



AS WATER STRESSES INCREASE, RURAL WATER DEVELOPMENT REQUIRES MORE COORDINATION ACROSS WATER USE SECTORS

Lessons from India's Jal Jeevan Mission

SUMMARY

In 2019, the Government of India launched the ambitious Jal Jeevan Mission (JJM) to bring functional tap connections to every rural household in the country by 2024. Extending piped supplies to India's estimated 194 million households will increase water demand in water-scarce areas and increase graywater discharge in unsewered rural settlements. The JJM specifies Annual Action Planning methods for village, district, and state governments to guide local, state, and federal drinking water investments. USAID's [REAL-Water project](#) assessed these approaches at the national level and in four states: Bihar, Karnataka, Maharashtra, and Sikkim. Despite standardized JJM planning formats, each state has distinctive water institutions, capacities, gaps, and opportunities for multi-sector collaboration that shape drinking water service sustainability. The states have promising initiatives, such as scientific agencies for groundwater mapping and monitoring, and water resources management and conservation programs. However, no state has focused on coordination with other water use sectors for the long-term functionality of rural drinking water systems. The states need additional planning efforts to monitor and improve the functionality of rural water systems, and to increase coordination across sectors at each level of governance. To ensure the legacy of JJM investments, planning efforts should address expanding agricultural, industrial, and environmental water demands and rapidly changing socioeconomic and climatic conditions.

WHY DOES THIS MATTER?

U.N. Sustainable Development Goal (SDG) 6 strives to "ensure availability and sustainable management of water and sanitation for all by 2030." Set within this global context, India's Jal Jeevan Mission (JJM) constitutes an unprecedented societal and financial commitment to provide functional tap connections for every household in the country by 2024. However, the massive scale and rapid pace of program implementation includes risks for the sustainability of drinking water services and for the cost-effectiveness of public expenditures, particularly in the face of climate change. Sustainability concerns range from water sources to infrastructure assets, service levels, finances, and institutional governance (USAID 2020). Our analysis of the strengths and weaknesses of JJM's annual planning efforts shows that the agencies responsible for water resources management, water services, and agriculture vary between states and do not coordinate water management activities to the degrees necessary to ensure JJM's sustainability. These findings provide important lessons for all governments and organizations investing in rural water development.

WHAT CAN YOU DO ABOUT IT?

1

Scale up tap and piped water functionality assessments and adapt annual action planning to address sustainability issues. JJM's 2022

functionality assessments mark an important advance from documenting tap coverage to evaluating key water service variables. These assessments provide feedback on the effectiveness of drinking water interventions. However, the JJM should add additional source sustainability and financial management variables to future functionality assessments. Source sustainability variables will help identify and prioritize areas for multi-sector water resources management. While most districts in each state have received some attention (~19 villages per district), larger sample sizes are necessary to support functionality plans for districts that have hundreds to a thousand villages. In addition to current third-party sampling, the three levels of local *Panchayati Raj* governments could help scale up functionality assessments to diagnose and address sustainability issues directly in their annual and medium-term plans. Future Annual Action Plans should incorporate growing JJM expertise in specific sustainability topics (e.g., construction quality, operations and maintenance, operator skills, sensor data, and community training).

2

Strengthen the links between rural drinking water planning and multi-sector water resources management in annual and medium-term planning.

Rural drinking water authorities cannot expect to sustain water supply sources in isolation from larger water use sectors. We identified several state-specific opportunities for convergence between rural drinking water planning and other water use sectors, and there are no doubt others. For example, the national *Atal Bhujal Yojana* program supports community-based aquifer management that could extend to more states. Bihar's *Jal Jeevan Hariyali* supports water harvesting and conservation programs that the state's rural water supply planning could incorporate (Down to Earth 2021). Sikkim has developed spring-based water management innovations in remote and hilly areas that will improve the sustainability of drinking water supplies and that may have relevance for comparable areas in other states. The Maharashtra Ground Water Surveys and Development Agency and Maharashtra Remote Sensing Applications Centre have developed multiple scales of groundwater potential and water asset mapping. Karnataka, likewise, has an expanding Remote Sensing Applications Centre, which could help state and district water agencies develop GIS capabilities to model and visualize multi-sector water planning issues and opportunities. Integrating these types of multi-sectoral approaches in national, state, and local action plans will

How does this research connect to USAID's Global Water Strategy Action Research Initiative?

Research on water planning methods, performance, and gaps addresses USAID's Global Water Strategic Objective 1, which aims to strengthen sector governance, financing, institutions, and markets. Strong planning and practices are vital for strengthening regulatory frameworks and institutional capacity at all levels of governance.

India's Jal Jeevan Mission strives to provide functional tap connections for all households by 2024. Sustainability of these piped water supplies and tap connections depends upon sound planning of regional water resources, infrastructure assets, and water services, which will depend in turn upon stronger sector governance, finance, and institutions.

This Action Research Initiative study highlights opportunities for strengthening coordination with water resources management at national, state, and local levels, scaling up tap functionality assessment, and emphasizing medium-term planning (5-15 years).

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improve the likelihood of widespread and sustainable gains in drinking water services in rural India. This multi-sector goal will require greater emphasis on medium-term plans (5 to 15 years) at all levels.

WHAT DOES THE EVIDENCE SAY?



#1 The JJM would benefit from long-term planning that brings together national-level agricultural development and universal drinking water priorities.



#2 State conditions vary, which requires state-specific approaches; but, in general, source sustainability is not a priority and understudied.



#3 Local-level *Panchayati Raj* (gram panchayats; blocks; and districts) government bodies lack the capacities needed to support the pace of JJM implementation.

Nationally, The JJM Annual Action Planning framework is well documented in online guidelines, administrative documents, technical reports, dashboards, and the Mission’s integrated management information system (Government of India 2019, 2023, 2024). These regularly updated government resources report that tap water coverage increased from 16.6% in 2019 to 71.9% in December 2023 (JJM dashboard). A 2022 third-party evaluation found that 86% of households had taps, but only 62% of the households with taps met the water service and water quality standards needed to be “fully functional” (Kantar Public 2022). The independent evaluation indicates that the installation of household tap connections does not guarantee sustainable water services.

Several national programs strive to link rural drinking water planning with water resources management in related water use sectors that draw upon shared groundwater resources (esp. irrigation agriculture). The Government of India launched the national *Atal Bhujal Yojana* (Sustainable Groundwater Plan) in 2019 to support community-based groundwater management and participatory water budgeting by 2025. This effort to promote sustainable aquifer water management currently extends to seven of India’s 36 states and union territories, which have prepared Water Security Plans and supporting programs that point toward an improved rate of decline of groundwater levels in 4% to 44% (average 21%) of state target blocks (Atal Jal dashboard 2024; cf. Kumar 2023).

As another step toward multi-sector water planning, the Government of India integrated the national Department of Drinking Water and Sanitation within a single overarching Jal Shakti Water Ministry in 2019. At present, however, the different sectors (e.g., drinking water, irrigation) continue to develop independent plans, especially in the fast-paced implementation context of the JJM. As a result, there is a need for greater coordination. The fast-paced JJM schedule has also led government agencies to commission numerous consultants, known as Implementation Support Agencies and Key Resource Centers, with varying capacities, to complete JJM’s pre-specified formats for preparing Annual Village Action Plans, District Action Plans, and State Action Plans. “Planning” at each of these levels focuses on meeting the Mission’s physical tap coverage, financial expenditure goals, and socio-economic outcomes (Government of India 2024, India Water Portal 2023a, Jacob et al. 2023). Although these plans recognize the major sustainability components discussed above and include some provisions to address them, the annual project planning cycle does not allow enough time for longer-term multi-sector coordination. In an earlier situation of this nature, the Government of India’s fast-track Swachh Bharat Mission for sanitation (2014-2019) created a five-year follow-up program to sustain open defecation reduction, and to advance the related goals of solid and liquid waste management. JJM would benefit from a similar approach of medium-term planning and investment, with increasing emphasis on multi-sector coordination to ensure sustained gains in drinking water access and functionality.



State level planning institutions vary, as water is constitutionally a state subject in federal countries like India. Stakeholders in Bihar, Karnataka, Maharashtra, and Sikkim identified important differences in the institutional setup of drinking water departments: some have stand-alone units, others belong to broader rural development agencies (Bihar and Karnataka). Integration of drinking water departments with state water resources departments responsible for irrigation, river basin, and multi-sector planning does not currently exist. States also vary in their water resources contexts. Maharashtra and Karnataka have complex hard rock aquifers and drought-prone regions, Bihar has alluvial aquifers, and Sikkim relies upon mountain springs. Some states (e.g., Karnataka) have areas where groundwater

pumping is classified as critical (90-100% of recharge) or overexploited (>100% above recharge), driven by a lack of groundwater regulation and subsidized energy costs for pumping (Srinivasan et al. 2023). Some states have strong scientific agencies for groundwater mapping and management, such as Maharashtra's Ground Water Surveys and Development Agency. Some states focus on single-village schemes; others are developing larger multi-village schemes.

Efforts to strengthen water planning across sectors will need to consider these state-specific conditions, and incorporate lessons learned from existing state-specific water resources management programs--such as the *Jal Jeevan Hariyali* in Bihar, *Jal Yukhta Shivar* and successor conservation programs in Maharashtra, and *Atal Bhujal Yojana* and Gokarna multi-village scheme in Karnataka (Government of India 2019, India Water Portal 2023b, Kumar 2023).

Interviews with state-level stakeholders identified gaps in all four states between the nationally prescribed Annual Action Planning methods and actual stakeholder perceptions. Gaps include a lack of clarity about the planning process, uneven commitment to community engagement in plan preparation, and variable rigor in groundwater source sustainability analysis. Although formal planning guidelines mention source sustainability, that did not emerge as a high priority in stakeholder discussions. Domain experts noted the limited scientific quantification of recharge measures needed for source sustainability, which future Annual Action Plans should make explicit.

Local-level Panchayati Raj institutions include villages also known as *gram panchayats*; *blocks* that encompass tens to hundreds of villages; and *districts* that oversee tens of blocks and thus hundreds to thousands of villages. These local levels of government implement rural drinking water and sanitation programs, but they have limited planning capacity (e.g., for social research, statistical analysis, strategic planning, or GIS visualization), especially for complex multi-village schemes that require coordination among sectors (Wescoat and Murty 2021). The rapid implementation mode of "missions" such as JJM outpaces comprehensive planning at village, block, and district levels. Inputs from Implementation Support Agencies hired to help prepare village plans are uneven and likely unsustainable after JJM finishes. Block and district staff have limited capacity to identify innovative alternatives, analyze and visualize planning issues with GIS mapping, and prioritize villages systematically for different types of investment and support. Strengthening these local institutional capacities lays a foundation for coordinated planning across water use sectors.

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Where to learn more: REAL-Water India. 2023. *Synthesis Report: [State of Planning in the Rural Drinking Water Sector in India](#)*

Contact information:

Ranjiv Khush, REAL-Water Project Director – ranjiv@aquaya.org;

Jeff Albert, REAL Water Deputy Project Director – jeff@aquaya.org

