german cooperation
DEUTSCHE ZUSAMMENARBEIT

Implemented by
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

WWF

NAMAMI GANGE

District Ganga Plan
for Udham Singh Nagar

September 2023

As a federally owned enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development.

Imprint

Published by
Deutsche Gesellschaft für Internationale
Zusammenarbeit (GIZ) GmbH

Registered offices
Bonn and Eschborn

Responsible
Martina Burkard

Support to Ganga Rejuvenation (SGR, GIZ India)
Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH
4th Floor, B-5/1, Safdarjung Enclave
New Delhi-110029, India
T +91 11 4949 5353
F +91 11 4949 5391
E Martina.Burkard@giz.de
I www.giz.de/india

Contributions & Supervision
DGC Udham Singh Nagar: Y.K. Pant (DM), Vishal Mishra (CDO), Vaibhav Singh (Former DFO), Himanshu Bagri (DFO), Mridula Singh (UK PJN), DGC members
Adelphi-CTRAN: Ronjon Heim, Bart Hilhorst, Rakesh Kumar, Anika Conrad, Kader Mridha, Nilanjan Saha
GIZ India: Martina Burkard; Merajuddin Ahmad; Anjana Pant; Nikolai Smith
NMCG: S. P. Vashishth (Executive Director Admin); Brijesh Sikka
SPMG: Uday Raj Singh (Former Program Director), Ranvir Singh Chauhan (Program Director), Namita Tripathi, Akshay Kumar
Gender Consultant: P. Nagasayee Malathy

Printed by
Satyam Grafix
New Delhi

Design
Shubhangi Choudhary
Key & Blanc, Bengaluru

Photo credit
GIZ

GIZ is responsible for the content of this publication.

On behalf of the
German Federal Ministry for Economic Cooperation and Development (BMZ)

Maps

The maps printed here are intended only for information purposes and in no way constitute recognition under international law of boundaries and territories. GIZ accepts no responsibility for these maps being entirely up to date, correct or complete. All liability for any damage, direct or indirect, resulting from their use is excluded.

New Delhi, September 2023

In consultation with

adelphi

Approval of SPMG

Office of the Program Director
State Program Management Group
Namami Gange
Dehradun, Uttarakhand

Letter No. 443 */SPMG/Namami Gange/* DGP *Dated:* 14/07/2023

Ganga's purity is our responsibility
Save Ganga, Save Water, Save Life

To,

Director General,
National Mission for Clean Ganga,
New Delhi.

Subject: Sharing of finalized District Ganga Plan Udham Singh Nagar.
Ref.: NMCG letter no. Estt. 01/2016-17/0111/NMCG (Part. I) – Part (1) dated-06.04.2023

Sir,

This is with reference to above regarding the preparation of the District Ganga Plan (DGP) of Udham Singh Nagar being developed by District Ganga Committee (DGC), Udham Singh Nagar together with stakeholders in cooperation with GIZ-SGR under the Indo-German bilateral cooperation project '*Support to Ganga Rejuvenation*'.

2. In this context, District Ganga Plan of Udham Singh Nagar has been finalized following series of consultation with DGC members, District Planning Working Group and GIZ team. The final version of District Ganga Plan has been received at SPMG office by DGC Udham Singh Nagar vide Letter no-3401/30-1, Rudrapur dated 05/06/2023. **(Copy enclosed)**

3. To conclude the DGP preparation, a state level stakeholders consultation meeting of line departments and Member Secretary, DGC, Udham Singh Nagar together with senior officials of GIZ, New Delhi was organized by SPMG on 16.06.2023 to review and finalise the District Ganga Plan, Udham Singh Nagar. The feedback received has been incorporated by GIZ and the DGP is finalized. **(Copy enclosed)**

4. As a next step, the finalized District Ganga Plan of Udham Singh Nagar is being submitted for kind perusal and approval.

Encl.: As above

Yours sincerely,

(Ranvir Singh Chauhan)
Program Director

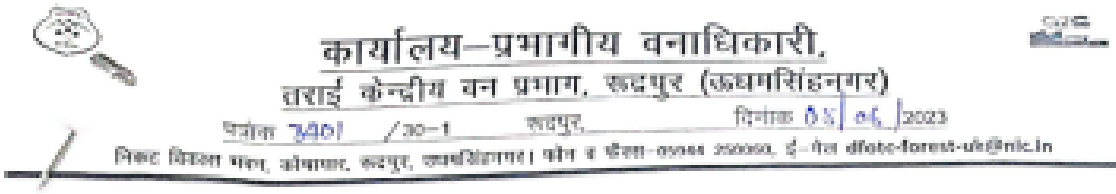
Copy to:

1. Secretary, Drinking Water & Sanitation, GoUK for kind information.
2. Executive Director (Admin), Mission for Clean Ganga, New Delhi.
3. District Magistrate/Chairman District Ganga Committee, Udham Singh Nagar.
4. DFO Tarai Central Rudrapur/Member Secretary, DGC Udham Singh Nagar.
5. Ms. Martina Burkard, Head of Programme, GIZ-SGR, New Delhi.
6. Mr. Meraj Ahmad, Technical Advisor, GIZ-SGR, SPMG Uttarakhand

Program Director

Address: 105(New No.545/941), Rajpur Road, Opp. R.T.O. Office, Dehradun 248001
Office : 0135- 2769932/2763436 : Fax no. 0135-2763434
e-mail: spmgngrba.utk01@gmail.com

Approval of DGC



कार्यालय–प्रभागीय वनाधिकारी,
तराई केन्द्रीय वन प्रभाग, रूद्रपुर (ऊधमसिंहनगर)

पत्रांक 340/ /30–1 रूद्रपुर, दिनांक 05/04/2023

निकट विद्युत गृह, कोषागार, रूद्रपुर, ऊधमसिंहनगर। फोन व फैक्स-05944 252000, ई–मेल dfotc-forest-uk@nic.in

सेवा में,

कार्यक्रम निदेशक,
राज्य परियोजना प्रबन्धन यूप,
नमामि गंगे, देहरादून, उत्तराखण्ड।

विषय :– **Sharing of draft District Ganga Plan with the District Ganga Committee for finalisation.**

सन्दर्भ :– आपका पत्रांक 202 / SPMG / Namami Ganga/DGP, दिनांक 10.04.2023।

महोदय,

उपरोक्त विषयक सन्दर्भित पत्र के द्वारा दिये गये दिशा–निर्देशों के अनुसार जिला गंगा समिति, ऊधमसिंह नगर के द्वारा माह अप्रैल की मासिक बैठक में जिला गंगा प्लॉन के ड्राफ्ट का पुनः अनुश्रवण किया गया एवं संसोधन जी0आई0जे0 द्वारा सम्मिलित किया गया। उक्त के अतिरिक्त माह मई 2023 की बैठक में भी पुनः ड्राफ्ट के सम्बन्ध चर्चा की गयी।

अतः उपरोक्त क्रम में अवगत कराना है कि उक्त जिला गंगा प्लॉन का ड्राफ्ट में अग्रिम कार्यवाही हेतु सूचनार्थ प्रेषित।

भवदीय,

(वैभव कुमार सिंह)
सदस्य सचिव, जिला गंगा समिति / प्रभागीय वनाधिकारी
तराई केन्द्रीय वन प्रभाग, रूद्रपुर

पत्रांक 340/ /उक्तदिनांकित।

प्रतिलिपि– जिलाधिकारी, महोदय, ऊधमसिंहनगर को सादर सूचनार्थ प्रेषित।

प्रतिलिपि– श्री मेराजुद्दीन अहमद, जी0आई0जे0 को सादर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

(वैभव कुमार सिंह)
सदस्य सचिव, जिला गंगा समिति / प्रभागीय वनाधिकारी
तराई केन्द्रीय वन प्रभाग, रूद्रपुर

Contents

Executive summary 1

Section A **Introduction** 2

1. Context 2

1.1 GRBMP and its vision for Ganga and tributaries rejuvenation 2

1.2 Mandate for District Ganga Plan 2

1.3 Past and ongoing work around similar exercises and its linkages with District Ganga Plans 2

1.3.1 Ongoing initiatives in the Ramganga Basin 4

2. Vision and scope 5

3. General approach and methodology 6

Section B **Biophysical and non-biophysical characteristics** 8

4. The water resources of the district 8

4.1 Basin overview 8

4.2 District overview 8

4.3 Topography and drainage network 12

4.4 Climate 13

4.5 River basins 16

4.6 Water quality 21

4.7 Land cover and land use 24

4.8 Protected areas and environmental resources 26

4.9 Socio-economic features 27

5. Institutional arrangement in the district 30

5.1 NMCG, SMCG and DGC 30

5.2 Key stakeholders 33

5.3 Existing policies and programmes at district level 34

Section C **Stock taking and analysis of key issues for this planning cycle** 35

6. Summary of the achievements in the previous planning period 35

7. Prioritised issues & gaps that will be addressed in this management cycle 35

7.1 Situation analysis, and ongoing actions 35

7.2 Selected issues with gap analysis and specific measures 79

Section D Action and monitoring plan and Implementation 92

8. Detailed action plan 92

8.1 Action plan for selected measures and specific targets 92

8.2 Monitoring and evaluation mechanism 120

8.3 Gender sensitive plan for public outreach 130

References 132

List of Footnotes 133

Annexures 137

List of Figures

Figure	1.	Step-wise approach for preparing the DGP	6
	2.	Overview and surrounding of Ramganga basin	9
	3.	Map of Ramganga River Basin showing Udham Singh Nagar[4]	10
	4.	Administrative map with rainfall distribution of district Udham Singh Nagar, Uttarakhand	11
	5.	District Map with infrastructure, Tehsil and ULBs	11
	6.	Topography of Ramganga catchment in district Udham Singh Nagar	12
	7.	Drainage map, Udham Singh Nagar	13
	8.	Rainfall Pattern of District Udham Singh Nagar, a) annual average over last 10 years b) monthly distribution over last 3 years and c) spatial distribution of 10 years average in the district	14
	9.	Evapotranspiration rate of District Udham Singh Nagar, daily average	15
	10.	Route map of 6 rivers sketches upto ganga river[41]	18
	11.	Map of Waterbodies of district Udham Singh Nagar	18
	12.	Hydrogeological Map of District Udham Singh Nagar	19
	13.	Water level in the district of Udham Singh Nagar	20
	14.	Groundwater Resources Map of Udham Singh Nagar District	20
	15.	Maps of surface water and groundwater monitoring stations	21
	16.	Land use and Land Cover map of District Udham Singh Nagar	24
	17.	Map of Waste land of Udham Singh Nagar with statistics	25
	18.	Protected areas of district Udham Singh Nagar, Uttarakhand	26
	19.	Block wise population in Udham Singh Nagar	28
	20.	Socio-economic map of the district Udham Singh Nagar	28

Figure 21. Ecological region map of the ditrict Udham Singh Nagar 29

22. Consulation meeting with SPMG, Dehradun, UK 39

23. Consultation with DGC Udham Singh Nagar on 25th Aug, 22 39

24. Field visit to drains in Rudrapur, USN 40

25. Bio CNG plant in Nagar Nigam Rudrapur, USN 41

26. Polluted stretch of Kalyani river after industrial belt 47

27. Status of Kalyani River prior to industrial belt 47

28. Map of rivers Dhela in the Kashipur area along with industrial drains and locations of GPIs[38] 48

29. Kalyani river site encroachment 59

30. Dump yard at Paharganj 59

31. Area wise land use and land cover area of Udham Singh Nagar, Uttarakhand 62

32. Status of wet and dry flow contributions of different tributires 65

33. Groundwater exploration map in Udham Singh Nagar district, Uttarakhand 71

34. Suitable ARS regions (colors only differenciate the state wise regions)[82] 72

35. Annual groundwater resources of Udham Singh Nagar District 72

36. Groundwater level trend in Udham Singh Nagar district, Uttarakhand[85] 73

37. Aquifer mapping of District Udham Singh Nagar 74

38. Cities with a focus on interventions for domestic sewage 81

39. Locations for placing WQ monitoring stations 83

40. ULBs in which source segregation is to be improved 85

41. Reservoirs for desilting and Blocks in which farm ponds should be renovated and/or constructed 87

42. Areas of river encroachment to focus on 89

Figure 43. Steps in the capacity building process 91

44. Five steps for Gender outreach Action 130

45. Treatment systems considered to be suitable for decentralised wastewater Treatment Systems 191

46. Schematic Diagram of Different types of constructed wetlands: (a) Vertical Flow constructed wetland; (b) horizontal flow constructed wetland; and (c) hybrid flow constructed wetland. VF, Vertical flow. 193

47. Schematic Diagram of Soil Bio-technology 194

48. Conceptual Diagram of Root Zone Treatment system 195

List of Tables

Table	1.	List of Surface Water Monitoring Stations[13]	22
	2.	List of Groundwater Monitoring Stations[13]	22
	3.	Water quality parameters for surface water and Groundwater (quality range measured in Udham Sing Nagar	23
	4.	Population data and information of U.S. Nagar district	27
	5.	Existing policies and programs at district level	34
	6.	Template for stock taking	35
	7.	River polluted stretches in Udham Singh Nagar	37
	8.	Identification of sources of pollution in the polluted stretches	38
	9.	Status of drains connected to rivers	42
	10.	Identification of sources of pollution in the polluted stretches	46
	11.	Surface water characteristics in rivers of Udham Singh Nagar	50
	12.	Status of waste generation and processed in Udham Singh Nagar	53
	13.	Status of Waste Management System in District Udham Singh Nagar	55
	14.	Status of groundwater availability of district Udham Singh Nagar	64
	15.	Status of reservoirs	66
	16.	Total Storage in MCM	68
	17.	Category of groundwater development	69
	18.	Status of groundwater availability of district Udham Singh Nagar	70
	19.	Total water demand of udham singh Nagar District, Uttarakhand	74
	20.	Irrigated Area of Udham Singh Nagar, Uttarakhand	76

List Of Annexures

Annexure	1.	Action Plan for Rejuvenation of River Kosi, 2019; p. 4	137
	2.	Action Plan for Rejuvenation of River Kosi, 2019; p. 4	138
	3.	Action Plan for Rejuvenation of River Dhela, 2019; p. 5, 19	139
	4.	Action Plan for Rejuvenation of River Kalyani, 2019: p.5	141
	5.	Action Plan for Rejuvenation of River Kalyani, 2019: p.17-21	142
	6.	Draft Action Plan for Rejuvenation of River Pilakhar, 2019; p. 18-26	153
	7.	Draft Action Plan for Rejuvenation of River Bhela, 2019; p. 5, p.20	166
	8.	Draft Action Plan for Rejuvenation of River Bhela, 2019; p7-8	167
	9.	Draft Action Plan for Rejuvenation of River Kichha/Gaula, 2019; p. 18	168
	10.	District Environment Plan, Udham Singh Nagar, 2019 ; p.44-45	169
	11.	District Environment Plan, Udham Singh Nagar, 2019 ; p.60-61	172
	12.	Action Plan for Rejuvenation of River Kosi, 2019: p.16, River	174
	13.	Action plan for Rejuvenation of Dhela 2019: p.19, Bhela 2019:p.20, River Kicha 2019; p.18, River Pilakhar; p.18	175
	14.	Action Plan for Rejuvenation of River Kalyani, 2019; p.22, River Nandhor 2019 p. 2,22, River Pilakhar; p.6, River Kicha 2019; p.6, River Dhela 2019; p.5	189
	15.	Action Plan for Rejuvenation of River Kalyani, 2019; p.17-21, River Nandhor 2019 p. 17-21	181
	16.	Action Plan for Rejuvenation of River Kosi, 2019; p.7, River Kalyani 2019; p. 4, River Kichha/Gaula 2019; p. 5)	187
	17.	Encoarcher list of Baigul,Rudrapur collected from Nagar Nigam (PDF double click to access all 9 pages)	189
	18.	Review of Natural Based WasteWater Treatement technology	190
	19.	Letter from NMCG for DGP preparation	196
	20.	Drains details river Kalyani, Rudrapur	198

Abbrevations

AMRUT	Atal Mission for Rejuvenation and Urban Transformation
BOD	Biochemical Oxygen Demand
CETP	Common Effluent Treatment Plant
CGWA	Central Ground Water Authority
CGWB	Central Ground Water Board
COB	Chemical Oxygen Demand
CWC	Central Water Commission
DEP	District Environment Plan
DEWATS	Decentralised Water Treatmend System
DGC	District Ganga Committee
DGP	District Ganga Plan
DIP	District Irrigation Plan
DoWR	Department of Water Resources
ETP	Effluent Treatment Plant
FSSM	Faecal Sludge and Septage Management
FSTP	Faecal Sludge Treatment Plant
FY	Financial Year
GIZ	Gesellschaft für Internationale Zusammenarbeit
GPI	Grossly Polluting Industry
GRBMP	Ganga River Basin Management Plan
GW	Groundwater
IEC	Information Education Communication
IIE	Integrated Industrial Estate
KLD	Thousand Litres per Day
LPCD w/s	Litres Per Capity per Day water supply
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MLD	Million Litres per Day
MOJS, DWS	Ministry of Jal Shakti, Department of Water Resources, River Development & Ganga Rejuvenation
MoHUA	Ministry of Housing and Urban Affairs
MLD	Municipal Solid Waste
NIUA	National Institute of Urban Affairs
NHP	National Hydrology Project
NMCG	National Mission for Clean Ganga
NPP	Nagar Palika Parishad
NN	Nagar Nagam
NWA	National Water Academy
NWP	National Water Policy
NWM	National Water Mission
ODF	Open Defecation Free
PCB	Pollution Control Board
PMKSY	Pradhan Mantri Krishi Sichai Yojna
QA/QC	Quality Assurance and Quality Control
RBM	River Basin Management
RCA	River City Alliance
RD & GR	River Development and Ganga Rejuvenation

Abbrevations

RTRWH	Roof Top Rainwater Harvesting
RWA	Resident Welfare Associations
SAAP	State Annual Action Plans
SBT	Soil Bio-Technology
SIDCUL	State Industrial Development Corporation of Uttarakhand
SMCG	State Mission for Clean Ganga
SPCB	State Pollution Control Board
SPMG	State Program Management Group
STP	Sewage Treatment Plant
SWM	Solid Waste Management
UKPJN	Uttarakhand Pey Jal Nigam
UKPCB	Uttarakhand Pollution Control Board
ULB	Urban Local Body
USAC	Uttarakhand Space Application Centre
URMP	Urban River Management Plan
USN	Udham Singh Nagar
WII	Wildlife Institute of India
UOCB	Uttarakhand Organic Commodity Board
WASCA	Water Security and Climate Adaptation in Rural areas
WWF	Worldwide Fund for Nature

Executive summary

The District Ganga Plan for Udham Singh Nagar has been developed in a joint effort with the members of the District Ganga Committee Udham Singh Nagar, NMCG, SPMG and GIZ experts. The scope of this plan is to provide an assessment of the current issues related to the rejuvenation and protection of the part of the catchment area of the Ganga in this district and to come up with interventions, specific targets and an action plan for addressing these.

The elaborated actions have the objective of addressing the identified key water management issues (KWMIs) within a five-year River Basin Management (RBM) cycle. They aim to improve sanitation and reducing pollution from domestic sewage, improving liquid waste management and reducing untreated industrial effluents entering the rivers, improving solid waste management, increasing water storage capacities, protecting floodplains and addressing encroachment as well as developing capacities for effective river protection and rejuvenation, and improving the livelihood situation in synergy with the Arth Ganga concept.

Suggested measures include actions to address the main issues and gaps for the 6 identified KWMIs. Major cities where interventions are required for improving the situation of domestic sewage and septage are Kashipur and Rudrapur. Water Quality Monitoring is to be improved in Kashipur and Pantnagar. Cities in which source segregation is to be improved are Jaspur, Mahua, Kashipur, Rudrapur, Kichha and Khatima. To address water storage issues, Jaspur, Kashipur, Gadarpur and Rudrapur are identified as those blocks which have the highest potential for the establishment of groundwater recharging structures, while the Dhora, Baigul, Nanak Sagar, Baur, Haripura and Tomaria reservoirs could be desilted to increase water storage capacity. River encroachment needs to be addressed at Dhela and Baigul rivers. In order to enhance the capacity to implement the measures in this DGP, the establishment of a dedicated support cell/secretariat is planned. Training should also be provided to district authorities on river rejuvenation, RBM cycle and operation, maintenance and monitoring of Sewage Treatment Plants (STPs) and Common Effluent Treatment Plants (CETPs).

Upon approval of this DGP, the first implementation period will begin in 2023, which will be monitored and evaluated as implementation progresses, and will then lead to a concrete action plan for the next planning cycle beginning in 2027. For this, new KWMIs will then be selected and new interventions and specific targets will be developed. The members of the DGC are committed to implement the action plan of this DGP in the first planning cycle and look into developing a healthy river catchment area which provides the basis for a prospering society and sustainable economy in the district.

A Introduction

Section

1 Context

1.1 GRBMP and its vision for Ganga and tributaries rejuvenation

The Ganga River Basin Management Plan (GRBMP) has the vision of "Restoration of Wholesomeness" of rivers in the Ganga Basin. Its main missions are related to Aviral and Nirmal Dhara – ecological health and basin governance lay the framework for the activities for each of the Ganga tributaries when looking into the rejuvenation, protection and management of the rivers. Important activities, to contribute to the overall vision on the basin level, are to be implemented at local scale in the districts. While the vision for the District Ganga Plan would focus on river rejuvenation at the district level, goals, objectives, and outcomes for each river may vary, though collectively they contribute to the unified vision.

1.2 Mandate for District Ganga Plan

As per the Authority Notification of 2016, each district in the Ganga basin is to prepare a periodic District Ganga Plan (DGP). The plans cover the reaches of the Ganga River, its tributaries, and the associated riverine zone within each district. The plan shall include the activities to be undertaken by the District Ganga Committee (DGC) for protection, control, and abatement of environmental pollution in River Ganga and its tributaries, and their riverbed area abutting the specified district. MNMCG has further directed the DGCs to prepare the DGP in the selected districts (see annex 19).

1.3 Past and ongoing work around similar exercises and its linkages with District Ganga Plans

Efforts to clean the Ganga date back over 30 years. In 2014, the Government of India launched the ambitious 'Namami Ganga Programme' as an integrated conservation mission to achieve the goal of effective pollution control, conservation and rejuvenation of the Ganga. The National Mission for Clean Ganga (NMCG) was established as the nodal agency for the implementation of this programme. Initially, the focus was on cleaning the mainstem of the Ganga, but since many tributaries are also heavily polluted, the approach has been now expanded to the entire Ganga basin. Under this flagship, several programmes have already been implemented and plans and guidelines developed. When developing DGPs, synergies with these programmes should be sought and used to avoid duplication and needless effort.

The DGPs (cycle: 2022-2027) need to align with the sub-basin (Ramganga Basin) management plan and with the overall GRBMP, developed by NMCG through a consortium of seven IITs. While all the aspects of the GRBMP, may or may not have direct bearing on the District Ganga Planning exercise; however, the basic principles, of Aviral Dhara (uninterrupted flows) and Nirmal Dhara (unpolluted flows) must remain the central theme of the DGP as well.

A lot of work has been done in the Ganga Basin, and this chapter cannot give a comprehensive overview. Therefore, only selected activities are mentioned which were directly related to the development of this DGP.

Action plans for the rejuvenation of tributaries

The Namami Gange Programme, an integrated conservation mission by the Union Government of India with a budget of 20,000 crores, aims to combat pollution, and increase conservation and rejuvenation of National River Ganga. The various achievements under Namami Gange Programme include sewerage treatment capacity development, creation of river front developments, river surface cleaning, biodiversity conservation, afforestation, industrial effluent monitoring, Ganga Gram, public awareness through events, workshops, seminars, conferences and numerous IEC activities for public outreach and community mobilsation.

The Worldwide Fund for Nature Inc India (WWF) has created a Programme named Ganga/ Ramganga Mitra Programme to preserve Ganga and its main tributary the Ramganga. The Ramganga Mitras translates into Friends of Ramganga, is a strong volunteer group of more than 4000 people, a platform where debates are organised to design initiatives to mitigate water risks of the rivers. The initiatives covered various aspects like promoting the use of organic fertilizers, reducing the dependency on various harmful chemical pesticides, promoting organic farming, best management practices on sustainable agriculture, aiming to reduce the pollution load on the rivers.

Urban River Management Framework

The National Mission for Clean Ganga (NMCG) and the National Institute of Urban Affairs (NIUA) have drafted an Urban River Management Plan (URMP) Framework for all Ganga towns which is in line with the "Vision Ganga" published by NMCG in 2017. The main goal of this framework is to help the cities along the Ganga improving the condition of the river in their section. The URMP Framework is a planning framework created to assist the cities along the Ganga River in organising interventions systematically and comprehensively in order to revitalise and sustainably maintain the rivers in their territories. Its main goal is to help the Ganga towns improve the condition of the river in their section. It is ingrained in the fundamental notion that improving the livability of the towns requires preserving healthy rivers in the Ganga towns.

The plan for each city shall include the following three components in accordance with the URMP's design philosophy:

1. Environment (corresponding to the environmentally responsible trait of the philosophy)
2. Financial (corresponding to the economically beneficial trait of the philosophy)
3. Social (corresponding to the socially inclusive trait of the philosophy)

Other district level plans

There are several other existing plans on the district level which contribute to the rejuvenation and protection of the rivers in the district. **The District Environment Plan** with a focus on conservation of environment and natural resources includes the assessment, mitigation and monitoring of adverse impacts of various pollution sources at district level. **District Irrigation Plans** focus on efficient storage and allocation of the available water resources. The recently (2018 and 2019) drafted PCB Action Plans for the major rivers in the district include action plans for pollution abatement. This **DGP has been developed in line with these** plans and partially builds on information collected (in chapter 7) and actions suggested (in chapter 8) from them. The selected information has been sorted according to the key issues identified for this DGP.

1.3.1 Ongoing initiatives in the Ramganga Basin

Development of Ramganga RBM Plan

To promote the application of the RBM cycle in India and to familiarise the project partners with the approach, a modular training concept on the RBM cycle has been developed and pilot trainings for around 100 national and state level participants have been implemented in 2020. Building upon the above achievements, GIZ in cooperation with NMCG is working towards adopting the RBM cycle approach to develop a River Basin Management Plan (RBM Plan) for the Ramganga river basin.

The following five KWMIs have been identified and agreed upon through series of stakeholders' consultations in Ramganga basin:

- Water quality deterioration at point source
- Water quality deterioration due to non-point sources including agriculture activity
- Alteration in river hydrology and water quantity
- Alteration in groundwater regime impacting on sub-surface flow
- Flood risk including encroachment and sand mining

Ramganga Plan by WWF India

WWF India has drafted the Ramganga RBM plan in consistence with the Ganga RBM plan 2015 for the next 20 years for the development, management and conservation of the Ramganga river basin. The Ramganga RMB plan is built upon two traditional concepts, i.e. Aviral dhara and Nirmal dhara. This plan has mainly four goals and objectives:

- River and basin ecosystem health: physical condition of the river ecosystem itself.
- Social, economic, and cultural benefits: the extent to which the basin provides benefits to society.
- Basin governance and stakeholder practices: the way the basin is being managed and the activities of stakeholders with the basins and

- Disaster and risk management: these goals and objectives relate to reducing the risk, frequency, and severity of disasters (notably floods and droughts)

District Ganga Plan Framework

The approach and methodology adopted in preparing this District Ganga Plan has been incorporated in a practical handbook tailored to the DGCs translating river rejuvenation issues and needs at district level into strategic action plans.

2 Vision and scope

The vision for the district Udham Singh Nagar is to address the primary issues with respect to the protection, control, and abatement of environmental pollution in River Ganga and its tributaries and to prioritise the key water management issues (KWMIs) relevant to the district and identify the gaps. It also aspires to list the ongoing programmes and schemes addressing the identified issues. All these concerns are to be dealt with in the first RBM cycle (2022-2027) in the district with a gender inclusive approach.

The scope of the elaborated potential interventions, the specific targets and the actions derived from these is to address the gaps assessed for the 6 identified KWMIs. These look into improving sanitation and reducing pollution from domestic sewage, improving liquid waste management and reducing untreated industrial effluents entering the rivers, improving solid waste management, increasing water storage capacities, protecting floodplains and addressing encroachment as well as developing capacities for effective river protection, rejuvenation and improving the livelihood situation in line with the Arth Ganga programme.

Arth Ganga, being a key aspect where the NMCG is engaged in, aligns with many of the tasks under Ganga rejuvenation. Thus, the District Ganga Plan considers various elements of Arth Ganga. In addition to that, there may be other proposed interventions in the states to rejuvenate several smaller streams at district or inter-district level, which can be dovetailed into District Ganga Plan.

3 General approach and methodology

The RBM cycle is a spiral process, where each cycle of the spiral comprises of several steps. Ganga rejuvenation is a collective and continuing responsibility. Developing the District Ganga Plans (DGP), therefore is understood as a spiral process, in which plans are made and implemented, new information is reviewed, feedback is received, priorities are modified and refined, and plans are adapted to changed circumstances. The cycle will be repeated after five to six years. Figure 1 shows the development process of the different chapters of the DGP along the District Ganga Planning cycle.

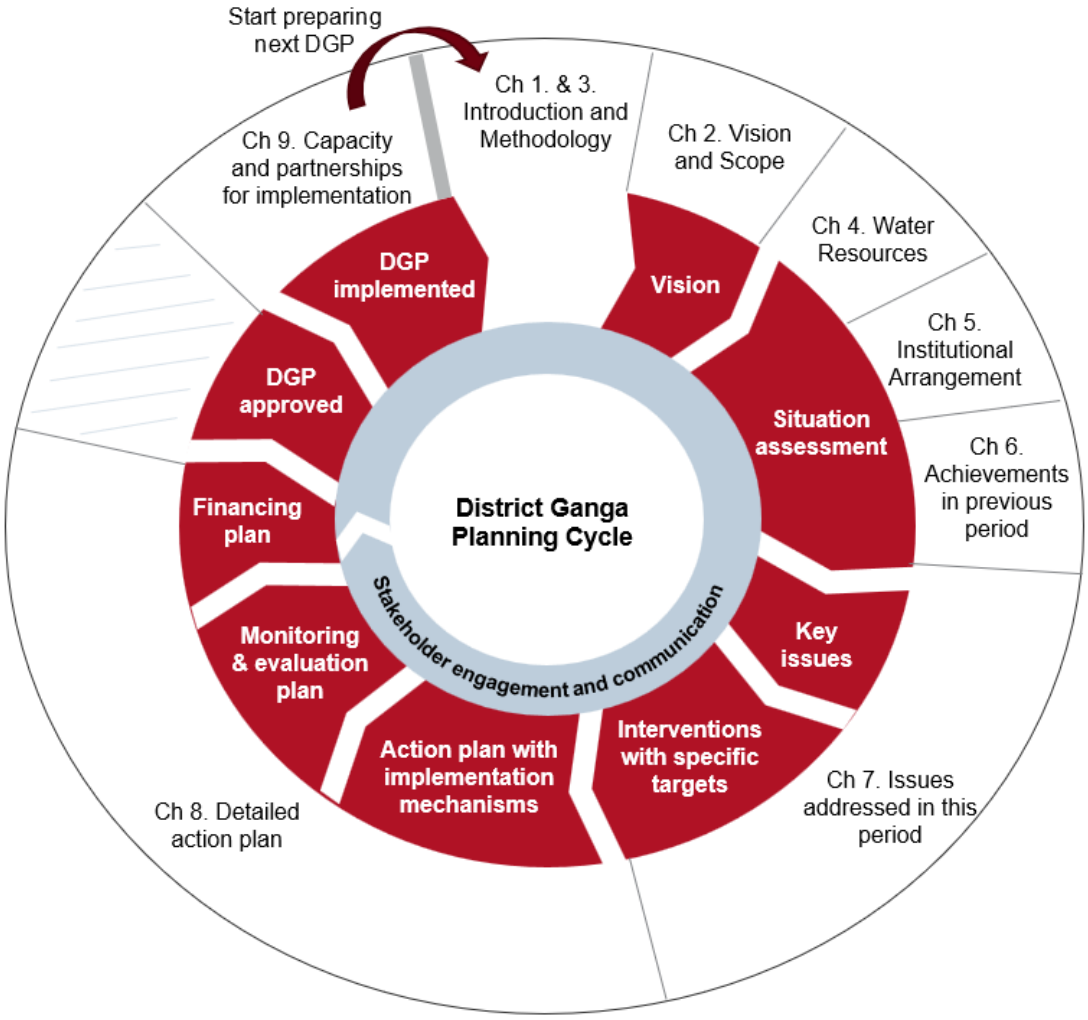


Figure 1. Step-wise approach for preparing the DGP

This approach should lead to a DGP that is not just structured uniformly, but also concise and specific to the district. It involves a comprehensive conceptual understanding of the issues pertaining to Ganga and its tributaries, but not necessarily on an accurate numerical analysis. The relevant river protection and rejuvenation issues are identified through a consultative process and a series of interviews with key stakeholders and decision makers rather than through an independent scientific study. The DGP, in this management cycle, will address only a limited number of key water issues. Other identified water resources issues will be addressed in one of the next planning cycles.

District Ganga Plan Handbook

A handbook on the process to be adopted for the preparation of DGP, content and framework of DGP was drafted in consultation with the NMCG and other central and state level nodal agencies. Lessons learned, experience gathered, and challenges faced in drafting pilot DGPs are also addressed in the handbook document. A specially tailored approach and methodology given in the practical handbook was adopted for the preparation of this DGP. For preparing the DGP for a management cycle, the cycle can be further split into a series of key steps:

Step

1. Develop a vision
2. Prepare a baseline report and description of the water resources in the district
3. Map the institutional arrangements and relevant stakeholders
4. Implement a stock tacking exercise
5. Identify the key issues (4-6) that will be addressed in this management cycle
6. For each selected key issue, prepare an analysis and define the specific targets
7. For each specific target, prepare an action plan including budget estimations
8. Develop a monitoring and evaluation plan
9. Specify a funding source for each proposed intervention
10. Finalise the draft District Ganga Plan
11. Submit the draft District Ganga Plan for review from the relevant authorities and stakeholders; adapt DGP as needed
12. Submit the District Ganga Plan for approval by the SMCG
13. Implement DGP

The detailed methodology for each of the above steps is described in the **DGP handbook.** DGPs are not developed in isolation but are integrated in several plans at different levels, which sometimes overlap. For instance, the DGPs need to align to national and state policies and adhere to the objectives and directions set in higher-level plans such as a (sub) River Basin Management Plan. The DGPs should also consider the (sometimes complex) transboundary dimension.

It should further be noted that the information used for the DGP is compiled from existing secondary sources (references are given) including consultations with stakeholders. The DGP also adopts a gender sensitive approach. Women form about 50 percent of the population and therefore, it is important that the plan ensures their needs, ideas and involvement. Tools like surveys, focus group discussions, consultations and dialogues should be made use of to ensure an inclusive process where their voices are heard

Section B Biophysical And Non-Biophysical Characteristics

4 The water resources of the district

4.1 Basin overview

The river Ramganga originates from the Doodhatoli ranges in the district of Pauri Garhwal, Uttarakhand. It rises at an altitude of about 3,100 m in the lower Himalayas near the Lohba village in the Garhwal district of Uttaranchal. It is the first major tributary that joins the Ganga on its left bank near Kannauj in Fatehgarh district. The total length of the river is 596 km with a catchment area of 32,493 km^2. The Ramganga flows from Almora and Pauri district in Uttarakhand and Kalagarh, Bijnore, Moradabad, Rampur, Bareilly, Shahjahanpur in Uttar Pradesh. Khoh, Gagan, Aril, Kosi and Deoha (Garra) are its major tributaries and the Kalagarh dam (embankment dam) is situated in this basin.

The complete Ramganga basin lies between East longitudes 78°16'23" and 80°07'35" and North latitudes of 27°07'03" and 30°06'37" in Uttarakhand and Uttar Pradesh. The portion of Ramganga basin falling in Uttar Pradesh lies between East longitudes 78°16'23" and 80°07'35" and North latitudes of 27°07'3" and 29°45'56", covering an area of 20,416.66 km^2 in Uttar Pradesh. It borders the basin of the main stem of the Ganga to the West and South-West, the Gomti Basin to the North-East to South-East, while the Ghaghra basin slightly touches it in the upper North- East. There are six sub-basins defined in Ramganga basin, namely Upper Ramganga, draining an area of 4,317.36 km^2 (21.15%), Kosi (1,023.51 km^2; 5.01%), Bhakra (2,081.27 km^2; 10.19%), Lower Ramganga (5,085.06 km^2; 24.91%), Aril (2,240.11 km^2; 10.97%) and Garra (5,669.34 km^2; 27.77%), within Uttar Pradesh. The basin covers 12 districts (3 fully and 9 partially) and 82 blocks (49 fully and 33 partially) of Uttar Pradesh. The Ramganga River, which drains through the highlands of Chamouli, Uttarakhand and debouches into the plains of Uttar Pradesh, is one of the major tributaries of the Ganga. The rivers Kho, Dhela, Kosi, West and East Baigul, Garra and Ramganga along with other tributaries originating in Uttarakhand state used to bring high floods in Bijnor, J.P. Nagar, Moradabad, Rampur, Bareilly, Shahjahanpur and Hardoi district.

4.2 District overview

Udham Singh Nagar district falls in the Tarai region of Kumaon Divison. Prior to its formation, it was part of district Nainital. It was separated on the basis of physiographical conditions, i.e., Tarai. Udham Singh Nagar is the food bowl of Uttarakhand State, being famous for its agriculture and irrigation following synchronous patterns from the past, known throughout the state of Uttarakhand for its productivity in rice cultivation. Due to its favourable geographical location, the district is also well known for industrial activities. The geographical area of the district is 3055 km2 and in aerially it ranks 9th in Uttarakhand state. It is located between latitude 28° 53' N and 29° 23' N and laterally extends between longitudes 78° 45' E and 80° 08' E.

The district is bounded by Nainital and Champawat districts of Uttarakhand on the north, Moradabad, Rampur, Bareilly and Philibhit districts of Uttar Pradesh on the south, Bijnor district of Uttar Pradesh on west and Nepal on the east. The Sarada River forms the international boundary between India and Nepal.

As per discussion with DFO USN following information can be summarized

- 5% of district's area are wetlands. Approx. 100 of these water bodies have planning needs for conservation
- 10 – 15% of national pulp & paper production is in USN

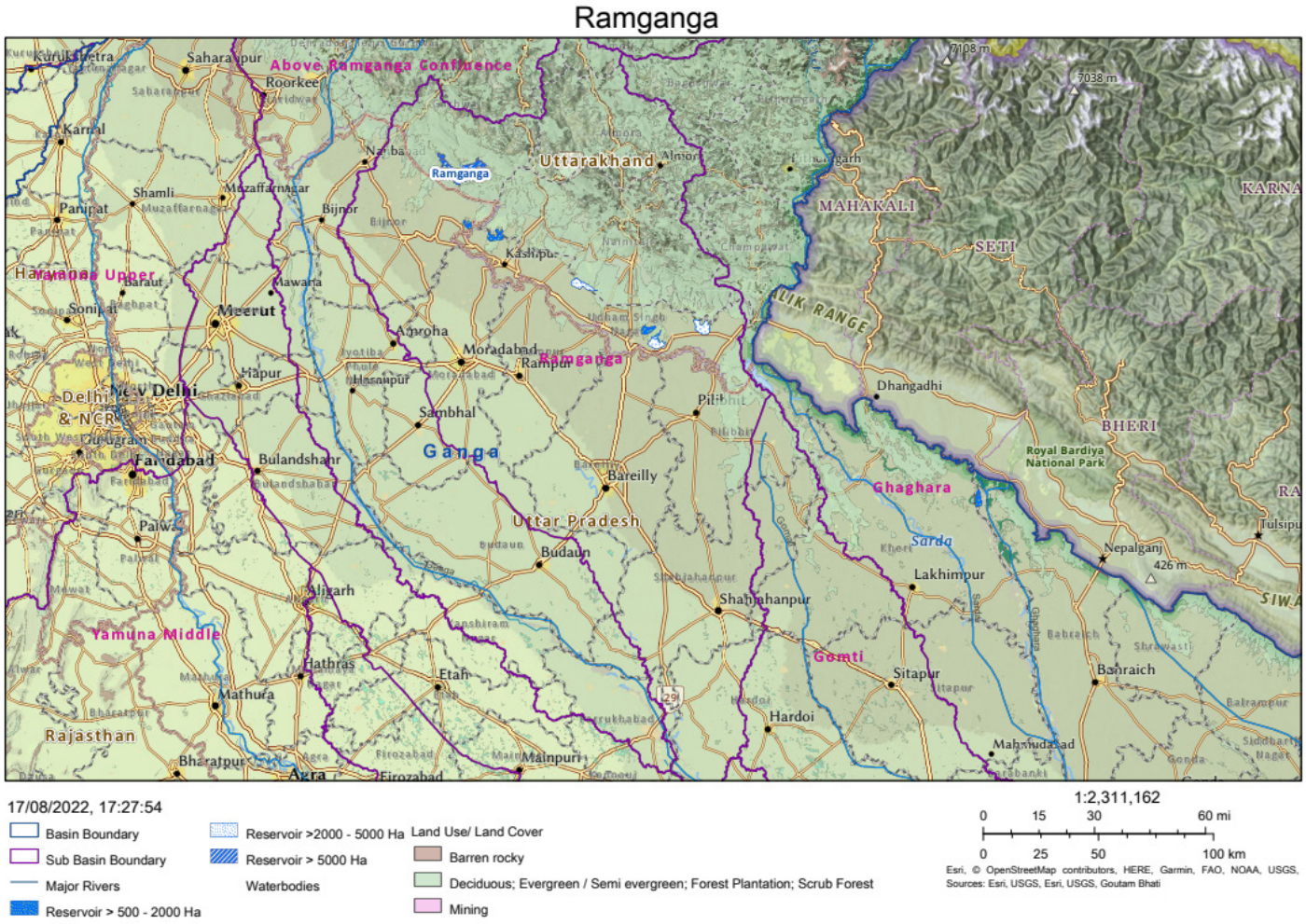


Figure 2. Overview and surrounding of Ramganga Basin[1]

[1] Source : https://indiawris.gov.in/wris/#/Geoviewer

For the administrative convenience, the district has been divided into 7 developmental blocks and 7 tehsils, viz. Jaspur, Kashipur, Bajpur, Gadarpur, Rudrapur, Sitargunj and Khatima with the district's headquarters at Rudrapur, as shown in Figure 4

Figure 3: Map of Ramganga River Basin showing Udham Singh Nagar[4]

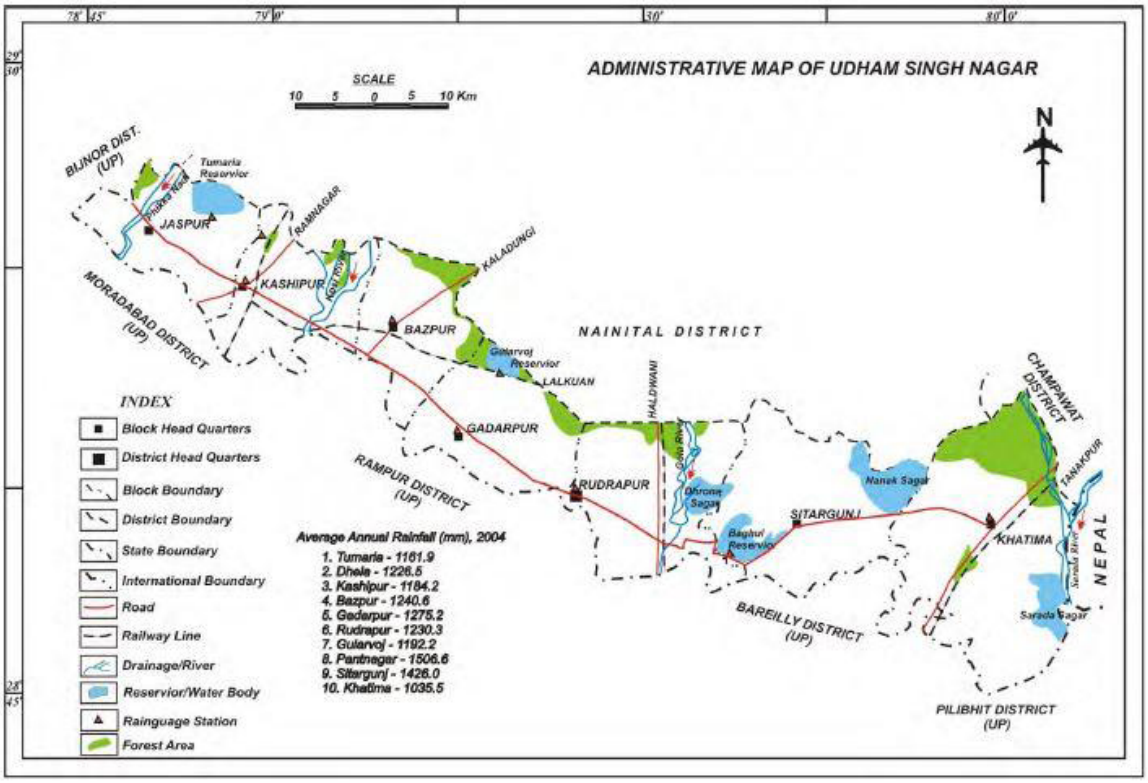


Figure 4: Administrative map with rainfall distribution of district Udham Singh Nagar, Uttarakhand[2]

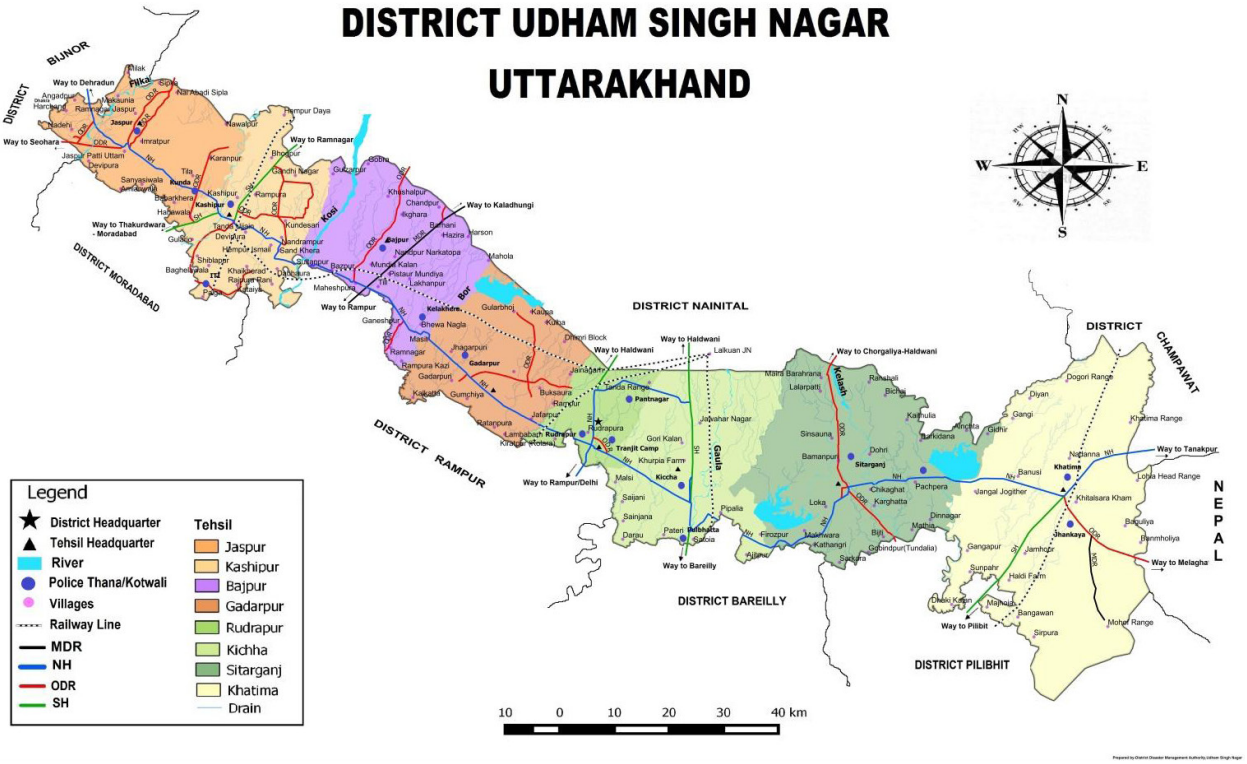


Figure 5: District map with infrastructure, Tehsil and ULBs[3]

---

2 Source: http://cgwb.gov.in/District_Profile/Uttarakhand/UdhamSinghNagar.pdf

3 Source: https://www.cmousnagar.com/rudrapur.php

4.3 Topography and drainage network

Udham Singh Nagar is broadly divided into two physiographic units, Bhabar in the north and Tarai in the south. Since the area is located in the Himalayan foothills, the slope gradually decreases from north to south (elevation range 260 - 210 m) in the Tarai region and becomes almost flat close to the boundary between Tarai and Central Ganga plains, which lies a few km south, the district's border (see Figure 6).

Drainage: Udham Singh Nagar's drainage pattern consist of a dense network. The rivers of the district belong to the Ganges drainage system. Of these, Sarada, Kosi, Gola and Phikka River and their tributaries Sawaldeh, Bour, Nandhour, Bhak, Kailash etc. drain the district, as shown in Figure 7. The unique feature of the area is debouching of major rivers into the plains from the lower Himalaya. The overall flow direction of these rivers is generally from north to south or northeast to southwest, flowing south until they join the Ganga River through the Ramganga River. The major rivers are perennial, whereas their tributaries, originating from the sub-Himalayan zone, are ephemeral and remain dry during the non-monsoon seasons. The overall drainage pattern of the district is sub dendritic to sub parallel.

Figure 6: Topography of Ramganga catchment in district Udham Singh Nagar[4]

[4] Source:GAF AG 2022

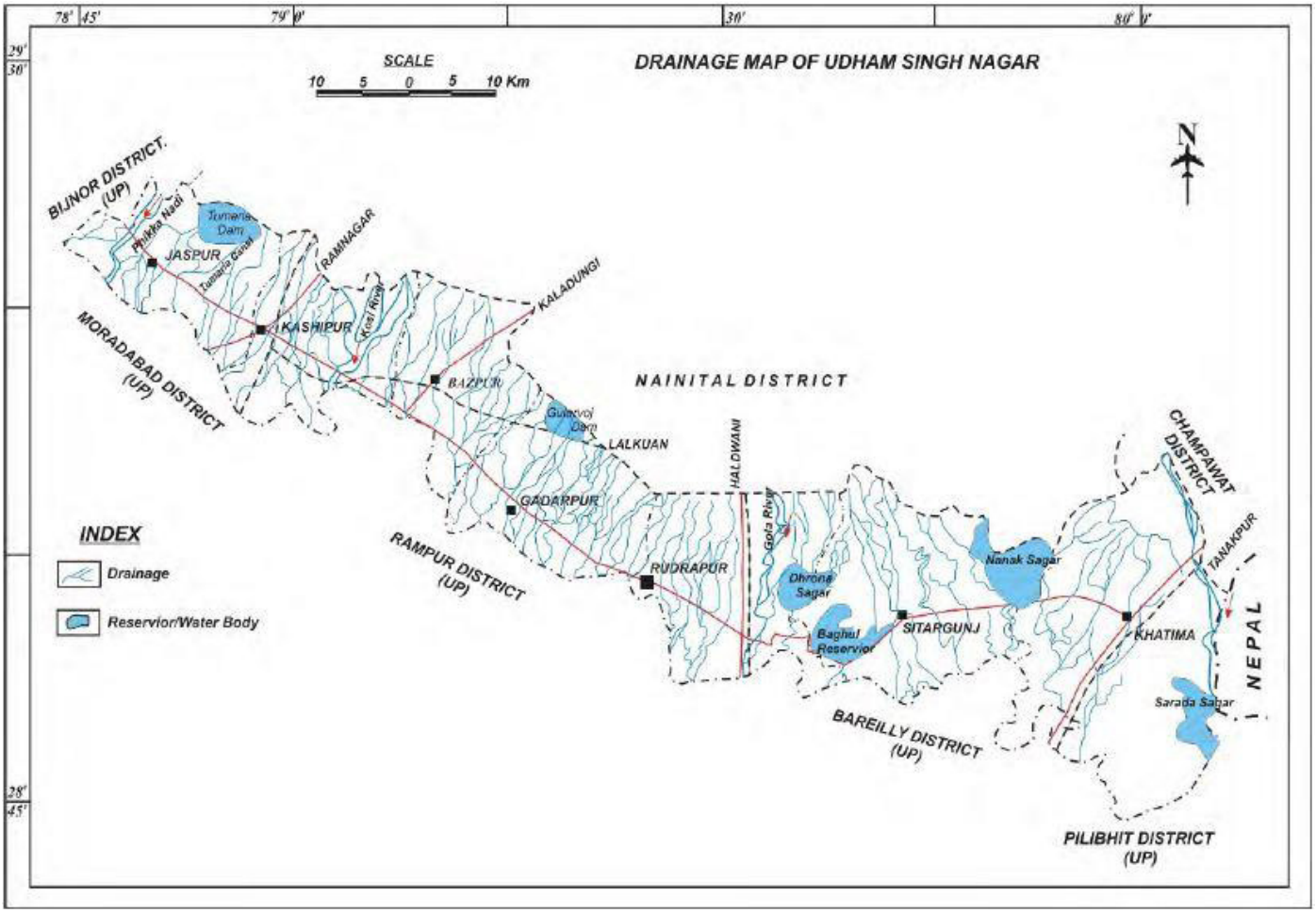


Figure 7: Drainage map, Udham Singh Naga[r5]

4.4 Climate

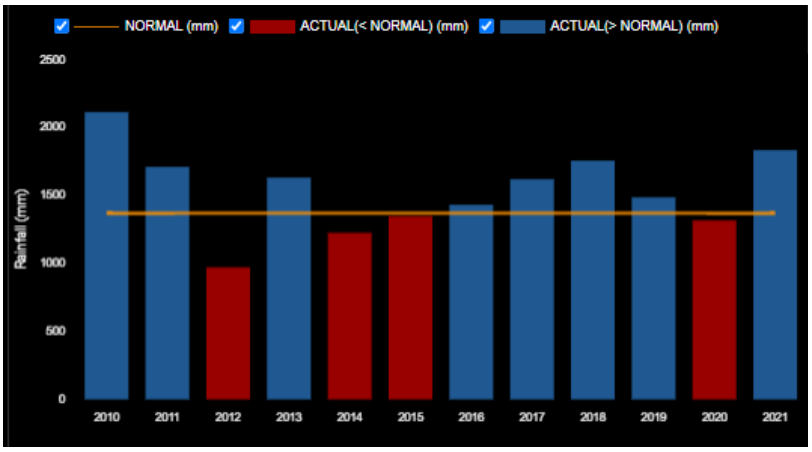
The climate varies between sub-tropical and sub-humid with three distinct seasons, i.e., summer, monsoon (rainy season) and winter. The rainy season starts from mid-June to the end of September, followed by the winter season, which starts at the end of October and lasts until February (see section 4.3.1 for more details). In winter, it usually rains in late December or early January, causing the temperature to drop and making December and January the coldest months in the district. The summer season starts from March and lasts until June, with May and June being the warmest months of the year. The maximum temperature in the district rises to 42°C in summer and the minimum temperature is between 1°C and 4°C. Further north in the district, the temperature drops to 0.4°C in the winter season.

[5] Source : http://cgwb.gov.in/District_Profile/Uttarakhand/UdhamSinghNagar.pdf

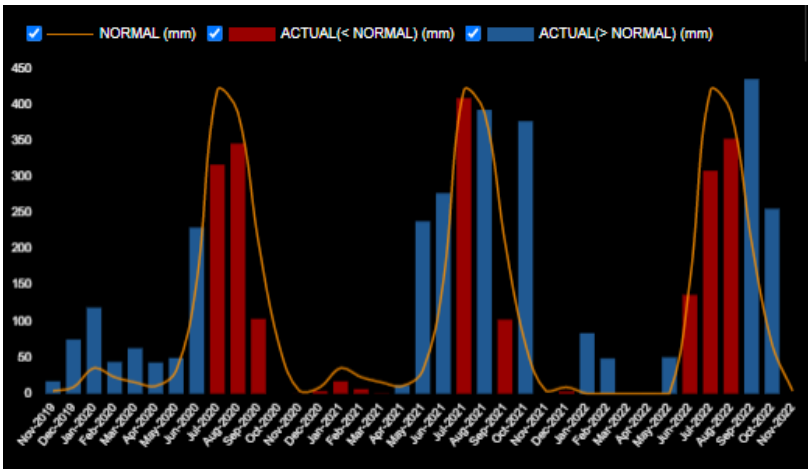
4.4.1 Rainfall

The amount of precipitation varies greatly depending on the altitude. The intensity of rainfall increases from south to north and the amount of rainfall generally decreases from west to east. About 90% of the rainfall occurs during the monsoon period, and the remaining 10% in non-monsoon period. The annual rainfall varies between 1000 mm and 2000 mm in different blocks of the district (see Figure on the right side).

a)



b)



c)

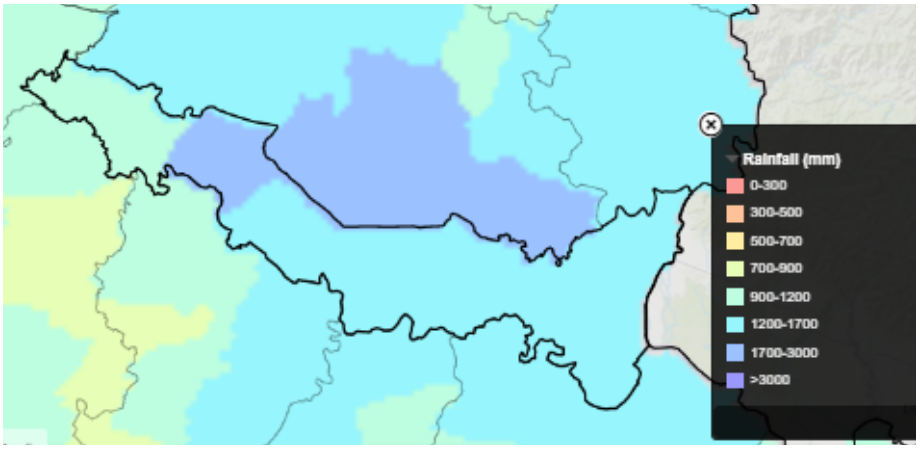


Figure 8: Rainfall Pattern of District Udham Singh Nagar, a) annual average over last 10 years b) monthly distribution over last 3 years and c) spatial distribution of 10 years average in the district

[6] Source: https://indiawris.gov.in/wris/#/ rainfall

4.4.2 Potential evapotranspiration

The average evapotranspiration of Udham Singh Nagar district is 2.08 mm/day, with more than 4 mm/day in July-August (Monsoon) and less than 1 mm/day in winter (November-December) (see Figure 9).

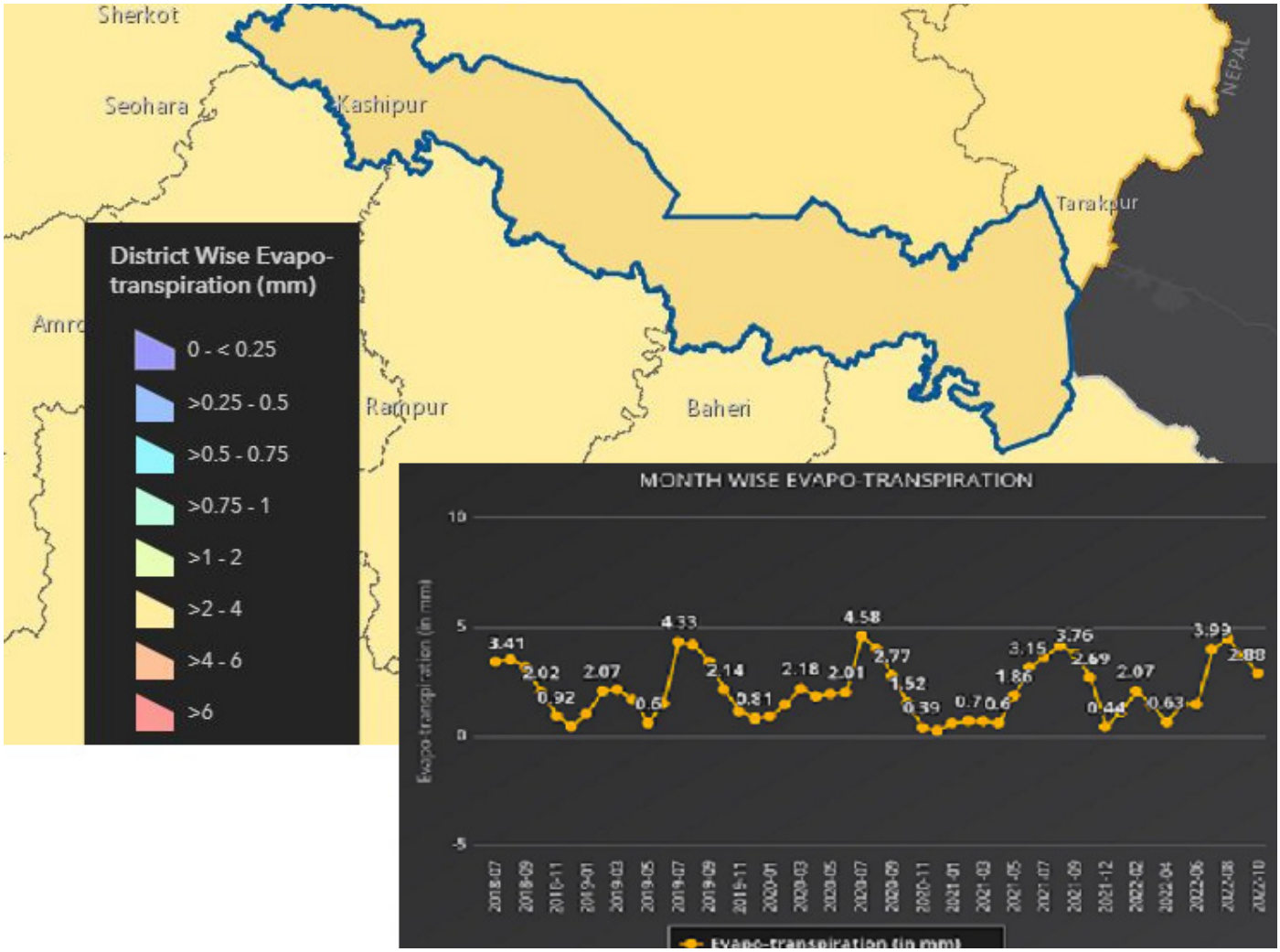


Figure 9: Evapotranspiration rate of District Udham Singh Nagar, daily average[7]

[7] Source : https://indiawris.gov.in/wris/#/evapotranspiration

4.5 River basins

4.5.1 Surface water

Seven tributaries (Bhela, Dhela, Gaula, Kalyani, Kosi, Nandhor, Pilakhar) are flowing in the urban and rural areas of Udham Singh Nagar and connect with Ramganga River (see Figure 10)

River Bhela

River Bhela is a small perennial river originating from the agricultural fields and receiving agriculture runoff and industrial effluents form industries situated in Ramnagar Road and Bazpur Road, Kashipur. It receives the northern and eastern drainage of the city. River Bhela also receives wastewater from nearby industrial units, mainly pulp and paper industries, distillery, textile, chemicals, among others. River Bhela joins river Ramganga upstream of Moradabad. The largest settlement of Kashipur town resides in the catchment area of the river.

River Dhela

River Dhela rises in the forest area of Ramnagar and flows along the agriculture fields of the Tarai region. The river is dammed upstream of Kashipur by the Tumaria dam to divert river water for irrigation purposes, leaving the river mostly without a natural outlet. The river Dhela joins the Ramganga River upstream of Moradabad. It also receives wastewater from nearby industrial units, which are predominantly pulp and paper industries.

River Gaula

River Gaula originates in its lower reaches in the Sattal lakes in the Kumaun Hills of Uttarakhand and flows through Kathgodam, Haldwani, Kichha and Shahi to finally join the Ramganga River about 15 km northwest of Bareilly in Uttar Pradesh. The river is mainly a spring-fed river and is an important source for drinking and irrigation water. For these purposes, a barrage has been constructed at Kathgodam to divert river water. Downstream of barrage, the river is almost dry, except in the monsoon months, while it flows again near Lalkuan. Significant amounts of industrial wastewater from pulp and paper industries (about 20600 tonnes/month) as well as wastewater from agricultural runoff and municipal wastewater drain from the city of Kichha into the river.

River Kalyani

River Kalyani rises in the Tanda forest area of Nainital district and flows first through the agriculture fields of Pantnagar and then through the Integrated Industrial Estate (IIE) of Pantnagar. The river receives treated wastewater from a CETP with an installed capacity of 4. MLD. However, the CETP currently only receives about 1.5 MLD to 1.8 MLD of wastewater from 236 industrial units. About 286 industrial units are not connected to the CETP due to the lack of a conveyance system. Apart from these sources, the Kalyani River also receives municipal drains from residential areas of Rudrapur city located adjacent to the industrial estates.

Kosi River

Kosi River is a perennial river like the Ramganga, and its catchment area lies partly in the Corbett Tiger Reserve. The town of Ramnagar is the main urban settlement in the catchment area of the Kosi River. A dam has been constructed on the river through which river water is diverted for irrigation and drinking purposes, regulating the flow of water downstream. Wastewater from pulp and paper industries is discharged into the river via an open channel parallel to the national highway, possibly increasing water quality deterioration.

River Nandhor/ Kailash

River Nandhor/ Kailash originates in Pangoot in the Nainital Forest and flows downstream along the Eldeco Sidcul Industrial Park (ESIPL) Sitarganj and the town of Sitarganj in Uttarakhand. There are about 66 industries in the catchment area of the river in ESIPL Sitarganj. One third of these industries are presently not in operation. The CETP receives about 2.4-2.5 MLD wastewater against the installed capacity of 4.0 MLD. However, it is assumed that industrial wastewater is also illegally discharged into the river. Two drains from Sitarganj city, flowing along the Maharana Pratap Chowk to Khatima road, feed into the Nandhor/Kailash River.

River Pilakhar

River Pilakhar is fed by various springs in the Bazpur area. Several small rivers like Ghoga nadi, Gadari nadi and Levda nadi flow through the upper reaches of the Bazpur area and pass through agriculture fields before joining Pilakhar River near Milak Khanam, Uttar Pradesh. It is observed that wastewater from industries situated in the catchment of river Pilakhar enters the river. Sampling to monitor the water quality is carried out upstream, as there are various industries such as pulp and paper, sugar, chemical industries.

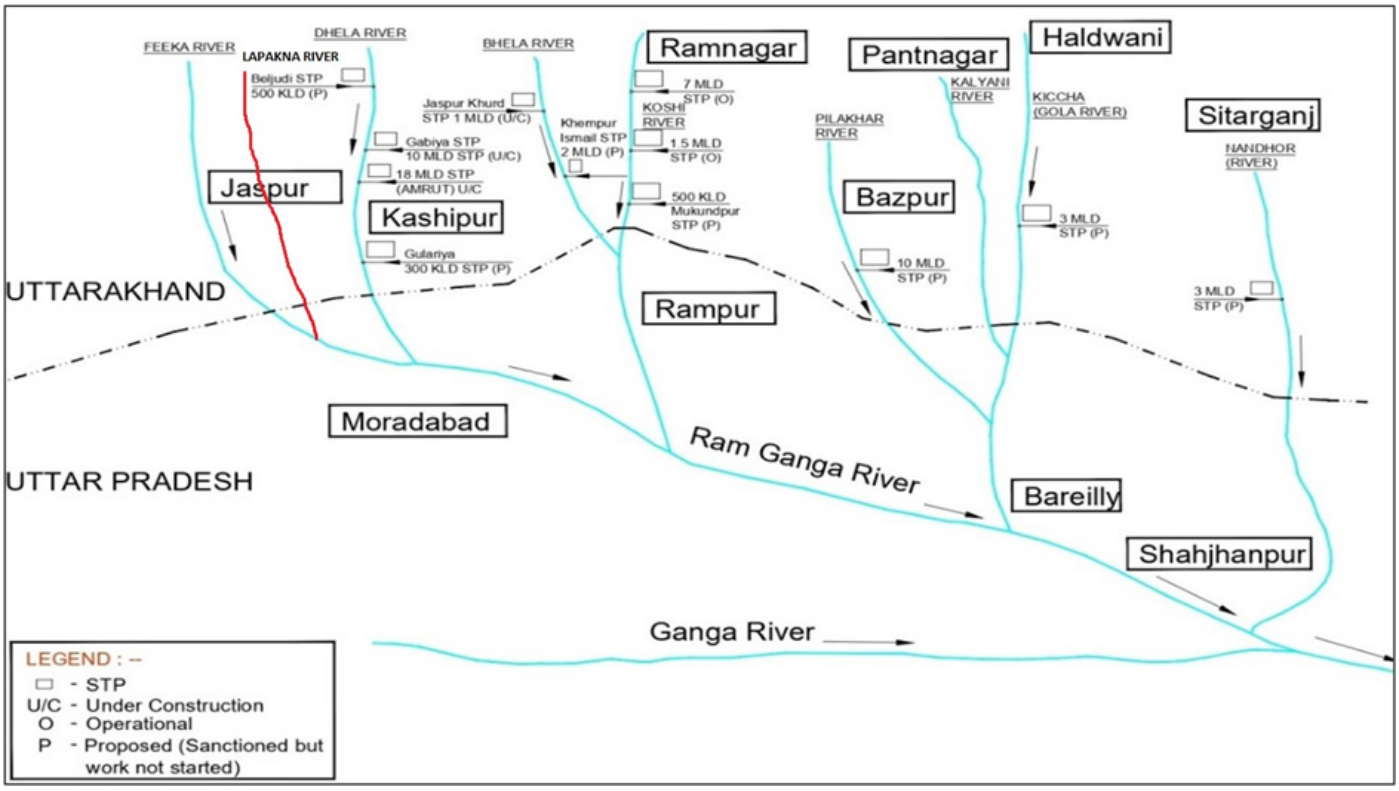


Figure 10: Route map of 6 rivers sketches upto Ganga River, including an overview of STPs in USN districts[38]

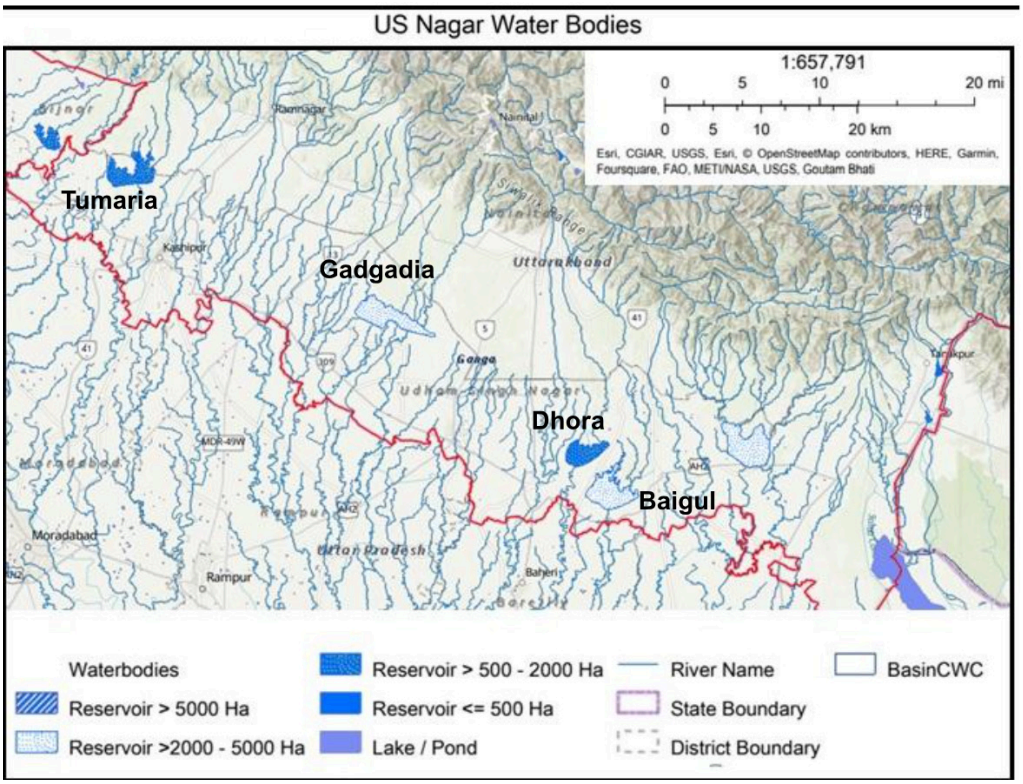


Figure 11: Map of Waterbodies of district Udham Singh Nagar[9]

Source: https://indiawris.gov.in/wris/#/groundWater

[9] Source: https://indiawris.gov.in/wris/#/surfaceWater

In the Udham Singh Nagar district, there are three reservoirs of with a surface area between 2000-5000 ha. (Nanak Sagar, Gadgadia and Baghul), two reservoirs with more than 500 ha (Tumaria and Dhora) and 7 other water bodies with more than 100 ha area (see Figure 11).

4.5.2 Groundwater

Generally, the groundwater flows from north to south in the Udham Singh Nagar district. Based on the behaviour and occurrence of groundwater, the district can be broadly categorised into two hydro-geomorphic units, namely Bhabar and Tarai, which have significantly different hydrogeological attributes. Groundwater occurs under unconfined/ phreatic conditions. The shallow aquifers are tapped by dug wells, and in the deeper aquifers (> 50 m), confined conditions generally prevail with higher artesian heads, and the tightly cased tubewells constructed in them result in flowing wells. The unconfined shallow groundwater of the Tarai may be recharged by (1) the direct infiltration from rainfall on the land surface, (2) the infiltration from the streams when flooded, (3) return seepage from irrigation, and (4) lateral percolation from adjacent Bhabar zone. On the contrary, the confined groundwater is probable recharged by downward percolation and lateral flow from Bhabar belt.

In the unconfined aquifer, the water level in pre-monsoon and post monsoon varies from 2.09 to 7.08 m bgl and from 1.99 to 6.89 m bgl, respectively. The seasonal fluctuation varies from 0.09 to 3.56 m. The tube wells tapping deeper confined aquifers with auto-flow conditions yield 25.0 to 55.0 LPS of freshwater for a drawdown of 2.0 to 8.0 m. In case of tubewells tapping confined aquifers with non-flowing conditions the yield varies between 10 and 40 LPS for a drawdown of 4.0 to 9.0 m.

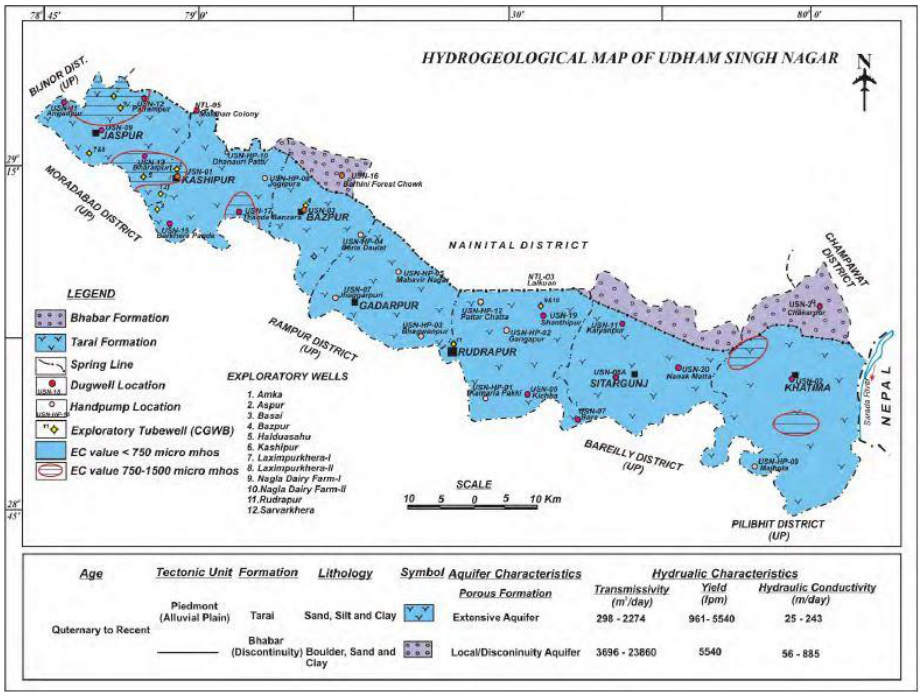


Figure 12 Hydrogeological Map of District Udham Singh Nagar[10]

[10] Source : http://cgwb.gov.in/District_Profile/Uttarakhand/UdhamSinghNagar.pdf

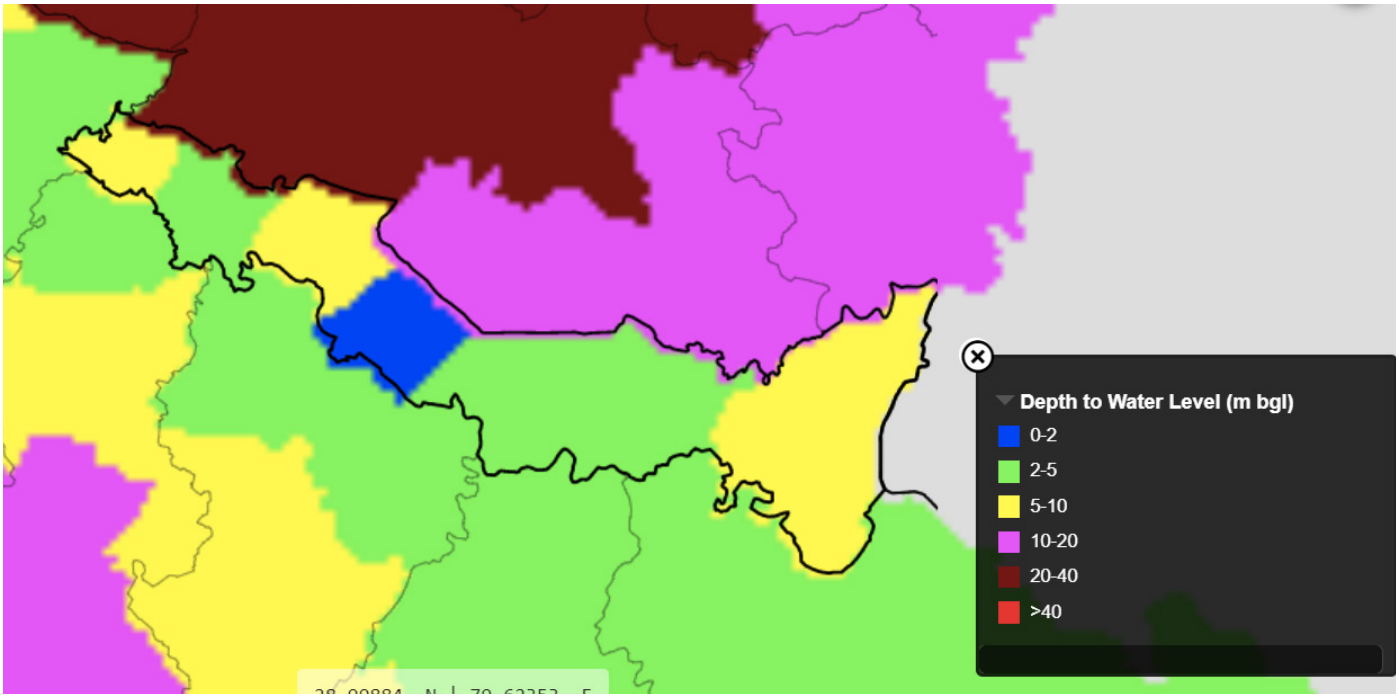


Figure 13: Water level in the district of Udham Singh Nagar[11]

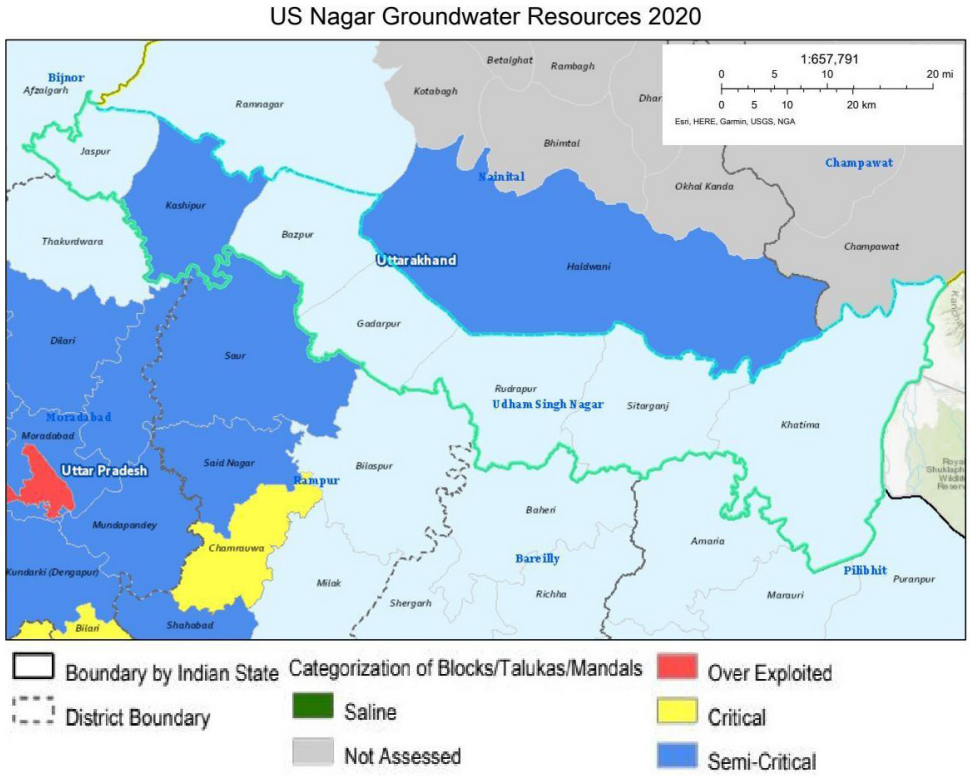


Figure 14: Groundwater resources map of Udham Singh Nagar district[12]

According to WRIS information of 2020 (Figure 14), 6 blocks in Udham Singh Nagar district are in safe condition and 1 district, Kashipur is in semi critical condition as far as groundwater use is concerned. As per CGWB (2004), 6 blocks were in semi-critical situation except Sitarganj block, which was considered safe.

---

11 Source: https://indiawris.gov.in/wris/#/groundWater

12 Source: https://indiawris.gov.in/wris/#/GWResources

4.6 Water quality

In Udham Singh Nagar district, seven active surface water quality monitoring stations and 34 active groundwater quality monitoring stations have been installed by CPCB and CGWB to monitor physical and chemical water quality parameters (see their locations in Figure 15 and names in Table 1 & Table 2). Table 3 shows the ranges of water quality results.

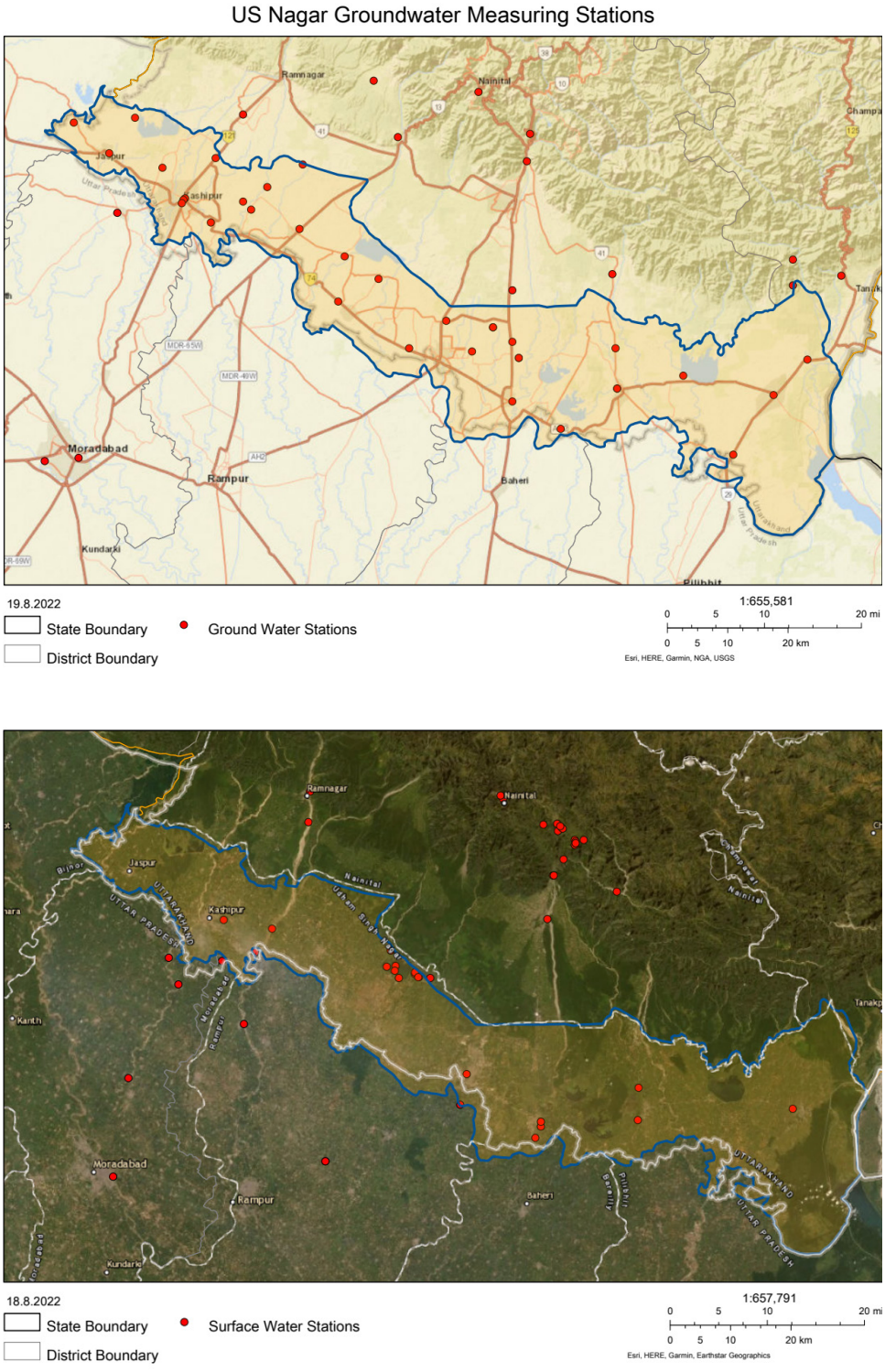


Figure 15: Maps of surface water and groundwater monitoring stations[13]

[13] Source: https://indiawris.gov.in/wris/#/SWQuality, https://indiawris.gov.in/wris/#/GWQuality

Table 1: List of surface water monitoring stations[13]

	Station Name
7 Surface water monitoring stations are active in Udham Singh Nagar District, Uttarakhand	Bhela River U/S Kashipur
	Kalyani River at D/S Pantnagar Industrial Area
	Kalyani River at U/S Pantnagar Industrial Area
	Kiccha at Pull Bhatta
	Gaula River at Kichha
	Nandour River D/S Sitarganj Industrial Area
	Nandour River U/S Sitarganj Industrial Area

Table 2: List of groundwater monitoring stations[13]

	Station Name	
34 Groundwater monitoring stations are active in Udham Singh Nagar District, Uttarakhand	Angadpur	Shantipuri
	Banna Khera	Jhagarpuri HP
	Bara	Jogipura HP
	Bazpur	Kalyanpur HP
	Beria Daulat HP	Kashipur
	Bhagwanpur HP	Khatima
	Bharatpur	Kichha
	Chakarpur	Mahabir Nagar HP
	Dhanauri Patti HP	Majhola HP
	Gangapur HP	Nanak Mata
	Ground Water at Kashipur Bajpur Road- 1	Patrampur
	Ground Water at Kashipur Bajpur Road- 2	Jaspur
	Ground Water at Kashipur Moradabad Road- 1	Ground Water at Santipuri Kichha- 1
	Ground Water at Kashipur Moradabad Road- 2	Ground Water At Santipuri Kichha- 2
	Ground Water at Pantnagar Industrial Area- 1	Ground Water at Sitarganj Industrial Area- 1
	Ground Water at Pantnagar Industrial Area- 2	Ground Water at Sitarganj Industrial Area- 2
	Pattar Chatta HP	Handpump In village Damauda at Kashipur Near M/S India Glycoles Ltd.

Table 3: Water quality parameters for surface water and groundwater (quality range measured in Udham Singh Nagar[14]

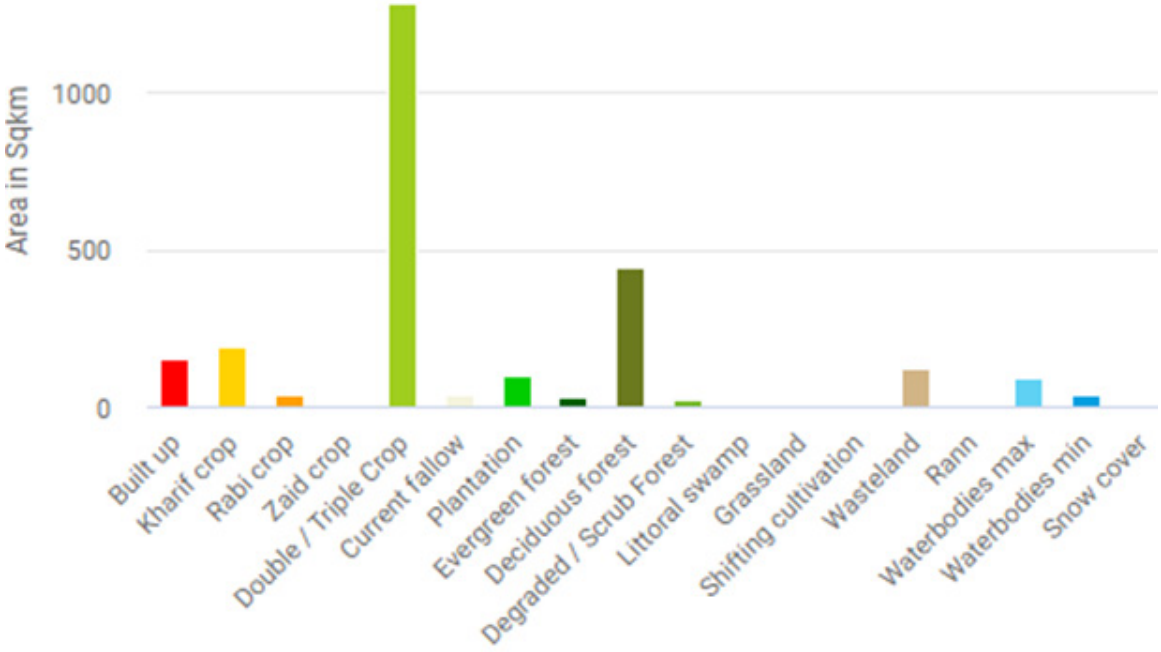
Surface water quality	
Parameter	**River water**
Dissolved Oxygen	2-3.9 mg/L
Biochemical Oxygen Demand	3-28 mg/L
Electrical Conductivity (at 25°C)	170-685 µS/cm
pH	7-8.1

Parameters for groundwater quality	
Parameter	**Dug wells / hand pumps**
Electric conductivity (EC)	262-1300 µmohos
pH	7.8-8.3
Calcium (Ca)	8-40 mg/l
Magnesium (Mg)	10-58 mg/l
Sodium (Na)	1.4-46 mg/l
Potassium (K)	0.4-68 mg/l
Bicarbonate (HCO3)	18-262 mg/l
Chloride (Cl)	7-270 mg/l
Nitrate (NO3)	0.5-63 mg/l
Fluorid (F)	0.1-0.4 mg/l
Total Hardness as CaCO3	120-300 mg/l
Copper (Cu)	0.02-0.03 mg/l
Lead (Pb)	0.01-0.03 mg/l
Zinc (Zn)	0.03-1.09 mg/l
Iron (Fe)	0.12-3.00 mg/l
Chromium (Cr)	0.02-0.13 mg/l
Manganese (Mn)	0.10-3.20 mg/l

[14] Source : SW quality (https://indiawris.gov.in /wris/#/SWQuality), GW quality (District Groundwater Brochure of Udham Singh Nagar, CGWB, 2010)

4.7 Land cover and land use

The geographical area of the district is 2,542 km2. The major portion of land is used for agriculture and cultivation (60%), with 50% of this area being used for triple/double crop production. 18 % of the region is covered by forest land and 6% is occupied with buildings (see Figure 16).



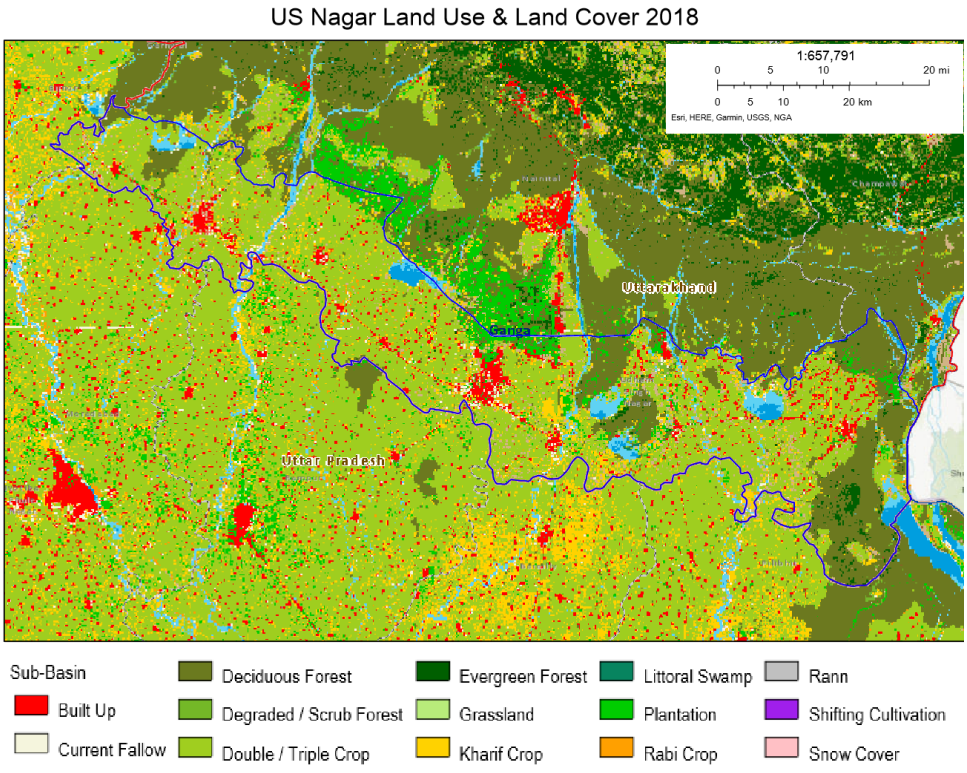


Figure 16: Land use and land cover map of district Udham Singh Nagar[15]

[15] Source: https://indiawris.gov.in/wris/#/lulc

According to India WRIS (2016), only a marginal proportion of the district area - less than 0.5 % - are currently unavailable for cultivation or are not being cultivated (see Figure 17 with a map of the district's wastelands below). These areas consist of mainly scrub land with 8.84 km², followed by degraded forests with 2.67 km², degraded land under plantation with 1.89 km², as well as mining and sandy areas.

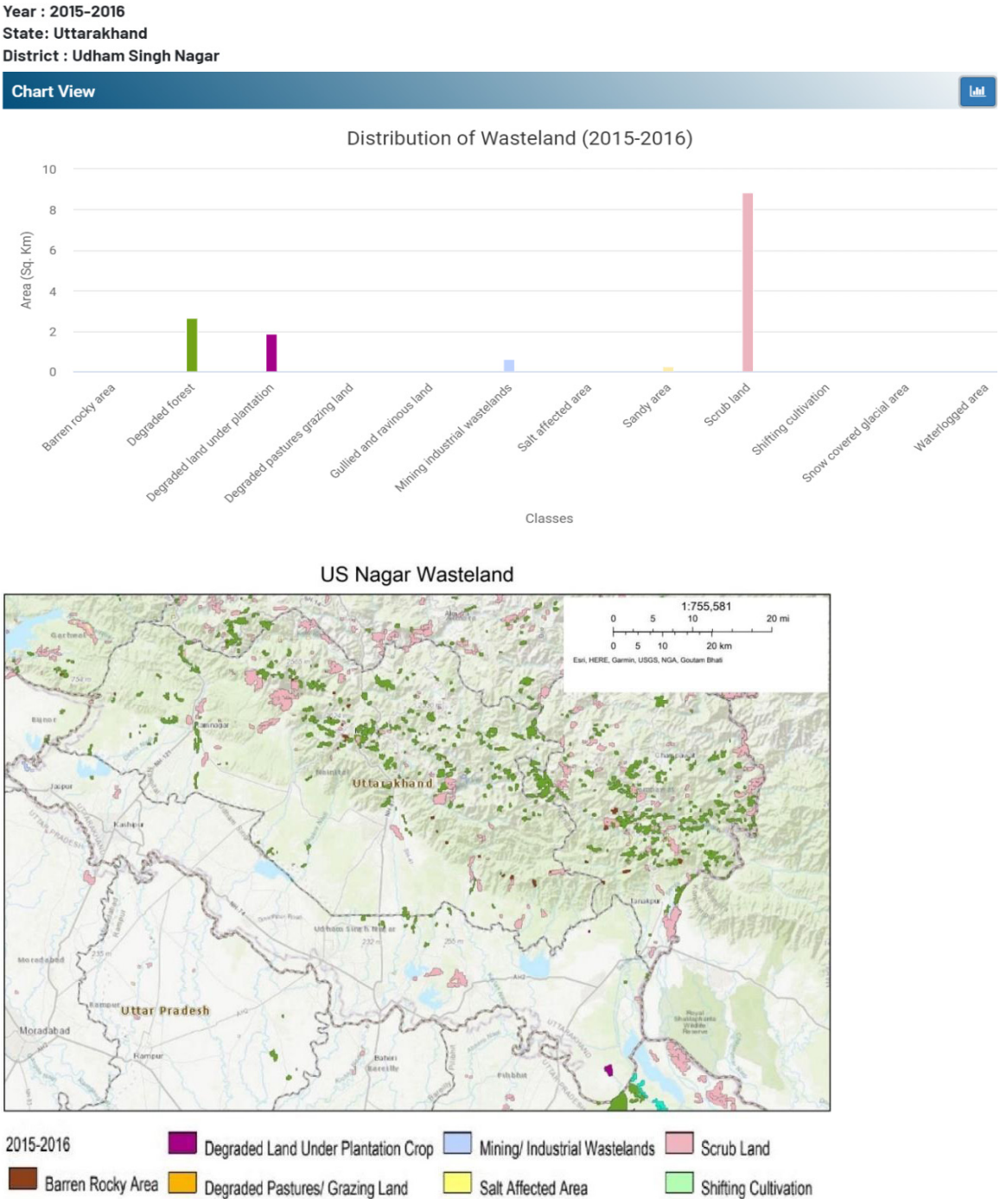
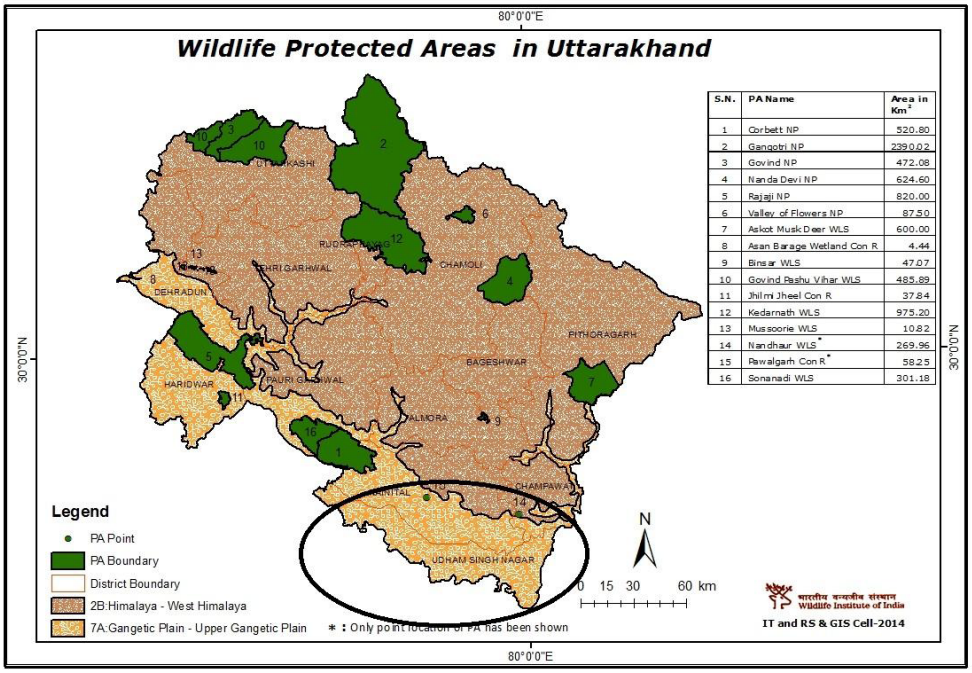


Figure 17: Map of wasteland of Udham Singh Nagar with statistics[16]

[16] Source: https://indiawris.gov.in/wris/#/Wasteland

4.8 Protected areas and environmental resources

According to the State Forest Report of India 2019, the recorded forest area/forest cover of the US Nagar is 431.79 km^2, which constitutes 16.98% of its geographical area. Very dense forest constitutes 149.16 km^2 (5.875%), moderately dense constitutes 188.75 km^2 (7.428%), and open forest constitutes149.16 km^2 (3.70%) of total forest area (FSI, 2019). Various important species of trees in the Udham Singh Nagar namely, Sal (Shorea robusta), Sagon (Tectona grandis), Popular (Populus spp.), Samel (Bombax ceiba), Bel (Aegle marmelos), Guava (Psidium guajava), and Mango (Mangifera indica) etc. are prevalent in the forest areas of the district. Fruits, timbers & medicinal plants are the major products from forest cultivation.



S.N.	PA Name	Area in Km^2
1	Corbett NP	520.80
2	Gangotri NP	2390.02
3	Govind NP	472.08
4	Nanda Devi NP	624.60
5	Rajaji NP	820.00
6	Valley of Flowers NP	87.50
7	Askot Musk Deer WLS	600.00
8	Asan Barage Wetland Con R	4.44
9	Binsar WLS	47.07
10	Govind Pashu Vihar WLS	485.89
11	Jhilmil Jheel Con R	37.84
12	Kedarnath WLS	975.20
13	Mussoorie WLS	10.82
14	Nandhaur WLS*	269.96
15	Pawalgarh Con R*	58.25
16	Sonanadi WLS	301.18

Figure 18: Protected areas of district Udham Singh Nagar, Uttarakhand

Flora and fauna

Being at a transition zone between two heterogeneous domains, namely the West Himalaya and the Upper Gangetic plain, fertile soil with abundance of moisture has sustained rich floristic diversity in the district. Originally, Tarai region harbours sub- montane seasonal broadleaf forests. However, the deforestation due to rapid urbanisation and intensive agriculture has led to the absence of native trees and shrubs. The latter have mainly been replaced by weeds and grasses. This has led to addition of more alien vegetation elements. Major parts of the floral diversity comprise of taxa cultivated for various purposes (crops, ornaments, germplasm collections etc.) and the remaining exist as wild plants growing as indigenous taxa or weed. Various important species, namely Sagon (Tectona grandis), Sal (Shorea robusta), Bel (Aegle marmelos), Asthma Plant (Euphorbia hirta), Pomegranate (Punica granatum), and False Daisy (Eclipta prostrata) etc. are still prevalent in US Nagar.

The district is a natural sanctuary for Squirrel (Funambulus pennantii), Langur (Canis familiaris), Wild boar (Sus scrofa), Monkey (Macaca mulatta), among others. The region also hosts remarkable common bird's species such as Common myna (Acridotheres tristis), Black Bulbul (Molpastes cafer), Spotted Dove (Streptopelia chinensis), possessing plumage of magnificent design and colours.

Surai Forest area is a famous forest region located about 20 km from Khatima, forming an enclosure for the varied flora and fauna thriving in the range. Various species of colourful birds can be seen throughout the region. Crocodiles are found in good numbers in this forest range. Major attraction of this region is the abundance of wildlife species and bird species that can be seen enhancing the ambience of the district.

4.9 Socio-economic features

4.9.1 Population

The most recent census data from 2011 shows 16.5 lakh people living in USN (Table 4)

Table 4: Population data and information of US Nagar district[17]

Population Data (2011 census)	
Total population	16,48,902
Male population	8,58,783
Female population	7,90,119
Population density	649 per km^2
Decadal population growth rate	33.44%
Overall literacy rate	73.10%
Male literacy	81.09%
Female literacy	64.45%
Sex ratio	920
Urbanised area	122.21 km^2
Rural area	2,419.79 km^2
Present estimated population (2022-23)	
Total population	22,42,507
Urbanised area	10,54,965
Rural area	11,87,542
Projected population for design period of projects (2040)	
Total population	34,46,733

[17] Source: District Environment Plan, Udham Singh Nagar, 2019 pp 62

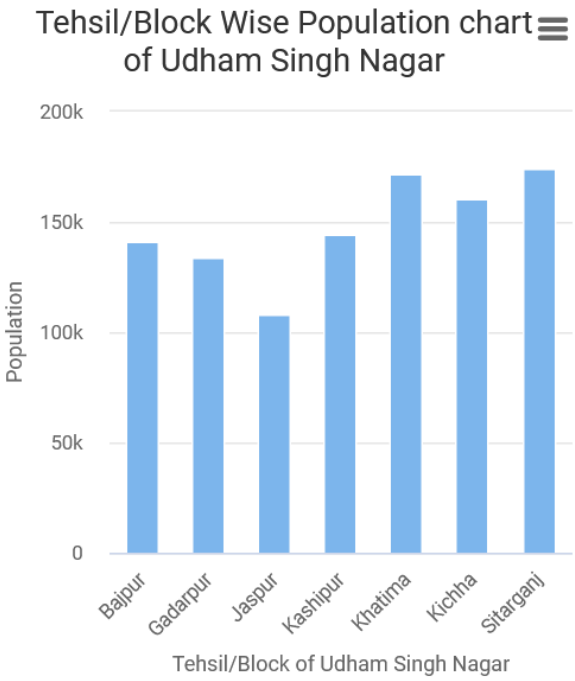


Figure 19: Block wise population in Udham Singh Nagar[18]

4.9.2 Socio-economic profile

The urban population in Udham Singh Nagar is mainly living in 10 towns, Figure 20 shows their locations.

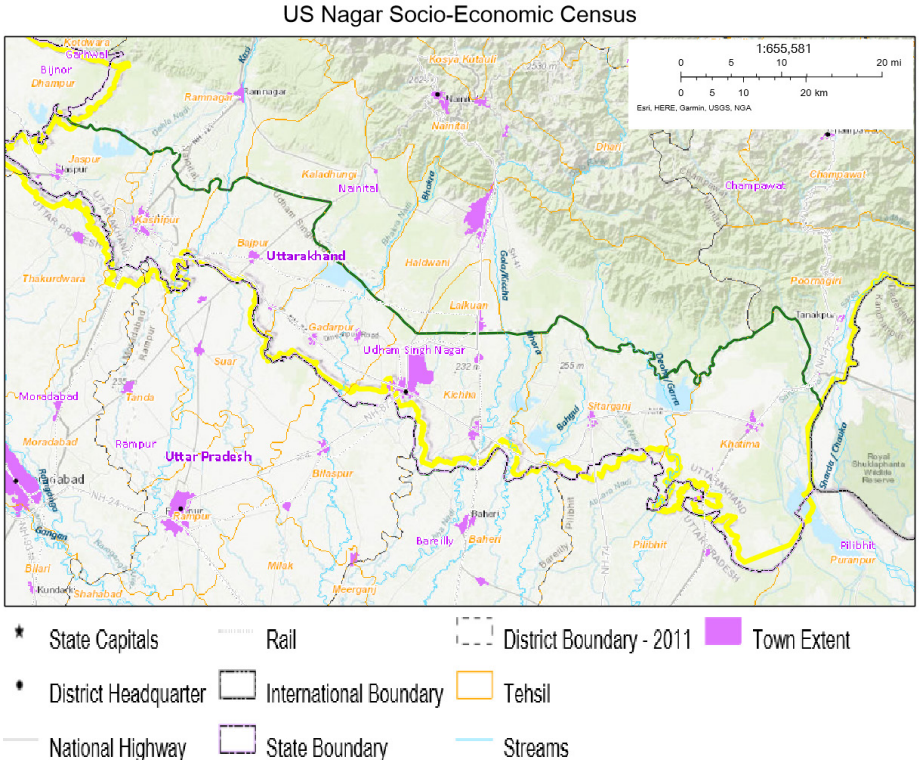


Figure 20: Socio-economic map of the district Udham Singh Nagar[18]

[18] Source: https://indiawris.gov.in/wris/#/socioEconomic

In USN, the manufacturing sector contributed the maximum share of 53.07% to the district's Gross District Domestic Product (GDDP), while the district's agricultural sector contributed about 1/10th to GDDP (10.01 percent) with more than double compared to that in Uttarakhand.

USN's average annual per capita income is Rs. 1,15,543. The proportion of rural population living below poverty line in Udham Singh Nagar is depicted in the Poverty Ratio (PVR) of 45.7. Udham Singh Nagar urban population shows a PVR of 48.88. Of the district's poor, 68.04% live in rural and 31.96% in urban regions.

The percentage of main workers in the total workforce in Udham Singh Nagar is 27.34% of the population. Among the four categories, cultivators form about 20.74% of all workers, while agricultural labourers form 27.94%. The catchall category 'Other Workers' forms 46.85% of the entire working population of the district, being the highest in these categories.

In terms of work participation rate (WPR) in the district, the WPR for males is 51.77%, whereas it is 18.59% for females. Khatima block has the highest female WPR with 34.31% percent and lowest is Kashipur with 11.57%. [19]

4.9.3 Ecological Regions

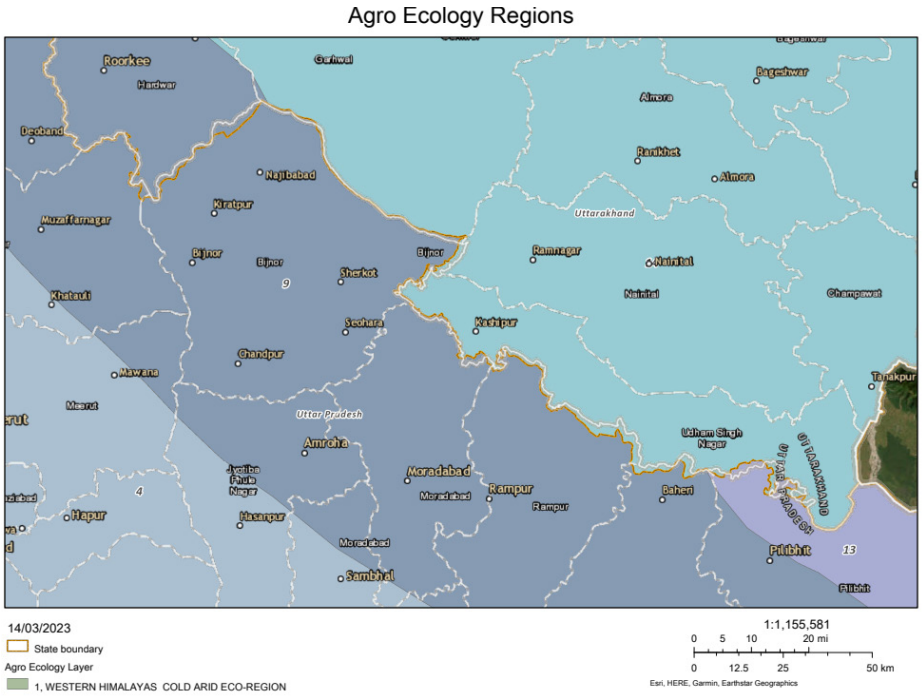


Figure 21: Ecological region map of the ditrict Udham Singh Nagar[20]

Udham Singh Nagar lies on the foothills of Kumaun Himalayas and is in the Western Himalaya warm subhumid (to humid with the inclusion of humid) Eco Region.

[19] Census 2011

[20] Sources: https://indiawris.gov.in/wris/#/Region

4.9.4 Basic Amenities

The overall percentage of households having access to improved drinking water facilities is 97.6%. Improved sanitation facilities are available in 56.2% of households. Apart from drinking water and sanitation, only 52.6% of household use clean fuel for cooking compared to a state average of 51%. However, in the district, 96.1% of households have access to electricity.[21]

5 Institutional arrangement in the district

Holistic and integrated strategic approaches of river rejuvenation address entire river basins and consider not only the problem of the sewage generated by human settlements. Other pressure factors such as industry, irrigation water withdrawal, hydropower utilisation, solid waste discharge and riverbank degradation are to be considered. Therefore, it is required to have planning, financing, monitoring, and coordinating authorities for strengthening the collective efforts of the Central Government and the State Governments and stakeholders in line with the NMCG Authority Notification Order, 2016 for effective abatement of pollution and rejuvenation, protection and management of the river Ganga.

5.1 NMCG, SMCG and DGC

National Mission for Clean Ganga (NMCG)

Prepare guidelines for district planning, mandate to DGCs in accordance with the Authority Notification. Approves the district plans and make financial arrangements for implementation.

State Mission for Clean Ganga (SMCG) Uttar Pradesh

State Mission for Clean Ganga (SMCG) Uttar Pradesh is an extended arm of NMCG for the state of Uttar Pradesh and implementing the Namami Gange and other programmes through various executing agencies.

District Ganga Committee Shahjahanpur (DGC – Shahjahanpur)

Mandated to prepare District Ganga Plan in line with Authority notification.

5.2 Key stakeholders

National Level

Key stakeholders at national level

- **Central Groundwater Board (CGWB)**

  Contributions in district planning for sustainable development and management of groundwater resources of the country

[21] NFHS 4 2015-16

- **Central Water Commission (CWC)**

  Contributions in district planning for components related to water resource management and monitoring of river water quality

- **National Water Academy (NWA)**

  Contributions in district planning based upon international river basin management (RBM) cycle approach. NWA has been involved with NMCG and GIZ in implementation of RBM cycle trainings

- **Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD & GR)**

  MOJS, DoWR, RD & GR are not directly involved in the planning stage of DGP. However, MoJS is the nodal ministry at central level to support Ganga and sub basin water framework development by the states.

- **Ministry of Jal Shakti, Department of Drinking Water and Sanitation and (DWS)**

  MOJS, DWS is not directly involved in the planning stage of district ganga plans. However, MoJS is the nodal ministry at central level to support Ganga and sub basin water framework development by the states

- **Ministry of Housing and Urban Affairs (MoHUA)**

  MoHUA will not be directly involved in the planning stage of District ganga plans. However, the policies, strategies and guidelines are being provided by CPHEEO to the States & UTs Governments including Municipal Corporations / Committees.

- **Central Pollution Control Board (CPCB)**

  Contributions in data/information on pollution abatement and water quality monitoring in the Basin

- **Centre for Ganga River Basin Management and Studies (cGanga)**

  Coordination and synergies of District Ganga Plan with the Ganga Basin Plan

- **Wildlife Institute of India (WII)**

  Coordination on biodiversity aspects, local awareness activities

- **National Institute of Urban Affairs (NIUA), MoHUA**

  Synergy with urban river management plan framework and urban river management plan for ULBs

- **National Institute of Hydrology, Roorkee, Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation, Govt. of India**

  Provide leadership in hydrology research through effective scientific solutions for achieving sustainable development and self-reliance of the water sector in India. Study scenarios of water resource availability under varying hydrological, climatic, sociocultural conditions through modelling techniques. Provide scientific advice to the various stakeholders on water related issues.

State Level

Key stakeholders at state level

- **Uttarakhand Pey Jal Nigam (UKPJN)**

  Will be primarily involved in water supply and liquid waste management planning component of the District Plans. It is also to be involved for designing and execution of projects related to faecal sludge and septage treatment facilities

- **Uttarakhand Pollution Control Board (UK-PCB)**

  Provides recommendation to the Uttarakhand Govt. on matter concerning the prevention and control of water & air pollution with the collection, compile & preparation of technical and statistical data related to water & air pollution and organise the consumer awareness programme on the prevention of and control of water & air pollution and waste management.

- **Uttarakhand Urban Development Department**

  Works with urban planning and development control and implement the major schemes by Urban Development Directorate.

- **Uttarakhand Rural Development Department**

  Implements several programmes in the area of self-employment, employment, rural housing, rural connectivity, village developments, etc. for rural economy and infrastructure development

- **Department of Revenue & Board of Revenue**

  Land acquisition, transfer of land to departments

- **Uttarakhand Forest Department**

  Responsible for managing some of the richest forests and biodiversity in India. It implements the National Forest Policy in order to ensure the ecological stability of the country through the protection and participatory sustainable management of natural resources.

- **Uttarakhand Irrigation Department**

  Maintains information about hydropower projects, irrigation, water resources planning development and management.

- **State Industrial Development Corporation of Uttarakhand (SIDCUL)**

  Promotes industries in particular small scale, cottage, khadi, village industries, handicrafts, silk and handloom sectors and addresses problems of sickness and incipient sickness in Industry, particularly SSIs (Small Scale Industries).

- **Uttarakhand Space Application Centre (USAC)**

  Nodal agency for space-technology related activities in Uttarakhand. Works in crucial areas, such as natural resource management, water resource management, glacier studies, environmental monitoring, land use & urban planning, disaster mitigation, web-based school information system, health information system etc.

District Level

Key stakeholders at district level

- **District administration authorities**

  Law & order, planning, development, and management activities.

- **Urban local bodies (ULBs) falling in the district**

  Planning, development, upkeeping and management activities.

- **Pey Jal Nigam**

  Pey Jal Nigam is responsible for planning, survey, design and execution of urban as well as rural water supply and sewage schemes in the state of Uttarakhand. In addition to above the Nigam has also been authorised as a construction agency

- **Irrigation Department**

  Canal Construction, tube wells, flood protection works and construction of reservoirs for the purpose of water conservation and generation of electricity and anti-erosion works

- **Public Works Department**

  Construction, maintenance and planning of roads, bridges and government buildings.

- **Division/ District Office of Environment, Forest and Climate Change Department**

  Forest officers are responsible for the forests, environment and wildlife-related issues of forest.

- **Jal Sansthan**

  to plan, promote and execute schemes and operate an efficient system of water supply. Where feasible, to plan, promote and execute schemes and operate, sewerage, sewage treatment and disposal and treatment of trade effluents.

- **Agriculture Department**

  The main work of Department is to encourage Food & Nutritional Security. The department provides various schemes, public friendly plans, soil testing, seeds & pesticides and information about machines for agriculture and soil conservation schemes.

- **Industrial associations in respective District**

- **District Panchayat Raj Department**

  The civic functions relating to sanitation, cleaning of public roads, minor irrigation, public toilets and lavatories, primary health care, vaccination, the supply of drinking water, constructing public wells, rural electrification, social health and primary and adult education, etc.

- **District Education Officer**

  Education laws, policies and regulations; Implementing approved education and sports development plans, strategies. and programmes.

- **District e-Governence Department**

  National Informatics Centre (NIC) provides nationwide ICT infrastructure to support e-Governance services and various initiatives of Digital India to design, development and implementation of various e-Governance initiatives and Digital India programme.

5.3 Existing policies and programmes at district level

Table 5. Existing policies and programmes at district level

Existing missions and schemes	Thematic focus	District budget
National Water Mission	Basin level integrated water resource management, enhanced storage of GW, efficient water resources management and recharge structures, enhance capacity building and awareness programme	
Namami Gange Mission	Sewage and septage management, industrial effluent management, regulation and inspection of GPIs, water quality monitoring, capacity building, and IEC activities on river basin management	
AMRUT	Sewage and septage management, water supply, pond rejuvenation	
Swachh Bharat Mission	Solid waste management (SWM), capacity building on SWM	
MGNREGA	Creating infrastructure for water harvesting, drought relief and flood control under Panchayati Raj Institutions	

Section C Stock Taking And Analysis Of Key Issues For This Planning Cycle

6 Summary of the achievements in the previous planning period

As the current District Ganga Plan is prepared for the 1st planning cycle, this section is not a part of the DGP; ongoing actions are mentioned in chapter 7 and prior work feeding into the GDP is mentioned in chapter 1.2.

There are several other existing plans on the district level which contribute to the rejuvenation and protection of the rivers in the district. The District Environment Plan (DEP) with a focus on conservation of environment and natural resources including the assessment, mitigation and monitoring of adverse impacts of various pollution sources at district level. District Irrigation Plans (DIP) focusing on an efficient storage and allocation of the available water resources and the recently drafted (2018 and 2019) PCB Action Plans for the major rivers in the district including action plans for pollution abatement. This DGP has been developed in line with these plans and partially builds on information collected (in chapter 7) and actions suggested (in chapter 8) from these plans. The selected information has been sorted according to the key issues identified for this DGP.

Table 6. Template for stock taking

Intervention 1	Target (as defined in the previous DGP)	Current state (as per predefined performance indicator)	Explanation and lessons learned (if target was not met)

7 Prioritised issues & gaps that will be addressed in this management cycle

7.1 Situation analysis, and ongoing actions

Udham Singh Nagar has rapidly developed during the last decades. The urgent needs of urbanisation have created increased demand for land, housing, transportation, water supply, sanitation and health facilities leading to the development of domestic and commercial infrastructure in an unplanned manner. Additionally, the rapid industrialisation in the district has led to the setting up of factories discharging insufficiently treated effluents into streams and rivers. Moreover, insufficient garbage management causes irregulated dumping of solid waste especially in the cities, e.g., in Rudrapur. In agriculture, exceptionally high loads of fertilizers and pesticides are used. Pollution into streams and rivers thus stretches from industrial effluents, domestic wastewater, and solid waste dumping over agricultural runoffs.

This has caused tremendous impact and pressure on the already stressed ecosystem, and especially the water bodies. Udham Singh Nagar is one of the few districts showing negative growth in the forest area in the last years. The floodplains and riverbanks are being encroached upon increasingly. The quantity of the available water resources seems to be sufficient to meet the demand at the moment. Groundwater extraction appears to be ecologically balanced, although it has increased over the time in the district. It is observed that a few streams have disappeared in the past years, possibly due to groundwater extraction, which is currently not regulated. Groundwater recharge is partially impacted by lining of streams, thus hindering infiltration through which monsoon replenishes the aquifer. These pressure and risk factors can be divided in five domains

i. water quality
ii. solid waste management
iii. water quantity
iv. ecological integrity
v. capacity and public participation will be analysed in the following subchapters.

7.1.1 Water quality

Point source pollution

Domestic sewage and sanitation / septage - contamination of surface water

Total sewage generation

- Present estimated total wastewater(sewage) generated (2022-23): 181 MLD
- Present estimated wastewater(sewage) generated in urban areas (135 LPCD w/s) = 114 MLD
- Present estimated wastewater generated in rural areas (70 LPCD w/s): 67 MLD

The total wastewater generation in the district is 181 MLD, with 41.4% of wastewater being directly discharged into rivers. Main sewage generation in the cities in USN is:

- Rudrapur: 42 MLD[22]
- Kichha: 7.25 MLD[23].
- Sitarganj: 5.16 MLD[24].
- Bazpur: 4.39 MLD[25].

[22] Drain Details of River Kalyani, Rudrapur City, USN

[23] Draft Action Plan for Rejuvenation of River Kichha/Guala, 2019; p.9

[24] Action Plan for Rejuvenation of River Nandhor/Kailash, 2018; p.8

[25] Draft Action Plan for Rejuvenation of River Pilakhar, 2019; p.4

Treatment facilities

71 STPs are installed in Uttarakhand state, their operational treatment capacity is 354 MLD. Treatment through STP is currently not operational in the district[26]. 18 MLD capacity STP is under construction (2019) under AMRUT yojna with 1.5 km long sewage network[27]. No sewage treatment and networking system is found to be feasible in Rudrapur, but a 125 KLD STP is proposed, 3 MLD capacity STP is proposed in the Bhela River catchment[28], 3 MLD capacity STP is proposed for Sitarganj[24]

Water quality

As much as seven polluter stretches have been identified in Udham Singh Nagar district with priority level varying from I to IV based on the biological oxygen demand (BOD) concentration (Table 7). Kashipur, Bajpur, Rudrapur, Sitarganj, and Sultanpur are major towns that lie in the vicinity of these polluted stretches. Effluent fromindustries, sewage generated from households and dumping of solid waste in river catchment have been major sources of water pollution in these stretches of rivers (Table 9).

Table 7: River polluted stretches in Udham Singh Nagar[29]

S. No.	River Name	Stretch Identified	Major Cities/ towns	Length of Stretch (km)	Priority class
1.	Bhela	Kashipur to Rajpura, Tanda	Kashipur	14	(I)
2.	Dhela	Kashipur to Garhuwala (Thakurdwara)	Kashipur, Thakurdwara	14	(I)
3.	Gaula	Drains of Kiccha Gola river	Kichha, Lalkuan	06	(II)
4.	Kalyani	Drains of Rudrapur	Pantnagar, Rudrapur,	11.5	(III)
5.	Nandour/ Kailash	Along Sitarganj	Sitarganj	-	(IV)
6.	Pilakhar	In the vicinity of Rudrapur	Sitarganj	-	(IV)
7.	Kosi	Sultanpur to Pattikalan	Rudrapur, Bazpur	06	(IV)

[26] District Environment Plan, Udham Singh Nagar, 2019; p. 56

[27] Action Plan for Rejuvenation of River Dhela, 2019; p 3

[28] Draft Action Plan for Rejuvenation of River Bhela, 2019, p.2

[29] Source: District Environment Plan, Udham Singh Nagar, 2019 p. 62

Table 8: Identification of sources of pollution in the polluted stretches[30]

Potential source of pollution	Remarks		
Domestic sewage	**River stretch**	**Number of sewage drains meeting the river**	**Number of actual drains***
	River Bhela (Kashipur to Rajpura Tanda	03	03
	River Dhela (Kashipur to Garhuwala)	07	07
	Gaula (drains of Kiccha/ Gaula river)	06	06
	Kalyani (drains of Rudrapur)	22	184
	Nandhour/Kailash (along Sitraganj)	01	01
	Pilakhar (in the vicinity of Rudrapur)	01	01
	Kosi (Sultanpur to Pattikalan)	01	01
	All the cities/towns in the periphery of these rivers have at present no STP for wastewater management. However, these are under construction under Namami Gange Programme. ▪ As per site survey by UK PJN and as reported to NMCG		

[30] Source: compiled information from Action Plan for Rejuvenation of River Kosi, River Dhela, River Kalyani, River Bhela, River Kichha/gaula, River Nandhor, River Pilakhar, PCB, 2019

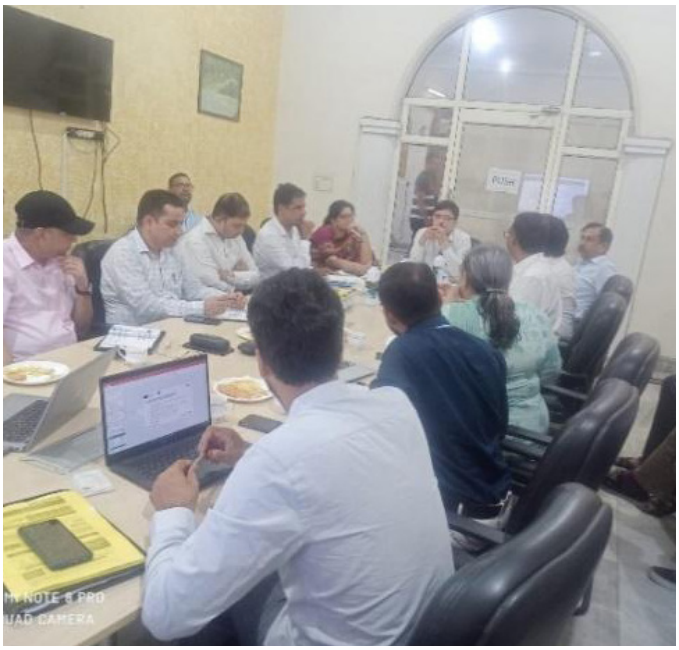


Figure 22: Consulation meeting with SPMG, Dehradun, UK

Figure 23: Consultation with DGC Udham Singh Nagar on 25th Aug, 22

Domestic households and commercial establishments in urban areas have their own septic tanks and most of them discharge into local drains. For rural areas, untreated wastewater is discharged directly into the local surroundings and water bodies. This leads to contamination of surface as well as sub-surface water, having negative effects on the environment and human health.

Sanitation coverage including type, function status and usage of toilets

- Kashipur: 3,000 out of 27,000 households have piped water supply, others have their own borewells[31]
- Another 12,000 households are to be connected to piped water through AMRUT II[31.]
- 16,071 households have been provided with piped water supply in Khatima, Bajpur, Gadarpur, Itchya, Rudrapur under state scheme.
- Connection is to be provided to any household that applies for piped water.
- Every HH has to provide connection in rural area under Jal Jeevan mission.
- About 2 lakh village households spread across 607 villages are aimed to be connected by the year 2024 under Jal Jeevan mission
- Every household has submersible pump to lift ground water for domestic use.

Percentage of households dependent on onsite sanitation systems (complete septic tanks with soak pits/ only pits/ direct discharge in drains)

- 'More than 50% of urban population in the state relies on on-site sanitation systems', e.g., septic tanks[32].
- 'Septic tanks cover 53.1% of the total sludge for the collection of faecal sludge and wastewater', this is a number for India as a whole[32].
- 'Some individual households in the state discharge the waste from their toilets directly into open drains' [32].
- Rudrapur city is a declared ODF city. The presence of a community toilet within 500 m radius from any HH without inhouse toilet is considered as HH with sanitation facility in the form of community toilet. There is no separate sewer line network in the city.
- In general, every HH has septic tank without soak pits; blackwater from septic tank gets discharged into open sewerage drain. There is no recorded data or information on household level sanitation facilities.
- The water table is very high for which construction of soak pits is not a feasible option.

Figure 24: Field visit to drains in Rudrapur

[31] Action Plan for Rejuvenation of River Dhela, 2019; p 7

[32] District Environment Plan, Udham Singh Nagar, 2019; p. 56

Figure 25: Bio CNG plant in Nagar Nigam

Figure number of drains tapped in the STP/ SPS/ MPS

- Currently, no town has operational STP in the district[33]
- Sewer network is available only at SIDCUL area.
- Sewer network of 1.5 km was constructed at Kashipur area way back in 1990 but it didn't function due to very high-water table in entire region.
- 125 KLD Faecal Sludge Treatment Plant (FSTP) under construction beside BHEL factory at Itchya Bypass under AMRUT Programme
- 7 locations are already identified for construction of STP (Jal Nigam will construct STP).
- 18 MLD STP is under construction under AMRUT scheme on Laxmipur Minor and Kalash Mandap nala on River Dhela
- All other STP will be constructed under Namami Ganga Programme Table 8

Number of untapped drains

- Dhela passes through Kashipur, 4 municipal drains join it with wastewater from 13 pulp and paper industries (industries have functional ETPs)[34] (Dhela AP, 4)
- 40 main drain and 105 branch drain originated from Rudrapur are directly discharging into Kalyani River.

River stretch wise drain name and discharge data is given in Table 9.

Volume of untreated sewage in each of the drains

- Jal Nigam Nalla/Kalash Mandap Nalla: 4.57 MLD
- Laximpur Nalla: 7.17 MLD
- Gabiya Nalla: 5.54 MLD
- Ice Factory Nalla: 1.56 MLD[35]

River stretch wise drain name and discharge data is given in Table 9.

---

[33] District Environment Plan, Udham Singh Nagar, 2019; p. 57

[34] Action Plan for Rejuvenation of River Dhela, 2019; p. 4

[35] Action Plan for Rejuvenation of River Dhela, 2019; p. 6

Number and location of drains directly discharging in the river incl. information on the volume of untreated sewage

- 4 major drains carrying untreated sewage into Dhela[35]: ranging from 4.8-10.535 MLD,
- with a combined total of 26.645 MLD.
- 2 drains 'passing towards Nandhor[36]
- Number of sewage drains meeting river in district: 38[37]
- 40 main drains connected with Kalyani River

List of drain is collected is given in Table 9.

Treatment of wastewater through STP is currently not practiced in the district. Udham Singh Nagar. Domestic households and Commercial establishment have their own Septic tank and most of them are discharged in local drains. However, an outlay has been prepared and work has been commenced on Interception and diversion works of major drains in the district.

Table 9: Status of drains connected to rivers [38] `

Sl. No.	River/ River Stretch	Location	Drain Name	Drain Discharge		Pro-posed STP Ca-pacity (MLD)
				Present Dis-charge 2019-20 (MLD)	Design Discharge 2037 (MLD)	
1.00	Bhela/ Kashipur to Rajpura Tanda	Village Hempur Ismail Kashipur	Hempur Ismail Drain No 1&2	0.840	1.150	2.00
		Near Mahadev Barage, Jaspurkhurd, Kashipur	Jaspurkhurd Drain	0.660	0.950	1.00
		Total Discharge in River Bhela		**1.500**	**2.100**	**3.00**

[36] Action Plan for Rejuvenation of River Nandhor/Kailash, 2018;p. 3

[37] District Environment Plan, Udham Singh Nagar, 2019; p. 67

[38] Source: I&D/STP works under Namami Gange

Sl. No.	River/ River Stretch	Location	Drain Name	Drain Discharge		Pro-posed STP Ca-pacity (MLD)
				Present Discharge 2019-20 (MLD)	Design Discharge 2037 (MLD)	
2.00	Dhela Kashipur to Garhuwala Thakurdwara	Near Gabiya Nala, Kashipur	Laxmipur Minor Nala	7.170	8.723	18.00
		Near Gabiya Nala, Kashipur	Kalash Mandap Nala	4.57	5.566	
		Near Gabiya Nala, Kashipur	Gabiya Nala	5.540	6.740	10.00
		Near Gabiya Nala, Kashipur	Ice Factory Nala	1.560	1.900	
		Village Beljudi, Kashipur	Beljudi Nali	0.144	0.190	0.50
		Village Gulariai	Gulariai Nali No 1	0.060	0.081	0.30
		Village Gulariai	Gulariai Nali No 2	0.035	0.047	
		Total Discharge in River Dhela		**19.079**	**23.247**	**28.800**
3.00	Gola/ Along Kiccha	Near Shiv Mandir, Kiccha	1. Bedi Mohalla Nala	0.242	0.355	3.00
			2. Bankhandi Mandir wala Nala (L)	0.091	0.133	
			3. Bankhandi Mandir wala Nala (R)	0.050	0.074	
			4. Shiv Mandir wala Nala (L)	0.118	0.173	
			5. Shiv,Mandir wala Nala (R)	0.177	0.260	
			6. Shivnagar Mandi wala Nala	0.315	0.463	
		Total Discharge in River Gaula (Kiccha)		**0.994**	**1.458**	**3.000**

Sl. No.	River/ River Stretch	Location	Drain Name	Drain Discharge		Pro-posed STP Ca-pacity (MLD)
				Present Discharge 2019-20 (MLD)	Design Discharge 2037 (MLD)	
4.00	Kosi / Sultanpur to	Village Mukundpur	Mukundpur Nala	0.105	0.170	0.500
5.00	Nandhor/ Along Sltarganj	Near Odheri Nala, Village, Baghori, Sitarganj	Odheri Nala	1.161	1.750	3.00
6.00	Pilakhar/ downstream of Bazpur	Village.Mundia Pistor, near Bazpur	Ghoga Nala	6.800	8.000	10.00
		Total Discharge in River Bahela, Dhela, Gaula, Kosi, Nandhor & Pilakhar		**29.639**	**36.725**	**48.300**
				Year 2021	Year 2040	
7.00	Kalyani/ downstream of Pantnagar	Rudrapur City	18 major drains & 166 small nalis (87 on RHS and 97 on LHS- Total 184)	42.120	54.756	54.00
			Kalyani river	86.000	111.800	115.00

According to Jal Nigam, Udham Singh Nagar, intervention of Wastewater discharge in drains vis-a viz I&D/STP planned/under construction is followed for Kashipur and Rudrapur City.

S. No.	Drains	Present discharge of sewage	I&D/STP planned/ under construction
1	2 no. of drains at Kashipur:	11 MLD	18 MLD
2	19 drains at Rudrapur	22 MLD	30.3 MLD
3	Minor & major drains into river Kalyani	42 MLD	54 MLD
	Total	75 MLD	102.3 MLD

- Construction of 10 STPs with capacity 48.3 MLD in the district (30.3 MLD under Namami Gange + 18 MLD under AMRUT) is ongoing. Proposal for 54 MLD for drains discharging into river Kalyani is being planned under Namami Gange Mission. (total 184 drains; left side flow is 22.55 MLD and right side flow is 19.57 MLD)22. In Rudrapur 125 KLD FSTP is under construction beside BHEL factory at Itchya bypass under AMRUT programme. Additional seven more STPs have been proposed under Namami Gange Mission.
- Sewerage network / Septage has been proposed for two towns of U.S. Nagar district (Kashipur and Rudrapur) where households of 12 wards out of total 40 wards is to be connected to STP in Kashipur and Approx. 100% coverage as co-treatment is proposed as a pilot project for Rudrapur.

Current status of faecal sludge management and disposal of septage

- Ramky is operating one 4 MLD CETP (additional 8 MLD is capacity enhancement) at SIDCUL, Pant Nagar.
- At present, municipality is supplying faecal sludge to Ramky Plant at SIDCUL

Current standpoint regarding sewage management in the district[33]

Parameter	Remarks	
	ULB	Estimated Coverage
Estimated Households to be connected with FSTP or STP	Kashipur	12 wards out of total 40 wards
	Rudrapur	Approx. 100% coverage as FSTP is proposed as a pilot project for Rudrapur
Policy regarding decentralised wastewater management Faecal Sludge and Septage Management system (FSSM)	As per Uttarakhand Sewage Protocol policy	
Gap in current wastewater management	Provision of STP/ FSTP in each ULB of district for scientific wastewater management	

Sewerage network system and number of connected households

- Kashipur city has 1.5 km sewage network[31]

% of treated sewage recycled / type of use

- Currently, no town has operational Sewage Treatment Plant in the district[33].

Encroachment sites in urban areas (no. and length)

- Encroachment over Kalyani/ Bahgul River - 457 nos. (As per 2019 survey by Nagar Nigam- Rudrapur)

Industrial pollution – Contamination of surface water in urban areas

Total number of polluting industries sector-wise highlighting grossly polluting industries

Table 10: Identification of sources of pollution in the polluted stretches[39]

Potential source of pollution	Remarks		
Industrial pollution	River Stretch	Number of GPIs (Grossly polluting industries) in polluter stretch or entire catchment of the river	Number of industrial drains meeting the river
	River Bhela (Kashipur to Rajpura Tanda)	08 (2 of them are maintaining ZLD)	03
	River Dhela (Kashipur to Garhuwala)	14	04
	Gaula (Drains of Kiccha river)	04	01
	Kalyani (Drains of Rudrapur)	03	-
	Nandhor (Along Sitraganj)	02	-
	Pilakhar (In the vicinity of Rudrapur)	03 (one unit not operational)	-
	Kosi (Sultanpur to Pattikalan)	02	01
	Individual ETP and CETP are monitored by UKPCB		
	Oil usage is the main source for industrial hazardous waste/ contaminated barrels are being recycled through registered recyclers. The rest is either disposed through Treatment, Storage and Disposal Facility (TSDF) or incinerated.		

[39] Source: compiled information from Action Plan for Rejuvenation of River Kosi, River Dhela, River Kalyani, River Bhela, River Kichha/Gaula, River Nandhor, River Pilakhar, PCB, 2019

- Kosi: 2 pulp and paper mills are permitted to discharge after tertiary level treatment, both on Bazpur Road in Kashipur[40] .
- 13 Pulp & Paper industries along Dhela riverbank[41] .
- Pantnagar: 236 industrial units are connected with CETP (conveyer system not available to those), 'some industrial units have made their ETP as per requirement'[42].
- List of industries connected with CETP, IIE, Pantnagar[43] .
- List of industries in Pilakhar catchment is provided[44]

Figure 26: Polluted stretch of Kalyani river

Figure 27: Status of Kalyani River prior to industrial belt

41 Action Plan for Rejuvenation of River Dhela, 2019; p. 5, 19

42 Action Plan for Rejuvenation of River Kalyani, 2019: p.5

43 Action Plan for Rejuvenation of River Kalyani, 2019: p.17-21

44 Draft Action Plan for Rejuvenation of River Pilakhar, 2019; p. 18-26

List of GPI and SPI Industries

- Pulp and paper mills40, list+location are given in p. 16.
- List of GPIs in catchment of Dhela[41]
- Graph of GPIs in Kashipur contributing pollution to Bhela including location and list of quantities are provided[45]
- Bhela catchment: pulp+paper industry, sugar industry, textile industry, distillery, electroplating industry[46]
- List of GPIs in Gaula catchment[47]
- List of number of GPIs in the district is provided[48]

The River Dhela in the Kashipur area along with industrial drains and locations of GPIs:

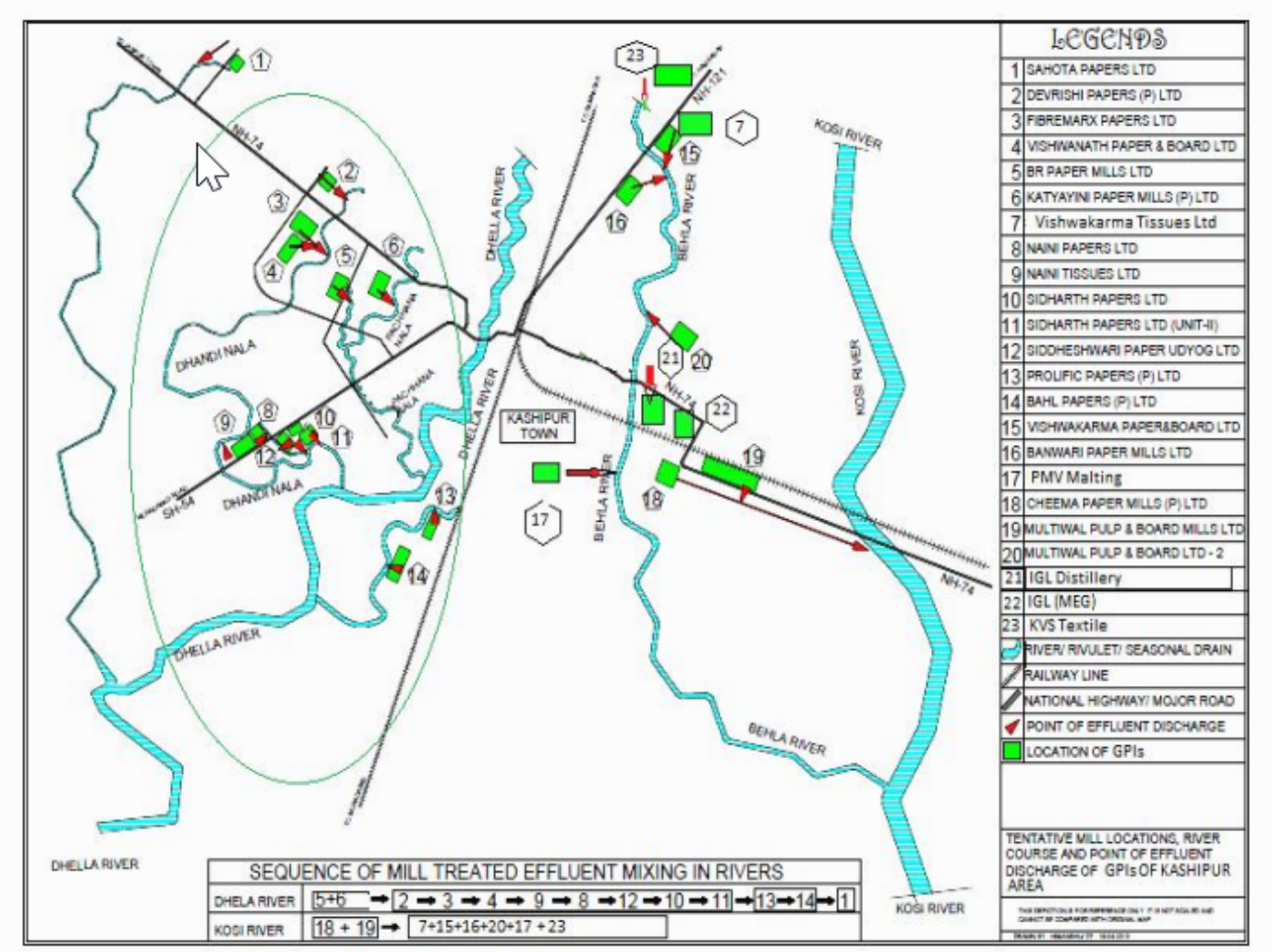


Figure 28: Map of rivers Dhela in the Kashipur area along with industrial drains and locations of GPIs[35]

[45] Draft Action Plan for Rejuvenation of River Bhela, 2019; p. 5, p.20

[46] Draft Action Plan for Rejuvenation of River Bhela, 2019; p7-8

[47] Draft Action Plan for Rejuvenation of River Kichha/gaula, 2019; p. 18

[48] District Environment Plan, Udham Singh Nagar, 2019 ;p.44-45

Total industrial effluents generated

- Total quantity of industrial wastewater generated: 40 MLD[49]
- Wastewater generation of 2 Paper and Pulp industries in catchment of Kosi generating
- 2649 KLD and 1230 KLD respectively[50]
- wastewater generation ranging from 180 KLD to 3800 KLD, sum: 34132.99 KLD[50]
- Bhela catchment: wastewater generation ranging from 595 KLD to 2631 KLD, sum: 7,476 KLD[50]
- Gaula catchment: wastewater generation ranging from 24 KLD to 20,024 KLD, sum: 38,036.4 KLD[50]
- List of wastewater generation in Pilakhar catchment, range from 0.25-936 MLD sum: 1,989.55 MLD[50]

Total capacity of treatment facilities available and its utilisation

- 2 CETPs (combined capacity of 7.8 MLD). About 257 industries are connected with the CETPs. All the industries are meeting standards for effluent discharged in the river [49]
- Total quantity of industrial wastewater generated is about 40 MLD in which 30 MLD of treated wastewater is discharged into water bodies[49]

Number of ETPs/CETP installed and functioning condition in the district

- 2 CETPs in District: one CETP in IIE, Pantnagar, 4MLD capacity51 (Kalyani AP; 22), another CETP in Nandhor/Kailash catchment, in Sitarganj 4 MLD installed capacity[51]
- 2 pulp + paper industries in Pilakhar catchment, all the units have functioning ETPs[51]
- 3 Pulp and paper industries in Gaula catchment, all with functional ETPs[51]
- 13 Pulp & Paper industries along Dhela all have functional ETPs[51]

Status of connectivity of ETPs with CETP/ Untreated discharge in drains

- List of industries connected with CETP, IIE, Pantnagar – 236 industries[52] (Kalyani AP p. 17-21) and all are connected with CETP.
- List of industries connected with CETP, Sitarganj, on Nandhor[52]. 91 different industries are situated in which 69 industries are connected and remainings have been closed down.

---

[49] District Environment Plan, Udham Singh Nagar, 2019 ; p.60-61

[50] Action Plan for Rejuvenation of River Kosi, 2019: p.16, River Dhela 2019: p.19, Bhela 2019:p.20, River Kicha 2019; p.18, River Pilakhar; p.18

[51] Action Plan for Rejuvenation of River Kalyani, 2019; p.22, River Nandhor 2019 p. 2,22, River Pilakhar; p.6, River Kicha 2019; p.6, River Dhela 2019; p.5

[52] Action Plan for Rejuvenation of River Kalyani, 2019; p.17-21, River Nandhor 2019 p. 17-21

- No untreated or partially treated Industrial wastewater discharging into lakes[49]
- In few drains, semi treated wastewater is being discharged

Existing law enforcement instruments / policies

- Industries in operation without Consent under Water (Prevention and Control Pollution) Act, 1974 and Air Act 1981 directed to UEPPCB to obtain consent, otherwise closure [53]
- Hazardous and Other Waster (Management & Transboundary Movement) Rules 2016
- Effluent outlet standards prescribed under Environment (Protection) Rules 1986 [53]
- Charter for Prevention and Control of Pollution on Pulp and Paper Industries 2015 [53]
- Solid Waste Management Rules 2016 [53]

Water Quality (indicator parameter BOD, COD and DO and parameters of main concern) downstream of major industrial pollution stretches

Table 11: Surface water characteristics in rivers of Udham Singh Nagar[54]

Location	pH (range)	BOD (mg/l) (range)	COD (mg/l) (range)	DO (mg/l) (range)
Average water quality characteristics of river Bhela at downstream of Kashipur (Bhela AP 1)	7.32 (6.7-7.9)	39.5 (18-52	117.66 (48-166)	1.1(0-2.6)
Average water quality characteristics of river Dhela at downstream of Kashipur	7.23 (6.7-7.8)	21.77 (16-40)	75.11 (58-132)	2.6(2.2-3.8)
Average water quality characteristics of river Gaula (River Kichha/Gaula AP 4)	7.65 (7.4-8.1)	16.53 (6-38)	62.67 (30-140)	3.95(0.4-6.6
Average water quality characteristics of river Kalyani at downstream of Pantnagar	7.19 (6.4-7.9)	34.51 (6-80)	129.83 (36-304)	2.53(0.6-5.20
Average water quality characteristics of river Kosi at Bazpur Road	7.21 (6.8-7.5)	5.76 (2.2-12)	17.51 (10-38)	6.6 (4-7.8)
Average water quality of river Nandhor river with ranges	7.42 (7.2-7.6)	3.88 (2-4.2	15 (12-21)	6.92 (6.4-7.4)
Average water quality of Pilakhar river/ Kailash at upstream of Sitarganj	7.47 (7.2-7.8)	8.45 (3.2-16)	35.66 (18-80)	5.46 (3-7.2)

[53] Action Plan for Rejuvenation of River Kosi, 2019; p.7, River Kalyani 2019; p. 4, River Kichha/gaula 2019; p. 5)

[54] Source: compiled information from Action Plan for Rejuvenation of River Kosi, River Dhela, River Kalyani, River Bhela, River Kichha, River Nandhor, River Pilakhar, PCB, 2019 mentioned as AP in the table body

- Kosi: BOD (mg/L) Min-Max: 2.2-12, avg: 5.76; COD (mg/L) Min-Max: 10-38, avg: 17.51; DO (mg/L) Min-Max: 4-7.8, avg: 6.6.
- Dhela (Upstream of Kashipur): BOD (mg/L) Min-Max: 4-12, avg: 7.4; COD (mg/L); 10-38, avg: 23; DO (mg/L) 4.6-6.4, avg: 5.75.
- Dhela (downstream of Kashipur): BOD (mg/L): 16-40, avg: 21.77; COD (mg/L): 58-132; avg 75.11; DO (mg/L) 2.2-3.8, avg: 2.6
- Kalyani (upstream of Pantnagar): BOD (mg/L) avg: 3.6; COD (mg/L) avg: 16.22; DO (mg/L) avg: 7.22.
- Kalyani (downstream of Pantnagar): BOD (mg/L) avg: 34.51; COD (mg/L) avg: 129.83; DO (mg/L) avg: 2.53
- Bhela (upstream of Kashipur): BOD (mg/L) avg: 4.7; COD (mg/L) avg: 14.62; DO (mg/L) avg: 6.48
- Bhela (downstream of Kashipur): BOD (mg/L) avg: 39.5; COD (mg/L) avg: 117.66; DO (mg/L) avg: 1.1
- Gaula River: BOD (mg/L) avg: 16.53; COD (mg/L) avg: 62.67; DO (mg/L) avg: 3.95
- Nandhor (upstream of Sitarganj): BOD (mg/L): 3.88; COD (mg/L): 15; DO (mg/L) 6.92
- Nandhor (downstream of Sitarganj); BOD (mg/L): 7.21; COD (mg/L): 30.90; DO (mg/L): 6.41
- Pilakhar: BOD (mg/L): 8.45; COD (mg/L): 35.66; DO (mg/L): 5.46[54]
- Water characteristics of Bhela (2017-2021) on EP USN; 46
- More current Data can be found INDIA-WRIS[55]:

[53] Source : https://indiawris.gov.in/wris/#/SWQuality

7.1.2 Water pollution through municipal solid and biomedical waste

Contamination from municipal solid waste (MSW) is a major concern in Udham Singh Nagar and is likely to become more problematic in the coming decades due to population growth. Municipal solid waste contaminates streams and surface waters and consists of different types of waste, including plastics, food waste, tins and electronic waste. Solid waste pollution often stems from an inadequate waste management system, which includes collection, segregation, transportation, processing and disposal. At a glance,

- Solid waste generation in the district is expected to rise in coming decades and would cross 300 MTPD by 2031.
- Nagar Nigam Rudrapur and Nagar Nigam Kashipur contribute for more than half of the solid waste generated in the district.
- 3 to 4 % growth rate in solid waste generation is expected in coming decades.
- Increased urbanisation will change the waste composition in the district. The quantity of wet waste may decrease; however, there would be increase in e-waste, hazardous waste generation, plastic waste etc.
- About 78 % of the rural population use open dumping as storage and collection of solid waste

Municipal solid and biomedical waste generation trends and typology of waste

Udham Singh Nagar's population is projected to increase in the coming decades, which will also lead to an increase in municipal solid waste generation. Currently, the district generates approximately 259.674 MTPD of MSW in which 109.795 MTPD has been processed. Kashipur and Rudrapur are the areas with the highest waste generation in the district (see Table 12).

Table 12: Status of waste generation and processed in Udham Singh Nagar[56]

SL. No	ULB Name	Total Wards	Wards with 100% D2D collection	Wards with 100% source segrega-tion	Generation (MTPD)	Processed (MTPD)
1	Kashipur	40	40	25	62.903	44.032*
2	Mahua Kheraganj	9	9	0	3.258	3.258
3	Mahuadabra	7	7	7	4.645	0.968
4	Jaspur	20	20	12	24.195	0.000
5	Sultanpur_U	7	7	7	4.00	4.839
6	Bazpur	13	13	13	10.161	2.854
7	Kela Khera	9	9	9	4.349	0.324
8	Rudrapur	40	40	38	76.774	1.613
9	Kichha	20	20	15	19.806	5.258
10	Gadarpur	11	11	11	8.00	9.041
11	Dineshpur	9	9	9	4.1	4.10
12	ShaktiGarh	7	7	7	1.161	0.00
13	Sitarganj	13	13	13	19.00	3.871
14	Khatima	20	20	0	10.516	7.968
15	Nanakamtta	7	7	7	4.032	0.023
16	Gularbhoj	7	7	7	2.774	2.775
				Total	259.674	109.795

*As per discussion with DGC meeting held on 27.04.2023, 100 % MSW processing of Kashipur (62.903 MTPD) is not done and counts up to 70 %.

- Solid waste generation in the district is expected to surpass 400 MTPD by 2040'[57]
- Biomedical waste generated in the district is lifted regularly by common biomedical waste treatment and disposal facility' (same as above)
- Waste generation and its processing stages are in detailed Table 12.
- Increased urbanisation may lead to less wet waste, more e-waste and hazardous waste generation, plastic waste and composition of biomedical waste [58]

Disposal practices (% of unregulated disperses, informal dump sites, official collection spots, good and bad practices)

- 100 % door-to-door collection in all the ULBs (239 wards)[59].
- However, often not source segregated and only 43 % of solid waste are processed.
- Private land is being used for waste disposal in the ULBs with no established landfill or dumping ground.
- Information on waste management infrastructure is given[59].
- Each ULB has established links with some private agencies for waste collection transportation etc'[59].

Treatment facilities, their capacities and functioning conditions

- Composting, Material Recovery Facilities, dumping grounds, trenching grounds, sanitary landfills[59]

Total solid waste generated in main cities / entire district

- Sultanpur Patti (closest urban settlement to Kosi) approx. 2.95 MTPD solid waste generated and dumped into open areas[60]. (Kosi AP; 5)
- Total 76.774 MTPD solid waste generated in Rudrapur city of which 1.613 MTPD has been processed[60]
- Kashipur estimated MSW generation 62.9 MTPD in 20 wards[60]
- Kichha generates approx. 19.81 MTPD solid wastes.[60]
- Sitarganj generates approx. 19.00 MTPD solid wastes. [60]
- Bazpur generates approx. 10.16 MTPD solid wastes[60]
- Inventory of total solid waste generation has provided in Table 9. [59]

---

[57] District Environment Plan, Udham Singh Nagar, 2019 p. XVI

[58] Source: District Environment Plan Udham Singh Nagar, 2019, p.28, 32

[59] Source: District Environment Plan Udham Singh Nagar, 2019 ; 14, 15, 16, 18-19

[60] Action Plan for Rejuvenation of River Kosi, 2019; p.5, River Kalyani, 2019; p. 9, River Dhela, 2019; p.9, River Kichh, 2019; p.10, River Nandhor 2019 p. 9, River Pilakhar 2019; p.5

Legacy waste sites (number and size)

- Details given in DEP USN: table 9[61]
- Kashipur Nagar Nigan is working with Ram Singh Agarwal Pvt. Ltd. for the remediation of 35000 MT legacy waste in the old dumping site.
- In Sitarganj, 03 composting pits have been constructed in different areas of the ULB and old dump site comprising of almost 9904 MT waste.
- In Rudrapur, out of 30 composting pits, 12 are available in government colonies. dry waste is being segregated majorly into four categories (plastic, glass, card board and paper)

Segregation at source / waste collection & transportation / processing capacity/ disposal and recycling facilities

100 % Source segregation is completely missing in some ULBs of Udham Singh Nagar like Khatima and Mahua Kheraganj. Except for two, all ULBs are lacking MRF, hampering their ability to process the accumulated dry waste. Disposal of waste has also been an issue in the district as landfills and disposal site authorised by the government according to SWM rules 2016 are hard to find.

Table 13: Status of Waste Management System in District Udham Singh Nagar[62]

Name of ULB	Shortcomings	Remarks
NN Kashipur	Partial source segregation of waste	ULB has achieved only 62.5 % source segregation.
	Partially segregated waste transport	Complete segregated waste transport would be possible once 100 % source segregation is achieved.
	No linkage with authorised waste recyclers.	Recyclable dry waste is sold to local ragpickers, thus forming part of informal economy.
NN Rudrapur	majority source segregation of waste	ULB has achieved 95 % source segregation and is expecting reach 100% mark in near future.
	Partially segregated waste transport.	Complete segregated waste transport would only be possible once 100% source segregation is achieved. Waste processing is lacking
	No linkage with authorised waste recyclers.	Recyclable dry waste is sold to local ragpickers, thus forming part of informal economy.

[62] Source: District Environment Plan Udham Singh Nagar, 2019, p.21, table 10

Name of ULB	Shortcomings	Remarks
NPP Gadarpur	Full source segregation	ULB has achieved 100 % source segregation
	segregated waste transport	Complete segregated waste transport has been achieved
	Non-availability of waste recovery facility	Dry waste is handled and segregated manually in the waste disposal site.
	No linkage established with authorised waste recyclers	Recyclable dry waste is sold to local ragpickers, thus forming part of informal economy.
NPP Bajpur	Full source segregation	ULB has achieved 100 % source segregation
	Segregated waste transport	Complete segregated waste transport has been achieved
	Non-availability of waste recovery facility	Dry waste is handled and segregated manually in the waste disposal site. Material recovery facility is under construction.
	No linkage with authorised waste recyclers.	Recyclable dry waste is sold to local ragpickers, thus forming part of informal economy.
NPP Jaspur	Partial source segregation	ULB has achieved 60 % source segregation
	Combined waste transport	Waste is transported in combined form
	Wet waste management.	Wet waste is not processed Nagar Palika Jaspur due to non- availability of composting pits or machinery.
	Non-availability of waste recovery facility.	Dry waste is handled and segregated manually in the waste disposal site.
	No linkage with authorised waste recyclers.	Recyclable dry waste is sold to local ragpickers, thus forming part of informal economy.
NPP Kichha	Partial source segregation	Source segregation is performed in 15 wards out of 20.
	Partially segregated waste transport	Waste is transported in combined from in some of the wards. (Particularly those with no source segregation).
	Non-availability of waste recovery facility	Dry waste is recovered manually by the firm handling waste management operations for the ULB.
	No linkage with authorised waste recyclers.	Recyclable dry waste is sold to local rag pickers, thus forming part of informal economy.
	Lack of designated waste disposal land	Waste is disposed in some private land.

Name of ULB	Shortcomings	Remarks
NPP Sitarganj	Full source segregation	ULB has achieved 100 % source segregation.
	Non-availability of waste recovery facility	Dry waste is handled and segregated manually in the waste disposal site by an outsourcing form. Primarily, plastic waste is recovered. Material recovery facility is under construction.
	No linkage with authorised waste recyclers.	Recyclable dry waste is sold to local rag pickers, thus forming part of informal economy
	Remediation of old dump site	One dump site comprising of almost 10000MT waste is yet to be remediated.
NPP Mahuwa Khedaganj	Partial Source segregation	Low source segregation.
	Partially segregated waste transport	Complete segregated waste transport would be possible once 100% source segregation is achieved.
	Non-availability of waste recovery facility	Waste recovery facility is under construction in Nagar Palika Mahuwa Khedaganj.
	No linkage with authorised waste recyclers.	Plastic waste after segregation is sold to local ragpickers, thus forming part of informal economy.
NP Mahuwadabra	100% segregation of waste.	Segregated waste is being collected from each household in Nagar Palika.
	Non-availability of waste recovery facility	▪ Dry waste, primarily plastic waste is recovered manually by the firm handling waste management operations for the ULB. ▪ Waste recovery facility is under construction in Nagar Palika, Mahuwadabra.
	Linkage with authorised waste recyclers.	Plastic waste after segregation is sold to local ragpickers, thus forming part of informal economy.
NP Sultanpur patti	100% source segregation	Source segregation is practised in only all wards.
	Non-availability of waste recovery facility	Dry waste is handled and segregated manually in the waste disposal site by an outsourcing form. Primarily, plastic waste is recovered.
	No linkage with authorised waste recyclers.	Plastic waste after segregation is sold to local ragpickers, thus forming part of informal economy.
	Lack of designated	Waste is disposed in some private land.

Name of ULB	Shortcomings	Remarks
NP Khelakheda	Full source segregation	Source segregation is practised by only few households in 9 out of 9 wards.
	Non-availability of waste recovery facility	Dry waste is handled and segregated manually in the waste disposal site by an outsourcing form. Primarily, plastic waste is recovered.
	Lack of designated waste disposal land	Waste is disposed in some private land.
NP Dineshpur	Full source segregation of waste	At present, Nagar Palika is performing 100% source segregation.
	Non-availability of waste recovery facility	Dry waste is handled and segregated manually in the waste disposal site by an outsourcing form. Primarily, plastic waste is recovered.
	Linkage with authorised	Plastic waste after segregation is sold to local ragpickers, thus
NP Shaktigarh	Full source segregation of waste	At present, Nagar Palika is performing 100% source segregation.
	Non-availability of waste recovery facility	Dry waste is not processed in Nagar Palika. It is collected and dumped in the disposal site.
	Full source segregation of waste	At present, Nagar Palika is performing 100% source segregation
	Non-availability of waste recovery facility	Dry waste is not processed in Nagar Palika. It is collected and dumped in the disposal site.
	No linkage with authorised waste recyclers.	As the dry waste is not segregated, hence linkage is redundant.
NP Gularbhoj	Full source segregation of waste	At present, Nagar Palika is performing 100% source segregation covering 7 out of 7 wards.
	Non-availability of waste recovery facility	Dry waste is not processed in Nagar Palika. It is collected and dumped in the trenching ground.

- Kashipur: mixing of biomedical and MSW reported by Nagar Nigam[31]
- Detailed table of waste management operations (with division into ULB)[59]
- Detailed table of methods of treatment, disposal and recovers are provided[63]

[63] Source: District Environment Plan Udham Singh Nagar 2019, p.19-21, table 9

Status of Garbage Vulnerable Points (GVPs) and locations where riverbeds are used as dumping sites

- Dhela river, dump site 100-150 m from riverbank on flood plain zone[31]
- Solid waste is presently dumped at Paharganj, Rudrapur - Area 7.8 ha, any dumping on riverbed is not reported in Rudrapur.

Figure 29: Kalyani river site encroachment

Figure 30: Dump yard at Paharganj

Interventions and actions to improve solid waste management

The objective of interventions is to increase the efficiency of solid waste management systems in urban and rural areas with the target of 100% of areas having such working systems in place. In order to be effective, the complete chain of waste management needs to be addressed, from collection and transport to processing and recycling.

Waste generation in the district varies from about 50 MT in Kashipur to as low as about 1 MT in Shaktigarh. Primary waste management operations are optimum in some ULBs, but some others are lacking even basic operations such as source segregation. Each ULB has established linkages with some private agencies for waste collection transportation etc.[59]

In line with the State Solid Waste Management Action Plan, Solid Waste Management actions in different ULBs in District Udham Singh Nagar, the integrated Solid Waste Management and Revamping solid waste management is prioritised by involving local authorities and stakeholders.

- For Kashipur Cluster, A DPR has been approved for implementing Integrated Solid Waste Management (ISWM) at an estimating cost of INR 16.24 cr. Three ULBs will manage their solid waste in a cluster-based approach. Components proposed for Kashipur cluster will include household bins for source segregation, wheelbarrows for sweepers, processing facility infrastructure, regional sanitary landfill at Rudrapur etc.
- For Gadarpur Cluster, A DPR has been approved for Integrated Solid waste management at an estimating cost of INR 13 cr. Major works undertaken includes setting up of waste processing plant in village Majra hasan with an estimated area of around 8.77 ha. Development of monograph/templates on solid waste management for improving local people's waste management skills will be provided.
- For Haldwani Cluster, a proposal includes transportation vehicles, construction of a CBG (Compressed biogas plant), and remediation of legacy waste in Pahadganj area. Scientific processing of dry waste has been approved. A land proposal has been sent to DM office for construction of material recovery facility.
- In NPP Kichha, NPP Sitarganj, NPP Khatima, NPP Mahuwa kheraganj, NP Shaktigarh, NP Nanakmatta, and DPR with total estimated cost of 15.91 cr. has been approved for improving solid waste management. Development works will include purchase of transportation vehicles, construction of trenching ground and other civil works and material recovery facility.

Non-point source pollution

Rural & urban sanitation: contamination of surface and groundwater

Number of villages/ULBs and their total households

- Total census villages: 643[64]

Household sanitation coverage by type of sanitation

- 56.2 % of households have improved sanitation facilities which are lower than state average of 64.5 % (source: District Profile Udham Singh Nagar, Uttarakhand)

Amount and type (black, grey, mix, storm) of wastewaters draining into rivers

- Sewage and sludge through storm water drains[31]
- Agricultural runoff and industrial wastewater draining into Bhela[65]

Agricultural runoff: Growing pollution from agricultural chemicals

Land under agriculture

- 'The geographical area of the district is 2542 km^2'
- 'The total cultivable land in the district is 153695 ha' (both DIP USN; 29) – 60,4% of geographic area
- 'The net area sown is 1.42 lac hectares'- about 92.4% of cultivable land is also sown
- 'The cropping intensity of the district is 184.34% in which rice, wheat and sugarcane are the main cropping pattern of the district'[66]
- Land use pattern table (divided into blocks)[66]

64 Source: District Environment Plan Udham Singh Nagar 2019, p. 7

65 Source: Action Plan for Rejuvenation of River Bhela, 2019; p.4

66 Source : DIP, USN 2017 ; p.23-24

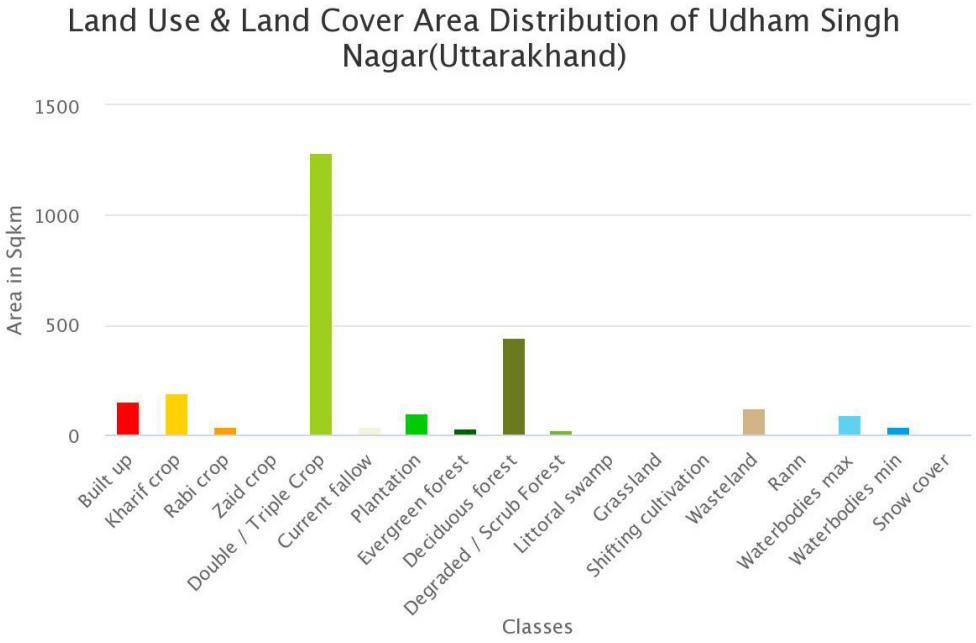


Figure 31: Area wise land use and land cover area of Udham Singh Nagar, Uttarakhand[67]

Amount and types of fertilizers and pesticides used (in kg per ha)

- very high fertilizer usage (4x Indian average), seeds, pest problem (see situational assessment draft)
- In 2018-19, usage of fertilizer: N- 411.84 Kg/ Ha. P- 53 kg/ha, K- 23.51 kg./ ha.
- Pesticide & insecticide (total) for major crop (rice & wheat) = 22,298 kg (2018-19), 212264 kg (2017-18)
- In 2018-19, applied insecticide (dust) = 71653 kg., pesticide (liquid) = 38,138 l, fungicides = 37,493 kg, weedicides = 73,852 kg, rat killer = 1,162 kg.

Major crops and average yields (in t per ha)

Mainly cereals like paddy, wheat, oil seed, pulses and sugarcane along with fruits and vegetable crops (DIP USN; 22)

- Detailed numbers (divided into different crops and blocks from DIP USN p. 39
- Crops listed: cereals, coarse cereals, pulses, oil seeds, fibre, any other crop
- Divided into 3 seasons; Kharif, Rabi and summer crop

In 2020-21, crop production is listed Paddy - 54.03 q/ ha., Rice – 36.02 q/ ha., Wheat – 44.25 q/ ha. In 2019-20, Crop production is listed Paddy – 51.99 q/ha., Rice – 34.66 q/ ha., Wheat – 38.98 q/ ha.

[67] Source : https://indiawris.gov.in/wris/#/lulc

Farming practices/techniques

- 98% area watered through artificial irrigation (DIP USN; 26)
- Horticulture crops irrigated through flooding (DIP USN; 35)
- Micro Irrigation – 12,691 ha., 1,39,120 ha. (Total Agri Land, 99% of is flood irrigated)
- Cultivated area – 1,39,120 ha.
- Irrigated (99% of total Cultivated Area) – 1,37,728.8 ha.
- Flood irrigation area – 1,25,037.8 ha.

Burning practices

Stubble burning practice is relatively less in comparison with Punjab or Haryana state

Crops grown in river beds and river banks

Rice, wheat, sugarcane during Rabi, Kharif & Zayed (summer) season

% of land under organic farming

- Total district cultivated area – 1,39,120 ha.
- Organic farming in 4,841.24 ha.
- 4,574 nos. farmers are practicing organic farming under RKVY, PKVY – Central.
- UOCB (Uttrakhand Organic Commodity Board) is promoting organic cultivation
- APEDA is providing - 0 Year, 1 Year, 2 year certification facility for organic product

Involvement of women in farming and their roles

- 82,936 women agricultural labourers and cultivators (District Census Handbook, 2011)
- Women agriculture labour in hilly area (labour & leader) - 90%; Agri Labour in plains - 30%

7.1.3 Water quantity

Surface water

Inadequate (surface) water storage capacity

Surface basin water budgets (including precipitation, seasonal water levels and river flow trend during the year)

- Average annual rainfall: 962 mm[68]
- Major rivers perennial, others dry during non-monsoon season[68]
- 'The annual average pan evaporation rates for Ramganga basin is 4.88 mm/day'[69] (RBP; IV)
- Average pan evaporation for Ramganga basin and its sub basins is in table in mm[69]

Table 14: Status of groundwater availability of district Udham Singh Nagar[70]

Name of Block	Existing Water availability (BCM)		Total (BCM)	Water Demand (BCM)		Water Gap (BCM)	
	Surface water	Ground water		Present	Additional Projected (2020)	Present	Projected (2020)
Jaspur	0.0000140	7.039	7.0390140	0.32622	0.0000069	-	-
Kashipur	0.0000139	8.755	8.7550139	0.28347	0.000052	-	-
Bajpur	0.0000138	13.164	13.1640138	0.41814	0.000006	-	-
Gadarpu	0.0000141	9.203	9.203014	0.30982	0.0000013	-	-
Rudrapur	0.0000138	10.924	10.9240138	0.36142	0.000019	-	-
Sitarganj	0.0000141	16.899	16.8990141	0.47403	0.0000036	-	-
Khatima	0.0000142	15.651	15.6510142	3.64245	0.0000052	-	-
Total	0.0000979	81.635	81.6350979	5.81555	0.0000940	-	-

[68] Source: District Environment Plan Udham Singh Nagar 2019, p.8, 9

[69] Source : RBP 2020, IV

[70] Source : DIP USN 2017 ; p-44

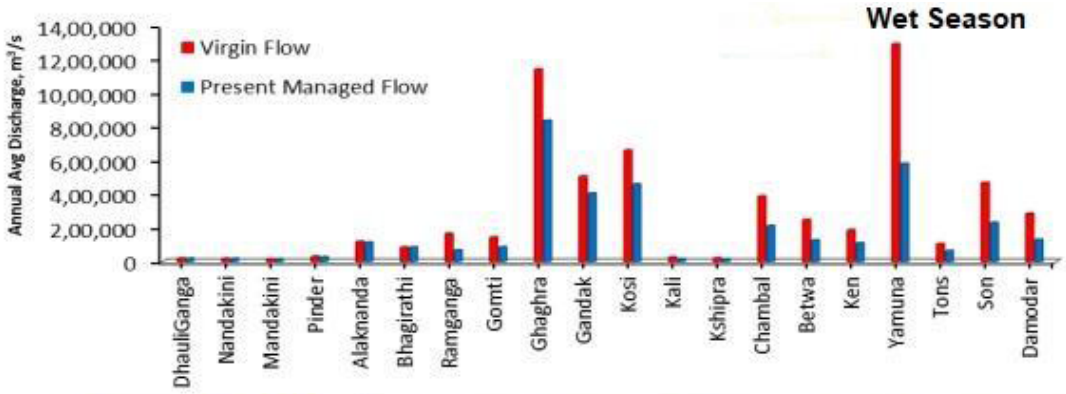


Figure 6.4b: Wet Season Flow Contributions of Different Tributaries (sub-basins) to National River Ganga under Present Flow Conditions and under Virgin Flow Conditions

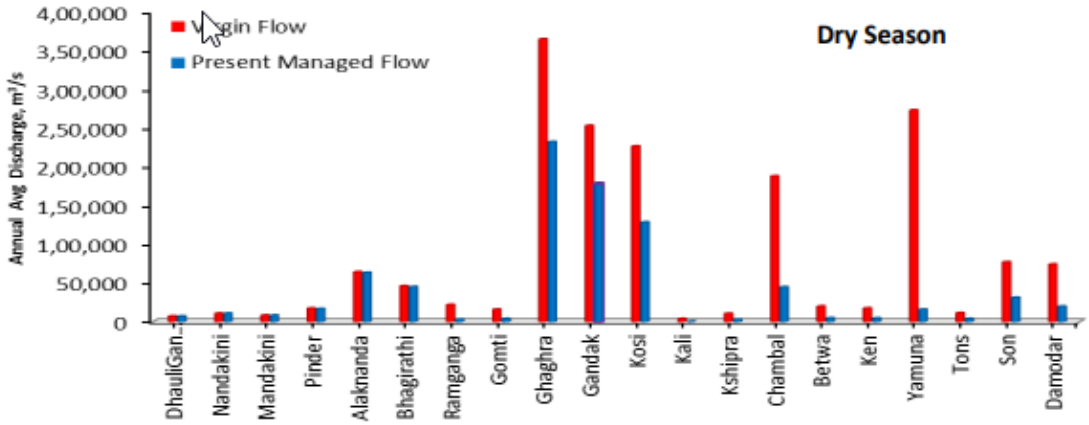


Figure 6.4c: Dry Season Flow Contributions of Different Tributaries (sub-basins) to National River Ganga under Present Flow Conditions and under Virgin Flow Conditions

Figure 32: status of wet and dry flow contributions of different tributires[71]

List and status of dams, barrages, anicuts, embankments, small pond areas etc. and their design storage capacities

- 1 large reservoir in district: Sharda Sagar: Live storage (BCM): 0.19; Fill %: 57.58
- 50 check dams (ARS)
- More information in INDIA- WRIS[72]

Siltation status of surface water bodies

- Baigul reservoir, Dhauliganga Reservoir, Dhora Reservoir, Ichari Reservoir, Nanak Sagar Reservoir, Ramganga (Kalagarh) reservoir, Tanakpur Barrage, Tehri

[71] Source: District Environment Plan Udham Singh Nagar 2019, p.8, 9

[72] Source: https://indiawris.gov.in/wris/#/sediment

Table 15: Status of reservoirs[72]

Reservoir Name	Year of Present survey	Agency Name	Gross Storage (MCM)	Live Storage (MCM)	
Ichari	1966	--	11.55	11.55	
	1977	St Gov	8.45	8.45	
	1982	St Govt	5.39	5.39	
	2003	St Govt	6.09	6.09	
Dhora	1962	--	54.809	50.987	
	1991	St Govt	45.645	44.395	
	2005	St Govt	43.61	42.94	
Nanak Sagar	1962	--	209.8	200.5	
	1992	St Govt	189.067	183.252	
	2008	St Govt	180.5	175.58	
Baigul	1968	--	86.68	78.36	
	1992	St Govt	70.725	65.225	
	2005	St Govt	65.42	65.42	

	Dead Storage Capacity (MCM)	Cumulative Loss of Gross Capacity (MCM)	% Cumulative Loss of Gross Capacity	Observed rate of siltation (Th.Cu.m/ km²/Yr)	Designed rate of siltation (Th.Cu.m/ km²/Yr)
	0	--	--	--	--
	0	3.1	26.84	0.06	--
	0	6.16	53.33	0.12	--
	0	5.46	47.27	--	--
	3.822	--	--	--	--
	1.25	9.164	16.72	2.346	--
	0.67	11.199	20.43	1.079	--
	9.3	--	--	1.212	--
	5.815	20.733	9.88	0.939	--
	4.92	29.3	13.97	--	--
	8.32	--	--	--	--
	5.5	15.955	18.41	2.201	--
	0	21.26	24.53	1.351	--

Current effective Surface water storage capacity per rainfall

Table 16: Total Storage in MCM[73]

Area of District (km^2)	Area Identified for AR (km^2)	Volume of Unsaturated Zone (MCM)	Available Subsurface Space for AR (MCM)	Water Required for Recharge (MCM)	Surplus Available for Recharge (MCM)
3055	764	1528	229	305	1911

Encroachment status of surface water bodies – Ganga, key rivers, ponds and wetlands

- Encroachment over Kalyani/ Bahgul river - 457 nos (as per 2019 survey by Nagar Nigam Rudrapur

Surface water usages (including floods)

- Surface water is used only for Irrigation purpose

Surface water usages (including floods)

- Surface water is used only for Irrigation purpose

Rainwater harvesting structures

Possible rainwater harvesting structures:

- CT- Contour Trench, CK- Chal Khal, RTRWH- Rooftop Rainwater Harvesting, CD- Check Dam, PT- Percolation Tank
- Proposed Roof Top Rainwater Harvesting (RTRWH): 700 (area 300 to 1000 m^2) (ARS), Total Cost: 350 Lakhs

Type, no and capacity of rejuvenated water bodies and further scope for rejuvenation (type, no and capacity)

Possible rainwater harvesting structures:

- More than 250 ponds constructed under MNREGA, 30 under progress[74]
- Existing ponds:1274
- Ponds currently in serviceable situation: 545

[73] Source: MPARG 2020 p. 148

[74] Source: District Environment Plan Udham Singh Nagar 2019, p.79-80

Groundwater

Unknown groundwater potential

Zonal Groundwater budget (including groundwater abstraction rates, natural groundwater recharge etc.)

Table 17: Category of groundwater development[75]

Assessment Unit Name	Total Annual Groundwater Recharge (ham)	Stage of Groundwater Extraction (%age)	Categorization
Jaspur	7039.76	80.54	Semi-critical
Kashipur	8755.30	87.09	Semi-critical
Bazpur	13164.14	79.70	Safe

Total annual groundwater availability is estimated as 81.6350979 BCM, annual draft for all uses (domestic, industrial and irrigation) is 5.81555 BCM. The net ground water availability for future purposes is 75.8195 BCM. The block-wise stage of Ground Water Development in the study area shows that the highest groundwater draft is in Bajpur block and least is in the Jaspur Block. The block wise graphical presentation of net groundwater availability and total draft of the district is shown in table 11 which shows that Jaspur and Kasipur block is in critical condition for overexploitation of ground water uses. Water uses for different purposes is mentioned in figure 20. As per CGWB data, Total annual ground water draft for block wise is estimated as 64.8368 BCM. Status of groundwater availability classifies block of district in (i) critical: Jaspur and Kashipur (ii) semi-critical: Gadarpur and Rudrapur. Rudrapur (86.77%) has highest groundwater extraction while Sitarganj block is lowest (69.60%).

[75] Source : AMP 2016, p. 64

Table 18: Status of groundwater availability of district Udham Singh Nagar[76]

SL No	Name of the block	Status of block as per Central Ground Water Board Notification			Ground Water (BCM)		
		Critica	Semi-critical	Safe	Draft	Recharge	Gap
1	Jaspur	Yes	-		5.66977	7.14579	1.47679
2	Kashipur	Yes	-		7.62511	8.89488	1.26977
3	Bajpur	-	-	Yes	10.49172	13.35494	2.86322
4	Gadarpur	-	Yes	-	8.70539	9.36159	0.65620
5	Rudrapur	-	Yes	-	8.12481	11.07608	2.95119
6	Sitarganj	-	-	Yes	11.62780	17.91129	6.28349
7	Khatima	-	-	Yes	12.59221	15.88086	3.28865
	Total				64.83681	83.62543	

Areas with groundwater pollution and pollution type

- So far, no contamination of groundwater reported in any of the UK PCB action plans.
- Groundwater quality data (by area) is given[77]
- Further information of water quality of groundwater in INDIA -WRIS[79]

[76] Source : DIP USN 2017 ; p.44

[77] Source : District Environment Plan Udham Singh Nagar 2019, p.64

Zones where surface-groundwater interaction is high. Rudrapur has highest extraction rate[78]

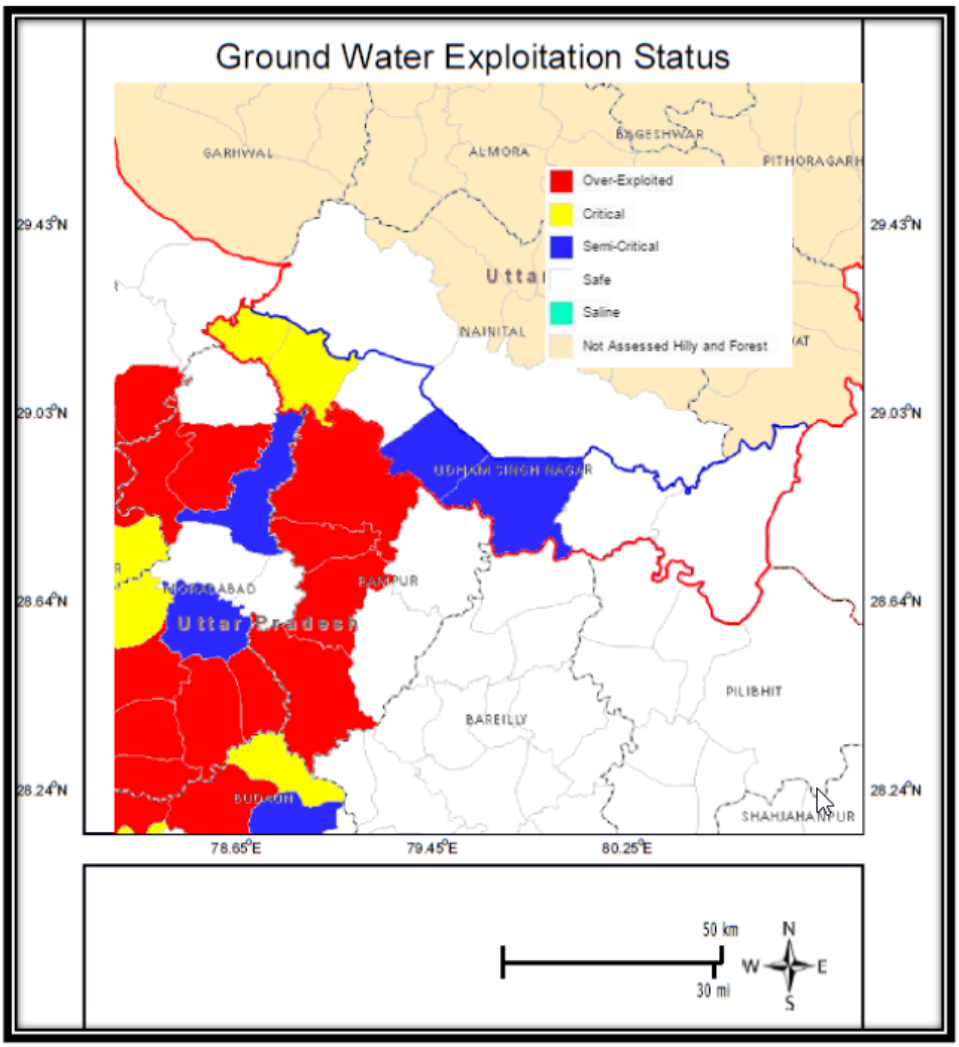


Figure 33: Groundwater exploration map in Udham Singh Nagar district, Uttarakhand

Existing Managed Aquifer Recharge (MAR) systems

- Information is given in INDIA-WRIS[79]
- Volume of unsaturated zone: 1528 MCM
- Water Required for recharge: 305 MCM

Scope for groundwater recharge / MAR systems (locations / area, capacity, water source and usage purpose)

- Area identified for ARS: 764.00 km^2 (ARS)
- Available subsurface volume for ARS (MCM): 229.00 (ARS)
- 50 Check dams (ARS)[80], estimated cost: 15 Lakhs

[78] Source: DIP USN 2017 ; p.5

[79] Source: https://indiawris.gov.in/wris/#/arsViewer

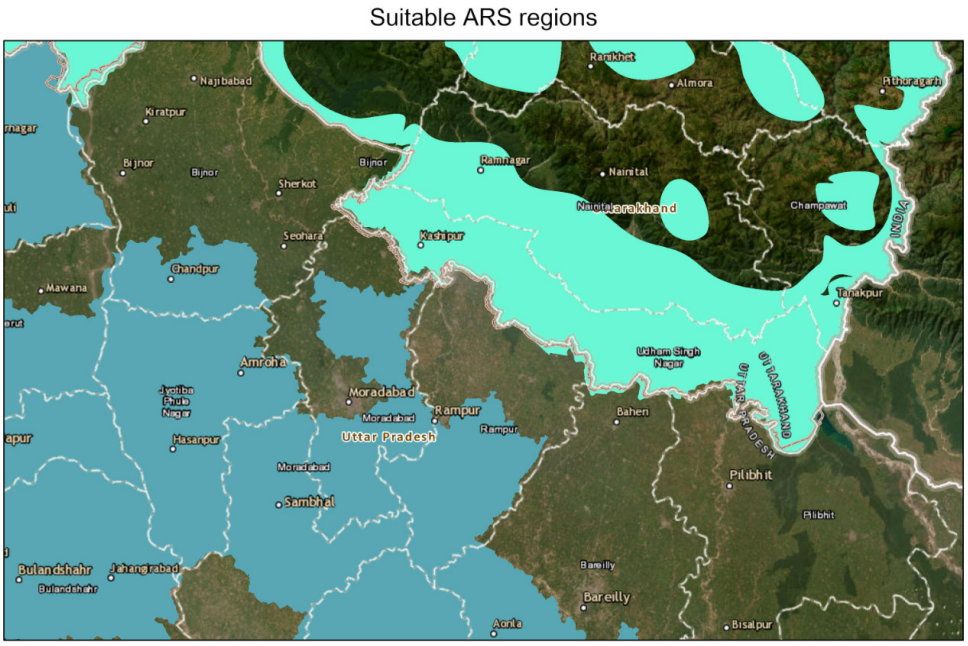


Figure 34: Suitable ARS regions (colors only differenciate the state wise regions) [79]

Unregulated groundwater use

Local abstraction regulations

- No restriction over abstraction of groundwater[81].

GW budget (incl. GW abstraction rates and purposes)

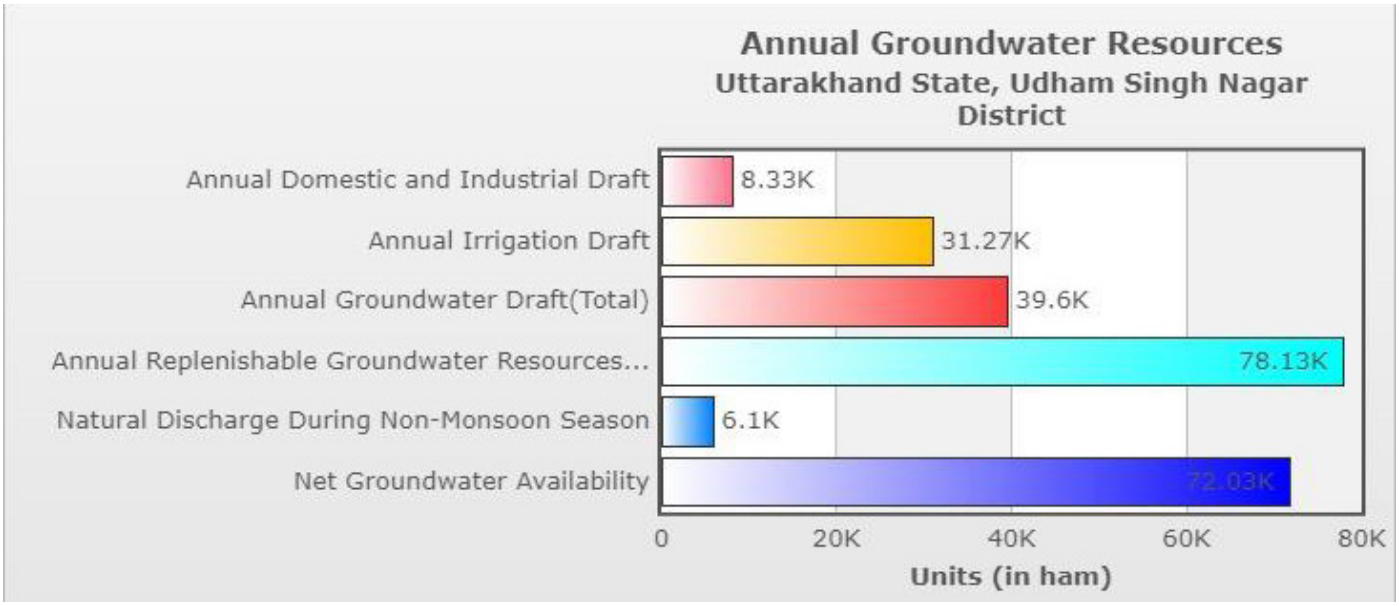


Figure 35: Annual groundwater resources of Udham Singh Nagar District[82]

[81] Source : DIP USN; p. 6

[82] Source : District Environment Plan Udham Singh Nagar 2019, p.64

Trend of water levels

- Water table has gone down since 1970[83]
- Seasonal changes, slope of water table from north to south[84]
- 2 broad hydrogeomorphic units

Groundwater level data over time in India-WRIS[82]

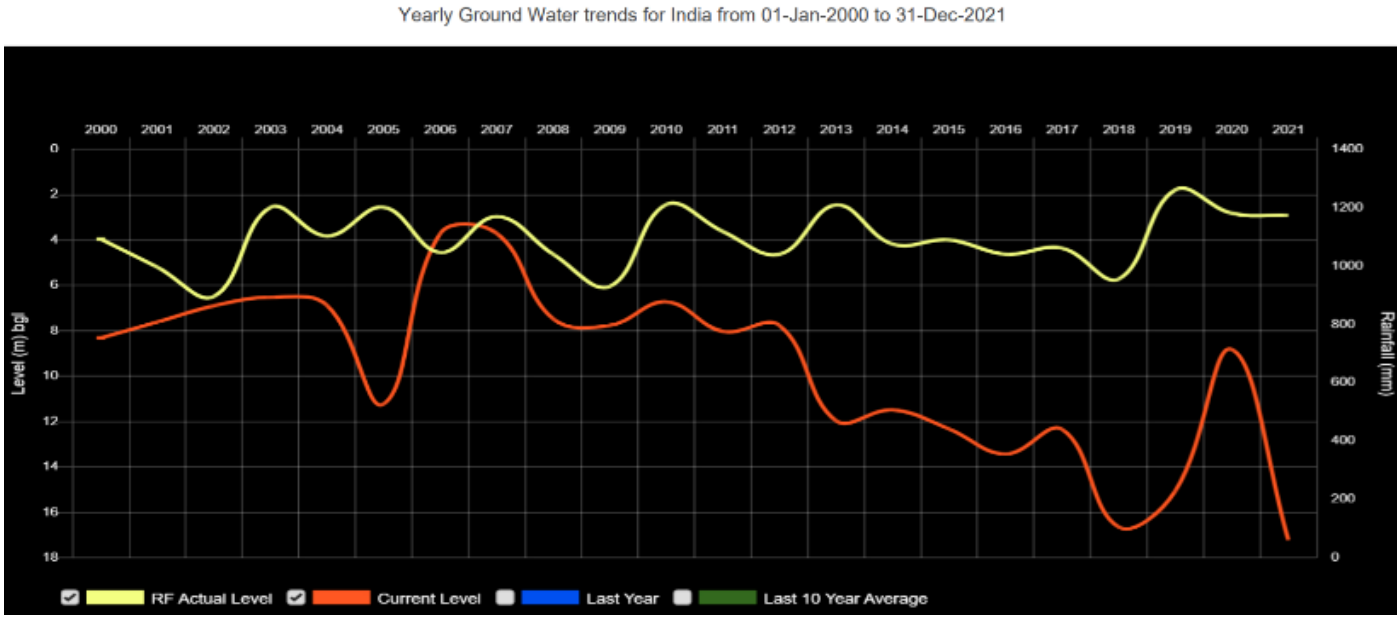


Figure 36: Groundwater level trend in Udham Singh Nagar district, Uttarakhand[82]

Groundwater sources are drying up

Districts Water budget

- Information on water budget in Table 19

[83] Source : DIP USN 2017 ; p.5

[84] Source: https://indiawris.gov.in/wris/#/arsViewer

Table 19: Total water demand of udham singh Nagar District, Uttarakhand[85]

Sector wise Water Demand					
Domestic	**Crop**	**Livestock**	**Industrial**	**Power generation**	**Total BCM**
0.00018344	2.654	0.06128	0.0000819	3.10	5.81555
Total Water Requirement/Demand:					
Existing Water Availability (BCM)		**Total (BCM)**	**Water Demand (BCM)**		
Surface Water	**Ground Water**		**Present**	**Projected (2020)**	
0.0000979	81.635	81.6350979	5.81555	0.000094	

Aquifer mapping

- In the district of Udham Singh Nagar, the major blocks are situated on Alluvium zone and have good groundwater prospect.

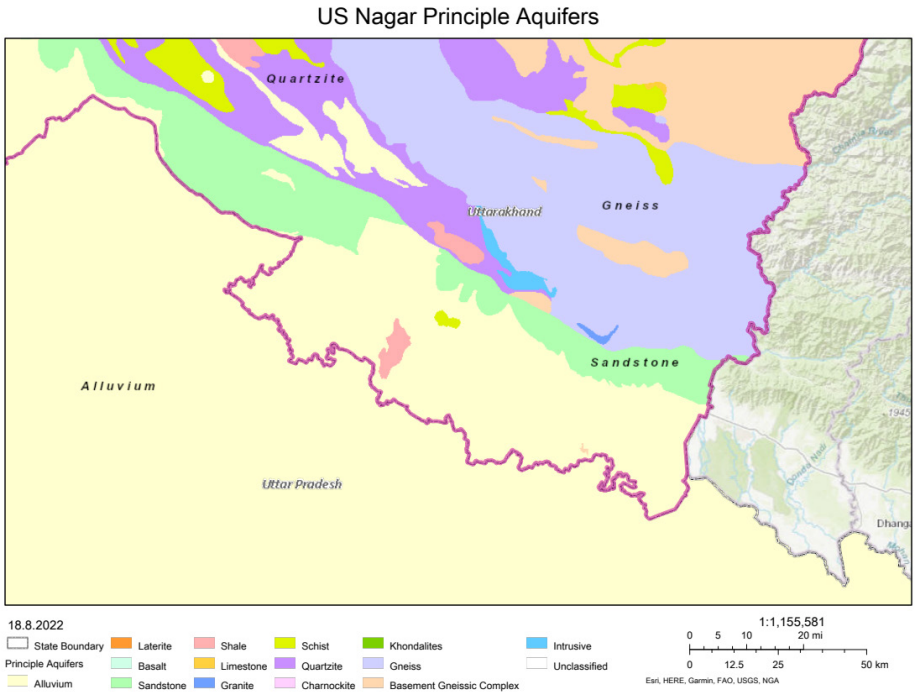


Figure 37: Aquifer mapping of District Udham Singh Nagar[86]

[85] Source: DIP USN 2017;p. 50-51

[86] Source: https://indiawris.gov.in/wris/#/Aquifer

Irrigation practices

- Source of irrigation canal, bore wells (govt and private) and artisan wells;
- 73% of area irrigated through private tube wells[87]
- Irrigation is provided to 1,40,882 ha. of the total cultivable land[88]'
- Detailed list of crops whether those are irrigated or rainfed, in the different blocks is provided[89]

Water management

Water security cannot be guaranteed for the entire command area

Irrigation water usage pattern (water use per ha and crop or yield)

- Detailed numbers on how much area is irrigated and how much area is rainfed (divided into different crops and blocks.[90]
- Crops listed: cereals, coarse cereals, pulses, oil seeds, fibre, any other crop
- Divided into 3 seasons; Kharif, Rabi and summer crop[91]
- Table of water requirement/demand is provided[92]. (divided into blocks, 3 crops, irrigated area, crop water demand)

87 Source: DIP USN 2017;p.25

88 Source: DIP USN 2017;p.29

89 Source: DIP USN 2017;p.36

90 Source: DIP USN 2017;p.36

91 Source: DIP USN 2017;p.42

92 Source: DIP USN 2017;p.46

Table 20: Irrigated Area of Udham Singh Nagar, Uttarakhand

Name of the block	Irrigated (Area in ha.)	
	Gross Irrigated Area	Net Irrigated Area
1	2	3
Jaspur	2x 5x 161990 = 161990	16199
Kashipur	2x 5x 14103 = 141030	14103
Bajpur	2x 5x 21477 = 214770	21477
Gadarpur	2x 5x 18200 = 182000	18200
Rudrapur	2x 5x 19400 = 194000	19400
Sitarganj	2x 5x 22295 = 222950	22295
Khatima	2x 5x 24365 = 243650	24365

Interventions and Measures

To prevent soil erosion due to frequent flooding, the department has prepared schemes under the Pradhan Mantri Krishi Sichai Yojna (PMKSY), improving upon the existing irrigation structures. As per the operational guidelines of PMKSY the department has prepared schemes totalling 62,813.52 Lakhs. Out of this total amount, the ongoing schemes under AIBP would require 1619.83 Lakhs, total of 27,023.00 lakhs rupee schemes have been proposed under Har Khet Ko Pani to enhance physical access of water to farms and expand cultivable area under assured irrigation. Due to presence of several rivers and rivulets, the district is highly flood prone. The floods cause considerable soil erosion, loss of cultivated land and damage to the crops. To prevent and reduce these losses and effectively manage the runoff water, a total of Rs 32,476.74 Lakhs of schemes have been proposed under the Watershed Development component.

Under the Catchment Area Conservation Management Plan (CACMP), 700 RTRWH and 50 check dams are proposed with the estimation 3.65 Crore.

In District Udham Singh Nagar, organic farming is conducted in 4,841.24 ha where 4,574 farmers are practicing and promoting organic farming under RKVY, PKVY – Central. UOCB (Uttarakhand Organic Commodity Board) is promoting organic cultivation. APEDA is providing - 0 Year, 1 Year and 2 Year certification facility for organic production.

7.1.4 Ecological integrity

Freshwater biodiversity and habitats

The floodplain is the strip of land adjacent to the river that will be inundated by periodic floods. It generally has high soil fertility and supports diverse and rich ecosystems. In addition, it is often a desired location for settlements and infrastructure such as roads. In urban areas, floodplains are sometimes occupied by slums with very high population density and poor infrastructure. Floodplain functions include groundwater recharge, flood-wave buffering and attenuation, erosion control, improving surface water quality because of sediment deposition, and providing habitats for diverse aquatic and terrestrial flora and fauna. The encroachments on the floodplains hinder these functions and should be regulated to ensure the ecological functioning of the floodplains. The extend of the encroachment has been assessed:

Aquatic biodiversity & habitats: encroachment of the floodplain and riverine zones

Total area of floodplain and riverine zones being encroached

- Encroachment details are given in encroacher list in the annexure7. encroachers are listed with individual area encroached varies from 16-60 m2
- Encroachment of approx. 1.95 ha area in Baigul river plain is listed.

Owners of encroached land

- List with names of encroachers is given in the list in the Annex collected from Nagar Nigam

Agriculture practices

- Continuous cereal cropping has changed the soil and its water holding capacity[93]

[93] Source: DIP USN 2017;p.34

7.1.5 Capacity building and public participation

Training needs

Topics relevant for capacity development

- Examples given of possible interventions under the URMP[94]
- Process to be followed by cities for preparing the URMP[95]
- Fostering and Capacity Enhancement of Water Users Organisations, e.g. WUAs[96]

Topics not covered by existing Training institutes and courses

- Long term planning for 20 to 30 years, GIS based land use assignment, E-Flow assessment.
- Information provided in
  - → https://nmcg.nic.in/writereaddata/fileupload/59_Mainstreaming%20Urban%20River%20report%20-%20compressed.pdf
  - → https://edukemy.com/current-affairs/gazette/2021-07-16/urban-river-management
  - → https://urbanrivers.niua.org/themes/contrib/corporate_blue/pdf/vVol_1_-_Main_document.pdf

Identification of potential training institutes

- G.B. Pant University[97]
- District Education and Training Institute[98]

Available other training options

- Administrative Training Institute Nainital
- River Cities Alliance (RCA)[99]
- National Water Academy (NWA)[100]
- Proper Training centres for waste and water management

---

94 Source: URMP 2020 ; p.59

95 Source: URMP 2020 ; p.82 onwards

96 Source: RBP 2020; p.200

97 Source: https://www.gbpuat.ac.in/

98 Source: https://www.dietusnagar.ac.in/

99 Source: https://www.drishtiias.com/daily-updates/daily-news-analysis/river-cities-alliance

100 Source: https://www.google.com/search?q=Institutions+for+training+needs+in+river+managhttps://nwa.mah.nic.in

7.2 Selected issues with gap analysis and specific measures

The DGC and the SMCG and the stakeholder consultation process concluded that the following key issues are to be dealt with in the first RBM cycle in USN:

1. Domestic sewage, septage in urban/peri-urban areas; this is focused on nonpoint source pollution from domestic urban areas
2. Liquid waste management - industrial effluents (point-source pollution)
3. Solid waste management in rural and urban areas; a 100% target was envisioned; the complete chain should be addressed from collection, transport, processing, and recycling
4. Water storage capacities and GW recharge to address declining groundwater tables and increase base flow
5. Floodplain protection and restoration, which includes measures to address riverbank encroachment
6. Capacity building and human resources development at the DGCs (including Arth Ganga) with gender inclusive approach

To prepare for a meaningful action plan, the assessment of these issues is briefly analysed with the gaps assessed, potential measures identified and specific targets concluded on. For these targets detailed action plans are elaborated in the next chapter.

Key Issue 1: Domestic sewage, septage in urban/peri-urban areas

Gap assessed:

USN has a serious problem with pollution from domestic sewage and septage. Present total wastewater generated is 181 MLD of which 75 MLD is presently being discharged into rivers through the identified/listed polluted drains for which treatment is to be undertaken through the proposed/under construction I&D/STP works. Rest is dependent on onsite sanitation systems. Construction of 10 STPs with capacity 48.3 MLD in the district (30.3 MLD under Namami Gange + 18 MLD under AMRUT) is ongoing. Proposal for 54 MLD for drains discharging into river Kalyani is being planned under Namami Gange Mission. Total 184 drains; left side flow is 22.55 MLD and right side flow is 19.57 MLD. Another 7 STPs are proposed under Namami Gange Mission to further reduce pollution. Cities are generally do not have separate sewage line networks; thus, stormwater gets mixed. Most households have a septic tank, mostly without soak pits. Black water from septic tank gets discharged into open sewerage drains which cause surface water pollution and biodiversity degradation at river stretches. There is a need for a detailed household survey to assess the septage management status and to gain gender segregated data.

Rudrapur city with 26 MLD wastewater generation is the biggest polluter, the city is a declared ODF city. Presence of community toilet within 500 m radius from any HH without inhouse toilet is considered as HH with sanitation facility in the form of community toilet. There is no separate sewer line network in the city. Water table is very high because of which construction of a centralised sewerage approach is not a technical feasible option.

Sewer network is available only at SIDCUL area. Sewer network of 1.5 km was constructed at Kashipur area in 1990 but it didn't function due to a very high water table in the entire region.

Potential interventions:

- Improvement of sanitation infrastructure to achieve full coverage for all citizens and reduce pollution on water sources.
- Development of wastewater treatment facilities.
- Evaluate the performance of Sewage Treatment plants on discharging the treated water.
- Implementation of State Septage Management Protocol-Develop citywide faecal sludge and Septage Management (FSSM) Plan including assessment of the existing situation (detailed household survey) across the sanitation service chain, reporting, monitoring and feedback systems, safe sludge disposal sites in accordance with septage management byelaws notified by all ULBs in the district.
- Exploration of possible application of nature based solutions" like DEWATS, Rootzone treatment systems, constructed wetlands, Soil Bio-Technology (SBT) etc. for addressing pollution loads (details given in Annex)
- Preparation of operational guidelines for operating the STPs
- Expansion of the underground sewerage network in Kashipur in areas where it is feasible.
- Gathering of information on household level sanitation in order to address problem.
- Development of separate drainage system so that storm water does not mix with wastewater.

Specific target(s):

- Implementation of integrated sanitation management facility for all households; 80% achievement of integrated sanitation/septage management approach in peri urban areas, specifically accessible to women (based on needs assessment conducted on household level in a gender sensitive way)
- Installation of 11 STPs along with interception and diversion of all identified polluted drains (2 in Kashipur, 19 in Rudrapur) and drains discharging in river Kalyani .
- Implementation of co treatment facilities in the upcoming STPs.
- Faecal Sludge Treatment Facility is operationalised for Rudrapur.
- Plans for covering 80% of all domestic wastewater with STP / septage management is prepared (including rural areas).
- 5-7 km of sewerage system for drains discharging into river Kalyani is implemented in Kashipur.
- 4 km of open drainage systems replaced for covering it in Kashipur.

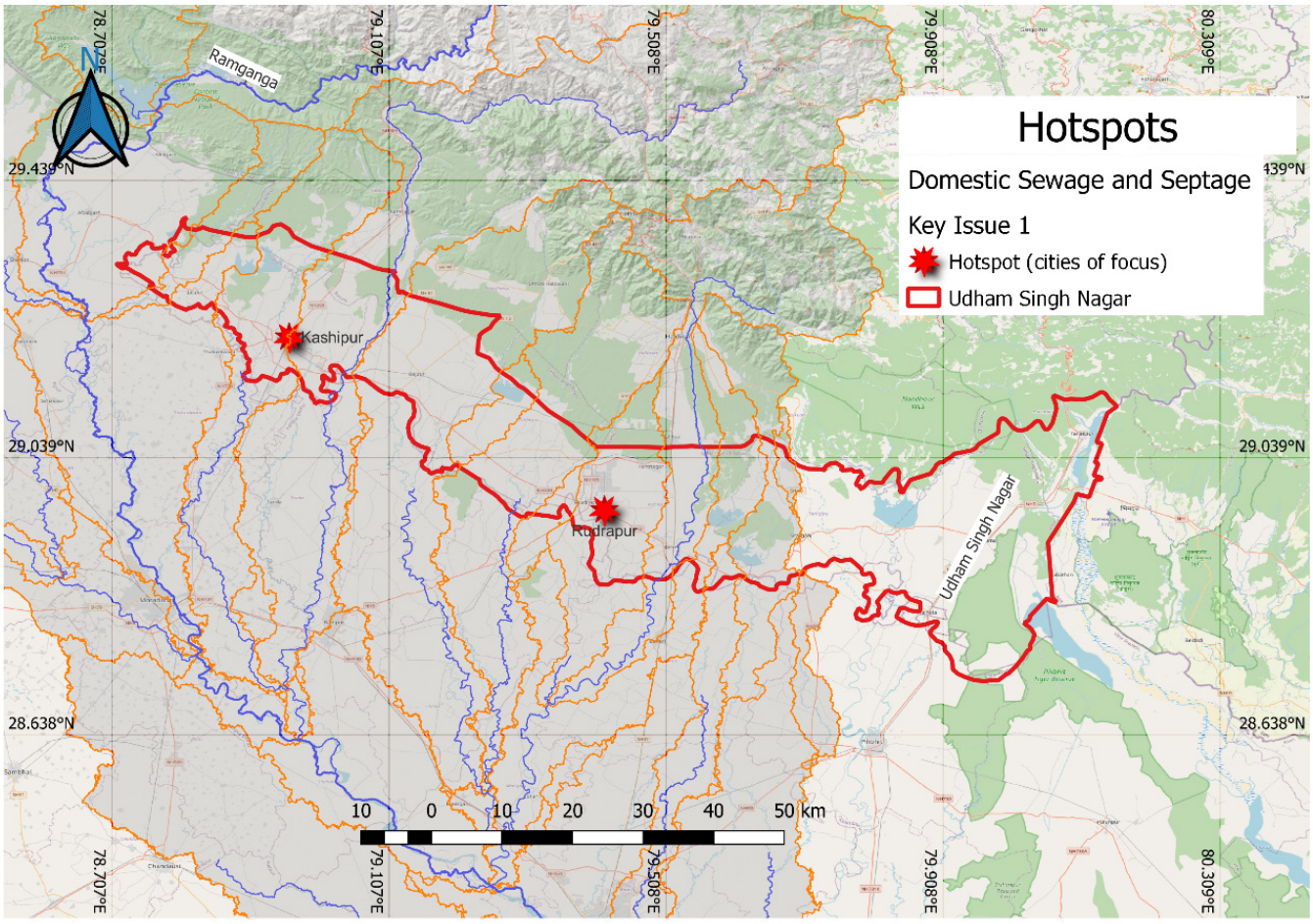


Figure 38 Cities with a focus on interventions for domestic sewage and septage

Key Issue 2: Liquid waste management - industrial effluents

Gap assessed:

The industrial clusters of USN include GPIs and pollution of rivers from industrial effluents is of major concern. Total quantity of industrial wastewater generated in USN is estimated to be around 40 MLD of which 30 MLD treated wastewater is discharged into the drains/water bodies. The connectivity of industries to the CETPs and the treatment process of ETPs have scope for improvement. Pollution load in surface water streams/rivers/drains is high and is of concern. All rivers except for Kosi are seasonal rivers which run dry during lean season, hence wastewater from municipal and industrial drains are the only discharge and constitute the flow in the rivers during that point of time. Ramky is operating one 4 MLD CETP (additional 8 MLD is planned for capacity enhancement) at SIDCUL, Pant Nagar and 3.8 MLD CETP at Sitarganj. Both CETPs are underutilised (approx. 50%) as many industries are not connects. Presently the municipality is supplying faecal sludge to Ramky Plant at SIDCUL.

Potential interventions:

- Regular sampling and inspection of industrial wastewater to map all pollution sources and identify pollution hotspots improving WQ monitoring network, with a specific focus on hotspots of water contamination.
- Routine/surprise inspections of GPIs and red category industries for ensuring compliance of effluent discharge standards as per EPA.
- Initiating the necessary action against industries that do not meet the standards (as per CPCB/SPCB regulations).
- Implementation of maximisation of water recycling extent in the grossly effluent generating units such as paper mills, sugar mills and distillery
- Requirement of industries to install water treatment facilities ("the polluter pays" principle).
- Ensure that industrial effluent is separated from domestic sewage (as treatment of industrial waste is typically more complex and expensive because of toxic substances used in industrial processes).
- Establishments of ETPs/CETPs for treatment of additional wastewater from new industries.
- Capacity building on WQ monitoring and QA/QC procedures for WQ data.

Specific target(s):

- 4 new surface WQ stations established at the identified hotspots: Bhela and Dhela downstream of Kashipur, Khichha and Kalyani downstream of Pantnagar (including sensors for continuous monitoring installed; equipped with online based upon real time water quality monitoring systems and sampling kits for additional parameters, regular sampling is conducted).
- Full utilization (7.8 MLD) of existing CETPs through connecting additional industries and construction of new CETP.
- Enforcement in major polluting units to upgrade augmentation/modification in manufacturing process and effluent treatment plants to strictly comply with the discharge parameters.

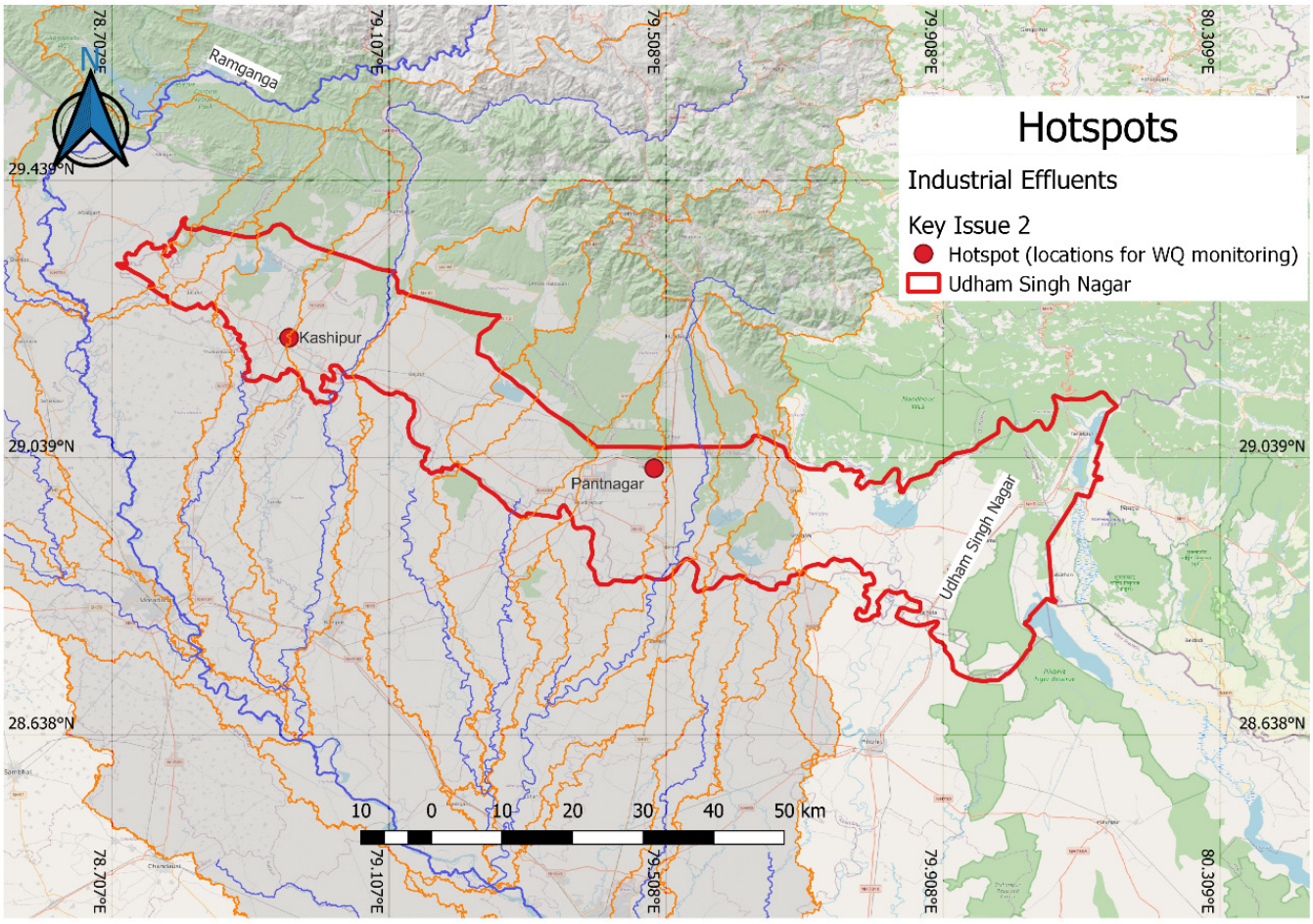


Figure 39 Locations for placing WQ monitoring stations

Key Issue 3: Solid waste management in rural and urban areas

Gap assessed:

Solid waste is not sufficiently managed and appropriately disposed in many areas of USN. The total solid waste produced in USN is assessed to be 242.8 MTPD. Waste management operations in the district vary from ULB to ULB. Partial Segregation of waste at the source is conducted in 6 ULBs among 16 where Kashipur, Mahua Kheraganj, Jaspur, and Khatima achieved less than 60% of source segregation. Solid waste is presently dumped at Paharganj, Rudrapur on an area of 7.8 Hectares. Similarly, the extent of segregated waste transport also varies. As a consequence, much of the waste is being mixed, hampering recycling and material recovery efforts. These issues are being compounded by a lack of material recovery facilities in the district. There are two in operation in Kashipur and Rudrapur, but there is a need of ideally 7-8 material recovery facilities. However, these will still not cover many ULBs in the district. Coordination of the various involved parties is lacking, as every ULB has established separate links with NGOs or private organisations, among other things for waste collection or transportation. Important issues are assessed and activities suggested in the DEP and the various river APs

Potential interventions:

- Establish and encourage waste segregation-at-source by households or other waste generators; instruct formal and informal waste collectors to only collect segregated waste; introduce financial incentives to encourage segregation-at-source.
- Organise comprehensive house-to-house awareness and education campaign with the help of civil society (e.g. local NGOs and other community organisations)
- Encourage large housing complexes to establish composting and waste separation facilities.
- Establish bio-waste collection and processing facilities at large markets; involve local entrepreneurs to establish sanitary landfills for disposal of inert and non-recyclable waste. For areas without door-to-door waste collection, establish waste deposit points (with separate compartments)
- Establish decentralised centres (at municipal level) for material recovery, micro-composting, bio-gas generation, and waste disposal including hazardous waste; involve local entrepreneurs.
- Establish sanitary landfills for disposal of inert and non-recyclable waste.
- Organise river-bank clean-ups; involve NGOs and local community organisations.
- Build ‘plastic traps’ in rivers to collect floating plastic from water bodies; involve NGOs and local community organisations.

- IEC campaigns to educate the residents on how proper segregation at the household levels eases the entire process of managing waste at subsequent stages.

Specific target(s):

- Formalise waste and rag pickers and develop fixed procedures for their engagement (with a specific focus on supporting women pickers)
- 80% of achievement on source segregation in all ULBs specially for Kasipur, Jaspur, Mahua Kheraganj and Khatima
- Specific locations are selected for landfill sites for inert and non-recyclable waste and should be based upon cluster approach and aligned with the state SWM Action Plan.
- 15 awareness and education events conducted and messages, news and articles published.
- 1 decentralised waste processing and recycling centre in each ULB is established

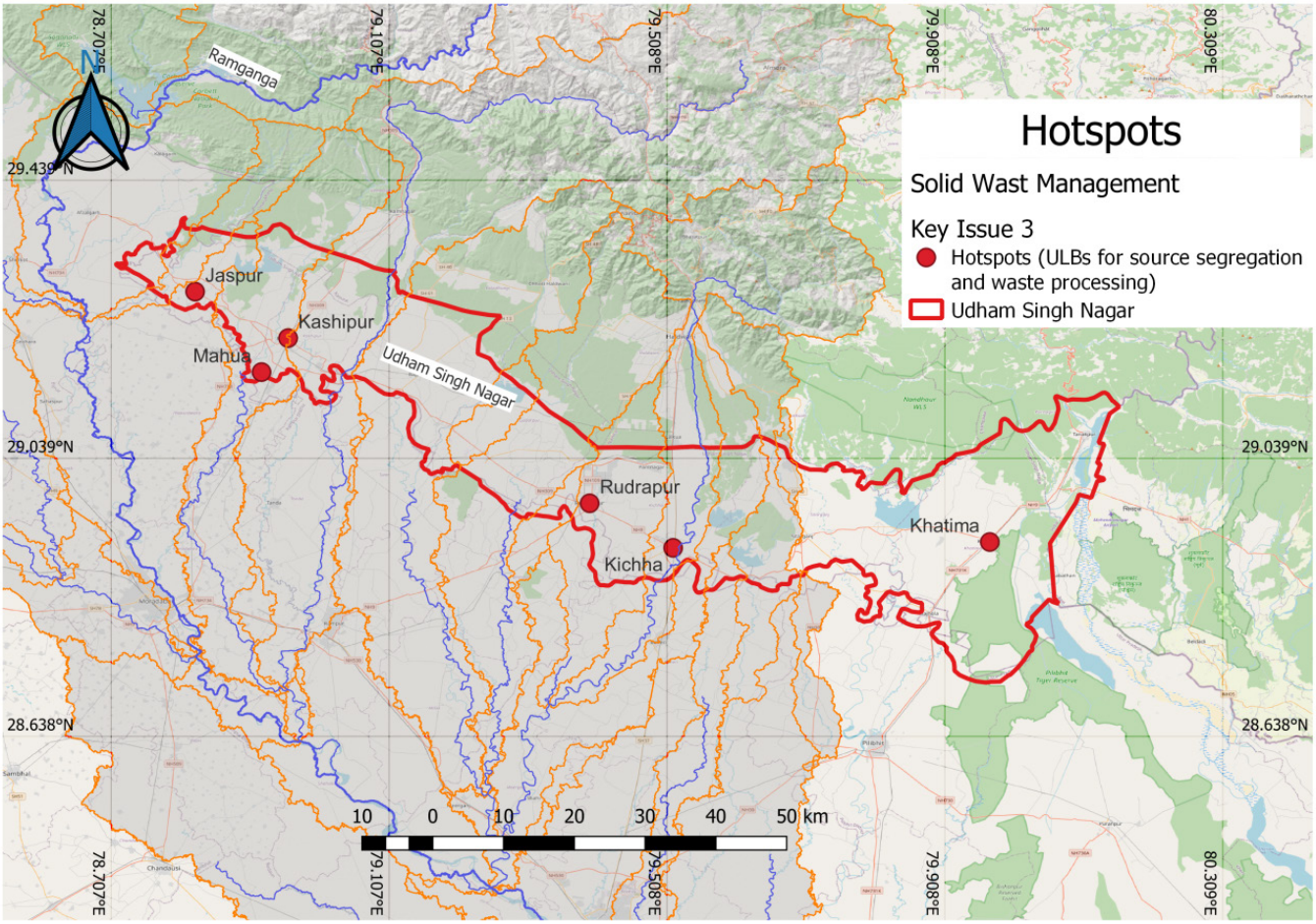


Figure 40 ULBs in which source segregation is to be improved

Key Issue 4: Water storage capacities and GW recharge to address declining groundwater tables and increase base flow

Gap assessed:

Because of the uni-modal rainfall regime, some 70% of river flow in USN is recorded in the monsoon period. Rivers are generally spring fed and not glacier-fed and the overall majority of runoff originates from rainfall during the Monsoon. The status of ground water availability classifies blocks of the district in (i) critical: Jaspur and Kashipur (ii) semi-critical: Gadarpur and Rudrapur. Rudrapur (86.77%) has the highest groundwater extraction rate. Water intensive agriculture like paddy, wheat and sugarcane are the majorly grown crops in the region and cause heavy groundwater extraction in the area. Continuous cereal-cereal cropping has changed soil and its capacity to hold water. Rivers of Udham Singh Nagar and dams (Nanak Sagar, Dhora, Gadgadia and Baigul) are highly regulated with barrages, and weirs; these are mostly used for irrigation purposes; hence there is not enough storage capacity to manage floods. 98% of the agricultural area is watered through artificial irrigation and horticulture crops are irrigated through flooding. The effective live storage of Baigul, Nanak Sagar and Dhora is decreasing over decades, causing shrinkage of water storage facilities. Presently no large-scale rainwater harvesting systems are observed in the district. Because of the low surface water storage capacity in UP, irrigated agriculture from surface water is vulnerable to droughts. Development of managed aquifer recharge for increasing groundwater availability in critical and semi critical regions is being considered. Currently, there are no agroforestry interventions in USN, leading to additional pressure on forests for livestock/ fodder and fire wood

Potential interventions:

- Establish small reservoirs on smaller tributaries which can store water and contribute to groundwater recharge
- Repair, de-silt and protect local ponds/reservoirs with community participation including re-connecting ponds with neighbouring water bodies
- Encourage rainwater harvesting and GW recharge in agricultural areas through diverse means (swales, pits, contour bunds).
- Promote roof top rainwater harvesting systems in the urban areas, its storing and infiltration as well as effective use of water. This interventions is to be applicable in Govt buildings, public and private establishments, with minimum feasible area. (1000 m^2 and above)
- Establish and/or renovate farm ponds, micro reservoirs, valley tanks and infiltration ponds (at farm level)
- Promote a mix of agricultural systems and organic farming increasing soil moisture and water absorption in discussion with associated farmers
- Promote horticulture with rainwater collection tanks & poly tunnels

- E-flows assessment for the tributaries to be considered in the next DGP cycle
- Promote agroforestry interventions for forestry livelihood
- Preparation of wetland management plan for key wetlands by the concerned departments

Specific target(s):

- Implementation of of RTRWH in all Govt buildings, public and private establishments, with minimum feasible area. (1000 m^2 and above)
- Recovery of live storage of total 50 MCM of 6 reservoirs (Baigul, Dhora, Nanak Sagar, Baur, Haripura and Tumaria) of the district with desilting of reservoirs.
- Support women farmers with the renovation and/or construction of 150 recharge structures in Kashipur, Jaspur, Gadarpur and Rudrapur (gender sensitive measures).
- Preparation of Wetland management plan for key wetlands

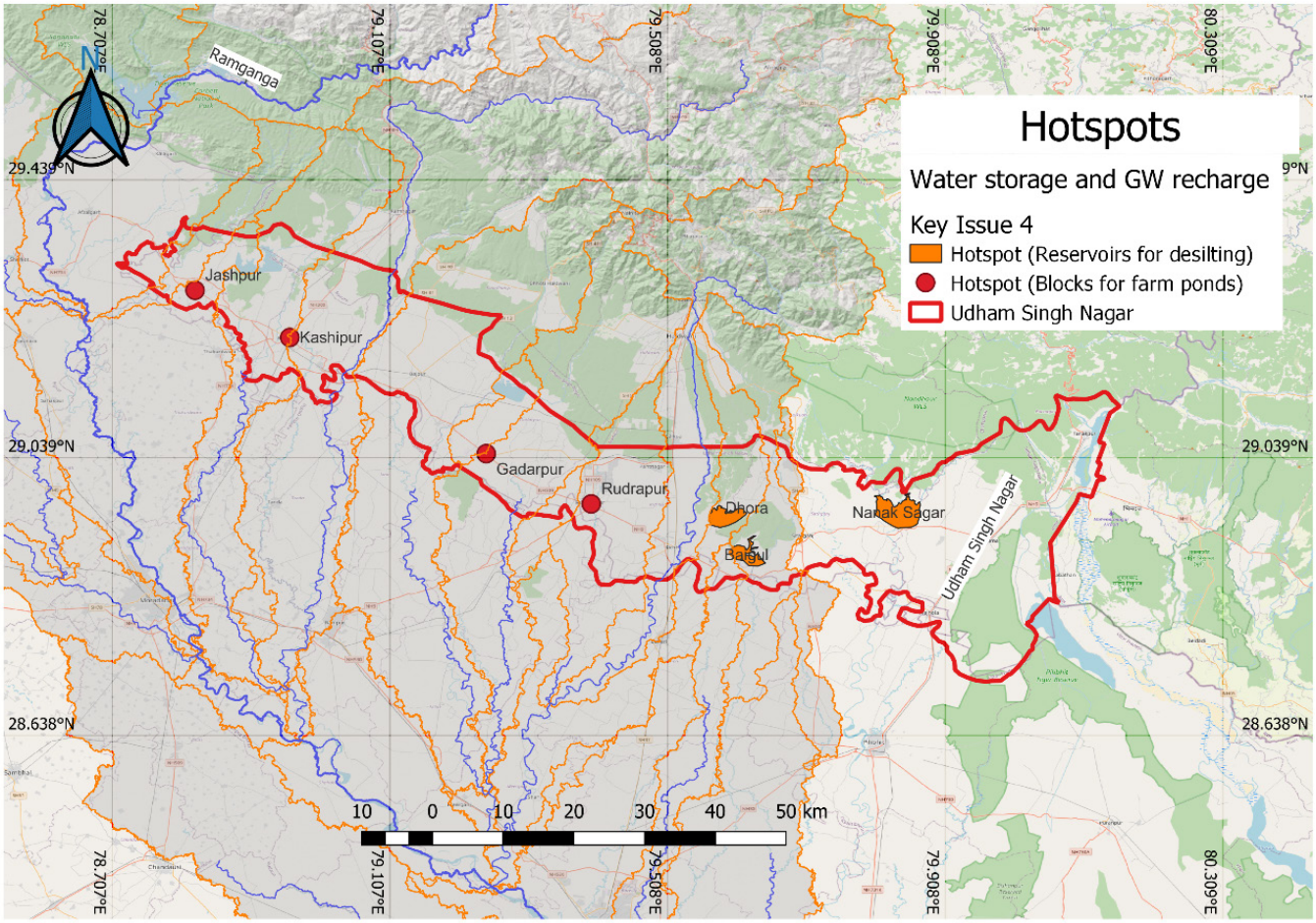


Figure 41 Reservoirs for desilting and Blocks in which farm ponds should be renovated and/or constructed

Key Issue 5: Floodplain encroachment

Gap assessed:

With a pressure on land availability the floodplain is encroached upon in various areas in USN. Floodplain demarcation is not always in place and floodplains have been partly occupied with constructed houses. Many people live there now for over 10 years and feel that they now have a right to stay. Being floodplains, these areas are subject to periodic inundations and basic facilities are poor or non-existent. Requests have been made by the residents to the city authorities to provide basic infrastructure such as paved roads and sanitation. Because of the high population density and since the encroachment reaches the river, there is no space for septic tanks, drainage systems, or a solid waste collection system; consequently, waste is dumped directly into the river. The city wants to reclaim this land, which is public land—to abate pollution and to improve general living conditions. The area is ear-marked to provide much-needed green space in the urban environment but also serves to buffer floods to alleviate flooding further downstream along a densely populated river reach. A major encroachment hot spot is at the Kalyani/ Bahgul river. Another hot spot is at the Dhela river where a dump site 100-150m from river bank on flood plain zone is observed.

Potential interventions:

- Clearly demarcate floodplains.
- Protect floodplain boundaries through roads, embankments, tree lines, or other means.
- Prepare a relocation strategy with alternative settlements; involve community organisations.
- Sensitise population living in the vicinity of the floodplain about the regulations regarding use of the floodplain; involve NGOs and other community organisations in organising and implementing the awareness and education campaign (gender sensitive measure)
- Remove and relocate unauthorised settlements; prepare relocation strategies and alternative settlements; develop a public greenspace on the area that was cleared.
- Prevent dumping of solid waste on the riverbanks and in the floodplain
- Strict monitoring mechanisms in place based on regular inspections and up-to-date high-resolution satellite imagery; identify hotspots and problem areas that require more frequent inspections.
- Sand mining should be ensured to be conducted as per sustainable sand mining rules notified by the government in 2016.
- Establishment of flood plain zoning for River Kalyani

- IEC campaigns to educate the residents on how proper segregation at the household levels eases the entire process of managing waste at subsequent stages.

Specific target(s):

- Reclamation of land of illegal settlement along Kalyani River
- Relocate the solid waste dump site at the Dhela riverbank to a suitable location
- Develop an urban green space on an area of 2.0 ha on the cleared sites.
- Survey of the flood plain zone and notification for other areas/rivers for protection from further encroachment
- Sustainable Sand mining should be ensured and established

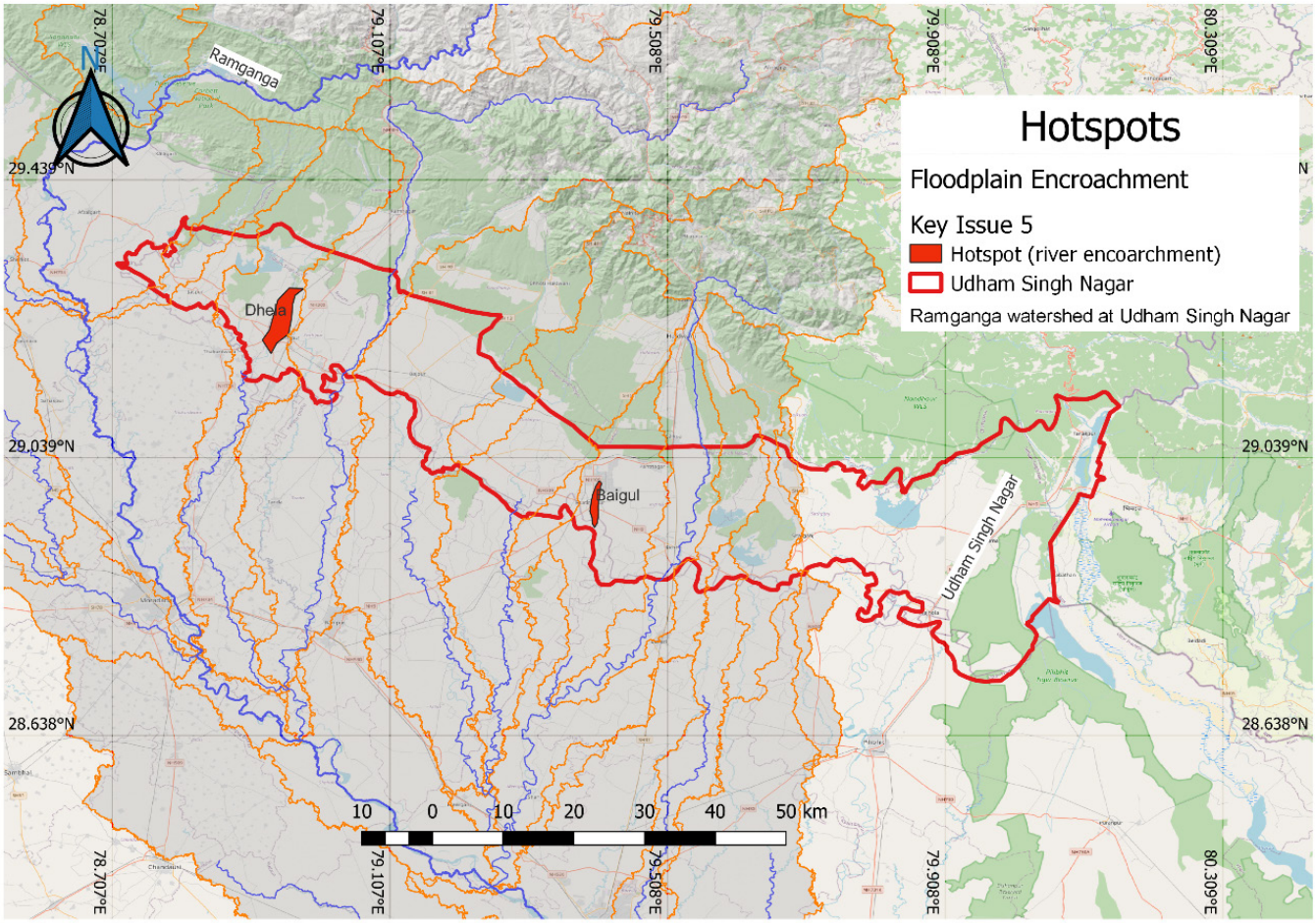


Figure 42 Areas of river encroachment to focus on

Key Issue 6: Capacity building and human resources development at the DGCs

Gap assessed:

The DGCs are mandated with the rejuvenation of the river stretches and the catchment area but currently lack capacities and human resources to look into the required actions to initiate, prepare, implement, operate and maintain associated projects. Diverse funding sources for implementing Ganga rejuvenation projects exist at district level but are not to be sourced by the district authorities. The topics of E-flow assessment and GIS based land use assignment are not included in the district level planning by DGC. Linkages and synergies with Arth Ganga with block development plan are still missing. Gender equality has not been achieved at all governmental and public decision-making levels. Many programmes and schemes are not implemented gender sensitively at village level, not taking into account the specific needs on women regarding the management of water resources.

Potential interventions:

- Make use of the existing funding sources for capacity building and human resource development in the area of river rejuvenation incl. RBM cycle, Arth Ganga Concept, Solid Waste Management, Circular Economy as well as various required environmental and civil engineering topics (STP, WWTP, ETP, CETP etc.)
- Provide more human resources to selected district authorities (members of the DGCs) which are trained on river rejuvenation and river basin management
- Develop & sensitise government agencies and implementing CSO /NGOs / Community partners on gender equality.
- Develop the capacities of line implementing Government agencies and the NGOs, Women's groups to provide gender-sensitive facilitation of programme activities in village communities.
- Identify and involve suitable research institutes for capacity building
- Conduct a citywide gender sensitive strategic planning process for water related issues based on the URMP.
- Foster the setup and enhance the capacities Resident Welfare Associations
- Encourage and ensure effective and meaningful participation of women in water users' groups and decision-making bodies.
- Support the capacity development of female staff for all implementing Government agencies at all levels to improve the gender balance across GWC/DGC etc.

- Foster linkages and synergies with Arth Ganga during human resources development for other livelihood generation schemes specifically focus on natural farming and agro-forestry.

Specific target(s):

- DGCs have been provided with a dedicated supporting cell/secretariat with 2 specifically trained resource person and 1 forestry expert (with knowledge on gender sensitivity) having the sole task of implementing, monitoring, and revising the DGP.
- 5 district authorities (members of the DGCs) have been trained on river rejuvenation, RBM cycle and operation, Solid Waste Management, Circular Economy, septage management, maintenance and monitoring of STPs, CETPs, inclusive gender sensitive approach etc., (at least one female staff at each agency)
- Organised 10 training programmes with representatives of Resident Welfare Associations, ULBs. 50 % women participation in RWA has been achieved.
- 2 training institutes have taken up e-flow assessment, Solid Waste Management, Circular Economy, STP & CETP management, septage management, GIS based land use assignment and gender sensitive rural development planning in their curriculum for training district authorities.
- Capacity building programme on gender sensitisation for women on women leadership skills, decision making skills has been conducted for 5 NGOs.

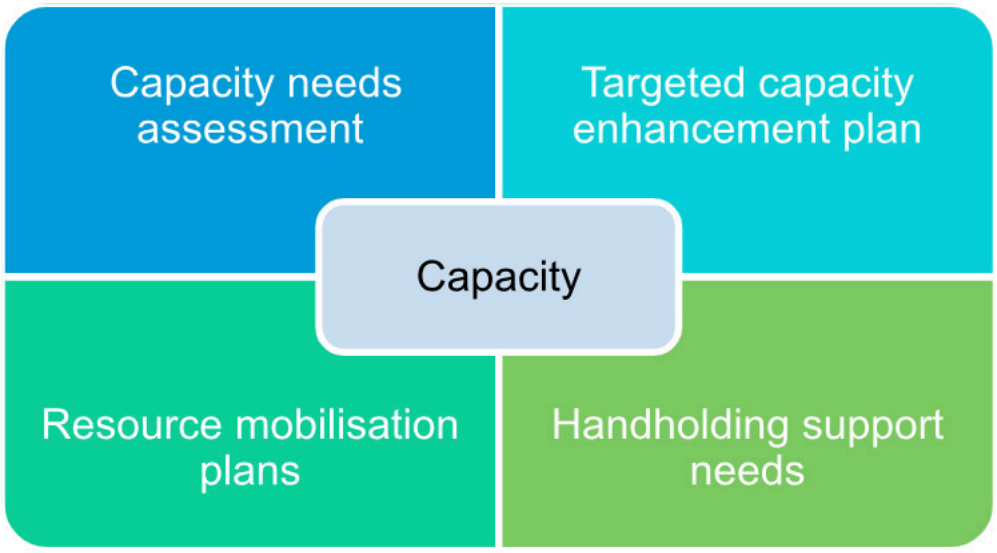


Figure 43 Steps in the capacity building process

D Section Action And Monitoring Plan And Implementation

To be elaborated based upon the revised contents in section C. Broad estimation of budget to be provided

8 Detailed action plan

8.1 Action plan for selected measures and specific targets

8.1.1 Key issue 1: Domestic sewage, septage in urban/peri-urban areas

Specific target 1: 80% achievement of integrated sanitation/septage management approach in peri urban areas					
Action description	**By**	**Start date**	**End date**	**Milestone**	
Household survey on sanitation in urban/ peri-urban areas	Pey Jal Nigam/ULB	Jun 2023	Dec 2024	Questionnaires prepared; assessment map prepared	
Implementation of integrated sanitation for all households through linkage of govt. schemes	Pey Jal Nigam/ULB	Jan 2024	Dec 2026	Integrated septage system operationalized	
Capacity building and awareness of households on benefits of proper sanitation with gender sensitive approaches	ULB, Jal Nigam, training institutes	Jan 2024	Dec 2026	10 awareness and capacity building events organised	
Linkage local committees, groups with rural sanitation programme	Pey Jal Nigam	Jan 2024	Dec 2026	Local committee identified, Training documents developed	
Specific target 2: Installation of 11 STPs along with interception and diversion of all identified polluted drains (2 in Kashipur, 19 in Rudrapur) and drains discharging in river Kalyani					
Assessment on domestic wastewater generation	Pey Jal Nigam / ULB	Oct 2023	MaR 2024	Wastewater generation calculated, survey on wastewater generation conducted	

	Required resources	Outcomes	Linkages
	Budget (for selection criteria, data collection, GIS mapping	Condition and type of sanitation of households have been identified	Linked with data with Swachh Bharat Mission
	Budget (for construction work, materials, supervision, etc.)	100% ODF++ has been achieved, wastewater quality from domestic effluent have been improved	AMRUT, Swachh Bharat Mission
	Budget (consumables for organising meeting and awareness events, trainers)	Safe hygiene and sanitation practices have been achieved in 90% rural areas, 50% women are more aware of safe hygiene and sanitation	Gender sensitive measures, Swachh Bharat Mission
	Training materials	95% villages are counted ODF++, more sensitise people on sanitation has developed	Swachh Bharat Mission
	Budget (data collection, survey)	Volume of untreated wastewater and water quality of drains have been accounted	Linkage with Jal Nigam data

Specific target 2: Installation of 11 STPs along with interception and diversion of all identified polluted drains (2 in Kashipur, 19 in Rudrapur) and drains discharging in river Kalyani					
Action description	**By**	**Start date**	**End date**	**Milestone**	
Development of proposal/ DPR with estimation for STPs for polluted drains along river Kalyani	Pey Jal Nigam / Jal Sansthan	Nov 2023	Jun 2024	Technology selected, DPR prepared	
Installation of 10 STPs with monitoring mechanism	Pey Jal Nigam / Jal Sansthan/ district authority	Jul 2024	Dec 2024	Tender published, company selected, STPs developed, monitoring framework prepared, operation manual submitted	
Installation of 1 STP for drains along river Kalyani	Pey Jal Nigam / Jal Sansthan	Jan 2026	Mar 2027	Tender published, company selected, STP developed	
Specific Target 3: Implementation of co treatment facilities in the upcoming STPs					
Assessment on available Co-treatment facilities	Pey Jal Nigam / ULB	July 2023	Oct 2023		
Development of proposal of selected Co-treatment with convergence to STPs	Pey Jal Nigam / Jal Sansthan	Nov 2023	Feb 2024	Co-treatment technology selected, DPR prepared	
Installation of Co- treatment	Pey Jal Nigam / Jal Sansthan	Mar 2024	Mar 2025	Tender published, company selected, Co- treatment facility developed	
Preparation of monitoring framework	"Pey Jal Nigam / Jal Sansthan/ district authority	Jan 2025	Jan 2027	Monitoring framework prepared, operation manual submitted	

	Required resources	Outcomes	Linkages
	Budget (technology selection criteria, design, drawing, estimation)	Area and location of STPs have been identified, suitable technology for treating wastewater has been identified	Namami Gange Programme
	Budget (for construction work, materials, supervision, for training materials, trainers)	STPs are setup, drains are connected to the STPs, WQ of surface water has been improved, operators are trained for sustainable maintenance	Linkage with Namami Gange Programme
	Budget (for construction work, materials, supervision,	STP is setup, Drains are connected to the STP, WQ of surface water has improved	Namami Gange Programme
		Suitable co-treatment technology for treating wastewater has been identified	Linkage with Jal Nigam data
	Budget (Technology selection criteria)	Area and location of Co-treatment facilities with STPs have been identified	Namami Gange Programme, Plan are merged with installation of STPs
	Budget (for construction work, materials,	Additional support to STPs is developed	Merge with STPs
	Budget (for training materials, trainers)	WQ of surface water has improved, Operators are trained for sustainable maintenance	

Specific Target 4: Faecal Sludge Treatment Facility is operationalised for Rudrapur					
Action description	**By**	**Start date**	**End date**	**Milestone**	
Execution/Commissioning of FSTP at Rudrapur	Pey Jal Nigam / Jal Sansthan	July 2023	Oct 2023	FSTP at Rudrapur is functioning	
Assessment of Faecal Sludge treatment facility	Pey Jal Nigam / Jal Sansthan	Nov 2023	Jan 2024	DPR prepared	
Development of proposal with estimation for FSTP in other regions	Pey Jal Nigam / PWD / Jal Sansthan	Jan 2024	June 2024	Framework established, Estimation conducted, Proposal prepared	
Preparation of monitoring framework of FSTPs	Pey Jal Nigam / Jal Sansthan	June 2024	June 2025	Monitoring framework prepared, operation manual submitted	
Specific Target 5: Plans for covering 80% of all domestic wastewater with STP / septage management is prepared (including rural areas)					
Assessment and mapping of all domestic waste water generated/ open drains	Pey Jal Nigam / ULB	Oct 2023	June 2024		
Preparing a road map and development of proposal for wastewater treatment through decentralised wastewater system/ septage/ nature based solutions	Pey Jal Nigam / ULB	Nov 2023	Dec 2024	"Drainage plan of district is conducted"	
Implementation of wastewater treatment/septage treatment facilities	Pey Jal Nigam / ULB	Jan 2025	June 2027	STPs are argumented with 80% domestic wastewater of distric	

	Required resources	Outcomes	Linkages
	Information on water quality	Less waste water discharged in Rudrapur	Namami Gange Programme
	Budget (technology selection criteria, survey map	Area and location of FSTP have been identified, suitable technology for treating wastewater has been identified	Namami Gange Programme
	Budget (for drawing, design, estimation, proposal.)	FSTPs are proposed, Drains are connected to the STPs	Namami Gange Programme
	Budget (for training materials, trainers)	WQ of surface water has improved, Operators are trained for sustainable maintenance	
	Information of all drains discharge, STP capacity analysis	Actual domestic wastewater volume assessed	Namami Gange Programme, AMRUT
		"Linkages of wastewater discharged through drains are established"	Namami Gange Programme, AMRUT
	Budget (monitoring report)	STPs are enabled to treat all domestic wastewater	Namami Gange Programme, AMRUT

Specific Target 6: 5-7 km of sewerage system for drains discharging into River Kalyani is implemented				
Action description	**By**	**Start date**	**End date**	**Milestone**
Demarcation of area for setting up sewage system	Pey Jal Nigam	Jul 2023	Oct 2023	Area demarcation conducted
Planning and preparing of proposal for sewage system	Pey Jal Nigam	Nov 2023	Feb 2024	DPR prepared
Installation of Sewage system	Pey Jal Nigam	Mar 2024	Sep 2024	Tender published, company selected, sewerage network is set up
Development of proper methodology of operating, scavenging of sewage line	Pey Jal Nigam	Sep 2024	Sep 2025	Monitoring framework prepared, operation manual submitted
Specific Target 7: 4 km of open drainage systems replaced for covering it at Kashipur				
Demarcation of area for setting up sewage network and open drainage	Pey Jal Nigam / ULB	Oct 2023	Mar 2024	Sewage network map and open drainage map has prepared
Planning and preparing of proposal for sewage system	Pey Jal Nigam / Jal Sansthan	Apr 2024	Jun 2024	DPR prepared
Installation of Sewage system	Pey Jal Nigam / Jal Sansthan	Jul 2024	Dec 2025	Tender published, company selected, sewerage network and open drainage system developed

	Required resources	Outcomes	Linkages
	Information on water quality	Sewer line is implemented	
	Budget (selection criteria, Design, drawing, estimation)	Proper design, materials have been selected	Namami Gange Programme, AMRUT
	Budget (for construction work, materials, supervision, etc.)	Storm Water and Sewage Water have been separated	Namami Gange Programme, AMRUT
	Budget (Skilled manpower, trainers, Training programmes, materials and Operation framework	Sustainable operation of sewer system has been achieved	Namami Gange Programme, AMRUT
	Sewage network Map	Specific location of laying of sewage network has been identified	Namami Gange Programme, AMRUT
	Budget (for drawing, design estimation)	Proper design, materials have been selected	Namami Gange Programme, AMRUT
	Budget (for construction work, materials, supervision, etc.)	Strom Water and Sewage Water have been separated, Connection with other drains is established	Namami Gange Programme, AMRUT

8.1.2 Key Issue 2: Pollution from industrial effluent

Specific Target 1: 4 new WQ stations established at identified hotspots					
Action description	**By**	**Start date**	**End date**	**Milestone**	
Identification and demarcation of location of WQ monitoring stations	PCB, SIDCUL, SPMG, District Authority	July 2023	Sep 2023	Area selected and demarcation conducted	
Preparation of DPR with estimation of WQ monitoring sensors, equipment and sampling kits	PCB / PWD	Oct 2023	Jan 2024	DPR prepared	
Tender, acquisition of equipment and installation of monitoring stations	PCB / PWD	Feb 2024	Dec 2024	Tenders are published, construction company is selected, site is developed and protected	
Set up of laboratory and monitoring instruments	PCB, SIDCUL, SPMG. District Authority	Dec 2024	Apr 2025	WQ lab setup	
Training with WQ facilitators, workers	PCB, SIDCUL, SPMG. District Authority	May 2025	Oct 2025	WQ report and analysis	
Preparation of annual WQ monitoring methodology and working principles	PCB, SIDCUL, SPMG, District Authority	Sep 2025	Jul 2026	WQ monitoring, operation manual is prepared	

	Required resources	Outcomes	Linkages
	Budget (Surveyors, resource map),	Locations of WQ monitoring stations are selected	Namami Gange Programme
	Budget (Drawing, Design, Estimation)	BOQ for WQ testing parameters and collecting points of water samples are selected	
	Budget (tender, construction, supervision	WQ monitoring stations are setup	Namami Gange Programme,
	Budget (construction, supervision)	WQ monitoring is conducted	Namami Gange Programme
	Budget (for training materials, trainers)	qualified personnel trained in WQ monitoring, WQ monitoring have been conducted, Data of different WQ parameter collected	Namami Gange Programme
		Analysis and interpretation of WQ data have achieved and shared with district authorities, WQ monitoring programme established	Namami Gange Programme

Specific Target 2: Full utilization (7.8 MLD) of existing CETPs through connecting additional industries and construction of new CETP				
Action description	**By**	**Start date**	**End date**	**Milestone**
Verification of list of GPIs and Red categories industries which discharging industrial effluent to river	PCB / SIDCUL / industrial associations	Oct 2023	Mar 2024	Assessment report
Setup/upgrade ETP for individual industries	PCB / SIDCUL / industrial associations	Oct 2023	Nov 2024	Tenders are published, construction company is selected, plant is developed/ upgraded
Connect industries (in adjoining areas) to existing CETPs/setup of CETP for new industries in Sitarganj	PCB / SIDCUL / industrial associations	Nov 2024	Oct 2025	Tenders are published, construction company is selected, plant is developed/ upgraded
Ensure compliance with regulations of EPA	PCB / SIDCUL / industrial associations	Nov 2025	Feb 2026	Regulatory framework established and shared with industries
Intensive and sudden inspections to enforce compliance	PCB	Nov 2025	Dec 2026	Compliance report prepared
Capacity development programme for agencies and industrial workers	PCB, SIDCUL, SPMG. District Authority	Nov 2025	Oct 2026	Effluent WQ report, Plant operation framework established

	Required resources	Outcomes	Linkages
	Budget (Effluent and discharge data, Field assessment)	Industries discharging effluent into river/streams have been identified	Link with PCB GPI monitoring data
	Budget (tender, Construction/ augmentation, supervision)	WQ of River/stream has improved, Less pollutants into surface water bodies	Namami Gange Programme
	Budget (tender, Construction/ augmentation, supervision)	Treatment of industrial effluent has been achieved; Minimisation of pollutant load has been achieved	Namami Gange Programme
		75% Unaccounted discharge of industrial wastewater has stopped for selected industries	Namami Gange Programme
	Budget (industry visit)	Unaccounted discharge of industrial wastewater has stopped	
	Budget (trainers, Awareness programme, training materials)	80% staffs are trained on effective compliance with environmental regulations on discharging industrial wastewater	Namami Gange Programme

Specific Target 3: Enforcement in major polluting units to upgrade augmentation/ modification in manufacturing process and effluent treatment plants					
Action description	**By**	**Start date**	**End date**	**Milestone**	
Inspection of major polluting units and existing ETPs	PCB, SIDCUL, SPMG. District Authority	Sep 2023	Mar 2024	Performance evaluation report prepared	
preparation and implementation of upgrading manufacturing process	PCB, SIDCUL, SPMG. District Authority	Apr 2024	Dec 2025	Tenders are published, construction company is selected, Upgradation conducted	
Modification of ETPs and CETPs based on performance evaluation	PCB, SIDCUL, SPMG. District Authority	Apr 2024	Mar 2025	Tenders are published, construction company is selected,	
Development of proper methodology of operating the ETPs and manufacturing units	PCB, SIDCUL, SPMG. District Authority	Apr 2025	Mar 2026	Operation manual prepared	

8.1.3 Key Issue 3: Pollution from solid waste

Specific Target 1: Formalise waste and rag pickers and develop fixed procedures for their engagement (with a specific focus on supporting women pickers)					
Action description	**By**	**Start date**	**End date**	**Milestone**	
Identification of Waste and Rag pickers in the blocks	ULB, PCB	July 2023	Sep 2023	Selection criteria are defined	
Preparation of listed waste and Rag pickers	ULB, PCB	Sep 2023	Oct 2023		
Preparation of notification of employment of waste and rag pickers	ULB, PCB	Oct 2023	Nov 2023	Engagement notification published	
Organise selection process and engagement of waste and rag pickers	ULB, PCB	Dec 2023	Feb 2024	Interview for rag pickers is conducted	

	Required resources	Outcomes	Linkages
	Budget (Inspector, Plant visit, water testing)	Situation and type of pollutants from industries have been identified, Non-functional ETPs can be identified	Namami Gange Programme
	Budget (raw materials, construction, supervision)	Less waste and waste water have been generated	Namami Gange Programme
	Budget (planning documents, design, raw materials, construction, supervision)	Treatment efficiency of ETP and CETPs has been improved	Namami Gange Programme
	Budget (training materials, trainers)	Sustainable operation of ETPs/ CETPs has been achieved	Namami Gange Programme

	Required resources	Outcomes	Linkages
	Budget (for defining selection criteria, data collection)	All Waste and Rag pickers are identified	Swachh Bharat Mission
		List of Waste and Rag pickers is prepared	Swachh Bharat Mission
	Administrative manpower, HR	Notification of engagement of waste and rag pickers has been established	Swachh Bharat Mission
	Administrative manpower, HR	Waste and rag pickers are selected	Swachh Bharat Mission

Specific Target 2: 80% of achievement on source segregation in all ULBs					
Action description	**By**	**Start date**	**End date**	**Milestone**	
Identification of wards/blocks which are not able full source segregation	ULB	Oct 2023	Dec 2024	Maps are prepared	
Providing separated buckets/ trays to the households for bio and non –biodegraded materials	ULB	Jul 2024	Dec 2024	Separated buckets/ trays supplied to households	
Capacity building and organising awareness programme in community level in each ULBs and prioritising women participation	ULB, training institutes	Oct 2023	Dec 2024	10 events organised, 50% women participated in the awareness event	
Specific Target 3: 4 Location selected for landfill sites for inert and non-recyclable waste based upon cluster approach					
Identification of suitable landfill sites	ULB / PCB	Oct 2023	Jun 2024	Selection criteria are defined, GIS maps are prepared	
Development and protection of land fill sites	ULB / PCB	Dec 2024	Dec 2025	Lanfill site are fenced	
Arrangement for bulk waste trucks for transport from collection point to landfill sites	ULB / PCB	Jan 2024	Mar 2025	Bulk waste trucks are available, Truck drivers and supporters are hired	
Specific Target 4: 15 awareness and education events conducted. messages, news and articles published					
Identification of wards/blocks	ULB / PCB	Jul 2023	Jun 2024	Selection criteria are defined,	
Selection of NGOs/ medias/ Municipalities/ research institutes	ULB	Jan 2024	Dec 2024	Woking partners are selected	
Preparation of training materials	Trainers	Apr 2024	Sep 2024	Training modules developed	
Organising awareness programme, events and publications	NGOs/ medias/ institutes	Jul 2024	Apr 2025	10 meeting are organised	

	Required resources	Outcomes	Linkages
	Budget (for defining selection criteria, data collection, Map)	Status of non-segregated solid waste have identified	Swachh Bharat Mission
	Budget (buckets, trays)	90% segregation of waste have achieved	Swachh Bharat Mission
	Budget (Training materials, Trainers)	More sensitise people on waste segregation has developed, Gender responsive participa-tion have achieved	Gender Sensitive measures, Swachh Bharat Mission
	Budget (for defining selection criteria, data collection, GIS mapping)	Proper sites of landfill have selected	
	Budget (Fencing,	Deposition of non- recyclable and inert waste in environment have improved, leachate from solid waste have not polluted the environment	Swachh Bharat Mission
	Budget (for bulk waste trucks, labours)	Solid waste pollution load in environment has decreased	Swachh Bharat Mission
	Budget (for defining selection criteria, data collection	Wards/blocks has identified	
	Budget (meeting, HR)	Communication mode has established	Namami Gange programme, Swachh Bharat Mission
		Training schedules, procedure, materials are selected	
	Budget (training materials, trainers)	75% more people are awarded on solid waste management	Namami Gange programme, Swachh Bharat Mission

Specific Target 5: 1 decentralised waste processing and recycling centre in each ULB is established				
Action description	**By**	**Start date**	**End date**	**Milestone**
Identification of suitable location of decentralised waste processing and recycling centres	ULB / PCB	Jul 2024	Dec 2024	Selection criteria are defined, maps are prepared
"Preparation of proposal of development of decentralised waste processing and recycling centres"	ULB / PCB	Oct 2024	Dec 2024	DPR prepared
Development of decentralised waste processing and recycling centres	ULB / PCB	Jan 2025	Dec 2025	Tenders are published, construction company is selected, Construction conducted
Linkage with authorisedwaste carriers	ULB	Aug 2024	Mar 2025	Waste Carrier selected

8.1.4 Key Issue 4: Insufficient Water storage capacities and GW recharge to address declining groundwater tables and increase base flow

Specific Target 1: Implementation of RTRWH in all Govt buildings, public and private establishments with minimum feasible area. (1000 m² and above)				
Action description	**By**	**Start date**	**End date**	**Milestone**
Identification of area and location for RTRWH and check dam	Irrigation Department	Oct 2023	Jun 2024	Selection criteria are defined
Preparation of proposal for installation of RTRWH with estimation	Irrigation Department	Jul 2024	Sep 2024	DPR prepared
Implementation of RTRWH	Irrigation Department	Jan 2025	Jul 2026	Tenders are published, construction company is selected, construction conducted

	Required resources	Outcomes	Linkages
	"Budget (for defining selection criteria, data collection, Location mapping)"	Specific location of Waste Processing centre has selected	
	Budget (Planning, design, drawing, estimation)	"Proper technology, vendors have selected for installation of decentralised waste processing and recycling centres	Swachh Bharat Mission
	Budget (for construction work, materials, supervision, fencing, etc.)	Solid waste in environment have decreased	Swachh Bharat Mission
	Budget (for publishing, communication)	Solid waste disposal in environment has decreased, non- recyclable waste reached to the centres	Swachh Bharat Mission

	Required resources	Outcomes	Linkages
	Budget (for defining selection criteria, data collection, Location mapping)	Volume of Artificial Recharge to groundwater has been calculated	MPARG
	Budget (Planning, design, drawing, estimation)	Proper design, materials have been selected	MPARG
	Budget (for construction work, materials, supervision, etc.)	5 MCM water have recharged	MPARG

Specific Target 2: Recovery of live storage of total 50 MCM of 6 reservoirs of the district with desilting of reservoirs (Baigul, Dhora, Nanak Sagar, Baur, Haripura and Tumaria)					
Action description	**By**	**Start date**	**End date**	**Milestone**	
Preparation of proposal for dredging of reservoirs with estimation	Irrigation Department	Jul 2024	Oct 2024	DPR prepared	
Increasing live storage capacity of reservoirs	Irrigation Department	Nov 2024	May 2025	Tenders are published, construction company is selected, excavation conducted	
De-silting of reservoirs	Irrigation Department	Nov 2024	May 2026	Tenders are published, construction company is selected, excavation conducted	
Development of annual programme/schemes for dredging	Irrigation Department	Jun 2024	Sep 2027	Programmes and schemes are identified	
Specific Target 3: Support women farmers with the renovation and/or construction of 150 recharge structures in Kashipur, Jaspur, Gadarpur and Rudrapur					
Demarcation of area for recharge structures (farm ponds and local ponds)	Agricultural department, Irrigation Department	Jul 2024	Sep 2024	Selection criteria are defined, maps are prepared	
Preparation of proposal of pond excavation and rejuvenation	Agricultural department, Irrigation Department	Oct 2024	Dec 2024	DPR prepared	
Linkage of pond excavation with govt. schemes like MGNREGA	Agricultural department,	Sep 2024	Dec 2024	Excavation work for pond have initiated	
Involvement of gender sensitive participation on pond rejuvenation	Agricultural department / SHGs	Jan 2025	May 2025	Women are involved, pond prepared	

	Required resources	Outcomes	Linkages
	Budget	Recovery of estimated live storage has been established, Suitable vendors have been selected	National Water Mission, Namami Gange programme
	Budget (Excavation works, Supervision)	Increased storage volume up to 50 MCM	National Water Mission, Namami Gange programme
	Budget (Excavation works, Supervision)	Water storage capacity of reservoirs has increased	
		Sustainable storage of reservoirs has been achieved	National Water Mission
	Budget (for defining selection criteria, data collection, Location mapping	Specific locations have been selected	Jal Shakti Abhiyan, MGNREGA
	Budget (planning, design, estimation)	Local water storage capacity is estimated	Jal Shakti Abhiyan, MGNREGA, Namami Gange programme
	Budget (communication)	Local water storage capacity has increased	Jal Shakti Abhiyan,
	Budget (labours/ workers)	2 MCM water have been stored, employment has been generated with gender responsive schemes	Gender Sensitive measures, Jal Shakti Abhiyan,

Specific Target 4: Preparation of Wetland management plan for key wetlands					
Action description	**By**	**Start date**	**End date**	**Milestone**	
Demarcation of area for key wetlands and identify the characterization	Irrigation Department, District authority	Sep 2024	Mar 2025	Selection criteria are defined, maps are prepared	
Preparation of planning document of wetland management	Irrigation Department	Dec 2024	Dec 2025	Draft planning document is prepared	

8.1.5 Key Issue 5: Floodplain encroachment

Specific Target 1: Reclamation of land of illegal settlement along Kalyani River					
Action description	**By**	**Start date**	**End date**	**Milestone**	
Identify the illegal settlements with the zoning (number to be based on survey)	District administration, ULB	Oct 2024	Mar 2025	Selection criteria are defined, maps are prepared	
Make a scheme for removal and resettlement of illegal settlement	District administration, ULB	Jun 2025	Oct 2025	10 awareness campaign organised	
Phase wise removal of illegal settlement	District administration, ULB	Jan 2026	Dec 2026	Tenders are published, construction company is selected, construction conducted	
Intensive inspections to enforce further encroachment	District administration, ULB	Jul 2025	Aug 2027	Settlement removed	
Specific Target 2: Relocate of Solid Waste dump site have from Dhela river bank					
Identification of suitable waste disposal sites	ULBs	Jul 2024	Sep 2024	Selection criteria are defined, maps are prepared	
Reallocation of solid waste to the waste disposal centre	ULBs	Oct 2024	Jan 2025	Bulk waste trucks are available, Truck drivers and supporters are hired, Reallocation is conducted	

	Required resources	Outcomes	Linkages
	Budget (for defining selection criteria, data collection, Location mapping)	Specific locations have been selected	National plan for conservation of aquatic eco- system
		Wetland planning document is submitted	National plan for conservation of aquatic eco- system

	Required resources	Outcomes	Linkages
	Budget (for defining selection criteria, data collection, Location mapping)	Community partner has been selected, illegal settlements have been identified	
	Budget (Training materials, trainers	Awareness in the local community about the value and sustainable use of flood plain	Clean Ganga Mission
	Budget (for relocation and rehabilitation)	100% of recovery of encroached floodplain	Clean Ganga Mission
	Budget (Supervisor, guards)	No illegal encroachment activi-ties in the floodplain	
	Budget (for defining selection criteria, data collection, Location mapping)	Proper sites of waste disposal have been selected	Swachh Bharat Mission
	Budget (for bulk waste trucks, labours	Solid waste has been removed from the flood plain	Swachh Bharat Mission

Specific Target 2: Relocate of Solid Waste dump site have from Dhela river bank					
Action description	**By**	**Start date**	**End date**	**Milestone**	
Community awareness for further prevention of waste disposal	ULBs	Feb 2024	Aug 2024	6 awareness programme conducted	
Specific Target 3: Develop an urban green space on an area of 2.0 ha on the cleared sites					
Demarcation of area for setting up green space	Horticulture Dept. and ULB	Jul 2024	Sep 2024	Selection criteria are defined, maps are prepared	
Planning and preparing of proposal for implementation of green space	Horticulture Dept. and ULB	Oct 2024	Jan 2025	DPR prepared	
Involvement of local community/ stakeholders and linkage with govt. schemes	Horticulture Dept. and ULB	Feb 2025	Aug 2025		
Specific Target 4: Survey of the flood plain zone and notification for other areas/rivers for protection from encroachment					
Demarcation of area with floodplain management	Irrigation Department	Jul 2024	Sep 2024	Selection criteria are defined, maps are prepared	
Set up regulatory enforcement for encroachers	ULBs	Oct 2024	Jan 2025	Signboard installed; regulatory notice published	
Specific Target 5: Sustainable Sand mining should be ensured					
Demarcation of area with Sand Mining zone	Irrigation Depar-tement/ District Authority	Jul 2024	Dec 2024	Selection criteria are defined, maps are prepared	
Set up regulatory enforcement for illegal sand miners	ULBs/ Irrigation Depart-ment/ District authority	Jan 2025	Jan 2027	Signboard installed; regulatory notice published	

	Required resources	Outcomes	Linkages
	Budget (for organising events)	Disposal of waste has stopped	
	Budget (for defining selection criteria, data collection, Location mapping)	Locations for green space have been selected	AMRUT
	Budget (planning, design, estimation)	Types of trees/crops/ herbs have been selected	AMRUT, Arth Ganga
	Budget (communication, meeting)	Green space in selected flood-plains has been established, 50% participation of women has been achieved	Gender Sensitive measures, AMRUT
	Budget (for defining selection criteria, data collection, Location mapping)	Flood area identified and de-marcated	Arth Ganga
		Encroachment of flood plain area has been stopped	Arth Ganga
	Budget (for defining selection criteria, data collection, Location mapping)	Sand Mining identified and demarcated	Arth Ganga
		Encroachment of flood plain area has been stopped	Arth Ganga

8.1.6 Key Issue 6: Capacity building and human resources development at the DGCs with gender inclusive approach

Action description	By	Start date	End date	Milestone	
Specific Target 1: DGCs have been provided with a dedicated supporting cell/ secretariat with 2 specifically trained resource person and 1 forestry expert (with knowledge on gender sensitivity) having the sole task of implementing, monitoring and revising the DGP					
Identification of trainers for capacity building	DGC	Jul 2023	Oct 2023	Selection criteria defined	
Set up of supporting centre/ secretariat	DGC	Jul 2023	Dec 2023	Tenders are published, construction company is selected,	
Recruitment of resource person	DGC	Nov 2023	Dec 2023	Interviews are conducted	
Specific Target 2: 5 district authorities (members of the DGCs) have been trained on river rejuvenation, RBM cycle and operation, Solid Waste Management, Circular Economy, septage management, maintenance and monitoring of STPs, CETPs, inclusive gender sensitive approach etc., (at least one female staff at each agency)					
Identification of training/ research institute/ industry for capacity buildingbased on O & M of STP management	DGC	Jan 2024	Mar 2024	Selection criteria defined (including gender aspects)	
Involvement of organisation for training and awareness programme	DGC	Apr 2024	Dec 2024	4 training programme and events are organised	
Ensure participation of female staff member of each of the participating authorities / agencies	DGC	April 2024	Dec 2024	Female staff identified at each agency and invited for training	
Specific Target 3: Organised 10 training programmes with representatives of Resident Welfare Associations, ULBs (achieved 50% women participation in RWA)					
Identification community organisation/local authorities	DGC	Jul 2024	Sep 2024	Selection criteria are defined, Community are informed	

	Required resources	Outcomes	Linkages
	Budget (selection criteria)	Announcement and advertisement have been conducted	
	Budget (planning, construction, supervision)	Supporting centre/ secretariat established	Namami Gange programme, Arth Ganga
		Resource person selected	Namami Gange programme, Arth Ganga
	Budget (selection criteria)	Training/ research institute/ industry identified	Namami Gange programme, Arth Ganga
	Budget (training materials, communication)	DGC have more information and knowledge of O& M and monitoring methos of STPs	Namami Gange programme, Arth Ganga
	Human resources for communication	Female staff members have participated in the training	Namami Gange programme, Arth Ganga
	Budget (for defining selection criteria, data collection, Location mapping)	Community partner has been selected	

Specific Target 3: Organised 10 training programmes with representatives of Resident Welfare Associations, ULBs (achieved 50% women participation in RWA)				
Action description	**By**	**Start date**	**End date**	**Milestone**
Establishment of effective Resident Welfare Associations (RWA) and ULBs within the command area to strengthen participatory river basin management, promote effective water use	DGC	Oct 2024	Sep 2025	5 training programmes organised
Training to RWAs and authorities	Trainers	Oct 2024	Sep 2025	5 training programmes organised
Development of training material	Trainers	Oct 2024	Dec 2024	Training materials of programme is developed
Enhancement of women's capacity and participation in WUO.	DGC	Oct 2024	Sep 2025	Women are enrolled in WUO
Specific Target 4: 2 training institutes like Pantnager University have taken up e-flow assessment, GIS based land use assignment and gender sensitive rural development planning in their curriculum for training district authorities and NGOs				
Identification of training/ research institute/ industry with suitable curriculum	DGC	Jan 2024	Mar 2024	Selection criteria defined
Elaboration of training contents for curriculum and adaption of them to the existing course	Capacity Building Experts	Apr 2024	Dec 2024	New curriculum with associated training material has been developed
Specific Target 5: Capacity building programme on gender sensitisation for women on leadership skills and decision-making skills has been conducted for 5 NGOs				
Identification of research institute for capacity building based on women leadership and decision making	DGC	Jan 2024	Mar 2024	Selection criteria defined

	Required resources	Outcomes	Linkages
	Budget, (Training materials, trainers)	Awareness in the local committees on river basin management, effective water use has been achieved	Namami Gange programme, Arth Ganga
	Budget (Training materials, trainers)	RWAs and authorities are able to submit proposals for implementation of river basin management programme	Namami Gange programme, Arth Ganga
		RWAs and authorities are more aware about the river basin management	Namami Gange programme, Arth Ganga
		50% participation of women has been achieved	
	Budget (selection criteria)	Curriculum/ courses of training/research institute/ industry identified	Namami Gange programme, Arth Ganga
	Budget for hiring experts (developing training material and curriculum)	Training institutes offer courses which include training sessions on e- flow, GIS based land use assignment and gender sensitive rural development planning	Namami Gange programme, Arth Ganga
	Budget (selection criteria)	Suitable training partners have selected	Namami Gange programme, Arth Ganga

Specific Target 5: Capacity building programme on gender sensitisation for women on leadership skills and decision-making skills has been conducted for 5 NGOs				
Action description	**By**	**Start date**	**End date**	**Milestone**
Involvement of NGOs in training and awareness programme	DGC	Apr 2024	May 2025	NGOs have been identified
Conduct of capacity building programme with NGOs	Research institute	June 2024	March 2026	Trainings have been conducted
Establishment of key resources centre in research institutes (Pantnagar University)	DGC	Feb 2024	Apr 2026	MoU prepared; KRC established

8.2 Monitoring and evaluation mechanism

Monitoring and Evaluation (M&E) is a vital element of the DGPs. It provides a mechanism to evaluate the progress of implementation within the district and the success of its objectives.

A measurable indicator will be specified for each specific target. It serves to monitor progress, strengthen accountability, and assess if the proposed intervention is working as intended. The indicator should be simple and accurately describe the specific target. It is important that the indicator is not data intensive and does not require a complicated data acquisition effort.

8.2.1 Key Issue 1: Domestic sewage, septage in urban/peri-urban areas

No	Specific Target	Indicator	Baseline	Target
1.	80 % achievement of integrated sanitation/ septage management approach in peri urban areas	Number of insitu latrine installed		
2.	Installation of 11 STPs along with interception and diversion of all identified polluted drains (2 in Kashipur, 19 in Rudrapur) and drains discharging in river Kalyani	volume of waste-water treated	0 MLD	75 MLD

	Required resources	Outcomes	Linkages
	Human resources for communication	5 NGOs are willing to participate	Namami Gange programme, Arth Ganga
	Budget (training materials, programmes, trainers)	5 NGOs have been trained on women leadership and decision- making skills	Namami Gange programme, Arth Ganga
	Budget (resources materials)	Local organisations are able to capacitate more frequently	Namami Gange programme, Arth Ganga

	Means of verification	Frequency (how often will it be measured?	Responsible (who will measure it)	Reporting (where will it be reported)
	Observations	Weekly	Pey Jal Nigam	Implementat ion report, progress report
	Observations	Weekly	Pey Jal Nigam/ ULB/ Jal sansthan/ district authority	Implementat ion report, progress report

No	Specific Target	Indicator	Baseline	Target
3.	Implementation of co treatment facilities in the upcoming STPs	volume of waste-water treated	0 MLD	75 MLD
4.	Faecal Sludge Treatment Facility is operationalised for Rudrapur	volume of domestic wastewater treated	125 KLD	500 KLD
5.	"Plans for covering 80% of all domestic wastewater (106 MLD) with STP andsewer line/ septage management is prepared"	Planning docu-ments		
6.	5-7 km of sewerage system for drains discharging into river Kalyani is implemented	Length of sewage system	0 km	5-7 km
7.	4 km of open drainage systems replaced for covering it at Kashipur	Length of sewerage network and drain-age systems	0 km	4 km

8.2.2 Key Issue 2: Liquid waste management - industrial effluents

No	Specific Target	Indicator	Baseline	Target
1.	4 new WQ stations established at the identified hotspots	Number of WQ stations	41	45
2.	90 % of industrial waste water is treated by ETPs or CETPs (increase capacity by 6 MLD to 36 from 40) and to 100 % in the next RBM cycle	Volume of treated wastewater	36 MLD	40 MLD
3.	Enforcement in major polluting units to upgrade augmentation/ modification in manufacturing process and effluent treatment plants to strictly comply with the discharge parameters	No. of compiling industries		

	Means of verification	Frequency (how often will it be measured?	Responsible (who will measure it)	Reporting (where will it be reported)
	Observations	Weekly	Pey Jal Nigam/ ULB/ Jal Sansathan/ District Authority	Implementat ion report, progress report
	Observations	Weekly	Pey Jal Nigam/ULB	Implementation report, progress report
		Monthly	Pey Jal Nigam	Planning document
	Observations	Weekly	Pey Jal Nigam/ULB	Implementation report, progress report
	Observations	Weekly	Pey Jal Nigam/ULB	Implementation report, progress report

	Means of verification	Frequency (how often will it be measured?	Responsible (who will measure it)	Reporting (where will it be reported)
	Observations	Weekly	Pey Jal Nigam	Implementat ion report, progress report
	Observations	Weekly	Pey Jal Nigam/ ULB/ Jal sansthan/ district authority	Implementat ion report, progress report
	Observations	Monthly	PCB, SIDCUL, SPMG. District Authority	GPI assessment report

8.2.3 Key Issue 3: Solid waste management in rural and urban areas

No	Specific Target	Indicator	Baseline	Target	
1.	Formalise waste and rag pickers and develop fixed procedures for their engagement (with a specific focus on supporting women pickers)	No of rag pickers engaged	100	150	
2.	100% of achievement on source segregation in all ULBs specially for Kasipur, Jaspur, Mahua Kheraganj and Khatima	No of Wards with 100% source segregation	37	89	
3.	4 Location selected for landfill sites for inert and non-recyclable waste based on cluster approach	No. of landfill sites	0	5	
4.	15 awareness and education events conducted. messages, news and articles published	No. of events, news, articles	0	15	
5.	1 decentralised waste processing and recycling centre in each ULB is established	No. of waste processing centres	0	1 per ULB	

8.2.4 Key Issue 4: Water storage capacities and GW recharge to address declining groundwater tables and increase base flow

No	Specific Target	Indicator	Baseline	Target	
1.	I Implementation of of RTRWH in all Govt buildings, public and private establishments, with minimum feasible area. (1000 m^2 and above)	coverage of RTRWH in in all Govt buildings, public and private establishments (area 100 m^2 and above)	0%	100%	
2.	Recovery of live storage of total 50 MCM of 6 reservoirs) of the district with desilting of reservoirs (Baigul, Dhora, Nanak Sagar, Baur, Haripura and Tumaria).	Volume of live storage recovered	0 MCM	50 MCM	

	Means of verification	Frequency (how often will it be measured?	Responsible (who will measure it)	Reporting (where will it be reported)
		Yearly	ULB	Log book
	Observations	Monthly	ULB	SWM report, progress report
	Observations	Yearly	ULB	assessment map, planning documents
	Observations	Monthly	ULB	News report, Bulletin, District Website
	Observations	Weekly	ULB	Implementation report, progress report

	Means of verification	Frequency (how often will it be measured?	Responsible (who will measure it)	Reporting (where will it be reported)
	Observations	Weekly	Irrigation Dept.	Implementation report, log book, progress report
	Observations	Monthly	Irrigation Dept.	Implementation report, log book, progress report

No	Specific Target	Indicator	Baseline	Target	
3.	Support women farmers with the renovation and/or construction of 150 recharge structures in Kashipur, Jaspur, Gadarpur and Rudrapur	No of farm ponds	545	695	
4.	Preparation of Wetland management plan for key wetlands	No of key wetland	No key wetlands identified	All key wetlands identified and protected	

8.2.5 Key issue 5: Floodplain encroachment

No	Specific Target	Indicator	Baseline	Target	
1.	Reclamation of land of illegal settlement along Kalyani River	Area reclaimed	No land reclaimed	Assessed land reclaimed	
2.	Relocate the solid waste dump site at the Dhela river bank to a suitable location	Length of dump site	100m	500m	
3.	Develop an urban green space on an area of 2.0 ha on the cleared sites	Area in hectares	0 ha.	2 ha.	
4.	Survey of the flood plain zone and notification for other areas/ rivers for protection from encroachmen	Area reclaimed	No land identified	All area identified	
5.	Sustainable Sand mining should be ensured	Area reclaimed	No land assessed	All land assessed	

	Means of verification	Frequency (how often will it be measured?	Responsible (who will measure it)	Reporting (where will it be reported)
	Observations	Weekly	Irrigation Dept., Agricultural department	Implementation report, progress report, log book
	Observations	Monthly	Irrigation dept., District authority	Progress report, planning document

	Means of verification	Frequency (how often will it be measured?	Responsible (who will measure it)	Reporting (where will it be reported)
	Observations	Monthly	District administration, ULB	programme report, progress report
	Observations	Monthly	ULB	Implementation report, log book, progress report
	Observations	Monthly	Horticultural dept.	progress report, implementation report
	Observations	Monthly	ULB, Irrigation Dept.	Encroacher list
	Observations	Monthly	District authority, Irrigation Dept.	Sand mining list

8.2.6 Key issue 6: Capacity building and Institutional development at the DGCs with gender inclusive approach

No	Specific Target	Indicator	Baseline	Target
1.	DGCs have been provided with a dedicated supporting cell/ secretariat with 2 specifically trained resource person and 1 forestry expert (with knowledge on gender sensitivity) having the sole task of implementing, monitoring and revising the DGP	No. of trained re-source person and forestry expert	0	2+1
2.	5 district authorities (members of the DGCs) have been trained on river rejuvenation, RBM cycle and operation, maintenance and monitoring of STPs, CETPs, inclusive gender sensitive approach etc. (at least one female staff at each agency)	No of authorities trained	0	5 (at least one female staff from each agency)
3.	Organised 10 training programmes with representatives of RWAs, ULBs. 50% women participation in RWAs has been achieved	No. of training organised	0	10
4.	2 training institutes have taken up e-flow assessment, GIS based land use assignment and gender sensitive rural development planning in their curriculum for training district authorities	No. of institute involved	0	2
5.	Capacity building programme on gender sensitisation for women on women leadership and decision-making skills has been conducted for 5 NGOs	No. Of NGOs trained	0	5

	Means of verification	Frequency (how often will it be measured?	Responsible (who will measure it)	Reporting (where will it be reported)
	Observations	Yearly	DGC, Programme coordinator	Programme report
	Observations	Yearly	DGC, Programme coordinator	Awareness programme report
	Observations	Periodically	DGC, Programme coordinator	Training process report
	Observations	Yearly	DGC, Programme coordinator	Assessment report
	Observations	Yearly	DGC, Programme coordinator	Capacity building report

8.3 Gender sensitive outreach plan:

Gender sensitive outreach pertains to involvement and active engagement of women (and other vulnerable groups) in the planning process by adopting enabling processes and mechanisms and removing barriers. Communication for development (C4D) has been used for several decades to improve the situation of children, women, and families by promoting health, nutrition, water & sanitation, education and numerous other human rights issues. There is abundant evidence demonstrating that communication strategies implemented through a mix of approaches, channels and aimed at different participants and stakeholders can inform, influence, motivate, engage and empower.

Communication can be pivotal in promoting gender equality, by transforming attitudes and stereotypes that perpetuate gender-based discrimination. Communication is also closely linked to empowerment as it contributes to building confidence and skills to negotiate choices and demand for equal access to and control of resources.

Figure 44: Five steps for Gender outreach Action

Data Analysis

The purpose of this step is to understand the nature and extent of the issue, to identify the most vulnerable group(s) and need for transformation including approaches. In this step it is particularly important to understand why certain groups are excluded, including the responsible prevalent practices and stereotypes. Applying a gender lens at this step demands sex disaggregated data and a deeper understanding of the barriers and motivators and how they may be different across genders.

Asking the right questions at this stage will help to get the answers to some of the questions that are needed to develop a gender responsive strategy.

Strategic design

This step focuses on the design and planning of the strategy. The proposed strategy should build on the evidence and insights garnered in Step 1 and the interventions should respond to the problem as well as the barriers and motivators. It is important to consult with both experts and participants to ensure that the proposed interventions and activities will be accepted in the local context.

Similarly, it is critical to validate the strategy and involve partners in the planning process. This becomes even more essential when dealing with sensitive issues or promoting non-traditional responses that government and policy makers may or may not accept. The plan should outline the expected change (i.e., the goals and objectives), how the change will be achieved (i.e., the channels, strategic approaches and activities) and how to measure success or progress on the key objectives of the strategy (i.e., the monitoring and evaluation framework). Applying a gender analysis in this stage will allow an understanding of how gender related factors may enable or hinder certain groups from accessing information.

Implementation and monitoring

This stage is when the planning and implementation is put into action. The various components and building blocks of the strategy such as the media products, messages, partnerships and capacity building efforts are rolled out. The intervention needs to be monitored to ensure it is producing the desired results and make adjectments where required. The key gender considerations in this stage are that gender norms and roles are not impeding any group from participating in the activities that are being rolled out.

Evaluation and re-planning

This stage entails assessing whether the programme was effective and whether or not the goals and objectives were met. Evaluation provides the opportunity to assess the impact of the intervention, as well as to learn from what worked well and what did not. Applying a gender lens in this step will enable an understanding of how the intervention affected different genders and other vulnerable groups, if any. The evaluation should use appropriate gender-based measures to determine whether or not the intervention contributed to gender inclusivity.

References

Abbreviation and year	Title / Source	Author /Publisher
AMP 2016	Aquifer Mapping and Ground Water Management Plan (Udham Singh Nagar District, Uttarakhand)	Central Ground Water Board
Bhela AP 2019	Draft Action Plan for Rejuvenation of River Bhela (Kashpur to Rajpura Tanda), Kashipur (US Nagar)	PCB
Dehal AP 2019	Action Plan for Rejuvenation of River Dhela (Kashipur to Garhuwala, Thakurdwara, Kashipur (US Nagar)	PCB
DIP USN 2017	District Irrigation Plan (DIP) under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)	Department of Agriculture, U.S. Nagar
EP USN 2019	District Environment Plan, Udham Singh Nagar	GBP-NIHE
GRBMP 2015	'Ganga River Basin Management Plan	7 IITs
GWB 2010	District Groundwater Brochure of Udham Singh Nagar	CGWB
Kalyani AP 2019	Action Plan for Rejuvenation of River Kalyani (D/s of Pantnagar), Rudrapur (US Nagar)	PCB
Kichha/Gaula AP 2019	Draft Action Plan for Rejuvenation of River Kichha/Gaula, Distt. US Nagar	PCB
Kosi AP 2019	Action Plan for Rejuvenation of River Kosi (between Sultanpur Patti to Patti Kalan) Distt. US Nagar	PCB
MPARG 2020	Master Plan for Artificial Recharge to Groundwater iIn India – 2020	CGWB, DOWS, GD&GR
Nandhor AP 2018	Action Plan for Rejuvenation of River Nandhor/Kailash (along Sitarganj), Sitarganj (US Nagar)	PCB
Pilakhar AP 2019	Draft Action Plan for Rejuvenation of River Pilakhar, Distt. US Nagar	PCB
RBP 2020	Development of River Basin Assessment and Plans for all Major River Basins in Uttar Pradesh, Ramganga Basin Plan, Volume – 1	SWaRA
URMP 2020	Urban River Management Plan, A Strategic Framework for Managing Urban River Stretches in the Ganga River Basin	NIUA
WRIS 2022	https://indiawris.gov.in/wris/#/arsViewer	INDIA_WRIS

List of Footnotes

1. https://indiawris.gov.in/wris/#/Geoviewer
2. http://cgwb.gov.in/District_Profile/Uttarakhand/UdhamSinghNagar.pdf
3. https://www.cmousnagar.com/rudrapur.php
4. GAF AG 2022
5. http://cgwb.gov.in/District_Profile/Uttarakhand/UdhamSinghNagar.pdf
6. https://indiawris.gov.in/wris/#/ rainfall
7. https://indiawris.gov.in/wris/#/evapotranspiration
8. Draft Action Plan for Rejuvenation of River Kichha/Gaula; USN p 2
9. https://indiawris.gov.in/wris/#/surfaceWater
10. http://cgwb.gov.in/District_Profile/Uttarakhand/UdhamSinghNagar.pdf
11. https://indiawris.gov.in/wris/#/groundWater
12. https://indiawris.gov.in/wris/#/GWResources
13. https://indiawris.gov.in/wris/#/SWQuality, https://indiawris.gov.in/wris/#/GWQuality
14. SW quality (https://indiawris.gov.in /wris/#/SWQuality), GW quality (District Groundwater Brochure of Udham Singh Nagar, CGWB, 2010)
15. https://indiawris.gov.in/wris/#/lulc
16. https://indiawris.gov.in/wris/#/Wasteland
17. District Environment Plan, Udham Singh Nagar, 2019 pp 62
18. https://indiawris.gov.in/wris/#/socioEconomic
19. Census 2011
20. https://indiawris.gov.in/wris/#/Region
21. NFHS 4 2015-16
22. Drain Details of River Kalyani, Rudrapur City, USN
23. Draft Action Plan for Rejuvenation of River Kichha/Guala, 2019; p.9
24. Action Plan for Rejuvenation of River Nandhor/Kailash, 2018; p.8
25. Draft Action Plan for Rejuvenation of River Pilakhar, 2019; p.4
26. District Environment Plan, Udham Singh Nagar, 2019; p. 56
27. Action Plan for Rejuvenation of River Dhela, 2019; p 3
28. Draft Action Plan for Rejuvenation of River Bhela, 2019, p.2

29. District Environment Plan, Udham Singh Nagar, 2019 p. 62

30. compiled information from Action Plan for Rejuvenation of River Kosi, River Dhela, River Kalyani, River Bhela, River Kichha/gaula, River Nandhor, River Pilakhar, PCB, 2019

31. Action Plan for Rejuvenation of River Dhela, 2019; p 7

32. District Environment Plan, Udham Singh Nagar, 2019; p. 56

33. District Environment Plan, Udham Singh Nagar, 2019; p. 57

34. Action Plan for Rejuvenation of River Dhela, 2019; p. 4

35. Action Plan for Rejuvenation of River Dhela, 2019; p. 6

36. Action Plan for Rejuvenation of River Nandhor/Kailash, 2018;p. 3

37. District Environment Plan, Udham Singh Nagar, 2019; p. 67

38. I&D/STP works under Namami Gange

39. compiled information from Action Plan for Rejuvenation of River Kosi, River Dhela, River Kalyani, River Bhela, River Kichha/Gaula, River Nandhor, River Pilakhar, PCB, 2019

40. Action Plan for Rejuvenation of River Kosi, 2019; p. 4

41. Action Plan for Rejuvenation of River Dhela, 2019; p. 5, 19

42. Action Plan for Rejuvenation of River Kalyani, 2019: p.5

43. Action Plan for Rejuvenation of River Kalyani, 2019: p.17-21

44. Draft Action Plan for Rejuvenation of River Pilakhar, 2019; p. 18-26

45. Draft Action Plan for Rejuvenation of River Bhela, 2019; p. 5, p.20

46. Draft Action Plan for Rejuvenation of River Bhela, 2019; p7-8

47. Draft Action Plan for Rejuvenation of River Kichha/gaula, 2019; p. 18

48. District Environment Plan, Udham Singh Nagar, 2019 ;p.44-45

49. District Environment Plan, Udham Singh Nagar, 2019 ; p.60-61

50. Action Plan for Rejuvenation of River Kosi, 2019: p.16, River Dhela 2019: p.19, Bhela 2019:p.20, River Kicha 2019; p.18, River Pilakhar; p.18

51. Action Plan for Rejuvenation of River Kalyani, 2019; p.22, River Nandhor 2019 p. 2,22, River Pilakhar; p.6, River Kicha 2019; p.6, River Dhela 2019; p.5

52. Action Plan for Rejuvenation of River Kalyani, 2019; p.17-21, River Nandhor 2019 p. 17-21

53. Action Plan for Rejuvenation of River Kosi, 2019; p.7, River Kalyani 2019; p. 4, River Kichha/gaula 2019; p. 5)

54. compiled information from Action Plan for Rejuvenation of River Kosi, River Dhela, River Kalyani, River Bhela, River Kichha, River Nandhor, River Pilakhar, PCB, 2019 mentioned as AP in the table body

55. https://indiawris.gov.in/wris/#/SWQuality

56. SWM data USN UDD

57. District Environment Plan, Udham Singh Nagar, 2019 p. XVI

58. District Environment Plan Udham Singh Nagar, 2019, p.28, 32

59. District Environment Plan Udham Singh Nagar, 2019 ; 14, 15, 16, 18-19

60. Action Plan for Rejuvenation of River Kosi, 2019; p.5, River Kalyani, 2019; p. 9, River Dhela, 2019; p.9, River Kichh, 2019; p.10, River Nandhor 2019 p. 9, River Pilakhar 2019; p.5

61. District Environment Plan Udham Singh Nagar, 2019, p. 19, table 9

62. District Environment Plan Udham Singh Nagar, 2019, p.21, table 10

63. District Environment Plan Udham Singh Nagar 2019, p.19-21, table 9

64. District Environment Plan Udham Singh Nagar 2019, p. 7

65. Action Plan for Rejuvenation of River Bhela, 2019; p.4

66. DIP, USN 2017 ; p.23-24

67. https://indiawris.gov.in/wris/#/lulc

68. District Environment Plan Udham Singh Nagar 2019, p.8, 9

69. RBP 2020, IV

70. DIP USN 2017 ; p-44

71. GRBMP 2015, p.35

72. https://indiawris.gov.in/wris/#/sediment

73. MPARG 2020 p. 148

74. District Environment Plan Udham Singh Nagar 2019, p.79-80

75. AMP 2016, p. 64,

76. DIP USN 2017 ; p.44

77. District Environment Plan Udham Singh Nagar 2019, p.64

78. DIP USN 2017 ; p.5

79. https://indiawris.gov.in/wris/#/arsViewer

80. MPARG 2020; p.150

81. DIP USN; p. 6

82. https://indiawris.gov.in/wris/#/GWResources

83. DIP USN 2017;p.5

84. DIP USN 2017;p.27

85. DIP USN 2017;p. 50-51

86. https://indiawris.gov.in/wris/#/Aquifer

87. DIP USN 2017;p.25

88. DIP USN 2017;p.29

89. DIP USN 2017;p.36

90. DIP USN 2017;p.36

91. DIP USN 2017;p.42

92. DIP USN 2017;p.46

93. DIP USN 2017;p.34

94. URMP 2020 ; p.59

95. URMP 2020 ; p.82 onwards

96. RBP 2020; p.200

97. https://www.gbpuat.ac.in/

98. https://www.dietusnagar.ac.in/

99. https://www.drishtiias.com/daily-updates/daily-news-analysis/river-cities-alliance

100. https://www.google.com/search?q=Institutions+for+training+needs+in+river+managhttps://nwa.mah.nic.in/

101. https://sswm.info/sites/default/files/reference_attachments/DEWATS_Guidebook_small.pdf

102. Diederik et.al, in Reference Module in Earth Systems and Environmental Sciences, 2021

103. https://www.cseindia.org/constructed-wetlands-wastewater-treatment-systems-6215)

104. https://www.cseindia.org/soil-bio-technology-sbt-%203774

105. http://sugam.in/soilbiotechnology.html

106. http://www.cpcbenvis.nic.in/scanned%20reports/GUIDELINES%20ON%20CONSTRUCTION,%20OPERATION%20AND%20APPLICATION%20OF%20ROOTZONE%20TREATMENT%20SYSTEMS%20FOR%20THE%20TREATMENT%20OF.pdf

Annexures

Annexure 1 Action Plan for Rejuvenation of River Kosi, 2019; p. 4

Components of action plan:

The proposed action plan for rejuvenation of river Kosi consisting following components:

3.1 Source Control:

Source control includes industrial pollution control and treatment and disposal of domestic sewage as detailed below:

a. Industrial Pollution control:

There are 02 Pulp & Paper industries located along the National Highway and wastewater goes through open channel to river Kosi.

Followings are action points for industrial pollution control:

i. Inventorisation of industries: Two pulp and paper mills are identified and permitted to discharge after tertiary level treatment to channel leading to river Kosi. List of paper mills along with their consented wastewater discharge is given.

ii. Categories of industry and effluent quality; Quarterly assessment of wastewater is being carried out presently.

iii. Treatment of effluents, compliance with standards and mode of disposal of effluents; and

iv. Regulatory regime including "Charter for Prevention and Control of Pollution on Pulp and Paper Industries- 2015".

v. Action plan for stringent discharge Norms for pulp & paper industries as water for dilution is not available in the river.

b. Channelization, treatment, utilization and disposal of treated domestic sewage

Followings are action points for Channelization, treatment, utilization and disposal of treated domestic sewage

i. Identification of drains & their discharge in the catchment of river Kosi between Sultanpur Patti to Pattikalan.

ii. Estimation of quantity of sewage generated and requirement of treatment.

Annexure 2

Action Plan for Rejuvenation of River Kosi, 2019; p. 4

Components of action plan:

The proposed action plan for rejuvenation of river Kosi consisting following components:

Source Control: Source control includes industrial pollution control and treatment and disposal of domestic sewage as detailed below:

Industrial Pollution control:

There are 02 Pulp & Paper industries located along the National Highway and wastewater goes through open channel to river Kosi.

Followings are action points for industrial pollution control:

i. Inventorisation of industries: Two pulp and paper mills are identified and permitted to discharge after tertiary level treatment to channel leading to river Kosi. List of paper mills along with their consented wastewater discharge is given in Annexure-1.

ii. Categories of industry and effluent quality; Quarterly assessment of wastewater is being carried out presently.

iii. Treatment of effluents, compliance with standards and mode of disposal of effluents; and

iv. Regulatory regime including "Charter for Prevention and Control of Pollution on Pulp and Paper Industries- 2015".

v. Action plan for stringent discharge Norms for pulp & paper industries as water for dilution is not available in the river.

Channelization, treatment, utilization and disposal of treated domestic sewage

Followings are action points for Channelization, treatment, utilization and disposal of treated domestic sewage

vi. Identification of drains & their discharge in the catchment of river Kosi between Sultanpur Patti to Pattikalan.

vii. Estimation of quantity of sewage generated and requirement of treatment.

Annexure 3

Action Plan for Rejuvenation of River Dhela, 2019; p. 5, 19

Basis of Proposed Action Plan for rejuvenation of river Dhela:

River Dhela being intermittent river, the action plan for maintaining water quality for Class "B" will be different as it receives significant volume of industrial wastewater from nearby area and municipal sewage of Kashipur town. Therefore, the action plan for prevention and control of pollution of river Dhela has been prepared based on the following components:

Components of action plan:

The proposed action plan for rejuvenation of river Dhela consisting following components:

Source Control:

Source control includes industrial pollution control and treatment and disposal of domestic sewage as detailed below:

Industrial Pollution control:

There are 13 Pulp & Paper industries located along the River bank which discharges their treated effluent in river Dhela. All the units have functional ETPs and treated effluent is discharged in to the Dehla River. List of GPIs situated in the catchment is enclosed as Annexure-1.

Followings are action points for industrial pollution control

i. Inventorisation of industries;

ii. Categories of industry and effluent quality;

iii. Treatment of effluents, compliance with standards and mode of disposal of effluents; and

iv. Regulatory regime including "Charter for Prevention and Control of Pollution on Pulp and Paper Industries- 2015".

List of GPIs located in catchment of river Dhela, Kashipur.

SN	ID	Industry Name	Address	Waste Water Generation (KLD)
1	13764	Katyayini Paper Mills Pvt. Ltd.	Near Sodhi Farm, vill. Kuddiyawala-Jaspur road, KKP-Kashipur	2258
2	10789	Naini Papers Limited	7th K.M. Stone,- Moradabad Road, KKP- Kashipur	4920
3	10546	Naini Tissues Ltd.	7 km-Moradabad Road, KKP-Kashipur	5020
4	15564	Prolific Papers Pvt. Ltd.	Khasra No. 83, -Village Girdhai, Tehsil Kashipur, District U.S. Nagar, KKP-Girdhai	1005
5	10029	Sidarth Papers Pvt. Ltd (Unit 2) (formerly Sidarth Papers Ltd (Unit 2))	7th K.M. Muradabad Road, Kashipur, KKP-Kashipur	3750
6	10026	Siddheshwari Paper Udyog Pvt. Ltd(formerly Siddheshwari Paper Udyog Ltd.)	7th K.M. Muradabad Road, KKP-Kashipur	2919
7	14048	Bahl Paper Mills Limited	Khasra No. 28 Min (Baghelwala) & 74/1 (Girdhai)-5th km Stone, Aliganj Road, Kashipur (U S Nagar), KKP - Baghelwala	3458
8	10027	Sidharth Papers Pvt. Ltd.(formerly Sidharth Papers Ltd.)	7th K.M. Muradabad Road,KKP-Kashipur	3800
9	12918	Sahota Papers Limited	Khata No.0-7,150, 260, 212, 269, 139, 272, 219 Kh No-235,126,233, Village Narayanpur Post Jaspur (U.S.Nagar) U.K	2234.88
10	17149	Dev Rishi Papers Pvt Ltd(Former Name Munnaji Papermill Pvt Ltd)	Khasara No. 275,277,285,Village-Jagatpur Patti, Jaspur,Kashipur	810
11	13700	M\s Fibremarx Papers Pvt Limited	7th Km Milestone,Village- Haldua Shahu, Post - Shivrajpur	1755
12	13186	Vishwanath Paper & Boards Ltd	Village Halduwa Shahu,Tehsil Jaspur	1753

SN	ID	Industry Name	Address	Waste Water Generation (KLD)
13	10949	B.R. Papers Pvt. Ltd	Khasra No. 548/1,Vill. Lalpur, Tehsil Jaspur	270
14	15002	The Kisan Sahakari Chini Mill, Nadehi, US Nagar	Nadehi, US Nagar	180

Annexure 4

Action Plan for Rejuvenation of River Kalyani, 2019: p.5

appropriate operation of CETP is to be ensured to meet CETP outlet standards prescribed under the E(P) Rules, 1986 as amended (Annexure-3).

Channelization, treatment, utilization and disposal of treated domestic sewage/ Municipal drain.

i. Identification of drains their discharge in the catchment of river Kalyani.

ii. Estimation of quantity of sewage generated and requirement of treatment capacity.

iii. Storm water drains now carrying sewage and sullage joining river Kalyani and interception and diversion of sewage to STP.

iv. Treatment and disposal of septage and controlling open defecation.

Solid Waste Management:

i. Collection, segregation, transportation, disposal and treatment of municipal solid wastes generated from town in accordance of provisions of the Solid Waste Management Rules, 2016.

ii. Restriction illegal disposal of solid waste along the river bank and flood plain zones.

iii. Burning of solid waste should be strictly prohibited.

iv. Construction and demolition wastes should be disposed in designated areas and no case it should be disposed in to river beds or flood plain zone.

River catchment/Basin management - Controlled ground water extraction and periodic quality assessment:

i. Periodic assessment of groundwater resources and regulation and regulation of ground water extraction by industries particularly in over exploited and critical zones/blocks.

ii. Ground water re-charging/rain water harvesting.

iii. Periodic ground water quality assessment and remedial actions in case of contaminated ground water tube wells/bore wells or hand pumps.

iv. Assessment of the need for regulating use of ground water for Irrigation purposes.

Annexure 5 Action Plan for Rejuvenation of River Kalyani, 2019: p.17-21

SN	Industry Name	Address	
1	Britannia Industries Ltd	Sector-01,Plotno.-01	Connected
2	Parle Biscuit Pvt Ltd	Sector-01,Plotno.-03	Connected
3	SPP Food Products Pvt Ltd	Sector-01,Plotno.-04	Connected
4	TVS Srichakra Ltd	Sector-01,Plotno.-07	Connected
5	Dukes Products India Ltd	Sector-01,Plotno.-08	Connected
6	Nestle India Ltd	Sector-01,Plotno.-18	Connected
7	Lancer Food Products	Sector-01,Plotno.-2A	Connected
8	Haldiram Snacks Pvt Ltd	Sector-01,Plotno.-2-B	Connected
9	Murliwala Agrotech	Sector-02,Plotno.-01	Connected
10	Obeetee Textiles	Sector-02,Plotno.-01-A	Connected
11	Geeta Industries Pvt Ltd	Sector-02,Plotno.-02	Connected
12	Graffiti Exports Food Division	Sector-02,Plotno.-03	Connected
13	Interpump Hydraulics	Sector-02,Plotno.-03A	Connected
14	Dabur India Ltd Unit 2nd	Sector-02,Plotno.-04	Connected
15	Kusalava International Ltd	Sector-02,Plotno.-10	Connected
16	Titan Company Ltd (Jewellery division)	Sector-02,Plotno.-10-A	Connected
17	Titan Company Ltd	Sector-02,Plotno.-10-B&C	Connected
18	Khattri Aromas	Sector-02,Plotno.-12	Connected
19	Signode India Ltd	Sector-02,Plotno.-13	Connected
20	Radiant Polymers Pvt Ltd	Sector-02,Plotno.-13-A	Connected
21	Interarch Building Products Pvt Ltd	Sector-02,Plotno.-14	Connected

SN	Industry Name	Address	
22	Polygel Industries Pvt Ltd	Sector-02,Plotno.-15	Connected
23	Kores Printer Technologies Pvt Ltd	Sector-02,Plotno.-15-A	Connected
24	Dabur India Ltd unit 1st	Sector-02,Plotno.-16	Connected
25	Bhagwati Products Ltd	Sector-02,Plotno.-18	Connected
26	Radhu Products Pvt Ltd	Sector-02,Plotno.-19	Connected
27	S.I. Auto Pack	Sector-02,Plotno.-20	Connected
28	Prabha Engineers	Sector-02,Plotno.-21	Connected
29	Manjushree Technopack Ltd Unit 2nd	Sector-02,Plotno.-23	Connected
30	Manjushree Technopack Ltd Unit 1st	Sector-02,Plotno.-23-A	Connected
31	Sai Enterprises	Sector-02,Plotno.-23-B	Connected
32	Asian Thai Foods & Investments Pvt Ltd	Sector-03,Plotno.-1to4	Connected
33	Fine Biotics Pharma Ltd	Sector-03,Plotno.-05	Connected
34	Parksons Packaging Ltd	Sector-03,Plotno.-08,09,10	Connected
35	Daffy Cosmetics Pvt Ltd	Sector-03,Plotno.-11	Connected
36	SFC foods	Sector-03,Plotno.-12	Connected
37	Deccan Healthcare	Sector-03,Plotno.-13	Connected
38	Kasa light and Electronics Pvt Ltd	Sector-03,Plotno.-14	Connected
39	Garg industries	Sector-03,Plotno.-15	Connected
40	Jovees Herbal Care	Sector-03,Plotno.-16	Connected
41	Well Pack Industries	Sector-03,Plotno.-18	Connected
42	Accacia Biotech	Sector-03,Plotno.-20	Connected
43	JMC Works Pvt Ltd	Sector-03,Plotno.-21	Connected

SN	Industry Name	Address	
44	Maxchem Pharmaceuticals Pvt Ltd	Sector-03,Plotno.-22	Connected
45	Sushima laboratories	Sector-03,Plotno.-23	Connected
46	Luman Industries Ltd	Sector-03,Plotno.-26	Connected
47	Bal Pharma Ltd	Sector-04,Plotno.- 01,02,03,06,09	Connected
48	Castlite	Sector-04,Plotno.-04	Connected
49	Pankaj Gas Cylinders Ltd	Sector-04,Plotno.-05,06,07	Connected
50	K.L. Packaging	Sector-04,Plotno.-09B	Connected
51	Wabco India Ltd	Sector-04,Plotno.-11	Connected
52	Acme Cleantech Solutions Pvt Ltd	Sector-05,Plotno.- 03to08,29to34	Connected
53	HP India Sales Pvt Ltd	Sector-05,Plotno.-09to11-A,35to37-A	Connected
54	Naari Pharma Pvt Ltd	Sector-05,Plotno.- 14to16,55to57	Connected
55	Aica laminates India Pvt Ltd	Sector-05,Plotno.-23,26,45,48	Connected
56	Delta Power Solution India Pvt Ltd	Sector-05,Plotno.-38	Connected
57	Emami Ltd	Sector-05,Plotno.-40,41	Connected
58	Rudra Autotech Engineering Pvt Ltd	Sector-05,Plotno.-42-B	Connected
59	Bhavani Industries Ltd	Sector-05,Plotno.-44	Connected
60	Maini Scaffold System	Sector-06,Plotno.-01,01A,02	Connected
61	Essar Packaging Pvt Ltd	Sector-06,Plotno.-05	Connected
62	Mohit Rubber Foam India Pvt Ltd	Sector-06,Plotno.-06	Connected
63	Rudrapur Electro Mach Pvt Ltd	Sector-06,Plotno.-07	Connected
64	Adinath Forging Pvt Ltd	Sector-06,Plotno.-08	Connected
65	Abhipriya Business India Pvt Ltd	Sector-06,Plotno.-09	Connected

SN	Industry Name	Address	
66	Banco Products India Pvt Ltd	Sector-06,Plotno.-11	Connected
67	Autotech Engineers & Suppliers	Sector-06,Plotno.-12	Connected
68	Nagesh Industries	Sector-06,Plotno.-13	Connected
69	Boltmaster India Pvt Ltd	Sector-06,Plotno.-14,15,16	Connected
70	Auto Ignition Ltd Unit 2nd	Sector-06,Plotno.-17,18	Connected
71	Khandelwal laboratories	Sector-06,Plotno.-20	Connected
72	Goldstar footwear Pvt Ltd	Sector-06,Plotno.-21	Connected
73	Grandeur agrotech Pvt Ltd	Sector-06,Plotno.-22	Connected
74	Samruddhi industries Ltd	Sector-06,Plotno.-24,25	Connected
75	Replica remedies Pvt Ltd	Sector-06,Plotno.-32	Connected
76	Steel engineers	Sector-06,Plotno.-33	Connected
77	SLG bright wires	Sector-06,Plotno.-34	Connected
78	Colossus trade links Ltd	Sector-06,Plotno.-35	Connected
79	Best quality fasteners	Sector-06,Plotno.-36	Connected
80	Minda corporation Ltd unit 3rd	Sector-06,Plotno.-38	Connected
81	Pilot industries Ltd	Sector-06,Plotno.-39,45to49	Connected
82	RR enterprises	Sector-06,Plotno.-40	Connected
83	Singla forging	Sector-06,Plotno.-41	Connected
84	Goodwear fashion Pvt Ltd	Sector-06,Plotno.-42	Connected
85	Pee aar automotive	Sector-06,Plotno.-43to44	Connected
86	TKT plasto moulders	Sector-06,Plotno.-50	Connected
87	Adarsh electro plating works	Sector-06,Plotno.-51	Connected

SN	Industry Name	Address	
88	Shakti Packaging	Sector-06,Plotno.-56	Connected
89	Caparo engineering India Ltd	Sector-06,Plotno.-57	Connected
90	Real inner spring technologies Pvt Ltd unit 1st	Sector-06,Plotno.-58	Connected
91	Craftsmen	Sector-06,Plotno.-60	Connected
92	Windals precision Pvt Ltd	Sector-06,Plotno.-62	Connected
93	Somani foods	Sector-06,Plotno.-63	Connected
94	Pritpal singh and company	Sector-06,Plotno.-64	Connected
95	Hardev batteries	Sector-06,Plotno.-65	Connected
96	Bonsai udyog	Sector-06,Plotno.-68	Connected
97	ADO conmat India	Sector-06,Plotno.-68-A	Connected
98	Mitter fastener	Sector-06,Plotno.-69	Connected
99	Right tight fasteners	Sector-06,Plotno.-70	Connected
100	Holostik India Ltd	Sector-06,Plotno.-71,72,73	Connected
101	Orbit Industries	Sector-07,Plotno.-02	Connected
102	Mahalaxmi associates	Sector-07,Plotno.-05	Connected
103	Dwarfish pharmaceauticals	Sector-07,Plotno.-08	Connected
104	Khandelwal industries	Sector-07,Plotno.-09	Connected
105	Unimax International	Sector-07,Plotno.-1&10	Connected
106	Karuna enterprises	Sector-07,Plotno.-11	Connected
107	Shree balaji industries LLP	Sector-07,Plotno.-12	Connected
108	Technocract connectivity system pvt ltd	Sector-07,Plotno.-21	Connected
109	Nikhil pipe	Sector-07,Plotno.-22	Connected

SN	Industry Name	Address	
110	Citizen exports	Sector-07,Plotno.-23	Connected
111	Precitech enclosures system Pvt Ltd	Sector-07,Plotno.-24	Connected
112	Parvatesh packaging	Sector-07,Plotno.-25	Connected
113	Jiwan plasto moulds corporation	Sector-07,Plotno.-26	Connected
114	Real inner spring technologies Pvt Ltd unit 2nd	Sector-07,Plotno.-27,28	Connected
115	Hemant industries	Sector-07,Plotno.-29	Connected
116	Kapil enterprises	Sector-07,Plotno.-29	Connected
117	Oxford plast India Pvt Ltd	Sector-07,Plotno.-31	Connected
118	Anand precision works	Sector-07,Plotno.-33	Connected
119	Uttaranchal packaging Pvt Ltd	Sector-07,Plotno.-36	Connected
120	Roshan industries	Sector-07,Plotno.-37	Connected
121	Chirag enterprises	Sector-07,Plotno.-34	Connected
122	Savvak engineering innovation Pvt Ltd	Sector-07,Plotno.-42	Connected
123	Avs lighting solution (dolphin)	Sector-07,Plotno.-43,44	Connected
124	Indian ink and chemicals industries	Sector-07,Plotno.-45	Connected
125	Om industries	Sector-07,Plotno.-46	Connected
126	Surya polypet Pvt Ltd	Sector-07,Plotno.-47	Connected
127	Narayani industries	Sector-07,Plotno.-47A	Connected
128	Sudtrac linkages Pvt Ltd	Sector-07,Plotno.-48,49	Connected
129	Shiva Enterprises	Sector-07,Plotno.-50	Connected
130	Phoenix engineering	Sector-07,Plotno.-51,52,53	Connected
131	GPM industries	Sector-07,Plotno.-54,55	Connected

SN	Industry Name	Address	
132	Maple packaging and logistics	Sector-07,Plotno.-56	Connected
133	Mangla tubes	Sector-07,Plotno.-57	Connected
134	Shanti refrigeration industries Pvt Ltd unit 2	Sector-07,Plotno.-57	Connected
135	Suryodaya textiles pvt ltd	Sector-07,Plotno.-59,63	Connected
136	BCH Electric ltd	Sector-07,Plotno.-64,68	Connected
137	Sree durga fibre products Pvt Ltd	Sector-07,Plotno.-69,70,71	Connected
138	Tosha transformer	Sector-07,Plotno.-72	Connected
139	Emkay automobile industries	Sector-07,Plotno.-73,76	Connected
140	Empathy pharmaceauticals engg Ltd	Sector-07,Plotno.-77	Connected
141	Rajhans pressing	Sector-07,Plotno.-78,79	Connected
142	Rajesh Export	Sector-07,Plotno.-80,81	Connected
143	Ganpati gases	Sector-07,Plotno.-82	Connected
144	Sri balaji agro pharma	Sector-07,Plotno.-83	Connected
145	Eco pet industries LLP	Sector-07,Plotno.-85	Connected
146	Tulip diagnostics Pvt Ltd unit 2nd	Sector-07,Plotno.-86	Connected
147	Voltas Limited	Sector-08,Plotno.-2-5	Connected
148	Shirdi Industries Ltd	Sector-09,Plotno.-01	Connected
149	Green ply industries ltd	Sector-09,Plotno.-02	Connected
150	Tvl engineers pvt ltd	Sector-09,Plotno.-05	Connected
151	Archidply Industries Ltd	Sector-09,Plotno.-07	Connected
152	Rama Panels Pvt :Ltd	Sector-09,Plotno.-08	Connected
153	BST Textiles pvt ltd	Sector-09,Plotno.-09	Connected

SN	Industry Name	Address	
154	Mahalaxmi Polypack Pvt Ltd	Sector-09,Plotno.- 3A,3B,3C&3D	Connected
155	C & S Himoinsa Pvt Ltd	Sector-09,Plotno.-12-A	Connected
156	Perfetti Van Melle India Limited	Sector-09,Plotno.-14-B	Connected
157	SRF Limited	Sector-09,Plotno.-14-C	Connected
158	L G Balakrishnan & Bros Limited	Sector-09,Plotno.-16	Connected
159	Metal Man Micro Turner	Sector-09,Plotno.-17	Connected
160	Sansera Engineering Pvt Ltd	Sector-09,Plotno.-18	Connected
161	Roop Polymer Ltd	Sector-09,Plotno.-19	Connected
162	Varroc Engineering Pvt Ltd	Sector-09,Plotno.-20	Connected
163	Om enterprises	Sector-09,Plotno.-21-A	Connected
164	Schneider Electric IT Business India Pvt Ltd	Sector-09,Plotno.-7-B,7-C	Connected
165	SBR Auto company ltd	Sector-09,Plotno.-7-D	Connected
166	Eden motors	Sector-09,Plotno.-7-F	Connected
167	Advik hitech Pvt Ltd	Sector-09,Plotno.-7-A	Connected
168	Shiv shakti biotechnology ltd	Sector-09,Plotno.-7-G	Connected
169	Aurangabad auto engg pvt ltd	Sector-09,Plotno.-7-H	Connected
170	Universal Comfort Systems Pvt Ltd	Sector-10,Plotno.-01	Connected
171	Neel Auto Pvt Ltd	Sector-10,Plotno.-04	Connected
172	Minda corporation Ltd (Uno)	Sector-10,Plotno.-05	Connected
173	Aurangabad Electricals Limited	Sector-10,Plotno.-06	Connected
174	Neel Metal Product Pvt Ltd	Sector-10,Plotno.-08	Connected
175	Minda corporation Ltd (Spark)	Sector-10,Plotno.-09&9A	Connected

SN	Industry Name	Address	
176	Bajaj auto Ltd	Sector-10,Plotno.-10	Connected
177	Pricol Limited	Sector-10,Plotno.-11	Connected
178	Lumax DK Auto Industries Ltd	Sector-10,Plotno.-11-A&12	Connected
179	Micro turner-V	Sector-10,Plotno.-13	Connected
180	Shakti Polymers	Sector-10,Plotno.-13-A	Connected
181	Suprajit Engineering Ltd	Sector-10,Plotno.-14	Connected
182	Badve Engineering Limited	Sector-10,Plotno.-15	Connected
183	Endurance Technologies Limited	Sector-10,Plotno.-3&7	Connected
184	Ginger	Sector-Commercial,Plotno.-01	Connected
185	Kamal industries	Sector-IIDC,Plotno.-01	Connected
186	M.R. tubes	Sector-IIDC,Plotno.-03	Connected
187	Transcon power Pvt Ltd	Sector-IIDC,Plotno.-04	Connected
188	Jainsons herbo lab Pvt Ltd	Sector-IIDC,Plotno.-06	Connected
189	Viney corporation	Sector-IIDC,Plotno.-07	Connected
190	Makmaul laboratories Pvt Ltd	Sector-IIDC,Plotno.-08	Connected
191	Perfect sales corporation	Sector-IIDC,Plotno.-12	Connected
192	Sure and cure formulation India Pvt Ltd	Sector-IIDC,Plotno.-13	Connected
193	Apex industries	Sector-IIDC,Plotno.-15	Connected
194	Shanu enterprises	Sector-IIDC,Plotno.-16	Connected
195	Diamond forever international	Sector-IIDC,Plotno.-17	Connected
196	Baaz autos	Sector-IIDC,Plotno.-19	Connected
197	Puritech	Sector-IIDC,Plotno.-23	Connected

SN	Industry Name	Address	
198	Kapil enterprises	Sector-IIDC,Plotno.-24	Connected
199	Komal metal finisher	Sector-IIDC,Plotno.-25	Connected
200	Raaj industries	Sector-IIDC,Plotno.-26	Connected
201	Shanti refrigeration industries Pvt Ltd	Sector-IIDC,Plotno.-27,28	Connected
202	PG copybox industries	Sector-IIDC,Plotno.-29	Connected
203	Source automotive parts	Sector-IIDC,Plotno.-30	Connected
204	Ashoka metal industries	Sector-IIDC,Plotno.-31	Connected
205	Sag rubber	Sector-IIDC,Plotno.-32	Connected
206	Polar auto and engg industrial Pvt Ltd	Sector-IIDC,Plotno.-33	Connected
207	Lal ji Gopi nath ji industries	Sector-IIDC,Plotno.-34	Connected
208	Mac personal care Pvt Ltd	Sector-IIDC,Plotno.-37	Connected
209	Jupiter gases Pvt Ltd	Sector-IIDC,Plotno.-38	Connected
210	Chawala auto components	Sector-IIDC,Plotno.-39	Connected
211	Naturence herbals	Sector-IIDC,Plotno.-42	Connected
212	Auto Comp Corporation panse Pvt Ltd	Sector-IIDC,Plotno.-43	Connected
213	Avanti metal	Sector-IIDC,Plotno.-43	Connected
214	Sikands Ltd	Sector-IIDC,Plotno.-44,44- A,45	Connected
215	Taurus parentrals Pvt Ltd	Sector-IIDC,Plotno.-46-A	Connected
216	Shirdi organics Pvt Ltd	Sector-IIDC,Plotno.-47	Connected
217	Chhabra gas suppliers	Sector-IIDC,Plotno.-48A	Connected
218	Alpha plus industries	Sector-IIDC,Plotno.-49	Connected
219	Puri electronics Pvt Ltd	Sector-IIDC,Plotno.-53	Connected

SN	Industry Name	Address	
220	Maxmed life sciences Pvt Ltd	Sector-IIDC,Plotno.-54	Connected
221	Falcon contracts Pvt Ltd	Sector-IIDC,Plotno.-55	Connected
222	Maxima solutions	Sector-IIDC,Plotno.-56	Connected
223	Rudrapur tubes India Pvt Ltd	Sector-IIDC,Plotno.-57	Connected
224	SPM automotive components Pvt Ltd	Sector-IIDC,Plotno.-58,65	Connected
225	Om sai motor industries	Sector-IIDC,Plotno.-64	Connected
226	Feezo chem formulation Pvt Ltd	Sector-IIDC,Plotno.-59,66	Connected
227	Himalayan auto era India Pvt Ltd	Sector-IIDC,Plotno.- 60,61,67,68	Connected
228	Steel bird international	Sector-IIDC,Plotno.-62,63,69	Connected
229	Devbhoomi polymers Pvt Ltd	Sector-IIDC,Plotno.-86	Connected
230	V.T. engineering	Sector-IIDC,Plotno.-87,88	Connected
231	PLG pharmaceuticals	Sector-IIDC,Plotno.-89	Connected
232	Aries drugs Pvt Ltd	Sector-IIDC,Plotno.-90	Connected
233	Tulbros formulation	Sector-IIDC,Plotno.-91	Connected
234	Himalaya polytech Pvt Ltd	Sector-IIDC,Plotno.-93,94	Connected
235	MSS filteration engg process Pvt Ltd	Sector-IIDC,Plotno.-95	Connected
236	Jai durga packers	Sector-IIDC,Plotno.-96	Connected

Annexure 6 Draft Action Plan for Rejuvenation of River Pilakhar, 2019; p. 18-26

List of industries located in catchment of river Pilakhar, US Nagar.

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
1	10144	A & B Soaps & Chemicals	92/4/3-vill-Ikghara,Bannakhera road,BZP-Bazpur	31-03- 2020	0.8
2	10395	A One Brick Industries	khasra no-345-VILL - Rampura kaji,BZP-JASPUR		1
3	12124	Aashirwad Brick Field	--VILL-RAMNAGAR,P.O.-KELAKHERA,TEH.-BAZPUR,DISTT.-U.S.NAGAR,	31-03- 2017	1
4	22658	Ajay Gupta (Mining Stretch)	Khasra No 33, 34, 36-Vill Ittabba Gobra,BZP-Bazpur	31-03- 2019	0.5
5	22683	Ajay Tiwari (Mining Stretch)	4//19, 4/20-Vill Patauti,BZP-Bazpur	13-11- 2019	0.5
6	10423	Amrit Stone Crusher Pvt Ltd	kh no-194/2 & 195/2-VILL - Kanhori near Jagganthpur,BZP-BAJPUR	16-12- 2018	2
7	22455	Anand Singh (Mining Stretch)	Khasra No 61/4, 48/2, 61/1-Madaiya Guljari,BZP- Bazpur	16-02- 2019	0.5
8	18715	Asha Stone Crusher	khasra no 626,627,628,660, 661,662-vill Gaon, BZP-GAON BAZPUR	31-03- 2019	2
9	13720	Ate Power Connections P Ltd	f-22,23-upsidc ind. estate,BZP-piplia	31-03- 2020	1.5
10	15930	B.A.Alloys Private Limited	KHASRA NOS. 272/5/3 & 272/5/5-VIKRAMPUR INDUSTRIAL AREA, BAZPUR	31-03- 2015	

List of industries located in catchment of river Pilakhar, US Nagar.

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
11	12696	Baba Bhuman Shah	KHASRA NOS. 272/5/4 & 272/5/5-INDUSTRIAL AREA VIKRAMPUR,BZP VIKRAMPUR		3
12	11028	Baba Bhuman Shah	26/2-vill-rampura kazi,BZP- Rampura kazi	31-03- 2017	1
13	14605	Baba Nand Singh Ji & Associates	Khasara No.- 216/2/1-Village -Ittava, Teh.-Bazpur, Distt.- U.S. Nagar, ,BZP-Ittava	31-03- 2018	2.5
14	15875	baba Stone Products	Khasara No. 45/4-Village- Bannakhera, Teh.- Bazpur, Distt.-U.S. Nagar,BZP- Bannakhera	31-03- 2020	3
15	14607	Bajpur Co Operative Sugar Factory Ltd(Sugar Unit)	1446-Nainital Road,BZP-BAZPUR	31-03- 2018	
16	21064	Banke Bihari Buildcon	khasra no-15/1-vill- Kishanpur,BZP-kishanpur	29-11- 2021	1.5
17	22547	Basant Samuhik Sahkari Krishi Samiti Ltd (Mining Stretch)	Khasra No 4/3/1-Vill Patauti,BZP-Vill Patauti , Bazpur	31-03- 2019	0.5
18	17052	Bazpur Stone Crushers Pvt.Ltd.	268/03/02/02-Vikrampur,BZP-Bazpur	05-10- 2020	1
19	11965	bbsb Stone Crushers (P) Ltd.	KHASARA NO. - 28-VILLAGE : KANAURI, TEH.- BAZPUR, DISTT-U.S. NAGAR,UTTARA-KHAND, BZP-KANAURI	31-03- 2020	1
20	14717	Bhagwati Alloys	Khasara No-280/10/2-Vill- Vikrampur,BZP-BAZPUR	31-03- 2018	1

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
21	12086	Bhagwati Brick Field	--HRADAYPUR, BARIA ROAD, KELAKHERA, DISTT. U.S. NAGAR,BZP-HRADAYPUR	31-03- 2017	1
22	15739	Brar Frozen Foods (Unit Of Brar Seeds Pvt.Ltd.)	Khasara No-186/1 min,187/1 min, -Vill-Deohari,BZP-Bazpur	31-03- 2019	15
23	10397	Chand Brick Field	khet no-67Ami-VILL - Bhavva nagla,BZP-Village- Kelakhera	31-03- 2017	0.5
24	16407	Compact Lamps Pvt Ltd unit- II(formerly Alpha Electronics)	B2-UPSIDC Industrial Area, Bazpur-Site 1,BZP-Pipaliya	31-03- 2021	3
25	20957	Dabka Stone Crusher Pvt.Ltd	khasra no-113,1/4,2/2,3,4,5 and 2/1min-vill-Ittawa-Gajrola,BZP-bazpur	29-11- 2021	2.5
26	22881	Deepak Kumar Sharma	Vill-Madiya Guljari, Tehsil- Bazpur-Vill-Madiya Guljari, Tehsil-Bazpur,BZP-Vill- Madiya		0.5
27	18849	Denovo Corporation (formerly Polyplex Corporation Ltd)	KHASRA NO 234-RAJAT INDUSTRIAL ESTATE,BZP-VIKRAMPUR	31-03- 2029	2
28	12294	Devbhoomi Builders & Stone Crusher Pvt Ltd	5/6,5/10,5/11,5/12-MUKANDPUR ,BZP-MUKANDPUR	31-03- 2020	2.5
29	22552	Devra Industries	E-18-Integrated industrial Estate Bajpur,BZP- Jagannathpur		0.25
30	10494	Dhanlaxmi Agromills (I) Ltd	KHATA NO -00119-vill-Narkhera,BZP-VILL-NARKHERA, BAZPUR, U.S. N	31-03- 2020	3.5
31	21933	Dhanoa Foods	-VILLAGE NAMUNA, BAZPUR ,BZP-NAMUNA	31-03- 2019	0.5

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
32	21374	Dhillon Minerals Stone Crusher	khasra no-39/4,40/7,30/2/2 and 84/2-vill-Banduri,BZP-bazpur		1
33	22662	Dhruv K Sarna (Mining Stretch)	4/14/1, -Vill Patauti,BZP-Patauti	31-03- 2019	0.5
34	22730	Digvijay Singh (Mining Stretch)	338/1, 338/2, 338/3, 339/1,/2/1, 340/1, 341/1/1, 343/1-Vill Sultanpur Patti,BZP-Vill Sultanpur Patti , Bazpur	31-03- 2019	0.5
35	10415	Ekta Stone Crusher	khara no-65/2,71/1 & 72-VILL -Gulzarpur,BZP-BAZPUR	31-03- 2020	1.5
36	20788	Eminent Solar Power Pvt Ltd	khata no-105-vill-Ratanpura,BZP-Bazpur		2.5
37	10292	Fateh Stone Crushers	KHAS NO 248/2,249/1-VILL BAINTKHERI ,BZP-BAINTKHERA TEHSIL BAZPUR	31-03- 2020	2.5
38	22338	Foodmentary (India) Ltd	Plot No E-2 & E-3-Rajat Industrial Park,BZP-Bazpur		26
39	10282	Galfar Engineering & Contracting India Pvt Ltd	KHATA NO 21 ,35-VILL - BICHPURI TEHSIL BAJPUR,BZP-Bazpur	31-03- 2020	3
40	15906	Ganpati Packaging Industries	Khasara No.-46/1,-Village- Beechpuri, Tehsil- Bazpur, Distt.- U.S. Nagar,BZP-Beechpuri	31-03- 2020	1
41	12331	Godfrey Phillips I Ltd.	C-9-UPSIDC ,BAZPUR-1st,BZP-Jaganathpur	31-03- 2021	1.6
42	22469	Godfry Phillips India Limited	C5 to C8UPSIDC Indl Area Bazpur1st-Bazpur,BZP- Jaganathpur Pipalia		2

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
43	125 75	Gopal Foods	Khasra No. 59/1/7 Village Chakarpur-Beria Road,BZP-BAZPUR	31-03- 2019	23.5
44	210 98	Govind Stone Crusher	khata no-04,kh no-25/1,25/2,25/3,25/4,25/5-khata no-53,kh no-26/1 min vill-Noorpur,BZP-Noorpur	31-03- 2019	1.5
45	158 76	Goyal Packaging Industry	Khasara No-299/5 Mi.-Vill- Ikghara, Banakhera Road,BZP-Bazpur	31-03- 2019	0.5
46	226 86	Gulam Mustafa (Mining Stretch)	Khasra 328/1-Sultanpur Patti,BZP-Sultanpur Patti, Bazpur	31-03- 2019	0.5
47	106 12	Gupta Agro Products	khasra no-54,55,66 and 12-vill -bichpuri,BZP-bazpur	31-03- 2019	51
48	211 43	Guru Kripa Mines & Crusher Pvt. Ltd	khasra no-29/1,29/3,/29/4/, and 29/5-vill-Uncha gaon,BZP-Uncha gaon	31-03- 2019	1.5
49	127 98	Gurunanakdev Industries	181/2-FARIDPUR,BZP-BAZPUR	31-03- 2012	1
50	111 71	Hans Foods	247-BHONA ISLAM NAGAR,BZP-BHONA ISLAM NAGAR	31-03- 2018	1.5
51	188 34	Hari Har Stone Crusher Pvt Ltd	khasra no 13a,14c13b,14a,17b,18/2,19-vill kanori,BZP-Bajpur	31-03- 2020	2.5
52	212 16	Harihar Stone Crusher Pvt.Ltd(Unit-Ii)	khasra no . 28-vill-Uncha gaon,BZP-Uncha gaon		1.5
53	104 92	Himalayan Buildstone Limited	-KHASRA NO 13/2,13/3-GRAM LUDHPURA ,BZP-Ludhpura	24-10- 2020	2
54	226 12	Himanshu Rawat (Mining)	Kh No. 3/4 Mi-Vill Patauti,BZP-Bazpur	31-03- 2019	0.5

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
55	183 99	J.K. Board	khatoni no 41- vill- gulzarpur,p.o -dhakia,BZP- Gulzarpur, Tehsil Bazpur		5.5
56	226 14	Jagdish Kumar (Mining Stretch)	4/6/4, 4/5/1-Vill Patauti,BZP-Bazpur	31-03- 2019	0.5
57	226 18	Jai Prakash (Mining Stretch)	Kh no. 11, 12-Sultanpur,BZP-Sutanpurpatti	31-03- 2019	0.5
58	225 20	Jaswant Singh (Minn Stretch)	Khasra no. 178-Vill Sultanpur Patti,BZP-Kashipur	31-03- 2019	0.5
59	214 46	Jindal Agro Mills	khasra no-7/2-vill-nandpur narka,BZP-Bazpur - 262401		0.5
60	212 21	Jogipura Stone Crushers	khasra no-43/2 and 43/3-vill-Gularia,BZP-Gularia	31-03- 2019	3
61	217 13	Kashi Vishvanath Stone Crusher	khasra no-3/2,4/2,3/1 and 64/1-Vill-Kalyanpur and Kishanpur,BZP-Bazpur		0.5
62	134 22	Kedar Nath Chand Karan	-245,247 mi-BHONA BIRAHA ROAD, BAZPUR (U.S NAGAR),BZP-BAZPUR	31-03- 2028	1
63	147 26	Kosi Minerals & Stone Crusher	kh no-00118 & 00141-vill- LUDHPURA,BZP-LUDHPURA	31-03- 2020	1.5
64	225 79	Krishna (Mining Stretch)	148/1a, 148/1, 155/3-Sultanpur,BZP-Sultanpur , Bazpur	31-03- 2019	0.5
65	225 48	Kumaon Mandal Vikas Nigam Ltd (Mining Stretch)	Kh No. 49/11/ 10,49/ 11/11, 49/11/1 2, 49/11/13, 49/11/14, 49/11/ 15-2.69 Hectare, BZP- Bazpur		0.8

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
66	22837	Lalit Kumar (Mining Stretch)	293/2 &296/2, sultanpur, Bazpur-Sultanpur, Bazpur, Distt- US nagar,BZP- Bazpur		0
67	12668	Lalkuan Stone Crusher Ltd	--BHIKAMPURI, BANNAKHERA,BZP-BAZPUR	31-03- 2022	3
68	10509	Lalkuan Stone Crusher Ltd	khata no-1,11 & 16-vill-Kishanpur,BZP-Vill-Kisanpur, Tehsil- Bajpur	31-03- 2022	0.5
69	10663	Lamer Infrastructures Pvt Ltd	khata no-25,khasra no-29/4 & 29/3and khata no- 28,kharano-30.-VILL - Uncha Gaon,BZP-Village- Uncha Gaon,	31-03- 2020	2.5
70	22617	Laxmi Narayan (Mining Stretch)	171, 143 A, 143/1, 142/1-Sultanpur,BZP-Sultanpur patti	31-03- 2019	0
71	10540	Lsc Infratech Ltd	khasra no-168,169,170,171and 180- VILL & P.O.-Gobra,, Tehsil, Bajpur	31-03- 2022	2
72	16993	M.R. Brick Store	--Vill.- Lankura Kilakhera, Bazpur, Distt.-U.S. Nagar,BZP- Lankura Kilakhera	31-03- 2018	1
73	10564	Maharaja Palace	khasra-370 -Nainital Road, bazpur,BZP-BAJPUR		3.5
74	21983	Mannat Stone Crusher	khasra no-163 min,&164 min-vill-Kelabandwari,BZP-Bazpur		2
75	22729	Mohabbe Ali (Mining Stretch)	Khasra No. 112-114-Vill Sultanpur,BZP-Sultanpur	02-12- 2018	0.5

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
76	11193	Ms Sab Herbals & Nutraceuticals	92/4/3-VILL. IK-GHARA, BANNAKHERA ROAD,BAZPUR,U.S.NA-GAR (UTTRAKHAND),B-ZP- BAZPUR	31-03- 2019	0.5
77	11577	Ms Shukhmani Brick Field	1/2-VILL.- VIKRAMPUR,BZP-BAZPUR		2.5
78	10049	Nainital Stone Crusher Pvt. Ltd.	kh no-108 & 99/2-Villlage-Bhikampuri,BZP-Bannakhera	31-03- 2018	2
79	17521	Nanak Natural Screening Plant	Khasara No. 473- A-Village- Bannakhera, Tehsil- Bazpur,Distt.- U.S. Nagar, BZP-Bannakhera	31-03- 2020	1.5
80	16003	Nav Durga Brick Field	--Vill-Kinoura,BZP-Bazpur	31-03- 2011	1
81	11021	Needle Eye Plastic Industries Pvt. Ltd	PLOT NO,- B1,C1, U.P.S.I.D.C.,INDUSTRIAL AREA, PHEASE-II,-BERIA DAULAT, BAZPUR,	31-03- 2018	4
82	10340	New Kishan Brick Field	khasra no-309,khet no-148-VILL - pipliya no-1,BZP-Pipliya	31-03- 2017	1.5
83	22685	Nisith Sharma (Mininng Stretch)	145, 146, 147, 151-Vill Sakadi,BZP-Vill Sakadi , Bazpur	31-03- 2019	0.5
84	22456	Om Prakash (Mining Stretch)	Khasra No. 7/1-Sultanpur Patti,BZP-Sultanpur	31-03- 2019	0.5
85	18854	Omkar Infratech Ltd	khasra no 50min - Ratanpuri,BZP-Ratanpuri	31-03- 2017	2.5
86	20978	Omkar Infratech Ltd(Unit-Ii)	khasra no - 237,239,240,255,256 and 257-vill-Ittava,BZP-ittava	31-03- 2021	1.5

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
87	165 42	Parmatama Ferro Alloys Pvt. Ltd.	--Vill.- Vikrampur, Teh.- Bazpur, Distt.- U.S. Na-gar,BZP-Vikrampur	31-03- 2018	1.5
88	226 13	Parminder Singh (Mining Stretch)	Kh No. 4/17, 4/18-Vill Patauti,BZP-Bazpur	31-03- 2019	0.5
89	164 11	Phoenix Udyog Pvt. Ltd.	Plot No. C-4, - UPSIDC,Phase-II Bazpur, Industrial Area, Bazpur, U.S. Nagar ,BZP-Bazpur	31-03- 2019	1.5
90	119 72	Polyplex Corporation Limited (Chips Unit)	227 & 228-BANNAKHERA ROAD,BZP-VIKRAMPUR	31-03- 2019	53
91	122 29	Polyplex Corporation Limited (Film Unit)	227 & 228-BANNAKHERA ROAD,BZP-VIKRAMPUR	31-03- 2019	33
92	164 19	Prestress Steel LLP (formerly Presstress Wire Industries)	Khasara No. 268/1-Village-vIKRAMPUR, Bazpur, Distt.- U.S. Nagar,BZP-Vikrampur	31-03- 2019	6
93	105 26	PSB Papers Pvt Ltd (formerly Psb Papers Ltd (Unit- II)	--BERIA ROAD,BZP-BAJPUR	31-03- 2023	2
94	130 15	Radico Khaitan Ltd. (Imfl Bottling)	A-2 UPSIDC Industrial Area -Phase-1, Bazpur,BZP-Bazpur	31-03- 2028	1.5
95	130 14	Radico Khaitan Ltd. (Pet Bottle A1)	A-1,UPSIDC Industrial Area -Phase-1, Bazpur,BZP-Bazpur	20-12- 2021	1
96	130 13	Radico Khaitan Ltd. (Pet Bottle)	B-3 UPSIDC Industrial Area -Phase-1, Bazpur,BZP-Bazpur	31-03- 2021	0.5
97	221 57	Raghav Natural & Screening Plant	Khasara No. - 4/2/2 & 8/2B,-Village - Jogipura, Bazpur, Distt. - U.S. Nagar, BZP-Jogipura		1.5

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
98	225 37	Rajeev Goyal (Minng Stretch)	Khasra No 3/33/1, 3/32/3- Vill Patauti,B-ZP-Bazpur	31-03- 2021	0.5
99	147 88	Rajlakhsmi paper & Boards ltd (Uday Papers Mills)	kh no- 1/1,5/2/7/20/1-vill - tharangunj, BZP-Bazpur	31-03- 2023	504
100	150 60	Rajlakshmi Buildcon Ltd	khasara no-31 & 32-uncha gaun, jaganathpur, Chhoi marg, BZP-Bazpur	16-11- 2020	6.5
101	226 63	Ram Kali (Mining Stretch)	164/1, 189/2, 164/2-Sultanpur,BZP-Sultanpur	31-03- 2019	0.5
102	225 77	Ram Kishore (Mining Stretch)	Khasra No 147, 146/2, 122/1, 146/2a, 146/2-Sultanpur, BZP-Sultanpur, Bazpur	31-03- 2019	0.5
103	160 05	Rama Brick Industry	vill-Bhawwa Nagla, Kelakhera, BZP-bazpur	31-03- 2010	1
104	226 59	Ramautar (Mining Stretch)	Khasra No 4/23/3-Vill Patauti, BZP-Patauti	31-03- 2019	0.5
105	228 70	Ramveer Singh	4/12/2, Village- Patauti, Bazpur. -Village- Patauti, Bazpur, US Nagar, BZP-Bazpur		
106	228 71	Ramveer Singh	4/12/2, Village- Patauti, Bazpur. -Village- Patauti, Bazpur, US Nagar,BZP - Bazpur		0.5
107	226 61	Ravindra Singh (Mining Stretch)	3/33/12, 3/33/4, 3/33/5-Vill Patauti,BZP-Patauti	31-03- 2019	0.5
108	228 80	Sahdev Sharma	vill- Patauti, Tehsil-Bazpur-vill-Patauti, Tehsil- Bazpur, BZP-Patauti		0.5
109	117 11	Sahibjada Baba Jorawar Singh Stone Crusher & Storage (P) Ltd.	Village: Ranta, Tehsil.: Bazpur, Dist.: U.S.Nagar ,Bzp-Ranta	31-03- 2013	4

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
110	228 32	Seva Singh	235/1 gram-gobra-235/1 gram-gobra, teh-bazpur,BZP-gobra	31-03- 2019	0.5
111	210 89	Sharda Stone Crusher	khasra no-7/15 and 7/16-vill-rampura Shakar,BZP-bazpur	31-03- 2019	1.5
112	225 78	Sheela Devi (Mining Stretch)	49/10/1-Madhaiya Guljari,BZP- Madhaiya Guljari , Bazpur	31-03- 2019	0.5
113	226 16	Shiv Kumar Gupta (Mining Stretch)	Kh 123, 138/1 me-Sultanpur,BZP-Sultanpur	31-03- 2019	0.5
114	224 75	Shiva Stone Crusher	Khasra No 150 A-Bainthkheri,BZP-Bainthkheri		2
115	155 35	shree Krishna Chemical Industries	Khasara No.- 66 Min-Beria Road, Bazpur, Distt.- U.S. Nagar,BZP-Badripur	31-03- 2019	1
116	143 84	Shree Tribhuvan Ispat Pvt Ltd	194-Vikrampur Ramraj Road,BZP-Bajpur	31-03- 2018	1
117	125 92	Shri Ambuja Castings Private Limited	KHASRA No.: 198/3 & 198/6-INDUSTRIAL ESTATE, VIKRAMPUR,BZP - VIKRAMPUR	31-03- 2019	1
118	172 90	Shri Baba Shyam Stone Crusher (P) Ltd	Khasra No.300/1-Bazpur,BZP-Bhikampuri	31-03- 2019	1.5
119	100 06	Shri Ganpati Stone Crusher	khasra no- 1/6, 1,8, 1/9, 1/10, 4/1, 1Sa, 4S a and1/11-vill- noorpur, BZP-Noorpur	31-03- 2020	2.5
120	105 91	Shri Guru Stone Crusher Pvt Ltd	kh-174/61-66 & 69- Kanoauri / Jaganathpur,BZP-BAJPUR	31-03- 2020	2

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
121	22546	Shri Rajpal Singh (Mining Stretch)	Khasra No 4/5/2, 4/6/1-Vill Patauti,BZP-Bazpur	31-03- 2019	0.5
122	16431	Shubham Feed Products	Khasra No.286/1/1-Bazpur,BZP-Vikrampur	31-03- 2023	0.8
123	22934	Shuklambara Papers Pvt Ltd	Khasara No. - 13/2 Min,-Village - Mundia Ani, Tehsil - Bazpur, Distt. - U.S. Nagar,BZP-Mundia Ani		104
124	10562	Shyam Frozen Foods	khata no-130,khasra no- 72/2/3-VILL -Birah road,BZP-BAJPUR	07-02- 2018	25
125	22483	Singh Auto Hub	Khasra no. 65/4, Village-Deohari-BAZPUR,BZP-BAZPUR/DEOHARI		1
126	21126	Singh Minerals	khasra no-9/1,9/2,10 and 11A-vill-Gajraula Jogipura,BZP-jogipura	31-03- 2019	1.5
127	22678	Smt Lazwanti formally known as Pyara Singh	Khasra No 3/29/1-Vill Patauti,BZP-Bazpur	31-03- 2019	0.5
128	22454	Smt Poonam (Mining Stretch)	Khasra No. 52/2, 53/1, 60/2, 49/13/3/1-Madaiya Guljari,BZP-Bazpur	31-03- 2021	0.2
129	22535	Smt Ramneek (Mining Stretch)	Khasra No 4/4/1-Vill Papalia,BZP-Vill Papalia , Bazpur	31-03- 2019	0
130	22660	Sompal (Mining Stretch)	134/2, 135/1, 140/1, 140/2, 138/1, 139/2-Sultanpur Patti,BZP-Sultanpur	31-03- 2019	0.5
131	16979	spack Automotives Limited	KHASRA NO. 261, -J & G INDUSTRIAL ESTATE, RAMRAJ ROAD, VIKRAMPUR, BAJPUR, BZP-VIKRAMPUR, BAJPUR	31-03- 2021	2

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
132	12865	Sujatha Bio Tech	Plot No.B-4-Industrial estate, ,BZP-Kashipur	31-03- 2018	5
133	22576	Sushil Kumar Verma (Mining Stretch)	Khasra No 6, 7/3, 128A, 128-B, 129/4-0.703 Hectare,BZP-Sultanpur	31-03- 2019	0.5
134	11884	Tarai Brick Field	--SARKARI ROAD,KELAKHERA, BAJP UR,U.S.NAGAR, BZP- KELAKHERA	31-03- 2010	0.5
135	21375	Tarai Mineral Ores	khasra no-78/1mi-vill-rampura Shakar,BZP-rampura		1
136	21981	Tirupati Herbal S	Khasra no-271-vill-Chakarpur, Teh-Bazpur,BZP-BAZPUR - 262401		5
137	15041	Umashakti Steels Pvt Ltd	Vikrampur-Bannakhera,BZP-Vikrampur	31-03- 2018	4
138	18963	Uttaranchal Ispat Limited (Unit -2)	PLOT NO D-5 TO D-8-PIPALIA INDUSTRIAL AREA,BZP-BAJPUR	31-03- 2019	0.5
139	11415	uttaranchal Ispat Limited.	D -1 TO D - 8-PIPALIA INDUSTRIAL AREA, VILLAGE JAGANNATHPUR, , BZP-BAZPUR	31-03- 2018	1
140	10405	Vansh Fertilizers	369-vill- kuwa khera sakaniya, BZP-BAJPUR	31-03- 2019	1.6
141	10759	Varun beverage Limited (former Pepsico India Holdings Pvt Ltd)	A-2-UPSIDC, Site-2, Industrial Area,BZP-Badripur	31-03- 2019	936
142	17432	Vashnavi Food Products	Khasara No. 198, 199, 200, 201-Village - Pipaliya, Tehsil- Bazpur, Distt.- U.S. Nagar, BZP-Pipaliya	31-03- 2016	27.5

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
143	22615	Vijendra Singh Dogra (Mining Stretch)	3/19-Vill Patauti,BZP-Bazpur	31-03- 2019	0.5
144	16913	Zel-Cds(J.V)	Kshara no-293/3,264/6-vill- vikrampur, BZP-bazpur	31-03- 2017	1.5

Annexure 7

Draft Action Plan for Rejuvenation of River Bhela, 2019; p. 5, p.20

Channelization, treatment, utilization and disposal of treated domestic sewage.

i. Identification of drains their discharge in the catchment of river Bhela.

ii. Estimation of quantity of sewage generated and requirement of treatment capacity.

iii. Storm water drains now carrying sewage and sullage joining river Bhala and interception and diversion of sewage to STP.

iv. Treatment and disposal of septage and controlling open defecation.

List of GPIs located in catchment of river Bahela, Kashipur.

SN	ID	Industry Name	Address	Wastewater generation (MLD)
1	10542	Vishvakarama Paper & Board Ltd.	45 Km ,Ramnagar Road, Kashipur	1050
2	10545	Banwari Paper Mills Ltd.	,Ramnagar Road, Kashipur	915
3	12578	PMV Maltings Pvt. Ltd.(former The Malt company)	Plot No.- 152, Phase- Ii,Nand Nagar Industrial Estate, Mahuakheraganj, Kashipur	1475
4	13024	Kashi Vishwanath Textile Mill Pvt. Ltd	47,48,52,54,64,65,70,72,74,75,82,84,85,86,342,343, 344 ,Vill-Kharmasi 5th Km Stone, Ramnagar Road, Kashipur	595
5	14885	Multiwal Duplex Pvt Ltd	Vill- Gangapur Gosain, Kundeshwari Road, Kashipur	810
6	10052	India Glycol Ltd., MEG Plant	Bazpur Road Kashipur, US Nagar	2631

Annexure 8

Draft Action Plan for Rejuvenation of River Bhela, 2019; p7-8

River Bhela Rejuvenation Plan:

Following are the action plan for rejuvenation of river Bhela as detailed below:

Industrial Pollution Control:

Following are the action points for sector-wise pollution control. List of GPIs operating in the catchment is enclosed as Annexure-1.

Pulp and Paper Industries:

i. Pulp and Paper manufacturing should not be permitted to dispose polluted or coloured effluents in any drains leading to river Bhela.

ii. Agro-based pulping should be allowed only with Chemical Recovery Plant (CRP) with Zero Black Liquid Discharge in the catchment area of river Bhela or drains leading to Bhela river.

iii. Pulp and paper units shall meet Charter criteria as prescribed by Central Pollution Control Board (CPCB) and Uttarakhand Environment Protection and Pollution Control Board (UEPPCB) all the time.

iv. Sludge being used for making boards and proper records should be maintained end use of generated sludge and the concerned industry shall ensure that no over-flow from sludge dyring bed occurs.

Sugar Industry:

Sugar Industry should not be permitted to discharge polluted/untreated effluents in any drain. Effluent discharge standards as prescribed under the Environment (Protection) Rules, 1986 as amended shall be strictly complied with. Industry shall be encouraged to use treated effluent for cooling and irrigation purpose. Consent condition shall accordingly be modified by UEPPCB.

Textile Industry:

Textile unit is also located in the catchment of Bhela River. Though unit is maintaining Zero Liquid Discharge (ZLD) by adopting RO and MEE, close surveillance would be carried out in order to ensure compliance all the time.

Distillery:

i. All the distilleries should operate only with 'Zero Liquid Discharge' (ZLD) system.

ii. In no case, spent wash be either disposed in drains or on land.

iii. The composted spent wash after Reverse Osmosis (RO)/Multiple Effect Evaporator (MEE), the compost should meet the standards and after ensuring that the composted material does not leach color only such composted material may be used for land application.

Electroplating Industries:

i. Electroplating industries which are the main source of metallic contamination of surface and ground water should be insisted for 'ZLD' system. Cyanide based electroplating process shall not be permitted.

ii. All the electroplating units or having electroplating process or industrial processes which are likely to discharge effluents containing heavy metal or pollutants that may damage environment, in such cases, UEPPCB shall make necessary amendments to the CCA (Consolidated Consent & Authorization) granted under the Water (Prevention and Control of Pollution) Act, 1974; the Air (Prevention and Control of Pollution) Act, 1981 and the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016, for incorporation of the effluent discharge standards for all the parameters as prescribed under Environment (Protection) Act, 1986.

Annexure 9 Draft Action Plan for Rejuvenation of River Kichha/Gaula, 2019; p. 18

List of GPIs located in the catchment of River Gaula, US Nagar.

SN	ID	Industry Name	Address	Waste-water gener-ation (MLD)
1	15528	Century Pulp & Paper	Ghanshyamdham, Lalkuan.	20024
2	10544	Century Pulp & Paper	Ghanshyamdham, Lalkuan	24
3	13272	Century Pulp And Paper	Ghanshyamdham, Lalkuan	17218
4	12815	Kichha Sugar Company Limited	Kichha- Nainital Road, Kichha	770.4

Annexure 10

District Environment Plan, Udham Singh Nagar, 2019 ; p.44-45

Polluter stretches in US Nagar

As much as seven polluter stretches have been identified in Udham Singh Nagar district with priority level varying from (I) to (IV) (Table 30). Kashipur, Bajpur, Rudrapur, Sitarganj and Sultanpur are major towns that lie in the vicinity of these polluted stretches. Effluent from industries, sewage generated from households and dumping of solid waste in river catchment have been major sources of water pollution in these stretches of rivers (Table 31).

Table 30. River Polluter Stretches in Udham Singh Nagar

SN	River Name	Stretch Identified	Major Cities/towns	Length of Stretch (Km)	Priority class
1.	Bhela	Kashipur to Rajpura Tanda	Kashipur	14	(I)
2.	Dhela	Kashipur to Garhuwala (Thakurdwara)	Kashipur,Thakurdwara	14	(I)
3.	Gaula	Drains of Kiccha Gola river	Kichha, Lalkuan	06	(II)
4.	Kalyani	Drains of Rudrapur	Pantnagar, Rudrapur, Sitarganj	11.5	(III)
5.	Nandour/ Kailash	Along Sitarganj	Sitarganj	-	(IV)
6.	Pilakhar	In the vicinity of Rudrapur	Rudrapur, Bazpur	-	(IV)
7.	Kosi	Sultanpur to Pattikalan	Sultanpur	06	(IV)

Table 31. Identification of sources of Pollution in the polluter stretches

Potential source of pollution	Remarks		
Industrial pollution	**River Stretch**	**Number of GPIs (Grossly polluting industries) in polluter stretch or entire catchment of river**	**Number of Industrial drains meeting the river**
	River Bhela (Kashipur to Rajpura Tanda	08 (Two of them are maintaining Zero Liquid Discharge)	03
	River Dhela (Kashipur to Garhuwala)	14	04
	Gaula (Drains of Kiccha river Gaula)	04	01
	Kalyani (Drains of Rudrapur)	03	-
	Nandhour (Along Sitraganj)	02	-
	Pilakhar (In the vicinity of Rudrapur)	03 (one unit not operational)	-
	Kosi (Sultanpur to Pattikalan)	02	01
	Individual effluent treatment plant and Common Effluent Treatment Plant (CETP) are monitored by Uttarakhand Pollution Control Board (UKPCB)		
	Industrial hazardous waste mainly used oil/Contaminated barrels are being recycled through registered recyclers. Rest is either disposed through Treatment, Storage and Disposal Facility (TSDF) or incinerated.		
Domestic Sewage	**River Stretch**		**Number of sewage drains meeting the river**
	River Bhela (Kashipur to Rajpura Tanda		02
	River Dhela (Kashipur to Garhuwala)		06
	Gaula (Drains of Kiccha Gaula river)		06
	Kalyani (Drains of Rudrapur)		22

Potential source of pollution	Remarks		
Domestic Sewage	**River Stretch**		**Number of sewage drains meeting the river**
	Nandhour/Kailash (Along Sitraganj)		01
	Pilakhar (In the vicinity of Rudrapur)		01
	Kosi (Sultanpur to Pattikalan)		01
Solid Waste	**River Stretch**	**Major Cities/Towns in the vicinity of the river**	**Remarks**
	Bhela	Kashipur	Illegal disposal of solid waste along the river banks and flood plain zones.
	Dhela	Kashipur	
	Gaula	Nagar Palika Kichha	
	Kalyani	Rudrapur, Pantnagar	
	Nandhour/Kailash	Sitarganj	
	Pilakhar	Bazpur	
	Kosi	Sultanpur Patti	

Annexure 11 District Environment Plan, Udham Singh Nagar, 2019 ; p.60-61

Table 48. State Scenario of CETPs

Total CETPs in Uttarakhand	**(3)** **• IIE SIDCUL, Pantnagar** **• CETP Sitarganj** **• SIDCUL Haridwar**
Total Design Capacity (MLD)	13
Total Design Capacity (MLD)	920

(Source: ENVIS Centre on Hygiene, sanitation, sewage treatment systems and technology)

Industrial Waste water in Udham Singh Nagar

Two CETPs are currently operational in Udham Singh Nagar district in IIE SIDCUL, Pantnagar and Sitarganj. About 400 industries are connected with the CETPs (Table 49). All the industries are meeting standards for effluent discharged in the rivers (Table 50). Effluent discharged standards are being adhered as per the data for the months of October'21 and December'21(Table 51).

Table 49. Inventory of Industries and waste water generation in US Nagar district

SN	Parameter	Present Status
1	Prominent Industries in US Nagar	▪ Pulp & paper ▪ Sugar & Distilleries ▪ Chemical units ▪ Automobile Assembling ▪ Pharmaceuticals ▪ Food processing unit
2	Number of industries discharging waste water	257
3	Total quantity of industrial wastewater generated (MLD)	40
4	Quantity of treated waste water discharged into water bodies (MLD)	30

SN	Parameter		Present Status		
5.	Quantity of un-treated or partially treated Industrial waste water discharge into lakes		NIL (Many industries operate on zero liquid discharge)		
6.	Number of Common Effluent Treatment Plant facilities (CETP)		02		
7.	Common Effluent Treatment Plant facilities	Name of CETP	Member units connected (members)	Type of Industries	Designed capacity (MLD)
		I IE SIDCUL, CETP, Pant Nagar	309	Mixed	4.0
		CETP, Sitarganj	97	Mixed	3.8

Table 50. Status of compliance by Industries

SN	Action Areas	Outcomes
2	Number of industries not meeting standards	NIL
3	Number of complaints received against industrial pollution in last 3 months	No complaints received in last three months regarding breeching of industrial norms.

Current Status Regarding Effluent Treatment Plant in US Nagar District

- Major Industrial cluster is Integrated Industrial Estate (IEE), SIDCUL (State Industrial Development Corporation of Uttarakhand limited), US Nagar which is well connected with Common Effluent Treatment System (CETP) and equipped with online continuous effluent monitoring system (OCEMS).
- Uttarakhand State Pollution Control Board is doing regular Monitoring /Sampling.
- Pollution load in surface water streams/rivers/drains especially in Nakti Nala, has been a matter of concern.
- Grossly Polluting Units (GPI's) have their own treatment facility (In-house effluent treatment plant) and are also connected with OCEMS (online continuous effluent monitoring system)

Table 51. Monthly Report of CETP Outlet at SIDCUL Rudrapur and Sitarganj

Sampling location	Month	pH	BOD (mg/l)	COD (mg/l)	TSS (mg/l)
Common Effluent Treatment (CETP) outlet, SIDCUL, Rudrapur	Oct-21	7.45	21.8	145	23
	Dec-21	6.93	28	180	66
Common Effluent Treatment (CETP) outlet, SIDCUL, Sitarganj	Oct-21	7.56	24	158	26
	Dec-21	6.96	26	220	78
Prescribed standards		6.5-8.5	30	250	100

Table 52. Proposed policies and desired level of compliance as per different stakeholders

Strategy/Policy	Purpose
Proposed CETP for Pant Nagar Industrial area	To cater the growing need of safe effluent disposal from the industrial estate.
Implementation of maximisation water recycling extent in the grossly effluent generating units such as paper mills, sugar mills and distillery.	To achieve Zero liquid discharge and minimization of pollution load into surface water streams/ rivers/ drains.
Enforcement in major polluting units to upgrade augmentation/ modification in manufacturing process and effluent treatment plants.	▪ To minimize the water consumption extent ▪ To improve the quality of treated water for maximum recycling in the process.

Annexure 12 Action Plan for Rejuvenation of River Kosi, 2019: p.16, River

List of GPIs located in the catchment of River Kosi, US Nagar.

SN	ID	Industry Name	Address	Waste Water Generation (KLD)
1	13189	Cheema Paper Ltd	103,9Km,Stone, Bazpur Road, Kashipur	2649
2	14197	Multiwal Pulp & Board Mills (P) Ltd.	9th, Km.Stone,Bazpur Road, Kashipur	1230

Annexure 13 Action plan for Rejuvenation of Dhela 2019: p.19, Bhela 2019:p.20, River Kicha 2019; p.18, River Pilakhar; p.18

List of industries located in catchment of river Pilakhar, US Nagar.

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
1	10144	A & B Soaps & Chemicals	92/4/3-vill-Ikghara,Bannakhera road,BZP-Bazpur	31-03- 2020	0,8
2	10395	A One Brick Industries	khasra no-345-VILL - Rampura kaji,BZP-JASPUR		1
3	12124	Aashirwad Brick Field	--VILL-RAMNAGAR,P.O.-KELAKHERA,TEH.- BAZPUR,DISTT.- U.S.NAGAR,	31-03- 2017	1
4	22658	Ajay Gupta (Mining Stretch)	Khasra No 33, 34, 36-Vill Ittabba Gobra,BZP-Bazpur	31-11- 2019	0.5
5	22683	Ajay Tiwari (Mining Stretch)	4//19, 4/20-Vill Patauti,BZP-Bazpur	13-11- 2019	0.5
6	10423	Amrit Stone Crusher Pvt Ltd	kh no-194/2 & 195/2-VILL - Kanhori near Jagganthpur,BZP-BAJPUR	16-12- 2018	2
7	22455	Anand Singh (Mining Stretch)	Khasra No 61/4, 48/2, 61/1-Madaiya Guljari,BZP- Bazpur	16-12- 2019	0.5
8	18715	Asha Stone Crusher	khasra no 626,627,628,660, 661,662-vill Gaon, BZP-GAON BAZPUR	31-03- 2017	2
9	13720	Ate Power Connections P Ltd	f-22,23-upsidc ind. estate,BZP-piplia	31-03- 2020	1.5
10	15930	B A Alloys Private Limited [unit 2]	KHASRA NOS. 272/5/3 & 272/5/5-VIKRAMPUR INDUSTRIAL AREA, BAZPUR	31-03- 2015	1.5

SN	ID	Industry Name	Address	CCA Validity	Wastewater generation (MLD)
12	11028	Baba Bhuman Shah	26/2-vill-rampura kazi,BZP- Rampura kazi	31-03- 2017	1
13	14605	Baba Nand Singh Ji & Associates	Khasara No.- 216/2/1- Village -Ittava, Teh.- Bazpur, Distt.- U.S. Nagar,BZP-Ittava	31-03- 2018	2.5
14	15875	baba Stone Products	Khasara No. 45/4- Village- Bannakhera, Teh.- Bazpur, Distt.-U.S. Nagar,BZP- Bannakhera	31-03- 2020	3

River Pilakhar Rejuvenation Plan:

Following are the action plan for rejuvenation of river Pilakhar as detailed below:

Industrial Pollution control:

Following are the action points for sector-wise pollution control:

(List of industries located in catchment of river Pilakhar is enclosed as Annexure-1)

Pulp and Paper Industries:

Two pulp and paper based industries are operating in the catchment. All the units have functional ETPs and treated effluent is discharged in to the recipient nadi which ultimately joins river Pilakhar.

- Pulp and Paper manufacturing shall not be permitted to dispose polluted or coloured effluents in any drains leading to river Pilakhar and its tributaries.
- Agro-based pulping should be allowed only with Chemical Recovery Plant (CRP) with Zero Black Liquid Discharge in the catchment area of river Pilakhar or drains leading to Pilakhar and its contributing rivers.
- Pulp and paper units shall meet Charter criteria as prescribed by Central Pollution Control Board (CPCB) and Uttarakhand Environment Protection and Pollution Control Board (UEPPCB) all the time.
- Sludge being used for making boards and proper records should be maintained end use of generated sludge and the concerned industry shall ensure that no over-flow from sludge dyring bed occurs.

Sugar Industry:

Sugar Industry should not be permitted to discharge polluted/untreated effluents in any drain. Effluent discharge standards as prescribed under the Environment (Protection) Rules, 1986 as amended shall be strictly complied with. Industry shall be encouraged to use treated effluent for cooling.

Annexure 14

Action Plan for Rejuvenation of River Kalyani, 2019; p.22, River Nandhor 2019 p. 2,22, River Pilakhar; p.6, River Kicha 2019; p.6, River Dhela 2019; p.5

HEAD OFFICE
Uttarakhand Environment Protection and Pollution Control Board
29/20, Nemi Road, Dalanwala, Dehradun (Uttarakhand)
उत्तराखण्ड पर्यावरण संरक्षण एवं प्रदूषण नियंत्रण बोर्ड
29/20, नेमी रोड, डालनवाला, देहरादून (उत्तराखण्ड)

OFFICE ORDER

In pursuance to notification of the Ministry of Environment, Forests and Climate Change, Govt. of India vide S.O.- 4(E) of 1st January, 2016, the Uttarakhand Environment Protection and Pollution Control Board (UEPPCB), Dehradun hereby prescribe following inlet quality standards for **Common Effluent Treatment Plant (CETP)** located at the Eldeco Sidcul Industrial Park, Sitarganj, Distt. US Nagar, Uttarakhand, based on the design parameters submitted by CETP operator to UEPPCB:

1. Inlet effluent quality standards for CETP, ESIP, Sitarganj, Distt. US Nagar shall be as given below:

S.N.	Parameters	Concentration (Maximum)
1.	pH	5.5 – 9.0
2.	BOD	550 mg/L
3.	COD	1100 mg/L
4.	Total Dissolved Solids (TDS)	2100 mg/L
5.	Total Suspended Solids (TSS)	1500 mg/L
6.	Oil & Grease	20 mg/L
7.	Phenolic Compounds (as C_6H_5OH)	5.0 mg/L
8.	Ammonical Nitrogen (as N)	50.0 mg/L
9.	Cynide (as CN)	2.0 mg/L
10.	Hexavalent Chromium (as Cr^{+6})	2.0 mg/L
11.	Total Chromium (as Cr)	2.0 mg/L
12.	Copper (as Cu)	3.0 mg/L
13.	Lead (as Pb)	1.0 mg/L
14.	Nickel (as Ni)	3.0 mg/L
15.	Zinc (as Zn)	15.0 mg/L
16.	Arsenic (as As)	0.2 mg/L
17.	Mercury (as Hg)	0.01 mg/L
18.	Cadmium (as Cd)	1.0 mg/L
19.	Selenium (as Se)	0.05 mg/L
20.	Fluoride (as F)	15.0 mg/L
21	Boron (as B)	2.0 mg/L
	Radio Active Materials	
22.	Alpha Emitters, micro curie/mL	10^{-7}
23.	Beta Emitters, micro curie/mL	10^{-6}

2. To achieve above limit, individual contributing units are required to pre-treat their wastewater/effluent before discharging to common conveyance system. All contributing industries shall ensure compliance of above limits with immediate effect.
3. The operator of CETP, Sitarganj shall conduct the study in consultation with technical organization for upper limit of inlet Ammonical Nitrogen (above 50 mg/L).
4. CETP outlet quality standards shall be as per treated effluent quality standards notified under the Environment (Protection) Rules, 1986 as amended 01.01.2016.

This issues with approval of Competent Authority of the Board.

(S.P. Subudhi)
Member Secretary

Contd..... Page-2

HEAD OFFICE
Uttarakhand Environment Protection and Pollution Control Board
29/20, Nemi Road, Dalanwala, Dehradun (Uttarakhand)
उत्तराखण्ड पर्यावरण संरक्षण एवं प्रदूषण नियंत्रण बोर्ड
29/20, नेमी रोड, डालनवाला, देहरादून (उत्तराखण्ड)

OFFICE ORDER

In pursuance to notification of the Ministry of Environment, Forests and Climate Change, Govt. of India vide S.O.- 4(E) of 1st January, 2016, the Uttarakhand Environment Protection and Pollution Control Board (UEPPCB), Dehradun hereby prescribe following inlet quality standards for **Common Effluent Treatment Plant (CETP)** located at the Integrated Industrial Estate (IIE), Pantnagar, Distt. US Nagar, Uttarakhand, based on the design parameters submitted by CETP operator to UEPPCB:

1. Inlet effluent quality standards for CETP, IIE, Pantnagar, Distt. US Nagar shall be as given below:

S.N.	Parameters	Concentration (Maximum)
1.	pH	5.5 – 9.0
2.	BOD	550 mg/L
3.	COD	1100 mg/L
4.	Total Dissolved Solids (TDS)	2100 mg/L
5.	Total Suspended Solids (TSS)	1500 mg/L
6.	Oil & Grease	20 mg/L
7.	Phenolic Compounds (as C_6H_5OH)	5.0 mg/L
8.	Ammonical Nitrogen (as N)	50.0 mg/L
9.	Cynide (as CN)	2.0 mg/L
10.	Hexavalent Chromium (as Cr^{+6})	2.0 mg/L
11.	Total Chromium (as Cr)	2.0 mg/L
12.	Copper (as Cu)	3.0 mg/L
13.	Lead (as Pb)	1.0 mg/L
14.	Nickel (as Ni)	3.0 mg/L
15.	Zinc (as Zn)	15.0 mg/L
16.	Arsenic (as As)	0.2 mg/L
17.	Mercury (as Hg)	0.01 mg/L
18.	Cadmium (as Cd)	1.0 mg/L
19.	Selenium (as Se)	0.05 mg/L
20.	Fluoride (as F)	15.0 mg/L
21	Boron (as B)	2.0 mg/L
	Radio Active Materials	
22.	Alpha Emitters, micro curie/mL	10^{-7}
23.	Beta Emitters, micro curie/mL	10^{-8}

2. To achieve above limit, individual contributing units are required to pre-treat their wastewater/effluent before discharging to common conveyance system. All contributing industries shall ensure compliance of above limits with immediate effect.
3. CETP outlet quality standards shall be as per treated effluent quality standards notified under the Environment (Protection) Rules, 1986 as amended 01.01.2016.

This issues with approval of Competent Authority of the Board.

(S.P. Subudhi)
Member Secretary

Contd..... Page-2

River Kichha/Gaula Rejuvenation Plan

Industrial Pollution Control:

Following are the action points for sector-wise pollution control:

(List of GPIs in catchment of river Kichha is enclosed as Annexure- 1)

Pulp and Paper Industries:

- Three pulp and paper based industries are operating in the catchment. All the units have functional ETPs and treated effluent is discharged in to the Gaula River through single drain.
- Pulp and Paper manufacturing shall not be permitted to dispose polluted or coloured effluents in any drains leading to river Gaula.
- Agro-based pulping should be allowed only with Chemical Recovery Plant (CRP) with Zero Black Liquid Discharge in the catchment area of River Gaula or drains leading to Gaula River.
- Pulp and paper units shall meet Charter criteria as prescribed by Central Pollution Control Board (CPCB) and Uttarakhand Environment Protection and Pollution Control Board (UEPPCB) all the time.
- Sludge being used for making boards and proper records should be maintained end use of generated sludge and the concerned industry shall ensure that no over-flow from sludge dyring bed occurs.

Sugar Industry:

Sugar Industry should not be permitted to discharge polluted/untreated effluents in any drain. Effluent discharge standards as prescribed under the Environment (Protection) Rules, 1986 as amended shall be strictly complied with. Industry shall be encouraged to use treated effluent for cooling and irrigation purpose. Consent condition shall accordingly be modified by UEPPCB.

Textile Industry:

Textile unit is also located in the catchment of Gaula River. Though unit is maintaining Zero Liquid Discharge (ZLD) by adopting RO and MEE, close surveillance would be carried out in order to ensure compliance all the time.

Distillery:

- All the distilleries should operate only with 'Zero Liquid Discharge' (ZLD) system.
- In no case, spent wash be either disposed in drains or on land.
- The composted spent wash after Reverse Osmosis (RO)/Multiple Effect Evaporator (MEE), the compost should meet the standards and after ensuring that the composted material does not leach color only such composted material may be used for land application.

Electroplating Industries:

- Electroplating industries which are the main source of metallic contamination of surface and ground water should be insisted for 'ZLD' system. Cyanide based electroplating process shall not be permitted.
- All the electroplating units or having electroplating process or industrial processes which are likely to discharge effluents containing heavy metal or pollutants that may damage environment, in such cases, UEPPCB shall make necessary amendments to the CCA (Consolidated Consent & Authorization) granted under the Water (Prevention and Control of Pollution) Act, 1974; the Air (Prevention and Control of Pollution) Act, 1981 and the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016, for incorporation of the effluent discharge standards for all the parameters as prescribed under Environment (Protection) Act, 1986.
- All the industrial units should have consents under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 as well as Authorisation under the Hazardous & Other Waste (Management & Transboundary Movement) Rules, 2016 as amended and Consents or Authorization as applicable should be granted or renewed only after verification or ensuring adequate systems for disposal of treated effluents or verification of compliances to the granted Consents/ Authorization strictly.
- Action plan for stringent discharge Norms for pulp & paper industries as water for dilution is not available in the river.
- Strict enforcement of protocol formulated for CRP operation in agro-based pulp & paper industries.

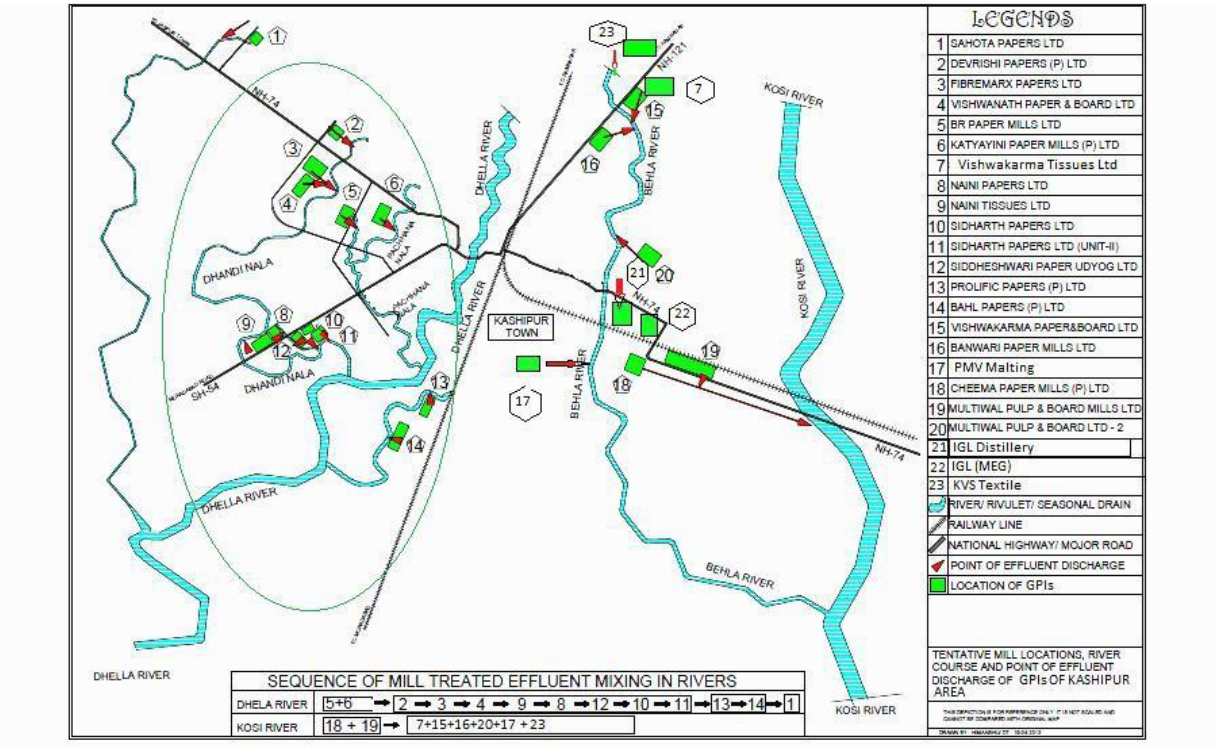


Figure: Rivers Dhela in the Kashipur area along with industrial drains and locations of GPIs.

Annexure 15

Action Plan for Rejuvenation of River Kalyani, 2019; p.17-21, River Nandhor 2019 p. 17-21 List of industries connected with CETP, ESIPL, Sitarganj (US Nagar)

SN	Name	Address	Status
1	Gujarat Ambuja Exports Ltd.	C-50, Eldeco Sidcul Industrial Park, Sitarganj 262405	Connected
2	Balaji Action Ltd.	C34 & C34 (A),Ph-III Eldeco Sidcul 262405	Connected
3	Laopala RG Ltd.	B-108,Phase I,Eldeco Sidcul Industial Park Sitarganj 262405	Connected
4	Karam Industries	C-35 A, Phase III, Eldeco Sidcul Industrial Park, Sitaragnj 262405	Connected
5	Mascot Fastners Pvt. Ltd.	B-155, Phase I, Eldeco Sidcul Industrial Park, Sitaragnj 262405	Connected
6	Indian Tonners & Devlopers Ltd.(ITDL)	D-11, Phase II, Eldeco Sidcul Industrial Park, Sitaragnj 262405	Connected
7	SNB Infra Heights Ltd.	B-09, Phase I, Eldeco Sidcul Industrial Park,, Sitaragnj 262405	Connected
8	Foundation Brakes	A-194 (B) , Phase I, Eldeco Sidcul Industrial Park, Sitaragnj 262405	Closed
9	Evergreen Motels	B-173 a, Phase I, Eldeco Sidcul Industrial Park, Sitarganj 262405	Connected
10	Hi Tech Corporation Ltd.	D 63-64, Phase II, Eldeco Sidcul Industrial Park, Sitarganj 262405	Connected
11	Alpla India Ltd.	D 11 (C), Phase II, Eldeco Sidcul Industrial Park, Sitarganj 262405	Connected
12	Setco Automotive Ltd.	A 196, Phase I, Eldeco Sidcul Industrial Park, Sitarganj 262405	Connected
13	Henkel Chembond Surface Ace Tech. Ltd	A 128, Phase -I, Eldeco Sidcul Industrial Park, Sitarganj 262405	Connected
14	Henkel Chembond Surface Ace Tech. Ltd.	A 113, Phase -I, Eldeco Sidcul Industrial Park, Sitarganj 262405	Connected
15	PUNJAB BEVEL GEARS. Ltd	D-174,PHASE -I ELDECO SIDCUL INDUSTRIAL PARK Sitarganj 262405	Connected

SN	Name	Address	Status
16	Ghaziabad Precision Products Pvt. Ltd	D-50,PHASE- II ELDECO SIDCUL INDUSTRIAL PARK Sitarganj 262405	Connected
17	Speciality Industrial Polymers & Coatings Pvt. Ltd	A-165 PHASE- I ELDECO SIDCUL INDUSTRIAL PARK Sitarganj 262405	Connected
18	Parle Biscuits Pvt. Ltd.	D-10,Phase-II, Eldeco Sidcul Industrial Park Sitarganj 262405	Connected
19	Shri Sai Viswas Polymer	B-87&188,PHASE- I ELDECO SIDCUL INDUSTRIAL PARK Siatrganj 262405	Closed
20	Maharani Innovative paints Pvt. Ltd.	B-03,PHASE- I ELDECO SIDCUL INDUSTRIAL PARK Siatrganj 262405	Closed
21	Vishal Plastic Industries	C-93 Phase III, ELDECO SIDCUL Industrial Park Sitarganj 262405	Connected
22	Associate Appliance Ltd.	A-194L,Phase I, ELDECO SIDCUL Industrial Park Sitarganj 262405	Closed
23	Reckitt& Benkiser(Dry)	B-170, Phase -1, ELDECO SIDCUL Industrial Park	Connected
24	Reckitt& Benkiser(Wet)	B-96, Phase -1, ELDECO SIDCUL Industrial ParkSitarganj 262405	Connected
25	Isthmus Industries A 198	A-198, Phase-I, ELDECO SIDCUL Industrial Park Sitarganj 262405	Connected
26	Isthmus Industries A 201	A-201, Phase-I, ELDECO SIDCUL Industrial Park Sitarganj 262405	Connected
27	Atpac Industries	Plot No-A-21, Phase-I, ELDECO SIDCUL Industrial Park Sitarganj 262405	Connected
28	Brakes India	B-9, Phase -I, ELDECO SIDCUL Industrial Park Sitarganj 262405	Connected
29	Agemco Faucets Pvt Ltd.	Plot No. C-37(b), Phase-II, ELDECO SIDCUL Industrial Park Sitarganj 262405	Connected
30	Crl Rubber Industries	Plot No, D-32-34, Phase-I, ELDECO SIDCUL Industrial Park Sitargnaj 262405	Connected
31	Moraceae Pharmaceuticals	Plot No. A-66, Phase-1, ELDECO SIDCUL Industrial Park Sitargnaj 262405	Closed
32	Pes Engineers Pvt. Ltd	Plot No. A-103, Phase-1, ELDECO SIDCUL Industrial Park Sitarganj 262405	Connected

SN	Name	Address	Status
33	Shiran Electricals	Plot No. A-22, Phase-1, Eldeco Sidcul Industrial Park Sitarganj 262405	Connected
34	Surin Auto Pvt. Ltd	A-194, Phase-1, Eldeco Sidcul Industrial ParkSitarganj 262405	Connected
35	Western Consolidated Pvt. Ltd	A-194 (e-f)Phase-1, Eldeco Sidcul Industrial Park Sitarganj 262405	Connected
36	Starways Industries	A-124/125 Phase-I Eldeco Sidcul Industrial Park 262405	Connected
37	Kae Engineers Pvt.Ltd	B-159,Phase-I Eldeco Sidcul Industrial Park 262405	Connected
38	Ang Industries Ltd.	A-197,Phase-I Eldeco Sidcul Industrial Park 262405	Closed
39	Rajmata Engg. P. Ltd	D-77, Phase-II Eldeco Sidcul Industrial Park 262405	Connected
40	Rama Industries	A-82b Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
41	PN Die Casting P. Ltd.	D-76,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
42	M.B. Thermoforming	A-132 Ph-IEldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
43	Mahalaxmi Sand & Minerals	D-82 Ph-IIEldeco Sidcul Industrial Park, Sitarganj - 262405	Closed
44	Parul Fabricators	B-124, Ph - 1Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
45	Arjan Auto Technologies	D-81 Ph-IIEldeco Sidcul Industrial Park, Sitarganj - 262405	Closed
46	Remsons Cable Industries	B-154 Phase I,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
47	Fleet Guard Filters	D-62 Ph-II,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
48	Klb Electricals	C-72 Ph-III,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Closed
49	Klassic Klarol	B-226& 227 Ph-I,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected

SN	Name	Address	Status
50	Innovative Textile	B-08 Ph-I,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
51	Shree Patel Industries	D-73 Ph-II,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
52	Daksh Electronics	B-220 Ph-I,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
53	Mehra Metal Component P Ltd.	B-141 Ph-I,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Closed
54	Uttaranchal Auto	D-42 Ph-II,,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
55	Pbg Industries	D-39 ph-II,,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
56	SSP PLtd.	C-60 A,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
57	Jay Switches P Ltd.	D-79 PH-II,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
58	Tara Health Food	A-02,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
59	Savitri Electronics	B-173 Ph-I,,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Closed
60	Primavera Manufacturing Company Pvt. Ltd.	D-53&D-54Phase-II, Eldeco Sidcul Industrial Park Sitarganj 262405	Connected
61	Automotive Stampings	A-194(a), Phase-1, Eldeco Sidcul Industrial Park Sitargnaj 262405	Closed
62	Parle Agro Pvt.Ltd.	Plot No: 153-157& 166-168 Sector -03 , IIIE Sidul 262405	Connected
63	Stork Rubber Products Pvt. Ltd	D-38 Ph-II, Eldeco Sidcul Industrial Park Sitargnaj 262405	Connected
64	Fiberfill Engineers	B-212,219 Ph-II Eldeco Sidcul Industrial Park Sitargnaj 262405	Closed
65	BSN Auto	D-59 PH-II Eldeco Sidcul Industrial Park Sitargnaj 262405	Closed
66	Technical Associates Ltd.	B-07 Ph-I, Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected

SN	Name	Address	Status
67	RC Repro Trade(121- a)	A-121(a) Ph-IEldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
68	Mr. Sandeep Kr. &Chetan Kr.	B-203 Ph-I,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
69	Talbros Automotive Components Ltd.	B-177Ph-I,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
70	Tusshar Axles Pvt. Ltd.	C-186 Ph III Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
71	RC Repro Trade A-6d	A- 6(d) Ph-IEldeco Sidcul Industrial Park, Sitarganj - 262405	Closed
72	Shilpkar(India)Pvt. Ltd.	A-171 Ph-I,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
73	Lapo Pharma	B-213 Ph-I,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Closed
74	Kamal Plastomet	A-5 Ph-I,,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
75	Amcor India Flexibles	C-60b Ph-III,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
76	Zee Insulated Wires Pvt. Ltd		Closed
77	Amrit Udyog	B-189 Ph-I,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Closed
78	Bubeck Technologies	B-211 Ph-I,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Closed
79	Wilson Engineering	D-11b Ph-II,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
80	Aaron Helmets Pvt. Ltd.	A-1 Ph-I,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
81	Heinz India Pvt.Ltd	D-99 A&B&100,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
82	Rex Polyextrusion Pvt.Ltd.	C-06 Ph-III,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
83	Ravi Packaging Pvt. Ltd	A-166 Ph-I,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected

SN	Name	Address	Status
84	Kumaoun Ispaat Pvt. Ltd.	D-80 Ph-II,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Closed
85	Essae Digitronics Pvt Ltd	D-61 Ph-II,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
86	Manuconcast Pvt Ltd	D-67 Ph-II,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Closed
87	Trinity Adhesive Pvt. Ltd.	A-174 Ph-I,Eldeco Sidcul Industrial Park, Sitarganj - 262405	Connected
88	Jainsons Engineering Pvt. Ltd.	C-62-63, Phase III, Eldeco Sidcul Industrial Park,Sitarganj 262405	Closed
89	Atlanta Remedies	C-106 Phase III, Eldeco Sidcul Industrial Park,Sitarganj 262405	Connected
90	Upto date Plastic D-35	D-35 Phase II Eldeco Sidcul Industrial Park,Sitarganj 262405	Connected
91	A.q. Industries	C-07 Phase III Eldeco Sidcul Industrial Park,Sitarganj 262405	Connected

Annexure 16

Action Plan for Rejuvenation of River Kosi, 2019; p.7, River Kalyani 2019; p. 4, River Kichha/Gaula 2019; p. 5)

Specific Action Points for River Kosi:

UEPPCB with the support of District Industry Centre (DIC) shall carryout inventory of industries within two months' time.

All the industries which are presently in operation without Consent under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 as the case may be should be directed by UEPPCB to obtain consent within three months and failing which action should be taken by UEPPCB for closure of all such industrial units.

All the hazardous waste generating industries or the industries covered under Schedule-I of the Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016 as amended, should be directed to obtain authorization within a month from UEPPCB and failing which action should be taken by UEPPCB for closure of all such industrial units.

All the GPIs category industries have provided OCEMS at the outlet of ETPs. Industries shall be directed to take measures to transfer real time data with auto validation facilities to the UEPPCB and CPCB with immediate effect.

No industry should operate or continue manufacturing process unless they possess valid permission for ground water extraction from Central Ground Water Authority (CGWA). All such industries shall obtain groundwater extraction permission from the Central Groundwater Board (CGWA) within three-month time period.

Small scale/tiny and service providing units located in urban or semi-urban limits like Dairies, Auto Service Stations etc

Basis of Proposed Action Plan for rejuvenation of River Kalyani:

River Kalyani is a spring fed river and river water quality before entering into IIE, Pantanagar, as such not receives any direct source of pollution. Deterioration in water quality is reported mainly because of industrial wastewater and CETP outlet, Therefore, efficient operation of CETP as well as industries which are not connected with CETP, are matter of grave concerned; and therefore action plan for prevention and control of pollution of river Kalyani has been prepared based on the following components:

Components Of Action Plan:

The proposed action plan for rejuvenation of river Kalyani consisting following components:

Source Control:

Source control includes industrial pollution control and treatment and disposal of domestic sewage as detailed below:

Industrial Pollution control:

- Inventorisation of industries: List of industries located in IIE, Pantnagar is given as
- Categories of industry and effluent quality: Industries which are connected with CETP, shall have to provide primary treatment system in order to meet prescribed CETP inlet standards as prescribed by UEPPCB, however, industries which are not connected with CETP shall have to operate ETP appropriately to meet outlet standards as prescribed under the Environment (Protection) Rules, 1986 as amended.
- Treatment of effluents, compliance with standards and mode of disposal of effluents.
- Regulatory regime: Compliance of effluent outlet standards as prescribed under the Environment (Protection) Rules, 1986 as amended.

Common Effluent Treatment Plant (CETP):

As CETP receives wastewater from about 253 industrial units, therefore accordance of provisions of the Solid Waste Management Rules, 2016.

- Restriction illegal disposal of solid waste along the river bank and flood plain zones.
- Burning of solid waste should be strictly prohibited.
- Construction and demolition wastes should be disposed in designated areas and no case it should be disposed in to river beds or flood plain zone.

River catchment/Basin management for River Gaula- Controlled ground water extraction and periodic quality assessment:

- Periodic assessment of groundwater resources and regulation and regulation of ground water extraction by industries particularly in over exploited and critical zones/blocks.
- Ground water re-charging/rain water harvesting.
- Periodic ground water quality assessment and remedial actions in case of contaminated ground water tube wells/bore wells or hand pumps.
- Assessment of the need for regulating use of ground water for Irrigation purposes.

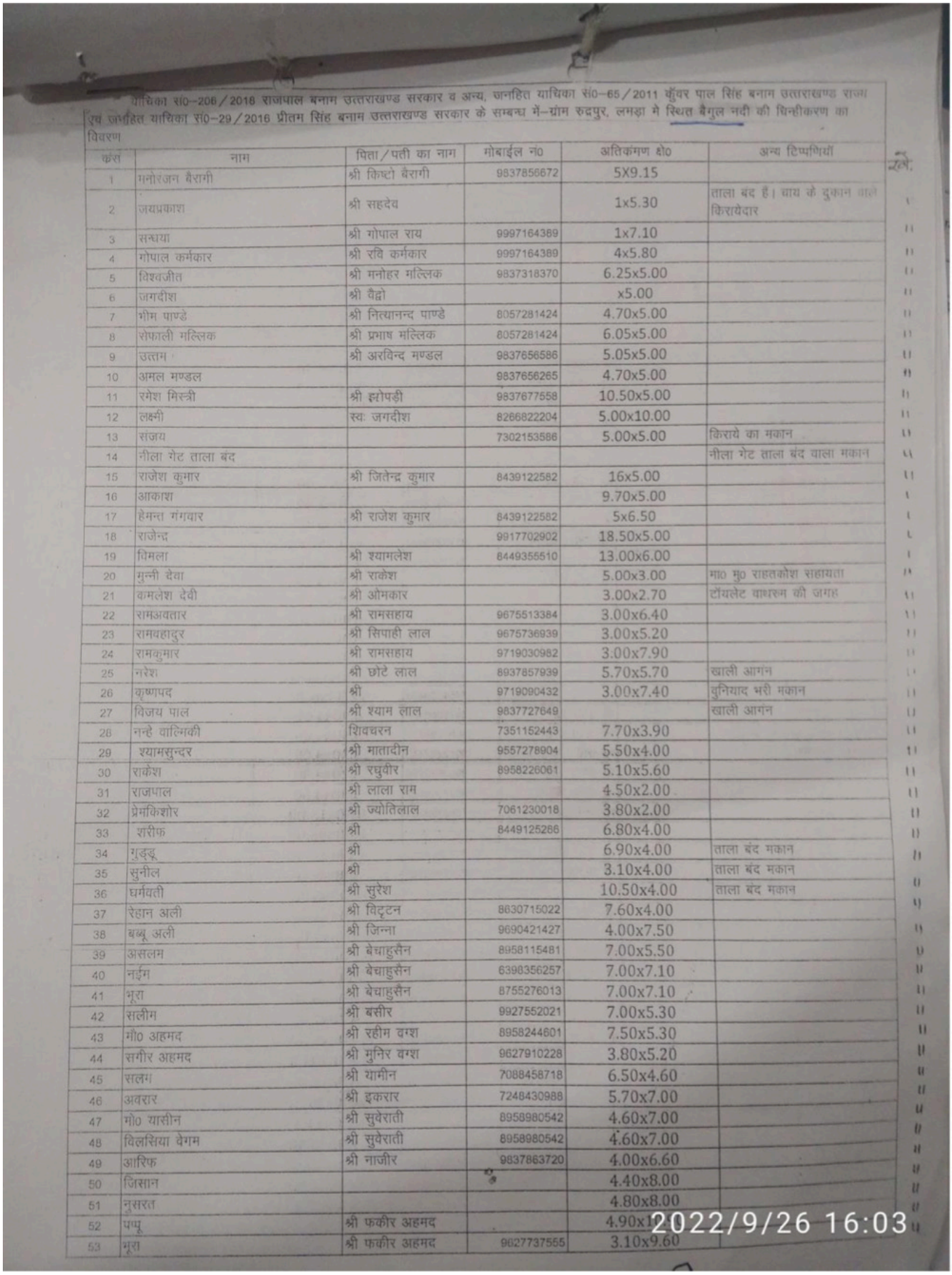
Flood Plain Zone.

- Regulating activities in flood plain zone.
- Management of Municipal, Plastic, Hazardous, Bio-medical and Electrical and Electronic wastes.
- Greenery development - Plantation plan.

Ecological/Environmental Flow (E-Flow)

- Issues relating to E-Flow.
- Irrigation practices

Annexure 17 **Encoarcher list of Baigul,Rudrapur collected from Nagar Nigam (PDF double click to access all 9 pages)**



याचिका सं0–206/2018 राजपाल बनाम उत्तराखण्ड सरकार व अन्य, जनहित याचिका सं0–65/2011 कुँवर पाल सिंह बनाम उत्तराखण्ड राज्य एवं जनहित याचिका सं0–29/2016 प्रीतम सिंह बनाम उत्तराखण्ड सरकार के सम्बन्ध में–ग्राम रुद्रपुर, लगड़ा मे स्थित बैगुल नदी की चिन्हीकरण का विवरण

क्रम	नाम	पिता/पती का नाम	मोबाईल नं0	अतिक्रमण क्षे0	अन्य टिप्पणियाँ
1	मनोरंजन बैरागी	श्री किष्टो बैरागी	9837856672	5X9.15	
2	जयप्रकाश	श्री सहदेव		1x5.30	ताला बंद है। चाय के दुकान वाले किरायेदार
3	सन्धया	श्री गोपाल राय	9997164389	1x7.10	
4	गोपाल कर्मकार	श्री रवि कर्मकार	9997164389	4x5.80	
5	विश्वजीत	श्री मनोहर मल्लिक	9837318370	6.25x5.00	
6	जगदीश	श्री वैद्यो		x5.00	
7	भीम पाण्डे	श्री नित्यानन्द पाण्डे	8057281424	4.70x5.00	
8	सेफाली मल्लिक	श्री प्रभाष मल्लिक	8057281424	6.05x5.00	
9	उत्तम	श्री अरविन्द मण्डल	9837656586	5.05x5.00	
10	अमल मण्डल		9837656265	4.70x5.00	
11	रमेश मिस्त्री	श्री झोपड़ी	9837677558	10.50x5.00	
12	लक्ष्मी	स्व: जगदीश	8266822204	5.00x10.00	
13	संजय		7302153586	5.00x5.00	किराये का मकान
14	नीला गेट ताला बंद				नीला गेट ताला बंद वाला मकान
15	राजेश कुमार	श्री जितेन्द्र कुमार	8439122582	16x5.00	
16	आकाश			9.70x5.00	
17	हेमन्त गंगवार	श्री राजेश कुमार	8439122582	5x6.50	
18	राजेन्द्र		9917702902	18.50x5.00	
19	विमला	श्री श्यामलेश	8449355510	13.00x6.00	
20	मुन्नी देवा	श्री राकेश		5.00x3.00	मा0 मु0 राहतकोश सहायता
21	कमलेश देवी	श्री ओमकार		3.00x2.70	टॉयलेट वाशरूम की जगह
22	रामअवतार	श्री रामसहाय	9675513384	3.00x6.40	
23	रामबहादुर	श्री सिपाही लाल	9675736939	3.00x5.20	
24	रामकुमार	श्री रामसहाय	9719030982	3.00x7.90	
25	नरेश	श्री छोटे लाल	8937857939	5.70x5.70	खाली आगन
26	कृष्णपद	श्री	9719090432	3.00x7.40	बुनियाद भरी मकान
27	विजय पाल	श्री श्याम लाल	9837727649		खाली आगन
28	नन्हे वाल्मिकी	शिवचरन	7351152443	7.70x3.90	
29	श्यामसुन्दर	श्री मातादीन	9557278904	5.50x4.00	
30	राकेश	श्री रघुवीर	8958226061	5.10x5.60	
31	राजपाल	श्री लाला राम		4.50x2.00	
32	प्रेमकिशोर	श्री ज्योतिलाल	7061230018	3.80x2.00	
33	शरीफ	श्री	8449125286	6.80x4.00	
34	गुड्डू	श्री		6.90x4.00	ताला बंद मकान
35	सुनील	श्री		3.10x4.00	ताला बंद मकान
36	घर्मवती	श्री सुरेश		10.50x4.00	ताला बंद मकान
37	रेहान अली	श्री विट्टन	8630715022	7.60x4.00	
38	बब्बू अली	श्री जिन्ना	9690421427	4.00x7.50	
39	असलम	श्री बेचाहुसैन	8958115481	7.00x5.50	
40	नईम	श्री बेचाहुसैन	6398356257	7.00x7.10	
41	भूरा	श्री बेचाहुसैन	8755276013	7.00x7.10	
42	सलीम	श्री बसीर	9927552021	7.00x5.30	
43	मो0 अहमद	श्री रहीम बग्श	8958244601	7.50x5.30	
44	सगीर अहमद	श्री मुनिर बग्श	9627910228	3.80x5.20	
45	सलम	श्री यामीन	7088458718	6.50x4.60	
46	अवरार	श्री इकरार	7248430988	5.70x7.00	
47	मो0 यासीन	श्री सुवेराती	8958980542	4.60x7.00	
48	विलसिया बेगम	श्री सुवेराती	8958980542	4.60x7.00	
49	आरिफ	श्री नाजीर	9837863720	4.00x6.60	
50	जिसान			4.40x8.00	
51	नुसरत			4.80x8.00	
52	पप्पू	श्री फकीर अहमद		4.90x12.00	
53	भूरा	श्री फकीर अहमद	9627737555	3.10x9.60	

2022/9/26 16:03

Annexure 18

Review of Natural Based WasteWater Treatement technology

Nature Based Solutions can be applied in a built or grey infrastructure wastewater treatment system or can be used to treat different wastewater types including municipal, agricultural and industrial wastewater, leachates and stormwater. Applying NBS in wastewater treatment aims to develop engineered systems that mimic and take advantage of functioning ecosystems with minimal dependence on mechanical elements. NBS use plants, soil, porous media, bacteria, and other natural elements and processes to remove pollutants in wastewater including suspended solids, organics, nitrogen, phosphorus and pathogens. Using NBS for wastewater treatment can contribute towards healthier environments by improving water quality and enhancing the natural environment and surrounding habitats. Different types of NBS can be combined to achieve the desired treatment efficiency which are following.

DEWATS

DEWATS is a technical approach to decentralized wastewater treatment in developing communities. The passive design uses physical and biological treatment mechanisms such as sedimentation, floatation, aerobic and anaerobic treatment to treat both domestic and industrial wastewater sources. DEWATS is designed to be affordable, low maintenance, use local materials, and meet environmental laws and regulations. DEWATS has service packages available for the sanitation needs of small and medium-sized enterprises including communities, schools, municipalities, agro-industry, emergency settlements, hospitals, hotels, and prisons.

As the various natural-treatment processes require different boundary conditions to function efficiently, DEWATS are comprised of a series of treatment units, each providing an ideal environment for the removal of certain groups of pollutants. DEWATS is based on four treatment systems:

- Sedimentation and primary treatment in sedimentation ponds, septic tanks, fully mixed digesters or Imhoff tanks
- Secondary anaerobic treatment in baffled reactors (baffled septic tanks) or fixed-bed filters
- Secondary and tertiary aerobic/anaerobic treatment in constructed wetlands (subsurface flow filters)
- Secondary and tertiary aerobic/anaerobic treatment in ponds

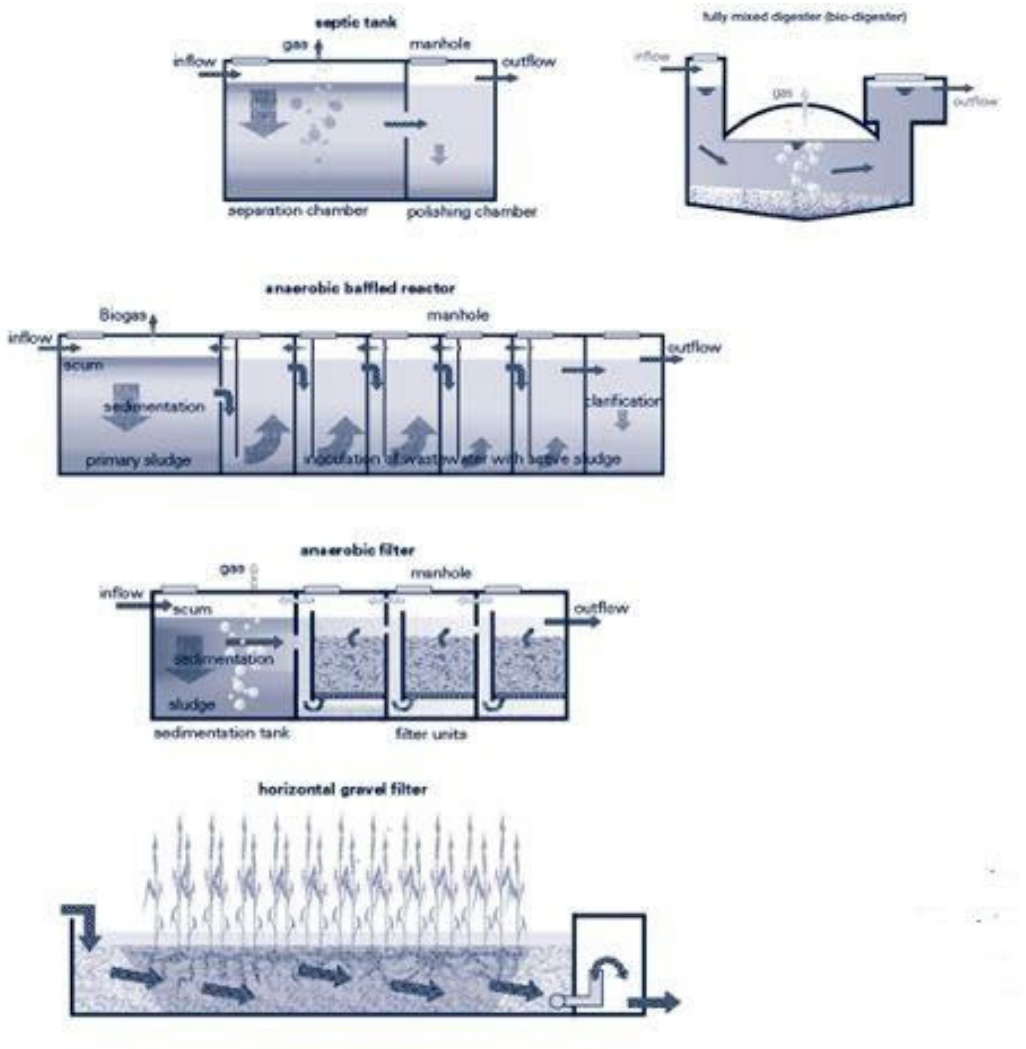


Figure 45: Treatment systems considered to be suitable for decentralised wastewater Treatment Systems[101]

Constructed Wetlands

A constructed wetland is an organic wastewater treatment system that mimics and improves the effectiveness of the processes that help to purify water similar to naturally occurring wetlands. The system uses water, aquatic plants (i.e.: reeds, duckweed), naturally occurring microorganisms and a filter bed (usually of sand, soils and/or gravel). Constructed wetlands can be used for either secondary or tertiary wastewater treatment. Many different designs exist including vertical wetlands, which require less land, but more energy for operations like pumping or siphoning than horizontal wetlands, which can instead rely on gravity and topography. The extensive options in design, materials and technology allow the constructed wetland to be adapted to local conditions and land availability. Costs are dependent on the price of land and materials, but where land is cheaper and widely available, constructed wetlands are a very cost-effective method of wastewater treatment.

[101] source: https://sswm.info/sites/default/files/reference_attachments/DEWATS_Guidebook_small.pdf

Constructed Wetlands

Usually, the constructed wetland has three primary components: an impermeable layer (generally clay), a gravel layer that provides a substrate (i.e., an area that provides nutrients and support) for the root zone, and an above-surface vegetation zone. The impermeable layer prevents infiltration of wastes down into lower aquifers. The gravel layer and root zone is where water flows and bioremediation and denitrification take place. The above ground vegetative layer contains the plant material. Both aerobic and anaerobic systems (i.e., systems with and without oxygen) exist within the wetland, and these can be divided into separate cells. Groundwater is either pumped or allowed to naturally flow through the wetland. The anaerobic cell uses plants in concert with natural microbes to degrade the contaminant. The aerobic cell further improves water quality through continued exposure to the plants and the movement of water between cell compartments. Straw, manure or compost is used, with little or no soil, in wetlands constructed primarily for the removal of metals. For wetlands constructed to treat explosives-contaminated water, certain plant species are used to support degradation. The process of using plants to break down contaminants is also referred to as phytoremediation.

The process filters some materials and degrades others. The technology incorporates the principal components of wetland ecosystems that promote degradation and control of contaminants by plants: degradation by microbial activity and increased sorption, filtering, and precipitation. The technology can be adapted to treatment needs by selecting a design, such as surface or subsurface-flow, single or multiple cells, and parallel or series flow. Constructed wetlands are sometimes built as part of a treatment train that may include processes in series such as settling ponds, oil/water separators, and physical/chemical treatment methods. All types of pathogens are expected to be removed in a constructed wetland; however, greater pathogen removal is expected to occur in a subsurface wetland. This is because constructed wetlands typically include vegetation which assists in removing other pollutants such as nitrogen and phosphorus. Therefore, the importance of sunlight exposure in removing viruses and bacteria is minimized in these systems.

Removal in a properly designed and operated free water surface flow wetland is reported to be less than 1 to 2 log10 for bacteria, less than 1 to 2 log10 for viruses, 1 to 2 log10 for protozoa, and 1 to 2 log10 for helminths. In subsurface flow wetlands, the expected removal of pathogens is reported to be 1 to 3 log10 for bacteria, 1 to 2 log10 for viruses, 2 log10 for protozoa, and 2 log10 for helminths[102].

[102] Source: Diederik et.al, in Reference Module in Earth Systems and Environmental Sciences, 2021

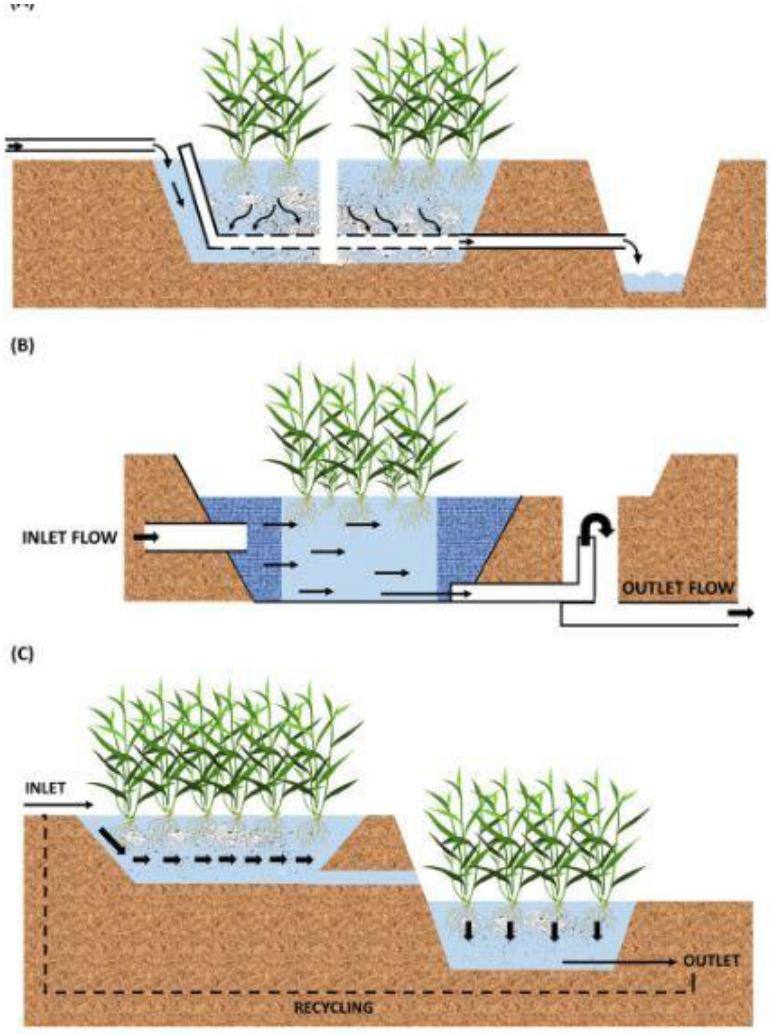


Figure 46: Schematic Diagram of Different types of constructed wetlands: (a) Vertical Flow constructed wetland; (b) horizontal flow constructed wetland; and (c) hybrid flow constructed wetland. VF, Vertical flow.

Salient features:

- Cost efficient in terms of construction, operations and maintenance
- Effectively treats wastewater from human waste, agricultural runoff, storm water and some metals or pollutants from mining and industry
- Uses technology that is simple to understand and manage
- Low energy consumption required for operations
- Prepares water for reuse
- Assists in maintaining groundwater and surface water levels
- Contributes to environmental protection by providing a habitat for plants and animals
- Acts as a means of water storage
- Pleasing natural aesthetics[103]

[103] Source: https://www.cseindia.org/constructed-wetlands-wastewater-treatment-systems-6215)

Soil Bio-Technology

Soil Bio- technology is a terrestrial system for wastewater treatment which is based on the principle of trickling filter. In this system, combination of physical processes like sedimentation, infiltration and biochemical processes are carried out to remove the suspended solids, organic and inorganic contents of the wastewater.

Suitable mineral constitution, culture containing native micro-flora and bio- indicator plants are the key components of the system. It is also known as Constructed Soil Filter (CSF). SBT systems are constructed from RCC, stone-masonry or soil bunds. It consists of raw water tank, bioreactor containment, treated water tank, piping and pumps.[104]

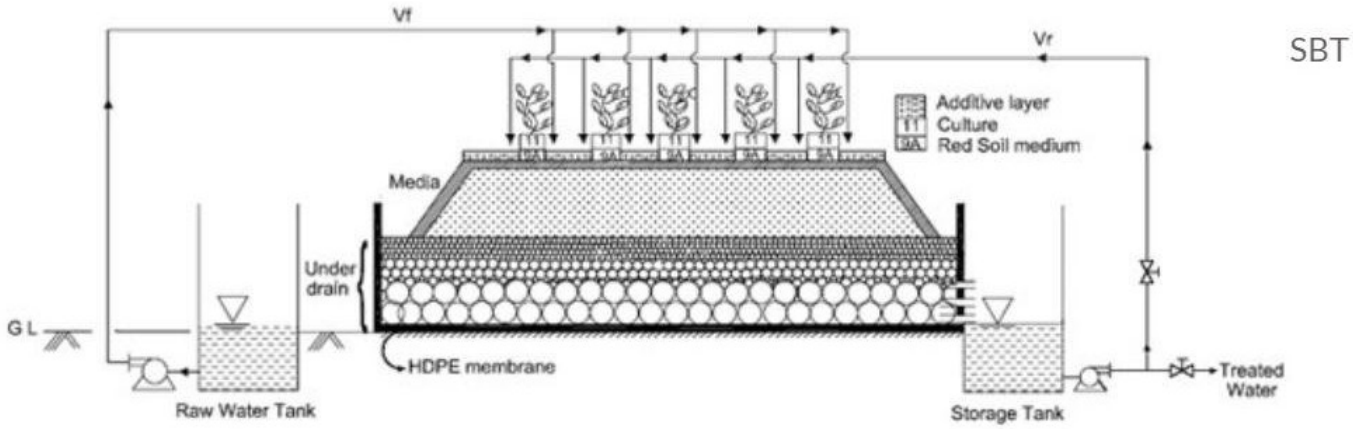


Figure 47: Schematic Diagram of Soil Bio-technology[105]

Salient features:

- The process can be run on batch or continuous mode.
- No sludge production
- Mechanical aeration is not required.
- The overall time of operation is 6-7 hours per day. The soil biotechnology system bed is dried prior to next cycle of use.

SBT is practically maintenance free, does not produce biosludge & foul odour, consumes least energy, gives River water quality and has green aesthetic. Its operation is simple, economical & energy efficient.

[104] Source : https://www.cseindia.org/soil-bio-technology-sbt-%203774

[105] Source: http://sugam.in/soilbiotechnology.html

Root Zone Treatment

Root zone treatment is an engineered method of purifying wastewater as it passes through the artificially constructed wetland area.. The pollutants are removed by various physical, chemical and biogeochemical processes like sedimentation, absorption, and nitrification as well as through uptake by wetland plants. It is a natural maintenance free system where the sewage wastewater is purified by the roots of wetland plants. The root zone process functions according to the law of nature, to effectively purify domestic and industrial effluents. The process incorporates the self-regulating dynamics of an eco system. Application of root zone technology is finding wider acceptability in developing and developed countries, as it appears to offer more economical and ecologically acceptable solution to water pollution management problems.

Being a component of Constructed wetlands, Root Zone Treatment systems are sealed filter beds consisting of a sand/ gravel/ soil system, occasionally with a cohesive element, planted with vegetation which can grow in wetlands. After removal of coarse and floating material the wastewater passes through the filter bed where biodegradation of the wastewater takes place.

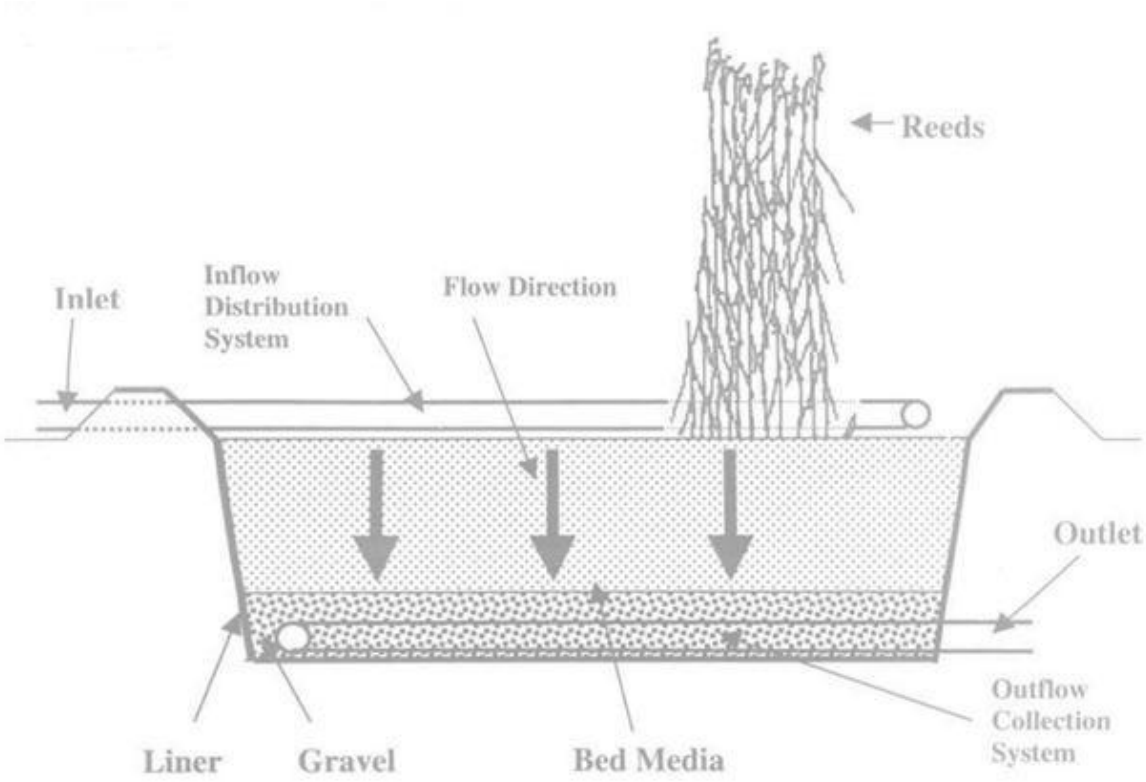


Figure 48: Conceptual Diagram of Root Zone Treatment system[106]

[106] Source: http://www.cpcbenvis.nic.in/scanned%20reports/GUIDELINES%20ON%20CONSTRUCTION,%20OPERATION%20AND%20APPLICATION%20OF%20ROOTZONE%20TREATMENT%20SYSTEMS%20FOR%20THE%20TREATMENT%20OF.pdf

Annexure 19 Letter from NMCG for DGP preparation

No : IC-01/2019-20/550/NMCG
Ministry of Jal Shakti
Department of Water Resources, River Development
& Ganga Rejuvenation
National Mission for Clean Ganga
****

1st Floor,
Major Dhyan Chand National Stadium,
India Gate, New Delhi – 110002
Dated: 17th August, 2022

To
District Magistrate and Chairman,
District Ganga Committees (DGCs),
District : Udham Singh Nagar, Shahjahanpur,
Moradabad, Bareilly

Subject: Mission for District Ganga Plans

Sir/Madam,

National Mission for Clean Ganga (NMCG) is implementing the Indo- German Development Cooperation project, Support to Ganga Rejuvenation, phase II (SGR II) being implemented by *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ) has been working towards Integrated River Basin Management and rejuvenation of the river Ganga. One of the components in SGRII focuses on developing a River Basin Management (RBM) Plan for the Ramganga River Basin, a sub-basin of Ganga River Basin. Further, at the district level, development of District Ganga Plans in line with the NMCG Authority Notification (2016) is an important component.

2. To strengthen the district planning process towards Ganga rejuvenation, four districts within the Ramganga basin have been selected for preparation of model District Ganga Plan adopting the RBM cycle approach. These shall include the measures to be undertaken by the District Ganga Committee for protection, control, and abatement of environmental pollution in River Ganga and its tributaries, and their riverbed area abutting the specified district. In this regard, a draft framework for the preparation of the District Ganga Plans (**Annexure 1**) was shared in the inception meeting with the DGCs and other key stakeholders including SMCGs on 14th July 2022. Based upon this framework, the respective DGCs will prepare its District Ganga Plan. Two DGCs - Udham Singh Nagar and Shahjahanpur - will be supported under the Indo-German Cooperation project(SGR II) being implemented by GIZ and two districts - Moradabad and Bareilly - willbe supported by WWF India in developing the District Ganga Plans. In this regard, District Planning Working Group (DPWG) has been constituted to steer and support the whole process of DGP preparation (**Annexure 2**).

3. As a next step, a joint Mission comprising of representatives of NMCG, GIZ, WWF-India and international as well as national experts is scheduled from **22 – 26 August 2022**. Representatives from SMCGs will also be joining the Mission to their respective districts. The Mission will primarily focus on identifying the key issues and ongoing initiatives related to Ganga rejuvenation at the district level together with the DGCs and other district level stakeholders. These key issues should have an overall synergy with the key water management issues at the sub basin level. Additionally, the Mission team will also have discussion on the data requirements and availability for preparing the district plans. The day-to-day Mission's agenda is enclosed as **Annexure 3**.

4. In the above context, you are requested to facilitate the Mission team in having meetings with the DGCs/district level stakeholders and site visits along with the required information. For further details on the Mission, the following officials from NMCG/GIZ may be contacted:

NMCG: Ms Priya Sikka, Training Coordinator, NMCG, Phone: 9718681093

GIZ: Mr. Merajuddin Ahmad, Technical Advisor, GIZ-SGR, Phone 9675205351 Email: merajuddin.ahmad@giz.de / Dr. Anjana Pant, Technical Advisor, GIZ-SGR, Phone 9818241750, Email: anjana.pant@giz.de

Looking forward to your facilitation, active participation and support to the Mission.

Yours faithfully,

(S P Vashishth)
ED (Admin)

Encl.:

Annexure 1: District Ganga Plan Framework
Annexure 2: District Planning Working Group Constitution
Annexure 3: Mission Agenda

Copy to

(i) Programme Director SMCG Uttar Pradesh
(ii) Programme Director SPMG Uttarakhand
(iii) Ms. Martina Burkard, Head of Programme SGR, GIZ New Delhi
(iv) Mr. Suresh Babu, Director – Rivers, Wetlands and Water Policy, WWF – India, New Delhi

Annexure 20

Drains details river Kalyani, Rudrapur

CALCULATIONS FOR DESIGN CAPACITY OF 54 MLD STP-OPTION-1

STP capacities have been derived from flow measurements of drains in Rudrapur.

As per the discharge measurement of 184 drains, left side flow is 22.55 MLD and flow from right side is 19.57 MLD i.e total flow of 42 MLD which is entering Kalyani River from the project area between Atariа bridge and Rampura. In addition, there are some smaller drains on downstream of Rampura STP site near Shanti Nagar having a combined flow of 0.58 MLD that are present due to extension of settlement in town.
With a population growth factor of 1.3 for the year 2040 for Option-1 the capacity of STP is 54 MLD.

For 2055 the capacity is 63.56 MLD with factor of 1.53. These flows have been calculated as shown in table above.

S. No.	Outfall Drains	Measured Discharge, Year 2021 (MLD)	Estimated Discharge, Year 2040 (MLD) with growth factor 1.3	Estimated Discharge, Year 2055 (MLD) with growth factor 1.53	Proposed STP Capacity, Year 2040 (MLD)
1.	Left Side of River	22.5	29.25	34.425	54.00
2.	Right Side of River	19.57	25.44	29.94	
	Total		54.6	64.365	

Table 13 - Details of Drains to be collected on Left Side

Sl	Outfall Left	Flow Discharge (Q, MLD)	Flow Discharge (Q, cubic m/sec) in each nala	Cumulative flow, Cubic m/sec	Flow Discharge (2055, Q, cubic m/sec) in each nala with factor of 1.53	Cumulative flow, 2055, Cubic m/sec	2040, Flow with factor 1.3	2040, cumulative
1	L1	0.64	0.00741	0.00741	0.01133	0.01133	0.00963	0.00963
2	L2	0.87	0.01007	0.01748	0.01541	0.02674	0.01309	0.02272
3	L3	0.18	0.00208	0.01956	0.00319	0.02993	0.00271	0.02543
4	L4	0.78	0.00903	0.02859	0.01381	0.04374	0.01174	0.03716
5	L5	0.27	0.00313	0.03171	0.00478	0.04852	0.00406	0.04123
6	L6	1.23	0.01424	0.04595	0.02178	0.07030	0.01851	0.05973
7	L7	0.34	0.00394	0.04988	0.00602	0.07632	0.00512	0.06485
8	L8	0.21	0.00243	0.05231	0.00372	0.08004	0.00316	0.06801
9	L9	0.23	0.00266	0.05498	0.00407	0.08411	0.00346	0.07147
10	L10	0.96	0.01111	0.06609	0.01700	0.10111	0.01444	0.08591
11	L11	0.22	0.00255	0.06863	0.00390	0.10501	0.00331	0.08922
12	L12	0.12	0.00139	0.07002	0.00213	0.10714	0.00181	0.09103
13	L13	0.07	0.00081	0.07083	0.00124	0.10838	0.00105	0.09208
14	L14	0.07	0.00081	0.07164	0.00124	0.10961	0.00105	0.09314
15	L15	0.08	0.00093	0.07257	0.00142	0.11103	0.00120	0.09434

Annexure 21 DGC notification to Udham Singh Nagar

रजिस्ट्री सं. डी.एल.- 33004/99 REGD. No. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

सी.जी.-डी.एल.-अ.-20092021-229796
CG-DL-E-20092021-229796

असाधारण
EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (ii)
PART II—Section 3—Sub-section (ii)

प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

सं. 3533] नई दिल्ली, सोमवार, सितम्बर 20, 2021/भाद्र 29, 1943
No. 3533] NEW DELHI, MONDAY, SEPTEMBER 20, 2021/BHADRA 29, 1943

जल शक्ति मंत्रालय

(जल संसाधन, नदी विकास एवं गंगा संरक्षण विभाग)

(राष्ट्रीय स्वच्छ गंगा मिशन)

अधिसूचना

नई दिल्ली, 20 सितम्बर, 2021

का.आ. 3845(अ).—केंद्र सरकार दिनांक 7 अक्टूबर, 2016 के का. आ. 3187 (अ) द्वारा भारत के राजपत्र, असाधारण, भाग-II, खंड-3 उप-खंड (ii) में प्रकाशित अधिसूचना के पैरा 53 के साथ पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उप-धारा (1) तथा (3) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए एतद्वारा उत्तराखंड राज्य के जिला बागेश्वर के लिए गंगा सुरक्षा समिति नामक प्राधिकरण का गठन करती है, जिसमें निम्नलिखित सदस्य शामिल होंगेः

क- पदेन सदस्यगण

1. जिलाधिकारी, बागेश्वर- अध्यक्ष;
2. अधिशासी अधिकारी, नगर पालिका परिषद्, बागेश्वर- सदस्य;
3. अपर मुख्य अधिकारी, जिला पंचायत, बागेश्वर- सदस्य;
4. अधिशासी अभियंता, लोक निर्माण विभाग, बागेश्वर- सदस्य;
5. अधिशासी अभियंता, सिंचाई खंड, बागेश्वर- सदस्य;

5.	Executive Engineer, Irrigation Division, Bageshwar-	Member;
6.	Executive Engineer, Uttarakhand Pey Jal Nigam, Bageshwar-	Member;
7.	Executive Officer, Nagar Palika Parhishad, Bageshwar-	Member;
8.	Regional Officer, Uttarakhand Environment Protection and Pollution Control Board, Regional Office, Haldwani, Nainital-	Member;
9.	Project Director, District Rural Development Agency, Bageswar-	Member;
10.	Divisional Forest Officer, Bageshwar Forest Division, Bageshwar-	Member Convenor.

B. Nominated Members:

1.	Shri Kundan Parihar, Environmentalist, Bageshwar-	Member;
2.	Chairman, Hotel Association, Bageshwar-	Member;
3.	Dr. Rajendra Singh, Social Worker, Bageshwar-	Member.

2. The nominated members shall hold office for a term of two years from the date of this notification.

3. The District Ganga Committee shall exercise such power and perform such functions as specified in the said order.

4. Travelling allowance or daily allowance and sitting fees of the nominated members shall be governed by the relevant rules of the State Government.

5. The Chairperson may decide the procedure and frequency for holding the meeting as per the said order.

[F. No. Estt. 01/2016-17/111/NMCG (Vol-II)]

ROZY AGARWAL, Executive Director (Finance)

अधिसूचना

नई दिल्ली, 20 सितम्बर , 2021

का.आ. 3846(अ).—केंद्र सरकार दिनांक 7 अक्टूबर, 2016 के का. आ. 3187 (अ) द्वारा भारत के राजपत्र, असाधारण, भाग-II, खंड-3 उप-खंड (ii) में प्रकाशित अधिसूचना के पैरा 53 के साथ पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उप-धारा (1) तथा (3) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए एतद्वारा उत्तराखंड राज्य के जिला उधम सिंह नगर के लिए गंगा सुरक्षा समिति नामक प्राधिकरण का गठन करती है, जिसमें निम्नलिखित सदस्य शामिल होंगेः

क- पदेन सदस्यगण

1.	जिलाधिकारी उधम सिंह नगर;	अध्यक्ष;
2.	नगर आयुक्त, नगर निगम, रूद्रपुर;	सदस्य;
3.	अधिशासी अधिकारी, नगर पालिका परिषद् किच्छा;	सदस्य;
4.	अधिशासी अभियंता, लोक निर्माण विभाग, रूद्रपुर;	सदस्य;
5.	अधिशासी अभियंता, सिंचाई खंड, रूद्रपुर;	सदस्य;
6.	मुख्य चिकित्साधिकारी, रुद्रपुर;	सदस्य;
7.	अधिशासी अभियंता, उत्तराखंड पेयजल निगम, रूद्रपुर;	सदस्य;

8.	रिजनल ऑफिसर, काशीपुर;	सदस्य;
9.	परियोजना प्रबंधक, स्वजल परियोजना रूद्रपुर;	सदस्य;
10.	प्रभागीय वनाधिकारी, वनाधिकारी, तराई केंद्रीय वन प्रभाग, रुद्रपुर;	सदस्य संयोजक।

ख. नामित सदस्यगण

1.	डॉ आर.के. श्रीवास्तव, प्राध्यापक/विभागाध्यक्ष, डिपार्टमेंटल ऑफ इन्वायरमेंटल साइंस, गोविंद बल्लभ पंत कृषि एवं प्रोद्योगिकी विश्वविद्यालय, पंतनगर, उधम सिंह नगर-	**सदस्य;**
2.	डॉ आशुतोष पंत, जिला आयुर्वेदिक चिकित्साधिकारी, रूद्रपुर-	**सदस्य;**
3.	श्री मनोज त्यागी, अध्यक्ष सिडकुल इंटरपरिन्योर वैल्फेयर सोसाइटी, पंतनगर उधम सिंह नगर-	**सदस्य।**

2. नामित सदस्यों का कार्यकाल इस आदेश के प्रकाशन की तारीख से दो साल की अवधि के लिए वैध होगा।

3. जिला गंगा सुरक्षा समिति ऊपर उल्लिखित आदेश में दी गई शक्तियों का प्रयोग करेगी और इसमें दिए गए कार्यों का निष्पादन करेगी।

4. नामित सदस्यों को यात्रा भत्ता/दैनिक भत्ता और सिटिंग फीस राज्य सरकार के नियमों के अनुसार देय होगी।

5. अध्यक्ष ऊपर उल्लिखित आदेश के अनुसार बैठकें आयोजित करने के लिए प्रक्रिया तथा अवधि के संबंध में निर्णय ले सकते हैं।

[फा. सं. स्था.-01/2016-17/111/एनएमसीजी (खंड-II)]

रोजी अग्रवाल, कार्यकारी निदेशक (वित्त)

NOTIFICATION

New Delhi, the 20th September, 2021

S.O. 3846(E).—In exercise of the powers conferred by sub-sections (1) and (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986), read with paragraph 53 of the River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016 (hereinafter referred to as the said order), the Central Government in consultation with the Uttarakhand State Ganga Committee hereby constitutes an authority to be called as the District Ganga Committee for District Udham Singh Nagar comprising of the following members, namely:-

A. Ex-officio Members:

1.	District Collector, Udham Singh Nagar-	Chairperson;
2.	Municipal Commissioner, Municipal Corporation, Rudrapur, Udham Singh Nagar-	Member;
3.	Executive Officer, Nagar Palika Parsishad, Kichhaa, Udham Singh Nagar-	Member;
4.	Executive Engineer, Public Work Department, Rudrapur-	Member;
5.	Executive Engineer, Irrigation Division, Rudrapur-	Member;
6.	Chief Medical Officer, Rudrapur-	Member;
7.	Executive Engineer, Uttarakhand Peyjal Nigam, Rudrapur-	Member;
8.	Regional Officer, Uttarakhand Environment Protection and Pollution Control Board, Regional Office, Kashipur-	Member;

9.	Project Manager, Swajal Project, Rudrapur-	Member;
10.	Divisional Forest Officer, Tarai Center Forest Division, Rudrapur-	Member Convenor.

B. Nominated Members:

1.	Dr. R.K. Srivastav, Principal/Head of Department, Departmental of Environmental Science, Govind Bhallabh Pant University of Agriculture and Technology, Pantnagar, Udham Singh Nagar-	Member;
2.	Dr. Ashutosh Pant, District Ayurvedic Medical Officer, Rudrapur-	Member;
3.	Shri Manoj Tyagi, Chairman, State Industrial Development Corporation of Uttarakhand Limited (SIDCUL) enterpreneour welfare society, Pantnagar, Udham Singh Nagar-	Member.

2. The nominated members shall hold office for a term of two years from the date of this notification.

3. The District Ganga Committee shall exercise such power and perform such functions as specified in the said order.

4. Travelling allowance or daily allowance and sitting fees of the nominated members shall be governed by the relevant rules of the State Government.

5. The Chairperson may decide the procedure and frequency for holding the meeting as per the said order.

[F. No. Estt. 01/2016-17/111/NMCG (Vol-II)]

ROZY AGARWAL, Executive Director (Finance)

अधिसूचना

नई दिल्ली, 20 सितम्बर , 2021

का.आ. 3847(अ).—केंद्र सरकार दिनांक 7 अक्टूबर, 2016 के का. आ. 3187 (अ) द्वारा भारत के राजपत्र, असाधारण, भाग-II, खंड-3 उप-खंड (ii) में प्रकाशित अधिसूचना के पैरा 53 के साथ पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उप-धारा (1) तथा (3) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए एतद्वारा उत्तर प्रदेश राज्य के जिला अलीगढ़ के लिए गंगा सुरक्षा समिति नामक प्राधिकरण का गठन करती है, जिसमें निम्नलिखित सदस्य शामिल होंगेः

क- पदेन सदस्यगण

1.	जिलाधिकारी, अलीगढ़-	अध्यक्ष;
2.	मुख्य चिकित्सा अधिकारी, अलीगढ़-	सदस्य;
3.	क्षेत्रीय अधिकारी, उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड, अलीगढ़-	सदस्य;
4.	अधिशासी अभियंता, लोक निर्माण विभाग (प्रांतीय खंड), अलीगढ़-	सदस्य;
5.	अधिशासी अभियंता, सिंचाई विभाग, अलीगढ़-	सदस्य;
6.	अधिशासी अभियंता, जल निगम, अलीगढ़-	सदस्य;
7.	मुख्य विकास अधिकारी, अलीगढ़-	सदस्य;
8.	श्री ज्ञानेश शर्मा पुत्र स्व. श्री दिनेश चंद्र शर्मा, पता- छर्रा (अलीगढ़)-	सदस्य;
9.	श्री मोहित कुमार नगाइच पुत्र स्व. श्री आलोक कुमार नगाइच पता- राजीव नगर, जनपद अलीगढ़-	सदस्य ;