पेयजल एवं स्वच्छता विभाग
जल शक्ति मंत्रालय
DEPARTMENT OF DRINKING WATER & SANITATION
MINISTRY OF JAL SHAKTI

सत्यमेव जयते

Har Ghar Jal
Jal Jeevan Mission

Community Managed Piped Water Systems in Rural India

Jan-Bhagidari se Har Ghar Jal

A Practical Handbook for Community and Community Based Organizations **Vol. 1**

Community Managed Piped Water Systems in Rural India

"Jan-Bhagidari se Har Ghar Jal"

A Practical Handbook for Community and Community Based Organizations

Volume 1

C R Patil

Union Minister,
Ministry of Jal Shakti
Government of India

Foreword

Water is India's oldest lesson in unity. From the Indus to the Brahmaputra, from the Ganga that carries our faith to the Godavari and Krishna that feed our fields, from the Narmada flowing through the heartland to the Cauvery and Mahanadi shaping the southern plains – every river tells a story of shared survival. From wells, ponds, and tanks built by generations past to the great aquifers that sustain our present, water has always been both a gift and a responsibility.

In 2019, when the Hon'ble Prime Minister gave the call for Har Ghar Jal, he reimagined India's development through the lens of dignity - that every woman and child should have the right to safe drinking water at home. Behind that vision lies a deeper belief: that true progress is not measured by what government builds, but by what people sustain.

Over 15 crore rural households now have functional tap connections - a transformation unparalleled in scale and pace. Yet, the task before us extends beyond coverage. It is about strengthening the chain of trust between the source and the household, between infrastructure and inclusion. It is about protecting the rivers, springs, and aquifers that breathe life into every village; about ensuring that water systems are managed not from closed rooms, but from within communities.

That is the spirit of **Jan Bhagidari** - a partnership where every Gram Panchayat, every women's group, every young volunteer becomes a custodian of their village's water. Ownership, transparency, and local stewardship must now define the next phase of Jal Jeevan Mission.

The Hon'ble Prime Minister has stated that the success of Jal Jeevan Mission rests on four key pillars - People's Participation, Stakeholder Participation, Political Will, and Optimum Utilisation of Resources. These pillars together define the spirit of the Mission, ensuring that every rural household receives safe drinking water through strong leadership, collaboration, and efficient resource management.

Among these, People's Participation or **Jan Bhagidari** stands out as the most vital pillar. It is the foundation of sustainability and continuous service delivery, where communities take pride and ownership in managing their water systems.

This Practical Handbook on Community-Managed Piped Water Systems in Rural India reflects that spirit. It turns technical guidance into collective wisdom - helping villages to operate, maintain, and protect what they have built with their own hands. It is as much about management as it is about faith - faith in the capacity of ordinary citizens to do extraordinary things when trusted with responsibility.

As we move towards **Viksit Bharat,** water must remain our moral compass – linking health, education, livelihoods, and dignity. Every source we conserve and every system we strengthen is a promise kept to future generations. The journey of Har Ghar Jal is, therefore, not just about reaching every home, but we are moving towards making **Sujal Gram to Sujalam Bharat** !

[C R Patil]

V. Somanna

Union Minister of State (MoS)
Ministry of Jal Shakti and Railways
Government of India

Foreword

When the Hon'ble Prime Minister Shri Narendra Modi launched the Jal Jeevan Mission in 2019, he redefined development through a simple yet transformative idea - that every rural household in India should have access to clean tap water. It was a vision rooted in dignity, powered by delivery, and inspired by the belief that access to safe drinking water is fundamental to both equality and well-being.

Water connects every aspect of human development - health, education, livelihoods, and equality. In aligning our national vision with the Sustainable Development Goals, India has placed water at the heart of its development priorities. The Jal Jeevan Mission embodies this commitment by ensuring that every rural household has access to safe and sustainable drinking water - a fundamental need that sustains life and drives every other form of progress.

Over the past few years, this mission has transformed the way rural India experiences development. As we move closer to universal coverage, the focus must now turn to sustainability - maintaining what we have achieved, strengthening institutions, and ensuring long-term functionality of systems. A successful water scheme is not one that is simply built; it is one that continues to deliver safe water, day after day, through shared ownership and accountability.

This is where **Jan Bhagidari**, that is people's participation, becomes central. The strength of Jal Jeevan Mission lies in the empowerment of communities to manage their own systems. When Gram Panchayats take responsibility for operation and maintenance, when women test and monitor water quality, when local youth serve as Nal Jal Mitras, the mission becomes truly sustainable - owned, operated, and protected by the people it serves.

The handbook Community-Managed Piped Water Systems in Rural India has been developed as a practical guide to support this transition. It combines technical guidance with institutional insights, translating complex processes into simple, actionable steps for Panchayats, Village Water and Sanitation Committees, and community groups.

The time has come to deepen this collective experience – to move from construction to care, from implementation to reflection. Whether it is handing over schemes to the community through Jal Arpan ceremonies, protecting our sources and celebrating water in Lok Jal Utsav, or honouring our water assets through **Jal Bandhan**, each of these actions holds meaning. They connect us to our roots, reflect our shared values, and remind us that every achievement in water carries within it the story of human effort and collective belief.

I am confident that this handbook will help communities take forward the mission with renewed purpose, turning policy into practice, and access into assurance.

V. Somanna

[V. Somanna]

Ashok K K Meena

Secretary
Department of Drinking Water & Sanitation
Ministry of Jal Shakti
Government of India

Foreword

India's journey towards universal access to safe drinking water is a story of conviction, collaboration, and courage. It is a story that reaffirms a simple truth - that development achieves permanence when people stand at its centre.

Over the past six years, the Jal Jeevan Mission has transformed the idea of public service delivery into one of public participation. From a vision announced in 2019, it has grown into a national movement that today connects more than 15 crore rural households with assured tap water supply. Beyond statistics, this achievement signifies the transformation of rural India, one where women no longer walk miles for water, where children attend school without fear of waterborne disease, and where communities take ownership of their own resources.

The Mission's strength lies in its architecture - a structure that empowers Gram Panchayats and Village Water and Sanitation Committees (VWSCs) to plan, manage, and maintain their village water supply systems. Through initiatives such as Jal Jeevan Samvad, Jal Utsav, and District Collectors' Peyjal Samvad, dialogue and convergence have become integral to its progress. The Mission's approach, grounded in transparency, technology, and trust, is setting new standards in participatory governance.

The 'Practical Handbook on Community-Managed Piped Water Systems in Rural India', is a guiding document for Gram Panchayats, VWSCs, Self-Help Groups, Community-Based Organisations, Nal Jal Mitras, and all local water champions. Written in simple language, it will help communities learn how to operate and maintain village water systems, manage finances with transparency, ensure the supply of safe and clean water, and promote a sense of ownership through community-led initiatives such as **Jal Arpan Diwas** and **Lok Jal Utsav.**

As we progress further, the focus will increasingly be on quality, sustainability, and institutional resilience. The challenge is no longer to reach every home, but to ensure that every home continues to receive safe water, every day, for generations. This demands strengthening capacities at the grassroots, investing in water quality surveillance, and promoting convergence with allied sectors such as health, education, and rural livelihoods.

The story of Jal Jeevan Mission is, ultimately, the story of India's confidence in its people. It is proof that when government, communities, and institutions move in unison, the most ambitious goals become attainable. I hope this publication inspires continued partnership, innovation, and pride in our shared effort to secure Har Ghar Jal.

[Ashok K K Meena]

Kamal Kishore Soan

Additional Secretary & Mission Director (NJJM)
Department of Drinking Water & Sanitation
Ministry of Jal Shakti
Government of India

Foreword

India's water sector stands at a defining moment. With over 15 crore rural households now having access to clean tap water, the Jal Jeevan Mission (JJM) has brought the nation closer to universal coverage.

As with every major national effort, the focus now shifts from building systems to sustaining them. The creation of over 5.14 lakh Village Water and Sanitation Committees (VWSCs) has strengthened decentralised water governance; women-led testing and monitoring have built confidence in water quality; and initiatives like **Jal Utsav** have deepened collective ownership.

This shift from government-led construction to community-led management marks a fundamental change in India's approach to water governance - where true sustainability lies in empowerment, accountability of Gram Panchayats, and community pride in managing and protecting their water sources.

This publication, 'Practical Handbook on Community-Managed Piped Water Systems in Rural India' embodies that philosophy. It simplifies the technical, institutional, and cultural dimensions of rural water management into practical steps for Gram Panchayats, VWSCs, SHGs, and local water champions. From **Jal Arpan Diwas** to **Lok Jal Utsav,** from financial transparency to community audits, it offers a roadmap for translating ownership into action.

The Mission's next leap forward lies in nurturing capable hands at the grassroots - the Nal Jal Mitras, Jal Sakhis, and Jal Doots - who will keep systems running, sources protected, and the spirit of Har Ghar Jal alive every day. Equally vital is the exchange of local wisdom, so that every community becomes self-reliant in managing what it has created.

As India consolidates the gains of this transformative mission, the guiding principle is clear: every drop delivered must be safe, reliable, and sustainable. The journey ahead calls for deeper integration between technology and tradition - digital monitoring complemented by local wisdom, and data complemented by dialogue.

In this phase of consolidation, JJM's success will rest on how effectively it turns access into accountability and delivery into durability. The Mission's future lies in community-managed systems that evolve into self-reliant institutions, resilient in both function and spirit.

This book provides practical tools and insights to strengthen local water governance, helping translate experience into action and action into lasting impact. It offers both inspiration and guidance on how **Jan Bhagidari** can sustain **Har Ghar Jal.**

If fiscal prudence sustains economies, community prudence sustains water systems. Jal Jeevan Mission has shown that when local participation aligns with national vision, the results endure far beyond statistics; they reshape daily life, empower women, and secure the future of rural India.

[Kamal Kishore Soan]

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Abbreviations

ARWSP	Accelerated Rural Water Supply Programme
AWC	Anganwadi Centre
CBOs	Cluster Based Organisations
CD	Check Dams
CLF	Cluster Level Federation
DDWS	Department of Drinking Water and Sanitation
DTU	District Technical Unit
DWSM	District Water & Sanitation Mission
ESR	Elevated Service Reservoir
FHTCs	Functional household Tap Connections
FPOs	Farmer Producer Organizations
FRC	Free Residual Chlorine
FTK	Field Test Kit
GIS	Geographic Information System
GLSR	Ground Level Service Reservoir
GP	Gram Panchayat
GPDP	Gram Panchayat Development Plan
Hhs	Households
HR	Human Resource
ICDS	Integrated Child Development Services
IEC	Information, Education and Communication
ISA	Implementing Support Agency
JJM	Jal Jeevan Mission
MVS	Multi Village Water Scheme
NHM	National Health Mission
NJM	Nal Jal Mitra
NJMP	Nal Jal Mitra Programme
NRDWP	National Rural Drinking Water Programme
NSS	National Service Scheme
NYKS	Nehru Yuva Kendra Sangathan
O&M	Operation and Maintenance
OHR	Overhead Reservoir
OHT	Overhead Tank
PACS	Primary Agricultural Credit Society
PHED	Public Health Engineering Department
PRA	Participatory Rural Appraisal
PT	Percolation Tank
PWS	Piped Water Supply
RCL	Residual Chlorine Level
RPL	Recognition of Prior Learning
RPWSS	Rural Piped Water Supply Schemes
RSETIs	Rural Self Employment Training Institutes
RTRWH	Rooftop Rainwater Harvesting
RWS	Rural Water Supply
SHGs	Self-Help Groups
SOPs	Standard Operating Procedures
SRLM	State Rural Livelihood Mission
SSD	Sub Surface Dyke
STT	Short Term Training
SVS	Single Village Scheme
SWSM	State Water & Sanitation Mission
UT	Union Territory
VO	Village Organization
VWSCs	Village Water & Sanitation Committees
WQMIS	Water Quality Management Information System

Definitions

- **Community** – Group of people living in a village/ habitation.
- **Rural Water Supply (RWS) Department** – The department mandated for rural water supply in the State which may be PHED/ Panchayati Raj/ Rural Development/ Board/ Corporation, etc.
- **Utility** – An organization focusing on service delivery, i.e. water supply in adequate quantity of prescribed quality on a regular basis, and having operational and financial sustainability.
- **Water Quality Monitoring** - Laboratory and field testing of water samples collected from water sources and FHTCs by the agency responsible for rural water supply as per the uniform drinking water quality monitoring protocol.
- **Functionality Assessment** – An assessment of functionality of rural household tap connections based on the sample survey.
- **Village Water and Sanitation Committee (VWSC)** - A community-level institution formed under the Gram Panchayat to plan, implement, manage, operate, and maintain water supply and sanitation services in rural areas. Functions as a sub-committee of the Gram Panchayat under the Jal Jeevan Mission (JJM) and Swachh Bharat Mission (Grameen).
- **State Water and Sanitation Mission (SWSM)** - Headed by the Chief Secretary or Additional Chief Secretary of the state, it's a state-level body established under the Jal Jeevan Mission (JJM) and Swachh Bharat Mission (Grameen) to plan, implement, monitor, and coordinate water supply and sanitation programs across the state.
- **District Water and Sanitation Mission (DWSM)** - Functions under the Zila Parishad or the District Administration and chaired by the District Collector / District Magistrate / CEO, Zila Parishad, it's a district-level body responsible for planning, implementing, supervising, and monitoring rural water supply and sanitation programs within the district.
- **Self Help Group (SHG)** - A small, voluntary group of people usually women from similar social and economic backgrounds who come together to save money regularly, pool their resources, and provide loans or financial support to each other to improve their livelihoods and promote mutual help.
- **Primary Agricultural Credit Society (PACS)** – A Village-level institution in the short-term cooperative credit structure in India that provides short-term and medium-term agricultural loans and other financial services to farmers and rural members.
- **District Technical Unit (DTU)** - A Technical sub-committee within the District Water and Sanitation Mission (DWSM) to support the Gram Panchayats (GPS)/Village Water and sanitation Committees (VWSCs) in providing technical support and monitoring of the water supply operations. Currently, most of the states PHED district officials are undertaking this task and going further will act as members of DTUs. States in the O&M policy can also decide to out source the services for providing the technical support to GPs to other agency or parastatal organisation.

Chapter 1

Purpose of the Handbook

01

Purpose of the Handbook

"Learning to Manage What We Have Built Together"

Every drop of water holds the story of a village, a story of hard work, unity, and shared hope.

For years, countless mothers, sisters and young girl students have spent long hours each day, carrying loads of water on their heads, fetching water from distant sources, time that could have been used for learning, earning, or caring for their families. Today, that story is changing across rural India.

Under the Jal Jeevan Mission (JJM), launched by the Hon'ble Prime Minister in 2019, the dream of *Har Ghar Jal* - water to every home - has started becoming a reality.

Now, a new chapter begins: one that places care, participation, and community ownership at the heart of rural water governance. It shifts the focus from construction to maintenance, from receiving to owning and from dependence to self-reliance.

1.1 Why Operation and Maintenance (O&M) Matters

The real work of a drinking water scheme begins after the infrastructure is built, and water starts flowing from the taps. Keeping the system alive

Figure 1: Why Operation and Maintenance (O&M) is important

every day is the real test of care and commitment. When a village manages its system well:

i. Water is supplied regularly and safely to every home.

ii. Pumps, tanks, and pipelines remain functional for many years.

iii. Every family feels proud and responsible, knowing that this system belongs to them.

Good operation and maintenance go beyond fixing leaks or turning valves; they safeguard the village's achievement of Har Ghar Jal and protect its legacy for generations.

When people care for their water system together, it transforms from a government project into a true community treasure - a shared source of dignity, health, and pride that can be sustained through generations.

1.2 Who Should Use This Handbook

This Handbook is written for the people who make this change possible.

i. For the **Gram Panchayat**, which is responsible for governing the village.

ii. For the **VWSC/Pani Samiti**, which is responsible for ensuring operation and maintenance.

iii. For the **Self-Help Groups and other CBOs**, which bring women's leadership and discipline into operation and management.

iv. For the **Nal Jal Mitras, (operators and plumbers)**, who keep the system running every day.

v. **Community Volunteers and Youth Groups** who aspire to mobilize community to instil the sense of ownership.

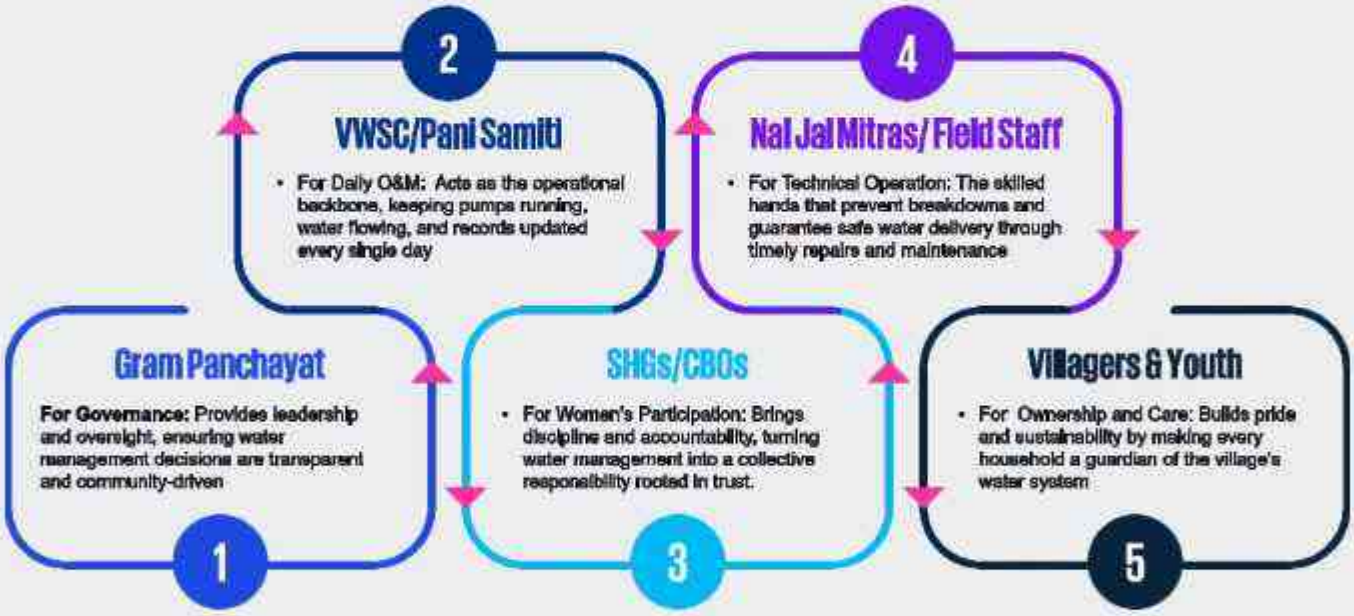

Figure 2: Who should use this handbook

vi. And for the community and every villager who believes that water is not just to be used, but to be managed and cared collectively.

This guide can also be used for training sessions and village meetings, making it easy to explain operation and maintenance step by step.

1.3 How This Handbook Supports Local Ownership

The 73rd Constitutional Amendment gives Gram Panchayats the right to plan, operate, and maintain their own water supply. This means the Rural Piped Water Supply Schemes (RPWSS); its pipelines, pump

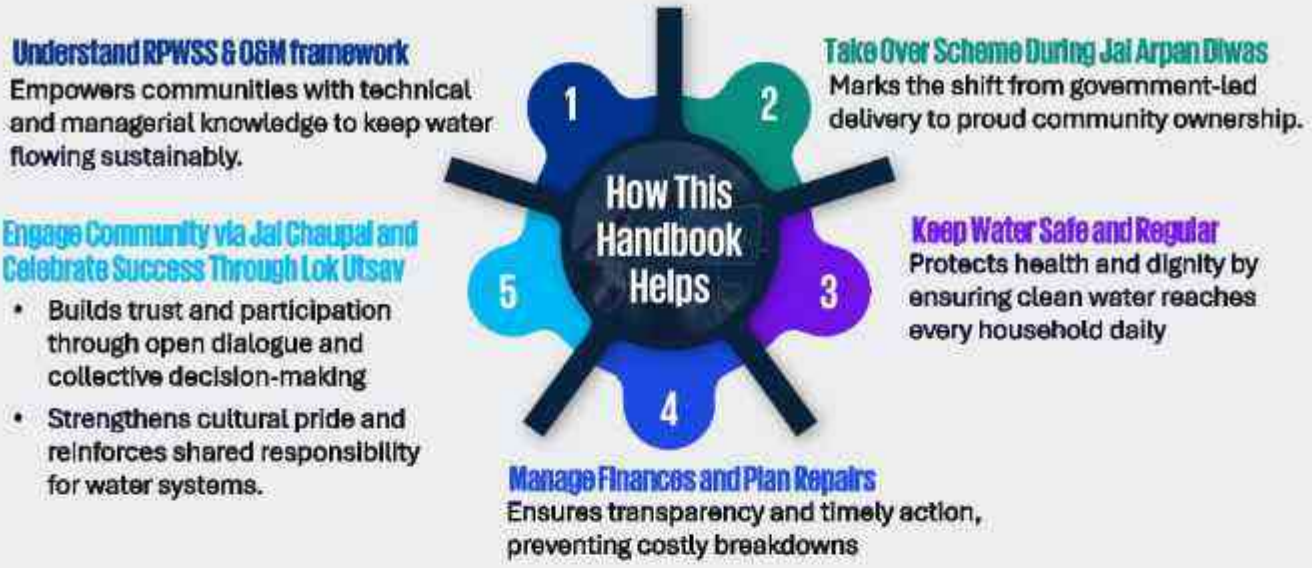

Figure 3: Primary objectives of this handbook

house, treatment plant (disinfection unit), storage tanks, and taps, all belong to the village itself.

Under JJM, infrastructure has been created with a vision of providing a Functional Household Tap Connection in every rural household, now the community needs to own it and maintain it.

This handbook is your companion on that journey.

It will help you:

i. Understand the Rural Piped Water Supply Schemes and framework of Operation and Maintenance.

ii. Take handover your village scheme with pride during Jal Arpan Diwas.

iii. Ensued that drinking water remains safe, clean, and supplied regular.

iv. Engage with community through Gram Sabha Jal Chaupal.

v. Manage the scheme finances effectively.

vi. Plan repairs before breakdowns happen.

vii. Celebrate your success & ownership through Lok Utsav as per your local customs and rituals thoughout the year.

1.4 What You Will Find Inside

- Each chapter shows simple steps, about how to understand your piped water supply scheme, prepare and take handover properly, learn to operate, maintain, and manage it with confidence.
- Read it together. Discuss it in your Gram Sabha, Jal Chaupal or in any gatherings. Share this knowledge widely, even with younger generations, so that everyone understands the value of caring for their water system.
- This is not just a handbook, it is the key to your village's *Sujal Bhavishya*, a water-secure future.

Note: This handbook is a supplementary resource and should be read along with all official guidelines, protocols and advisories issued by DDWS from time to time.

Chapter 2

The Context – Water, Culture, and Jan Bhagidari

02

The Context – Water, Culture, and Jan Bhagidari

"Reconnecting People, Tradition, and Responsibility"

Since, the beginning of our civilization, water has been part of our faith, our festivals, and our daily life.

Across the world, civilizations flourished near water sources because ancient communities understood that water is life, they worshipped it, protected it, and preserved it. In every village, water is treated with respect not only as a need but as a blessing of nature. People offer prayers at wells, rivers, and ponds before using water. Every family believed that protecting water is everyone's responsibility.

In earlier times, villages built and cared for their own water sources, baolis (step wells), johads (ponds), tankas (rainwater tanks), wells, and small canals; crafted with local wisdom and maintained collectively. When a well dried up, the entire village came together to clean or deepen it. If a water tank broke, everyone contributed time and labour to repair it, reinforcing the spirit of shared responsibility.

This was our own system of "Jan Bhagidari", people's participation, long before the term existed.

These traditional practices taught us that water belongs to everyone and must be protected by everyone. Water was not just a government service; it was part of the community's way of living. Festivals like *Maha Kumbh, Makar Sankranti, Gangaur, Chhath, Magh Mela, Narmada Jayanti,* Aadi *Perukku* and many others across India, celebrated rivers and ponds as symbols of life and purity. The rituals such as Jal *Arpan* (offering water), *Jalabhishek* (water offerings to deities), and even the morning act of sprinkling water in the courtyard reflected deep respect for water in daily life.

Over time, as villages expanded and lifestyles changed, these local practices came under strain. Overuse of groundwater, contamination by fluoride and arsenic, and erratic rainfall caused by climate change deepened the crisis. Successive governments responded with major water programmes, from the Accelerated Rural Water Supply Programme (ARWSP, 1972) to the National Rural Drinking Water Programme (NRDWP, 2009). While these initiatives improved access, they were often infrastructure-driven, focusing on the physical creation of assets and structures.

Recognizing this gap, the Jal Jeevan Mission (JJM) was launched in 2019 as a transformative initiative to ensure *Har Ghar Jal,* a functional household tap connection in every rural home, with water that is safe, sufficient, and sustainable. The Mission redefines rural water supply as a service, not merely a scheme, anchored in people's participation, decentralized planning, and accountable local governance.

2.1 Jan Bhagidari – The Foundation of JJM

When the Hon'ble Prime Minister gave the call of '*...Sabka Prayas...*' - everyone's effort, he reminded us that the success of the Jal Jeevan Mission depends not only on engineers or officials, but on the people of every village.

The Mission is not just about laying pipelines or installing taps. It is about empowering people and making them the true custodians of their water systems.

Every drop of water that reaches to home through tap water connection is the result of continuous efforts, planning, support and care from everyone in the village from the Sarpanch to the students, from the women's groups to the farmers. This is the true essence of *Jan Bhagidari.*

When people join hands to operate, repair, and protect their own water supply system, it becomes their scheme, their pride. Through *Jal Chaupals, Jal Lok Utsavs, Jal Arpan Diwas,* and awareness campaigns, JJM aims to bring villagers together once again to share ideas, celebrate successes, and take responsibility.

This is how the Jal Jeevan Mission is turning government schemes into people's movements, and water from a facility into a shared heritage to be protected for generations.

2.2 *Jan Bhagidari* under JJM: Becoming Owners, Not Just Users

Jal Jeevan Mission (JJM) is not only about giving every rural household a tap connection; it is about helping villages take charge of their own water systems. The real success of the Mission begins when people stop seeing themselves as mere users and start becoming guardians of what has been created.

Ownership is not built in a single day. It is a journey from using water to managing it, from receiving a service to protecting a shared resource.

When villagers move through this journey together, their relationship with water changes completely, from dependence to dignity, from consumption to conservation, from receiving to giving back and they pass their local wisdom to future generations in line with the vision of Viksit Bharat.

2.3 Ownership Grows Step by Step

i. First, villagers **get aware and become users of water,** they receive and enjoy the service.

ii. Then, they **engage and become stakeholders,** sharing ideas, time, and small contributions to make the system better.

iii. Later, they become **responsible and participate in decision-making,** taking part in planning, monitoring, and solving problems.

iv. Finally, the feeling of **ownership get instilled, and they become custodians,** protecting the system with pride for the next generation.

Figure 4: Jan Bhagidari - Community Ownership Journey

When this happens, villages truly become ***Aatmanirbhar,*** self-reliant in managing their water systems in following ways:

i. The water system is no longer a government project; it becomes the village's own created system.

ii. Gram Panchayats, VWSCs, and SHGs take collective responsibility with confidence.

iii. Women and youth emerge as leaders of change, ensuring that taps keep running and sources stay alive.

iv. Every household begins to say with pride: *"Yeh hamare Jal-apurti ki vyawastha hai, hum hi iske rakshak hain."* - *"This is our water supply system, and we ourselves are its custodians."*

This is the essence of ownership, the heart of *Jan Bhagidari*, where water becomes not just a service, but a shared commitment that binds the entire village together.

Chapter 3

Understanding Rural Piped Water Supply System and Operation and Maintenance (O&M)

03

Understanding Rural Piped Water Supply System and Operation and Maintenance (O&M)

"Knowing How Our System Works"

3.1 What Is Rural Piped Water Supply Schemes (RPWSS)

A Rural Piped Water Supply Schemes is a community-driven system that delivers clean drinking water directly to every household in a village through a network of pipes, eliminating the need for residents to fetch water from wells, rivers, hand pumps, or distant sources.

This system usually includes pumping water from a source such as a well, borewell, or spring; treating it for contaminations and disinfecting it, storing it in tanks, and then distributing it through pipelines so that every home receives water just by turning on a tap. The main goal is to make safe water easily and regularly available, improve health, and save time and effort for rural families, especially women and children who earlier spend hours fetching water. Let's look at the main components of the scheme in simple details:

i. **Source:** This is where the water comes from a borewell, river, lake, spring or other natural source. The quality and quantity of water at the source determine how well the scheme works in the long run to ensure sustainable water supply.

ii. **Pumping:** When the water can not flow by gravity, it is lifted and pumped using a motor and pumped to the storage tank or treatment unit. The pump operator ensures regular operation, records hours, and checks for vibration or overheating.

iii. **Treatment/Disinfection:** Before the water reaches homes, it is cleaned. This may involve filtration and disinfection (chlorination) to make it safe to drink. This is required to protect the water from contamination of disease-causing pathogens, bacteria, etc. and free it from the harmful chemicals which can cause harm/disease.

iv. **Storage:** Treated water is stored in Overhead Tanks (OHTs) or ground-level sumps. This helps managed fluctuations in demand, to maintain adequate water pressure, to provide storage for emergencies, to ensure uniform distribution, to reduce energy costs, etc. Storage makes the supply reliable.

v. **Distribution:** From the storage tank, pipes carry water through the village to reach every house. These are the network of pipelines; main line, branch lines and house connections through

Figure 5: How a Rural Piped Water Supply Schemes Works

which water flows to your tap. The pipelines cross the nallas, water bodies, drains, roads, fields, etc and therefore need to be protected from leakages to avoid contamination and wastage and should ideally be buried under ground.

vi. **Valves:** The pipelines contain valves to start, stop and control the flow, other valves like air valve are also present in pipeline to ensure proper flow. All valves should be free from leakage.

vii. **Household Tap:** This is the actual delivery point in an Individual's house, the tap from which you draw drinking water and use it for cooking, cleaning, and all your daily needs. The scheme is successful when this tap gives you safe water regularly.

This simple breakdown helps in understanding how the scheme functions. Each component requires regular attention and care. If one part fails, such as a pump breakdown, a leaking pipeline, or poor water quality - the entire system may be affected.

For this reason, the collective role of the Gram Panchayat, VWSC/Pani Samiti, and community members becomes crucial. When each part of the system is well understood, it becomes easier to plan maintenance, identify issues early, and ensure that the water supply scheme continues to serve the village effectively for many years.

3.2 Types of Schemes

i. Single Village Scheme

Single Village Scheme (SVS) is a water supply system planned and implemented for one village

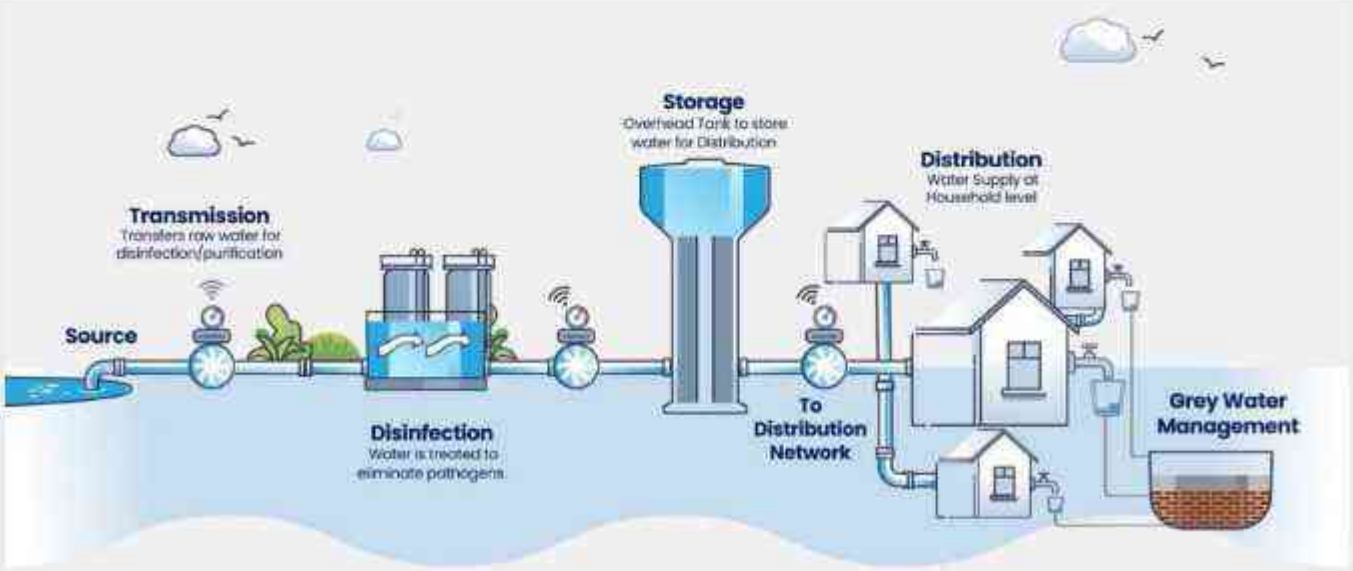

Figure 6: Single Village Scheme

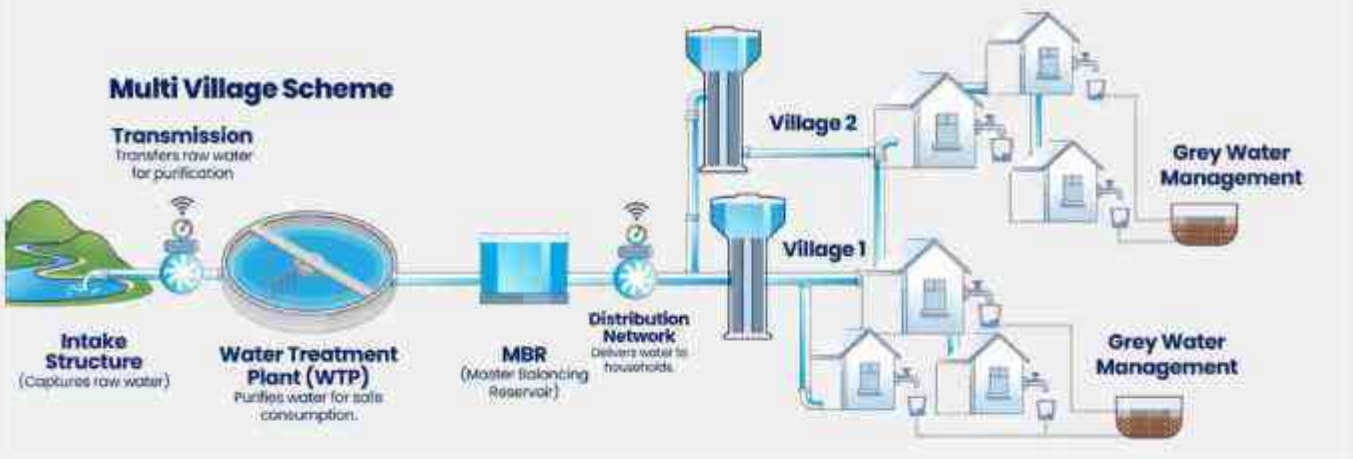

Figure 7: Multi Village Scheme

using its own local water source, to provide tap water to every household in that village.

ii. Multi Village Scheme

A Multi Village Water Scheme is a water supply system designed to serve two or more villages by bringing water from a common source/ sources.

In some cases, Bulk Water Schemes are also connected with SVS and MVS. A Bulk water scheme is a Water supply system that collects, treats, and transports large quantities of water to a central point for distribution to multiple users like villages, towns, or large institutions. These schemes are used to provide water where local sources are insufficient or contaminated, often involving long-distance water transfer from a primary source, treatment plants, and large storage facilities.

Illustrations on various configuration of schemes can be found in **Annexure-1**

3.3 Need for O&M

Once water starts coming from the tap, the real work begins to keep it flowing and supplying water every day on sustained basis. If the system is not looked after regularly, small problems can quickly become big ones.

Proper operation and maintenance (O&M) ensure that investments made today serve future generations

i. Why it matters **for the community:**

a) Ensures **uninterrupted water supply** every day.

b) Keeps **water safe** and prevents diseases.

c) Builds **trust** between villagers and Panchayat.

d) Reduces **repair costs** by preventing break-downs.

ii. When operation and maintenance are ignored:

a) Pumps stop working, and the water supply breaks down.

b) Tanks overflow or leak, wasting precious water.

c) Pipes get damaged or **water becomes unsafe** to drink.

iii. But when the system is maintained properly and regularly:

a) Water supply remains regular and reaches every household.

b) The water stays clean and safe for drinking and cooking.

c) Pumps, tanks, and pipelines last longer, saving money and effort for the village.

A well-maintained Rural Piped water supply scheme/system is like a healthy body, if cared for and managed every day, it stays strong and serves everyone well. That is why Operation and Maintenance (O&M) is the heart of the Jal Jeevan Mission and the key to keep *Har Ghar Jal* status in every home.

3.4 Key Functions of O&M

Operation: Running the pump, opening and closing valves, managing timings, and monitoring flow and maintaining records.

Maintenance: Preventing and fixing problems like leaks, worn-out parts, or motor issues, Operation means keeping the system running smoothly every day, while maintenance means taking care of it so that no major problem occurs later. When both are done regularly, the village always gets safe and steady water throughout the year.

Main functions of O&M include:

i. **Running the pumps daily** to lift and supply water at fixed times.

ii. **Checking water flow and pressure** in the pipelines to make sure every house gets enough water.

iii. **Cleaning tanks and surroundings** to keep the water clean and safe.

iv. **Testing water quality** from time to time to ensure it is fit for drinking.

v. **Inspecting pipes, valves, and taps** for any leaks or damage.

vi. **Doing small repairs immediately** so that bigger problems do not arise.

vii. **Keeping records** of supply hours, electricity use, and any maintenance work done.

viii. **Planning preventive maintenance** before each season to keep the system healthy.

Together, these actions ensure that the water supply system runs without interruption, stays clean, and serves every family reliably.

3.5 Regular Maintenance for Continuous Water Supply: Daily, Weekly, Monthly and Annual O&M Activities

Running a water system is like taking care of a living being, it requires regular attention.

Some tasks must be done every day, every week, every month and others annually to keep the system healthy and ensure that water flows safely to every home.

i. Daily Activities

These are small tasks that keep the system running smoothly each day:

a) Start and stop the pump at the scheduled time to maintain regular water supply.

b) Check that water is reaching all parts of the village by opening the valves one by one and observing the flow. If water pressure is low or missing in any area, inform the VWSC or operator immediately.

c) Observe the sound and vibration of the pump while running. Unusual noise or heat may mean a problem that needs attention.

d) Ensure no water leakage from pipes, joints, or taps while water is being supplied.

e) Check the water level in the storage tank to avoid overflow or shortage.

f) Add chlorine or disinfectant, if required, as per the prescribed dosage to keep water safe.

g) Clean the pump house and surroundings every day to prevent dust, waste, or standing water.

h) Record the daily supply details such as pump operating hours, electricity used, and any issues noticed, in a register.

i) Close all valves properly after supply ends to prevent water loss and pressure drops.

ii. Weekly Activities

These small weekly checks help prevent big problems later. They keep the system clean, safe, and working without interruption.

a) Clean the tank area and surroundings; remove leaves, mud, or waste so that no contamination enters the water.

b) Inspect all valves and joints for leaks. Open and close each valve gently to ensure it works smoothly.

c) Test water quality using the Field Test Kit (FTK) and record the results in the village register.

Figure 8: Routine O&M tasks needed to keep water flowing

d) Check all taps and public stand posts to ensure water is flowing properly and there are no broken fittings.

e) Remove any algae or moss from the tank walls, tap platforms, and nearby drains.

f) Inspect electrical lines, switches, and pump panels transformers for safety and proper functioning.

g) Hold a short VWSC review meeting to discuss any complaints, leakage points, or repair needs.

h) Remind villagers through the Gram Sabha or notice board to use water carefully and report any leak or damage.

iii. Monthly Activities

These are broader checks that keep the system healthy for the long term and help plan future maintenance.

a) Clean the inside of the storage tank, especially before the rainy and summer seasons.

b) Inspect the source area (well, borewell, spring, or intake) to ensure it is clean and protected.

c) Check the condition of the pump and motor, lubricate parts if needed, and tighten any loose connections.

d) Review all valves and main pipelines for rust, cracks, or blockages.

e) Verify the water supply schedule and make adjustments if the source yield has changed.

f) Check electrical wiring, panels, and earthing with the help of a technician.

g) Review the collection of user charges and electricity bills and record all expenses properly.

h) Prepare a short O&M report for the Gram Panchayat or any village level public meeting, noting water quantity, quality, complaints, and repair works.

i) Plan preventive maintenance before every major season like cleaning sources before monsoon or checking storage tanks before summer.

j) Appreciate the good work of operators or VWSC members in meetings to motivate everyone to care for the system.

iv. Annual Activities

These are broader tasks for proper planning and long-term care:

a) Inspect the storage tank (inside and outside) and clean if needed, Chicken mesh of air vent pipes should to be replaced if required.

b) Approach ladders should to be checked for safety.

c) Check the electrical connections and motor wiring for safety.

d) Review user charge collection and ensure timely payments.

e) Prepare a short maintenance report for the Gram Panchayat meeting.

f) Plan preventive work before the monsoon or summer (depending on the season).

g) Encourage villagers to use water wisely and avoid wastage.

Regular attention to these small tasks prevents breakdowns and ensures that every household continues to receive safe, clean, and reliable water. *Timely maintenance & care today means smooth service tomorrow.*

Some details on Daily, Weekly, Monthly, and Annual Tasks can be found in **Annexure-2**

3.6 Common O&M Issues and Simple Solutions

Every piped water supply system faces small problems from time to time. The key is to find them early and fix them quickly. Most issues can be solved with simple checks and teamwork and only a few need outside technical help. A few illustrations are provided in the **Annexure-3.**

Below are some common problems and easy ways to handle them:

i. Pump not working

a) **Possible reasons:** No electricity, blown fuse, loose wire, or motor fault or low voltage

b) **Simple checks:**

- See if the power supply is on.
- Check the switchboard, fuse, and circuit breaker.
- Make sure the pump is not overheating.
- If it still doesn't start, inform the local electrician or technician immediately.

c) **Prevention:** Keep the pump area clean and dry; never run the pump without water.

ii. Low or no water supply in some areas

a) **Possible reasons:** Valve closed, leakage in pipeline, air blockage, or low source yield.

b) **Simple checks:**

- Open valves one by one and observe the flow.
- Listen for hissing sounds that indicate air blockage.
- Check for visible leaks or wet patches on the ground.

c) **Prevention:** If the source water level has dropped, reduce supply time and plan recharge.

iii. Tank overflowing or not filling

a) **Possible reasons:** Float valve not working, or operator delay in switching off the pump.

b) **Simple checks:**

- Inspect the tank inlet and outlet.
- Adjust or replace the float valve if it's stuck.
- Set fixed timings for pump operation and stick to the schedule.

c) **Prevention:** Regularly check valves and tank levels while pumping.

iv. Leaking pipes or taps

a) **Possible reasons:** Loose joint, damaged washer, or crack in the pipe.

b) **Simple checks:**

- Tighten joints with a spanner.
- Replace washers or rubber rings if worn out.
- For large leaks, turn off the valve and inform the VWSC for repair.