Source sustainability and greywater management in rural areas of Uttar Pradesh

Banda's challenge to sustain its drinking water sources

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Objective of the study

- Study the current status of rural drinking water supply systems in selected villages of Banda district
- Understand if the drinking water sources are sustainable, including groundwater- and surface-water–based systems
- Identify key challenges affecting long-term source availability and functionality.
- Analyse the role of community-level institutions particularly Village Water and Sanitation Committees—in planning, implementation, operation, and maintenance of rural water supply schemes
- Develop an **action agenda** aimed at strengthening source sustainability, improving community engagement, and enhancing the overall effectiveness of rural drinking water supply systems in diverse hydrogeological settings.

Criteria for selection of study area

State	District	Block	Village	Total HH	Population	HH Coverage	Rock Type	Har Ghar Jal status (Reported*/Certified**)	Type of water supply scheme (SVS/MVS)
Uttar Pradesh	Banda	Baberu	Samgara	815	5402	100%	Older Alluvium	Certified	SVS
			Jugrehlee	159	1011	100%	Older Alluvium	Certified	SVS
			Milathu	502	3237	100%	Older Alluvium	Certified	SVS
		Jaspura	Bhatha	127	811	100%	Newer Alluvium	Certified	MVS
			Jaspura	1406	8057	100%	Older Alluvium	Certified	SVS
			Gadariya	1549	9107	100%	Older Alluvium	Certified	SVS
			Lasada	290	1613	100%	Older Alluvium	Certified	SVS
		Badokhar Khurd	Lohara	133	691	100%	Older Alluvium	Certified	MVS
			Achharaund	609	3840	80.62%	Newer Alluvium		SVS
			Mohan Purwa	639	3684	85.92%	Newer Alluvium		SVS
			Jaurahi	547	3666	100%	Newer Alluvium	Certified	SVS
			Tindwara	2255	13773	100%	Newer Alluvium	Certified	SVS
			Bhawani Purwa	232	1395	100%	Newer Alluvium	Certified	SVS
		Naraini	Bahadurpur Kalinzar	706	3805	100%	Granite	Reported	SVS
			Sadha	1329	7550	100%	Granite		SVS

Source: JJM Dashboard, as viewed on September 10, 2025, and CGWB

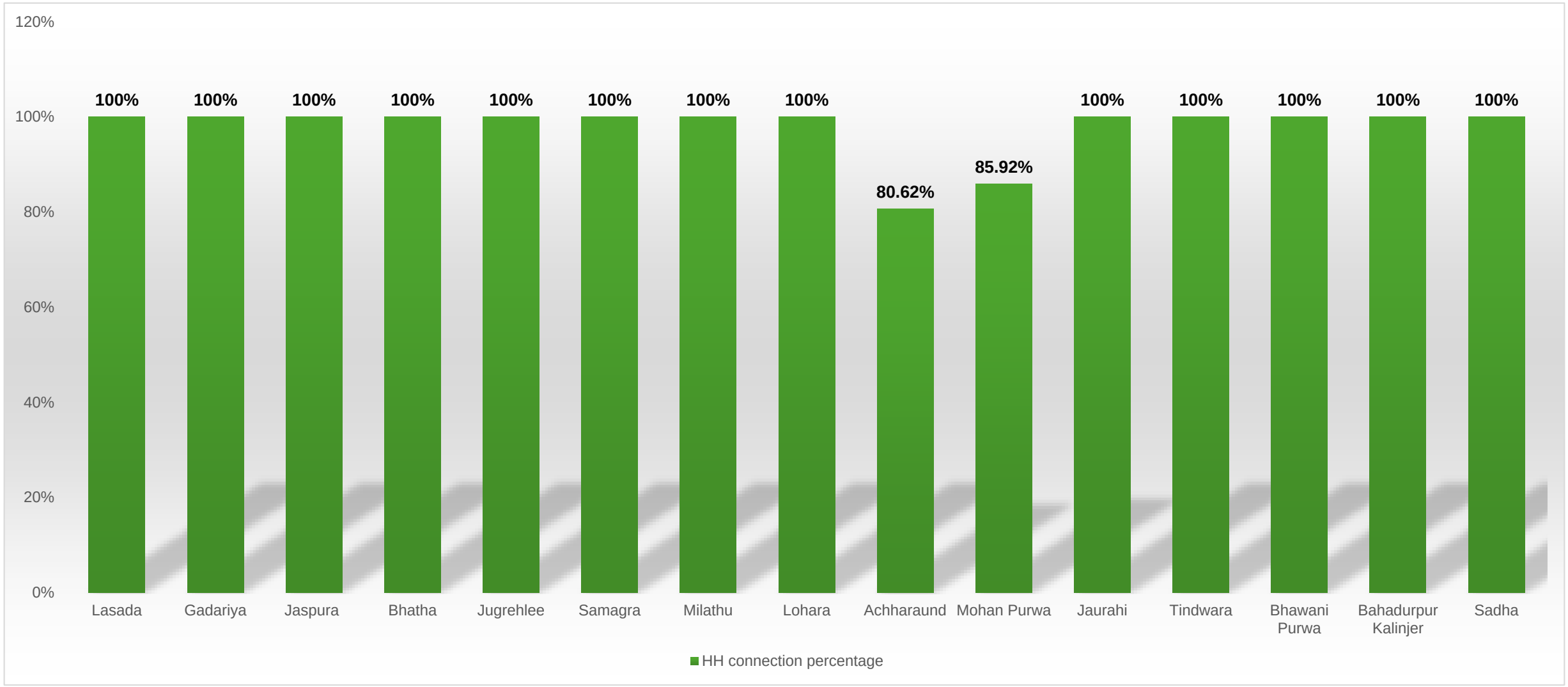
Coverage of study

Name of the district	Number of blocks covered	Number of Villages covered	No. of HHs covered	Number of population covered
Banda	4	15	308	1868

Selected villages for landscaping study

CSE sampled 15 villages in 4 blocks of Banda district. The villages were selected based on the topography/hydrogeology/population/JJM coverage

Status of Household Water Supply under Jal Jeevan Mission



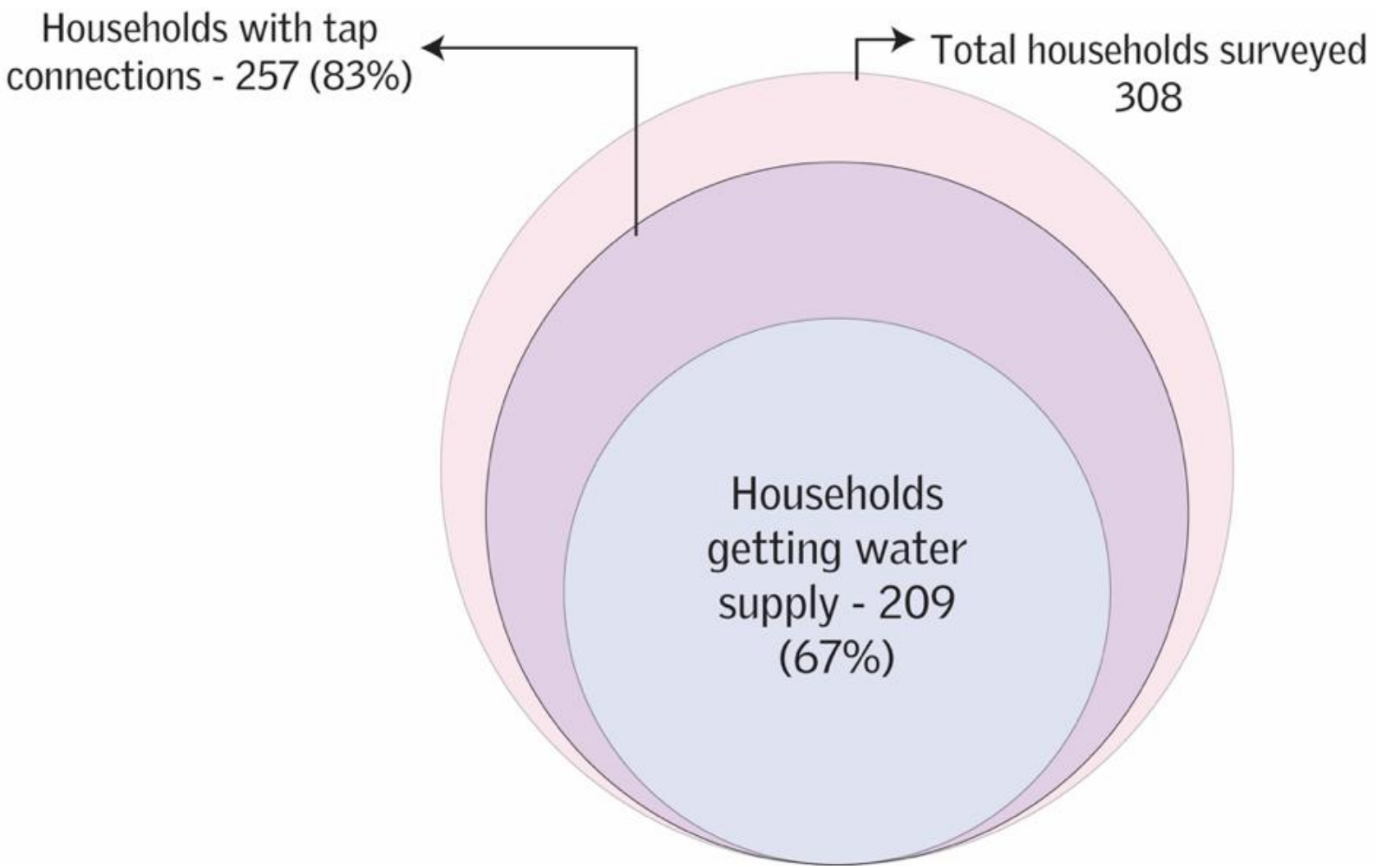
Source: JJM Dashboard, as viewed on September 10, 2025

Stage of groundwater extraction (%) in selected blocks

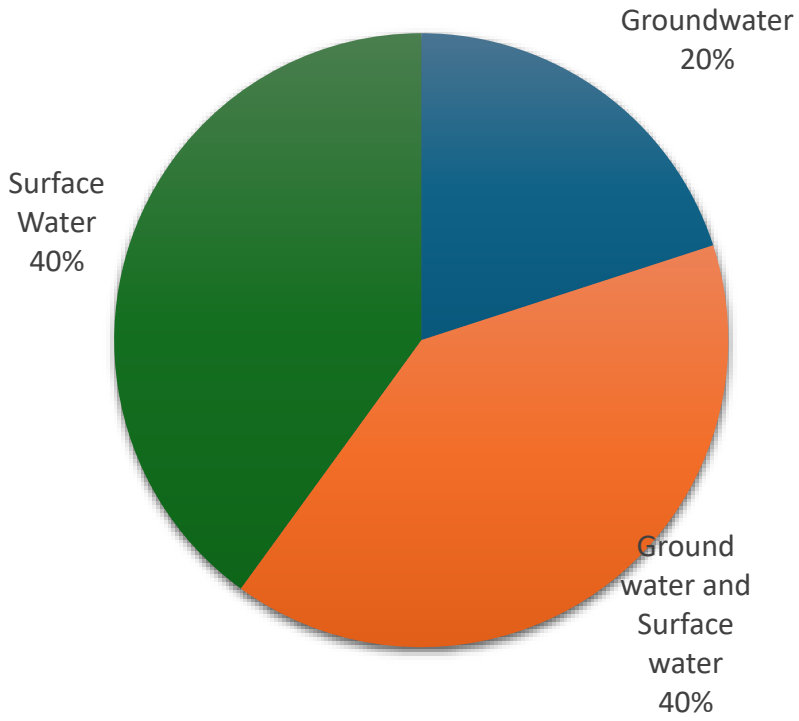
District	Block	Block	Stage of extraction (%)	Category
Uttar Pradesh	Banda	Jaspura	77.15	Semi critical
		Baberu	77.35	Semi critical
		Badokhar Khurd	63.74	Safe
		Naraini	71.86	Semi critical

Source: CGWB

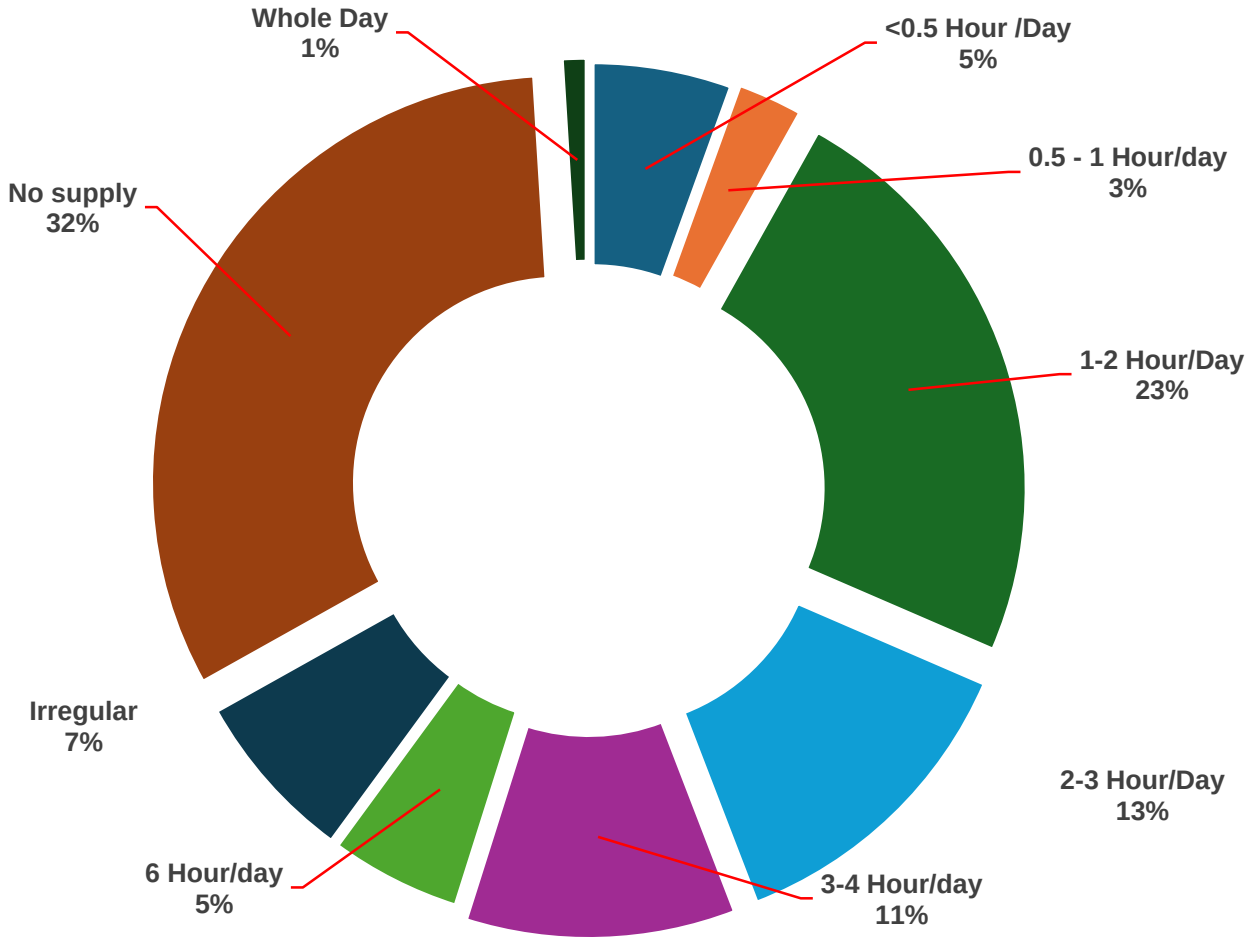
Gaps and Challenges in drinking water supply – from field survey



Source of water in surveyed villages



Situation of water supply in surveyed households

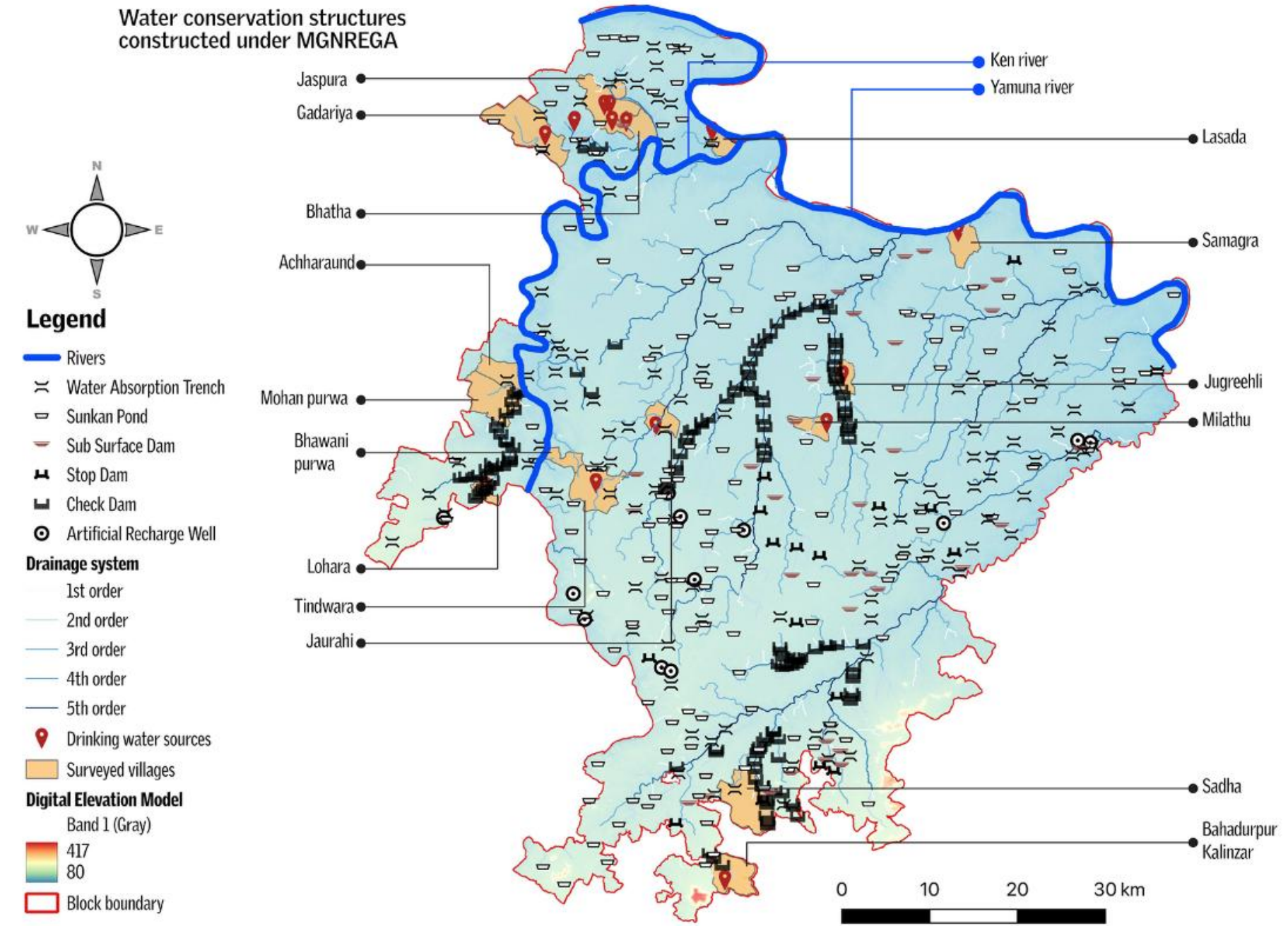


Gaps and Challenges in drinking water supply – from field survey

- 83 percent of 308 surveyed households have tap connections provided, but only 67 percent were functional
- 32 percent of surveyed households do not get household water supply – either due to infrastructure not yet available, or operational issues
- Households reported that supplied water is not sufficient to meet the household demands - Absence of mechanism to measure water received at household level
- Irregularity in household water supply (less than 0.5 hour to once in 4 days)
- Gap in planning for source sustainability – may create a future gap in household water supply
- 45% open wells, 28% handpumps and 36% of borewells have been abandoned so far in surveyed villages
- Gap in community participation in water supply, O&M and monitoring - No community meetings, VWSC struggles to understand its role
- Community contribution is not collected from the households – creating a sense of lack of ownership

Way Forward

- Identify the gaps in FHTC coverage – ensure every household gets FHTC
- Mechanism for quantifying the supplied water at household level – ensuring equity and justice in household water supply
- Source sustainability – identify and map the current and potential drinking water sources, and their sustainability must be planned – advanced tools like GIS can be used for scientific planning for source sustainability
- Strengthen the community institutions – There is a need to support the village institutions (VWSC/GP/SHG) towards building ownership for the water supply programme in their village
- Capacity building of community institutions towards O&M and monitoring – regular dialogues and trainings should be done to enhance their capacity and ensure participation
- Capacity building of officials on source sustainability – ensuring scientific interventions, convergence and fund flow for sustaining the water supply system


Water conservation structures constructed under MGNREGA
Jaspura
Gadariya
Bhatha
Achharaund
Mohan purwa
Bhawani purwa
Lohara
Tindwara
Jaurahi
Ken river
Yamuna river
Lasada
Samagra
Jugreehli
Milathu
Sadha
Bahadurpur Kalinzar
N
W
E
S
Legend
Rivers
Water Absorption Trench
Sunkan Pond
Sub Surface Dam
Stop Dam
Check Dam
Artificial Recharge Well
Drainage system
1st order
2nd order
3rd order
4th order
5th order
Drinking water sources
Surveyed villages
Digital Elevation Model
Band 1 (Gray)
417
80
Block boundary
0
10
20
30 km

Thank You