

September 2024

JAL JEEVAN MISSION

TRANSFORMING RURAL WATER ACCESS





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We have no known conflict of
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ABSTRACT

Clean and adequate drinking water supply plays a key role in ensuring public health and wellness. Access to potable water is directly linked to reduced transmission of waterborne diseases and has a positive impact on a nation's economy through poverty reduction and enhanced workforce productivity. Ensured access to safe drinking water has long been a challenge in India. Conscious of this reality and its implications for India's growth and prosperity, the Government of India launched the Jal Jeevan Mission (JJM) in 2019. This paper aims to examine the approach adopted by the Mission to reach the last mile, its effectiveness, and the impact it has generated on the ground.

The findings of this paper indicate that the JJM has significantly expanded access to tap water connections, now reaching over 78% of rural households in a short span of time. This expansion offers multiple benefits for India's rural population, ranging from better health and education outcomes to improved social status and new employment opportunities.






JAL JEEVAN MISSION: TRANSFORMING RURAL WATER ACCESS

In the past 77 years of independence, the idea of India and its development has undergone profound shifts. Starting as a fragile economy in 1947, the country, under Prime Minister Jawaharlal Nehru, embraced socialism, with five-year plans as a supposed panacea for its economic challenges. This changed in the 1990s when we transitioned to a liberalised economy, open to private expansion and foreign investment.

However, we couldn't put a social security net that could have acted as a safeguard for the poor and lower middle-income communities. Our GDP growth was sub-optimal and much of India remained backward and poor. The trickle-down effect remained an illusion.

Eradicating poverty remained an election trope, driven by political idealism but showing little promise in actual performance. Even up until the last decade, large parts of rural India were still without basic amenities, such as electricity, toilets, and clean water.

India has surpassed France to become the 5th largest economy and there is a clear alignment between India's economic pursuits and its social development. The economic growth is complemented by significant improvements in the ease of living for Indians, transcending regional disparities. India has achieved 100% rural electrification and significant accomplishments in sanitation within the framework of Swachh Bharat Mission. The Jal Jeevan Mission is ensuring access to clean water to every household, empowering women, improving health indicators, and bringing socio-economic equality. As India aims to become a developed nation (Viksit Bharat by 2047), JJM will play a crucial role.






HISTORICAL CONTEXT


Accelerated Rural Water Supply Programme (ARWSP) was the first-ever rural drinking water initiative in India, launched in 1972. The aim was to assist states and UTs in provisioning of safe and potable drinking water to rural habitations on a long-term basis.

In order to ensure that the program was informed by scientific and technical inputs, it was taken up on a mission mode and re-launched as National Drinking Water Mission in 1986, further renamed as Rajiv Gandhi National Drinking Water Mission in 1991.

It aimed coverage of all rural habitations during the 8th plan period (1992-97). However, this could not be achieved and the program was restructured in 1999.

Performance of ARWSP:

- Even after spending over Rs. 32,000 crore (including MNP) on these programs since the First Five Year Plan, over 20,000 habitations still had no access to any water source, and 1.55 lakh habitations remained only partially covered by March 2001.
 - 2,371 schemes were abandoned midway in 19 states, after spending nearly Rs. 200 crore—due to use of funds without proper planning and scientific identification of water sources.
 - Failure of water quality testing laboratories in 11 states undermined the goal of delivering safe drinking water.
 - 18 states reported a rise in water-borne diseases such as jaundice, gastroenteritis, diarrhea, cholera, and typhoid.
 - Water treatment plants, installed at a cost of Rs 16 crore to control fluorosis, excess iron and salinity were non-functional in 9 States.
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- The goal of institutionalising community participation was largely unmet, with only Rs. 6 crore spent out of the Rs. 473 crore allocated for 58 pilot projects.
 - Inadequate maintenance of water sources resulted in failure of 3.85 lakh of the 37.57 lakh hand pumps installed.
 - Poor funds management led to large amounts being diverted or retained in deposits, apart from expenditure being incurred in excess over approved norms.
 - Key aspects of the program, including Human Resource Development and Information Education and Communication, failed to raise awareness about safe drinking water and train local populations in 19 states.
 - Insufficient and ineffective monitoring of the program at both the Ministry and State levels led to its extension from the 8th to the 9th Five Year Plan, casting doubt on whether the goal of providing potable drinking water to all villages by 2004 would be met.

National Rural Drinking Water Programme (NRDWP) was launched in 2009 by modifying ARWSP and subsuming earlier schemes.

The overarching objective remained the same—providing safe and adequate water for domestic needs to every rural person on a sustainable basis with a particular focus on improving water quality through measures like arsenic and fluoride removal.

Despite several upgrades and revisions, only 3.23 crore (17%) of rural households had tap water connections at the launch of the Jal Jeevan Mission in 2019. This indicates the abysmal failure of rural drinking water schemes implemented in over 45 years before the Mission came into being.

This context sets the stage for the Jal Jeevan Mission, which was designed to address these historical shortcomings and bring a paradigm shift in how drinking water is provided to rural India.






METHODOLOGY

This research paper employs an analytical and empirical approach to assess the performance of the Jal Jeevan Mission (JJM). The primary data sources are official government reports and the JJM dashboard, which provide a comprehensive view of the mission's implementation progress and impact. Secondary sources include news articles and reports that highlight success stories and the broader societal impact of JJM. These sources help develop a strategic understanding of the mission's effectiveness in delivering potable water to households across India.

To ensure accuracy, the study cross-references data from multiple sources and focusses on commonly reported trends and outcomes. This methodology is chosen as it provides a balanced view of the program's performance and its on-ground implications.





RESEARCH FINDINGS AND DISCUSSION

A Revolutionary Reform

The Mission was launched on August 15, 2019 with the ambitious goal of providing every rural household with functional tap water connections, ensuring an adequate quantity and quality of water on a regular and long-term basis by 2024.

It aims to cover over 19 crore rural households ensuring that no one is left behind. This vision extends beyond mere infrastructure development; it seeks to bring a holistic transformation in water accessibility, water quality, and water resource management.

The Mission is key in achieving UN Sustainable Development Goal 6: Clean Water and Sanitation.


Key Components:

Functional Household Tap Connection (FHTC): From Habitations to Households

The cornerstone of the Jal Jeevan Mission is the provision of a Functional Household Tap Connection (FHTC) to every rural household. Each connection is designed to supply 55 liters of potable water per person per day, which is sufficient to meet the basic household needs, such as drinking, cooking, and sanitation.

In a break from past programs, JJM focusses on individual household connections instead of habitation level water supply via hand pumps, public standposts, etc.

The pivot has shifted from mere creation of infrastructure to assured supply of clean and adequate water with focus on service delivery and functionality.





The Ladakh Wonder

The Union Territory of Ladakh is characterised by unique and challenging geography, comprising remote and rugged terrain, high plains, and extreme weather conditions.


Located at an elevation of over 3,000 meters above sea level, the region faces a significant challenge of water scarcity during winters. The temperature can reach below minus 30 degrees, often leading to frozen pipes that disrupt water supply to a large portion of the population.


However, the Jal Jeevan Mission has transformed this situation completely.

Ladakh's Stok village is a powerful example to show how the government, with the right intent, can successfully improve people's lives, and that too in a short span of time.

A multidisciplinary team started work in Stok village in November 2020. The team engaged with the local community, including the Gram Panchayat, Village Water & Sanitation Committee, and the Public Health Engineering Department. After taking into consideration multiple factors such as geography of the village, availability of surface and groundwater, the team decided to implement the 'infiltration gallery' technique to ensure continuous supply of water.

The infiltration gallery technique harnesses sub-surface water that remains unfrozen beneath the ice. This water is filtered to remove impurities, heated using solar power, and then stored in an overhead tank. To prevent freezing, the water is supplied at an appropriate temperature on a predefined schedule. Additionally, pipes are buried three to four feet underground to protect them from freezing and bursting, and insulated pipes are used to slow down the cooling process.






With Stok receiving a stable water supply even during harsh winters, 95% of households in Ladakh now enjoy reliable access to tap water. This is in stark contrast to only 30% coverage for the entire state of Jammu and Kashmir before the Mission was introduced in 2019.

Since its inception, nearly 12 crore households have been provided tap water connections across the country—amounting to a coverage of 74% of the households. The overall tap water coverage in India stands at 78%.

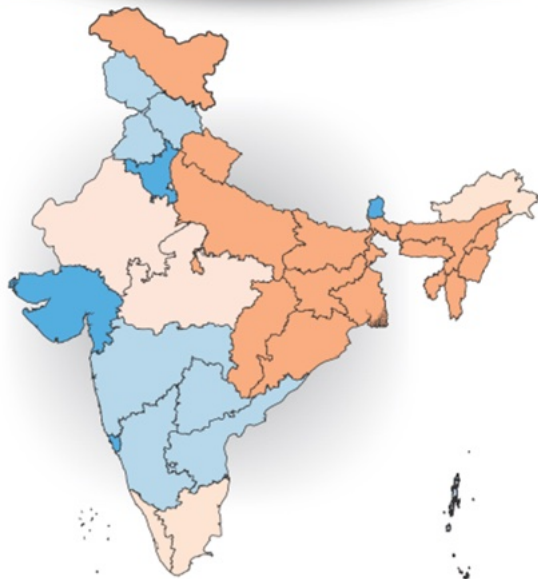
Interestingly, before the JJM, states like Bihar, Assam, Meghalaya, and West Bengal had tap water coverage of less than 2%.

Today over 10 states boast 100% coverage while 5 states have coverage over 90%.

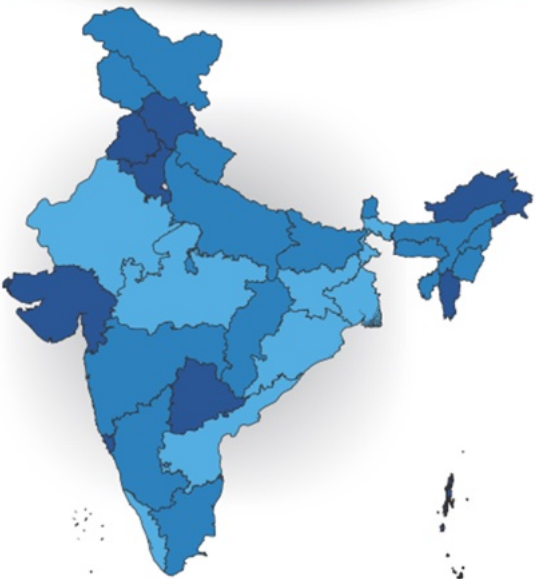
The coverage in Aspirational Districts has also increased dramatically. Before the Mission, only 24.58 lakh (7%) households in Aspirational Districts had access to tap water. However, in less than two years of JJM's implementation, an additional 84 lakh households received tap water connections—a four-fold jump from 7% to 31%. This represents a significant 24% increase in coverage within Aspirational Districts, surpassing the national growth rate of 22.72% over the same period.



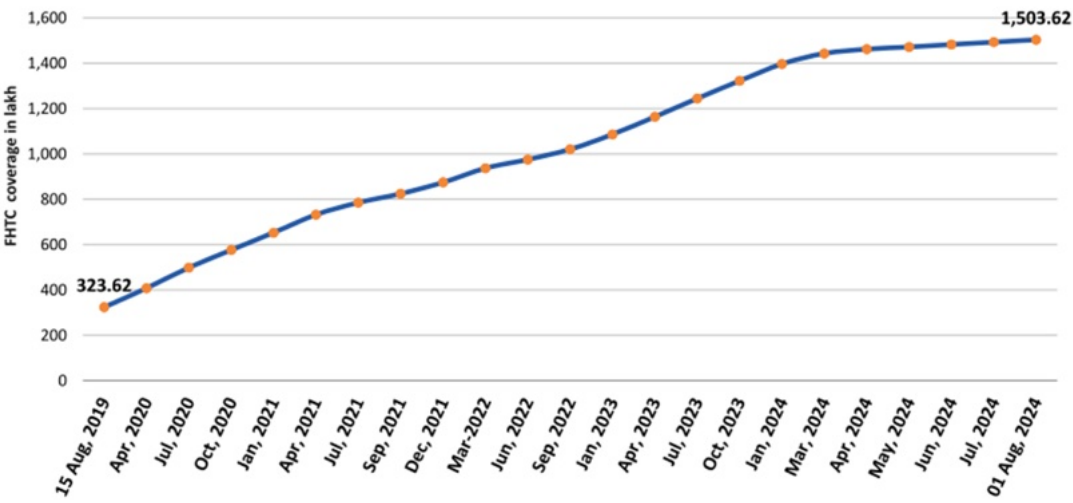
As on 15th August, 2019



As on 31st July, 2024



Progressive coverage - Functional Household Tap Connection (FHTC) (as on 31.07.2024)





Not Just Quantity, But Also Quality

Apart from ensuring a stable water supply, the Jal Jeevan Mission equally focuses on the quality of water supplied, with an emphasis on the removal of contaminants and impurities.

The Mission establishes water testing laboratories and distributes water testing kits to ensure delivery of potable water. In every village, at least five individuals—preferably women—are trained to use Field Test Kits for water quality testing at the local level.

The laboratories are open to the public, allowing anyone to have their water samples tested for a nominal fee. Over 2,000 such laboratories have been established, having tested nearly 34 lakh water samples.

It also trains members of the Gram Panchayat, the Village Water & Sanitation Committee, and locals, including ASHA and Anganwadi workers, Paani Samiti members, and school teachers to use water testing kits. Data from these tests is uploaded in real-time to ensure water safety.


This initiative aims to enhance public health, reduce water-borne diseases, and benefit the entire rural population, with a special focus on vulnerable groups such as women and children.


Melevinu Shows the Way

The water quality component of the Jal Jeevan Mission is particularly valuable in regions prone to natural disasters. Effective water surveillance and testing at both the source and delivery points are crucial for managing the impact of disasters on water quality and prevent rapid spread of waterborne diseases.

Melevinu Ltu from Kidima village in Nagaland received Field Testing Kit training from the Public Health Engineering Department in Kohima.

Equipped with water testing skills, Melevinu launched a clean water campaign in her village. Receiving support from the water quality





team, Melevinu regularly tests local water sources and raises awareness about clean water within her community. She has also trained Anganwadi and SHG workers to carry out these tests, ensuring that tests are conducted on a monthly basis.

These kits provide quick on-site results on parameters such as pH, chloride, iron, nitrate, turbidity, and total hardness, among others, and grievance redressal.

These efforts have not only improved water quality but reduced the incidence of waterborne diseases and diarrheal deaths in Kidima.

Source Sustainability Measures


To ensure a continuous and reliable water supply, the Mission includes extensive measures for source sustainability. This involves the protection and rejuvenation of existing water sources, rainwater harvesting, aquifer recharge, and the construction of check dams.

The government's Catch The Rain initiative is a community-centric, holistic water conservation campaign aimed at creating a sustainable and resilient water management system through collaborative efforts, innovative practices and widespread community engagement.

It focusses not only on collection of rainwater but also emphasises its effective utilisation—thereby addressing both supply and demand aspects of water management.

Mission Amrit Sarovar is another initiative that focusses on the creation, restoration, and rejuvenation of water bodies, including ponds, lakes and other water storage structures—at least 75 Amrit Sarovars in each rural district. So far, the government has built/rejuvenated nearly 69,000 Amrit Sarovars.

By integrating these measures, JJM addresses the historical issue of water sources drying up or becoming polluted, which has often undermined the effectiveness of previous drinking water programs.





Community Ownership & Participation

One of the key differences between JJM and previous programs is the emphasis on community ownership and participation. JJM actively involves local communities in the planning, implementation, and monitoring of the water supply schemes.

Hence, JJM is rooted in a decentralised, demand-driven, and community-managed approach. As the Prime Minister himself has emphasised, “...decisions on route of water pipeline, water harvesting, operation and maintenance will be made by people themselves.”


Each village must develop a comprehensive Village Action Plan that outlines sources of drinking water, water supply systems, their operation and maintenance strategies, and greywater management, among others to ensure a sustainable and reliable water supply.

These plans are owned and led by Gram Panchayats, Village Water and Sanitation Committees, and Pani Samitis. Communities also contribute towards capital cost in cash/kind/labour in all villages.

As much as 7.8 lakh gram panchayat members, 5.2 lakh VWSC/Pani Samiti/ Water User Groups, 4.49 lakh operation and maintenance groups have been engaged.

To support village-level water resource management and infrastructure, NGOs, voluntary organisations, and women’s SHGs under NRLM/SRLM partner with communities. They aid in raising awareness, building capacity, and planning and implementing projects. These partners also mobilise local communities, align their goals, and guide them in resource mapping.

In this way, a water supply mechanism is evolved at the local level where the community owns and operates the water supply system—inculcating transparency, proper utilisation of public funds, and ensuring that the gains made under the mission are sustained in the long term.





Takhni Village – A Model of Community-Driven Water Management

Takhni, a remote village nestled at the base of the Shivalik hills in the Kandi area of Hoshiarpur district, is home to 165 households. Historically, the villagers depended on local rivulets and open wells for their drinking water needs, leading to significant health issues due to water contamination. Faced with these challenges, the community took decisive action to address their water crisis by approaching the Public Health Engineering Department (PHED).


In June 2020, their efforts culminated in the commissioning of a groundwater-based Single Village Scheme (SVS). This initiative marked a turning point for Takhni, as it provided tap water connections to every household, including schools and anganwadis within the village. Managed by the Gram Panchayat Water Sanitation Committee (GPWSC), the SVS charges a monthly fee of Rs 150 per household to cover operation and maintenance costs.


A distinctive feature of the Takhni SVS is its ability to supply water to 40 households located at a higher elevation through booster pumping. This system has ensured that these households receive a reliable and sufficient supply of potable water for the first time in 40 years.

Additionally, the community actively participates in monitoring water quality using Field Test Kits (FTKs), ensuring that the water remains safe and clean. The success of Takhni, along with similar initiatives in Tana and Naulakha, highlights the effectiveness of community-led water supply schemes. These examples reflect the core principles of the Jal Jeevan Mission, demonstrating successful planning, implementation, and management by local communities.

Women Emerge As Role Models

In rural areas, the responsibility of managing water often falls on women. The Jal Jeevan Mission is applauded for its liberating effect on the lives of rural women.





Associating them in governance, the Mission mandates that minimum 50% members of the Village Water and Sanitation Committees.

Pani Samitis are to be women.

They are also given preference in training for water quality surveillance. 24.6 lakh women have been trained to use Field Testing Kits in over 5 lakh villages across India.


The impactful work of women like Melevinu shows us that by training women in water surveillance and quality testing, we enhance immediate responses to water challenges and build long-term resilience. This empowerment leads to improved health outcomes, reduced waterborne diseases, and greater community resilience.


The JMM success story of Assam, on the other hand, serves as a key example of how ‘by building a woman, you build a nation.’

Ghare Ghare Bisudha Paani in Assam

In Darrang district, Assam, the Jal Jeevan Mission (JJM) has been transformative, largely due to the pivotal role played by local women. Darrang, a region grappling with water scarcity and arsenic contamination, has seen a surge in progress as a result of the dedicated involvement of women leaders. With seven out of nine Gram Panchayats (GPs) led by female presidents, these women have taken the helm in implementing JJM’s goals of providing clean and safe drinking water to every household.

The Dhulikona Foundation, an Implementation Support Agency, has been instrumental in this effort, working across 60 villages in the district. The foundation has organised numerous meetings in collaboration with GP presidents, Gaon Burhas, and community members. These meetings, often led by female GP presidents, have energised local engagement and heightened awareness about the mission’s objectives.





Women, traditionally the primary managers of household water, have been especially motivated by the prospect of clean water. Their deep understanding of the challenges posed by contaminated water has driven their active participation in planning and decision-making processes. They have successfully mobilised their communities, formed Village Water & Sanitation Committees (VWSCs) and Water Users Committees (WUCs), and overseen the retrofitting of water schemes.


The success of JJM in Darrang is a reflection of the critical role women play in community-driven projects.


Use of Technology

The schemes launched in the past were marred by under-utilisation and diversion of funds. To plug these loopholes, the Jal Jeevan Mission promotes the use of technology at every step of this water chain.

The Mission tracks both physical and financial progress in real-time, supported by a publicly accessible dashboard that ensures transparency. A dedicated mobile application has been developed to facilitate ease of use for all stakeholders involved, enhancing operational efficiency. Additionally, sensor-based Internet of Things (IoT) solutions are employed to monitor water supply in real-time, allowing for precise measurement of quantity, quality, and regularity across villages.

Every asset created under JJM is geo-tagged, ensuring accurate tracking and management. Tap connections are linked with the Aadhaar numbers of household heads, streamlining identification and improving service delivery. Financial transactions are processed through the Public Finance Management System (PFMS), which provides robust financial oversight. Furthermore, a comprehensive portal has been established for water quality monitoring and surveillance, ensuring that standards are consistently met and






enabling effective oversight. These steps collectively enhance the mission's ability to deliver clean and reliable water services while maintaining high standards of transparency and accountability.

Greywater Management

An innovative aspect of JJM is its focus on greywater management. Greywater, which is the wastewater generated from activities like bathing, washing, and cooking, is often a neglected resource. Under JJM, villages are encouraged to implement greywater management practices such as recycling and reuse for irrigation, which helps in water conservation and reduces the overall demand for fresh water.

In a village with a population of 1,000, an average of 38,000 liters of greywater is produced daily. This greywater presents a valuable opportunity for groundwater recharge. The Swachh Bharat Mission (SBM) Phase-II also emphasises the importance of managing greywater in rural areas.





CONCLUSION: INDIA RECORDS MAJOR GAINS THROUGH JJM


Rural India has hitherto remained at the margins of development. These areas have struggled even with the basic amenities of life. Yet the last 10 years have kept people at the center of governance and service delivery. Today, no village in India is left without electricity, sanitation, housing, and water. Beyond providing these fundamental necessities, the focus has also been on education, skills development, and entrepreneurship, ensuring that every villager contributes productively to the nation's progress. The Jal Jeevan Mission has expanded access to tap water connections to over 78% of the rural population in India.


Socio-Economic Benefits

The Jal Jeevan Mission (JJM) has brought about substantial socio-economic improvements. The provision of household tap connections has transformed the quality of life for rural communities. It has given a sense of pride and elevated social status among beneficiaries. According to the Functionality Assessment Report (FAR) of 2022, over two-thirds of households reported an enhancement in their social standing, while 24% of households noted a direct improvement in income due to easier access to water. Additionally, 79% of households experienced a reduction in the time and effort spent on water collection, allowing for more focus on education and economic activities.

Health Benefits

JJM has significantly impacted public health by providing safe drinking water, leading to a notable decline in waterborne diseases. According to a WHO report, universal access to safely managed drinking water could avert almost 4,00,000 diarrheal deaths and save up to \$101 billion in health costs. A study by Michael Kremer and others suggests that JJM will significantly reduce child mortality. The FAR 2022 shows that the implementation of JJM has resulted in





a dramatic reduction in incidents of waterborne diseases such as diarrhea, cholera, and typhoid. Furthermore, 98% of surveyed households reported no cases of waterborne illnesses in 2021.


Education Benefits

The mission has positively influenced education, especially for girls. With the advent of household tap connections, school attendance rates have improved as girls no longer miss school to fetch water. Nearly 89% of schools and 85% of Anganwadis have access to clean and adequate tap water supply. In regions where JJM is fully implemented, 26% of households observed a positive impact on girls' attendance in upper primary education (FAR 2022). This improvement is a direct result of reduced water collection duties, allowing more time for education.

Employment Benefits

JJM has generated significant employment opportunities. The initiative supports both direct and indirect job creation. According to a report by Centre for Public Policy and Indian Institute of Management, during the construction phase alone, JJM is projected to create approximately 50 lakh person-years of direct employment and 2.2 crore person-years of indirect employment.

Additional direct employment opportunities arise during the operation and maintenance phase, amounting to about 10 lakh person-years annually. The mission also stimulates indirect employment in the production, storage, and distribution of materials necessary for its implementation. This employment boost contributes to local economies and supports rural development.





References

Gopal Naik, Abinash Singh, Abhilasha Jas, Centre for Public Policy Indian Institute of Management. Assessment of employment generation potentials of Jal Jeevan Mission

<https://jaljeevanmission.gov.in/sites/default/files/2023-10/study-report-assessment-of-employment-generation-potentials-of-jjm.pdf>

Michael Kremer, Akanksha Saletore, Witold Wiecek, Arthur Baker. Potential reduction in child mortality through expanding access to safe drinking water in India

<https://jaljeevanmission.gov.in/sites/default/files/2024-01/Potential-Impact-of-JJM.pdf>

CAG report on performance of drinking water programs

https://cag.gov.in/uploads/old_reports/union/union_performance/2002/Civil/2002_book3/chapter3.pdf

<https://ejalshakti.gov.in/jjmreport/JJMIndia.aspx>

https://jaljeevanmission.gov.in/sites/default/files/2022-10/national_report_of_functionality_assessment_2022.pdf

<https://pib.gov.in/PressReleaselframePage.aspx?PRID=2003912>

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1730344>

<https://pib.gov.in/PressReleaselframePage.aspx?PRID=2038427>

<https://swarajyamag.com/news-brief/explained-how-jal-jeevan-mission-brought-piped-drinking-water-to-stok-village-in-ladakh-at-30c-temperature>

<https://timesofindia.indiatimes.com/city/lucknow/greywater-management-way-ahead-to-sustain-water-supply-under-jal-jeevan-mission/articleshow/86718248.cms>

