
58	Gurdaspur	Kalanaur	Chhod	Chhod	858
59				Kukar	51
60				Choura Khurd	480
61				Kamalpur Jattan	199
62	Gurdaspur	Kalanaur	Choura Kalan	Choura Kalan	1273
63	Gurdaspur	Kalanaur	Qila Nathu Singh	Qila Nathu Singh	1356
64	Gurdaspur	Kalanaur	Manepur	Manepur	1145
65	Gurdaspur	Kalanaur	Mour	Mour	918
66				Attari	711
67	Gurdaspur	Kalanaur	Bakshiwal	Bakshiwal	1333
68	Gurdaspur	Kalanaur	Qadianwali	Qadianwali	895
69				Ali Sher	631
70	Gurdaspur	Gurdaspur	Amipur	Amipur	1262
71	Gurdaspur	Gurdaspur	Kot Mohan Lal	Kot Mohan Lal	602
72	Gurdaspur	Gurdaspur	Chaguwal	Chaguwal	1274
73	Gurdaspur	Gurdaspur	Singowal	Singowal	226
74	Gurdaspur	Gurdaspur	Hassanpur	Hassanpur	561
75	Gurdaspur	Gurdaspur	Hardo Channi	Aluna	538
76				Hardo Channi	1527

Tapping Point Kunjar					
Sr. No.	**District**	**Development block**	**Name of Scheme**	**Name of Village**	**Population (2019)**
1	**2**	**3**	**4**	**5**	**6**
77				Alarpindi	647
78	Gurdaspur	Gurdaspur	Khokhar	Mangal Sain	742
79				Salimpur Afgana	673
80				Khokhar	886
81	Gurdaspur	Gurdaspur	Kala Nangal	Kala Nangal	1206
82	Gurdaspur	Gurdaspur	Mustfabad Saidan	Mustfabad Saidan	859
83	Gurdaspur	Gurdaspur	Wariah	Wariah	755
84	Gurdaspur	Gurdaspur	Hayat Nagar	Hayat Nagar	3501
85				Peeran Bagh	905
86	Gurdaspur	Kalanaur	Boparai	Boparai	366
87				Khera Kotli	2068
88	Gurdaspur	Kalanaur	Gunia	Gunia	905
89	Gurdaspur	Kalanaur	Purowal Arrian	Purowal Arrian	1098
90	Gurdaspur	Dera Baba Nanak	Bhagtana Tullian	Bhagtana Tullian	1045
91	Gurdaspur	Dera Baba Nanak	Qadian	Qadian	641
92	Gurdaspur	Dera Baba Nanak	Talwandi Goraya	Talwandi Goraya	1226
93				Tapala	354
94				Patti Rampur	45
95	Gurdaspur	Dera Baba Nanak	Choura	Choura Bajwa	112
96				Choura	574
97	Gurdaspur	Dera Baba Nanak	Daburji	Daburji	422
98				Nabi Nagar	556
99	Gurdaspur	Dera Baba Nanak	Gawara	Gawara	1045
100	Gurdaspur	Dera Baba Nanak	Shahpur Goraya	Shahpur Goraya	1808
101				Agwan	325
102				Mira Raniska	326

Appendix-3C

Scope of Work of Operators for three Schemes

The scope of work of the Operator shall include but not be limited to the following activities;

- Carry out detailed assessment of the proposed Water Supply System as per the Project Feasibility Report;
- Verification of Google Survey drawings on Auto CAD provided by DWSS as per site conditions, data acquisition and processing for GIS base maps through GPS ground control survey for providing sufficient control points evenly distributed over the area and carry out Geo technical survey wherever required;
- Establish and confirm organic and inorganic content of the existing raw water source;
- Prepare detailed designs of new works and processes required to fulfil the output requirements for the defined water treatment plant, pumping systems, sumps, reservoirs, disinfection system and transmission system with appurtenances.;
- Prepare detailed design for the SCADA for monitoring Water Supply System;
- Supply all materials for the construction and installation of the plant with supplying and installation of all pipes and controls required for the water facilities;
- Provide and install required mechanical and electrical equipment for full operation of the specified SCADA system;
- Supply and install all cabling and control panels for safe and effective operation of the plant and equipment;
- Supply and install all storage facilities, pumping requirements, transmission piping, valves and bulk metering;
- Prepare operations and maintenance manuals for all installations;
- Carry out Tests on Completion and Tests after Completion and commission the Works and New Facility;
- Recruit and train water supply personnel in the operation and maintenance of the Works and New Facility;
- Provide lubricants and tools for routine maintenance;
- Provide spare parts for all items of equipment including filter media and other accessories; and
- Operate and maintain the complete water supply and transmission system for the period defined in the Contract.
- Prepare the Response Plan for detailing the emergency response in case of any Pollution Event at any Raw Water intake. The final Response Plan agreed between the Operator and the Owner shall be the Agreed Response Plan.

The design, construction and completion / commissioning of the Water Supply System shall be executed in compliance with international best practices and all relevant Indian legislation.