STATUS OF USED-WATER MANAGEMENT IN RAMPUR DISTRICT OF UTTAR PRADESH

Photo credit: Pradeep Kumar Mishra/CSE

CSE surveyed 32 villages in the district of Rampur in Uttar Pradesh to understand the generation and management of grey water.

Around 2.9 lakh households in rural areas of Rampur have been provided with household water connections under Jal Jeevan Mission. Households also have private borewells and/or handpumps.

This clearly indicates that the amount of water received per capita is more than the norm of 55 litres per day set by Jal Jeevan Mission.

According to the thumb rule, 70 per cent of the water used is converted to wastewater. Injudicious use of water will lead to generation of huge amounts of grey water from washing areas, kitchens and bathrooms.

Since grey-water management has never been the main focus, efforts made thus far to revitalize ponds are insufficient.

The drains are usually clogged and silted up due to poor design. During the rainy season, the six-month-long CSE survey in 2024 revealed that the drains overflow and flood nearby areas.

During the rainy season, dengue and malaria are common in villages, and they are more common in communities with no toilets.

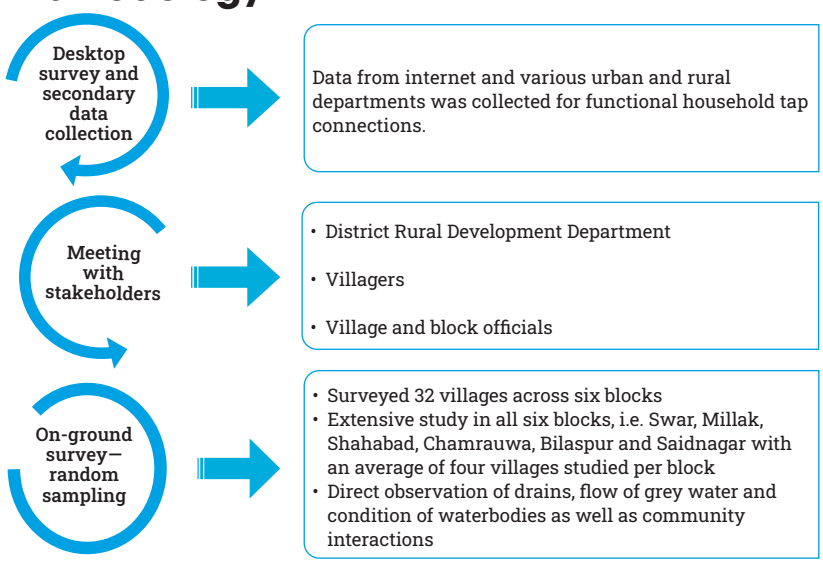
INTRODUCTION

Rampur district of Uttar Pradesh, located on the Upper Gangetic Plain, is covered by loamy soil in most areas. Only 5 per cent of the surface water and 95 per cent of groundwater is available in the district for general use.[1]

Over 70 per cent of Rampur's population resides in the district's rural areas,[2] where groundwater is used mostly for basic daily needs. In Rampur district, rejuvenation work on over 250 waterbodies been completed under Mission Amrit Sarovar.[3] Solid waste disposal, wastewater discharge, drying up of waterbodies and encroachment are the main problems affecting waterbodies in rural areas.[4]

As per the current data on October 6, 2024, Jal Jeevan Mission has supplied tap connections to 15.19 crore, providing 78.58 per cent of rural homes with potable water.[5] Out of the 1,163 villages, 318 villages—accounting for about 27 per cent of the villages—have 100 per cent of the households with tap connections. Work on providing 100 per cent of the households with water connections is under progress for almost 73 per cent of the villages.[6]According to the Jal Jeevan Mission guidelines, the aim is to distribute water on a regular and long-term basis at a service level of 55 litres per capita per day (lpcd) of prescribed quality (BIS: 10500), i.e. that a family of eight will use almost 400 litres of water per day. Each house extracts groundwater and stores it in 500-litre overhead tanks. In other words, the volume of water used actually by a family of six people is more than what

Methodology



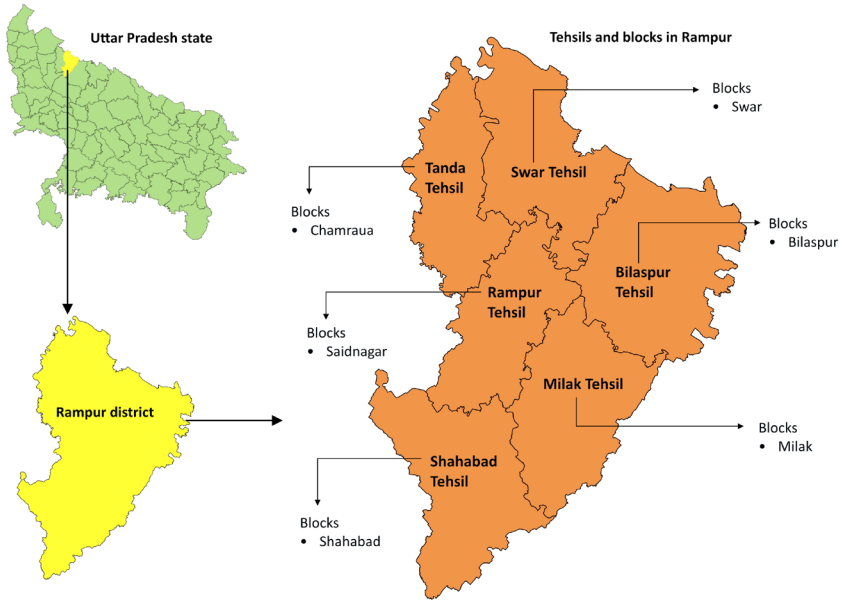
Compiled by CSE

is provided by government departments. This means that the amount of grey water extracted in the survey area is more than the amount projected. Once all the households connected through taps start receiving water, a huge amount of grey water will be generated as according to the thumb rule around 70 per cent of the water is converted to grey water. People with individual borewells and tubewells may use more water than others, generating even more grey water. Ground surveys clearly show that rural areas are unable to manage their grey water.

The Centre for Science and Environment is working to identify shortcomings and difficulties in managing lakes and waterbodies across India's many ecological zones. In order to comprehend the condition of the waterbodies in this area, research was conducted in Rampur's rural areas. Most of the waterbodies in the sampled villages are contaminated with wastewater, according to the real ground stories from the residents and government officials.

Rampur district at a glance

Rampur district map with tehsil and blocks



Tehsils: 6
Blocks: 6

Gram panchayats: 79
Villages: 1,165

Rural population: 23.35 lakh (2011 census)

Major river: Kosi

Type of soil: Clayey topsoil

Average rural family size: 7–8 people

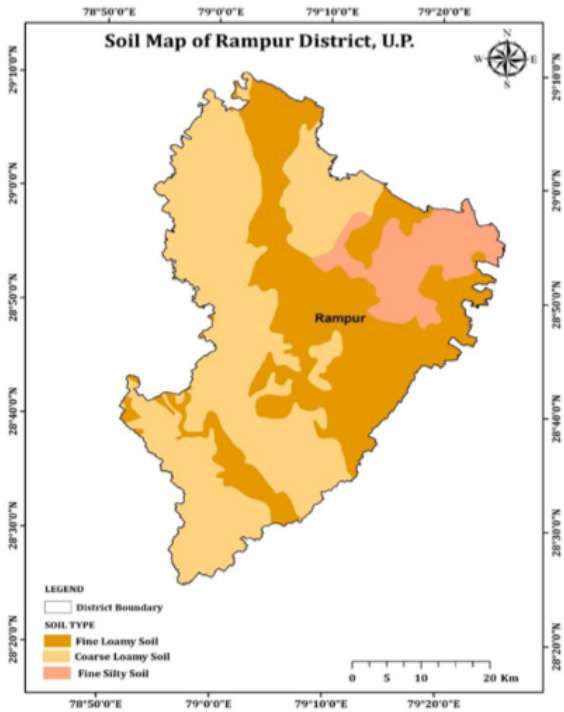
Source of water: Groundwater (210-foot-deep handpumps and borewells

Source: Census 2011; compiled by CSE

Rivers and streams in Rampur district

- The river Kosi under the basin of Rampur has an area of 3,429 km².
- It is one of the chief branches of river Ramganga and is one of the important tributaries of the northern parts of Uttar Pradesh and Uttarakhand.
- The river passes through Chamraul village of Shahabad tehsil.

Figure 1: Soil map of Rampur district

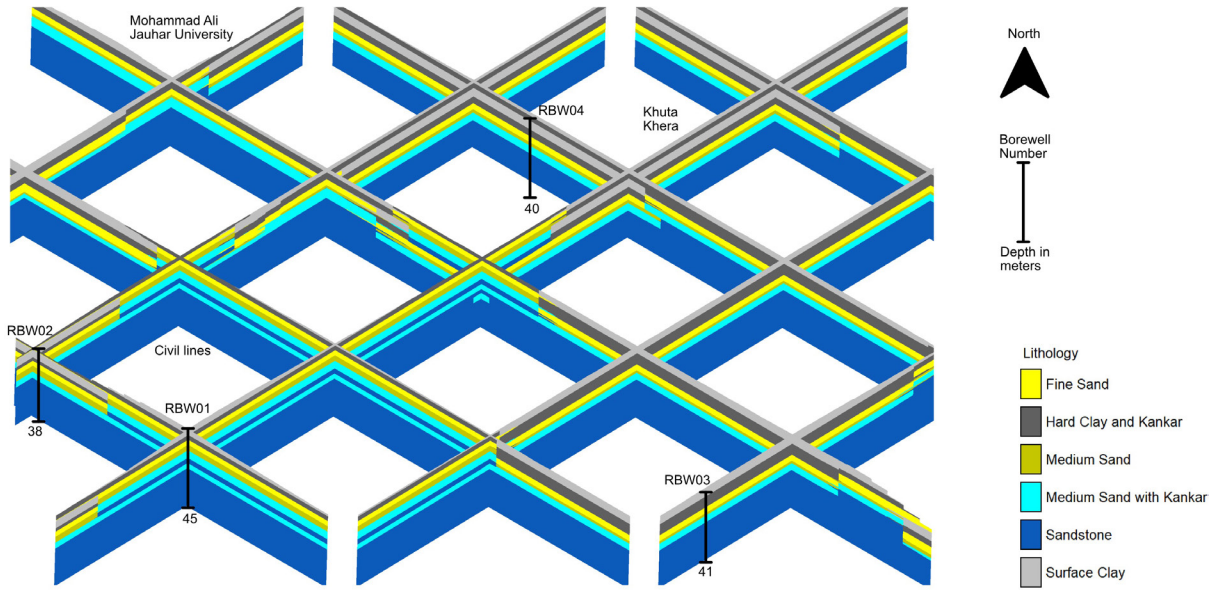


Source: 2023, Report of Aquifer Mapping and Management Plans of Rampur District, Uttar Pradesh, Central Groundwater Board, https://www.cgwb.gov.in/old_website/AQM/NAQUIM_REPORT/UP/Rampur%20final.pdf

Soil lithology of Rampur district

Around 58 borehole logs have been analysed to create a soil lithology of the district. The district shows that the dominant topsoil is clay. The thickness of the topsoil at places reaches 15 m. After the rains, the water stands for a long duration due to the porous and non-permeable nature of the topsoil, and the water takes long to get absorbed. The grey water that overflows from the drains also leads to mosquito breeding in the areas. This calls for urgent management of grey water in the rural areas of Rampur.

Figure 2: Soil lithology for Rampur district

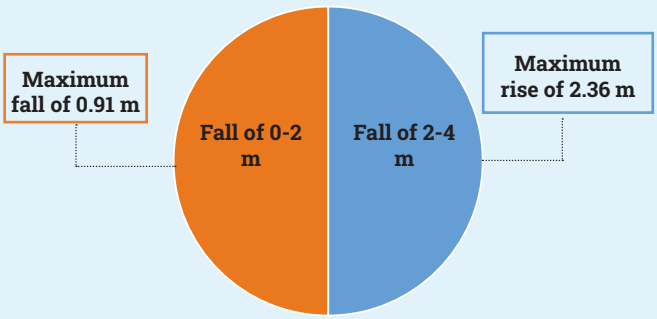


Source: Borewell logs sourced from UP Jal Nigam–Urban and Rural; compiled by CSE

Need of the hour

- ✓ Rampur district is mainly dependent on groundwater, indicating its rainfall trend (2021–22) towards decline, resulting in less rainfall recharging subsurface aquifers. Hence, it becomes important to focus on protecting and rejuvenating waterbodies.
- ✓ In rural areas, the waterbodies are encroached, polluted and filled with algae and solid waste. To ensure the sustainability of groundwater, waterbodies must be restored.
- ✓ As per Jal Jeevan Mission, 93 per cent of the of the district's households have taps installed, however private borewells are being used to draw more water. Households produce more grey water as a result of this unregulated water use.
- ✓ According to the CSE survey, household grey water is not managed properly, despite the fact that villages have built community soakpits.
- ✓ In order to rejuvenate waterbodies in villages, grey-water management is essential.
- ✓ Depending on the soil conditions in the area, the district needs to investigate various alternatives for managing grey water at the household and community levels.

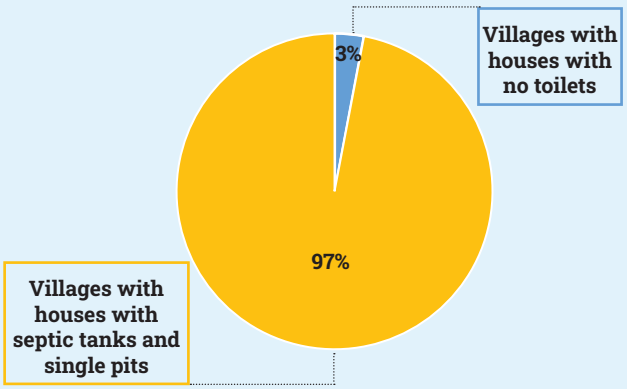
Status of groundwater in Rampur district



- A small part of Shahabad, Swar, Bilaspur, Saidnagar, Chamrauwa and Milak blocks have water levels of 0–2 metres below ground level (mbgl). Some parts of Swar and Saidnagar blocks show water level rise of 2–4 mbgl. Overall, the water levels are mainly 0–4 mbgl across the district.
- Groundwater in some blocks have iron, arsenic and nitrate above the permissible limit.[7]

Source: Central Groundwater Board, 2023, Ground Water Year Book Uttar Pradesh-2022–23, https://cgwb.gov.in/cgwbpnm/public/uploads/documents/17032384351875462524file.pdf

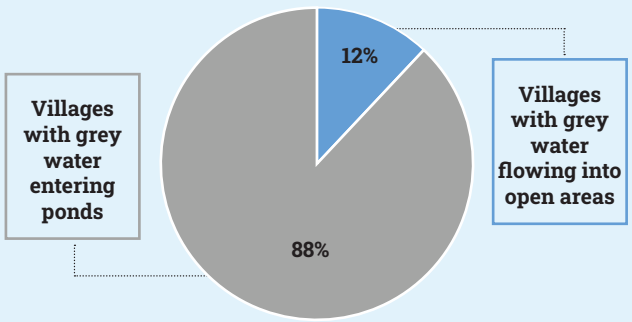
Status of toilets in surveyed villages



- Dholsar village in Shahabad block do not have toilet, and communities opt for open defecation.
- Black and grey water mix in open drains and end up meeting waterbodies and also flowing in the open.
- Faecal waste is treated using single pits and septic tanks.

Source: 2023, Report of Aquifer Mapping and Management Plans of Rampur District, Uttar Pradesh, Central Groundwater Board, https://www.cgwb.gov.in/old_website/AQM/NAQUIM_REPORT/UP/Rampur%20final.pdf

Status of ponds in surveyed villages



- The drains are open, unlined and clogged with solid waste dumping except for Manpur Ojha village in Bilaspur block, which has proper closed drains and also silt chambers to remove grit and suspended solids to use the water for kitchen garden.
- Wastewater enters village ponds.
- The design of drains does not allow them to carry storm water and/or grey water.
- Wastewater is seen flowing near the handpumps (the source of drinking water) in villages.

Source: Compiled by CSE

Community speaks

The groundwater in our village is about 50–60 feet but is yellowish, while the drinking water is received at 120–150 feet. The grey water and black water mixes and flows through open drains into the two ponds in our village. The ponds have algae and water hyacinths in them and are unfit for any domestic purposes and/or for bathing buffaloes. During the rainy season, the roads are blocked with the overflow of open drains. Dengue and malaria are major problems during this time. Awareness about grey water and its management must be communicated to all the villagers. Soakpits must also be functional to help not mix grey water with black water.

Afsar Ali, 68, resident, Village Mohammadpur Kadeem, Block Millak, District Rampur

Grey water from a handpump lies stagnant due to broken structure and absence of a community soakpit in the school area in Mohammadpur Kadeem village

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Status of grey water in the surveyed villages of Rampur district

Block	Population (as per census 2011)	Number of villages visited	Name of villages visited	Quantity of grey-water generated (70 per cent of 55 LPCD) (lakh litres per day)	Type of structures for grey-water management	Total expenditure on SLWM as of December 5, 2024 (Rs lakh)*	Data as per SBM-G dashboard as January 8, 2024	CSE's observations in villages surveyed
Swar	435,551	7	Dhanpur, Milak Kazi, Ajimnagar, Madhupura, Ratanpura, Raipur, Dhanaura	174.22	Soakpits	185.62	Community soakpits: 1,620 230 villages have solid waste management arrangements 256 villages have liquid waste management arrangements	Grey water at the household level is not managed properly. The grey water flows either in open areas or directly enters into waterbodies. The soakpits constructed are non-functional. Filter chambers constructed are blocked with solid waste.
Millak	306,126	3	Mohammadpur Kadeem, Chakia Hayatnagar, Gangapur Kothri	122.45	No structures	124.43	Community soakpits: 797 197 villages have solid waste management arrangements 174 villages have liquid waste management arrangements	Improper management of grey water. There are non-functional structures for the grey water. The grey water flows in open drains that directly lead into ponds and waterbodies.
Shahabad	316,794	4	Patwai, Dholsar, Nawabganj, Revari Kalan	126.72	Soakpits	101.38052	Community soakpits: 591 186 villages have solid waste management arrangements 153 villages have liquid waste management arrangements	Grey water flows in open areas or directly into waterbodies. Most of the soakpits constructed are non-functional. The soakpits if constructed are designed under-capacity.
Chamrauwa	222,623	9	Ajeetpur, Mominpur, Indri, Bans Nagli, Indra, Faizullanagar, Bhandpura, Panwaria, Ahmadnagar Jagir	89.05	Soakpits	87.46301	Community soakpits: 611 124 villages have solid waste management arrangements 109 villages have liquid waste management arrangements	Grey water flows in open drains and soakpits overflow during the rainy season. There are fertilizers and alcohol factories nearby that discharge wastewater in one open drain where all the grey water of the village is also discharged

FACTSHEET

RAMPUR DISTRICT

Block	Population (as per census 2011)	Number of villages visited	Name of villages visited	Quantity of grey-water generated (70 per cent of 55 LPCD) (lakh litres per day)	Type of structures for grey-water management	Total expenditure on SLWM as of December 5, 2024 (Rs lakh)*	Data as per SBM-G dashboard as January 8, 2024	CSE's observations in villages surveyed
Bilaspur	237,761	4	Sultanpur, Khunt Khera, Mankara, Manpur Ojha	95.10	Soakpits	177.66581	Community soakpits: 396 223 villages have solid waste management arrangements 172 villages have liquid waste management arrangements	Most of the villages in the block have improper structures for grey-water management. Due to this, grey water goes directly into waterbodies or flows into open areas. The structures for grey-water treatment are blocked with solid waste which leads to overflow of water and becomes a breeding ground for mosquitoes. Of the surveyed villages, Manpur Ojha manages their grey water properly. The village had proper closed drains with silt chambers of the size 0.5 m x 0.5 m and depth of 0.3–0.45 m. The grey water from handpumps and washing and bathing goes to the soakpits and is also managed using kitchen gardens.
Saidnagar	228,317	5	Khaud, Nawabganj, Somali, Mursaina, Bahadurganj, Hakeemganj	91.33	Soakpits	89.94317	Community soakpits: 513 112 villages have solid-waste management arrangements 100 villages have liquid waste management arrangements	The structures are non-functional. Thus a mix of grey water, storm water and black water from households flows into the village drain. During the rainy season, grey water flowing in open areas becomes a hub for mosquito breeding.

Source: Compiled by CSE

* Data received from District Panchayati Raj Officer (DPRO); compiled by CSE

FACTSHEET

RAMPUR DISTRICT

Photo credit: Mehak Puri, CSE

Drains are blocked with solid waste, which makes them non-functional for grey water to flow through in Bhandpura village.

Photo credit: Ujjawal Chaurasia

The village pond in Raipur, Swar block is filled with algae and, with wastewater flowing directly into it, is contaminated with solid waste.

Photo credit: Mehak Puri, CSE

Grey water mixed with cattle urine and faeces flows in a drain, making it no longer just grey water in Dholsar village, Shahbad block.

Photo credit: Mehak Puri, CSE

Grey water is not managed properly, and the stagnant water breeds mosquitoes in Bhandpura in Chamrauwa block.

Photo credit: Ujjawal Chaurasia

Drains open directly into the village pond, causing them to overflow during the rainy season in Khaud village, Saidnagar block.

Photo credit: Ujjawal Chaurasia

Due to a lack of infrastructure for managing grey water, water enters agricultural fields untreated and flows directly into open spaces in Nawabganj village, Saidnagar block.