

Digital Federalism and Service Delivery

Governance Transformations in India's Rural Water Sector

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Executive Summary

The Jal Jeevan Mission MIS has significantly advanced digital governance in rural drinking water by moving monitoring to the household level, integrating financial and institutional data, and creating uniform reporting across states. To fully realise its potential, the system should reinstate sustainability metrics such as slip-back tracking, conduct more frequent functionality assessments, and integrate socio-economic indicators for equitable service delivery. Governance improvements include balancing central oversight with flexibility for local adaptation, linking data to timely corrective action, and using capacity-building information to target support where needed. Strengthening Gram Panchayat-level data literacy can further transform the MIS from a compliance tool into an active resource for local decision-making, ensuring long-term reliability, equity, and transparency in rural water services.

Introduction

Digital technologies have become an integral part of governance worldwide, shifting public administration from paper-based, periodic reporting to near real-time, data-driven monitoring. Governments increasingly recognise that digitisation is not merely a technical upgrade but a structural transformation with the potential to enhance transparency, responsiveness, and efficiency. The United Nations Development Programme (UNDP, 2023) has framed such developments as the creation of “digital public goods and infrastructure”, emphasising their role in expanding access to information and improving development outcomes.

In India, successive flagship programmes have embedded digital systems at their core. Platforms such as Aadhaar-enabled service delivery and the dashboards for the Swachh Bharat Mission, Atal Bhujal Yojana, Pradhan Mantri Krishi Sinchai Yojana and Jal Jeevan Mission (JJM) reflect this strategic emphasis. The JJM, launched in 2019, is the largest rural drinking water (RDW) supply programme in the world, with the goal of providing Functional Household Tap Connections (FHTCs) to all rural households by 2024. Its design places monitoring at the centre, relying on a centralised database updated daily by states.

The RDW sector has historically struggled with monitoring challenges such as self-reported data, inconsistent sampling, variable quality and insufficient frequency, all of which undermine sustainability (Wescoast Jr. et al., 2016). While earlier monitoring systems, such as the National Rural Drinking Water Programme (NRDWP) Management Information System (MIS), provided coverage data at the habitation level,

they fell short in enabling socio-economic analysis or robust post-implementation evaluation. *This brief examines how far the JJM MIS addresses these limitations and what its implications are for governance.*

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This is the first in a four-part policy brief (PB) series prepared for the DST Centre for Policy Research (DST CPR) on Digital Governance at the Ashank Desai Centre for Policy Studies, (ADCPS). The series focuses on data-driven policy research on Digital Governance in the Rural Water Sector in India, with particular emphasis on the implementation of JJM. PB1 examines how the JJM database can serve as an effective tool for water governance in India. PB2 builds on this by outlining a framework for using the database as a decision support tool. PB3 extends the research through a case study in Maharashtra, documenting the data management process at various administrative levels. PB4 addresses the critical challenge of source sustainability in Maharashtra and offers key policy insights for strengthening JJM.

Governance and Monitoring in the RDW Sector

Water governance in India operates within a federal structure where water is a state subject, often delegated to panchayats as per the Eleventh Schedule of the Constitution. While the

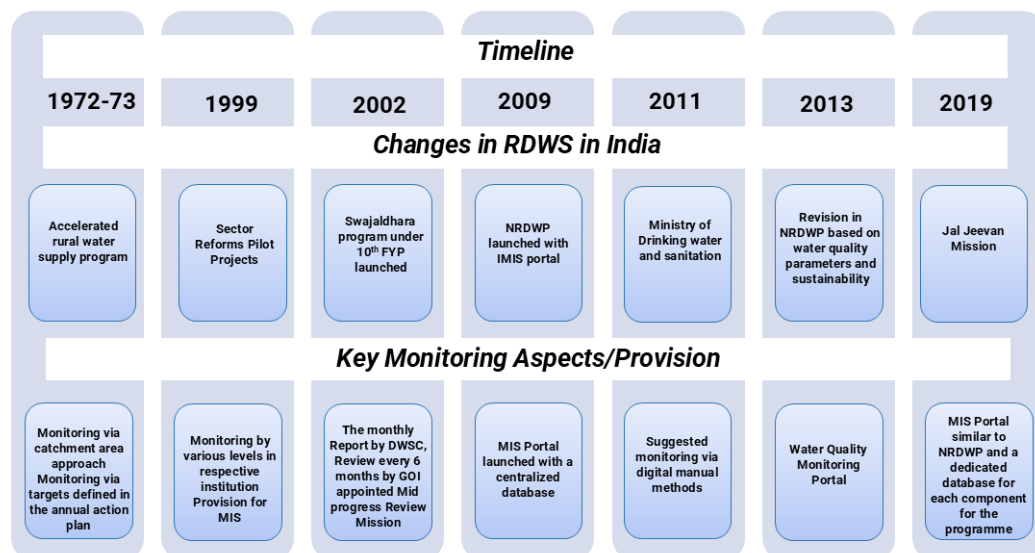


Figure 1: A Timeline of RDW Programmes in India

central government can issue guidelines and provide financial, technical and institutional assistance, states maintain autonomy in implementation (Sangameswaran, 2010). This leads to diverse governance models ranging from community-based management to public utilities and local self-government (World Bank, 2017; Hutchings et al., 2016).

(CPHEEO) and Public Health Engineering Departments (PHEDs) emerged. The Accelerated Rural Water Supply Programme (ARWSP) of 1972-73 was followed by numerous missions and special projects, culminating in the NRDWP in 2009. Although monitoring provisions existed, they focused largely on implementation milestones rather than post-implementation per-

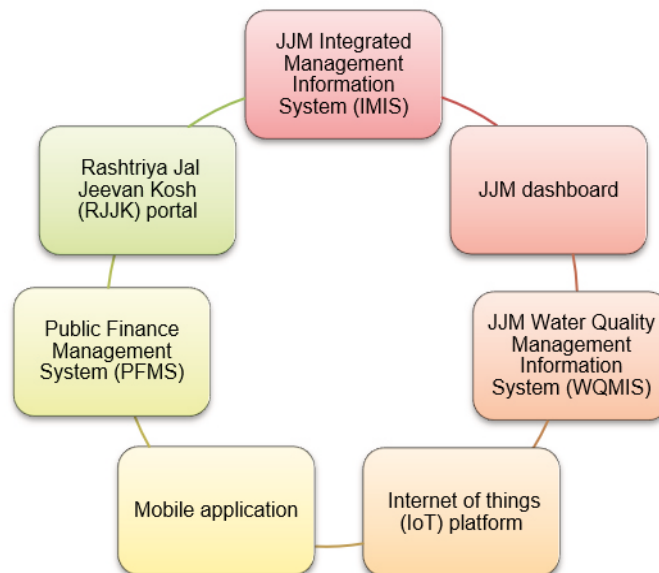


Figure 2: Digital Platforms Under JJM

Historically, RDW programmes were embedded within the Five-Year Plans and initially aimed to reduce health risks from unimproved water sources. Over time, programme guidelines became more sophisticated, and specialised agencies such as the Central Public Health and Environmental Engineering Organisation

formance. The omission of regular functionality tracking meant that service sustainability often went unaddressed until the next major investment cycle.

The JJM was conceived in this context, offering a unified platform for reporting, integrated finan-

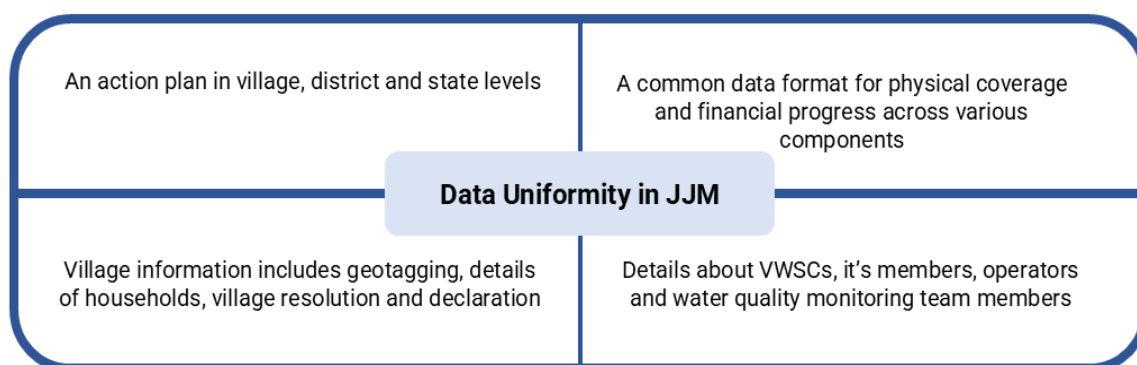


Figure 3: Data Uniformity in JJM

cial tracking and expanded datasets that could address both implementation and functionality monitoring. Since 2019, the Government of India has made financial allocations across multiple fronts, including design and implementation, source sustainability, creation of digital infrastructure for monitoring and tracking the mission, water quality monitoring, capacity building, skill development, and timely inspections by experts. The JJM Database facilitates a more in-depth examination of each of these components. State governments are responsible for allocating funds proportionate to the central allocation and implementing the mission in line with their specific contexts. The dashboard developed by the Centre serves as a support tool to promote uniformity among states in implementing these components, a feature that was missing in the NRDWP (CAG, 2018). Comparing the MIS systems of the NRDWP and JJM would offer a more nuanced understanding of the progress achieved by the Centre in this regard.

From NRDWP MIS to JJM MIS: Comparative Analysis

The JJM MIS builds on the NRDWP's architecture but expands its scope considerably. It incorporates household-level data, parameters on capacity building, fund utilisation, institutional arrangements and village-level governance. Eight digital platforms support the mission, of which the JJM IMIS, Dashboard and Water Quality Management Information System (WQMIS) are the most critical for governance. All states are required to report using uniform parameters, enabling cross-state comparison and national-level oversight.

However, several important governance indicators present in the NRDWP MIS are missing. Most notably, "slip-back" data, which identified

habitations losing coverage, is absent. This is a significant gap, as it limits the ability to monitor sustainability and address service deterioration in real time. Functionality reporting occurs annually rather than continuously, which reduces the scope for timely corrective measures.

This comparison shows that JJM MIS offers richer, more granular data but also narrows certain dimensions, particularly in sustainability tracking. It is, therefore, a technological leap with governance trade-offs.

Opportunities and Risks in JJM's Digital Governance

The JJM MIS has opened significant opportunities for transparency and evidence-based decision-making. Publicly accessible dashboards allow citizens and civil society to track progress, while uniform reporting across states enables benchmarking and targeted interventions. Integrating water quality, quantity, and financial data could facilitate predictive maintenance and resource allocation.

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Yet risks remain. The absence of slip-back and continuous functionality monitoring constrains the ability to ensure long-term reliability. Capacity-building data, though collected, is underused in decision-making. Centralised

Table 1: Comparison of the Two Systems and their Governance Implications

Key Parameter	NRDWP MIS	JJM MIS	Governance Implications
Source	Provides source information at national and scheme level	Same as NRDWP MIS	No expansion; opportunity to add source sustainability tracking
Physical Progress	Data at habitation level including type of supply	Household, habitation, village and panchayat levels; FHTC coverage focus	Enables micro-level targeting; shifts focus to household service
Financial Progress	Annual data on allocated, released and utilised funds	Detailed, component-wise financial tracking including O&M and capacity building	Strengthens financial transparency; allows linkage to service outcomes
VWSCs	No data	Detailed membership, contacts, governance documents	Improves local accountability and institutional assessment
Year-wise coverage status	Includes slip-back data	Only FHTC coverage; no slip-back or non-functionality data	Weakens sustainability monitoring
O&M Issues	No data	Operator and VWSC member details	Improves accountability but lacks technical performance indicators
Tap connection status	Village/habitation-level numbers	Household-level details	Potential for equity analysis; needs socio-economic integration
Community contribution	Mandated but no reporting	Voluntary, sporadically reported	Limited incentive for community ownership

Source: Authors

standardisation, while useful for comparability, can mask state-specific challenges and inhibit locally tailored innovations.

Key Policy Insights

1. Datafication and Governance Shifts

The JJM MIS illustrates how digitisation can reconfigure centre–state relationships in a federal system. By standardising reporting formats and linking them to funding conditionalities, the central government gains stronger oversight over state-level implementation.

2. Principal–Agent Dynamics

The MIS reduces information asymmetry between the central government (principal) and states/panchayats (agents), but it also concen-

trates control at the centre. Although centralisation can enhance performance monitoring, it may discourage locally adapted solutions if not balanced with flexibility.

3. Accountability Frameworks

The MIS strengthens *answerability* (through transparency and public dashboards) but is weaker on *enforceability* (ensuring that poor functionality or sustainability performance leads to corrective action). A more balanced accountability framework would align data collection with responsive governance measures.

4. Implementation vs Sustainability Bias

The strong focus on infrastructure expansion in the MIS reflects a broader policy bias towards tangible outputs over long-term outcomes.

Without integrating sustainability indicators, there is a risk of repeating past cycles of service deterioration.

5. Equity Blind Spots in Digital Systems

Household-level data offers a technical possibility for disaggregating by socio-economic group, but without explicit policy integration, equity considerations remain peripheral. This gap underscores the need for deliberate policy design to ensure inclusive service delivery.

Way Forward

The Jal Jeevan Mission MIS represents a major step forward in India's digital governance for rural drinking water, moving monitoring from habitation to the household level, integrating financial and capacity-building data, and creating uniform reporting across states. Its accessible dashboards and core platforms, such as IMIS, Dashboard, and WQMIS, have the potential to make governance more transparent, data-informed, and responsive.

“By combining robust monitoring with adaptive, inclusive governance practices, the JJM MIS can evolve from a reporting platform into a living governance system capable of sustaining reliable, equitable, and transparent rural water services while bridging the gap between central oversight and local action.”

To realise this potential, improvements must address both technical gaps and governance dimensions. Reinstating sustainability metrics such as slip-back tracking, along with more frequent functionality assessments, will strengthen the system's ability to safeguard long-term service reliability. Integrating socio-economic indicators into household-level datasets can enable targeted interventions for equity, ensuring that coverage gains are also socially inclusive.

These enhancements should be framed within a balanced governance approach. Standardisation and central oversight, while valuable for comparability and accountability, should be

complemented with the flexibility for states and local bodies to adapt data use to their specific contexts. Linking data more explicitly to responsive governance mechanisms can ensure that identified functionality or sustainability issues translate into timely corrective action.

Finally, investing in Gram Panchayat-level data literacy will allow local institutions to use the MIS as a management resource rather than solely a compliance tool. By combining robust monitoring with adaptive, inclusive governance practices, the JJM MIS can evolve **from a reporting platform into a living governance system** capable of sustaining reliable, equitable, and transparent rural water services while bridging the gap between central oversight and local action.

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