

Study Tour to Punjab on Settled Sewer/ Small Bore Sewer System

(28th – 29th May 2015)

Performance Assessment System In Gujarat

June 2015

Program supported by
CEPT, University, Ahmedabad

Submitted to
CEPT University, Ahmedabad

Submitted By

Urban Management Centre



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The Urban Management Centre (UMC) is a women promoted not-for-profit organization, that works towards professionalizing urban management in India and worldwide. UMC provides technical assistance and support to city governments and facilitates change through peer-to-peer learning processes. It enhances the capacity of city governments by providing expertise and ready access to innovations on good governance implemented in India and abroad. It facilitates city governments to design, implement and evaluate municipal development and management projects. UMC extensively works in the areas of urban water and sanitation, heritage management, urban planning, urban health, municipal finance, urban management, urban transportation and institutional restructuring. The Urban Management Centre evolved from being a project office of the International City/ County Management Association (ICMA). Its genesis is marked from 1997, and still continues to be an affiliate partner to ICMA. The Urban Management Centre was formally registered in 2005. For more information please visit www.umcasia.org



PAS, a seven-year action research project, has been initiated by CEPT University with funding from the Bill and Melinda Gates Foundation. PAS aims to develop better information on water and sanitation performance at the local level to be used to improve the financial viability, quality and reliability of services. It will use performance indicators and benchmarks on water and sanitation services in all the 400-plus urban areas of Gujarat and Maharashtra. UMC and the All India Institute of Local Self Governance are CEPT's project partners in Gujarat and Maharashtra, respectively. More details are available on www.pas.org.in

STUDY TOUR TO PUNJAB
ON
SETTLED SEWER / SMALL BORE SEWER SYSTEMS
IMPLEMENTED IN VILLAGES OF PUNJAB
(28th and 29th May 2015)

Submitted to
CEPT University, Ahmedabad



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This study tour has been undertaken by the Urban Management Centre (UMC), under the Performance Assessment System (PAS) program.

We would like to thank Mr DK Bhasin, Unit Coordinator, SPMU for sharing his experiences on the small bore sewer system implemented in selected villages of Punjab with the support of World Bank. We would also like to extend our sincere thanks to officers from district and block offices of the Water and Sanitation Department of Punjab for providing their assistance and logistics during the field visits.

We wish to thank Mr Nirmal Singh, President of Shiromani Gurudwara Prabandhak Samiti, for giving his valuable time and sharing his experiences. We also wish to express our gratitude to the Gram Panchayat Water & Sanitation Committee (GPWSC) members, for taking us around their projects and for sharing their experiences. Our sincere thanks to villagers for extending their whole-hearted support in villages where team visited.

UMC is also happy to have received financial and technical support from CEPT University under the Performance Assessment System (PAS) program. Special thanks to Prof Meera Mehta and Prof Dinesh Mehta from CEPT University for their advice and support for this study.

Lastly, we would like to appreciate the effort by the team working at UMC on PAS project including Arvind Singh, Anurag Anthony and Jay Shah for both on-site and off-site management of the study tour.

Manvita Baradi

Director

Urban Management Centre

Abbreviation

CEPT	Centre for Environmental Planning and Technology
GoG	Government of Gujarat
GoP	Government of Punjab
GPWSC	Gram Panchayat Water and Sanitation Committee
GUDC	Gujarat Urban Development Company
GWSSB	Gujarat Water Supply and Sewerage Board
LPCD	Liter Per Capita Per Day
O&M	Operation and Maintenance
PAS	Performance Assessment System
PVC	Polyvinyl Chloride
SAS	Sahib Ajit Singh
SJMSVY	SwarnimJayantiMukhyamantriShahariVikasYojana
SPMU	State Project Management Unit
STP	Sewerage Treatment Plant
UASB	Upflow Anaerobic Sludge Blanket
UMC	Urban Management Centre

1.0 Background:

Urban Management Centre (UMC) with support from the Centre for Environmental Planning and Technology (CEPT) University is implementing Performance Assessment System (PAS) Project in Gujarat since 2009. PAS is a seven years' action research project funded by the Bill & Melinda Gate Foundation through a grant to CEPT University. Under the project water supply and sanitation related services of all urban local bodies of Gujarat are being analyzed and performance improvement activities are initiated in selected cities.

Government of Gujarat has initiated sewerage project in all 159 municipalities under SwarnimJayantiMukhyaMantriShahariVikasYojana (SJMSVY). GoG has made provision of INR 40,000 million in its initial budget in the year 2009. As of March 2015, total 156 projects are approved and the estimated cost is INR 68,740 million. All these projects are implemented by two agencies - Gujarat Water Supply and Sewerage Board (GWSSB) and Gujarat Urban Development Company (GUDC). Currently these agencies are implementing conventional sewerage system projects in all the cities of Gujarat. As of March 2015, a total of 156 projects are approved and five projects have been completed, 141 projects are in progress and the rest are under tendering and approval stage. Therefore, it is good to have a look at other options for waste water treatment and disposal system for cities of Gujarat, which are cost effective as compared to conventional sewerage system.

2.0 Objectives of the study:

Under the PAS project, UMC organized a two day study tour on 28th and 29th May 2015 for staff to have an exposure on settled sewer/ small bore sewerage systems being implemented in villages of Punjab to understand the suitability and the possibility of replicating this system in the small towns of Gujarat.

3.0 Field visit:

Day1: 28th May 2015:

3.1 Visit to State Project Management Unit (SPMU), Water Supply and Sewerage, Department, Government of Punjab

The UMC team visited State Project Management Unit, of Water Supply and Sewerage Department, GoP. Mr DKBhasin, Unit Coordinator – World Bank assisted Punjab Rural Water Supply and Sanitation Project, Mohali. He welcomed the team and gave them a quick brief about the history of the project. He mentioned that Punjab Government with the support of the World Bank implemented piped water supply scheme in around 1225 villages of Punjab. The purpose was to set up new drinking water schemes with household tap connections through pipe water schemes. In addition to the water supply project, World Bank also financed the construction of small bore sewer schemes on a pilot basis in 100 villages which already have good household toilet coverage; but release of septic tank effluent on the village streets and open drains, creates a serious health hazard



and environmental degradation. The estimated budget per village is around 3.86 million.

The key selection criteria of 100 villages for the installation of small bore sewerage system under pilot project is as mentioned below:

1. Villages who have successfully completed and selfmanaged water supply project funded by World Bank.
2. At least 70% households in village must have functional intercepting chamber / septic tank and should be ready to opt for sewer connection.
3. Gram Panchayat has to provide 1 to 2 acre of land free of cost for the construction of Sewerage Treatment Plant

3.2 Field Visit to Bhagsi village

The team first visited Bhagsi village located in Block Derabassi at a 40-kilometre distance from Sahib Ajit Singh (SAS) Nagar District head quarters. It is a small village with a population of 1062 and 154 households. MrShahil Sharma, Sub Divisional Engineer along with MrSatnam Singh, Assistant Engineer accompanied us to the site of the sewerage treatment plant and briefed us in detail about the scheme. MrSharma also explained to us regarding the formation of Gram Panchayat Water Supply Committee (GPWSC) which has played a very important role in convincing the community for the small bore sewer scheme. Thereafter, the contractor explained the technical aspects of the small bore system. After commissioning of the scheme, the contractor has to operate and maintain the entire system for five years. The scheme was commissioned in the month of October 2014 and currently the community has no burden on the O & M of sewerage system. The community, especially GPWSC, is very positive and ready to manage the project in future, five years down the line. However, presently they have not prepared an O&M plan for sewerage project; but they are very confident to manage the project in future on the lines of the water supply scheme.



3.3 Field Visit to Joulankalan village

Village Joulankalan is also located in Block Derabassi at a distance of 14 kms from Chandigarh – Ambala Road. It has a population of 1832 and comprises of 300 households. This village has a very active GPWSC. The team first visited the Sewerage Treatment Plant where GPWSC members were waiting for the arrival of the team. MrSharma, briefed about the construction



work of the plant and the functions of STP. Thereafter the team visited a few households and streets of the village to understand in detail about the inception chamber/soak-pit and manholes. The village streets are made of concrete, very clean and without any garbage on the sides. The sewerage line flows through the

village with a concrete cover on it. Each house has a toilet and a septic tank with the outlet connected with the sewer line. The waste water flows through due to the gravity, as the sewer has been designed with sufficient gradient. Manholes have been provided at a suitable distance, which permit access to sewer line for inspection, cleaning and repair. The waste water is treated in STP and this treated water is re-used for irrigation. For the initial five years, post commissioning of STP, the entire



sewer system will be managed by the contractor including the operations and maintenance cost. Post five years of successful implementation of the project, it will be handed over to the Gram Panchayat and the income generated by selling of the treated water will be given to the Panchayat

After a leisurely walk through the streets, the team gathered at the Sarpanch's house (he is also the Chairman of GPWSC) to interact with the community and to learn about the community participation and their involvement in the project. Mr. Nirmal Singh, President of Shiromani Gurudwara Prabandhak Samiti and a respected member of the village, was also present during the meeting. A detailed in-depth discussion took place regarding the functionality of the project and community involvement from planning to implementation stage. Mr. Nirmal Singh explained in detail how he and Sarpanch Saheb convinced the community to implement this project in their village for the benefit of the villagers. They have conducted several meetings with villagers where staff of other supporting organizations and block/district level government staff were also present to share the details about the project. He also informed that prior to sewerage scheme, the waste water generated from households and village overflowed into open drains and was ultimately disposed of into village ponds, thereby creating health hazards and deteriorating the quality of life. The community has been involved right from the planning stage to the selection of land for construction of STP. Before inviting tenders for construction work, community contribution was collected and land for STP was identified by the GPWSC.



Thereafter, the team also visited the Gurudwara where a community hall and kitchen are being constructed with INR 30 Lac - a contribution of the villagers themselves.

Day2: 29th May 2015:

3.4 Field Visit to Manhera Jattan village

Manhera Jattan village is located in Block Khera, at a 25 Km distance from Fatehgarh district. This village has a population of 750 and 124 households. The team first visited the STP site to understand the



functionality of the system. The project is functioning well since the last one year. The team also observed the absence of foul odor on site and noted that it was very clean. The STP of this village is similar to the other villages. The design and capacity of the STP is marginally different from others. Thereafter the team visited the village habitation and met the villagers at the Gurudwara. The Sarpanch of the village welcomed the team and shared the GPWSC records and registers, including ledger maintained for water supply project. They are

going to maintain the records of the sewerage project in a similar fashion. GPWSC members are very active and provide voluntary services such as collection of water user charges on monthly basis. All the households have meter connections. Here too the internal streets of the village are built in concrete and are very clean – totally free from garbage or solid waste. In this village every household has a pit at the backyard of their house where they dump solid waste and later take it to the field.



3.5 Field Visit to Kahanpur village

Kahanpur village is located in block Amloh at a 30 Km distance from Fatehgarh Sahib district. The village has a population of 876 living in 115 households. This village has 100% meter tap connection. The sewerage system of this village is similar to Manhera village and there is no difference in the project design. Mr Butta Singh, Sarpanch of the village warmly welcomed the team in his village and shared the process adopted for implementation of the small bore sewer project in his village. Our team visited few households and had a minute look at the inception chambers/septic tanks with the outlet connected with sewer line.

On the way back to Chandigarh, the team visited Madhopur village where the sewerage scheme had been laid five years ago and has been running successfully since then. Although the team tried to interact with a few households and looked out for GPWC members but they could not meet them as they were in the fields.

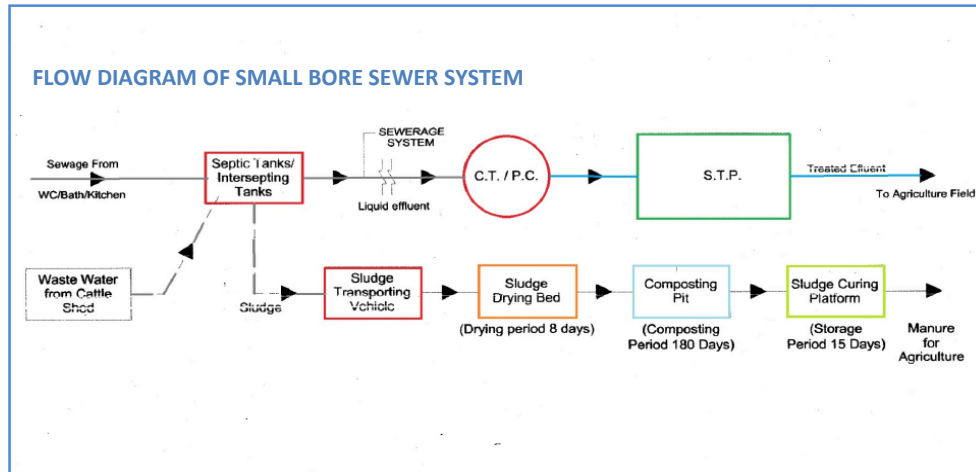
Our team received wholehearted support and co-operation from Mr D KBhasin and his district and block level representatives who had accompanied us during the field visit in villages.

Some of the salient features of the schemes of the four villages where our team has visited are as mentioned below:

Description	Bhagsi	Joulankalan	ManheraJattan	Kahanpur
No. of Households (Yr 2013)	154	300	124	115
Population (Yr 2013)	1062	1852	750	876
Design Population (Yr2043)	1434	2501	1312	1533
Household Connections	130(85%)	120 ((92%)	88 (71%)	115 (100%)
Total Capital Cost including STP	INR 121.48 Lacs	INR 161.96 Lacs	INR103.89Lacs	INR111.67Lacs
Total Share of World Bank @85% of Capital Cost = 121.49 X 85%	INR 103.27 Lacs	INR 137.67 Lacs	INR 88.30 Lacs	INR 94.92 Lacs
State Govt. Share @10% of Capital Cost = 121.49 X 10%	INR 12.15 Lacs	INR 16.20 Lacs	INR 10.40 Lacs	INR 11.17Lacs
Beneficiary Share of Village @5% of Estimated Cost = 121.49 X 5%	INR 6.07 Lacs	INR 8.10 Lacs	INR 5.19Lacs	INR 5.58Lacs
Operation Maintenance Cost of STP + Sewerage System + Tree Plantation for 5 Years in INR.	INR 9.12 Lacs	INR 7.44 Lacs	INR 6.70 Lacs	INR 6.21 Lacs
Per Household Per Month Cost of O&M	INR 80	INR 50	INR 90	INR 90

4.0 Settled Sewer/Small Bore Sewer System

Settled sewerage or small bore sewer system, is designed to receive only the liquid portion of a household's waste water. Grit, grease and other solid matters which might cause obstructions in the sewers are separated in interceptor/septic tanks installed at household level with outlet, connected to the sewer line which is shallow and has a small-diameter flow through gravity. It is also considered as a low-cost sewerage system. Settled sewerage is most suitable for areas where toilets are already connected with septic tanks and where, assuming the soil can no longer accept the septic tank effluent, it will be an economically viable option as compared with the conventional sewerage system. The lay out plan of the small bore sewer system would look like this -



Flow

Village

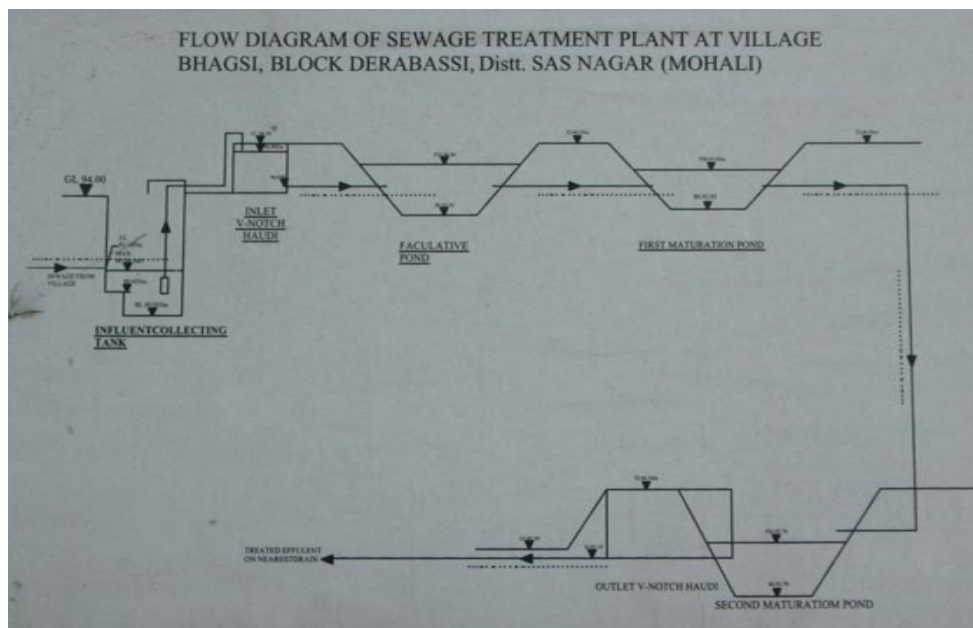


Diagram of
Sewerage
Treatment Plant –
Bhagsi

Service Chain of Small Bore Sewerage System of Village – JoulanKalan



Toilet (WC)



**Intersection Chamber/
Septic Tank**



**Inlet V-Nouch
Haudi**



Influent Tank



Facultative Pond



Maturation Pond



Sludge Drying Bed

5.0 Comparative Analysis of Sewer Systems

Every technology has its own advantages and limitations. Scheme can be designed looking at the availability of water, land and funds. The comparison between small bore sewer and conventional sewer is illustrated in the table given below.

Parameter	Small Bore (Solids-free) Sewer	Conventional Sewer
Characteristics of Sewer Line	Household waste water is settled in a solids interceptors/septic tank. Only effluent discharged into small diameter PVC pipes laid at shallow depth flows due to gravity.	Household toilet (Water Closet) directly connected with sewer line. Septic tank is not required
Treatment	Waste water treated in facultative and maturation ponds.	UASB and others
Suitability Criteria	Most suitable in areas with existing septic tanks	
Water Requirement	Less water supply (40-50 LPCD) required	More water supply (above 100 LPCD) required
Cleaning of Septic Tanks	Regular annual or bi-annual emptying of solid interceptors / septic tanks is required to ensure that only solid free waste water is discharged into the sewer line	Septic tanks not required
Operation and Maintenance	Very low	Very High
Capital Cost	Low It requires shallow excavation and PVC pipes laid at shallow depth	Very high Deeper excavation is required
People's Perception	Less preferred Due to the burden of cleaning/emptying of solid interceptors / septic tanks	Most preferred No burden at household level

6.0 Lessons Learnt

- Small bore sewer system is designed to receive only the liquid part of household waste water. The solid component of the waste water is set aside in a solid interceptor tank or septic tank. It means, cleaning and maintenance of the tanks are solely the responsibility of individual households. If households fail to maintain/clean the tank regularly, the system will not work.
- Household/community has to accept and own the responsibility that there is no direct connection of the toilet with sewer line. This is possible only in villages due to the homogeneous characteristics and the fact that people know and respect each other and also value each other's words.
- It is suitable for rural areas or outgrowth area of the towns where there are less number of households ranging between 100 to 500.
- It is most suitable for places where septic tanks already exist.
- It will reduce the capital cost by 20% -50% as compared to the conventional sewer system

Annexures:

1. Agenda of StudyTour:

Date	Time	Sr. No.	Scheme	Block	District
28.5.2015	9.00 AM	Meeting with Mr DKBhasin, Unit Coordinator, State Project Management Unit, Dept of Water Supply and Sanitation, GoP, Mohali.			
28.5.2015	10.00 AM from SPMC Office Chandigarh	1.	JolanKalan	Derabassi	Mohali
		2.	Bhagsi	Derabassi	Mohali
29.5.2015	9.00 AM from SPMC Office Chandigarh	3.	Kahnpur	Fatehgarh Sahib	Fatehgarh Sahib
		4.	ManheraJattan	Fatehgarh Sahib	Fatehgarh Sahib

2. Technical Details of Small Bore Sewer Project

i. Village- Bhagsi:

Sr. No.	Description	Remarks
1	Population 2001 census	926
2	Population 2013	1062
3	Design Population 2028	1275
4	Design Population 2043	1434
5	Total Number of Houses as per IEC SURVEY (43SC & 111GC)	154
6	Length of Sewer 200 mm SW Pipe - in m	0
7	Length of Sewer 160 mm uPVC Pipe - in m	3815 MTR
8	Length of Sewer for House Connection 110 mm uPVC Pipes- in m	616 MTR
9	Length of Raising Main 110 mm uPVC Pipe- in m	69 MTR
10	Number of Manholes	75
11	Number of Inspection Chambers	2
12	Number of Clean Outs	31
13	2 Numbers of Collecting Tank	3.0m Diameter
14	Facultative Pond Mid-Size Depth	33.00m X 16.40m x 1.5m
15	Maturation Pond-I Mid-Size Depth	33.20m X 10.00m x 1.0m
16	Maturation pond-II Mid-Size Depth	32.90m X 10.00m x 1.0m
17	Dimension of Sludge Drying Bed(4 Numbers)	4m x 4m x 0.3m
18	Dimension of Composting Pit(2 Numbers)	3.8m x 7.6m x 1.5m
19	Dimension of Sludge Curing Platform(1 Number)	1.4 m x 2.8 m
20	G.L. at STP Site	96 MTR
21	Minimum Depth of Sewer Upper End	102.44 G.L. 101.394
22	Minimum Depth of Sewer Lower End	96 G.L. 91.361
23	Minimum Depth of Sewer Upper End	97.338 G.L. 5.974
24	Minimum Depth of Sewer Lower End	98.897 G.L. 1.002

25	Pumping Machinery For Outlet Collecting Tank Submersible Pumping Set	220 LPM 9 MTR
26	Rest Room cm Gen. Set.	3x 5 MTR
27	Disposal Pond Size	
28	Total Number of Existing Septic Tanks	
29	Cost of Sewerage System - in INR	7905346
30	Cost of Pumping Station - in INR	1161731
31	Cost of Disposal Work - in INR	1697292
32	Cost of Sludge Disposal- in INR	913,680
33	Total Cost of Environmental Management - in INR	116780
34	3% contingency, Petty Establishment Charges, Advertisement, Miscellaneous & Unforeseen Expenses - in INR	353845
35	Total Capital Cost - in INR	12,148,674
36	Total Share of World Bank @85% of Capital Cost = 121.49 X 85%	INR 103.27 Lacs
37	State Govt. Share @10% of Capital Cost = 121.49 X 10%	INR 12.15 Lacs
38	Beneficiary Share of Village @5% of Estimated Cost = 121.49 X 5%	INR 6.07 Lacs

ii. Village- Joulankalan:

Sr. No.	Description	Remarks
1	Population 2001 Census	1632
2	Population 2013	1852
3	Design Population 2028	2223
4	Design Population 2043	2501
5	Total No. of Houses as per IEC SURVEY (70SC & 230GC)	300
6	Length of Sewer 200 mm SW Pipe- in m	594 MTR
7	Length of Sewer 160 mm uPVC pipe- in m	6348 MTR
8	Length of Sewer for House Connection 110 mm uPVC pipes - in m	1200 MTR
9	Length of Raising Main 110 mm uPVC Pipe - in m	300 MTR
10	Number of Manholes	66
11	Number of Inspection Chambers	16
12	Number of Clean-outs	55
13	2 Numbers of Collecting Tank	3.0m Diameter
14	Facultative Pond- mid-size depth	37.7m X 25.20m
15	Maturation Pond-I mid-size depth	32.00m X 21.30m
16	Maturation Pond-II mid-size depth	32.00m X 17.9m
17	G.L. at STP site	96.40 MTR
18	Minimum Depth of Sewer Upper End	
19	Minimum Depth of Sewer Lower End	96.40/95.53 MTR
20	Minimum Depth of Sewer Upper End	99.62/96.40 MTR
21	Minimum Depth of Sewer Lower End	99.12/99.62 MTR
22	Pumping Machinery For Outlet Collecting Tank Submersible Pumping Set	60 LPM 120 LPM 6 MTR 3 Nos. 240 LPM
23	Rest Room Cm Gen. Set.	3 x 5 MTR
24	Disposal Pond Size	
25	Total Number of Existing Septic Tanks	

Sr. No.	Description	Remarks
26	Cost of Sewerage System in INR	10913636
27	Cost of Pumping Station in INR	1437594
28	Cost of Disposal Work in INR	2583632
29	Cost of Sludge Disposal in INR	9442525
30	Total Cost of Environmental Management in INR	158791
31	1% Contingency, Petty Establishment Charges, Advertisement, Miscellaneous & Unforeseen Expenses in INR	158791
32	Total Capital Cost in INR	16196696
33	Total Share of World Bank @85% of Capital Cost = 161.97 X 85%	INR137.67Lacs
34	State Govt. Share @10% of Capital Cost	INR16.20Lacs
35	Beneficiary Share of Village @5% of Estimated Cost =	INR8.10Lacs
36	Beneficiary Share Due	INR1.06Lacs
37	Beneficiary Share Mobilized	INR1.07Lacs
38	Balance Beneficiary Share to be met through as per modified Cost Sharing Rules = 8.10 - 1.06	INR 7.04Lacs
39	Operation Maintenance Cost of STP & Sewerage System & Tree Plantation for 5 Years in INR	1144217
40	Total Capital and Operation Maintenance Cost in INR	17340913
41	Per Household Per Month Cost of O&M	INR 50INR 55
42	Per Capita Cost on Present Population (2013) in INR	8917
43	Per Capita Cost on Future Population (2028) in INR	7431

iii. Village – ManheraJattan:

Brief Note- ManheraJattan Sewerage

Name of Scheme:- Providing Sewerage Scheme ManheraJattan, Block KheraDistt. FatehgarhSahib(Under World Bank)

Admn. Approval:- Punjab Govt. Memo No 40 dtd 01-01-2013 for INR 103.89 lacs

Technical Sanction:- CE (S) No. 5646 dtd 30-01-2013 for INR 103.53 lacs

Tender Award EE No. 8180 dtd. 22-03-2013 for Part A- 109.01 lacs& Part B-9.70 lacs

Beneficiary Share

General	SC	Total
0.30	0.37	0.68

Scope of work

Influent Collection Tank :- 3.0 mtrdia

Effluent Collection Tank :- 3.0 mtrdia

Pumping Machinery:-

For Influent Collection Tank Discharge 30 LPM, 60 LPM, 170 LPM at 9 m head
(3 Nos.)

For Effluent Collection Tank Discharge 30 LPM, 60 LPM, 160 LPM at 8 m head
(3 Nos.)

Gen. Set. 7.50 KVA (1 No)

Gen. Set. Room Size 3m x 5m

Sewerage Treatment Plant

Facultative Pond = 1 No. Top size = 35.20x15.30mtr
Bottom size = 31.20x11.30mtr
Depth = 1.50 mtr

Maturation Pond -1. Top size = 34.30x10.30mtr
Bottom size = 31.00x7.00mtr
Depth = 1.00 mtr

Maturation Pond -2. Top size = 34.30x10.60mtr
Bottom size = 30.70x7.00mtr
Depth = 1.00 mtr

Disposal Pond :- Size 43.00 m x 30.30 m with 3.0 m meter working depth

Sewerage Pipe Line:- 160mm o/d PVC pipe = 3255 mtr
110 mm o/d PVC pipe = 524mtr

Sewerage Connections

House Holds	Connections	Total
124	88	71%

iv. Village – Kahanpur:

Brief Note- Kahanpur Sewerage

Name of Scheme:- Providing Sewerage Scheme Kahanpur, Block Amloh Distt. Fatehgarh Sahib (Under World Bank)

Admn. Approval:- Punjab Govt. Memo no 40 dtd 01-01-2013 for INR111.67lacs

Technical Sanction:- CE (S) No. 5649dt. 30-01-2013 for INR111.32lacs

Tender Award EE No. 8190 Dt. 22-03-2013 for Part A- 113.26lacs & Part B-9.70 lacs

Beneficiary Share

General	SC	Total
0.66	0.16	0.82

Scope of work

Influent Collection Tank :- 3.0 mtr dia

Effluent Collection Tank :- 3.0 mtr dia

Pumping Machinery:-

For Influent Collection Tank Discharge 50 LPM, 90 LPM, 250 LPM at 9 m head
(3 Nos.)

For Effluent Collection Tank Discharge 40 LPM, 80 LPM, 240 LPM at 8 m head
(3 Nos.)

Gen. Set. 5.00 KVA (1 No)

Gen. Set. Room Size 3m x 5m

Sewerage Treatment Plant

Facultative Pond = 1 No.
Top size = 37.50x20.40mtr
Bottom size = 33.50x16.40mtr
Depth = 1.50 mtr

Maturation Pond -1.
Top size = 43.60x11.60mtr
Bottom size = 40.30x8.30mtr
Depth = 1.00 mtr

Maturation Pond -2.
Top size = 43.60x11.90mtr
Bottom size = 40.00x8.30mtr
Depth = 1.00 mtr

Disposal Pond :- Size 33.30 m x 30.70 m with 3.0 m meter working depth

Sewerage Pipe Line:-
160mm o/d PVC pipe = 386mtr
110 mm o/d PVC pipe = 492mtr

Sewerage Connections

House Holds	Connections	Total
115	115	100%

3. List of People Met during the Study Tour:

Sr. No	Name	Designation	Place
	Government Officers (Department of Water Supply and Sanitation)		
1	Mr DKBhasin	Unit Coordinator, SPMU	Mohali
2.	MrSahil Sharma	Sub Divisional Engineer	Sahib Ajit Singh Nagar
3.	MrSatnam Singh	Assistant Engineer	Derabassi, SAS Nagar
4	MrVedBhushan	Sub Divisional Engineer	Amloh, Fatehgarh Sahib
5	MrAzaib Singh	Assistant Engineer	Khera, Fatehgarh Sahib
6	MrJasbir Singh	Assistant Engineer	Khera, Fatehgarh Sahib
7	MrNirmail Singh	President, SGPS	Joulankalan Village
8	MrNirmalSingh	Sarpanch	JoulankalanVillage
9	MrBalvinder Singh	GPWSC Member	Joulankalan Village
10	MrMohinder Singh	GPWSC Member	Joulankalan Village
11	MrHarjit Singh	GPWSC Member	Bhagsi Village
12	MrGurmeet Singh	GPWSC Member	Bhagsi village
13	MrJasbir Singh	GPWSC Member	ManheraJattan
14	MrJasvinder Singh	GPWSC Member	ManheraJattan
15	MrButta Singh	Sarpanch	Kahanpur Village
16	MrHarpreet Singh	GPWSC Member	Kahanpur Village
17	MrSurjit Singh	Press Reporter, Daily Pehredar	Mohali

4. Media Coverage – Field visit to village - Joulankalam

ਗੁਜਰਾਤ ਦੀ ਐਨ.ਜੀ.ਓ ਦੀ ਟੀਮ ਵੱਲੋਂ ਪਿੰਡ 'ਚ ਲੱਗੇ ਵਾਟਰ ਟਰੀਟਮੈਂਟ ਸੀਵਰੇਜ ਪਲਾਂਟਾਂ ਦਾ ਕੀਤਾ ਦੌਰਾ



ਲਾਲਕੁ, 28 ਮਈ (ਸੁਰਜੀਤ ਸਿੰਘ) : ਅਰਬਨ ਮੈਨੇਜਮੈਂਟ ਸੈਂਟਰ ਗੁਜਰਾਤ ਦੀ ਐਨ.ਜੀ.ਓ ਦੇ ਮੈਂਬਰਾਂ ਵੱਲੋਂ ਇੱਥੇ ਨੇੜਲੇ ਪਿੰਡਾਂ ਜੋਲਾ ਕਲਾ ਅਤੇ ਭਾਗਸੀ 'ਚ ਚੱਲ ਰਹੇ ਵਾਟਰ ਟਰੀਟਮੈਂਟ ਸੀਵਰੇਜ ਪਲਾਂਟ ਦਾ ਦੌਰਾ ਕਰਕੇ ਇਸ ਪਲਾਂਟ ਦੀਆਂ ਬਾਰੀਕੀਆਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਹਾਸਿਲ ਕੀਤੀ ਗਈ। ਟੀਮ ਵਿਚ ਸ਼ਾਮਿਲ ਸੀਨੀਅਰ ਪ੍ਰੋਗਰਾਮ ਮੈਨੇਜਰ ਅਰਵਿੰਦ ਸਿੰਘ ਨੇ ਦੱਸਿਆ ਕਿ ਗੁਜਰਾਤ ਵਿਚ ਇਹ ਐਨ.ਜੀ.ਓ ਸਰਕਾਰ ਨਾਲ ਮਿਲ ਕੇ ਤਕਨੀਕੀ ਕੰਮਾਂ ਵਿਚ ਹੱਥ ਵਟਾਉਂਦੀ ਹੈ। ਉਨ੍ਹਾਂ ਕਿਹਾ ਕਿ ਸਾਡਾ ਮੁੱਖ ਮੁਕਸਦ ਪਿੰਡਾਂ ਵਿਚ ਚੱਲ ਰਹੇ ਇਹ ਸਿਸਟਮ ਪਿੰਡ ਵਾਸੀਆਂ ਲਈ ਕਿੰਨੇ ਕੁ ਲਾਭਦੇਂਦ ਹਨ ਅਤੇ ਲੋਕਾਂ ਵੱਲੋਂ ਕਿਸ ਪ੍ਰਕਾਰ ਇਸ ਨੂੰ ਅਪਣਾਇਆ ਗਿਆ ਹੈ ਬਾਰੇ ਜਾਣਕਾਰੀ ਹਾਸਿਲ ਕਰਨਾ ਹੈ। ਉਨ੍ਹਾਂ ਇਸ ਸਿਸਟਮ ਦੀ ਸਫਲਤਾ 'ਤੇ ਤਸੱਲੀ ਪ੍ਰਗਟ ਕਰਦਿਆਂ ਕਿਹਾ ਕਿ ਇਹ ਸਿਸਟਮ ਵਾਸੀਆਂ ਹੀ ਲੋਕਾਂ ਲਈ ਲਾਭਦੇਂਦ ਸਿੱਧ ਹੋ ਰਹੇ ਹਨ ਅਤੇ ਇਸ ਨਾਲ ਪਿੰਡ ਵਾਸੀਆਂ ਨੂੰ ਗੰਦਗੀ ਤੋਂ ਵੀ ਛੁਟਕਾਰਾ ਮਿਲਿਆ ਹੈ। ਇਸ ਮੌਕੇ ਉਕਤ ਟੀਮ ਦੇ ਮੈਂਬਰ ਅਨੁਰਾਗ ਐਨਥੋਨੀ ਮੁੱਖ ਤਕਨੀਕੀ ਅਫਸਰ, ਜੋ ਬਾਹ ਸਮੰਤ ਪਿੰਡ ਨਿਵਾਸੀ ਅਤੇ ਕੁਮਟੀ ਕਮੇਟੀ ਦੇ ਕਾਰਜਕਾਰਨੀ ਮੈਂਬਰ ਨਿਰਮਲ ਸਿੰਘ ਜੋਲਾਕਲਾ, ਮਹਿੰਦਰ ਸਿੰਘ, ਹਰਜੀਤ ਸਿੰਘ, ਬਲਵਿੰਦਰ ਸਿੰਘ, ਨਿਰਮਲ ਸਿੰਘ, ਬਲਵਿੰਦਰ ਸਿੰਘ, ਗੁਰਮੀਤ ਪੰਚ, ਹਰਜੀਤ ਸਿੰਘ ਅਤੇ ਜਸਵਿੰਦਰ ਸਿੰਘ ਧੀਰੇਮਾਜਰਾ ਵੀ ਹਾਜ਼ਰ ਸਨ।

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