

National Mission for Clean Ganga



Site visit report for Solani River in Roorkee,
Uttarakhand

Date – 06.11.2025 to 07.11.2025

Site Visit Report:		Solani River at Roorkee, Uttarakhand	Location:	Roorkee, Uttarakhand
Date/Time:		06.11.2025 to 07.11.2025		
#	Agenda items for the site visit			
	1. Regarding the O.A. No. 632/2022 on the Solani River matter and as directed by the Competent Authority, a site visit has been undertaken to the Solani River, Roorkee, Uttarakhand, for technical observations emphasize the need for on-ground verification of the current status of encroachments, pollution sources, and progress on remedial measures. 2. The objective of the visit will be: i). Situation of demarcation of flood plain zoning ii). Encroachment in the catchment area of River Solani iii). Status of drains tapping			

Site Visit Attendees		
#	Organization	Name
1	NMCG	Dr. Kriti Varma, Project Officer
2	PMC	Mr. Harish Kumar Mahavar (Small River Rejuvenation Expert)

1 Introduction

1.1 Background and purpose of the visit

As Directed by the DG (NMCG), a site visit was conducted from 06.11.2025 to 07.11.2025 for the O.A. No. 632/2022 on the Solani River matter and as directed by the Competent Authority, a site visit was undertaken to the Solani River, Roorkee, Uttarakhand, for technical observations emphasize the need for on-ground verification of the current status of encroachments, pollution sources, and progress on remedial measures.

The objective of the visit will be:

- i). Situation of demarcation of flood plain zoning
- ii). The Sonali River, a tributary of the Ganga, has been severely affected by illegal encroachments for cultivation, obstructing river flow and causing environmental degradation.
- iii) Untreated sewage from towns and villages (notably Bhagwanpur, Roorkee, and others) is discharged into the river, killing aquatic life and turning the river into an open drain.

1.2 Key officials met during the site visit

1. Sh. Sandeep Kumar, Project Engineer, Uttarakhand Pay Jal Nigam, Haridwar
2. Dr. Rajendra Singh, Regional Officer, UKPCB, Roorkee, Uttarakhand
3. Sh. Raj Veer Singh, A. En., Irrigation Department, Roorkee, Uttarakhand
4. Gopal Singh, A. En., Irrigation Division, Roorkee, Uttarakhand
5. Pravinder Kumar, Zileadar, Irrigation Division, Roorkee, Uttarakhand

2 Overview of the site visit -

2.1 Detailed Project background

This case addresses significant environmental grievances related to the Sonali River, a tributary of the Ganga, situated in Uttarakhand. The application was registered based on a letter petition raising issues of unauthorized encroachments on river land (mainly for cultivation), discharge of untreated sewage into the river, depletion of aquatic life, and general degradation of the river, which has effectively turned it into a drain causing groundwater contamination and harming the environment. The applicant raised concerns about the lack of effective measures to restore riverine flow, remove encroachments, prevent illegal cultivation, and contain pollution sources.

In response, the Tribunal constituted a Joint Committee, including the National Mission for Clean Ganga (NMCG), State Pollution Control Board (PCB), District Magistrate of Haridwar, and other relevant authorities, to verify the facts and submit reports. Their findings led to further proceedings, directions for filing additional replies, and concrete action plans. The document details the Committee's constitution and mandates coordinated rehabilitation efforts across the states of Uttarakhand and Uttar Pradesh. It also highlights gaps in floodplain zoning, sewage treatment facility planning, catchment restoration, and river rejuvenation.

The NGT has recognized Sonali as an inter-state river and called upon multiple state and central agencies to work collaboratively. Essential actions include identification and removal of encroachments, tapping of drains, construction of sewage treatment plants (STPs), and maintaining ecological flow for reviving the river's health. The Tribunal's directions emphasize a holistic approach, with clear compliance timelines and responsibilities, to restore and protect the Sonali River.

2.2 Action Taken Report of UKPCB in OA No. 632 of 2022- VK Tyagi Vs State of Uttarakhand

Here is a summary of the Action Taken Report of UKPCB in OA No. 632 of 2022 VK Tyagi Vs State of Uttarakhand:

2.2.1 Coordination and Planning

- Following NGT's directions, UKPCB coordinated with the Additional Secretary, Forest, Environment Protection, and Climate Change and other departments to prepare and compile detailed action plans for the restoration and management of the Sonali River.
- Multiple interdepartmental meetings were held to finalize execution plans, timelines, budgets, and monitoring arrangements for river rejuvenation activities.

2.2.2 Floodplain Zoning and Encroachment Removal

- Floodplain demarcation was completed using hydrological studies and ground truthing, and a draft notification issued; public hearings have been conducted and the proposal is under state government consideration.
- No fresh encroachments were identified on the Sonali river bed; monitoring is ongoing to prevent future illegal occupation.

2.2.3 Sewage and Wastewater Management

- 13 drains were identified as discharging sewage into the river at Roorkee. Detailed proposals for tapping these drains, constructing interception/diversion lines (about 4 km), a pumping station, and a new 14 MLD capacity STP near Shamshan Ghaat were made (total cost: Rs. 15,664.09 Lakh; preparatory work: 6 months, capital work: 24 months).
- The existing 33 MLD STP at Saliyar, Roorkee, is underutilized. Retrofitting and expansion plans have been submitted to Peyjal Nigam, aiming for optimal utilization and improved sewage management.

2.2.4 Pollution and Industrial Effluent Control

- No industrial drains currently discharge into the Sonali River; periodic monitoring of industrial units is mandated to ensure compliance.
- STPs and ETPs must be installed by all industries per environmental norms, with regular monitoring and punitive actions for violations.

2.2.5 Solid Waste Management

- Door-to-door municipal solid waste collection is operational in urban (Roorkee: 40 wards, 130-140 MT/day) and peri-urban/ rural sectors. No direct disposal of solid waste into the Sonali River.
- Integrated solid waste management facilities (450 TPD) planned; environmental clearance obtained, and disposal protocols strictly followed.

2.2.6 Ecosystem Restoration and Water Management

- Afforestation and riparian buffer projects: 6,000 native trees to be planted along riverbanks in several villages (cost: Rs. 226.39 Lakh).
- Check dam construction (Rs. 49.38 Lakh) and rainwater harvesting projects proposed to restore groundwater and baseflow in the river.
- Wetland restoration currently not feasible due to local geography; bioremediation options to be explored further.

2.2.7 Community Engagement and Incentives

- Public awareness campaigns and community participation initiatives led by UKPCB through schools, colleges, and voluntary organizations.
- Sustainable agricultural practices (drip, sprinkler irrigation; financial outlay Rs. 613.16 Lakh for tubewells, Rs. 281.46 Lakh for horticulture micro-irrigation schemes) being promoted to minimize runoff and river pollution.
- Funding mobilized from central, state, and international agencies to support planned rejuvenation practices.

2.2.8 Monitoring and Compliance

- Monthly and quarterly water quality monitoring of the Sonali River by UKPCB and accredited third-party institutes.
- Strict enforcement of environmental laws and regular inter-agency coordination to ensure compliance, accountability, and timely reporting to NGT.

Overall, UKPCB has submitted a comprehensive, multi-sectoral action plan aligning with NGT directions, detailing technical, administrative, budgetary, and outreach measures for the restoration of Sonali River in Uttarakhand.

2.3 Details of visit- Agenda

The small river rejuvenation team to visit the proposed sites to review the work done & actions undertaken at the different levels for the conservation and rejuvenation of the Solani River.

- a. Inspect the current pollution status and physical condition of the Sonali River and adjoining drains in Roorkee, Uttarakhand.
- b. Document evidence of sewage, solid waste, and encroachment issues along the river and its tributaries.
- c. Assess effectiveness of recent interventions and compliance with UKPCB's Action Taken Report under OA No. 632 of 2022 (VK Tyagi vs State of

Uttarakhand).

d. Check the status of Floodplain demarcation for 25, 50 & 100 yrs return period.

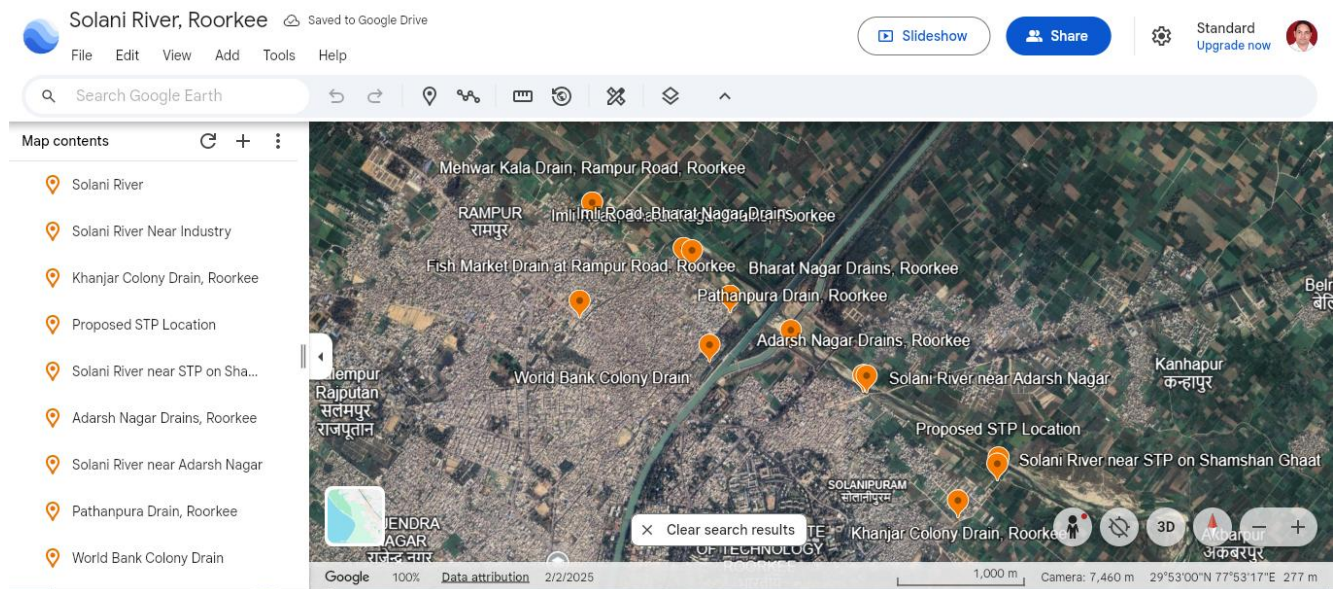


Figure 1: Site visited at different locations of untapped drains on Solani River

2.3.1 Key Observations during the visit & report

1. **Widespread Sewage Pollution:** Multiple drains and river stretches exhibited significant blackish-grey water and foul odor due to untreated domestic sewage. Water surfaces in the channels were heavily contaminated with visible solids and organic matter, indicating a high level of pollution.
2. **Solid Waste Accumulation:** Large amounts of plastic, municipal refuse, packaging waste, and organic debris were observed along the banks, within water channels, and near bridge crossings. Several locations had dumping or scattered waste despite previous claims of door-to-door collection.
3. **Encroachment & Land Use Change:** Sites near Adarsh Nagar, Bharat Nagar, and under bridges displayed clear evidence of semi-permanent and agricultural encroachments, with cultivated land right up to the river's edge in several areas.
4. **Underutilized/Uncovered Drains:** Many drains were either open or poorly covered, allowing direct discharge and dangerously easy access for further illegal dumping.
5. **Vegetation and Riverine Buffer Loss:** Native riparian vegetation has been reduced

or replaced at several locations, with invasive weeds now dominating. The natural buffer appears insufficient to contain runoff or filter pollutants.

6. **Inadequate Effluent Containment:** Pictures identify ongoing inflow of untreated sewage from urban and peri-urban catchments, matching the UKPCB report's list of untapped drains around Haridwar Road, Solani Bridge, and Roorkee industrial/residential neighborhoods.

2.3.2 Site-Specific Notes

- 1) **Solani Bridge, Roorkee/Adarsh Nagar (Fig. 6):** Major visible accumulation of both sewage and solid waste; open dumping seen on approach roads and riverbanks, with resulting spread into water channel.
- 2) **Bharat Nagar (Fig. 9, 10)/Haridwar Road:** Multiple images show dark, polluted drain water and consistent illegal dumping. Lack of enclosed drainage infrastructure; several under-bridge drains almost entirely canalized with waste.
- 3) **World Bank Colony (Fig. 8)/Pathanpura (Fig. 7):** Evidence of urban sewage mixing with groundwater and canal water, confirming reports of incomplete diversion and underutilized STP capacity.
- 4) **Imli Road (Fig. 11, 12):** Marshy, stagnant drains merging directly into river stretches; severe pollution and waste presence at most locations contradict ongoing river health restoration claims.
- 5) **Agricultural Encroachment:** Cultivated land observed right up to riverfront, violating floodplain buffer norms; several areas lack floodplain markings or protective barriers as recommended by UKPCB, but Irrigation Department have shared the google earth file which have the demarcation of 5, 25, 50, 100 yrs return period flood on Solani River. (Fig. 2)

2.4 Conclusion

The site visit confirms persistent issues of untreated sewage, solid waste dumping, and encroachment on the Sonali River and its tributary drains in Roorkee, Uttarakhand. Physical evidence matches the technical shortcomings and backlog of remedial action highlighted in the UKPCB Action Taken Report: major drains remain untapped or uncovered, STP augmentation is incomplete, and solid waste management needs urgent improvement. Restoration of riparian vegetation, strict enforcement of encroachment regulations, and prioritized infrastructure work are urgently required to halt further riverine degradation and move towards effective compliance with NGT's directions.

The situation calls for:

- Immediate action to intercept all untreated sewage and urban runoff
- Removal of solid waste and preventive enforcement against further illegal dumping

- Accelerated floodplain demarcation, notification, and community sensitization
- Enhanced inter-agency monitoring, rapid infrastructure upgrades, and stricter compliance with pollution control norms

This report recommends expediting current interventions and intensifying oversight, with targeted follow-up visits and stakeholder consultations to ensure the Sonali River's restoration and ecologicalcal protection.

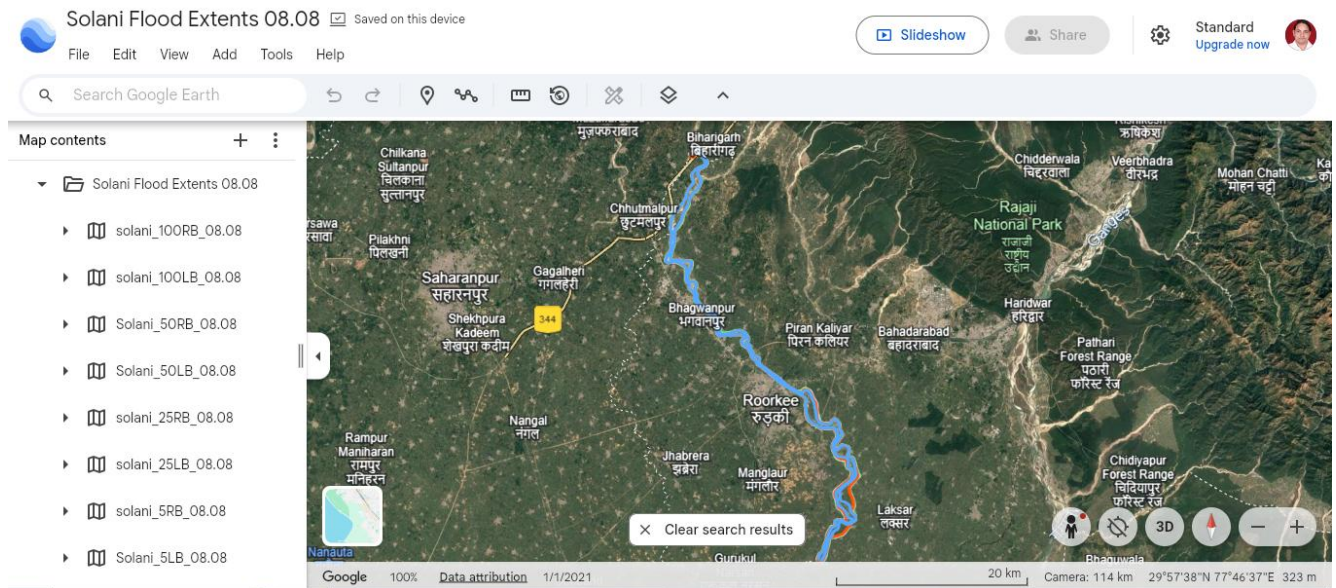


Figure 2: Demarcation of flood plain zoning for 25, 50 & 100 Yrs return period flood

Current Site visit photographs:



Figure 3: Solani River near Bharat Oil & Waste Management Ltd., UK (Shifting of River)

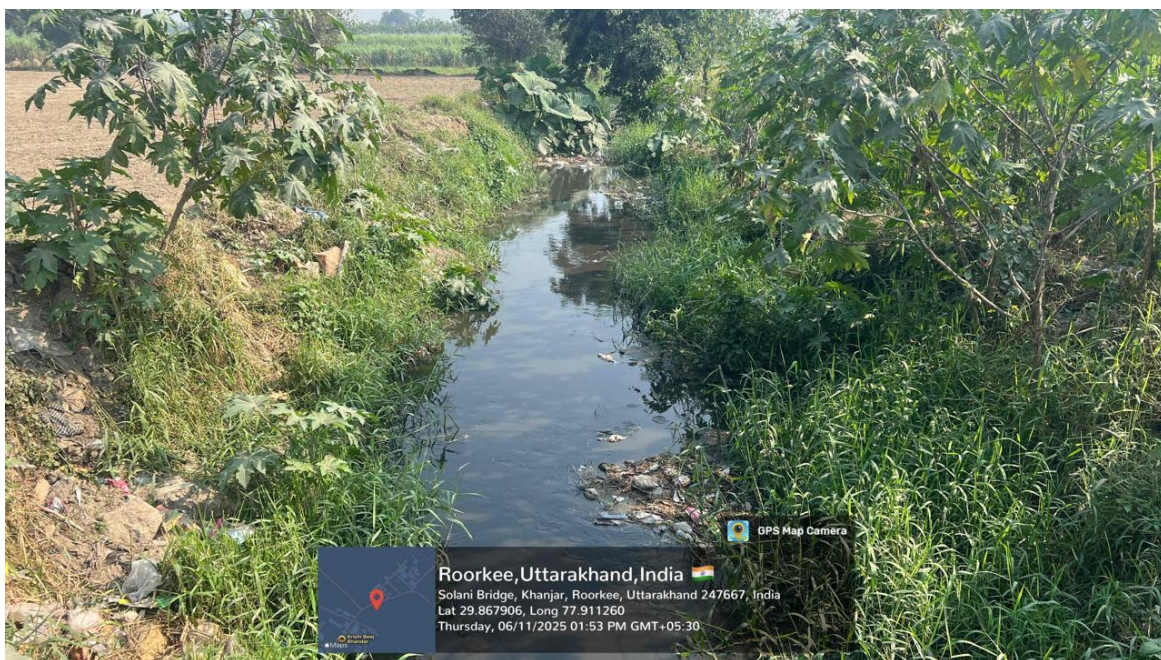


Figure 4: Khanjar Colony Drain, Roorkee, UK



Figure 5: Proposed location of STP (14 MLD capacity) near Shamshan Ghaat, Roorkee, UK

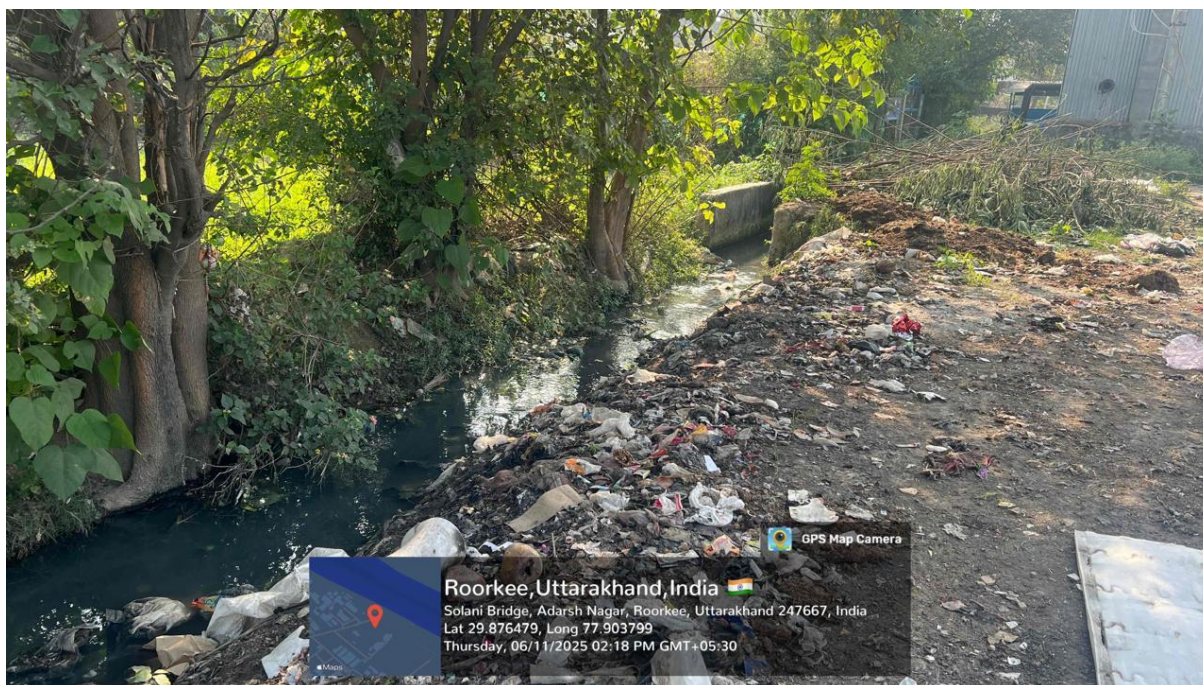


Figure 6: Adarsh Nagar Drain, Roorkee, UK

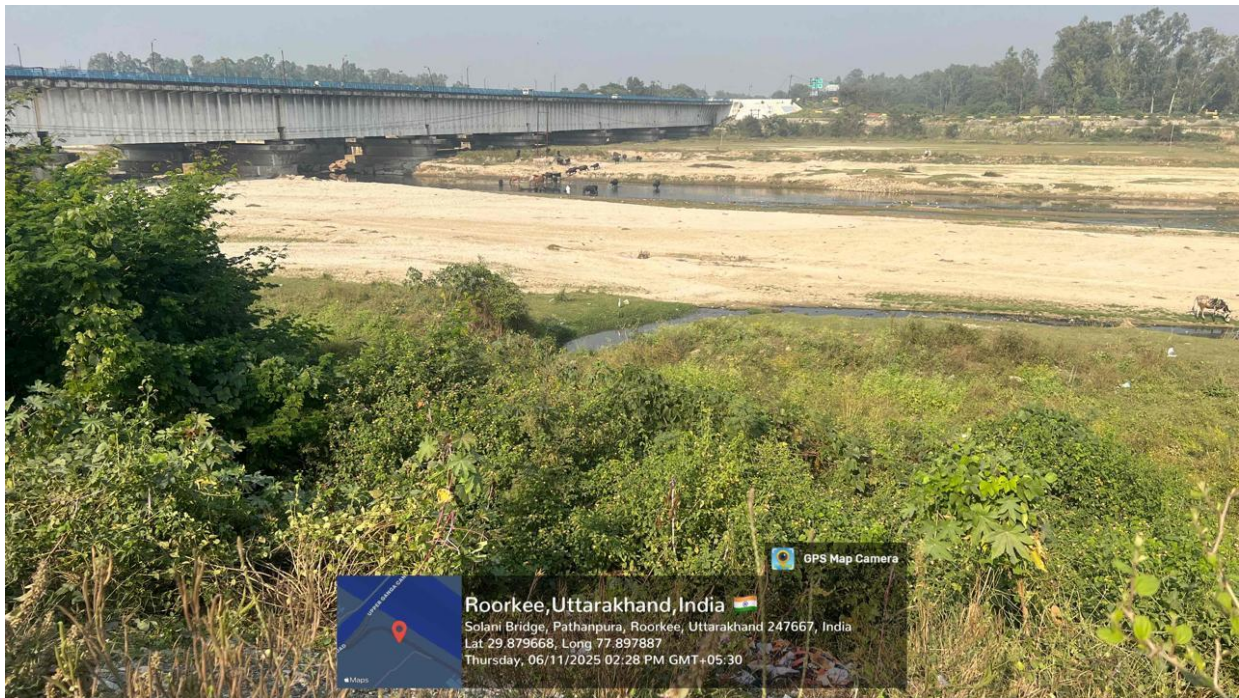


Figure 7: Pathanpura Drain, Roorkee, UK

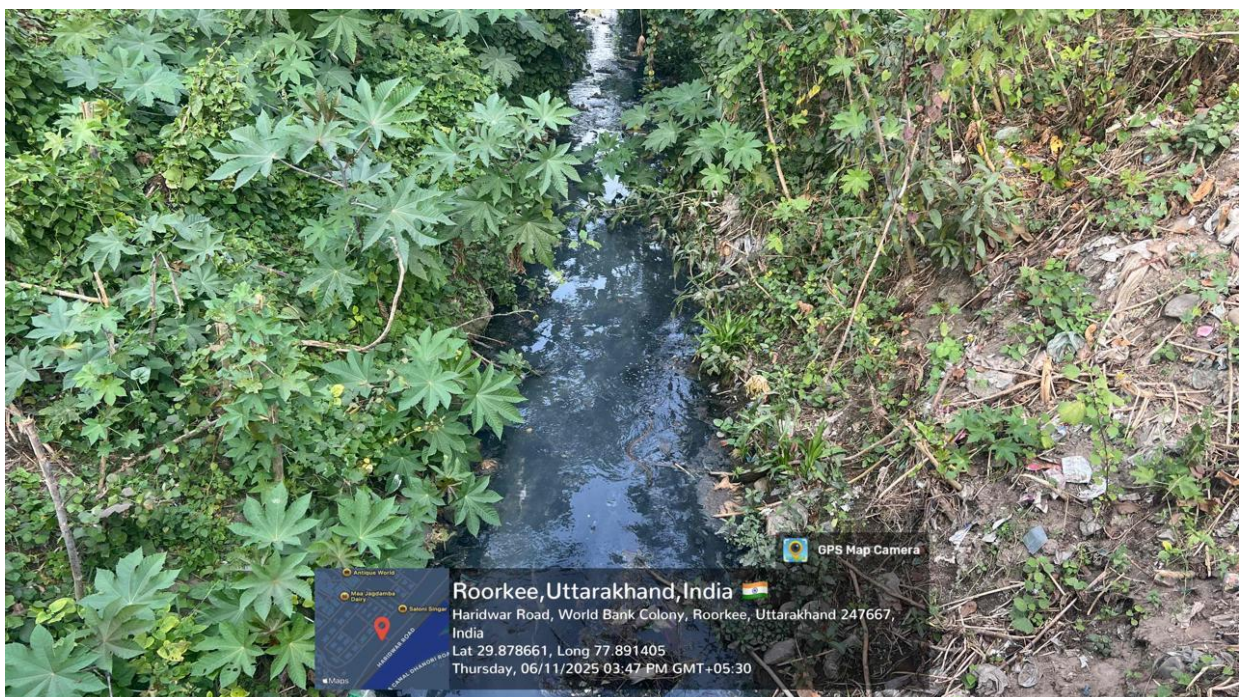


Figure 8: World Bank Colony Drain (Dhobhi Ghaat Drain), Roorkee, UK



Figure 9: Bharat Nagar Drain, Roorkee, UK



Figure 10: Bharat Nagar, Drain, Roorkee, UK



Figure 11: Imli Road, Bharat Nagar Drain,
Roorkee, UK



Figure 12: Imli Road, Bharat Nagar Drain,
Roorkee, UK

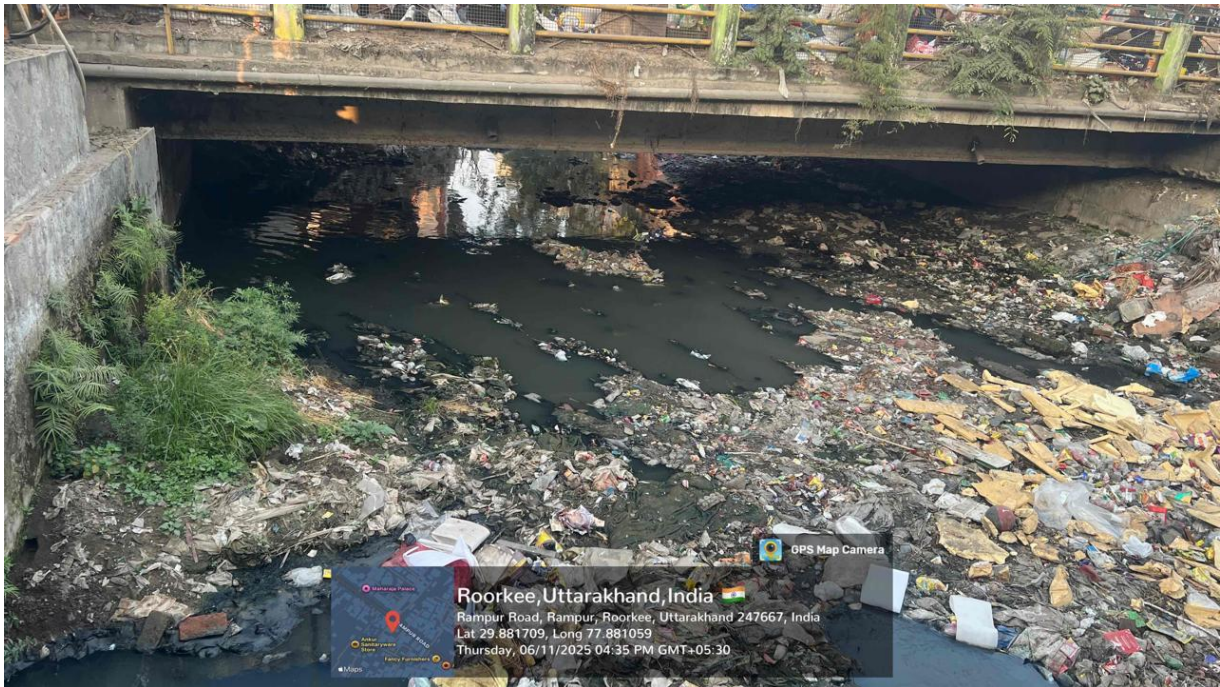


Figure 13: Fish Market Drain, Rampur Road, Roorkee, UK