SURVEY REPORT

RIVER FRONT SITES & GANGA NALAS IN UTTARAKHAND

NATIONAL INSTITUTE OF HYDROLOGY

JAL VIGYAN BHAWAN

ROORKEE - 247 667

2015

SURVEY TEAM

GROUPS OF SCIENTISTS AND SCIENTIFIC STAFF
for visit dated 19-20 May 2015

Team No.	Members of the Team	Proposed place of Visit
1.	Dr. Rajesh Singh, Sc. 'C' Shri Yatveer Singh, PRA	Haridwar (including BHEL Ranipur) Rishikesh Muni Ki Reti-Dhaluwala Tehri (Tapovan + Rishikesh)
2.	Sh. P.K. Garg, Sc. 'B' Sh. Rajeev Gupta, SRA	Gopeshwar
3.	Shri Sumant Kumar, Sc. 'C' Sh. Satyaprakash, Technician	Rudra Prayag
4.	Shri Digamber Singh, Sc. 'C' Shri R.K. Nema, PRA	Joshimath
5.	Sh. P.K. Agarwal, Sc. 'B' Shri Rakesh Goyal, Tech. Gr-I	Uttarkashi (Budkot)
6.	Shri L.N. Thakural, Sc. 'C' Shri Omprakash, SRA	Gauchar
7.	Shri V.K. Agarwal, SRA Shri Mukesh Sharma, JE (Sr. Gr.)	Devprayag
8.	Shri Manish Kumar Nema, Sc. 'C' Shri T.R. Sapra, SRA	Kirtinagar
9.	Shri P.K. Mishra, Sc. 'B' Shri Hukam Singh, PRA	Nandprayag
10.	Shri S.L. Srivastava, SRA Shri Rocky Khokhar, Tech. Gr-I	Badrinath
11.	Shri Tanveer Ahmed, Sc. 'B' Shri Yogender Sharma, Technician	Karnprayag
12.	Shri J.P. Patra, Sc. 'C' Shri Sanjay Mittal, SRA	Srinagar

Survey Report

River Front Sites & Ganga Nalas in Uttarakhand

INTRODUCTION

The Ministry of Water Resources, River Development and Ganga Rejuvenation, GOI is taking up investigation works towards the objective of clean Ganga. In this regard, the ministry has directed to National Institute of Hydrology, Roorkee for collection and compilation of detailed information regarding rivers and drains discharging in River Ganga within the state of Uttarakhand vide e-mail (Subject: NMCG 118 River Front Points identified) dated 03.12.2014. The purpose of this information is to identify and prepare plan for river front development plan. 15 river front towns have been identified in Uttarakhand. In this regard, Director NIH vide letter no. 15/18/2011-NIH/Dir dated Dec. 04, 2104 constituted 12 groups (Annexure 1) to visit the respective cities and collect the requisite information in the prescribed format.

Further, a communication was received from Shri A. B. Pandya, Chairman, CWC informing tha the team of NIH visited Ganga Nalas earler should visit the sites again and give areport directly to RMCD, CWC, New Delhi about the present condition and any monitoring measures implemented and any new works undertaken on them. Accordingly, Director NIH vide letter no. 15/18/2011-NIH/Dir dated May 18, 2105 directed the concerned official (Annexure 2) to visit the sites and collect the requisite information. The collected information is presented below-

HARIDWAR & RISHIKESH

The team visited the offices of Uttarakhand Peyjal Nigam, Haridwar and Irrigation Division, Haridwar, and had discussions with following officials-

Er. Sunil Kumar, Chief Engineer, Uttarakhand Peyjal Nigam, Haridwar
Er. R. K. Jain, Project Manager, Uttarakhand Peyjal Nigam, Haridwar
Er. Puroshottam, EE, Irrigation Division, Haridwar
Er. Nirdesh Kumar Singh, AE, Irrigation Division, Haridwar

It was informed that the budget for development of following projects for Haridwar has been sanctioned by union ministry and the implementation for the same will start very soon in near future.

1. River front development point - Dakshin Kali Mandir to Chandi Devi Bridge-800 m (Figure 1): 29°58'54"N, 78°12'19"E
2. Sewage treatment plant (40 MLD capacity) at Jagjitpur

In case of Rishikesh, the construction work of STP at Tapovan (Figure 2) has been completed and commissioning of same will be done in near future.

Fig. 1: River Front Development Site (Dakshin Kali Mandir to Chandi Devi Bridge)

Fig. 2: Sewage Treatment Plant at Tapovan, Rishikesh

GOPESHWAR

The team visited various state government offices and had discussions on the developments on river front projects and sewage treatment with following officials-

- Shri Ashok Kumar, DM, Chamoli- Gopeshwar
- Ms. Anisha Jatar, Project Engineer, Ganga Pollution Unit, Gopeshwar
- Shri N.S. Payal, A. E., Uttarakhand Jal Sansthan, Gopeshwar
- Shri S.P. Purhohit, Accountant, Uttarakhand Jal Sansthan, Gopeshwar
- Shri Puran Singh Sanwan, Account office, Nagar Palika Parishad, Gopeshwar

It was informed that work for laying sewer lines is in progress and DPR for four treatment plants of 0.66 MLD, 1.06 MLD, 0.82 MLD and 1.00 MLD capacity has been submitted to NMCG, New Delhi.

RUDRAPRAYAG

The team visited various state govt. offices viz. Uttarakhand Pey Jal Nigam, Uttarakhand Jal Sansthan, and Nagar Palika Parisha. The officials of Construction & Maintenance unit (Ganga), Uttarakhand Peyjal Nigam, Srinagar-Garhwal, informed that no construction work with respect to STP, taping of drains, and river front development has been undertaken after December 2014. However, DPR preparation for sewerage scheme is under progress.

JOSHIMATH

The team visited various state government offices and had discussions on the developments on river front projects and sewage treatment with following officials-

- Shri P. K. Bansal, Executive officer, Nagarpalika, Joshimath
- Shri Bharat Prasad Sati, Civil Supervisor Nagarpalika, Joshimath
- Shri Anoop, Accountant , Nagarpalika, Joshimath
- Shri Daljeet, Junior Clerk, Nagarpalika, Joshimath
- Shri Anoop, Beat officer, Nagarpalika, Joshimath

Shri P. K. Bansal informed that District Magistrate, Gopeshwar has submitted a proposal regarding the river development in Vishnuprayag Ghat to Govt. of Uttarakhand and a review meeting regarding the cleaning of Nallas was held on May 18, 2015. Correspondence in this regard is under progress. No work regarding NMCG has not been initiated till now. However, laying of sewer lines has been initiated by Uttarakhand Jal Sansthan.

UTTARKASHI & BUDKOT

The team visited Uttarakhand Pey Jal Nigam and Uttarakhand Jal Sansthan offices in Uttarkashi, and had discussions on the developments on river front projects and sewage treatment with following officials-

- Shri R. S. Negi, EE, Uttarakhand Jal Sansthan, Utarkashi
- Shri Virendra Singh, AE, Uttarakhand Jal Sansthan, Utarkashi
- Shri Suresh Pal, PM, Construction & Maintenance Unit, UK Peyjal Nigam, Utarkashi
- Shri Suresh Singh, AE, Construction & Maintenance Unit, UK Peyjal Nigam, Utarkashi

From the discussions and site survey, the progress w.r.t. river front sites and pollution abatement work can be summarized as-

- Sewage Pumping Station at Tambakhani in Uttarkashi, which was in non-working condition during last visit, has been got repaired and is in working condition. The sewage of the Uttarkashi town is pumped from Tambakhani pumping station to STP at Gyansu, Uttarkashi, where it is being treated before discharging in Bhagirathi.

- The condition of all other Sewage Pumping Stations e.g. Triloth, Joshiara, Gangori, etc, which were damaged during earlier floods and disasters is unchanged. It has been informed by the concerned officers that a requirement of funds for Rs. 494 lacs has been submitted to Joint Secretary & Mission Director, National Mission of Clean Ganga, MOWF, Govt of India by the Principal Secretary of Uttarakhand on 20.02.2014. A copy of the letter along with its supporting documents is enclosed as Annexure-3. This report could not be received during earlier visit in December 2014 due to non-availability of the concerned officer at that time. It has also been found that no work has been taken up as funds have not been released.

- It has been found that construction of RCC retaining wall to channelize the flow of River Bhagirathi in a stretch of about 30 km between Mansi (13 km upstream of Uttarkashi) to Dunda (15 km d/s of Uttarkashi) (Figure 3).

Fig. 3. River Protection Works of River Bhagirathi in Uttarkashi

The team visited following officials in Budkot and had detailed discussions on the developments on river front projects and sewage treatment projects-

- Shri Atol Singh Rawat, Chairman, Nagar Panchayat, Barkot
- Shri P. D. S. Rawat, AE, Uttarakhand Jal Sansthan, Barkot

During the last visit, the above officers were not available. As a result the information received at that time from the junior officers was submitted. A visit along the course of Yamuna bank was made and no outlet was found. During the present visit, a detailed discussion has been made with the Chairman, Nagar Panchayat. Based on the discussions with the chairman, in partial modification of the earlier report of Barkot, it is to be added that although the sewage is being disposed underground, but there are many hidden underground outlets through which the sewage reaches River Yamuna. Theses outlets are not openly visible.

Shri Rawat also informed that a proposal entitled "Barkot Sewerage Scheme" for Rs. 2978.39 lacs for the disposal of sewage from Barkot town has been prepared by the Uttarakhand Pey Jal Nigam, on the requisition of Chairman Nagar Panchayat, Barkot and the same has already been submitted to the Principal secretary, Urban Development, Govt of Uttarakhand, vide letter no. **105/IV(2)-शा. वि॰-2013-11(सी॰)12**, dated 07.08.2013. A copy of the summary of project report is enclosed as Annexure-4. A map of the Badkot Sewerage Scheme has also been collected and the same is attached as Annexure-5.

GAUCHAR

The team visited the Nagar Palika office, Gauchar. It was informed that Shri Mukesh Negi, chairman, Nagar Palika, Gauchar was on official tour to Dehradun. The matter was discussed with Shri Rajiv Singh Chauhan, J.E. and also a field visit was made to river stretch at Bhatt Nagar near Rano Bridge and Ganga nallahs (Figire 4 & 5). It was informed by Sh. Chauhan that survey has been conducted and proposal is in process for the DPR from consultant. He also informed that availability for various works under National mission for clean Ganga namely multi story parking, sound and light show, bio digestible toilets and electric crematorium have been made available to administration office, Chamoli. It was also communicated that survey for individual and mobile toilets have been also completed.

The team also visited the office of Pey Jal Nigam, Karanprayag and met Sh. Hemant Kumar, JE and discussed on various related issues. Sh. Gyanendra Pratap Singh, Executive Engineer, Gopeshwar was contacted telephonically who informed that preparation of DPR is under process for the works related to sewage treatment and disposal.

Fig. 4. Alaknanda River Stretch for River Front at Gauchar

Fig. 5. Chatwa Peepal Gadhera at Gauchar

DEVPRAYAG

The team visited Mrs. Shubhangi Kotiyal, Chairman, Nagar Panchayat, Devprayag had discussions on the developments on river front projects and sewage treatment, and also surveyed the area-

- Approximately 10 to 12 sewage drains are falling in the Ganga.
- STP is still under construction (Figure 3).
- Some part of the city is not connected with the sewer line.
- No work on river front development has initiated since Dec. 2014 and the left bank of the River Ganga at confluence point can be developed (Figure 4.)

Fig. 6. Sewage Treatment Plant Under Construction at Devprayag

Fig. 7. River Front Development Site on the Left Bank of the River Ganga at Confluence Point

KIRTINAGAR

The team visited following officials and had detailed discussions on the developments on river front projects and sewage treatment projects-

- Shri Vinod Kumar, Executive Officer, Nagar Panchayat, Kirtinagar
- Shri S. N. Singh., A. E., Development and Maintenance Unit (Ganga), Uttarakhand PeyJal Nigam, Srinagar
- Shri Virender Bhatt, A. E., Development and Maintenance Unit (Ganga), Uttarakhand PeyJal Nigam, Srinagar
- Shri Naresh Pal Singh, A. E., Uttarakhand Jal Sansthan, Kirtinagar

Officials of Nagar Panchayat as well as UJS informed that there is no provision for collection as well as treatment of sewage. Most of the individual have adopted the soak pit type traditional sewage disposal system with the overflow goes into open drains. The team along with the local body officers surveyed the two major open drains (in the back portion of the main Bazar and upstream of New Bridge) reaching river bed (Figure 8). JE, UJS informed that approximately 180 m^3/day sewage in generated. Er. S. N. Singh and Er. Virender Bhatt informed that Construction and Maintenance Unit (Ganga) of Uttarakhand Jal Nigam has conducted a preliminary survey for preparation of DPR for the sewer system at Kirtinagar Panchayat.

Uttarakhand Jal Nigam (construction/developmental agency) has planned for a common sewage treatment plant (STP) of 3 MLD capacity for nearby village and Kirtinagar at Jakhani, a nearby

village, about 1km upstream of the city. Not much of the progress has been seen, as only preliminary survey for sewer lines has been done to prepare DPR.

Fig. 8. Open Drain Going in River Alaknanda

In the last visit, one probable location (Dhundgad-prayag ghat site) for river front development has been identified by NIH team and Kirtinagar Panchayat team jointly. In the current visit, the team has noticed that there is a huge possibility for river front development in between the two twin cities, i.e. Kirtinagar-Srinagar. Some of the river bank protection work is under progress in this stretch. The photographs of the sites are displayed in Figure 9.

Fig. 9. Probable Site for River Front Development

Kirtinagar panchayat have a very good mechanism for solid waste disposal. All possible solid waste of city get collected at a trenching ground, where first it got segregated and then compacted by a compactor for safe disposal. It's an Uttarakhand Government initiative. During the visit, it was observed that the panchayat has constructed a garbage bin on the Dhundgad-prayag ghat near to the river bed for collection of bio-degradable and non-biodegradable wastes separately (Figure 10).

Fig. 10. Bio-degradable and Non-biodegradable Garbage Bin

NANDPRAYAG

The team visited Mrs. Kiran Rautela, Chairman, Nagar Panchayat, Nanda Prayag and other officials, and had discussions on the developments on river front projects and sewage treatment. As per Mrs. Rautela, neither they have received any fund nor information on implementation of projects under River Front Development initiatives. However, she had attended one meeting at New Delhi chaired by Sushri Uma Bharti, Cabinet Minister, MoWR, RD&GR on 18th April, 2015.

The team also surveyed the area and found that neither any measuring devices have been installed nor any new works has been started.

BADRINATH

The team visited following officials in Badrinath and Joshimath, and had discussions on the developments on river front projects and sewage treatment projects-

Shri B. S.Molpha, Executive Officer, Nagar Palika, Badrinath
Shri Dilip Pawar, Assistant, Nagar Palika, Badrinath
Shri P. K. Bansal, Executive Officer, Nagar Palika Gandhi Maidan, Joshimath

The Executive officers of Nagar Palika Parishad Joshimath and Badrinath, informed that presently, there is no provision of sewage treatment in the city and the wastewater is directly discharged in the river. Even the wastewater from Badrinath Temple falls in the river near hot water pond without treatment (Figure 11). Uttarakhnad Peyjal Nigam has proposed a 4.3 MLD STP for Badrinath.

Fig. 11. Wastewater from Badrinath Temple falling in the River Alaknanda

KARNPRAYAG

The team visited following officials in Karnprayg and had detailed discussions on the developments on river front projects and sewage treatment projects-

- Shri Vivek Parakesh, SDM, Karnaprayag
- Shri Singh, Executive Engineer, Karnprayag
- ShriHardev Arya, J.E., Uttarakhand Jal Sasthan, Karnaprayag
- Shri Subhash Garola, Chairman, Nagar Panchayat, Karnaprayag

Shri Subhash Garola informed that there was a meeting on April 18-19, 2015 With Ms. Uma Bharti, Hon'ble Minister of Water Resources, River Development & Ganga Reguvenation, regarding *Swach Bharat Mission and Nirmal Ganga*. He further informed that after this meeting a letter was written to Director City Development, Deheradun regarding *Swach Bharat Mission and Nirmal Ganga* (Annexure 6). He also informed that Detailed Project Report (DPR) for this program is under preparation. He said that a Technology park is under construction and presently solid waste material is thrown away outside the city.

Shri Vivek Parakesh informed that DPR for pollution abatement works will be prepared after July 2015. The photographs of different sites were also taken, and shown in Figure 12, 13, & 14.

Fig. 12. Solid Waste Dumping Site

Fig. 13. Technology Park Under Construction

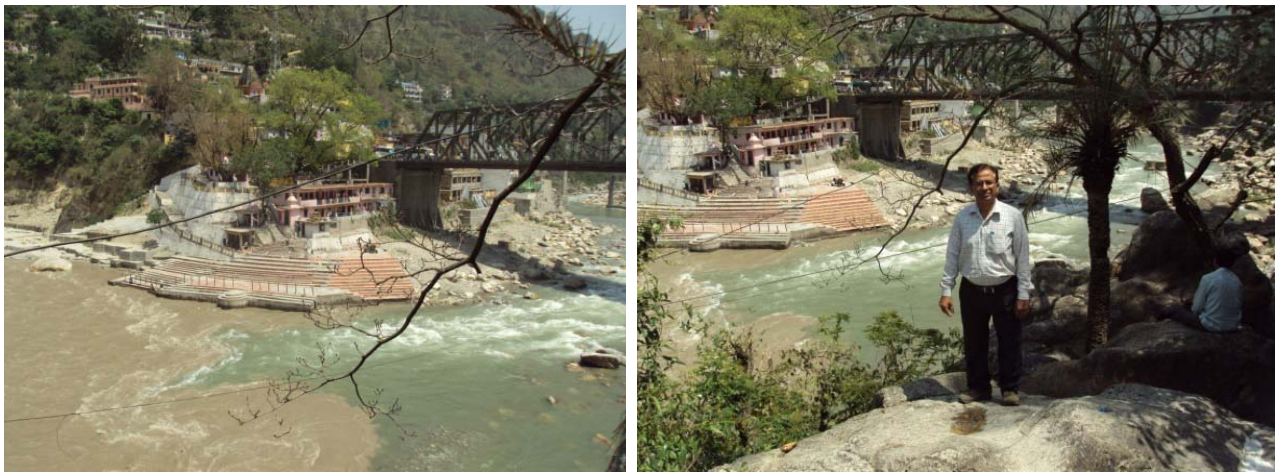


Fig. 14. Location of Alaknanda & Pindar River Confluence

SRINAGAR

The team visited Uttarakhand Pey Jal Nigam and Uttarakhand Jal Sansthan offices and had discussions on the developments of river front and sewage treatment projects. The officials of Uttarakhand Pey Jal Nigam explained that there has been no major construction work with respect to STP or nalla taping has been undertaken after December 2014. It was also informed that the DPR submitted for construction of one additional STP, a pumping station and diversion of nallas and sewer pipeline (Figure 15) has been differed. As per the suggestion, Uttarakhand Pey Jal Nigam will resubmit the DPR separately for nalla taping and sewer pipeline. The existing pumping station and proposed pumping station site are shown in Figure 16 and Figure 17 respectively.

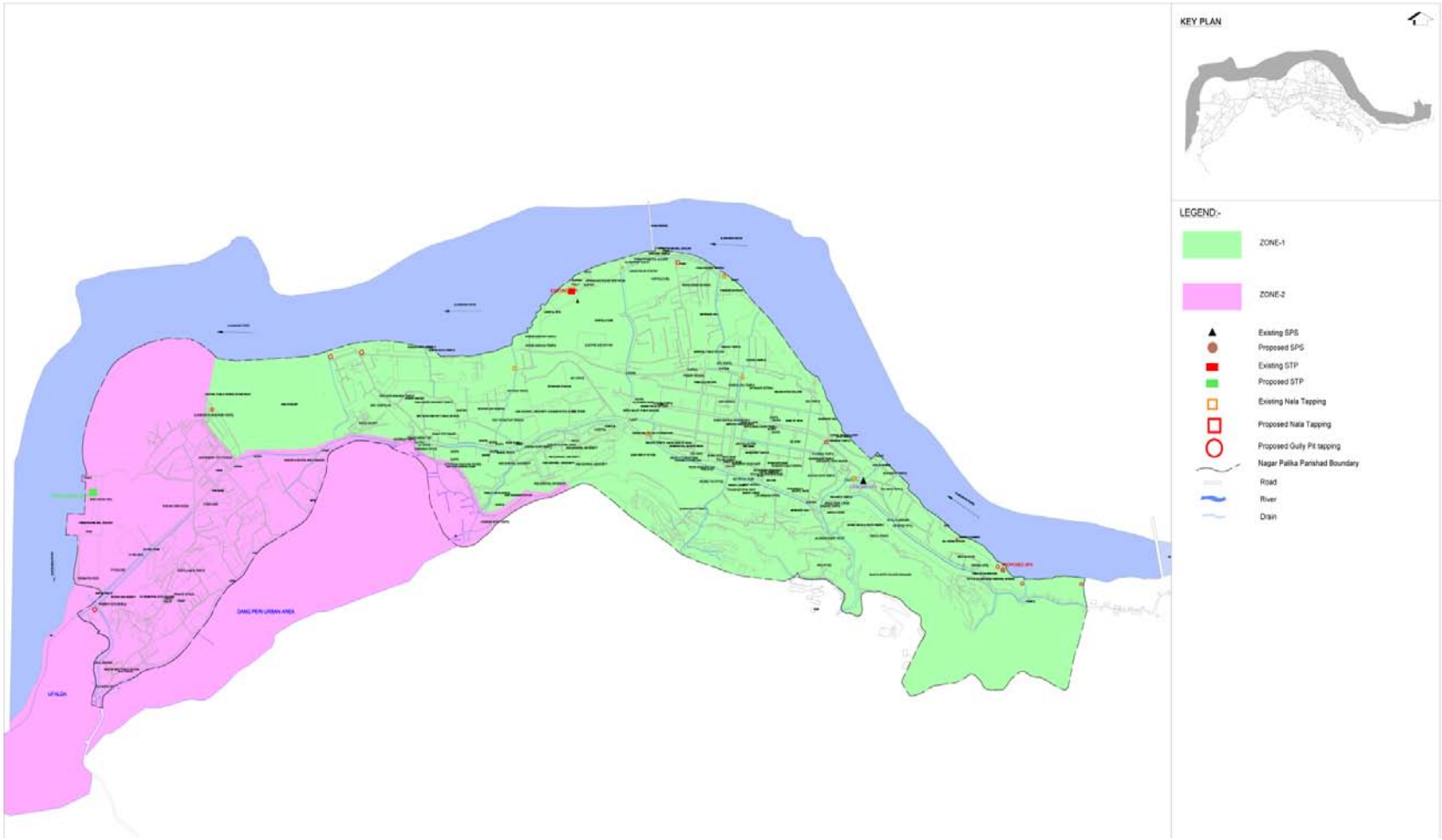


Fig. 15. Plan of Proposed sewerage Zone of Srinagar Municipal Waste Water Scheme

Fig. 16. Existing Pumping Station

Fig. 17. Site for Proposed Pumping Station

Annexure 1

Details of Group Members and Assigned Town(S) for Field Survey in Dec. 2014

Group No.	Group Member	Proposed Place of Visit
1.	Dr. Rajesh Singh, Sc. C Sh. Yatveer Singh, PRA	Haridwar (including BHEL Ranipur) Rishikesh Muni Ki Reti-Dhaluwala Tehri (Tapovan + Rishikesh)
2	Sh. P. K. Garg, Sc. B Sh. Rajeev Gupta, SRA	Gopeshwar
3	Sh. Sumant Kumar, Sc. C Sh. Satyaprakash, Tech.	Rudraprayag
4	Sh. Digambar Singh, Sc. C Sh. R. K. Nema, PRA	Joshimath
5	Sh. P. K. Agarwal, Sc. B Sh. Jatin Malhotra, SRA	Uttarkashi (Budkot)
6	Sh. L. N. Thakural, Sc. C Sh. Omprakash, RA	Gauchar
7	Sh. Rajan Vatsa, Sc. B Sh. Rajesh Agrawal, SRA	Devprayag
8	Sh. Manish Nema, Sc. C Sh. T. R. Sapra, SRA	Kirtinagar
9	Sh. P. K. Mishra, Sc. B Sh. Hukam Singh, PRA	Nandprayag
10	Dr. R. V. Kale, Sc. C Sh. Rocky Khokhar, Tech	Badrinath
11	Sh. Tanveer Ahmad, Sc. B Sh. Yogender Sharma, Tech	Karnprayag
12	Sh. J. P. Patra, Sc. C Sh. Sanjay Mittal, SRA	Srinagar

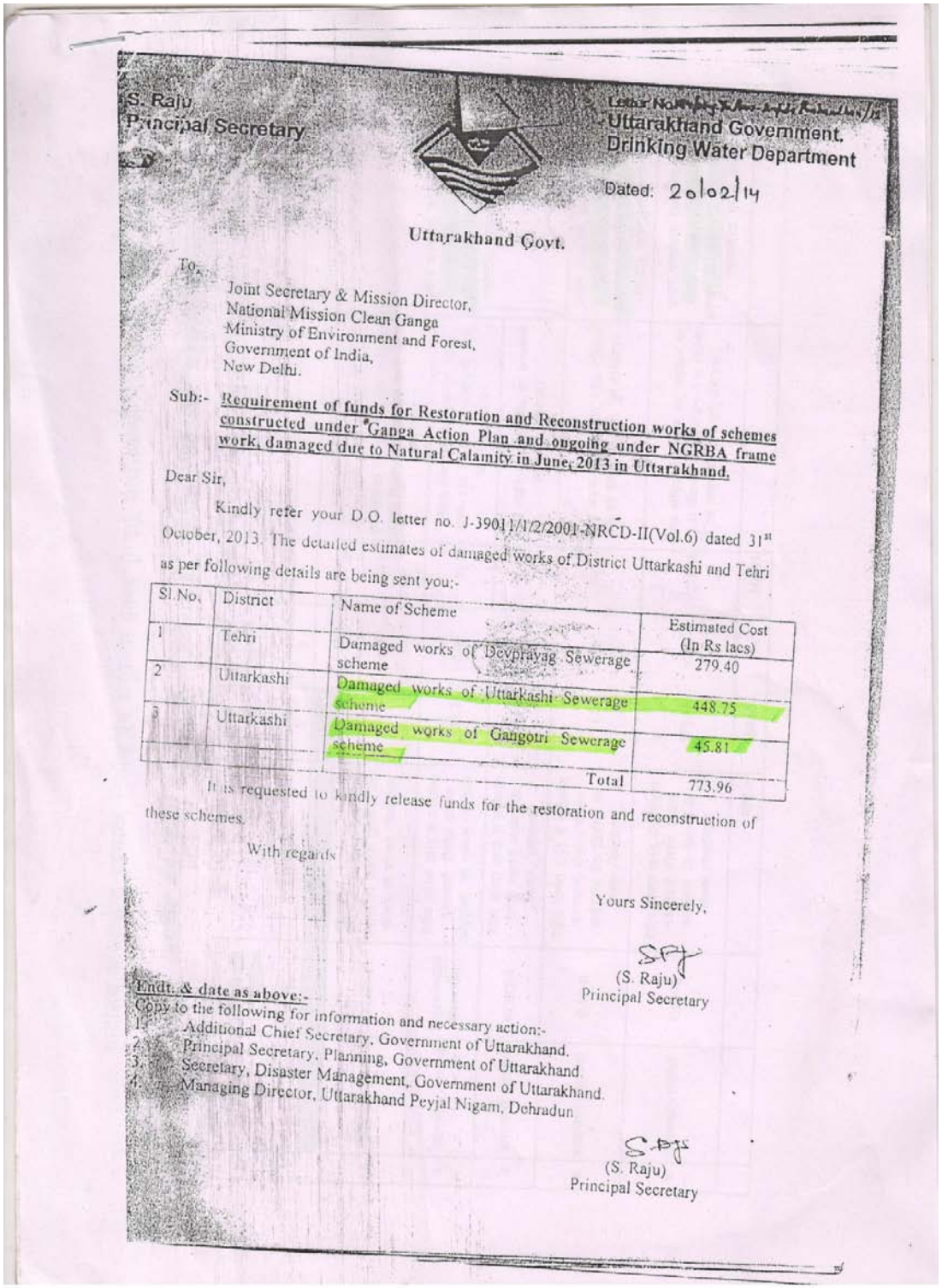
Annexure 2

Details of Group Members and Assigned Town(S) for Field Survey in May 2015

Group No.	Group Member	Proposed Place of Visit
1.	Dr. Rajesh Singh, Sc. C Sh. Yatveer Singh, PRA	Haridwar (including BHEL Ranipur) Rishikesh Muni Ki Reti-Dhaluwala Tehri (Tapovan + Rishikesh)
2	Sh. P. K. Garg, Sc. B Sh. Rajeev Gupta, SRA	Gopeshwar
3	Sh. Sumant Kumar, Sc. C Sh. Satyaprakash, Tech.	Rudraprayag
4	Sh. Digambar Singh, Sc. C Sh. R. K. Nema, PRA	Joshimath
5	Sh. P. K. Agarwal, Sc. B Sh. Jatin Malhotra, SRA	Uttarkashi (Budkot)
6	Sh. L. N. Thakural, Sc. C Sh. Omprakash, RA	Gauchar
7	Sh. V. K. Agarwal, SRA Sh. Rajesh Agrawal, SRA	Devprayag
8	Sh. Manish Kumar Nema, Sc. C Sh. T. R. Sapra, SRA	Kirtinagar
9	Sh. P. K. Mishra, Sc. B Sh. Hukam Singh, PRA	Nandprayag
10	Sh. S. L. Srivastava, SRA Sh. Rocky Khokhar, Tech	Badrinath
11	Sh. Tanveer Ahmad, Sc. B Sh. Yogender Sharma, Tech	Karnprayag
12	Sh. J. P. Patra, Sc. C Sh. Vishal Gupta, SRA	Srinagar

Annexure 3

Copy of Proposal Submitted for Uttarkashi



S. Raju
Principal Secretary

Uttarakhand Government.
Drinking Water Department

Dated: 20/02/14

Uttarakhand Govt.

To,

Joint Secretary & Mission Director,
National Mission Clean Ganga
Ministry of Environment and Forest,
Government of India,
New Delhi.

Sub:- **Requirement of funds for Restoration and Reconstruction works of schemes constructed under Ganga Action Plan and ongoing under NGRBA frame work, damaged due to Natural Calamity in June, 2013 in Uttarakhand.**

Dear Sir,

Kindly refer your D.O. letter no. J-39011/1/2/2001-NRCD-II(Vol.6) dated 31st October, 2013. The detailed estimates of damaged works of District Uttarkashi and Tehri as per following details are being sent you:-

Sl.No.	District	Name of Scheme	Estimated Cost (In Rs lacs)
1	Tehri	Damaged works of Devprayag Sewerage scheme	279.40
2	Uttarkashi	Damaged works of Uttarkashi Sewerage scheme	448.75
3	Uttarkashi	Damaged works of Gangotri Sewerage scheme	45.81
		Total	773.96

It is requested to kindly release funds for the restoration and reconstruction of these schemes.

With regards

Yours Sincerely,

(S. Raju)
Principal Secretary

Endt. & date as above:-

Copy to the following for information and necessary action:-

1. Additional Chief Secretary, Government of Uttarakhand.
2. Principal Secretary, Planning, Government of Uttarakhand.
3. Secretary, Disaster Management, Government of Uttarakhand.
4. Managing Director, Uttarakhand Peyjal Nigam, Dehradun.

(S. Raju)
Principal Secretary

कार्यालय– 2678078
2672404
ई–मेल : upsvnn@gmail.com

उत्तराखण्ड पेयजल संसाधन विकास एवं निर्माण निगम

प्रधान कार्यालय : 11–मोहिनी रोड़, देहरादून

पत्रांक. 2188 /न0यो0अनु0/आपदा प्रबन्धन/4057 दिनांक 9-9-13

सेवा में,

सचिव, (आपदा),
उत्तराखण्ड पेयजल निगम,
देहरादून।

विषयः–दैवीय आपदा से क्षतिग्रस्त उत्तरकाशी/गंगोत्री सीवरेज स्कीम की मरम्मत के प्राक्कलन के सम्बन्ध में।

महोदय,

उपरोक्त विषय दैवीय आपदा से क्षतिग्रस्त निम्न सीवरेज योजनाओं के प्राक्कलन संलग्न कर इस अनुरोध के साथ प्रेषित है कि, प्राक्कलनों पर आवश्यक कार्यवाही करते हुए **प्रशासनिक एंव वित्तीय स्वीकृति** प्रदान करने की कृपा करे।

क्र0सं0	योजना का नाम	अनुमानित लागत रू0 लाख	कार्यक्रम
1	दैवीय आपदा से क्षतिग्रस्त उत्तरकाशी सीवरेज ट्रीटमैन्ट प्लान्ट की मरम्मत ।	105.87	दैवीय आपदा वर्ष (2013–2014) में क्षतिग्रस्त कार्यो की मरम्मत एवं पुर्ननिर्माण।
2	दैवीय आपदा से क्षतिग्रस्त गंगोत्री सीवरेज ट्रीटमैन्ट प्लान्ट की मरम्मत।	51.78	दैवीय आपदा वर्ष (2013–2014) में क्षतिग्रस्त कार्यो की मरम्मत एवं पुर्ननिर्माण।
3	दैवीय आपदा से क्षतिग्रस्त उत्तरकाशी सीवरेज योजना (अनुपुरक) की मरम्मत ।	51.24	दैवीय आपदा वर्ष (2013–2014) में क्षतिग्रस्त कार्यो की मरम्मत एवं पुर्ननिर्माण।

संलग्नकः–उपरोक्तानुसार

भवदीय,

(सुनील कुमार)
मुख्य अभियन्ता(मु0)

मूल में नहीं।

पृ0सं0 एवं दिनांक तदैवः–

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

1. कार्यक्रम निदेशक, राज्य परियोजना प्रबन्धन, उत्तराखण्ड राष्ट्रीय गंगा नदी बेसन प्राधिकरण।
2. जिलाधिकारी, उत्तरकाशी।
3. महाप्रबन्धक, निर्माण मण्डल गंगा, उत्तराखण्ड पेयजल निगम, हरिद्वार।
4. परियोजना प्रबन्धक, निर्माण एवं अनुरक्षण ईकाई (गंगा), उत्तराखण्ड पेयजल निगम उत्तरकाशी।

मुख्य अभियन्ता(मु0)
9/09/13

E:\Saurabh Yojna Anubhag\Deviya aapda\aapda letter 22-06-2013.doc

"जल संचय–जीवन संचय" "कृपया जल स्त्रोतों को प्रदूषित होने से बचाईये।"

उत्तराखण्ड पेयजल संसाधन विकास एवं निर्माण निगम

प्रधान कार्यालयः 11–मोहिनी रोड़, देहरादून

पत्रांक 2147-01 /न0यो0अनु0/आपदा प्रबन्धन/ दिनांक 24/10/13

सेवा में,

सचिव (आपदा),
उत्तराखण्ड शासन
देहरादून।

विषयः <u>दैवीय आपदा से क्षतिग्रस्त उत्तरकाशी सीवरेज योजना (आई0एण्ड0डी0 पार्ट–1) की मरम्मत के प्राक्कलन के संबंध में।</u>

महोदय,

उपरोक्त विषय दैवीय आपदा से क्षतिग्रस्त निम्न सीवरेज योजना का प्राक्कलन संलग्न कर इस अनुरोध के साथ प्रेषित है कि, प्राक्कलन पर आवश्यक कार्यावाही करते हुए प्रशासनिक एवं वित्तीय स्वीकृति प्रदान करने की कृपा करें।

क्र0सं0	योजना का नाम	अनुमानित लागत (रू0 लाख में)	कार्यक्रम
1	दैवीय आपदा से क्षतिग्रस्त उत्तरकाशी सीवरेज योजना (आई0एण्ड0डी0 पार्ट–1) की मरम्मत	278.46	दैवीय आपदा वर्ष (2013–14) में क्षतिग्रस्त कार्यो की मरम्मत एवं पुर्ननिर्माण

<u>संलग्नः– उपरोक्तानुसार</u>

भवदीय

(सुनील कुमार)
मुख्य अभियन्ता (मु0)

मूल में नहीं।
पृ0सं0 एवं दिनांक तदैवः–

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

1 जिलाधिकारी उत्तरकाशी।
2 महाप्रबन्धक, निर्माण मण्डल गंगा, उत्तराखण्ड पेयजल निगम, हरिद्वार।
3 परियोजना प्रबन्धक, निर्माण एवं अनुरक्षण ईकाई (गंगा), उत्तराखण्ड पेयजल निगम उत्तरकाशी।

24/10/13

मुख्य अभियन्ता (मु0)

कार्यालय परियोजना प्रबन्धक, निर्माण एवं अनुरक्षण इकाई (गंगा), उत्तराखण्ड पेयजल निगम, उत्तरकाशी

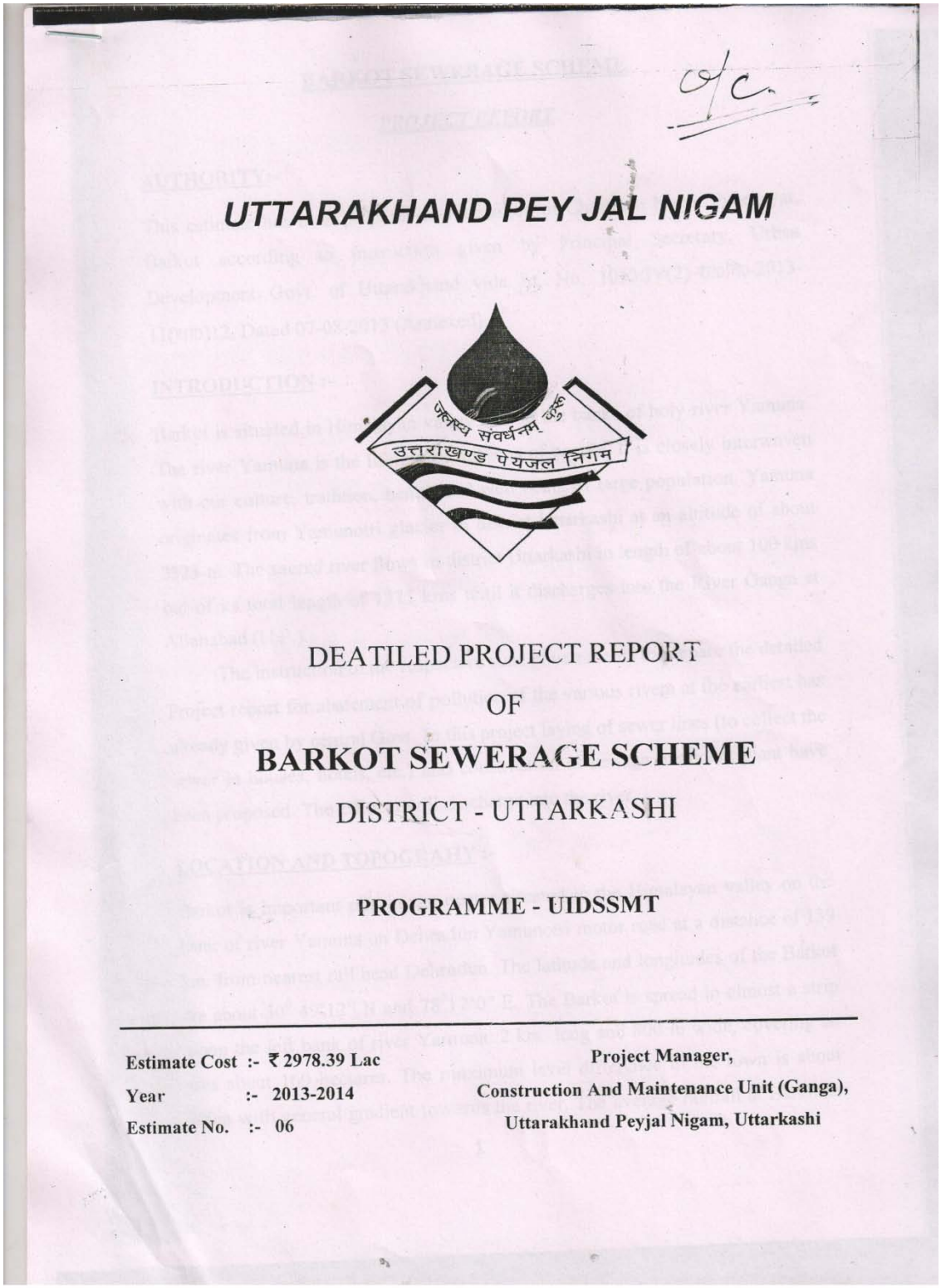
अत्यधिक वर्षा/दैवीय आपदा–2013, से क्षतिग्रस्त हुई विभागीय परिसम्पत्तियों का आंकलन

माह 12/2013

(धनराशि रू0 लाख में)

क्र0स0	जनपद/ब्लॉक का नाम	मूल योजना की स्वीकृति का कार्यक्रम	योजना का नाम	अनु0 लागत	अवमुक्त धनराशि	धन की मांग	अन्य विवरण	टिप्पणी
1	2	3	4	5	6	7	8	9
	निर्माण एवं अनुरक्षण इकाई (गंगा), उत्तरकाशी							
1	उत्तरकाशी/भटवाडी	GAP-II	दैवीय आपदा 2013 से क्षतिग्रस्त उत्तरकाशी सीवरेज ट्रीटमेंन्ट प्लांट योजना की मरम्मत/रेस्टोरेशन	105.87	0.00	105.87	दो नग सैप्टिक टैंक कम अपफ्लो फिल्टर पूर्ण क्षतिग्रस्त एवं एक नग सैप्टिक टैंक कम अपफ्लो फिल्टर एवं तत्सम्बन्धी कार्य, आंशिक क्षतिग्रस्त।	प्रधान कार्यालय, उ0पे0नि0, देहरादून के पत्रांक 2188/न0यो0अनु0/आपदा प्रबन्धन/447 दि0 09.09.13 द्वारा सचिव (आपदा), उत्तराखण्ड शासन को प्रेषित
2	उत्तरकाशी/भटवाडी	Rajya Sector (Sewerage)	दैवीय आपदा 2013 से क्षतिग्रस्त उत्तरकाशी सीवरेज योजना (अनुपूरक) की मरम्मत/रेस्टोरेशन	51.24	0.00	51.24	सीवेज पम्पिंग स्टेशन एक नग, सीवर लाइन–3.20 कि0मी0 एवं तत्सम्बन्धी कार्य, आंशिक क्षतिग्रस्त।	
3	उत्तरकाशी/भटवाडी	NGRBA	दैवीय आपदा 2013 से क्षतिग्रस्त गंगोत्री सीवरेज योजना की मरम्मत/रेस्टोरेशन	51.78	0.00	51.78	सीवर लाइन–0.085 कि0मी0 एवं तत्सम्बन्धी कार्य, पूर्ण क्षतिग्रस्त।	
4	उत्तरकाशी/भटवाडी	GAP-II	दैवीय आपदा 2013 से क्षतिग्रस्त उत्तरकाशी सीवरेज योजना आई0एण्ड डी0 (द्वितीय) की मरम्मत/रेस्टोरेशन	71.57	0.00	71.57	सीवर लाइन–0.40 कि0मी0, नाला टेपिंग–6 नग एवं तत्सम्बन्धी कार्य, पूर्ण क्षतिग्रस्त।	प्रधान कार्यालय, उ0पे0नि0, देहरादून के पत्रांक 2310/न0यो0अनु0/आपदा प्रबन्धन/465 दि0 26.09.13 द्वारा सचिव (आपदा), उत्तराखण्ड शासन को प्रेषित
5	उत्तरकाशी/भटवाडी	GAP-II	दैवीय आपदा 2013 से क्षतिग्रस्त उत्तरकाशी सीवरेज योजना आई0एण्ड डी0 (प्रथम) की मरम्मत/रेस्टोरेशन	278.46	0.00	278.46	सीवेज पम्पिंग स्टेशन एक नग, राइजिंग मेन – 0.41 कि0मी0, सीवर लाइन–0.76 कि0मी0 एवं तत्सम्बन्धी कार्य पूर्ण, क्षतिग्रस्त।	प्रधान कार्यालय, उ0पे0नि0, देहरादून के पत्रांक कैम्प–01/न0यो0अनु0/आपदा प्रबन्धन दि0 24.10.13 द्वारा सचिव (आपदा), उत्तराखण्ड शासन को प्रेषित
			योग :–	558.92		558.92		

Annexure 4



O/C.

UTTARAKHAND PEY JAL NIGAM

उत्तराखण्ड पेयजल निगम

DEATILED PROJECT REPORT

OF

BARKOT SEWERAGE SCHEME

DISTRICT - UTTARKASHI

PROGRAMME - UIDSSMT

Estimate Cost :- ₹ 2978.39 Lac
Year :- 2013-2014
Estimate No. :- 06

Project Manager,
Construction And Maintenance Unit (Ganga),
Uttarakhand Peyjal Nigam, Uttarkashi

C

BARKOT SEWERAGE SCHEME

PROJECT REPORT

AUTHORITY:-

This estimate has been prepared as requisition of Chairman Nagar Panchayat, Barkot according to instruction given by Principal Secretary, Urban Development Govt. of Uttarakhand vide Lt. No. 1053/IV(2)-शा0वि0-2013-11(सा0)12, Dated 07-08-2013 (Annexed).

INTRODUCTION :-

Barkot is situated in Himalayan valley and on the banks of holy river Yamuna. The river Yamuna is the lifeline of millions of people. It is closely interwoven with our culture, tradition, health and well being of large population. Yamuna originates from Yamunotri glacier in district Uttarkashi at an altitude of about 3323 m. The sacred river flows in district Uttarkashi in length of about 100 kms out of its total length of 1375 kms until it discharges into the River Ganga at Allahabad (U.P.)

The instruction to the respective state governments to prepare the detailed Project report for abatement of pollution of the various rivers at the earliest has already given by central Govt. In this project laying of sewer lines (to collect the sewer in houses, hotels, etc.) and construction of sewage treatment plant have been proposed. The effluent will discharge into the river.

LOCATION AND TOPOGRAHY :-

Barkot is important pilgrimage centre situated in the Himalayan valley on the bank of river Yamuna on Dehradun Yamunotri motor road at a distance of 139 km. from nearest rail head Dehradun. The latitude and longitudes of the Barkot are about 30^0 49'12" N and $78^0$12'0" E. The Barkot is spread in almost a strip along the left bank of river Yamuna. 2 km. long and 800 m wide, covering an area about 160 hectares. The maximum level difference in the town is about 100m with general gradient towards the river. The average rainfall at Barkot is

200 cm, where as the temperature usually range between 5^0 to 25^0c. The town is situated at an average altitude of 1828 m.

EXISTING WATER SUPPLY :-

The Project area has piped water supply system the rate of water supply at present is 70 lpcd is being maintained by Uttarakhand Jal Sansthan. It is proposed to augment the water supply of the area to 135 lpcd + 15% unaccounted water i.e. 155.25 lpcd under JnNURM / UIDSSMT.

EXISTING SEWAGE SYSTEM :-

There is no sewerage system in Barkot. Waste water from houses and hotels finds its way into open drains which ultimately polluted the river Yamuna.

NECESSITY OF THE PROJECT :-

The Barkot is an important tourist centre of Uttarkashi district. The tourists visit from all the corner of world to a holy dip in the river Yamuna and Ganga. The Barkot do not have sewerage system. The night soil from Houses, Hotels and Dharamshala dumped into the near by area or finds its way to drains creating unhygienic condition polluting Yamuna river and hurt the sentiments of public. Hence this estimate has been prepared for abatement of pollution of river Yamuna.

POPULATION :-

It is urgently required for abatement of pollution of RIVER YAMUNA AT BARKOT and as well as directions given by pollution control board and Government authorities. The census population figure of Barkot habitations situated on left bank of the river Yamuna is as under.

S. No.	Name of town	Census Population		
		1981	1991	2001
1	2	3	4	5
1-	Barkot	1837	3214	6098

2

The population has been projected by various methods for the base year (2016), tenth year, fifteen year and design year 2016, 2026, 2031 and 2046 respectively are as under. (Details in technical notes).

S. No.	Year	2016	2026	2031	2046
1	2	3	4	5	6
1-	Arithmetical Method	9295	11426	12491	15688
2-	Incremental Increase Method	12121	18019	21533	34337
3-	Geometrical Increase Method	15016	27382	36975	91047

From the above table it is clear that population assessment by arithmetical method is on lower side and geometrical method on higher side. So population forecast by incremental increase method seems to be genuine. Hence the population forecast by incremental increase method has been adopted.

FLOATING POPULATION :-

As intimated by the Regional Tourist Officer, Uttarkashi. vide his letter No.– 237/ Praya Sa/ Yamunotri Dt. 07.03.07.and dated 30.10.2009 The following figures of floating population have been obtained (copy enclosed).

S.No.	Year	Floating Population
1	2	3
1-	2001	54073
2-	2002	54023
3-	2003	78050
4-	2004	103161
5-	2005	169046
6-	2006	203777
7-	2007 (May)	115279
8-	2009	322242

As advised by Divisional Tourist Officer, Uttarkashi, with increased facilities being provided to tourist by Department of Tourism the increase in tourist is likely to be 10% per annum. Approximately 50% of projected floating population tourist visit Yamunotri (Uttarkashi) via Barkot in peak period, from first may to 15th June in which 30% stay in different Ashrams, Hotels and Dhramsalas etc., consume water equivalent to permanent population i.e. 135 lpcd. Rest 70% visitors stay at Barkot about 5-6 hours and

consume water equal to 30% daily demand. Considering the above data the equivalent floating population is calculated and tabulated below:-

Sl. No.	Year	Projected floating population	50% of projected floating population which are visit in peak season i.e. 1st may to 15th June.	Average no. of tourist per day in peak season	30% of column no. 5 which are stay in Ashrams, Hotels, and Dramsalas etc. and consume water @ 135 lpcd	70% of column no. 5 which are stay about 5-6 hours and consume water 30% @ daily demand		Total Eq. floating population in peak season per day.
						No.	Eq. Floating	
1	2	3	4	5	6	7	8	9
1-	2009	322242.00	161121.00	3503.00	1051.00	2452	736	1787

Hence the total permanent and equivalent floating population for the town Barkot is as shown as below :-

Sl. No.	Description	Population				
		2009	Base year 2016	(10 year) 2026	(15 year) 2031	Design year 2046
1	2	3	4	5	6	7
1-	Permanent Population		12121	18019	21533	34337
2-	Equivalent Floating Population	1787	3038	4825	5719	8399
3-	Equivalent Institutional Population	164	279	443	525	771
	Total :-		**15438**	**23287**	**27777**	**43507**

TOTAL QUANTITY OF SEWAGE GENERATED AT BARKOT

Sl. No.	Description	2016 (Base Year)	2026 (10 Year)	2031 (15 Year)	2046 (Design Year)
1-	Population	**15438**	**23287**	**27777**	**43507**
2-	Rate of Water Supply with 15% increase	155.25	155.25	155.25	155.25
3-	Interception factor	0.80	0.80	0.80	0.80
4-	Peak factor	3.00	2.50	2.50	2.50
5-	Average flow in lps	22.19	33.48	39.93	62.54
6-	Peak flow in lps	66.58	83.69	99.82	156.35
7-	Non peak flow in lps	11.10	16.74	19.96	31.27
8-	Qty. of sewer generate in MLD	1.92	2.89	3.45	5.40
	Say	2.00	3.00	3.50	5.50

4

DESIGN CRITERIA :-

The design of project is based on "Manual of Sewer and Sewage Treatment" III edition, year 1993, published by the Ministry of Works and Housing, Government of India and instructions of Chief Engineer, Uttarakhand Peyjal Nigam, Dehradun vide letter no. 37/Design Criteria/ dt. 14.02.03 (Annexed).

DESIGN PERIOD :-

Sewerage System has been designed for 30 years, taking the 2016 as base year and 2046 as design year. STP has been designed for ten year i.e. 2026

DEPTH OF FLOW:-

As suggested in manual of sewerage and sewerage treatment all sewers have been design to run 0.80 full at peak discharge.

VELOCITY OF FLOW:-

Sewers have been design to develop self cleaning velocity of 0.60 m /sec on present peak flow and 0.80 m / sec on ultimate stage. But in initial stage at starting reaches sufficient flow may not be generate to achieve self-cleaning velocity hence flushing has been recommended as per Para 3.4.3.2 of sewerage manual It is recommended that velocity in a sewer should not exceed 3.0 m/sec.

PROPOSALS :-

1. **(i) Laying of Sewers** :-

D.I. class K-7 have been proposed to be used as per site conditions and according to the strength and site condition as required in design. The alignment of sewer proposed is shown in the attached drawing. The details are given below.

Dia of Pipe (in mm)	Length of Pipe in m (Class D.I.-CLASS K7,)
150	4136.00
200	1879.00
250	643.00
300	1553.00
350	1500.00
Total	**9711.00**

(iii) Manhole ;-

Manholes have been provided at every changes of alignment, gradient change of dia meter, at junction of sewer and at places wherever necessary. Sewers are designed at crown meeting crown basis and to maintain the hydraulic flow line. The spacing between the manholes in straight reaches is 30 M upto a dia of 300 mm and 60 to 90 m for above 300 mm to 800 mm dia. Various type of manhole are to be provided to facilitated cleaning and inspection of sewers depending of the depth of sewer.

(a) 0.90 M internal dia, depth up to 1.60 M - 171 Nos
(b) 1.20 M internal dia, depth (1.60 M to 2.30 M) - 140 Nos
(c) 1.50 M internal dia, depth (2.30 M. to 3.00 M) - 49 Nos
(d) 1.50 M internal dia, depth (3.00 M. to 4.50 M) - 48 Nos

(iv) Excavation of Trenches :-

As per clause 15.2 of IS :783-985 trench shall be of sufficient width to provide a free working space on each side of pipe, free working shall be preferably not less than 150 mm and not more than one third of diameter of pipe on either side. Keeping above clause in mind and prevailing practice in Uttarakhand Pey Jal Nigam minimum width at bottom has been taken.

(v) Sewer Connecting Chamber :-

Sewer connecting chamber of size 0.60 M. dia and 1.00 M depth has been provided in between the manhole for connecting house sewer with branches or sewer mains. The depth of sewer connecting chamber will be governed by the invert level, of mains or sub main over which this chamber to be constructed.

(vi) Road Cutting And Reinstatement :-

The road along which sewer is to be laid in most of the reaches in Cement, Concrete and Bituminous. It will be tried to lay sewer on the road side but where the condition will not permit, existing roads will have to be dismantled.

Provision for the reinstatement of the dismantled roads has also been made in this estimate.

2 Sewage Treatment Plant :-

A 3.00 mld capacity based on SBR technology on sewage treatment plant (for 10 year population as per Sewerage & Sewage Treatment Manual) has proposed at the Barkot, district Uttarkashi.

a) Total Sewage Generation

Estimated sewage generation in the various years is tabulated below taking interception factor as 0.80.

Year	Qty. of Sewer Generation in mld
2016	2.00
2026	3.00
2031	3.50
2046	5.50

b) Industrial Effluent

There are no polluting industries in the town at present.

c) Raw Sewage Characteristics

As stated above the Barkot has no sewerage system, Hence the sewerage finds its way through open drain to river Yamuna and polluting it.

For purpose of design the average BOD & suspended solids values have been taken as given below :-

Parameter	mg / l
B.O.D.	150
S.S.	300

d) Treated Effluent Characteristics

As per the UIDSSMT norms the effluent characteristics for discharging into the river and lands are given below:

		For discharge into river	For discharge into land
BOD	:	10 mg / l (Due to Holy river)	100 mg / l
TSS	:	30 mg / l	200 mg / l
Fecal Coli form	:	1000-10000 MPN / 100 ml	1000-10000 MPN / 100 ml

e) Choice of Treatment

The choice of treatment process depends upon the degree of treatment requirement. Other factors that may influence are easy in construction and maintenance benefits that accure from better environmental sanitation location, availability of land and topographical conditions. Considering all the factors as described in technical note. The sequential batch reactor (SBR), technology has been adopted.

SITE DEVELOPMENT, ARBORICULTURE, INTERNAL PATHWAY & ELECTRIFICATION WORKS :-

Necessary provision has been made in this estimate.

3. SPECIAL T.&P. :-

Necessary provision of Rs. 22.70 Lacs has been made in the estimate for sewer cleaning equipment, Zeep etc.

4. STAFF QUARTER :-

Necessary provision of Rs. 66.71 Lacs has been made in the estimate for staff.

5. HIRING OF GODOWN & SITE OFFICE:-

The provision of Rs. 8.46 lacs has been made in this estimate for hiring of godown for the storage of various materials and site office for supervision

8

during the construction of works proposed this estimate for a period of 24 months .

6. **LAND ACUQISITION :-**

The land required for the project is available with ULB. Hence no land acquisition will be required.

SCHEDULE OF RATES :-

The latest rates for materials and labour as approved by General Manager, Ganga Pollution Control Unit, Uttarakhand Peyjal Nigam, Haridwar vide his letter number no. 949/Lekha-6/32, dt. 11.03.10 (Annexed) had been adopted. The rates for Road Cutting has been taken as per Govt. of Uttarakhand letter no. 147(1)III(3)05-10 (Sa) 02 dated 28.06.05 (Annexed).

CENTAGE :-

18.50 % Centage has been proposed in the project according to G.O. No. 346/XXVII(7)/2012 Dt. 20.12.2012. Centage bear by Uttarakhand Govt. (Annexed).

CONCLUSIONS :-

With the above remarks the estimate named as **"BARKOT SEWARAGE SCHEME, DISTRICT UTTARKASHI"** amounting to **Rs. 2978.39 Lacs** is hereby submitted for approval and allotment of funds.

(Rakam Pal Singh)
Project Manager

Annexure 5

Figure Showing Index Plan of Barkot Sewerage System

Annexure 6

सेवा में,

दिनांक 20–04–2015

श्रीमान निदेशक महोदय,
शहरी विकस निदेशालय,
43/06, माता मन्दिर मार्ग,
धर्मपुर, देहरादून।

विषय :– **नमामि गंगे व स्वच्छ भारत मिशन के अन्तर्गत शौचालयों, शवदाहगृह, नालों का ट्रीटमेन्ट एवं वे साइड एमिनटीज के निर्माण हेतु डी0पी0आर0 बनाने के सम्बन्ध में।**

महोदय,

निवेदन इस प्रकार है कि नमामि गंगे तथा स्वच्छ भारत मिशन के अन्तर्गत कर्णप्रयाग नगर पंचायत में निम्न कार्य करवाये जाने है:–

1. दो घाटों पर शवदाह गृह का निर्माण।
2. सीधे नदीं में प्रवाहित 8 नालों के ट्रीटमेन्ट का कार्य।
3. सामुदायिक शौचालयों एवं व्यक्तिगत शौचालयों के निर्माण का कार्य।
4. वे साइड एमिनेटीज के अन्तर्गत बहुउद्देशीय केन्द्र का निर्माण।

अतः महोदय से निवेदन है कि उक्त कार्या की डी0पी0आर0 बनाने हेतु प्रस्ताव स्वीकृत कर अग्र कार्यवाही से अवगत कराने की कृपा करें।

भवदीय,

(सुभाष गैरोला)
अध्यक्ष,
नगर पंचायत, कर्णप्रयाग।