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PART-- I--Orders and Notifications by the Government of Tripura, The High Court, Government Treasury etc.

Government of Tripura
PWD (Drinking Water & Sanitation)
Tripura, Agartala.

No.F.14(57)/DIR/WSSO/PWD(DWS)/1138-1184 Dated, Agartala, 23rd July 2026

NOTIFICATION

Subject: Notification of the Operation and Maintenance (O&M) Policy for Rural Drinking Water Supply in Tripura, 2026.

In pursuance of the approval accorded by the Council of Ministers, Government of Tripura, in its meeting held on 17th July 2026 and communicated vide No.F.8(12)-GA(CAB)/2026 dated 17th July, 2026, the Governor of Tripura is pleased to notify the Operation and Maintenance (O&M) Policy for Rural Drinking Water Supply in Tripura, 2026.

2. The Policy shall provide the framework for sustainable operation and maintenance of Rural drinking water systems in the State, including institutional arrangements, roles and responsibilities of stakeholders, financial management, service level standards, monitoring and accountability mechanisms.

3. All State Government Departments, Panchayat Raj Institutions, Gram Panchayats/Village Committees, Implementing Agencies and other Stake Holders shall take necessary action for implementation of the Policy in accordance with its provisions.

4. The Operation and Maintenance (O&M) Policy for Rural Drinking Water Supply in Tripura, 2026, appended as Annexure – I, shall form an integral part of this notification and shall come into force on the date of its publication in the extraordinary issue of Tripura Gazette.

5. On and from the date of publication of this notification, the Standard Operating Procedure (SOP) and Byelaws for O&M of Rural Piped Water Supply Schemes notified vide notification number F.6(21)-CE/DWS/E/2011/12746-778, dated 1st February 2022 shall stand repealed and superseded.

6. Notwithstanding such repeal, any action taken, order issued, agreement executed, or decision made under the repealed SOP or Byelaws shall be deemed to have been validly taken or made, in so far as it is not inconsistent with the provisions of this policy until modified or replaced under this policy.

Enclo: The Operation and Maintenance (O&M) Policy for Rural Drinking Water Supply in Tripura, 2026, as Annexure – I

By order

(Abhishek Singh, IAS)
Secretary to the Government of Tripura
Public Works Department (DWS)

Government of Tripura

PUBLIC WORKS DEPARTMENT
DRINKING WATER & SANITATION
AGARTALA, TRIPURA

Operation & Maintenance Policy For Rural Drinking Water Supply In Tripura

July 2026

Prof. (Dr.) Manik Saha **Chief Minister**

Forward

Under the visionary leadership and guidance of our Hon'ble Prime Minister, Shri Narendra Modi, the *Jal Jeevan Mission (JJM)* has become a transformative initiative, ensuring the fundamental right to safe drinking water for every rural household in India. The *Har Ghar Jal* program embodies the true spirit of inclusive development, focusing on improving the quality of life in rural areas and empowering our citizens.

The Government of Tripura is committed to realizing the vision of *Har Ghar Jal* and ensuring the sustainable management of water resources for the present and future generations. The preparation and implementation of this *Operation & Maintenance Policy* is a significant step in our journey to streamline and strengthen water supply systems across the state. This policy will serve as a comprehensive guide for officials, engineers, and stakeholders at all levels, ensuring effective planning, execution, and management of the scheme in a transparent and accountable manner.

I am proud to state that Tripura has made commendable progress in the implementation of JJM, bringing us closer to the goal of 100% Functional Household Tap Connections (FHTCs). However, the journey ahead requires concerted efforts, community participation, and innovative approaches to overcome challenges such as geographical constraints, water quality issues, and equitable access to resources.

The *Operation & Maintenance Policy for Rural Drinking Water Supply in Tripura* reflects our dedication to these goals, offering a framework to address both operational challenges and long-term sustainability. It emphasizes convergence, technological interventions, capacity building, and active involvement of Gram Panchayats (GPs)/Village Committees (VCs), Village Water and Sanitation Committees (VWSCs), and local communities to ensure success.

I extend my heartfelt gratitude to all the stakeholders, including our Government officials, local leaders, and community members, for their unwavering commitment to the mission. Together, we can ensure that every household, school and AWC in Tripura has access to safe and clean drinking water, fostering healthier, happier, and more empowered communities.

Let us continue to work tirelessly to make *Har Ghar Jal* a reality and contribute to building a stronger, self-reliant Tripura.

Prof. (Dr.) Manik Saha
Chief Minister, Tripura

Executive Summary

In last five years, scale, speed and spread of Piped Water Supply under the aegis of the flagship scheme Jal Jeevan Mission in the vast and diverse rural landscape of India has been unprecedented in the annals of developmental history of the world. The admirable achievement of the Mission has demonstrated the collective commitment of the Indian nation to overcome the barriers, be it economic, social or political, to provision the basic amenity of adequate safe water at the doorstep of every rural household with provision of Functional Household Tap Connections (FHTCs) to rural households.

In Tripura, significant progress has been made with FHTC coverage increasing from 3.28% in August'2019 to 86.24% by February '2026. To ensure the sustainability and functionality of these Water Supply Systems, a comprehensive Operation & Maintenance (O&M) policy has been formulated, tailored to the unique challenges and needs of Tripura.

Objective of the Operation & Maintenance (O&M) Policy

The primary objectives of the O&M policy in Tripura are: -

1. Ensuring Service Reliability- Maintain a constant and uninterrupted water supply to all rural households.

2. Enhancing System Sustainability – Implement proactive maintenance to extend the lifespan of Water infrastructure.

3. Financial Viability - Develop fair and affordable tariff structures to support village level water utility i.e. Gram Panchayat (GP)/ Village Committee (VC).

4. Community Engagement – Empower local communities i.e. GP/VC/VWSC in the management and decision-making processes of water supply systems.
5. Institutional strengthening – Clearly define roles and responsibilities among stakeholders for effective governance.

Key Components of the O&M Policy

1. **Institutional Framework:**

- Gram Panchayat (GP)/ Village Committee (VC)/ Village Water & Sanitation Committees (VWSCs) - There are 765 villages and 1193 GP/VC/VWSCs in the state, which are responsible for planning, implementation, management and O&M of village water supply infrastructure with active support of PWD (DWS).

- Community Participation and Capacity Building - Training programs, such as the Nal Jal Mitra Training Programme have been introduced to develop local capacities for routine operational and minor maintenance of piped water supply systems. Trained 5 women groups in every GP/VC for water quality testing in the villages using FTKs.

- Awareness Campaigns – Information, Education and Communication (IEC) and Behaviour Change Communication (BCC) campaigns are conducted to promote water conservation practices and hygiene practices, making JJM a people's movement.

2. Technical & Maintenance Strategies:

- Preventive Maintenance – Regular inspection and upkeep of infrastructure, including deep tube wells, small bore deep tube wells, pumps and pipelines to prevent breakdowns.

- Standard Operating Procedures (SOPs) – Detailed guidelines for water treatment, leak detection and system repairs to ensure consistent service quality.

3. Financial Management and Cost Recovery:

- 16th FC Basic Grant Funds –50% of Basic Grant Fund to PRIs is earmarked for water supply and sanitation. These funds are planned for rural water supply and sanitation management ensuring long-term O&M of water supply schemes.

- Tariff structures – Developing affordable tariffs in consultation with local communities to ensure financial sustainability.

4. Monitoring, Evaluation and Performance Indicators:

- Regular Assessments - Functionality assessments have been conducted by the Department of Drinking Water Supply (DDWS), Government of India, revealing that 93% of PHTC connections were operational with 88% meeting regularity standards and 92% meeting quantity standards in the state.

- Water Quality Testing – Tripura has established 21 NABL Accredited Water Testing Laboratories to ensure the safety and potability of supplied water.

5. Emergency Preparedness and Risk Management:

- Contingency planning – Developing plans to address potential challenges such as natural disasters, system failures and water quality issues.

- Rapid Response Mechanisms – Establishing teams and protocols for swift action in case of emergencies to minimize service disruptions.

Conclusion

The O&M policy under the Jal Jeevan Mission (JJM) in Tripura is a comprehensive framework designed to ensure the long-term sustainability, reliability and safety of Rural Piped Water Supply Systems. By integrating technical strategies, financial planning and robust community engagement, the policy aims to provide every rural household in Tripura with access to safe and adequate drinking water, thereby improving public health and enhancing the quality of life.

Abbreviations

BP	Block Panchayat
CWR	Clear Water Reservoir
CBO	Community Based Organization
DWS	Drinking Water and Sanitation
DTW	Deep Tube Well
DWSM	District Water and Sanitation Mission
FC	Finance Commission
FHTC	Functional Household Tap Connection
FTK	Field Test Kit
FRC	Free Residual Chlorine
GP	Gram Panchayat
GPDP	Gram Panchayat Development Plan
GIS	Geographic Information System
IEC	Information Education & Communication
ISA	Implementation Support Agency
ITI	Industrial Training Institute
IoT	Internet of Things
JJM	Jal Jeevan Mission
KRC	Key Resource Centre
LPCD	Litre Per Capita Per Day
MoM	Minutes of Meeting
MVS	Multi Village Scheme
VB-G RAM G	Viksit Bharat Guarantee for Rozgar and Ajeevika Mission (Gramin)
NJM	Nal Jal Mitra
NGO	Non Government Organization
NA	Not Applicable
NABL	National Accreditation Board for Testing and Calibration Laboratories
O&M	Operation & Maintenance

OHP	Ordinary Hand Pump
OHT	Over Head Tank
PRA	Participatory Rural Appraisal
PRI	Panchayat Raj Institute
PD	Panchayat Department
PWSS	Piped Water Supply System
PWD	Public Works Department
RD	Rural Development
SDG	Sustainable Development Goal
SBDTW	Small Bore Deep Tube Well
SVS	Single Village Scheme
SC	Schedule Caste
SHG	Self Help Group
ST	Schedule Tribe
SBMG	Swachh Bharat Mission – Grameen
SWSM	State Water and Sanitation Mission
SWTP	Surface Water Treatment Plant
TSECL	Tripura State Electricity Corporation Limited
UN	United Nations
UPVC	Unplasticized Polyvinyl Chloride
VC	Village Committee
VO	Voluntary Organisation
VWSC	Village Water and Sanitation Committee
VAP	Village Action Plan
ZP	Zilla Parishad
NCVT	National Council for Vocational Training

Definition of Terms used in the O&M policy

1 Administrative Approval: Formal approval by the competent administrative authority in a department to execute certain specified works or project or scheme at a stated amount.

2 Gram Sabha: Gram Sabha refers to the organization of people residing in the Gram Panchayat whose names are included in the voter list.

3 Bulk Water Meter (BWM): A bulk water meter is a scientific instrument for accurate measurement of quantity of water.

4 Financial Sustainability: Financial sustainability refers to the capacity of a Gram Panchayat to raise income from the distribution of water to cover expenses and generate a surplus to meet contingencies.

5 Functional Household Tap Connection (FHTC): Functional Household Tap Connection means a household level tap connection through which 55 lpcd of treated water is provided regularly at the household level.

6 Governance: Governance is the way rules, norms and actions are structured, sustained and regulated for operating and maintaining a rural water supply scheme.

7 Gram Panchayat: Gram Panchayat means a self-governing body constituted in accordance with the provisions of the Tripura Panchayati Raj Act, 1993 and the Constitution of India (73rd Constitutional Amendment Act, 1992).

8 Information, Education Communication (IEC): Information, Education and Communication, abbreviated as IEC, is a strategy to spread awareness through communication channels to a target audience to achieve a desired positive result. The desired positive results in the context of O&M policy may be summarized as 100% FHTCs, habitual payment of O&M tariff and disciplined use of treated water together with metered consumption of water at the consumer levels.

9 Institutional arrangements: Institutional arrangements are generally understood as a set of agreements on the division of respective responsibilities of agencies, departments, and or project teams.

10 Inter-personal Communication is an exchange of information between two or more people. It is used as part of IEC method with a purpose of raising awareness, bringing about social or behavioral change.

11 In-Village Distribution Network (IVDN): IVDN refers to the In-Village Distribution Network for water supply within a GP/Village receiving potable water supply from a MVS.

12 Jal Jeevan Mission: Jal Jeevan Mission is a Government of India programme, envisioned to provide safe and adequate drinking water through individual household tap connections to all households in rural India.

13 Lifeline water refers to the quantity of water which is sufficient to cover basic water needs of a household.

14 Maintenance: Maintenance is the planned technical activity, taken either in response to a breakdown, or periodical activities in a preventive mode to keep the water supply system operational.

15 Management Information System (MIS) is a system of computer-based information system, which processes data into information and is then used for taking decisions and planning.

16 Multi Village Scheme (MVS): Multi Village Schemes are rural drinking water supply schemes, drawing water from sustainable sources and supply potable water to a large community distributed in multiple villages, appropriately employing simple to complex water supply infrastructure, including treatment systems.

17 OHT - Village level Over Head Tank is a small storage reservoir for supplying water to the village community

18 Operation: Operation refers to the routine activities and procedures that are implemented to ensure that the water supply system is working efficiently.

19 Panchayati Raj Institution (PRI): Panchayati Raj is a system of rural local self-government in India, established across states of India by the acts of the state legislature to build democracy at the grassroots level. PRIs have constitutional mandate through the 73rd Constitutional Amendment Act of 1992.

20 Policy: A policy is a statement of intent and is implemented as a procedure or protocol by the Government of Tripura.

21 Potability: Potable water is defined as water that is suitable for human consumption, meeting physical, chemical, bacteriological standards for drinking or cooking as per BIS 10500 (2012) in the context of India.

22 Single Village Schemes (SVS): Single Village Schemes are rural drinking water supply schemes, drawing water from a local source, either groundwater or surface source, and supply water to a village community, appropriately establishing and employing simple water supply infrastructure.

23 Specification: Specification means a particular and detailed list or account of an item or of work to be done or of goods to be supplied in carrying out a contract. 'Specification' is provided in a document, which is, as a rule, prepared to accompany a s et of drawings, to explain, materials to be used and method of construction to be carried out.

24 Strategy: Strategy is a perspective plan consisting of vision and direction. Strategy in the context of the O&M policy means a clear understanding of the rural water supply sector. a clear sense of where the sector should reach, an assessment of obstacles and risks standing between the present and the vision, a plan about how to approach the challenge and risk s and a specific course of action to follow to achieve the vision.

25 Sustainability: Sustainability is a condition where a resource, a service or an institution is kept at a certain level, capable of being continued. From a resource perspective, sustainability is a condition which "meets the needs of the present without compromising the ability of future generations to meet their own needs. From an institutional perspective, sustainability denotes the continued and steady sustenance of an institution, while from a service perspective, sustainable service is a level of service that is steady and continues over a design period, which holds good in the case of a water supply service.

26 Technical backstopping by PWD (DWS): Technical backstopping refers to the professional and technical support and advice provided by PWD (DWS) to PRIs in Tripura with regard to the Operation & Maintenance of rural water supply schemes.

27 Village Water and Sanitation Committee (VWSC): VWSC is a village level committee, constituted by the Gram Panchayat at the Village level or GP level to coordinate, manage, operate and maintain rural water supply schemes and sanitation.

28 Water Tariff: Water tariff is a price assigned to water supplied by a public utility, a PRI or a community water supply institution, measured in lump sum or units such as kiloliter which when notified needs to be collected.

29 "Water Supply System" means the piped water supply system in the water supply area from the intake and up to household level, including the meters installed at the individual customer end.

CONTENTS

Introduction

The Jal Jeevan Mission (JJM) is envisioned to ensure that every rural household has access to safe and adequate quantity (minimum 55 liters per capita per day), of prescribed quality (conforming to BIS, IS:10500) drinking water on a regular basis through individual tap connections. The mission was launched on 15th August 2019, and since then significant progress of water supply infrastructure has been made developed by the State of Tripura under JJM. The initial phase focused on building infrastructure and achieving universal access to water in rural areas. Now the focus is on ensuring effective Operation & Maintenance (O&M) of completed / expected to be completed schemes in effective and efficient way. One of the key objectives of the JJM is to assist in ensuring sustainability of water supply system, which includes water source, water supply infrastructure, funds, skills, and local capabilities for regular O&M. This document focuses on preparation of State specific O&M policy and outlines various provisions on O&M as envisaged in the Operational Guidelines for the implementation of JJM-2.0, published by the National Jal Jeevan Mission, Department of Drinking Water and Sanitation, Ministry of Jal Shakti, Govt. of India in March 2026, as well as other best practice documents. Furthermore, this document also incorporates various features necessary for sustainable water supply management. Since 'water supply' is a state subject and vested to PRI as per 73rd Amendment of the Constitution of India, it is incumbent upon the States to lay down unambiguous, cogent, and coherent O&M policy to manage and sustain the rural water supply infrastructure in public interest. In a diverse and vast country like India, no uniform O&M policy may be workable. However, certain basic tenets would be essential ingredients of such O&M policies which would be adopted by the State to suit its requirements.

Considering above factors, Government of India, after stakeholder consultations, has framed a guideline for the preparation of Operation & Maintenance (O&M) policy for the State/UT's under JJM program to develop State specific suitable O&M Policy aligning with the incorporation of suggested 19 Essential Components under the Jal Jeevan Mission 2.0 for ensuring management and O&M of Rural Water Systems by respective Gram Panchayat/Village Committee at the earliest convenience.

Goal

Goal of O&M Policy is sustainable and inclusive service delivery in rural drinking water supply for every household in rural Tripura with four pillars as indicated below:

1. Institutional and Service Delivery Sustainability
2. Source Sustainability
3. Financial Sustainability
4. Infrastructure Sustainability

Objectives of O&M Policy

To provide guidance on sustainable water supply services in terms of availability, accessibility and affordability, adopting decentralized approach involving Gram Panchayats (GPs)/Village Committees (VCs)/ Village Water & Sanitation Committees (VWSCs).

To improve institutional capacity [redacted] VCs/ VWSCs to provide efficient, effective, and sustainable drinking water supply services and to clarify institutional roles and responsibilities of PWD (DWS), GP, VC, VWSC for operation, maintenance and management of rural water supply schemes and assets in the State.

To provide guidance on technical, institutional, and financial sustainability of rural Water Supply Schemes and to facilitate cost recovery at the GP/VC/VWSC level.

Scope of the Policy

The Operation & Maintenance Policy will apply to the entire rural areas of the State of Tripura in terms of geographical areas. The policy will govern water supply arrangements at GPs/VCs, to consumers. The policy will include various aspects of Operation & Maintenance, with regard to water resources, infrastructural assets and equipment including Water Treatment Plants/Innovative Schemes/ Iron Removal Plants (IRP), institutional arrangements, human resource management, capacity building, IEC/BCC, financial systems and cost recovery with incorporation of 19 Essential points as suggested by NJJM, DDWS, Govt. of India.

Need for O & M Policy

A well-defined Operation & Maintenance (O&M) policy is crucial for ensuring the sustainability, efficiency, and reliability of rural water supply systems. Without proper O&M these systems can face frequent breakdowns, water shortage and contamination issues. Ultimately failing to serve rural communities efficiently.

Key Reasons for an O&M policy:

1. Sustainability of Infrastructure.
   - Rural water supply systems require regular maintenance to prevent breakdowns and extend their lifespan.
   - A structural O&M policy ensures timely repairs and upgrades reducing costly replacements.

2. Reliable and Continuous water supply.
   - Ensures that water is available consistently, preventing service interruptions that can affect communities.
   - Addresses seasonal variations and technical failures proactively.

3. Water Quality and Public Health.
   - Proper O&M prevents contamination of water reducing health risks like water-borne diseases.
   - Regular monitoring and maintenance ensure compliance with water quality standards.

4. Cost-Effectiveness and Financial Sustainability.
   - Preventive maintenance is cheaper than breakdown/emergency repairs or system replacements.
   - An O&M policy includes budgeting and cost recovery mechanisms to sustain the system.

5. Community Ownership and participation.
   - Encourages local communities to take responsibility for system management.
   - Involves capacity building, training and awareness programs for efficient system usage and upkeep.

6. Efficiency In Resources Utilization.
   - Reduces wastage of water and energy by ensuring optimal operation of pumps, pipes and storage facilities.
   - Promotes water conservation practices among users.

7. **Institutional and Regulatory compliance.**
    - Aligns with government policies, environmental regulations and international best practices.
    - Provides a framework for accountability among stakeholders (PWD(DWS)/ PRIs/ Water users)

1.11 Amendment Provision:

1. This Operation & Maintenance (O&M) Policy for Rural Drinking Water Supply in Tripura has been prepared in line with the Operational Guidelines of JJM 2.0. This can be amended and/or annually, if required, to accommodate the views and experience of PRIs/VCs, Communities at large and enhance the service delivery systems by the PWD(DWS), Government of Tripura. Further clarifications, if required, regarding this O&M Policy may be made with reference to the JJM 2.0 Guidelines and relevant memorandum, notification etc. issued by the State Government in subsequent stages to the extent they are applicable to this O&M Policy.

2. Any notification or memorandum etc. associated with this O&M Policy issued by the State Government in subsequent stages will be deemed to be a part and parcel of this O&M Policy.

Chapter 1 Institutional Framework

1.1 National Jal Jeevan Mission

National Jal Jeevan Mission headed by Mission Director in the Department of Drinking Water and sanitation (DDWS), Ministry of Jal Shakti, is functioning under Government of India for the successful implementation of IJM and to provide policy guidelines, financial assistance and technical support to States.

1.2 Public Works Department (Drinking water and sanitation) - Government Tripura

In Tripura, currently Public Works Department (Drinking Water and Sanitation)- PWD (DWS) is the nodal Government Department to design, implement and Operation & Maintenance (O&M). At present 20402 rural Piped Water Supply scheme covering 8 districts in the state either completed or in progress to put them for O&M Activities by PWD (DWS). PWD (DWS) is functioning with one Chief Engineer, one Director, Water and Sanitation Support Organisation and one office of Planning and Design unit headed by an Additional Chief Engineer/Superintending Engineer at state headquarters, Office of four Superintending Engineers (SEs) located at Kumarghat, Ambasa , Agartala and Udaipur , 13 Executive Engineers in-charge of DWS Division offices located at Kanchanpur, Dharmanagar, Kumarghat, Ambasa, Kamalpur, Kalyanpur, Jirania, Agartala, Bishalghar, Udaipur, Amarpur Sabroom and Belonia. One Rig Division and one Store Division are functioning at State Headquarters. Moreover 53 number Sub-Division offices encompassing over the entire State are also functioning at Sub Distinct level covering 58 blocks, 1193 GP/VC and 765 Villages in the State of Tripura.

1.3 Role of PWD (DWS):

- Planning, Design and Implementation of Rural Piped Water Supply Scheme (PWSS).
- Testing and monitoring the quality of water supplied through FHTC.
- Technical backstopping
    i. Resolving technical, operational and management issues and advisory services.
    ii. Technical support to plan, design and facilitation of contracting process and reconstruction of the scheme, in the event of a natural disaster.

iii. Support GPs/VCs in recharging ground water through defunct water sources (DTW/SBDTW) and also to prepare a ground water recharge plan.

iv. Capacity building of the GP/VC/VWSC from time to time including upgradation of skills and knowledge.

v. Technical Training to Nal Jal Mitras, Pump Operators and GP/VC/VWSC level officials and others involved with O&M of PWSS.

1.4 State level : State Water and Sanitation Mission (SWSM), Apex and Executive Committee

The State Water and Sanitation Mission (SWSM) comprise of Apex Committee and Executive Committee:

i. The Apex Committee, headed by the Chief Secretary with Mission Director, JJM Tripura as Member Secretary.

ii. The Executive Committee will be headed by the State Mission Director with Chief Engineer PWD(DWS) as Member Secretary

1.4.1 Composition of Apex Committee, SWSM:

1. Chief Secretary, Tripura	Chairperson
2. Mission Director, JJM Tripura	Member Secretary
3. Principal Secretary/Secretary, DWS	Member
4. Principal Secretary/Secretary, RDD	Member
5. Principal Secretary/Secretary, Education Department	Member
6. Principal Secretary/Secretary, Health & F.W	Member
7. Principal Secretary/Secretary, Finance Department	Member
8. Principal Secretary/Secretary, IT Department	Member
9. Principal Secretary/ Secretary, Panchayat Department	Member
10. Principal Secretary/Secretary, Planning Department	Member
11. Principal Secretary/Secretary, SW & SE	Member
12. Principal Secretary/Secretary, ICAT	Member
13. Principal Secretary/Secretary, T.W. Department	Member
14. Principal Secretary/Secretary, SC, OBC & RM Welfare Department	Member
15. Representative from Department of Drinking Water & Sanitation Ministry of Jal Shakti, Government of India, New Delhi	Member
16. C.E.O, TTAADC	Member
17. Chief Engineer, PWD(DWS)	Member

1.4.2 The Roles & Responsibilities of the Apex Committee

a. It will guide policy, approve key decisions and support the functioning of water supply utilities under relevant State Acts and policies. It will also ensure coordination between departments. The Committee will issue directions on water security, regulatory measures, utility reforms and alignment with State priorities.

b. Apex Committee shall function as State Level Scheme Sanctioning Committee (SLSSC)

c. The committee shall regularly meet on quarterly basis.

d. To Review the Progress of JJM implementation with DMs/ DCs periodically.

1.4.3 Composition of Executive Committee, SWSM:

1. Mission Director, JJM Tripura	Chairman
2. Chief Engineer, PWD(DWS)	Member Secretary
3. Additional Chief Engineer, PWD(DWS)	Member
4. Chief Engineer, PWD(WR)	Member
5. Chief Engineer, RDD	Member
6. Joint Secretary, Finance Department	Member
7. Director, Health & Family Welfare	Member
8. Director, RD (Panchayat) Department	Member
9. Director, Planning Department	Member
10. Director, SW & SE	Member
11. Director, School Education	Member
12. Director, ICAT	Member
13. Director, IT Department	Member
14. Director, Agriculture	Member
15. Director, WSSO, PWD(DWS)	Member
16. Director, T.W. Department	Member
17. Director, SC, OBC & RM Welfare Dept.	Member
18. Representative from TTAADC	Member
19. Unit Head, CGWA, Tripura Unit, Govt. of India	Member

1.4.4 The Roles & Responsibilities of the Executive Committee

a) Overall planning, implementation, management and monitoring of schemes through effective operationalization of District Technical Units the mission at the State level. It will also facilitate engagement with district and

GP/VC/VWSC for timely execution of schemes and adherence to service delivery standards.

b) The SWSM shall conduct monthly review meetings and upload the Minutes of Meeting (MoM) on the SWSM Dashboard through the JJM-IMIS portal.

c) Coordination with NJJM will be institutionalized through regular interactions between the Mission Director, NJJM and Mission Director, JJM Tripura. Monthly review meetings, joint monitoring and digital platforms for real-time data sharing will support aligned planning, reform implementation and data-driven governance, interdepartmental coordination and adherence to service delivery standards

1.5 District level : District Water and Sanitation Mission (DWSM)

The District Water and Sanitation Mission (DWSM) constituted at the District level and headed by District Magistrate and Collector with Executive Engineer DWS Division, PWD(DWS) as Member Secretary. The DWSM shall comprise key District level officials.

1.5.1 Composition of DWSM :-

1)	DM & Collector, West Tripura District	Chairman.
2)	SE, DWS Circle, Agartala	Vice-Chairman.
3)	Addl. General Manager, TSECL	Co-Vice Chairman.
4)	EE, DWS Division,	Member Secretary.
5)	EE, RD Department	Co-Member Secretary.
6)	EE, Water Resource	Member.
7)	Chief Executive Office ZP	Member.
8)	BDO of all Blocks	Member.
9)	Divisional Forest Officer	Member.
10)	Zonal Development Officer, TTAADC	Member.
11)	CMO, Health Department	Member.
12)	Project Director (in ITDA/ITDP Districts)	Member
13)	District Education Officer	Member.
14)	Deputy Director, Agriculture Department	Member.
15)	District Information and Public Relation Officer	Member.
16)	Project Director, DRDA	Member.
17)	District Inspector, Social Welfare Deptt.	Member.
18)	District Panchayat Officer & Secretary, ZP	Member.
19)	District Scientific Officer, S.T&E Department	Member.

1.5.2 The Roles & Responsibilities of the DWSM

i. DWSM will ensure convergence across departments and effective coordination with GP/VC for timely and quality execution of schemes.

ii. DWSM shall conduct monthly review meetings with all stakeholders and upload the Minutes of Meeting (MoM) on the DWSM Dashboard through the JJM-IMIS portal.

iii. DWSM will operationalize the District Command and Support Centre (DCSC) as the central hub for planning, monitoring and oversight of Mission activities, supporting Jal Seva Aankalan, third-party inspections, grievance escalation and real-time data-driven decision making.

iv. Through the District Technical Unit (DTU) and District Programme Management Unit (DPMU), the DWSM will provide technical and managerial support for O&M, asset management, sustainability, disaster preparedness and capacity building.

1.6 Gram Panchayat (GP)/Village Committee (VC):

In Panchayat Raj Institutions, Gram Panchayat (GP) and Village Committee (VC) play multiple important roles in rural development at grassroots level. The Tripura Panchayat Act 1993 is extended to the whole of the State of Tripura except the area included in a Municipal corporation, Municipality, or a Notified Area and except the Tripura Tribal Areas Autonomous District (establishment of Village Committee) Act 1994. A village Committee in Tripura is a body that is established to administer villages in Tripura Tribal Areas Autonomous District Council (TTAADC) instead of Gram Panchayat. The Tripura Tribal Areas Autonomous District (establishment of Village Committee) Act 1994 extends to the whole of the TTAADC areas. There are 1193 number GP/VC/VWSC in the state, of which 606 numbers are GP and 587 numbers are VC.

1.7 Power and Dutics of GP/VC:

General Power and Duties of GP/VC for management with O&M of In-Village Infrastructure under Rural Drinking Water Supply have already been notified by the Government of Tripura in terms of –

i. The Tripura Panchayat Act 1993.

ii. The Tripura Tribal Areas Autonomous District (establishment of Village Committee) Act 1994.

iii. The Tripura Panchayats (Taxes, Fees, Rates and Tolls) rule 2011.

These acts and rules empower GPs/VCs, inter alia to supply drinking water and its management with O&M and collection of taxes and fees within its jurisdiction for those services as per 73rd amendment Act 1992 of the Constitution of India. The GP through its standing committee i.e. Village Water and Sanitation Committee (VWSC) shall own, manage and be accountable for all In-Village Water Supply Infrastructure and lead the planning, implementation, Operation & Maintenance of such systems in accordance with defined service delivery standards for quality, quantity and reliability.

1.7.1 Reporting Mechanism of GP/VC:

Each GP/VC shall prepare a monthly report covering the following aspects and then submit to the respective Assistant Engineer, DWS Subdivision, PWD (DWS).

1 Functionality of schemes:

All aspects relating to functionality of the PWSS and FHTC should highlight the following:

a. Regularity of the functioning of the Scheme as well as the FHTCs, as per JJM mandate and/or any other decision taken in this regard by the PWD (DWS).

b. Scope of availability and use for energization.

c. Functionality of raw water Source.

d. Water quality of treated water and supply of chemicals for water treatment.

e. Supply hour and quantity of treated water supply.

f. Users' ownership for PWSS infrastructure.

g. Status of construction of platform and Soak Pit by the beneficiary against each FHTC.

h. Function of village & water sanitation committee

2 Operation & Maintenance of the Scheme:

Following aspects relating to regular O&M activities to ensure effective management of the PWSS should be highlighted —

a. Financial Management (Monthly Tariff, FC Grant, any other eligible fund)

b. Engagement of O & M caretaker/pump operator and payment of remuneration.
c. Engagement of skilled manpower if required for repairing etc.
d. Any issues which need technical inputs from PWD (DWS).
e. Functionality of FHTC.
f. Grey Water management scope and functionality.
g. Use of FTK
h. Supply of chemicals for treatment.
i. Payment against bills for energization
j. Time to time evaluation water discharge through FHTC both at near the PWSS and the furthest point and necessary steps initiated to ensure equity in water availability in the entire command area of the Scheme.
k. Management of the Scheme with close coordination with PWD (DWS) and feedback if any received from VWSC or Users.
l. Emergency Response (Specially during flood and drought).
m. User's feedback, if any.

1.8 Village Water and Sanitation Committee (VWSC):

VWSC is a standing committee for water and sanitation services, constituted under The Tripura Panchayat Act 1993, and shall function as the Executive Arm of the Gram Panchayat (GP)/ Village Committee (VC) under Tripura Tribal Areas Autonomous District Council. There will be a single committee for water and sanitation at GP/VC level. The committee should have representation from all sections of the village, including women and marginalized communities, ensuring a minimum of 50% of women members.

1.8.1 Composition of VWSC is as follows:

i. Chairman – Gram Pradhan of GP or Chairman of VC
ii. Member Secretary – In charge of the Panchayat
iii. Members – a) All ward members of GP/VC
b) Representative of PWD (DWS)
c) President or secretary of Village Organisation (For SHGs)
d) Representative of ASHA of GP/VC
e) Representative of Anganwadi Worker of GP/VC
f) One (1) Representative of NGOs
g) One (1) Service/ Retired Service Man

1.8.2 Powers and Responsibilities of VWSC: The VWSC will be empowered to discharge the following functions, particularly concerning the post implementation phase of the water supply schemes:

- **Financial Management:** The VWSC will be responsible for creating and maintaining a register for all financial transactions, including community contributions, O&M costs, Water Tariff Collections and incentives received. They shall open and operate a dedicated bank account for these purposes.
- **Infrastructure Management:**
  - **Operation & Maintenance (O&M):** The committee shall be responsible for the regular O&M of the in village water supply system, including local water sources, and will decide on seasonal supply hours.
  - **Personnel Management:** The committee may hire Pump Operators, bare foot technicians and other necessary personnel to ensure the smooth operation and timely repair of the system.
  - **Asset Management:** The committee shall record all drinking water asset details in the Gram Panchayat/Village Committee Asset Register to ensure proper upkeep and tracking.
  - **Record Maintenance:** The Committee shall maintain records of breakdowns indicating the time and duration of breakdown on specified format.
- **Water Quality & Service Delivery:**
  - **Quality Assurance:** The committee shall facilitate water quality testing using Field Test Kits (FTKs) and arrange for periodic testing at accredited laboratories. The results must be disseminated to the community.
  - **Service Extension:** They will be responsible for providing Functional Household Tap Connections (FHTCs) to every existing and new rural household, including those in scattered habitations
  - **Accountability and Oversight:** The committee shall facilitate Third Party Inspections and Functionality Assessments and will conduct Social Audits to ensure transparency and accountability.

- **Community Mobilization and Engagement:**
  - **Gram Panchayat Development Plan (GPDP):** The committee shall be the primary body for reviewing the GPDP, for effective Operation & Maintenance of water supply schemes.
  - **Behavioral Change:** The committee shall conduct awareness campaigns on the judicious use of water promoting water conservation and preventing misuse.
  - **Meetings and Records:** The committee shall hold periodic meetings (at least four times a year) and maintain adequate records of all proceedings.

1.8.3 Financial Sustainability: For the long term sustainability of the water supply schemes, the following functional provisions shall be adhered to:

- **Water Tariffs and its collection:** The committee is authorized to firm up, levy and collect water service charges/user fees from the households.
- **Fund Utilization:** Use of funds from State/Central Finance Commission, other available grants and user charges. All funds thus collected shall be exclusively used as per GPDP towards effective O&M of the water supply system, ensuring a transparent and accountable financial management system.

1.8.4 Administrative aspects of VWSC:

i. The Chairman of the VWSC shall preside over all the meetings of the VWSC at which he/she is present. In absence of the Chairman, anyone of the members may be selected, in emergency situation, to preside over the meeting or be adjourned the meeting till the Chairman of the VWSC is available to chair the meeting.

ii. The quorum for every VWSC meeting- shall be one-third of the total composition of the VWSC members.

iii. Meeting notice with agenda may be given, under proper acknowledgement, by the Secretary in consultation with the Chairman of the VWSC or the Chairman himself, at- least seven days prior to the meeting date to all the members for participating in the meeting.

iv. VWSC shall work under GP/VC as Village Micro level entity of Water Utility Services

1.9 Rural Development (Panchayat) Department, Government of Tripura: Rural development (Panchayat) Department through Panchayati Raj Institutions (PRIs) is responsible as the Nodal Department for PRIs in the State. Accordingly, it plays a pivotal role in the implementation of the Jal Jeevan Mission (JJM) and the Operation & Maintenance of rural water supply systems in Tripura. They are responsible for raising awareness about the significance of safe drinking water, mobilizing local communities, and facilitating the formation of Village Water and Sanitation Committees (VWSCs). Other key components to oversee the co-ordination with the PWD (DWS) and other agencies with RD (Panchayat Department) plays an important role for equitable distribution of water within village with the utilization of Central Finance Commissions Tied Grant, other funds for efficient and meaningful O&M of the PWSS. The allocation of funds as per the FC guidelines shall be distributed among the Zilla Parishad, Panchayat Samiti, Block Advisory Committee, Gram Panchayat and Village Committee based on their respective responsibilities and quantum of share. RD Panchayat Department shall introduce software to support billing, collection and accounting, focusing on Operation & Maintenance of In-Village Infrastructure of PWSS.

1.10 Block Development Officer (BDO):

The Block Development Officer (BDO) holds a crucial administrative and supervisory role in implementing JJM and maintaining rural water supply in Tripura. The BDO coordinates with various departments, including the Public Works Department (PWD), Drinking water and Sanitation (DWS), to ensure the timely execution of water supply schemes. Additionally, they oversee capacity-building initiatives for local stakeholders, ensuring that community members are trained in the Operation & Maintenance of water supply infrastructure, thereby promoting long-term sustainability.

Regular meetings should be conducted at the block level to monitor the O&M activities and ensure effective expenditure of funds allocated under the CFC, SFC tied grants and other resources for seamless O&M of rural PWSS in the village. These meetings will focus on tracking progress, addressing challenges, and ensuring adherence to expenditure norms for O&M of rural water supply systems.

1.11 District Technical Unit (DTU):

To institutionalize the governance framework, the inter-departmental technical officials and field functionaries of PWD(DWS) will act as the extended technical arm of DWSM in every District vide notification no. 1(194)/CE/PWD(DWS)/E-II/2025/I/1265065/2026, dated 7th March 2026. The DTU will conduct regular meetings to discuss and decide on different aspects in regard to support O&M and management of Rural Water Supply System.

- **Composition of DTU:**
  - i. All PWD(DWS) Officials at the District & Sub-Division Level
  - ii. Chemists & Microbiologists working in District, Sub-District and WTP
  - iii. Executive Engineer, Rural Development Department
  - iv. Executive Engineer, PWD (Water Resources)
  - v. Technical Consultant- (DPMU)
  - vi. District Administration/DWSM may also outsource manpower through own funds to strengthen DTU capacity

Moreover, DTU can take Guidance from CGWB, Govt. of India, SWIC, NIT Agartala and TIT Agartala, Tripura State Council for Science and Technology and Tripura State Pollution Control Board as when required.

- **Relationship between DTU and DWSM:**

  - The District Technical Unit (DTU) will function under the overall administrative and governance oversight of the District Water and Sanitation Mission (DWSM) and will report directly to DWSM on all technical and operational matters.

  - DTU will act as the technical arm of DWSM, providing expert inputs for planning, implementation, operation, and sustainability of rural water supply schemes.

  - All technical reviews, performance assessments, and functionality reports prepared by DTU will be submitted to DWSM for decision-making and administrative action.

- DTU will support DWSM in monitoring service delivery, resolving operational issues, and enforcing compliance with JJM policies, standards, and protocols.
- While DWSM retains overall administrative authority and financial control, DTU will provide continuous technical guidance and field-level feedback to enable informed governance.

- DTU will assist DWSM in coordination with Gram Panchayats, RD (Panchayat) Department, other line departments, and State-level institutions, ensuring alignment between technical execution and district-level governance priorities.

- **Responsibilities of DTU shall include:**

  - Inspect the scheme regularly and issue necessary observation and guidelines
  - Periodic discussion, preferably once every month, involving the department officials with the GP shall be conducted to resolve difficulties, if any, and observations of inspecting engineers shall be attended to.
  - All technical reports, estimates, designs, drawings etc. shall be prepared at the department level as and when any major work is proposed.
  - All Technical supervisions and time to time guidance on O&M activities
  - Technical support in the management of crisis/natural disaster
  - Necessary assistance and guidance to maintain the records of the scheme performance and its O&M.
  - Make available copies of acts/rules/regulations and latest amendments and instructions to the GP/VC/VWSC.

Chapter 2: Service Delivery and Utility Development Approach:

The Jal Jeevan Mission (JJM) makes a transformational shift in Rural Drinking Water Management largely from infrastructure creation to the sustainable and reliable delivery of potable drinking water services to rural households through functional household tap connection (FHTC) on a regular and long-term basis at affordable service cost.

2.1 Service Delivery:

Rural Communities should receive water supply services comparable to urban utilities, ensuring reliability, safety, functionality and accountability in the system.

The approach of GP/VC/VWSC with the support of District Technical Unit (DTU) as backbone of DWSM under the chairmanship of the District Magistrate and Collector in every district shall focus on maintaining the functionality of tap connections ensuring that required 55 LPCD water of prescribed quality on a regular and long term manner, actually flows from each and every tap, rather than merely infrastructure creation.

2.2 Utility Approach of VWSC:

As a micro level water utility, VWSC shall adopt a utility-based approach in the management of In-Village Rural Water Supply Schemes and Infrastructures for continuous service delivery, system maintenance and financial sustainability.

The Utility approach emphasizes:

i. Professional Management of Water Supply Systems
ii. Efficient Operation & Maintenance
iii. Financial Sustainability through collection of water tariffs
iv. Accountability for service quality and reliability
v. Ensuring source and system sustainability and reliable tap water supply.

2.3 Digital Systems, Data Governance and Monitoring:

Mapping of all the schemes and associated assets will be through Sujalam Bharat – A Digital Public Infrastructure (DPI) platform with assignment of Sujal Gaon ID. It allows for source-to-tap mapping of water supply chains, providing a clear digital profile of infrastructure condition, water quality, and supply reliability for every village.

Sujal Gaon ID is a unique ID system used to track water supply service delivery, enabling accountability, transparency and evidence-based decision-making at the Gram Panchayat level. The system is integrated with PM Gati Shakti for accurate geo-referencing of water infrastructure. The initiative aims to enhance the sustainability of water supply systems by providing technical support, monitoring water quality, and encouraging community-led management.

The Command & Support Centers, supported by interactive dashboards at State, District and Gram Panchayat/ Village Committee levels shall provide operational data from Digital Systems through the Secretaries of GPs/VCs on the Panchayat Dashboard of JJM IMIS or through the Sujal Gaon App and transmitted to the Sujalam Bharat Database, enabling District and State Authorities to review assessment findings promptly and initiate targeted corrective actions:

a. **District Command and Support Center:** It acts as the first point of response for service delivery issues reported from GPs/VCs/VWSCs

Key Functions:

i. Near real-time monitoring of scheme functionality using Sujalam Bharat Database, Sujal Gaon Application and IoT systems where available.
ii. Receiving and tracking grievances and ensuring timely resolution.
iii. Coordinating with field engineers and GP-level functionaries to address breakdowns, leakages and other operational issues.
iv. Monitoring water quality test results and initiating corrective action where required.
v. Maintaining inventory of spare parts and O&M resources for quick response.
vi. Submitting periodic operational reports to the State CSC.

b. **State Command and Support Center:** It ensures early identification and resolution of systematic issues and acts as a link between Districts and the National Monitoring System.

Key Functions:

i. Aggregating district-level data to monitor scheme functionality, water supply continuity, water quality compliance and O&M performance across the State.

ii. Addressing escalated complaints and service failures beyond the capacity of District CSCs and facilitating technical or administrative support.

iii. Monitoring trends in water quality alerts, complaints and seasonal disruptions and issuing alerts to districts.

iv. Overseeing State-level O&M planning, including procurement, deployment of maintenance teams and monitoring service providers.

v. Reporting State-level performance to the national Ministry through the Sujalam Bharat platform.

vi. Sharing real-time functionality data with the District and State Support and Command Centre's to enable integrated monitoring. Further, data from allied devices such as flow meters, sensors and other field instruments shall also be integrated into the system to facilitate comprehensive oversight and ensure seamless coordination among service utilities.

2.4 Assessment of O&M by Jal Seva Aankalan: Jal Seva Aankalan is a digital, community-led assessment tool under the Jal Jeevan Mission (JJM). It enables Gram Panchayats to evaluate the functionality, regularity, adequacy, and quality of tap water services, shifting focus from infrastructure creation to sustainable daily water supply. It empowers GP/VC/VWSC to evaluate their own water supply, reducing dependence on third-party surveys and ensuring sustainability. Village Water & Sanitation Committees (VWSC) will perform the Basic details, Water supply functionality, Operational assessment, Maintenance assessment, and Village managements, which are then presented in a Gram Sabha, and data is uploaded digitally on the JJM-IMIS Panchayat dashboard by the Panchayat Secretary. The submission shall thereafter be reviewed at District Level through the DTU for technical diagnosis of service delivery gaps. Based on the DTU review, the DWSM shall undertake District level analysis and prepare District Improvement Plan (DIP), while the State shall review District findings and prepare State Improvement Plans (SIP) based on identified gaps and proposed corrective actions. The tool is accessible on the JJM Panchayat Dashboard and

the e-gramswaraj portal, offering 30-day citizen feedback windows for transparency, participatory governance and community ownership in rural drinking water service delivery.

2.5 Integration of Jal Seva Aankalan and Sujalam Bharat App: The integration of Jal Seva Aankalan and the Sujalam Bharat app creates a unified digital framework for monitoring rural water supply under the Jal Jeevan Mission. Sujalam Bharat provides the geospatial infrastructure mapping (source-to-tap), while Jal Seva Aankalan conducts village-level service assessment. This integration ensures real-time tracking, improved accountability, and evidence-based decision-making for water sustainability.

Key Aspects of Integration:

- Source-to-Tap Digitalization: The Sujalam Bharat App, launched in December 2025, maps physical water assets (pipelines, tanks) and assigns a unique Sujal Gaon ID/Service Area ID to each village.
- Assessment & Verification: Jal Seva Aankalan acts as the primary tool for village-level assessments, integrated with the Sujalam Bharat platform to verify if water supply is regular, adequate, and of high quality.
- Data Driven Governance: The integration allows for data-driven decisions by connecting groundwater management systems and IoT-based sensors via Bhaskaracharya Institute for Space Applications and Geoinformatics (BISAG-N) to provide real-time updates on water services.
- Community Participation: The system is supported by the Meri Panchayat app for citizen oversight, ensuring the village-level assessments and condition of actual data reflection.

This digital architecture enables the identification of service gaps in real time, moving away from purely manual oversight towards a more transparent, accountability-driven approach

Chapter 3: Operation & Maintenance Model

In Tripura, there are 765 villages, while total number of GP/VC is 1193. For which jurisdiction of GP/VC in some cases are less than the jurisdiction of a village. Due to obvious reasons, in some cases a village is under control of more than one GP/VC and in some cases even under more than one Panchayat Samity. VWSC is a standing committee of GP/VC and shall function as the Executive Arm of the Gram Panchayat (GP)/ Village Committee (VC). The VWSC headed by the Pradhan of Gram Panchayat or Chairman of Village Committee will be accountable to the GP/VC for water and sanitation services

3.1 Type of Schemes:

Depending upon geographical coverage there are two types of water supply schemes i.e.

A. **Single Village Scheme:** The water is drawn from a sustainable source within the GP/VC and distribute among its inhabitants or multiple individual schemes with separate sources within the village and distribute water within the same GP/VC.
B. **Multi Village Scheme:** The water is drawn from a GP/VC, distribute water to that GP/VC including other GP/VC i.e., distribution is made to more than one GP/VC.

3.2 Water Source

Under the Jal Jeevan Mission (JJM), various types of water sources are utilized to provide safe and adequate drinking water to households. These sources typically include:

i. Surface Water: This includes water from rivers, streams, Cherra and Springs.
ii. Ground Water: Sources such as DTW/SBDTW.

GP/VC/VWSC shall supply safe drinking water, equivalent to 55 LPCD to Consumer Households, drawing water from MVS or SVS. Drinking water needs of rural population will have highest priority among competing uses of water.

3.3 Quality of Water Supplied by GP/VC/VWSC:

GP/VC/VWSC shall distribute water with quality standards complying with IS:10500; 2012 or latest version of the same. GP/VC/VWSC shall also see that further contamination of treated water is avoided by all means while managing distribution from the Village OHT to consumer connections. GP/VC/VWSC is permitted to supply water with quality parameters falling within permissible limits if water with acceptable quality parameters is not available.

GP/VC/VWSC shall recharge all traditional water bodies, public and private bore-wells, using provisions under VB-G RAM G or other appropriate schemes / funding sources.

Measuring water consumption and losses: GPs/VCs shall measure the receipt of water from MVS as well as own production of water, if any and the net water distribution at consumer ends so as to estimate Non-Revenue Water and thus identify the water losses from the water supply system.

3.4 Governance of Dual Utility Systems:

It is envisaged to bring in structural reforms in the Rural Water Supply Sector through development of a Dual Utility Framework comprising –

a) **Micro Utility:** Components of Schemes recorded in Sujalam Bharat App as In-Village **Infrastructure.**

b) **Macro Utility:** Components of Schemes recorded in Sujalam Bharat App as Out-Village Infrastructure

3.4.1 Micro Utility: The In-village water supply infrastructure will be owned, operated and managed by GPs/VCs/VWSCs, functioning as village level micro service utilities. In village Infrastructure includes:

i. Single Village Scheme (SVS) with DTW, SBDTW, Innovative scheme (Recorded in Sujalam Bharat App as In Village Infrastructure), Pipeline, OHT, CWR etc. and Electro-mechanical Installation including electricity charges shall be managed with O&M by the GPs/VCs/VWSCs under whose jurisdiction the said infrastructures are situated.

ii. Multi Village Scheme (MVS) with DTW, SBDTW, SWTP & Innovative scheme (Recorded in Sujalam Bharat App as In Village Infrastructure mainly pipeline distribution system), rising/delivery main, OHT and CWR shall be managed with O&M as follows:

a) Respective GPs/VCs/VWSCs under whose territorial jurisdiction, all infrastructures are situated shall be managed with O&M of such infrastructure along with pipeline distribution system of that GPs/VCs/VWSCs. Other beneficiary GPs/VCs/VWSCs shall manage with O&M of pipeline distribution system within their jurisdiction. Notwithstanding anything stated elsewhere in this policy to the contrary, regarding the utilization of water charges, beneficiary

GPs/VCs/VWSCs shall provide 60% of water user charges collected to the GPs/VCs/VWSCs where DTWs, SBDTWs, OHTs are situated.

b) When DTW or any other source is created in a GP/VC/VWSC, but in no way water is utilized by that GP/VC/VWSC, the responsibility of maintaining the said DTW or any other source, will entirely rest on the beneficiary GP/VC/VWSC and accordingly liable to take over the DTW/Source by the beneficiary GP/VC/VWSC.

c) In certain instances, water sources/schemes may be geographically situated within the jurisdiction of a Gram Panchayat (GP) or Village Council (VC), but primarily serve urban areas. In such cases, the transfer of these sources/schemes for local O&M shall not be considered.

d) All SBDTW Schemes shall be managed with O&M by the respective GP/VC/VWSC.

3.4.1.1 Types of Maintenance Work under Micro Utility:

Maintenance activities can be categorized into minor and major tasks based on complexity, cost and frequency of occurrence.

1. **Minor Maintenance Items under Micro Utility** – These are routine maintenance tasks that are low-cost, require minimal technical expertise and can be handled at the local level by GP/VC/VWSC.

A. Day to Day Pump and Valve operation.

B. Pumps Motor Maintenance:

i. Lubrication of motor bearings to prevent wear and overheating.
ii. Tightening of bolts, nuts and pipe fittings to prevent leaks and vibrations.
iii. Cleaning of pump strainers and suction lines to remove debris and sediments.
iv. Checking and adjusting pump alignment to reduce wear on components.
v. Monitoring motor temperature to prevent overheating.

C. Electrical System Maintenance:

i. Power related issues with TSECL
ii. Checking voltage and current readings to prevent electrical overload.
iii. Tightening of electrical connections to avoid loose wiring issues.
iv. Replacement of minor electrical components (e.g., fuses, switches, indicator lights)
v. Change of fused bulb or tube light.

vi. Electrical wiring and connections damaged due to moisture or rodents and need repairs.
vii. Solar panels cleaning and wiring checks.
viii. Repairing or replacement of main switch, Busbar
ix. Replacement of voltmeter, ammeter, MCB, RCCB, PCB, indicator lamp and emergency stop button.

D. Water Quality and Pipeline Maintenance:
i. Flushing of pipelines if required, to prevent sediment accumulation and biofilm growth.
ii. Leakage / bursting repairs in distribution system (e.g., pipe cracks and bursting upto 200mm dia, loose joints)
iii. Cleaning of OHT/GLR to prevent contamination.
iv. Regular chlorination of water to maintain available chlorine content to an acceptable limit of 0.20mg/ltrs and permissible limit of 1.00mg/ltrs at any FHTCs, to supply safe water.
v. Checking and cleaning air valves and washout valves to ensure proper water supply.

E. Control Valve and Metering system Maintenance:
i. Greasing of gate valves and sluice valves to prevent stiffness.
ii. Cleansing of water meters to ensure accurate readings.
iii. Replacement of minor defective valve parts (e.g., rubber seals, washers)

F. Iron Removal Plant (IRP)
i. Daily backwashing for 45 minutes.
ii. Air release valve and pressure gauges replacement.

G. Pump House
i. Repairing and maintenance of administrative building, pump house, control room, blower and compressor room except structural RCC works.
ii. Whitewashing, colour washing and painting.

2. Major Maintenance Items under Micro Utility – These tasks are technically complex, costly, require skilled professionals and often involve major equipment replacement or overhauls.

A. DTW /SBDTW Maintenance:
i. Desilting and redevelopment of DTW/SBDTW (surging & pumping) to restore water yield.
ii. Overhauling or replacement of pump and motor.
iii. Rehabilitation of DTW (SBDTW with chemical treatment to remove bio fouling or encrustation.
iv. Lifting and Lowering of pump motor.

B. Pumping system & electrical Components:

i. Replacement of major motor components (winding, stator, rotor).
ii. Installation of a new control panel or starter if the existing one is faulty.
iii. Transformer or main power supply up gradation to meet increased demand.
iv. Pump Impeller need cleaning or replacement.
v. Pump belts and coupling replacement

C. Pipelines & Distribution system maintenance.

i. Repair and Replacement of major pipeline section (above 200mm dia.) due to leaks, bursting etc.
ii. Repair or replacement of sluice valves, Non Return Valves and Pressure Release Valves if heavily damaged.
iii. Rehabilitation or reinforcement of overhead tanks if structural issues are identified.
iv. Replacement of large-diameter pipes (above 200mm dia.) in case of frequent bursts or pressure loss.
v. Withdrawing and relaying of main pipeline (any dia.).

D. Water Treatment & Storage maintenance

i. Desilting and Water proofing of OHT/GLR to prevent leaks.
ii. Installation / Replacement or Repairing of chlorination units for continuous disinfection.
iii. Major structural repairs in pump house or control room due to aging or weather damage.

E. Iron Removal Plant (IRP)

i. Filter Media Replacement/Regeneration periodically based on clogging and effectiveness of filter media.
ii. Maintenance of compressor and blower.

F. Innovative Scheme (Recorded as In Village Infrastructure)

G. Other major works:

i. Extension of any main pipeline in distribution systems.
ii. Any emergency maintenance of critical failures.
iii. Heavy contamination in distribution system.
iv. Sinking of new DTW/ SBDTW and allied works.
v. Any arrangement for manifold / boosting pump station.

3.4.1.2 Method of Execution of Micro Utility

- **In Village Infrastructure:**

i. GP/VC along with VWSC will decide the mode of O&M with any of the following options:

a) Operation – By engaging Pump Operator/Nal Jal Mitra,

Maintenance – By engaging Contractor.

b) Operation – By engaging Pump Operator/Nal Jal Mitra,
Maintenance – By engaging Job based Vendors

c) Operation & Maintenance by an Institutional/Organisational Partner such as a Co-operative Society/ Primary Agricultural Credit Societies (PACS)

ii. Satisfactory Work Done Certificate in case of Major Maintenance works shall be obtained from the respective Executive Engineer, DWS Division, PWD(DWS) before making any payment in this score by the respective GP/VC/VWSC.

OR

Operation: By engaging Pump Operator/Nal Jal Mitra,
Maintenance of Rural Piped Water Supply Schemes in Full by Engagement of Reputed Vendors, to be engaged by PWD(DWS) Government of Tripura, for a period of 5 Years/ 10 Years, preferably with any one of the following manner:

i. One Vendor per DWS Division
ii. One Vendor per District
iii. One Vendor for the State

3.4.2 Types of Maintenance Work under Macro Utility:

The PWD (DWS) Government of Tripura, will function as Macro Utility. Macro Utility shall be responsible for ensuring efficient and reliable functioning of large and technically complex infrastructure including multi-village Schemes/Out-village Infrastructure. The Macro utility shall function as a System Integrator ensuring that infrastructure systems operate efficiently and support sustained service delivery at the local level. The functions of Macro Utilities shall include:

i. Operation & Maintenance of Out-Village Infrastructure as follows:

a) Surface Water Treatment Plant (SWTP)
- Intake to Treatment Plant including Treatment Units.
- Treatment Plant to Service OHT

b) Innovative Scheme (Recorded as Out Village Infrastructure)

ii. Providing technical support, capacity building, and guidance to micro utilities.

iii. Monitoring system performance and identifying areas for improvement

3.4.2.1 Method of Execution of Macro Utility:

- **Out Village Infrastructure:**

i. Operation: Pump Operator/ Nal Jal Mitra shall be engaged by the respective GP/VC/VWSC if not provided by PWD(DWS)

ii. Maintenance: PWD(DWS) will decide the mode of Maintenance with the following options:

a) Maintenance by engagement of a Contractor.

b) Maintenance by an Institutional/Organisational Partner such as a Co-operative Society/ Primary Agricultural Credit Societies (PACS).

3.5 Tender for engagement of Contractor/Vendor by the GP/VC/VWSC and PWD (DWS) for O&M:

3.5.1 Standard Tender Documents including specification of works shall be prepared by the respective PWD(DWS), Division/DTU and hand it over to GP/VC/VWSC well in advance. Where the GP/VC/VWSC and/or PWD(DWS) enters into a agreement with a Contractor/Vendor, that should be executed by a tripartite agreement among GP/VC/VWSC. PWD(DWS) and the concerned Contractor/Vendor.

3.5.2 Administrative Approval, Sanction of Expenditure and Power to Accept Tender by the GP/VC/VWSC for execution of O&M expenditure shall be issued by the Finance Department, Government of Tripura.

3.6 Billing and Collection: GP/VC/VWSC will follow a monthly cycle for billing and collection under SVS and MVS.

3.7 O&M Plan and Budget: GP/VC/VWSC shall prepare an annual O&M plan including a budget appropriately including the prospective income from the supply of water and expenditure from the access and distribution of water. This O&M plan shall also be made part of the Gram Panchayat Development Plan (GPDP), Block Panchayat Development Plan

(BPDP) and District Panchayat Development Plan (DPDP), Appropriate level of TTAADC at VC, Block Advisory Committee (BAC). Information derived from the GP level O&M budget shall be used to make Water supply systems financially sustainable by achieving cost recovery at GP/VC/VWSC level.

3.8 Disconnection of power connections: All GP/VC/VWSC level electric connection for water supply schemes, which are abandoned, shall be disconnected by following appropriate procedures.

3.9 Penal Charge on Consumers: GP/VC/VWSC shall impose a penal charge on consumers within the GP/VC/VWSC if the consumer delays payment or non-payment of water charges beyond the stipulated date at the rate Rs. 200 per month of delay made by the consumer.

3.10 Software for billing and collection: RD Panchayat Department shall introduce software to support billing, collection and accounting, focusing on Operation & Maintenance of all type of schemes. Penal Provisions are discussed in Chapter 16 of this policy.

3.11 The stock list for Operations & Maintenance (O&M) of Rural Drinking Water Supply Schemes shall be maintained by GP/VC/VWSC:

1. **Spare Parts for submersible Pump & Motor.**

a) Pump Components:

- Pump Bearings (Ball & roller type) – Qty.: 2-4 sets.
- Pump Seals & O-Rings (Rubber, PTFE, Mechanical Seals) – Qty. 4-6 sets.
- Pump Impellers & Diffusers (based on pump stage) – Qty.: 2-3 sets.
- Pump Shafts & Couplings – Qty: 1-2 sets.
- Pump Strainers & Filters – Qty.: 2-3 sets.
- Foot Valve (Brass/Stainless Steel, as per design) – Qty.: 2-3 pcs.

b) Electrical Spares:

- Control Panel Fuses (10A, 16A, 32A, as required) – Qty.: 5-10 pcs each.
- Capacitors (for motor starters, 2HP-20HP range) – Qty.: 3-5 pcs.
- Overload Relay & contactors – Qty.: 2-3 sets.
- Control Panel Indicator Lights & Push Buttons – Qty.: 4-6 pcs each.
- Main Switch – 2pcs.
- Starter – 1pcs.

- Test Lab – 3pcs.

2. Spare Parts for UPVC/DI Pipeline Distribution Systems

a) UPVC Pipes & Fittings:

- UPVC Pipes (63mm, 90mm, 110mm, 160mm as per design) – 100-200mtrs.
- DI Pipe (150mm, 200mm dia) – 100mtr, Rubber Gasket (150mm-200mm) – 8-10 pcs each.
- Washing Pipe (coiled) – Qty: as per requirement.
- UPVC Pipe Joints & Connectors (couplers, Tee, bend, Reducers, End caps) – Qty.: 10-15 pcs each.
- Solvent cement for UPVC joints – Qty.: 2-5 litres.

b) Valves & Accessories:

- Air Release Valve (1 to 2 depending on system design) – Qty.: 2-3 pcs.
- Gate Valves (Brass/CI, 50mm – 100mm sizes) – Qty.: 3-5pcs
- Ball Valves for Household connections (1/2 inch, ¾ inch size) – Qty.: 10-20pcs.
- Non Return Valves (NRV) for Pump Discharge – Qty.: 2-3pcs.
- Washout Valves for Pipeline Cleaning – Qty.: 2pcs.
- Pressure Ranges (0-10 bar) – Qty.: 2-3pcs.

c) Leak Repair Materials.

- Pipe Repair Clamps (for different UPVC pipe sizes) – Qty.: 5-10pcs.
- Epoxy sealant & Leak Repair Tape – Qty.: 2-3sets.
- Teflon Tape for Threaded Joints – Qty.: 10rolls.

3. Spare Parts for Storage and Water Treatment system.

a) Storage Tank Components:

- Float Valves for Overhead Tanks – Qty.: - 2-3 pcs.
- Tank Cleaning Brushes & Scrapers – Qty.: 2 sets.
- Tank Lid & Locking Mechanism – Qty.: 2 pcs

b) Water Treatment Equipment.

- Chlorine Dosing Pump Tubes and Nozzles – Qty.: 2-3 sets.
- Sodium Hypochlorite Solution/Bleaching Powder –Qty.: 20-50 kg.
- pH Test Kits & Chlorine Test Kits- Qty.: 1-2 sets

4. Tools and Equipment for O&M Teams.

a) General Tools:

- Pipe Wrenches (12,18,24 inches) –Qty.: 1 each.

- Spanners set (8mm to 32mm) – Qty.: 1set.
- Screw drivers & Pliers set – Qty.: 1set.
- Hacksaw & Pipe cutter – Qty.: 2 each.
- Multimeter for electrical testing – Qty.: 1pcs.

b) Leak Detection & Repair Tools:

- Pressure Testing Kit for Pipelines – Qty.: 1pcs
- Submersible Pump Lifting and Lowering Tools (Tripod, Chain Pulley Block) – Qty.: 1 set.

c) Safety Equipment:

- Gloves & Helmets - Qty.: 5 sets.
- Rubber Boots & First Aid Kit – Qty.: 5 sets.

5. Consumables & Backup Items for Emergency Use.

a) Sealants & Adhesives:

- PVC Solvent cement (Heavy Duty) – Qty.: 2-5 kg
- Teflon Tape (for threaded fittings) – Qty.: 10 rolls
- Gasket Sealant Paste – Qty.: 2-3 tubes

b) Lubricants & Grease:

- Motor Oil & Grease (for bearing & moving parts) – Qty.: 2-3kg
- Lubricant – Qty.: 2-3 cans

c) Emergency Backup Stock:

- Spare Sodium Hypochlorite Solution for 1month use – Qty.: as required.

3.12 Preventive Maintenance

Preventive Maintenance of a Rural Piped Water Supply Scheme is essential to ensure its long-term functionality, efficiency and water quality. The specified frequency for each parameter ensures regular checks and proactive maintenance to avoid major breakdowns. Responsibilities of DTU for digital preventive maintenance, asset strategy and predictive analytics include:

- Digitally generating preventive maintenance schedules for village level utilities using Sujalam Bharat Asset Registries to optimize O&M costs and reduce breakdowns.
- Preparing Mid-term and Long-term asset replacement strategies based on lifecycle analysis and system performance.
- Maintaining optimal inventory levels through AI based predictive analytics for forecasting failures, planning replacements, and efficient resource utilization.

Chapter 4: Source Sustainability

Sustaining Water Sources is a critical aspect of the Operation & Maintenance (O&M) of Rural Piped Drinking Water Supply Systems.
A well-designed policy ensures long term water availability, minimal environmental impact and resilience against climate change.

The DTU will be responsible for source sustainability planning using a Decision Support System (DSS). The DTU will coordinate with CGW, PWD (Water Resource) and Allied departments to guide recharge, conservation and climate resilient interventions.

4.1 Key Policy Objectives:

1. Ensure regular and safe drinking water supply by managing water sources efficiently.
2. Promote ground water recharge and rainwater harvesting to prevent depletion.
3. Encourage community participation for long-term sustainability.
4. Integrate technological and nature-based solution to protect water quality and quantity.

4.2 Key Components of Source Sustainability Policy:

A. Water Source Protection & Conservation.

i) Waterahed Management

- Protect and Restore catchment areas of rivers, streams, cherras, spring shed management and ground water recharge in convergence with the programme of PWD Water Resource, Department of Forest and Rural Development Department etc.
- Implement afforestation and soil conservation programs of Government Departments like Agriculture, Forest etc.

ii) Groundwater Regulation

- Restrict over-extraction of groundwater, ensuring it does not exceed 70% of the available water of a source. To maintain a maximum groundwater through DTW & SBDTW per day and radial distance between tubewells, consultation should be done with Central Ground Water Authority in Tripura.
- Mandate rainwater harvesting structure initially in public buildings and gradually in rural households.
- Keep a check on drilling of bore wells in consultation with CGWB to avoid depression of ground water aquifer

iii) Pollution Prevention & Water Quality Protection.

- Preventing contamination from agriculture (Pesticides) and Sewage.
- Greywater should be disposed of in a soak pit and not in pond or in water bodies directly
- Establish a routine for conducting sanitary surveys to assess the safety and security of water sources.

- A sanitary survey is a systematic inspection used to evaluate potential risks to public health from water sources or facilities. Below is a standard format for a sanitary survey for water supply systems.

Table 1 Sanitary Survey Format Table

Section	Parameter	Details/Observations	Yes/No/NA	Remarks
1. Water Source	Type of Source (Well, Borewell, etc.)			
	Is the source protected from contamination?			
	Is the source free from stagnant water?			
	Presence of visible contaminants (e.g., debris, waste)?			
2. Catchment Area	Is the area surrounding the source clean?			
	Is there any agricultural or industrial activity nearby?			
	Is drainage provided for storm/rainwater?			
3. Water Storage	Is the overhead tank/storage clean?			
	Is there evidence of regular tank cleaning?			
	Any signs of leakage or structural damage?			
4. Water Quality	Presence of discoloration,			

	odor, or taste issues?			
	Have water quality tests been conducted recently?			
	Are test results within permissible limits?			
5. Distribution	Are pipelines free from visible leakage?			
	Are pipelines protected from external contamination?			
	Are pipelines regularly maintained?			
6. Community Usage	Are taps and standposts well-maintained?			
	Is there water wastage at user points?			
	Are users aware of water conservation practices?			
7. Operation & Maintenance	Are VWSCs active and functional?			
	Is there a plan for regular O&M of the system?			
	Are funds for maintenance readily available?			
8. Risk Assessment	Presence of any contamination risks (physical, chemical,			

	biological)?			
	Is there a contingency plan for emergencies?			
	Are there any reported health issues related to water quality?			

B. Sustainable Water Management During O&M.

1. Demand side management.
   - Encourage water conservation techniques like pushback tap connection and low flow household taps.
   - Promote GP/VC/VWSC – led water audits to track usage and minimize wastage.
2. Supply Augmentation Strategies.
   - Diversify Water Sources (e.g., Combining Surface water, Ground water, and Rainwater harvesting).
   - Reuse and recycle treated grey water for kitchen garden irrigation and non-drinking purposes.
3. Leak Detection & Repair.
   - Implement real-time monitoring of pipeline networks to reduce leakages and non-revenue water (NRW).
   - Ensure periodic O&M checks of DTW, SBDTW, OHT, CWR, GWR and distribution systems.

C. Institutional & Financial Support Mechanisms.

1. Role of GP/VC/VWSC.
   - GP/VC/VWSC to take responsibility for source sustainability with the support of PWD (DWS).
   - Promote GP/VC/VWSC based water source monitoring (Groundwater Table) using village level water security plans.
2. Funding & Financial Sustainability.
   - Access funds from VB-G RAM G, SBM-(G)-2.0, PWD Water Resources Department, Forest etc. Departments and State budgets.
3. Policy Implementation Strategies.
   - Integration with Jal Jeevan Mission (JJM) and Swachh Bharat Mission (SBM-G) to ensure long term sustainability.
   - Community (GP/VC/VWSC) capacity Building & Training to empower rural communities in water management.

- Launch a program with all schools (public and private) by engaging them in IEC activities and events organized by GP/VC/VWSC with the support of PWD(DWS) to sensitize them to water conservation, sustainable use and source protection. This program may be organized at district level, preferably, from 8th March, International Woman's Day to World Water Day, 22nd March every year, focusing on the theme highlighted by United Nations for the particular year.
- Use of GIS & Remote Sensing and hydro-geomorphology map with the support of Tripura State Council for Science and Technology, and CGWB for tracking ground water depletion, watershed health, recharge levels, water availability, depth and storage capacity.
- Annual water body and spring census data collection from PWD Water Resource, Govt. of Tripura, to map rechargeable sources and quality of water at the source in order to establish a robust database for planning and management purposes.
- Once the yield of the DTW/SBDTW arrives to below 50% of the required yield, attention shall be given to such wells and necessary rectification measures like redevelopment of wells to obtain required yield or an alternative arrangement may be made.

Chapter 5 – Water Quality Framework.

The Water Quality Framework outlines the standards, monitoring mechanisms and institutional responsibilities for ensuring safe and sustainable drinking water in rural piped water supply systems. It aligns with Jal Jeevan Mission (JJM) and IS10500:2012, to safeguard public health and ensure compliance with environmental standards.

5.1 Objectives

- Ensure continuous supply of potable water meeting IS10500: standards with its upto date amendments.
- Establish a robust water quality monitoring system at source, treatment distribution network and household levels.
- Implement preventive and corrective measures for contamination control.
- Strengthen institutional capacity and community participation in water quality management.

5.2 District Technical Unit (DTU) responsibilities on Water Quality Surveillance (WQS) include:

- Establishing and Overseeing the District Water Quality Surveillance (WQS) system through WQMIS under JJM-IMIS.
- Implementing and enforcing NJJM-issued water quality protocols uniformly across villages.
- Transitioning to application based digital water quality reporting by field functionaries.
- Administrative oversight of laboratories, including accreditation, staffing, compliance, and quality assurance.
- Capacity building for FTK users, operators, VWSC members and Field Staff.
- Ensuring availability of testing reagents, equipment, consumables and calibration materials.
- Conducting water quality awareness programmes and collaborating with educational and technical institutions to promote water safety literacy.
- Leveraging digital data for predictive and preventive water quality management and timely remedial actions.

1. Water Quality Parameters and Standards as per IS: 10,500: 2012

Table 2: Water Quality Monitoring at State, District, Sub-Divisional/WTP water quality testing labs as per IS: 10500:2012

Sl. No.	Characteristic	Requirement (Acceptable limit)	Permissible Limit in the Absence of Alternate Source	Test Result
1.	Color Hazen units, Max	5	15	
2.	Odour, (Test cold and when Heated and at several dilutions)	Agreeable	Agreeable	
3.	Taste (Test only after safety is established)	Agreeable	Agreeable	
4.	pH, value	6.5-8.5	No relaxation	
5.	Turbidity, NTU, Max	1	5	
6.	Total dissolved solids, mg/l	500	2000	
7.	Chloride (as Cl), mg/l, Max	250	1000	
8.	Total alkalinity(asCaCO3), mg/l, Max	200	600	
9.	Total hardness (asCaCO3), mg/l, Max	200	600	
10.	Sulphate (as SO4), mg/l, Max	200	400	
11.	Iron (as Fe), mg/l, Max	1.0	No relaxation	
12.	Total arsenic (as As), mg/l, Max (in hotspots)	0.01	No relaxation	
13.	Fluoride (as F), mg/l, Max	1.0	1.5	
14.	Nitrate(asNO3) mg/l, Max	45	No relaxation	
15.	Free Residual chlorine*, mg/l, Min.	0.2	1	

16.	Total coli-form bacteria	Shall not be detectable in any 100 ml sample	Shall not be detectable in 100 ml sample	
17.	E. coli or thermotolerant coli-form bacteria	Shall not be detectable in any 100 ml sample	Shall not be Detectable in100 ml sample	

5.3 Institutional Framework.

A. Water Quality Management Unit under O/o Chief Engineer, PWD(DWS), Government of Tripura.

- Composition:
  - i) Superintending Engineer – Head of the Unit
  - ii) Executive Engineer – 1No (Water Quality Monitoring)
  - iii) Executive Engineer – 1No (Water Quality Surveillance)
  - iv) Assistant Engineer – 1No (Water Quality Monitoring)
  - v) Assistant Engineer – 1No (Water Quality Surveillance)

- Function:
  - i) Water Quality Monitoring.
    - a) Workout systematic process of collecting, analyzing and interpreting data on water quality parameters.
    - b) Focuses on short-term and long-term assessment of water quality to understand trends, identify pollution sources if any.
    - c) It can be routine and event driven i.e. after a flood, outbreak of diarrheal diseases and suspected contamination.
  - ii) Water Quality Surveillance.
    - a) Continuous and proactive process aimed at ensuring safe drinking water by detecting risks and taking preventive actions.
    - b) Acts upon the findings of water quality data to protect public health.

B. Water Testing Laboratory

- NABL accredited state laboratory at state headquarters – 1No
- NABL accredited district laboratory at all districts – 8 Nos
- NABL recognized sub-divisional/WTP laboratory – 12 Nos.

5.4 Water Quality Monitoring Mechanisms.

A. Water Testing Frequency

Table 3: Parameters to be tested at surface water source.

Sl. No	Water source	Surface Water (Rivers and Stream/Chera Lake/Pond/Springs etc.)	Sample Testing at
1	Location	The location of sample collection should be the intake point/ jack well.	
2	Parameter	Chemical parameter: Colour, Odour, pH, Turbidity, Total Dissolved Solid (TDS), Total Hardness, Total Alkalinity, Sulphate, Chloride, Nitrate.	Block/sub-divisional level labs
		Demand Parameters: Bio-chemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD) - To be decided by the SWSM.	District/State level labs
		Other region-specific inorganic and organic parameters like Arsenic, Fluoride, Uranium, Pesticides, Poly Nuclear Aromatic Hydro Carbons (PAHs) etc.	State level labs
3	Frequency (Minimum)	a) 4 times a year. b) At equal time intervals. c) The date of sample should be approximately same for a particular source so that data can be compared.	

Table 4: Parameters to be tested at ground water source (Sampling Location 2)

Sl. No.	Type	Ground Water Source	Sample Testing at
1.	Location	At the outlet of ground water source, In case of direct pumping from source	
2.	Parameter	Chemical parameter: pH, Turbidity, Total Dissolved Solid, Total Hardness, Total Alkalinity, Nitrate, Sulphate, Chloride	Block/sub-divisional level labs
		Other region-specific inorganic and organic parameters like arsenic, Fluoride, Uranium, Pesticides, PAHs etc	State level labs
3.	Frequency	At least twice per year (Interval should be 6-months apart from first sampling).	

Table 5: Collection Point and parameters to be tested at WTPs.

Sl. No.	Location	At inlet point/ At outlet point	At inlet point/ At outlet point	At outlet point	At outlet point	Sample Testing at
1	Parameter	Nitrate, Chemical: pH, Turbidity, Total Dissolved Solid, Total Hardness Total Alkalinity, Chloride and Sulphate	Metal: Aluminum If PAC or Alumina is used as coagulant. Other region-specific parameters such as Arsenic, Fluoride, if any (to be decided by the SWSM)	Bacteriological: Fecal coliforms/ Thermotolerant coliforms and Total coliforms.	Free residual chlorine (at the outlet before distribution) if chlorination is practiced.	In house labs at WTPs
2	Frequency (Minimum)	At least once per day	Once in a month	At least once per week on a particular day	At least once per day	

Table 6. At Ground water source and outlet of OHT/ GLR

Sl. No.	Type	Over head tank	Sample Testing at
1	Location	At the suitable location at the outlet of OHT/GLR, before distribution	
2	parameter	Chemical parameter: pH, Turbidity, Total Dissolved Solid, Total Hardness, Total Alkalinity, Nitrate, Sulphate, Chloride	Block/sub-divisional level labs
		Parameters Other region-specific inorganic and organic parameters like Arsenic, Fluoride, Uranium, Pesticides, PAHs etc. (if any)	District/State level labs
		Bacteriological Parameter: Fecal coliforms/ Thermotolerant coliforms, Total coliforms.	State level labs
3	Frequency (Minimum)	Bacteriological Chemical At least twice per year (Interval should be 6-months apart from first	

		sampling) Free Residual Chlorine (FRC) At least once per day if chlorination is practiced.	

Table 7: At Delivery Points (Households, Schools, AWCs)

Location	By Gram Panchayat /Village Committee or itsstanding-committee (Preferably one of the nearest and one of the farthest delivery points in the village)	By PWD (DWS) Department (Location to be decided by PWD(DWS) in places where chances of bacterial contamination are high)	Schools including residential schools (drinking water tap or mid- day meal kitchen)	AWCs (drinking water tap or mid-day meal kitchen) Chemical: Turbidity,
parameter	Chemical: Turbidity, Free Residual Chlorine (FRC) In case of chlorination is done. Bacteriological: Fecal coliforms/ Thermotolerant coliforms, Total coliforms, If chlorination is not done.	Bacteriological: Fecal coliforms/ Thermotolerant coliforms, and Total coliforms.	Chemical: Turbidity, Free Residual Chlorine (FRC) in case of chlorination is done. Bacteriological: Fecal coliforms/ Thermotolerant coliforms, Total coliforms (if FRC absent)	Free Residual Chlorine (FRC) in case of chlorination is done. Bacteriological: Fecal coliforms/ Thermotolerant coliforms, Total coliforms (If FRC absent)
Frequency (Minimum)	Minimum two samples per month	Minimum two samples per month	Minimum one samples per month	Minimum one samples per month
	Chemical analysis through Field test kits by FTK users			

B. Water Testing Protocols.

- Field Testing Kits (FTKs) for Gram Panchayat/Village Committee (GP/VC/VWSC) level monitoring.
- Sub-Divisional laboratory – Sub-Divisional Laboratory for confirming testing of FTK results and regular testing as per above water testing frequency in a year for 100% water sources/samples. The positivity tested samples will be referred to the district laboratory immediately.
- District Laboratory – District Laboratories are responsible for testing at least 250 water sources/samples per month (at least 3000 in a year) covering all sources randomly spread geographically including the positively tested samples referred by the Sub-Division Laboratory.
- State Laboratory – The State lab will test at least 5% of the total drinking water samples across all district level laboratories with random and uniform geographical spread including positively tested samples referred by District/ Sub-Divisional.
- GIS Mapping & Digital Reporting (JJM MIS Portal)

C. Corrective Action for Contamination.

- Chemical contamination: Alternative water sources, treatment/filter unit like Iron Removal Plant (IRP) as per recorded contamination in the State
- Bacterial Contamination: Chlorination for disinfection, community awareness campaigns. If required, alternative water supply arrangement shall be made.

5.5 Emergency Response Mechanism.

- Trigger Action Plan for waterborne disease outbreaks.
- Alternative Safe Water Supply Measures (Tankers, water pouch etc.)
- Rapid Remediation Actions (super chlorination, source isolation).

5.6 Joint Action on Water Quality Monitoring and Health Outcomes.

The responsibility of overall water quality monitoring and surveillance activities in the State lies with the State Water and Sanitation Mission (SWSM). Therefore, to achieve better coordination in terms of data sharing between the PWD(DWS) and Health & Family Welfare Department, Government of Tripura, the following points are to be followed:

- Awareness about Citizen Corner are to be created among District Hospital/Government Hospitals/Primary Health Centers/Asha Workers to correlate the waterborne disease burden, if any, with the water quality report available at Citizen Corner of JJM Dashboard. The details of Water Quality testing can be accessed by any one by selecting their village in the portal- https://ejalshakti.gov.in/jjm/citizencorner/villageinformation.aspx

- The Department of Health and Family Welfare need to share about the outbreak of waterborne diseases regularly with PWD(DWS) at all levels for immediate action. A common dashboard is also required to be developed.

- Training and capacity building of women trained for testing water samples can be undertaken to allow them to exchange the results of water quality test results and correlate with water-borne diseases. This initiative will be monitored at DWSM level regularly.
- To expand testing capabilities, it is required to foster collaborations or Memorandum of Understanding (MoUs) with labs established under the Department of Health and Family Welfare for drinking water quality testing for bacteriological parameters. All such labs should be encouraged for on-boarding on the JJM-WQMIS portal- for comprehensive monitoring.

- The District Water and Sanitation Mission (DWSM) should involve representatives from the Department of Health & Family Welfare (District Level Officer) and lab in-charge from district level laboratories as members of DWSM meetings for sharing the outbreak of waterborne diseases, if any, and to take necessary remedial actions promptly.

Chapter 6: Financial Sustainability

It is essential to establish a sound financial management system to make the water supply system financially viable. Controlling expenditure based on realistic budget estimates and increasing the income through regular cost recovery, part of which, can also be met from other government schemes, Central/ State Finance Commission Grants, as well as state programs having water component included in it by the state. Following may be considered while designing the financial models:

6.1 Financial Budgeting:

1. Financial budgeting of water supply schemes under the Jal Jeevan Mission (JJM) at the GP/VC/VWSC level involves anticipating and allocating funds for regular expenses to ensure the sustainability of water services. This is a simple documentation of expenditure items and sources of revenue (GP/VC/VWSC own source funds, User Charges, Voluntary contributions, Central and State FC Funds, Funds through convergence etc.). First the expenditure is calculated by considering all expenses such as payment to Electricity Bills, Manpower, Purchases, Expenses on Repair and Maintenance of Components etc. An indicative format for Annual Budget on Management and O&M of PWSS.

Table No 8: Format for Annual Budget on Management and O&M of PWSS

(Expenses)

Name of GP/VC/VWSC: **Year:**

Name of Block:

Name of District:

		Annual	
A	Expenditure		
A.1	Salaries & Wages/Incentives		
1	Pump Operators, Valve Operators, Contract Labour, Bill Collector, Others (Use a separate sheet to provide details)		
	Sub Total A.1		
A.2	Electricity Payments		
	i) Minimum Demand Charge		

1	ii) Consumption Charge iii) Tax		
	Sub Total A.2		
A.3	Purchases		
1	Pipe and related materials for repairs including other spares		
2	Bleaching Powder and Consumables		
3	Machinery		
4	Tools		
5	Stationery		
6	Water Testing Charges		
7	Connections		
8	Other		
	Sub Total A.3		
A.4	Labour/Vendor/Nal Jal Mitra charges for Repairs, Maintenance Works		
1	Repair of Pipes/ Leaks		
2	Repair of Valves		
3	Repairs of Chlorinator		
4	Electrical Repairs		
5	Repairs of Machinery		
6	Cleaning of OHT/UG Sump/GL Sump		
7	Civil Works (Source/OHT/ UG Sump/GL Sump/ Others)		
8	Other		
	Sub Total A.4		
A.5	Administrative & Miscellaneous Expenses		
1	Travel & Conveyance		
2	Customer Services		
3	Stationery & Other Consumables		
4	Meetings		
5	Local Trainings to Operators, VWSC Members etc.		
6	IEC – Awareness Generating Activities		
7	Other incidental expenses		
8	Miscellaneous		
	Sub Total for A.5		
	Total Expenditure A.1 to A.5		

Table No 9: Format for Annual Budget on Management and O&M of PWSS (Income)

Name of GP/VC/VWSC: **Year:**

Name of Block:

Name of District:

		Annual	
1	Domestic Connections		
2	Non-Domestic/ Commercial Connections		
3	Other Revenues, e.g. Community Standposts, Institutions		

Table No 10: Format for Annual Budget on Management and O&M of PWSS (Surplus/Deficit)

Name of GP/VC/VWSC: **Year:**

Name of Block:

Name of District:

1	Total Staff Costs		
2	Total Maintenance Costs		
3	Estimated Income from Water Revenues		
	Total Surplus/Deficit		

Expected expenses include:

i) **Routine Maintenance Costs:** Expenses for regular upkeep, such as cleaning, minor repairs, and replacement of small components.

ii.) **Periodic Maintenance Costs:** Costs for scheduled major repairs or replacements that occur less frequently, such as pump overhauls or pipe replacements and other infrastructure.

iii.) **Operational Costs:** Daily operational expenses like electricity/diesel for pumps, water treatment chemicals staff salaries and administrative cost.

iv.) **Emergency Fund:** A reserve for unforeseen breakdowns or natural calamities that impact the water supply infrastructure.

v.) **Capacity Building:** Awareness, Training and skill development for local operators and maintenance personnel.

vi.) **Capital Depreciation:** Long term replacement costs for ageing infrastructure.

6.1.1 To budget for O&M, the following should be considered:

i.) Assess the lifespan and maintenance schedule of all components.

ii.) Estimate annual consumption of utilities and materials.

iii.) Calculate human power costs based on required personnel and wages.

iv.) Set aside a contingency fund for emergencies.

v.) Consider inflation and price increases for consumables and services.

vi.) Plan for regular contributions from the community or seek government support (State Budgetary Provisions) to ensure a steady flow of funds.

vii.) Monitor and review the budget periodically to adjust as needed.

6.2 Capital Expenditure Required for existing Water Supply Schemes: Fund for construction of replacement of DTW, replacement of package type IRP and any other major component of the PWSS may be obtained from the State Government. In this regard GP/VC/VWSC on receipt of technical vetting from DTU shall submit to the SWSM duly recommended by the DWSM for placement of fund.

6.3 Energy Charges: Consider strategies to lower energy expenses, as these represent a significant portion of the Operation & Maintenance costs for water supply schemes. Based on the field experience, energy charges account for approximately 35-45% of the total O&M cost.

Streamlining the tariff structure for water service delivery can significantly reduce the economic burden on GP/VC/VWSC, enhancing the sustainability of these essential schemes.

6.4 Convergence of Schemes: To ensure a robust financial foundation for the Operation & Maintenance of rural drinking water schemes, States should actively pursue the integration of funds from a multitude of existing governmental initiatives. This approach, known as the convergence of schemes, involves tapping into financial resources allocated by various programs.

The activity/fund convergence strategy shall include, but not be limited to, the following to improve the sustainability of Rural Water Supply System:

i.) **Swacch Bharat Mission Gramcen (G):** Grey Water management Soak pits (Individual/Community), Individual Kitchen Garden, Waste Stabilization Ponds etc.

ii.) **Finance Commission Grants (15th & 16th FC Grants):** Greywater Management, Drainage Systems

iii.) **Viksit Bharat- Guarantee for Rozgar and Ajeevika Mission (Grameen) Act 2025 (VB-G RAM G):** Construction of Recharge Structures, Check Dams, Percolation Tanks, Desilting of Water Bodies, Water Conservation Works in identified blocks. As per the Ministry of Rural Development Gazette Notification No. S.O.4288(E), published in the Extra Ordinary Issue of Government of India, New Delhi dated 23/09/2025 amending schedule (i), Para 4(2) of the MGNREGA ACT, 2005, a minimum- share of expenditure on water related works shall be prioritized in ground water assessment units (blocks) based on their ground water status, 65% in over exploited and critical blocks, 40% in semi critical blocks and 30% in safe blocks thereby directing recharge and conservation strengthening long-term sustainability of drinking water sources under JJM.

iv.) **Integrated Watershed Management:** Watershed Management/RWH/Artificial Recharge, Creation/Augmentation of Water Bodies etc.

v.) **Rashtriya Krishi Vikas Yojana (RKVY):** Watershed Related works

vi.) **WDC-PMKSY 2.0 :** As per recommendations of Niti Aayog 2018, the rejuvenation of Spring shed has been incorporated as a new activity.

6.5 Incentive Fund: The Gram Panchayats/Village Committee are eligible to receive the incentive when the scheme has been successfully managed for a year ensuring that every rural household covered under the scheme receives water in adequate quantity of prescribed quality on regular basis and water tariff for O&M has been regularly collected. SWSM may develop tangible and transparent criteria for providing this fund which is meant to encourage sustainability of water supply system and O&M by Gram Panchayat/Village Committee. The incentive fund will be provided out of the fund available with the State under JJM (Centre and State matching share) in the prevailing funding pattern under Support and Water Quality Monitoring & Surveillance Funds (WQMS) as per guidelines and this must be a part of Annual Action Plan and CIRP.

Furthermore, to attract the community towards their involvement in O&M of PWSS a Social Responsibility Award is also proposed under JJM support activities for successful GP/VC/VWSC in the State. State shall design a suitable financial incentive mechanism. This should include:

- Service based incentive for Water Quality Testing.
- Facilitation of Service Delivery Charge Collection.
- Support for Minor O&M Activities.
- Functionality of Water Supply System, Water Quality Compliance and Community Participation.

Key Performance Indicators:

Benchmarking of GP/VC/VWSC and PWD(DWS) shall be undertaken across the following key dimensions. The table indicates the yearly key performance of water supply systems.

Sl. NO	Indicative Benchmarking Indicators	Basic Level	Improvement Level	Advanced Level
1	Percentage of NRW or Unaccounted for Water (UFW)	>25%	15 to 25%	<15%
2	Metering Coverage	<25%	25 to 50%	>50%
3	Service Disruption (days of interruption per month)	>3 days/ month	1-3 days	<1 day
4	Water Quality Compliance (%)*	<97%	97 to 99%	>99%
5	Energy Use (Kwh/m³)	>0.75	0.55-0.75	<0.55

6	Number of Leakages in service	>1 per month	Once in three months	Once in 6 Months
7	Financial Efficiency (Cost Recovery)	<30%	30-50%	>50%
8	Grievance Redressal (Turn-around Time)	>3 days	<3days	<1 day

*Free residual chlorine

6.6 Training on accounting and financial management

A foundation training programme in revenue and expense statement preparation for piped water operations for GP/VC/VWSC should be conducted so that they have an appreciation of different cost components in the present and future. Such a training programme would help them create budgets regarding the water supply on an annual basis.

A training module on the key recommendations of the 15th/16th FC grant-in-aid and VB-G RAM G must be included in the training module of O&M of rural piped water systems for the training of functionaries to orient them on the receipt and utilization of funds.

6.7 Establish clarity on financing sources and processes.

- The state's budget needs to have a specific budget line item that covers all the shortfalls in the system costs that cannot be covered by sources such as user fee collection or central government grants, such as those from the 16th Finance Commission.

- Most of the drinking water supply sources/schemes are based on ground water extraction through installation of DTW/SBDTW. Remaining areas are covered by Surface Water Treatment Plant (SWTP) and Innovative Schemes based on river and stream/cherra etc. However, Surface Water Treatment Plant (SWTP) including infrastructure of Intake and Treatment Plant to Service OHT shall be managed with O&M by the PWD(DWS) as Out-Village infrastructure. Besides Innovative Schemes recorded as Out-Village infrastructure shall also be managed with O&M by the PWD(DWS). The Innovative Schemes recorded as In-Village infrastructure shall be managed with O&M by the GP/VC/VWSC and considering the higher cost involvement on account of O&M of such schemes, ten percent (10%) of total O&M cost allotted to PRI bodies may be apportioned from the available fund under 16th Finance Commission. Balance ninety percent (90%) fund shall be utilized by the GPs/VCs considering all the aspects of population density and spread of distribution system etc. in an equitable fund distribution relying on the following weight-based method.

Accordingly, a maintenance factor calculation of weight-based distribution of fund is made as follows:

i. Wp (Weight for Population) = 40% (0.40).

ii. Wd (Weight for Pipeline length) = 60% (0.60).

Accordingly, model calculation for allocation of fund based on maintenance factor:

i. Total population of 1193 GPs/VCs in Tripura = A (in number)

ii. Total pipeline length in 1193 GPs/VCs in Tripura = B (in meter)

iii. Total population covered by 'X' GP/VC/VWSC = C (in number)

iv. Total pipeline length in 'X' GP/VC/VWSC = D (in meter)

Hence, normalized values:

Normalized population = C/A = E

Normalized pipeline length = D/B = F

Maintenance factor = (0.4 x E) + (0.6 x F) = G

Allocation of fund to 'X' GP/VC/VWSC = G x M

M = Maintenance Fund i.e. 90% of total Maintenance Fund.

Likewise, allocation of fund may be arrived at for 1193 GPs/VCs of the State.

- Gap funding beyond the collection of user charges (fixed charge) shall be met up at this stage with the utilization of Tied Grant of 16th FC (50% of the basic component), detailed guidelines on the expenditure of 50% of the 16th FC Tied Grant for O&M of Rural Water Supply System shall be issued in favour of PRIs/VCs by the RD Panchayat Department, Government of Tripura.
- Fund allocation under the 16th FC must be linked to the collection of water tariffs and other charges levied by the GP/VC/VWSC.
- GP/VC/VWSC should be encouraged to create a corpus account in the bank in addition to the O&M account. Any budget surplus generated in a year should be credited to the corpus account. The interest earned on this account can be utilized for meeting major repair expenses. As a thumb rule GP/VC/VWSC should be able to generate surplus equivalent to FC grant so that the corpus fund will be large enough to meet any major repair and replacement costs. This will reduce the burden on the government as well as help GP/VC/VWSC replace infrastructure in time.

- At the state level, and importantly at the block level, there needs to be a clear process for claiming and settling third-party claims for damage to the rural piped water assets (for example, damage to pipelines by new road, drain construction and cable laying etc).

6.8 New Connections: Proposal for issuance of new water supply connection, by the GP/VC/VWSC, to various type of consumers including households, commercial entities, and institutional users shall be technically vetted by the respective Executive Engineer, DWS Division in regard to the approval of the feasibility assessment of such new connection. The Executive Engineer, DWS Division, PWD(DWS) is responsible for establishing the procedures for issuing new water connections to various type of consumers. This involves standardizing the sizes of ferule connections and determining one-time service connection fees/Application Fees to be deposited in favour the GP/VC/VWSC. New Connection charges to be incurred for installation of ferrule, service pipeline, stopcock etc. on actual basis on receipt of the demand from the GP/VC/VWSC. With the provision of FHTCs, additional greywater will be generated at household level which will need treatment before it can be utilized for agriculture and non-potable uses. In many areas, the treated greywater can be a reasonable source of revenue for the GP/VC/VWSC, which can be utilized towards meeting part of O&M expenditure.

Other alternatives that Gram Panchayats/Village Committees could explore include seeking donations from philanthropists and obtaining support through Corporate Social Responsibility (CSR) initiatives.

To obtain new FHTC, consumers shall approach on the Business Navigation bar of the Web Portal of PWD (DWS): https://dws.tripura.gov.in for the following:

a. Submission of Application.
b. Payment of Application Fee.
c. Track Status of Application.
d. Third Party Verification.
e. Tariff
f. E-payment of Bills.
g. Grievance Redressal System.

Table No 11: Time frame for obtaining new water connection:

SL No	List of Services	Designated Officer	TAT (Turned Around Time) in Days	Total	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
1.	Obtaining Water Connection, Where technically feasible	a) GP/VC	02	21 Days	Respective SLA is shown in table below
		b) Assistant Engineer	06		
		c) Junior Engineer	08		
		d) Executive Engineer	02		
2.	Certificate for Non-availability of water supply where technically not feasible	e) Superintending Engineer	01		
		f) Chief Engineer	01		
		g) Secretary	01		

Table No 12: Service Level Agreement (SLA) for Supplying Drinking Water to Domestic, Commercial & Industrial Establishments.

Level	Designation	Actions	SLA Days
1	GP/VC	1. Forward to Assistant Engineer	2
1	Assistant Engineer	1. Forward to Junior Engineer	2
2	Junior Engineer	1. Check Feasibility 2. Make Estimate 3. Upload Required Documents 4. Forward to Assistant Engineer 5. Confirmation of rectification, if any and submission of compliance report to Assistant Engineer.	8
3	Assistant Engineer	1. Accept/Reject Feasibility Report and Estimate. 2. Send back to Junior Engineer, if rectifications required. 3. Forward to Executive Engineer	2
4	Executive Engineer	1. Approve Connection. 2. Send back to Assistant Engineer	2
5	Assistant Engineer	1. Update Connection Date 2. Dispose and Close	2

6.9 Financial Audits: The Audit of the accounts of the funds of a GP/VC shall be carried out by the Authorities including the following:

i. Directorate of Audit, Finance Department, Government of Tripura.
ii. The Principal Accountant General (Audit), Tripura
iii. Audit under specific order of the Government of Tripura or Government of India, as and when required

6.9.1 Financial Management –

The financial management aspects for functioning of PWSS and effective O&M approach form a critical interface on the part of the concerned GP/VC/VWSC. The VWSC will be responsible for creating and maintaining a register for all financial transactions, including community contributions, O&M costs, Water Tariff Collections and incentives received. They shall open and operate a dedicated bank account for these purposes.

6.9.1.1 Revenue Sources:

- **User Charges:** Regular tariff collection from Rural Households, Commercial Connections and others for water consumption.
- **Service connection fee:** One time service connection fees/Application fees collection for providing new FHTCs.
- **Government Grants and Subsidies:** Central and State Government Funding to support O&M expenses.
    i. Central Finance Commission (CFC) Grants (Tied Grant Fund).
    ii. State Finance Commission (SFC) Grants, Performance and Development Funds.
    iii. Own Source Revenues, and other permissible funding revenues of GP/VC/VWSC.
    iv. Maintenance Fund/Grant issued by State Government.
- **Other Revenues of GP/VC/VWSC**: Other permissible Own Source Revenues.
- **Community Contributions:** Local community involvement through funds and labour.

- **Corporate social responsibility (CSR):** Support from private companies under CSR initiatives.

6.9.2 User Charges and other Fund Flow Mechanism:

1. The responsibility of management of a water supply scheme is bestowed on the concerned VWSC and the overall responsibility lies with the concerned GP/VC
2. For each financial year the annual plan shall be prepared to meet the probable O&M expenditures and the same will be compared with the probable collection of water tariff to evaluate any gap in managing the scheme. Finally, the proposal on such gap funding shall be prepared and submitted to the RD Panchayat Department through the respective GP/VC/VWSC, for facilitating the release of fund from the Tied Grant Fund of the 16th FC to respective GP/VC/VWSC. Similarly, 16th FC Tied Grant released in favour of Zilla Parishad and Panchayat Samity/ Block Advisory Committee may also be utilized for financial support for O&M. Cost of repairing of damaged pipeline, electromechanical installations etc. caused due to natural calamities, necessary fund from Disaster Relief funds shall be utilized.

   Depending on the size of GP/VC/VWSC, number of beneficiary households and expenditure involved for O&M purposes, the rate for monthly user charges shall be evaluated for efficient management of PWSS. GP/VC/VWSC shall decide and take suitable measures gradually for recovery of user charges, which may include Fixed charges, Consumption based charges, Operation & Maintenance (O&M) recovery charges. This will enable the GP/VC/VWSC to make a firm base for financial sustainability of piped water supply schemes in near future.
3. However, the GP/VC/VWSC may adopt collection of monthly water users charge as per notification no. F6 (21/ CE/ DWS/ EE/2011 dated 17th May 2014 of the Deputy Secretary PWD (DWS) Govt. of Tripura and other charges (Table -13) or any further order in this regard, issued time to time by the PWD(DWS), Government of Tripura.

Table 13: Rate of charges for different type of water supply connections:

Sl No.	Item	Rate
1	Water user charges for individual domestic connection in Rural Areas.	Rs. 25/- per month.
2	Water user charges for commercial connection.	Rs. 300/- per month.
3	Charges for regularization of existing unauthorized connections (FHTCs).	Rs. 1000/- per connection.
4	Charges for Service connection (FHTCs) fee and Deposit amount.	
i	Security Deposit Amount for new Service Connection (FHTC) for Domestic Purpose. (Refundable)	Rs. 500/- per connection.
ii	Security Deposit Amount for new Service Connection (FHTC) for Non-Domestic Purpose	Rs. 2000/- per connection.
iii	Water Service Connection (FHTC) Fee	To be worked out towards actual cost for laying pipeline/ labour and material charges
iv	FHTC Reconnection Charge	Rs. 200/- per connection.

4. Other Government Grants and Subsidies i.e. State Finance Commission Grants, GP/VC Own Resource Fund, State Fund, Community Contributions and Corporate Social Responsibility, if any received will also support to incur management and O&M of Rural Water Supply System.
5. The GP/VC/VWSC is not authorized to collect water user charges lower than the amount fixed by the Government from time to time. However GP/VC/VWSC may decide and collect higher amount of water tariff depending on type of use and quantity of water required for a particular household and commercial purposes.

6.9.3 Convergence of Fund for sustainability of water sources and greywater management: –

GP/VC/VWSC shall utilize the fund under VB-G RAM G, SBMG, Integrated Watershed Management Programme (IWMP), Rashtriya Krishi Vikas Yojana (RKVY), WDC-PMKSY 2.0 and other appropriate funds for the following purposes:

- Recharge of Traditional Water Bodies, Public and Private Borewells.
- Construction of Soak Pit, Drains and Greywater Treatment units at household and community level.

6.9.4 Operational aspects of fund collection and management by the GP/VC/VWSC

1 To ensure effective managing the Water Supply Schemes, each beneficiary household, commercial entity etc. shall deposit the water tariff, in advance, to the Treasurer in the office of the GP/VC/VWSC, within first 7-10 days of every month. For such receipt of water tariff, either one formal receipt should be issued or the same should be recorded in the tariff collection register maintained by the VWSC. The responsibility for such tariff collection in the office and maintaining of account will remain bestowed on the Treasurer of the VWSC. In exceptional circumstances, VWSC may authorize any trustworthy person to collect water tariff who in turn within 48 hours of such collection shall deposit the amount collected to the Treasurer without fail.

2 For any delayed or arrear receipt of water tariff, the decision of the GP/VC/VWSC will remain final. In case of non-receipt of the water tariff from any household/commercial entity etc. for three or more months, necessary punitive action might be initiated. However, the household water tap connection cannot be discontinued under any circumstances with due consideration of the importance of JJM Mandate. In case of non-clearance of the late fee/penalty imposed by GP/VC/VWSC including water tariff on any defaulter household/commercial entity etc., concerned GP/VC/VWSC at the initial stage, have the right to take action like temporary discontinuation of other benefits by the respective GP/VC/VWSC and GP/VC/VWSC/ shall not be held responsible for any loss or inconvenience caused to the owner or occupier of house.

3 The fund collected in the office of the GP/VC/VWSC by the Treasurer in the form of water tariff must be deposited in the bank account within maximum 48 hours after collection. In the later course of time, a system of bank collection may be initiated for collection of monthly water tariff from users.

4 The Secretary of the GP/VC/VWSC may keep Rs. 1000.00 in hand to meet the daily or any emergency need of O&M activities and to be recouped after expenditure and submission of accounts to the GP/VC/VWSC.

5 The Treasurer shall prepare a monthly report focusing on opening balance, tariff collection and expenditure details for the VWSC and these reports shall eventually be placed in the next meeting of the VWSC for discussion and taking up any follow up actions. Any necessary additions or alterations into the rules or provisions for water tariff collection and other financial management issues may be ratified in the next general meeting of GP/VC/VWSC.

6 The respective Executive Engineer, PWD(DWS) may engage the Departmental Accounts Officer for inspection of the system of financial management and its status.

7 The GP/VC/VWSC shall prioritize the payment of monthly electricity bill and the salary for the scheme caretaker/pump operator engaged for the O&M of the Scheme.

8 All defunct and not in use sources shall be removed from electrical connection at the earliest.

9 The concerned PWD(DWS) Official may initiate any necessary action based on the monthly report submitted by the GP/VC/VWSC.

10 Revenue collected for providing household service connection and water charges shall not be used for the purpose other than Operation & Maintenance and renewal of water supply schemes in the GP/VC/VWSC

11 A formal Agreement signed by the applicant and GP/VC/VWSC shall be prepared for obtaining FHTC connection and a copy of each agreement and By-Laws shall be given to the applicant.

12 Supply of water in the following places shall be classified as non-domestic i.e. commercial irrespective of the fact that building is used for the purpose or not.

i. Small business-like Village Restaurants/Tea Stalls or similar.
ii. Government or Private Institutions.
iii. Home based Cottage Industries.
iv. Community Programme/Marriage Hall.
v. Building Construction.
vi. Any other mechanical purpose – not meant for drinking water.

vii. Other then domestic purpose.

16 The Supply of water to temples, mosques and churches shall be only for drinking purposes and shall be classified as domestic.

17 The diameter and the character of the service connection pipes and the number, size and kind of stop cock or tap, shall in each case be determined by the GP/VC/VWSC having regard to the pressure available at the "Offtake" point at the main. The standard service connection shall be 15mm (Half Inch) service pipe with 10mm (3/8 Inch) ferrule.

18 All the fittings etc. of a house service connection shall be so fixed within the purview of the GP/VC/VWSC easy access and the owner or occupier of the house shall afford all facilities for easy inspection by the GP/VC/VWSC or PWD (DWS). If any resistance is offered, the supply is liable to be disconnected.

19 The GP/VC/VWSC reserve the right to cut off after giving 7 Days' notice, any supply granted for domestic or non-domestic purposes, if there is any scarcity of water at the source. In such cases, the GP/VC/VWSC shall not be liable for any loss to the consumer, but the deposit shall be released if so requested.

20 The GP/VC/VWSC reserves to himself the right to cutoff after giving 24 hours' notice any supply granted for domestic or non-domestic purpose in case of repair works.

21 A reconnection as specified in will be charged for reconnection in case the supply of water is cut off for the reason specified elsewhere in the O&M Policy.

6.10 The PWD(DWS) shall prepare detailed cost estimates for O&M activities of PWSS, as per requirement of GP/VC/VWSC and ensure timely submission of estimates for necessary administrative and technical sanction by the competent authority of PRI body.

6.11 The District Technical Unit (DTU) including entire set up of PWD(DWS) at district level and sub-divisional level will act as the technical arm of DWSM, providing expert inputs for planning, implementation operation and sustainability of Rural Water Supply Schemes including preparation of estimates and supervision of works as per guideline of JJM 2.0

6.12 An indicative cost of different O&M items for different types of PWSS are produced in the Annexure I This may be utilized in preparation of Annual Budget on Management and O&M of PWSS. Items not covered under Annexure I or variation in price happens to be of absolute necessary shall be prepared by the PWD(DWS).

Chapter 7: Human Resources and Skilling

7.1 Objective:

The development and empowerment of human resources are critical components in the successful Operation & Maintenance (O&M) of water supply schemes. Skilled human resources for the Operation & Maintenance (O&M) of Rural Piped Water Supply Systems play a pivotal role in ensuring the functionality and sustainability of these systems. It aims to build local capacity, provide sustainable employment opportunities, and enhance service delivery efficiency.

7.2 Scope:

This policy applies to all personnel engaged in the O&M of Rural Water Supply Systems including: -

- Gram Panchayat/Village Committee & Panchayat Raj Institution (PRI) officials.
- Village Water & Sanitation Committee (VWSC)
- Pump Operators, Nal Jal Mitras, Plumbers, Electricians, Chemists, Microbiologists.
- For field-level surveillance mechanisms through community institutions, women-led Self Help Groups (SHGs) shall be organized as Sujalam Shakti groups in each GP/VC/VWSC, which will support the GP/VC/VWSC in routine water quality monitoring, community awareness, water tariff collection and coordination for remedial actions.

7.3 Skilling Strategy:

i. Government supported skilling programs under Jal Jeevan Mission (JJM), Nal Jal Mitra Programme (NJMP), NRLM and skill India programme.

ii. Collaboration with ITI's, polytechnics and SIPARD for technical trainings.

iii. On-the-job training and mentoring by experienced technicians.

iv. Exposure visits to well-functioning water supply schemes for best practice learning.

v. Incentivizing local youth and/or SHGs for skill acquisition through stipend based apprenticeships.

vi. To strengthen technical capacity at the community level, one to two members of each Sujalam Shakti group shall undergo structured training leading to certification under NSQF Level-1 in basic water quality monitoring and surveillance. The training programmes shall include: use of Field Test Kits (FTKs); understanding of basic water quality parameters and contamination risks, safe sampling practices, residual

chlorine monitoring and disinfection awareness and digital reporting through the Sujal Gaon Utility App.

7.4 Employment and Incentive Policy

i. Priority hiring of Local Workforce – Preference will be given to local skilled workers to ensure sustainability and reduce migration.
ii. Performance Based Incentives – Operators and field workers demonstrating efficiency will receive performance award.
iii. Women Participation – Encourage women's involvement in water quality testing, tariff collection and grievance redressal through SHGs and PRI empowerment programs.

7.5 Toolkits and Resources

i. Provide Nal Jal Mitras and pump operator with essential toolkits and resources required for O&M activities.
ii. Develop easy-to-understand manuals and SOPs (Standard Operating Procedures) for reference.
iii. A comprehensive job description database including operation of pump and back washing of IRP during normal supply hours and run recovery period on daily basis.

7.6 Monitoring & Evaluation

i. Annual Skill Assessment & Refresher Training to ensure updated technical knowledge.
ii. Social audits for transparency in O&M activities.
iii. Performance Tracking System will key indicators like uptime of water supply, breakdown response time and community feedback.
iv. Helpline & Grievance Redressal Mechanism to address operational issues efficiently.

Chapter 8: Capacity Building and Community Engagement

8.1 Objective

This policy aims to strengthen the capacity of stakeholders and promote Community engagement in the Operation & Maintenance (O&M) of Rural Piped Water Supply Systems. It focuses on skill development, participatory governance, and sustainable service delivery by involving Gram Panchayats (GPs) and Village Committees (VCs)/ Village Water & Sanitation Committee (VWSCs) and Local Communities.

8.2 Scope

This policy applies to:

- Representatives of GP/VC/VWSC
- Pump Operators, Nal Jal Mitra (NJM), ITI trained electricians, plumber and village level women SHG for training of water testing through FTKs.
- Local youth, school students and community members.
- PWD (DWS) Engineers at State and Districts/Sub-Divisional levels.

Table – 14

Training Module	Target Group	Training Mode	Frequency	Implementing Agency
Pump Operation & Minor Repairs	Pump Operators	Classroom and Hands on practical	Yearly	PWD (DWS), ISAs
Pipeline Maintenance and Leak Detection	Plumbers, NJMs	Classroom and Field Demonstration	Yearly	PWD (DWS), ISAs
Electrical Panel & Motor Maintenance	Electricians, Pump Operators, NLMs	Classroom and On site Technical Training	Yearly	PWD (DWS), ISAs
Water Quality Testing and Chlorination	VWSC, SHGs, 5 women groups	Laboratory based training	Half Yearly	PWD (DWS) ISAs
Tariff Collection & Financial Management	GP/VC/VWSC/SHGs	Workshop & Digital Training	Yearly	PWD (DWS), R.R. (Panchayat) ISAs
Community Awareness &	GP/VC/VWSC/SHGs	Interactive Sessions	Yearly	ISAs

Grievance Redressal				
Disaster Management	GP/VC/VWSC/SHGs	Classroom, Mock drills	Yearly	PWD (DWS), District Disaster Management Group, ISAs

8.3 Capacity Building Strategy

The DTU will assess District level skill gaps in Rural Water Supply operations and Coordinate with Skill Development Mission, ITIs and Training institutions to design and implement training programmes like Nal Jal Mitra for multiskilling. The DTU may also conduct District level technical trainings, workshops, and refresher programmes to enhance professional competencies.

8.3.1 Refresher Training for Skill Development will be conducted for all key stakeholders involved in the O&M of the Water Supply System.

8.3.2. Knowledge Sharing & Best Practices.

i. Exposure visits to well managed water supply schemes.
ii. Workshops & Seminars at the block/ district level to exchange experience.
iii. Digital training modules & toolkits for easy reference by GP/VC/VWSC members.

8.3.3. Institutional Strengthening

i. Strengthening GP/VC/VWSC by formalizing their roles and responsibilities.
ii. Developing Standard Operating Procedures (SOP) for routine O&M activities.
iii. Encouraging women led SHGs to take up water tariff collection and grievance handling.

8.4 Community Engagement Strategy

8.4.1 Awareness & Participation Programs

Table - 15

Activity	Target Groups	Mode of Engagement	Frequency
Water Dialogues	General Public	Community meeting	Quarterly
Wall paintings & IEC materials	Households, Schools, Public Institutions, Markets.	Visual Communication	Ongoing

Water user awareness campaigns	Households, SHGs, Schools	Street plays, rallies	Half yearly
Radio & Social media outreach	General public	Digital platforms, local FM	Regular
School awareness programs	Students & Teachers	Workshop	Yearly

8.4.2 Community Ownership & Social Audits

i. Formation of an active group in VWSC: Households connected to the piped water supply system will be encouraged to form the groups for feedback and local problem solving through Jal Seva Aankalan module integrated with e-Swaraj Portal.

ii. Regular Social Audits:
   - Conduct quarterly audits to assess service quality, fund, utilization and community grievances.
   - Ensure transparency by displaying tariff collection records and O&M expenditures publicly.

iii. Incentive for Community participation as in Chapter 6, Incentive Fund Para.

8.5 Sustainability Measures

8.5.1 Financial Sustainability

- Ensuring regular tariff collection by GP/VC/VWSC.
- Introducing water meters to improve revenue collection and wastage of water.

8.5.2 Technical Sustainability

- Maintaining a store of spare parts for quick repairs at GP/VC/VWSC.
- Establishing service contracts with trained local NJMs/ITI trained plumbers/electricians to reduce downtime.
- Using remote monitoring systems for tracking pump performed, regular back washing of Iron Removal Plants (IRPs) and water quality.

8.6 Monitoring & Evaluation (M&E)

i. Monthly Progress Reports: GP/VC/VWSC to submit O&M status reports to the Assistant Engineer, DWS- Sub- Division.

ii. Quarterly Community Review Meetings: to Discuss service quality, complaints and improvement.

iii. Annual Impact Assessment: conducted by DWSM to measure improvements in service delivery, water quality and financial sustainability.

Chapter 9 : Asset and Inventory Management

Asset and Inventory Management is a critical component of operational efficiency and sustainability in water supply schemes at all administrative levels. Effective management ensures that assets are properly accounted for, maintained, and replaced, when necessary, while inventory levels are optimized to meet demand without excess. Asset and Inventory Management shall be done at all levels starting from GP/VC/VWSCs to State Level. This section outlines the essential practices and strategies for robust asset and inventory management, from the creation of detailed asset registries to the implementation of water safety plans at the local level. Following points may be given due diligence while framing Asset and Inventory Management Plan/Guidelines under O&M policy.

1) **Need of Asset Management:** Degradation of any water supply infrastructure is natural and inevitable process which affects quality and reliability of services as well as increases the operational costs and capital investments.
2) **Why Asset Management:** Good asset management incorporates the best practices of maintenance and operation of various assets integral to water supply system at minimum cost and regular upkeep of assets which are varied in terms of age, condition, location(above/under) and criticality.
3) **Mapping of Assets:** JJM Mandates a shift to Digital Governance for creation and use of digital twins for the Schemes. All information related to Scheme Assets, Predictive Diagnostics, Lifecycle Planning and improved operational efficiency will be recorded exclusively through digital platforms.

   Key Platforms include:

   - Sujalam Bharat Database, incorporating Sujalam Bharat Id and Sujal Gaon Id.
   - GIS-linked Digital Asset Registries capturing scheme details from source to tap
   - District Digital Dashboard (JJM)
   - GP Digital Dashboard (JJM)

   Mapping of all components of water supply system on a GIS is important. Further, mapped infrastructure must be put on PM-Gati Shakti portal, which will help in prevention of destruction of infrastructure for other works by other agencies. A village map showing water supply assets should be prominently displayed at Gram Panchayat.

4) **Asset Management Guidelines:** IS 18182:2023 must be followed for systematic management of assets and benchmarking purpose.
5) **Asset Inventory:** Each scheme must have an inventoried list or survey of all system assets (e.g. source, treatment, transmission and distribution network). Age, location, condition, criticality, probability of failure and remaining useful life in case of each asset must be captured in it. Inventories thus prepared must be reviewed periodically (every three/four years depending on type of assets and their life cycles) to ensure upkeep of assets and prevent accidents and major repairs.
6) **Training and Capacity Building:** Train staff in asset and inventory management best practices, including the use of management software and tools.
7) **Stock Audits:** Conduct periodic physical audits of inventory to reconcile with database records and prevent stock discrepancies.
8) **Energy Audit:** Promote conducting periodic energy audit for the scheme to optimize the energy consumption and better performance.

By adhering to these guidelines, service delivery organisations can achieve a balance between cost-effectiveness and service reliability, ensuring that resources are used judiciously, and that infrastructure is maintained to support consistent service delivery.

9.1 Asset Management Checklist for major Infrastructure Component

It covers infrastructure monitoring, maintenance, and financial planning to prevent failure and improved service reliability. Some of the indicative preventive maintenance to be undertaken are stated below:

1. Source of water supply

- Protection of sources for both quantity and quality and long-term sustainability
- Regular inspection / cleaning of screens at intake structure
- Removal of deposits at the bottom of intake well
- Proper servicing, lubricating of equipment/ machinery at intake structure.
- Tube well- checking whether there is variation in discharge rate/ ground water level/ ground water quality.

2. Pipeline

- Leak detection through pipes and valves

- Check lining, anti- corrosive painting.
- Physical damage
- Servicing valves and fittings
- Calibration of water meter / flow meter

3. Water Treatment Facilities.

- Condition of Filtration unit
- Monitor raw and treated water quality
- Filter backwash as per schedule
- Optimum dosing of chemical
- Preventive maintenance of all electromechanical equipment
- Functionality of Chlorination/dosing system
- Backup Systems in case of treatment failure

4. Iron Removal Plant (IRP)

- Daily backwashing of IRP
- Monitor Raw and Treated water quality

5. Innovative Scheme (Source based on Stream/Cherra/Seepage Water)

- Monitor raw and treated water quality
- Periodical maintenance of horizontal roughing filter (HRF) and slow sand filter unit.
- Optimum dosing of chemical
- Preventive maintenance of all electromechanical equipment

6. Storage Facility

- Capacity and Structural integrity of Over Head tanks (OHT) and Ground level reservoirs.
- Water levels in the reservoirs
- Time and relevant operation of control valves with the time of opening and closure
- Hourly flowmeter readings both on the inlets and outlets.
- Hourly residual chlorine readings of inflow water and outflow water.
- Reservoir cleaning and disinfection
- Ensure no unauthorized access to reservoir/OHTs

7. Pumping and Energy Systems

- Working condition of pump and motors
- Efficiency of solar powered, ED powered or Grid based pumps

- Regular lubrication and maintenance of moving parts
- Backup power source
- Voltage and power supply stability checks

8. Consumer connection and Distribution (FHTC)

- Household connections condition and functionality
- Water metering and billing system
- Equitable water distribution to households
- Regular grievance redressal and complain handling system
- Consumer awareness programme on water conservation

9. Financial and Governance

- Regular water tariff collection
- Transparency in financial transactions and audits
- Active participation of GP/VC/VWSC

Chapter 10: Zero leakage Policy

Water wastage at various stages, including the source, transmission, distribution, and household levels, remains a critical challenge to achieving the objectives of the Jal Jeevan Mission. Recognizing the significance of addressing this issue, a *Zero Leakage Policy* has been formulated to ensure efficient water usage, minimize losses, and safeguard water resources.

The primary causes of water wastage are multifaceted and include:

i) Corrosion or Deterioration of Pipes, Fittings, or Seals

- Ageing infrastructure and poor-quality materials lead to gradual corrosion or damage, causing leaks over time.

ii) Poor Installation Quality and Practices

- Inadequate adherence to technical standards during installation often results in improperly sealed joints, misaligned pipes, and potential leakage points.

iii) Thermal Expansion and Contraction of Pipes

- Variations in temperature cause expansion and contraction of pipes, leading to stress fractures and eventual water loss.

iv) Third-Party Damage

- External factors such as construction activities, road works, or accidental digging frequently damage underground pipelines, contributing to water wastage.

v) Weather or Climate-Related Factors, Including Disasters

- Extreme weather events, such as floods, earthquakes, or severe temperature changes, can compromise the integrity of water supply infrastructure.

vi) Poor Water Practices at the Household Level

- Mismanagement, negligence, or lack of awareness among users regarding water conservation contributes to unnecessary wastage.

10.1 Policy Recommendations to Achieve Zero Leakage

To mitigate water wastage and achieve a zero-leakage system, the following measures are proposed:

1. **Infrastructure Upgradation and Maintenance**
    - Use corrosion-resistant and high-quality materials for pipes and fittings.
    - Schedule regular inspections and maintenance to identify and address potential leakage points promptly.
2. **Adherence to Installation Standards**
    - Enforce stringent guidelines and best practices during the installation of water supply systems.
    - Train and certify technical personnel to ensure quality workmanship.
3. **Climate Resilience Measures**
    - Design and implement water systems that can withstand weather extremes and natural disasters.
4. **Smart Monitoring Systems**
    - Deploy IoT-enabled sensors and smart meters for real-time detection of leaks and anomalies in the water distribution network.
5. **Community Awareness and Engagement**
    - Conduct awareness campaigns on water conservation and responsible usage at the household level.
    - Encourage the reporting of leaks and wastage through dedicated grievance redressal mechanisms.
6. **Penalties and Incentives**
    - Introduce penalties for negligent practices leading to water wastage and incentivize households and communities adopting water-saving measures.

By addressing the root causes of leakage and implementing a robust Zero Leakage Policy, the Jal Jeevan Mission aims to ensure the sustainable management of water resources and achieve its vision of *Har Ghar Jal*.

1) Promote use of technology to identify the leakage points.
2) Building the capacity of VWSC: to address the leakage issues, awareness among the community and individual users plays crucial role. The community and users shall be effectively sensitized towards,
   i.) Timely reporting of any leakage
   ii.) Behavioral improvements of HH for preventing wastage and emphasize the judicious use of water.
   iii.) If user charges are based on flat rate, due to obvious reason consumption will be high. Instead, gradually there will be a plan to install water meter to reduce non-revenue water.
3) Water Audit: Developing the habit of water audit in every village and in each House Hold to restrict water loss is not more than 15% of Supplied Water.

Chapter 11: Schedule of Supply

The Schedule of Supply is a critical framework that outlines the systematic distribution and management of water resources to meet the needs of a community effectively. It encompasses strategies for equitable rationing, reliable scheduling, and adaptive management to ensure that water is available when and where it is needed, even in the face of challenges such as resource limitations and emergencies. This section provides guidance on creating a robust and flexible schedule that can adapt to varying circumstances, ensuring the sustainability and resilience of water supply systems.

The Jal Jeevan Mission (JJM) aims to provide 55 litres per capita per day (55 lpcd) water supply through FHTC. The ultimate target is to ensure continuous water supply (24x7) i.e. Drink from Tap in the long run but currently users receive intermittent supply.

Components to consider for schedule of supply:

i.) Water Rationing Strategy: If water resources are limited, a water rationing strategy, with adjustment in time and days for supply, that ensures equitable distribution of water across the community is to be assessed, with special consideration for essential services and vulnerable populations. Seasonal water rationing strategies can also be introduced considering the geogruphical location of the GP/VC/VWSC.

ii.) Reliable Supply Schedules: Define clear and reliable schedules for water supply to ensure predictability and trust among users.

iii.) Adaptive Management: Adjust supply schedules based on seasonal variations and demand patterns to optimize resource use.

iv.) Contingency Planning: Prepare contingency plans for alternative water supply in case of emergencies, such as droughts, contamination, or infrastructure failure

v.) Training of Personnel: Train personnel responsible for water supply management in scheduling, distribution, and crisis management to ensure they can maintain regular supply and handle any disruptions effectively.

vi.) Ensuring regular water supply through Alternative Power Backup: In recognition of the critical need for uninterrupted water supply in rural households, it is essential to incorporate provisions for alternative power backup systems within the JJM's water supply schemes. These backup systems are to be designed to activate seamlessly in the event of power

outages, thereby guaranteeing a continuous supply of water without disruption. The design and implementation of such backup solutions must consider the local context, including the availability of resources and the geographical conditions. Options may include, but are not limited to, solar power, battery storage, and generator sets. The chosen alternative power backup system should be sustainable, cost-effective, and require minimal maintenance, ensuring long-term reliability and efficiency.

vii.) Routine Checks: Conduct regular inspections of all water supply components, including treatment plants, storage tanks, pumping stations, pipes, valves, and meters.

viii.) Scheduled Servicing: Establish a preventive maintenance schedule based on the manufacturer's recommendations and industry best practices.

ix.) Component Replacement: Identify and replace components that are nearing the end of their service life before they fail.

x.) Fire Hydrant: Each water supply should provide fire hydrant for emergency use of water during fire incidents provided, preferably near DTW/SBDTW or at Head work site of Surface Water Treatment Plant and Innovative Schemes as an when required.

Table 16 : General water supply schedule in Rural areas of Tripura

Time Slot	Typical Supply Duration
Morning	6:00 AM – 10:00 AM (2hours - 4 hours)
Evening	4:00 PM – 8:00 PM (2hours - 4 hours)
Once Daily	6:00 AM – 10:00 AM Or 4:00 PM – 8:00 PM
Alternative Day Supply	In areas with low water availability. (Duration is to be assessed by the GP/VC/VWSC)
In case of any failure to supply	Through deployment of Water Tankers/Container/Pouch. (Only Drinking Water)

Chapter 12: Water Conservation, Wastage and Distribution Management

This section is dedicated to the implementation of sustainable practices and technological solutions aimed at preserving water resources, water conservation minimizing losses and ensuring efficient distribution management. It emphasizes the importance of community engagement, advanced monitoring, and strategic management to address the challenges of water scarcity and wastage, thereby promoting the efficient and responsible use of water across all sectors.

A. Water conservation Strategies.

1. Source Protection of Sustainability.
- Regular monitoring of ground water and surface water sources to prevent over extraction.
- Promotion of Rainwater Harvesting to recharge aquifers.
- Protection of water sources from contamination through watershed management.

2. Leakage Control & Infrastructure Maintenance.
- Periodic inspection of pipelines, valves and joints to detect and repair leaks.
- Use of pressure management techniques to avoid bursting.

3. Community Participation & Awareness.
- Conducting awareness campaigns on responsible water use.
- GP/VC/VWSC to promote conservation.
- Encouraging household level rainwater harvesting and grey water reuse.

4. Efficient Pumping & Treatment.
- Optimizing pump operation schedules to reduce energy consumption.
- Regular cleaning and maintenance of OHT/GLR to avoid wastage.

B. Prevention of Water Wastage.

1. Metering & Usage Monitoring.
- Installation of household and bulk meters to track consumption and detect abnormal usage.
- Encouraging GP/VC/VWSC based, monitoring of water usage.

2. Regulation of water use.
- Implementation of water rationing during droughts.
- Restricting excessive water use for non-essential activities.
- Encouraging responsible usage through incentive based schemes.

3. Immediate Repair of Leaks & Faults.
- Setting up a 24x7 complaint and repair system for quick leak detection and repairs.

C. Distribution Management

1. Distribution Planning

- Dividing the water supply network into zones for better pressure regulation.
- Prioritizing equitable distribution supply imbalance.

2. Storage and Demand Management.

- Maintaining adequate storage in OHT to meet peak demand.
- Implementing staggered supply schedules in areas with limited resources.

3. Pipeline Network Optimization.

- Use of GIS mapping to plan efficient pipeline layouts and avoid dead ends as far as possible.

4. Energy and Cost efficiency.

- Using solar-powered pumps for cost effective water supply.

D. Monitoring and Evaluation.

1.Performance Audit

- Conducting quarterly audits to assess water losses, efficiency and quality.
- Implementing smart monitoring systems for real time tracking.

2.Community Feed back Mechanism.

- Setting up a grievance redressal system for quick resolution of supply issues.
- Encouraging public reporting of leaks, illegal connections and wastage.

3.Capacity Building and Training.

- Regular training programs for pump operators, Nal JaL Mitras, GP/VC/VWSC and Sub-Divisional Level Engineers on O&M practices.
- Community education on water budgeting and conservation techniques. Drinking Water

E. Format for monitoring Ground Water Level in DTW/SBDTW.

Name of District GP			Location of Bore Well		
Name of Taluk			Year	Month	
Name of GP			Name of Village	Name of Habitation	
Date	Time of Reading	Depth of Bore Well	Water level in the Borewell		Remarks if any
			Before Pumping	After Pumping	
1					

Chapter 13: Wastewater and Grey Water Management

With increasing rural piped water supply coverage under Jal Jeevan Mission (JJM), the generation of wastewater (Sewage) and grey water has also risen. Proper management of wastewater and grey water is essential to prevent contamination of drinking water sources, systems, improve sanitation and promote water reuse.

1. **Types of Wastewater in Rural areas.**
   a) Greywater – Wastewater from bathing, washing clothes, kitchen sinks and handwashing. It is less contaminated and can be easily treated for reuse.
   b) Black water (sewage) – Wastewater from toilets containing fecal matter and urine, requiring proper treatment and disposal.
   c) Storm water – Rainwater runoff from roofs, streets and agricultural fields often carrying debris and pollutants.
2. **Wastewater Management Strategies in Rural Areas.**
   a) Grey Water Management (Less contaminated water) – Grey water is to be treated and reused for kitchen garden/irrigation and groundwater recharge. Common approaches include:
      i) Household Level Grey water Reuse.
         - Soak Pits & Leach Pits – Simple gravel/sand pits allow grey to filter into the soil, recharging ground water.
         - Kitchen Garden Irrigation – Using filtered greywater for watering fruit trees, vegetable garden and fodder crops.
      ii) Community Level Greywater Treatment.
         - Decentralized Grey water Treatment Plants (DEWATS) – Small scale systems with settling tanks bio-filters and constructed wetlands to clean grey water.
         - Community Level Soak pit

   b) Black Water (sewage) – Wastewater Management.
   Proper disposal of Sewage and Wastewater is critical to prevent water-borne diseases and contamination of drinking water sources. Common approaches to be adopted are as follows:

i) On site sanitation systems (household level).

- Tripura's wastewater management policy focuses on promoting the construction and utilization of Individual Household Latrines (IHHL) to ensure safe disposal of human waste at the household level.
- Training programs and information sessions are conducted to promote behavior change and ensure the sustained use of IHHLs by residents.
- Financial incentives and support to incentivize households to construct IHHLs, making it more accessible and affordable for residents.
- Septic Tanks with Soak Pits – Construction made by households exclusively with the utilization of their own funds to partially treat sewage before soil absorption.

ii) On site sanitation systems (Community level)

Tripura's wastewater management policy focuses on promoting the construction of Community Sanitary Complexes (CSCs) in the areas like Market Places, Tourist places, Religious Places, Institutes etc.

iii) Community- Level Sewage Treatment.

- Decentralized Wastewater Treatment Systems – Establishment of community level sewage treatment unit using anaerobic digesters, settling tanks to treat sewage before safe discharge.
- Sewerage Networks – Small bore sewer system connecting households to a common sewage treatment unit.
- Oxidation Ponds/ Lagoons – Open ponds where bacteria break down organic waste.
- Fecal Sludge Treatment Plants (FSTP) – Solid portion of Sludge and Liquid component of Waste Removal System from Septic Tank and Pit Latrine fecal sludge for scientific treatment, to avoid health hazards and environmental pollution including risk of groundwater pollution.
- Convergence with Urban Sewage Treatment Plants (STPs) – The Fecal sludge collected from the households of peri urban villages.

3. Government Initiatives and Policies.

- Jal Jeevan Mission – Grey water management system at household and community levels with the convergence of Viksit Bharat-Guarantee for Rozgar and Ajeevika Mission (Gramin), (VB-G RAM G) fund for construction of soak pit, drains and grey water treatment units.
- Swachh Bharat Mission (SBM-G) – Solid and Liquid Waste Management (SLWM): PRIs to utilize fund for implementation of wastewater treatment schemes in rural areas of Tripura.

Chapter 14: Emergency Response and Disaster Resilience in Water Supply Systems.

An Emergency Response and Disaster Resilience Plan (ERDRP) for Rural Water Supply Systems ensures continued access to safe drinking water during natural disasters such as droughts, flood and contamination incidents, infrastructure failures, other emergencies etc. This plan is to be developed by PWD (DWS) in consultation with GP/VC/VWSC and District Disaster Management Agencies, following guidelines of National Disaster Management Authority (NDMA). In most of the disasters and emergencies, the main health problems are caused due to poor hygiene and insufficient water supply and the consumption of contaminated water.

1. Key components of the Emergency Response Plan.

A. Risk Assessment & preparedness.

1. Hazard Identification - Identify risks such as floods, cyclones, earthquakes, droughts, water contamination or pipeline damage etc.

2. Vulnerability Mapping – Assess water sources, treatment plants and OHT, reservoirs prone to damage.

3. Stockpiling Emergency Resources – Ensure availability of sufficient water tankers, chlorine tablets, temporary storage tanks, equipment and generator backup for pump houses.

4. Training & Drills – Conduct community awareness programs and mock drills for emergency response.

B. Immediate Response Actions.

1. Alternate Water Supply Arrangements.

- Deploy Water tankers and water pouches.
- Setup temporary bore wells or hand pumps in case of damage to the main supply.
- Use packaged drinking water in extreme cases.

2. Restoring Damaged Infrastructure.

- Emergency repair of pipelines, pumps and storage tanks.
- Deploying standby pumps and generators in case of power failure.
- Coordinating with trained manpower for urgent repairs.
- Set benchmarks for response times and to incidents for the duration required to restore full water supply services.

3. Water Quality Monitoring Contamination Control.

- Immediate testing for Bacteriological and Chemical Contamination in case of floods or sewage leakage.
- Disinfection of Water sources using Chlorination.
- Ensure adequate quantity of bleaching powder for disinfection activities. Action should be taken to maintain the residual chlorine level at supply points.
- Avoid stagnation of waste water at all infrastructures related to water supply to avoid cross connection
- Issuing advisories to boil water before use, if contamination is suspected.

C. Communication and Co-ordination.

1. Early warning system.

- Setting up SMS alerts, WhatsApp groups and village notice boards (GP/VC/VWSC) for timely updates.
- Using community radio and local leaders to spread emergency messages.

2. Co-ordination with Government Departments.

- Involving GP/VC/VWSC, PWD(DWS) District Magistrate/BDO/Police Authority/ NGO/ Disaster Managements Department for co-ordinated relief efforts.
- Administrative oversight to check and balances to maintain the integrity and efficiency of operation.

3. Community Involvement.

- Training village volunteers for emergency water distribution.
- Setting up community water distribution points in affected areas.
- Create awareness among the public not to use the contaminated water through social media, newspapers, electronic media in case of any contamination of water. Also, arrangement to be made to supply water from other sources

D. Disaster Resilience Strategies for Rural Water Supply.

A. Infrastructure strengthening.

- Flood Resistant Water supply systems – Elevating pump houses and treatment units in flood prone areas.
- Seismic -Proof Structures – Reinforcing OHTs, Reservoirs and other structures with due consideration of Seismic Zone-V for the state of Tripura.

B. Sustainable Water Management.

- Drought – Resilient supply- Developing check dams, ground water recharge structures and alternative borewells.
- Watershed Management Strengthening catchment areas to ensure year-round availability.

C. Climate-Resilient Water Sources.

- Diversification of water sources (Surface water, ground water and rainwater harvesting).
- Water Conservation techniques to reduce wastage.

E. Institutional and Policy Framework.

A. Roles and Responsibilities.

- GP/VC/VWSC and VWSC-Local level coordination, emergency water distribution.
- Make necessary arrangements for hiring Diesel Generators and adequate stock of diesel. Address of vendors with their contact number shall be made readily available.
- Fill the sump and wastage to its maximum capacity whenever situation warrants in order to combat scarcity of water due to power failure
- During drought, flow diversion in river/cherra, flushing of borewells etc shall be done to augment required water from the existing water sources
- PWD(DWS) and GP/VC/VWSC- Infrastructure maintenance, water quality control.
- District/Block Disaster Management Agency – Disaster response and relief operations.

B. Budget and funding for Emergency response.

- Allocation of disaster relief funds for urgent water supply system repairs.

Chapter 15: Grievance Redressal Mechanism

Technical support from DTU to Village utilities will be delivered through an integrated Digital Ticketing system, enabling:

- Digital Submission of Technical & Operational issues by GPs/VWSCs.
- Automatic mapping of each request to the relevant Sujalam Bharat Id.
- Digital tracking of response time, troubleshooting actions and closure.
- Realtime monitoring of DTU efficiency through defined digital KPIs

This ensures transparency, accountability and timely technical solution.

A well structural grievance redressal mechanism (GRM) is crucial for ensuring accountability, responsiveness and effective resolution of complaints related to rural drinking water supply systems. The mechanism should be accessible transparent, time-bound and community-driven.

1. Key components of Grievance redressal Mechanism.

Multiple channels for complaint registration.

- Toll Free Helpline: Hon'ble the Chief Minister's helpline number 1905-a centralized Call Centre for lodging complaints.
- Online Portal: Amar Sarkar Web portal – a direct channel for lodging complaints and seeking assistance for remedial measures.
- 24x7 Call Centre: Establishment of a manual call center.
- 24x7 Smart Grievance redressal center:
  - i. Interactive Voice Response System (IVRS)
  - ii. Chat Bot
- GP/VC/VWSC: Direct contact with the local PWD(DWS) office and/or GP/VC/VWSC.

2. Emergency Grievance Redressal Process.

A. In-Village Infrastructure:

Minor Maintenance Work – Responsible Authority GP/VC/VWSC

Table 17: Working Procedures and Escalation Matrix for Grievance Redressal Mechanism.

Level	Authority/Person Responsible	List of Services	Response Time	Escalation Time
Level - 1	Gram Pradhan/Chairman of GP/VC/VWSC	Water Supply Restoration after attending Minor Maintenance Works	30 minutes to 3 hours	If unresolved within 3 hours – escalate to Level – 2
Level – 2	Assistant Engineer with the assistance of Junior Engineer DWS, Sub- Division.		3 hours to 6 hours	If unresolved within 6 hours - escalate to Level- 3
Level – 3	Executive Engineer DWS Division		6 hours to 12 hours	If unresolved within 12 hours - escalate to Level – 4
Level – 4	Superintending Engineer DWS, Circle		12 hours to 24 hours	If unresolved within 24 hours – escalate to Level - 5
Level - 5	Chief Engineer PWD (DWS)		24 hours to 36 hours	

Major Maintenance Work - Responsible Authority GP/VC/VWSC

Table 18: Working Procedures and Escalation Matrix for Grievance Redressal Mechanism.

Level	Authority/Person Responsible	List of Services	Response Time	Escalation Time
Level - 1	Gram Pradhan/Chairman of GP/VC/VWSC	Water Supply Restoration after attending Major Maintenance Works	24 hours to 48 Hours hours (Max. 2 days)	If unresolved within 48 hours – escalate to Level – 2
Level – 2	Assistant Engineer with the assistance of Junior Engineer DWS, Sub- Division.		48 hours to 72 hours (Max. 3 days)	If unresolved within 72 hours - escalate to Level- 3

Level – 3	Executive Engineer DWS Division		72 hours to 84 hours (Max 3.5 days)	If unresolved within 84 hours - escalate to Level – 4
Level – 4	Superintending Engineer DWS, Circle		84 hours to 96 hours (Max 4 days)	If unresolved within 96 hours – escalate to Level - 5
Level - 5	Chief Engineer PWD (DWS)		96 hours to 108 hours (Max 4.5 days)	If unresolved within 108 hours – escalate to Level - 6
Level - 6	Secretary		108 hours to 120 hours Max 5 days)	

B. Out Village Infrastructure

Major Maintenance Work: Responsible Authority - PWD(DWS).

Table 19: Working Procedures and Escalation Matrix for Grievance Redressal Mechanism.

Level	Authority/Person Responsible	List of Services	Response Time	Escalation Time
Level – 1	Assistant Engineer & Junior Engineer	Water Supply Restoration after attending Major Maintenance Works	48 hours	If unresolved within 48 hours – escalate to Level – 2
Level – 2	Executive Engineer		48 hours to 72 hours	If unresolved within 72 hours – escalate to Level – 3
Level – 3	Superintending Engineer		72 hours to 96 hours	If unresolved within 72 hours – escalate to Level – 4
Level - 4	Chief Engineer		96 hours to 108 hours	If unresolved within 108 hours – escalate to Level – 5

Level - 5	Secretary		108 hours to 120 hours Max 5 days)	

3. Response and Closure.

- The complaint is informed about the resolution.
- If unresolved, they can escalate the grievance to district or state level authorities of PWD(DWS).
- Feedback is collected to ensure customer satisfaction.

4. Citizen Charter

- Promote the practice of having Citizen Charter at GP/VC/VWSC level such as clearly mentioning the indicative timelines for resolution of different issues, charges for different services, responsible authority/ position etc.
- Providing of Information of total drinking water production and supply, water quality report, breakdown etc. on daily basis in a suitable displaying board in front of the scheme.

Chapter: 16 Penal Provisions

To ensure compliance by Water Users with Operations & Maintenance (O&M) standards and regulations under the Jal Jeevan Mission (JJM), a robust penalty framework is essential. This framework will deter violations, uphold accountability, and ensure the sustainable and efficient functioning of the water supply system.

1 Penalties for Non-Compliance: Penalties for violations are designed to address specific issues that compromise the efficiency and sustainability of water supply systems. The key non-compliance areas of water users and corresponding penalty provisions include:

1. **Non-payment of Water Tariff/User Fee (Payment Default)**
    - Late fee until dues are cleared.
2. **Wastage of Water into Open Areas**
    - Financial penalties for deliberate or negligent practices leading to water wastage.
3. **Dumping of Waste Near Water Sources**
    - Hefty fines and legal action for contaminating or endangering water sources through improper waste disposal.
4. **Illegal Connections or Vandalism**
    - Unauthorized additions or alterations or extension of pipes, taps, fittings or tempering with ferrule, drawing of water from the system with an installation of pump etc. by the owner or occupier, the GP/VC may serve a notice to show cause to furnish as to why such act shall not be treated as unauthorized on his part. The notice should be replied within 7 days' time from the date of receipt of the notice, failing to reply or the reason explained in reply by the user is not satisfactory to the GP/VC, the said unauthorized act on the part of the user will attract a fine which shall be fixed in terms of clause 221 of the Tripura Panchayat Act 1993 by the GPs/VCs.
5. **Illegal Withdrawal of Water from Sources**
    - Unauthorized extraction from borewells, open wells, or other water sources by the owner/occupier or any other person, the GP/VC/VWSC may serve a notice to disconnect such unauthorized extractions within 7 days' time, failing which the

GP/VC/VWSC will impose penalty of Rs. 500 to Rs 1000 in each case based on the duration of illegal usage. Disconnection fee if any may also be charged upon the owner/occupier or any other person of the premises concerned by the GP/VC/VWSC.

6. **Using Pressure Pumps on the Main Water Supply Network**
   - Strict fines for disrupting the water distribution system through unauthorized use of pressure pumps.
   - While the Tripura Panchayat Act 1993 and Tripura Tribal Areas Autonomous District (establishment of Village Committee) Act 1994, provide for water supply management, specific penalties for consumer violations are detailed in the Tripura Panchayats (Taxes, fees, rates and tolls) rule 2011. These rules empower GP/VC/VWSC to levy taxes and fees for services including water supply. Noncompliance with these rules can result in penalties such as fines or temporary disconnection of water supply
7. **Use of Inferior Quality Materials and Faults in Distribution Infrastructure (By Contractors)**
   - Blacklisting of contractors for repeated offenses, alongside financial penalties and recovery of repair costs.

ii) Enforcement of Penal Provisions: To maintain accountability and ensure service quality, the following enforcement measures will be adopted:

1. **Monitoring and Inspection**
   - Regular and surprise inspections by dedicated teams to identify violations.
   - Use of technology, such as IoT-enabled monitoring devices, to detect unauthorized activities and irregularities in real time.
2. **Community Reporting Mechanisms**
   - Establish user-friendly platforms, such as helplines or apps, to report non-compliance and raise grievances.

3. **Awareness Campaigns**
    - Educate users, contractors, and other stakeholders about O&M standards, the consequences of non-compliance, and the importance of sustainable practices.
4. **Legal and Administrative Action**
    - Empower local authorities and water committees to take immediate action against offenders as per established guidelines.
    - Strengthen collaboration with law enforcement agencies to address severe violations.
5. **Performance Tracking and Transparency**
    - Publish periodic reports on violations, penalties imposed, and corrective actions taken to promote transparency and accountability.

Chapter 17 : Technology and Innovation

Efficient Operation & Maintenance (O&M) of rural piped water supply systems ensures reliable, safe and sustainable water delivery. Technology and innovation play a crucial role in improving system efficiency, reducing water losses and ensuring water quality.

The success of the Jal Jeevan Mission (JJM) hinges on the adoption of modern technologies and innovation practices to ensure sustainable and efficient water supply management.

1) **Key areas of O&M in Rural Piped Water Supply Systems.**
   - i. Water Source Management - Monitoring groundwater and surface water levels.
   - ii. Treatment & Quality Control – ensuring water meets safety standards.
   - iii. Distribution System Efficiency – Preventing leaks and ensuring equitable supply.
   - iv. Energy Optimization _ Reducing power costs in pumping and treatment.
   - v. Consumer service & Billing.

2) **Technologies and Innovations in O&M.**

   A) Smart Monitoring & Automation.

   i. IOT-based Smart Water Sensors.
      - Real time monitoring of water flow, pressure and quality.
      - Reduces wastage by detecting leaks and unauthorized usage.
      - Monitors contamination (TDS, pH, turbidity, etc.)
      - Ensures optimal pressure in the pipelines system.

   ii. SCADA (Supervisory Control and Data Acquisition) Systems.
      - Centralized control of water pumping stations, treatment plants and distribution networks.
      - Remote operation of pumps and valves.
      - Real-time alarms for pipeline bursts or pump failures.
      - Data-driven decision-making for efficient-water management.

   iii. GIS (Geographic Information System) for Asset Management.
      - Mapping of water infrastructure (pipelines, DTW, SBDTW, OHT, treatment plant, innovative treatment unit etc.)
      - Helps locate leaks, broken pipes and maintenance needs.

- Enables preventive action rather than reactive maintenance.
- Enhances water distribution planning.

B) Leak Detection & Pressure Management.

i. AI & Machine Learning for Leak Detection.

- Algorithms analyze water usage pattern to detect anomalies.
- Reduces non-revenue water (NRW).
- Prevents major water losses before they escalate.

ii. Automated Pressure Regulation Valves.

- Controls water pressure in pipelines.
- Prevents pipe bursts and reduces wear and tear.
- Ensures equitable water supply across all households.

C) Sustainable Energy Solutions for Pumping.

i. Solar Powered Water Pumps.

- Reduces depending on grid electricity.
- Low operational cost.
- Works even in remote off-grid areas.
- Environmentally sustainable.

ii. Variable Frequency Drives (VFD) for Pumps.

- Adjusts pump speed based on water demand.
- Reduces energy consumption by 30-40%.
- Extends the life of pumps and motors.

D) Water Quality Monitoring & Treatment.

i. AI-enabled Water Testing Kits.

- Portable kits that test water for bacteria, fluoride, arsenic and nitrates.
- Provides instant results in a mobile apps.
- Community members can monitor water safety.
- Automatic Chlorine Dosing systems.

- Ensures correct Chlorine levels for disinfection.
- Reduces manual errors in Chlorination.
- Ensures safe Drinking Water at all times.

E) Consumer Engagement and Billing Innovations.

i. Smart Water Meters for Rural Households.

- Tracks water usage.
- Encourages water conservation.
- Reduces revenue losses due to inaccurate billing.

ii. Smart Grievance Redressal systems.

- 24x7 IVRS/Chat Bot.
- Ensures quick complaint resolution.
- Insures transparency in service delivery.

The integration of technology and innovation in the O&M of rural PWSS ensures sustainable and equitable water access in rural areas. Key members of VWSC and field level Engineers need training to use digital tools. Scaling up these solutions through Jal Jeevan Mission and community participation will be key to ensuring sustainable and equitable water access in rural areas.

Chapter 18: Legal and Regulatory Framework

18.1 Legal and Regulatory Framework

The O&M framework must ensure that all operations are conducted within the bounds of legal and regulatory requirements to maintain the legitimacy and integrity of water supply services.

Provide clear guidelines for compliance with national water policies, environmental regulations, and health and safety standards. This includes obtaining necessary permits, adhering to construction codes, and following water quality guidelines as per the Bureau of Indian Standards (IS-10500:2012) or latest version Align with the broader objectives of the JJM, such as ensuring equitable access to water and promoting water conservation.

i.) Facilitate the resolution of legal disputes and provide a clear framework for the enforcement of regulations and penalties for non-compliance.
ii.) Incorporate provisions for regular legal audits and reviews to ensure ongoing compliance with changing regulations and to adapt to new legal requirements as they arise, thus safeguarding the water supply services against legal and regulatory risks.
iii.) Facilitate training and awareness programs for local authorities and community members on the legal aspects of water supply management, thereby empowering them to effectively navigate and uphold the regulatory framework.

18.2 Functions under Legal & Regulatory Framework:

i.) Water Usage Regulations: Establish clear guidelines for water usage, allocation, and conservation to ensure sustainable use of water resources.
ii.) Tariff and Penalty Structure: Define tariffs for water supply services and penalties for non-compliance with regulations to ensure financial sustainability and adherence to standards.
iii.) Regular Social Audits and Inspections: Conduct social audits and inspections to maintain transparency, accountability, and quality of service time to time.

In India, the legal and regulatory framework for supplying drinking water in villages is rooted in constitutional provisions, national policies, state laws and local government frameworks. Below is an outline of key laws and regulations:

1. **Constitutional Provisions:**
   - Right to safe Drinking Water:
     The supreme court of India has interpreted the Right to Life (Article 21)to include the right to clear and safe drinking water.
   - Directive Principles of State Policy:

Article 47: It is the duty of the state to raise the standard of living and improve public health, including access to safe drinking water.

- Panchayati Raj and Rural Water supply:
  The 73rd Constitutional Amendment empowers Panchayati Raj Institutions (PRIs) to manage local water resources of Rural drinking water supply system.

2. **National Laws and Acts:**
   - The Environment Protection Act, 1986:
     Provides the framework for regulating water quality and preventing contamination of water sources.
   - Water (prevention and control of pollution) Act, 1974:
     Governs the prevention and control of water pollution and sets standards for water quality.
   - Ground water (regulation and Control of Development and Management) Act.
     State to regulate extraction of ground water.
   - The Indian Easements Act, 1882:
     Recognizes the right of individuals to use water for drinking and household purposes.
   - The Epidemic Diseases Act, 1897.
     Use for ensuring safe drinking water during public health emergencies.

3. **Programs and Initiatives:**
   - National Water Policy, 2012:
     Prioritizes drinking water for domestic use over industrial and agricultural needs. Promotes decentralized management of water resources.
   - Jal Jeevan Mission (JJM):
     Launched in 2019, aims to provide Functional Household Tap Connections (FHTC) to every rural house hold at a rate 55ltrs per head per day.
   - Swachh Bharat Mission (SBM):
     Work alongside JJM to improve water quality and sanitation rural areas.
   - Sustainable Development Goals (SDGs):
     Aims to ensure availability of sustainable management of clean water and sanitation for all.

4. **Institutional and Administrative Framework:**
   - Ministry of Jal Shakti:
     Responsible for formulating and implementing policies and programs for water supply and sanitation, including Jal Jeevan Mission.
   - Central Ground Water Authority (CGWA).
     Regulates the extraction of ground water.
   - Public Works Department (Drinking Water and Sanitation), Tripura.
     Responsible for implementing water supply schemes.
   - Village Water and Sanitation Committee (VWSCs):

Operate under GPs/VCs and manage local water supply systems.

5. Quality and Standards.

- Bureau of Indian Standards (BIS):

Stipulates the quality standards for drinking water under IS:10,500:2012 or latest version.

- PWD (DWS), Tripura

Monitors water quality and supply in rural areas.

6. The Tripura Guaranteed Service to Citizens Act'2020.

- Includes drinking water supply services and delivery guaranteed to the citizen by PWD (DWS) Department:

Sl. No.	List of Services	Designated Officer	Stipulated time for Designated officer (in working days)	Competent Officer	Stipulated time for Competent officer (in working days)	Appellate Authority	Stipulated time for Appellate Authority (in working days)
1	Obtaining Water connection, where technically feasible	Junior Engineer	8 days	Assistant Engineer	6 days	Executive Engineer	2 days
2	Certificate for non-availability of water supply from water supply agency required for NOC	Junior Engineer	8 days	Assistant Engineer	6 days	Executive Engineer	2 days

7. The Tripura Panchayats Act, 1993

- Control over Public Water Sources.
- Addressing Polluted Water Supply.
- Prevention of Water Pollution.

8. The Tripura Panchayats (Taxes, Fees, Rates & Tolls) Rules, 2011.

- Empower Gram Panchayat/Village Committee to levy taxes and fees for services, including water supply.
- Imposition of penalties such as fines or disconnection of water supply.

9. The Tripura State Disaster Management Rules, 2008

- State shall take Climate Resilient measures including Source Diversification, Aquifer Recharge and Local Storage Systems.
- Each Scheme shall have an emergency continuity plan to ensure uninterrupted water supply during Droughts, Floods and Other disruptions.

Chapter 19: Command and Control Centre for Monitoring and Management Performance.

Drinking water requires digital governance mechanisms to ensure reliability, accountability, long-term sustainability and lifecycle-based service management, enabling structured, real time and sustainable governance of rural drinking water supply systems. Sujalam Bharat framework builds a population scale digital public infrastructure for water governance, establishing a national IT architecture for end-to-end digital management of Rural Piped Water Supply Systems under JJM 2.0.

Following digital reforms have been introduced under JJM 2.0:

19.1 Sujalam Bharat Digital Public Infrastructure (DPI) for Rural Drinking Water Sector:

Sujalam Bharat is being developed as a federated Digital Public Infrastructure (DPI) to enable lifecycle based, service oriented and source-secure management of rural piped water supply systems across the country. This digital architecture enables seamless digital visibility of Rural Piped Water Supply [redacted] local communities. The need for an integrated, scalable DPI is to shift from asset centric monitoring to service oriented water governance, in place of earlier fragmented and non-standardized digital representation of water supply schemes. Addressing this need, Sujalam Bharat DPI integrated with PM Gati Shakti platform provides a GIS validated national architecture that assigns unique digital identities to rural water supply schemes (Sujalam Bharat ID) and service area (Sujal Gaon ID), enabling source to tap mapping through structured hydraulic linkages which supports integrated planning, accountable O&M and data driven governance for the State of Tripura.

19.2 Roles and Responsibilities of the State of Tripura:

- [redacted] Module will help represent all layers in rural piped water schemes viz., Out-Village and In-Village components connecting the infrastructure uniquely and distinctively with the service area IDs.
- **Mapping as per Ground Reality**: Sujalam Bharat DPI Asset mapping should match the actual ground situation and work of the scheme to ensure correct linking of Scheme and Assets with Sujalam Bharat [redacted]
- **Managing Designated Implementation Agencies (DIA):** mapping of [redacted] PM Gati Shakti layer through Sujalam Bharat-PM Gati Shakti Application shall be made by the State.
- **Classification of Infrastructure:** Classification of Infrastructure is made as In-Village Infrastructure and Out Village Infrastructure.
- **Review and Validation of Data:** State shall review and verify entries made at District and field levels to ensure they correctly represent the scheme design,

water flow and source to tap connectivity.

- **Correct Sequencing of Infrastructure:** All assets shall be mapped in the correct order as per actual scheme design and water flow
- **Geotagging and Data Accuracy:** All assets are to be properly geotagged/ georeferenced and linked with the correct scheme and asset IDs mapped to the Sujalam Bharat IDs.
- **Capacity Building and Digital Awareness:** Necessary training and digital capacity building of Gram Panchayats/Village Committee and VWSCs in coordi- nation with NJJM will help improve their ability to use Sujalam Bharat DPI effectively.
- **Use of DPI for Planning and Improvement:** Sujalam Bharat DPI data shall be used to develop local solutions and improve planning, monitoring and service delivery of water supply systems.
- **Use of Sujal Gaon ID for User Database:** Gram Panchayats/Village Committees to use Sujal Gaon IDs and Sujal Gaon Utility App to create and maintain a database of households/ users within the service area. This will help in better planning, tracking services and management of water supply systems in future.
- **Project Monitoring Module as a Use Case for Sujalam Bharat DPI:** This will support monitoring of ongoing schemes and asset/ infrastructure components completion status under JJM 2.0 and provide a clear view of implementation status at different levels mapped in the Sujalam Bharat DPI Framework.

19.3 Interactive Dashboards and Decision Support Systems:

The interactive dashboards shall be integrated with GP/VC/VWSC applications and field level systems
monitoring platforms and grievance redressal systems. This will ensure seamless data flow from field level operations to decision makers across all levels. They will function as the digital backbone for Command and Support Centers, enabling continuous monitoring and coordinated response. The dashboards will support a shift from reactive problem solving to proactive, predictive and data driven management, improving efficiency, reliability and accountability of water supply services.

19.3.1 Types of Dashboards:

1. **NJJM Dashboard:** This dashboard shall aggregate data from State dashboards to enable benchmarking, trend analysis and early identification of performance gaps and inform policy decisions.
2. **SWSM Dashboard:** Supports State level monitoring, data validation, performance review and coordination with Districts and Gram Panchayats. It shall integrate with regional SCADA and other monitoring systems to capture key parameters of system functionality and performance of bulk and large-scale utilities.
3. **DWSM Dashboard:** Enables District level monitoring of scheme functionality, grievance management and technical support. It should also provide a system for District

Technical Units (DTUs) to record and track their responses to performance issues and technical support needs of service utilities, especially micro utilities.

4. **Panchayat Dashboard:** Provides Gram Panchayats with simple, real-time information on water supply status, quality and system performance, enabling local decision making and community monitoring.

19.3.2 Roles and Responsibility of the State:

i. **Dashboard Based Monitoring and Governance:** These dashboards shall be used to identify persistent service failures and initiate timely corrective actions

ii. **Issuance and Adherence to Standard Operating Procedures (SOPs):** State shall issue Standard Operating Procedures in confirming with the O&M Policy for defining grievance categories, routing mechanisms, escalation timelines and closure verification processes across Gram Panchayat, District Water and Sanitation Mission (DWSM), District Technical Units (DTUs) and State Water and Sanitation Mission (SWSM);

iii. **Promotion of Citizen Feedback Platforms:** State shall promote the use of citizen feedback mechanisms such as Jal Seva Aankalan, Meri Panchayat Application and e-Gram Swaraj, integrated with Sujal Gaon IDs. This shall enable systematic capture of community feedback related to drinking water services.

iv. **Traceability of Grievances through Sujal Gaon IDs:** State shall ensure that all grievances related to rural water supply are mandatorily linked to Sujal Gaon IDs. This shall enable precise localization of service issues, identification of affected habitations and targeted resolution of service breakdowns.

v. **Strengthening Institutional Coordination for Time Bound Resolution:** State shall strengthen coordination among SWSM, DWSM, DTUs and Gram Panchayats to ensure timely resolution of community reported issues. DTUs shall provide necessary technical support to local institutions to address operational and system level challenges effectively.

vi. **Establish District Technical Units (DTUs):** State shall establish DTUs to monitor and manage data flow from field-level data entry through the Sujal Gaon Utility Application. The DTU shall act as the convergence point between macro and micro utilities. DTUs shall analyze dashboard data to identify system inefficiencies and risks, coordinate with utilities and Gram Panchayats ensure data validation, support operational decision making and troubleshooting and facilitate digital capacity building of field level stakeholders. DTUs shall also ensure that data insights are translated into timely and actionable decisions at the operational level.

vii. **Establish Command and Support Centers:** State shall establish State-level and District level Command and Support Centers and organize regular guidance of DTUs for their effective operation, maintenance and management. Command and Support Centers shall support routine system monitoring and timely responses by DTUs and enable continuous monitoring of water supply

system performance, data driven planning and prioritization of interventions, coordination across departments and administrative levels and prompt response to system failures, emergencies and service disruptions.

19.4 Integrated Data Flow and Decision Support for Service Utilities:

Data shall be captured from micro utilities and macro utilities through integration of data from automated systems like SCADA/ IoT, shall be integrated within the Sujalam Bharat DPI to provide a complete, real-time view of system performance across the entire source to tap chain. This data shall flow into interactive dashboards, where it will be analyzed and used for decision-making. Command and Support Centers shall use these insights to monitor performance, identify issues and take timely action.

19.4.1 Roles and Responsibilities of State:

i. **Adoption of Standard Digital Platform:** State shall adopt and notify the Sujal Gaon Utility Application as the standard platform for capturing village level O&M and service delivery transactions.

ii. **Standardization of Data and SOPs**: State shall issue SOPs and data standards for daily and periodic entries, including reporting frequency, alert thresholds and escalation protocols.

iii. **User Onboarding and Role-Based Access**: State shall ensure onboarding and authorization of all users with role-based access, OTP authentication and audit trails.

iv. **Integration of Macro Utility Systems**: State shall integrate Macro Utility Systems with SCADA/ IoT platforms to capture real time data on production, treatment, storage and transmission.

v. **Data Quality and System Integration:** States shall ensure validation and integration of all data with Sujalam Bharat DPI and dashboards for reliable monitoring.

vi. **Dashboard Governance and Accountability**: State shall define KPIs and assign responsibility for monitoring alerts, service delivery, water quality, grievances and financial performance.

vii. **Closed-Loop Monitoring and Response**: State shall ensure time bound response to alerts with defined escalation mechanisms and tracking of outcomes.

viii. **Technical Support through DTUs:** State shall direct DTUs to provide technical support based on system alerts and performance trends.

ix. **Financial Monitoring and Sustainability**: State shall ensure regular monitoring of demand, collection and expenditure data and take corrective actions where needed.

x. **Capacity Building and Digital Enablement:** State shall train and support all stakeholders for effective use of digital systems.

xi. **Use of Data for Planning and Improvement:** State shall use transaction data and analytics for planning, performance improvement and resource allocation.

19.4.2 Roles and Responsibilities of Districts (DWSM/DTUs):

i. **Supervision of Data Capture:** Districts shall ensure that all service providers (GP/VC/VWSC) regularly record transactions through the Sujal Gaon Utility Application and related systems.

ii. **Data Review and Validation:** Districts shall review data entries for accuracy and completeness and coordinate with field functionaries for corrections.

iii. **Technical Support and Response (DTUs):** DTUs shall analyze system alerts and trends, provide technical guidance, support fault diagnosis and assist in preventive maintenance and major repairs, especially for micro utilities.

iv. **Monitoring Scheme Functionality:** Districts shall use dashboard data to monitor performance of schemes, identify issues and take timely action.

v. **Grievance Monitoring and Resolution:** Districts shall track complaints and ensure timely resolution through coordination with GPs and service providers.

vi. **Coordination and Escalation:** Districts shall coordinate between State and GP levels and escalate unresolved issues as per defined protocols.

vii. **Support for Capacity Building:** Districts shall support training and handholding of field functionaries and local institutions.

19.4.3 Roles and Responsibilities of VWSCs and Service Providers:

i. **Daily Transaction Data Entry:** VWSCs, Water Supply Operators, SHGs and other service providers shall record daily activities such as water supply operations, maintenance, disinfection and testing through the Sujal Gaon Utility Application.

ii. **Water Quality and Maintenance Reporting:** They shall regularly record water quality testing, chlorination, breakdowns and corrective actions.

iii. **Grievance Registration and Resolution:** VWSCs shall register complaints, track their status and ensure timely resolution at the local level.

iv. **Revenue and Financial Records:** service delivery charge collection and basic financial records shall be maintained digitally.

v. **Community Monitoring and Reporting:** Local stakeholders shall report leakages, infrastructure issues and service gaps for timely action.

vi. **Use of Data for Local Planning:** VWSCs shall use available data for village level planning, water budgeting and improving service delivery.

19.5 Citizen Participation and Feedback Systems:

Sujalam Bharat DPI shall enable transparent access to service delivery information and establish structured mechanisms for citizen feedback and grievance redressal. All citizen inputs captured through digital platforms shall be linked to defined service areas through Sujal Gaon IDs, enabling precise identification of issues and targeted response. Multi-level dashboards shall provide visibility of feedback, grievance status and service outcomes, supporting data driven governance

19.5.1 Roles and Responsibilities of States:

i. **Enable Citizen Interface:** State shall ensure adoption and effective use of the Meri Panchayat Application will function as the primary citizen interface for accessing information, submitting feedback and tracking grievances.

ii. **Ensure Data Integration and Availability:** Integration of Sujalam Bharat DPI, Project Monitoring Module and Sujal Gaon Utility Application with citizen platforms shall be made so that accurate and up-to-date information on schemes, service delivery and progress is available.

iii. **Link Feedback with Service Areas:** All citizen feedback and grievances shall be linked to Sujal Gaon IDs to enable precise identification of issues and targeted resolution.

iv. **Establish Grievance Redressal Mechanism:** Clear workflows, timelines and escalation mechanisms for addressing citizen feedback should be defined across Gram Panchayat, District and State levels;

v. **Monitor Feedback and Response:** States shall use dashboards to monitor grievance status, resolution timelines and service delivery outcomes and ensure timely actions.

vi. **Strengthen Accountability:** Clear responsibilities are to be assigned to Districts, VWSCs and service providers (GP/VC) for responding to citizen feedback and regularly review performance.

vii. **Capacity Building and Awareness:** Awareness campaigns and training to be conducted to encourage citizens and local institutions to use digital platforms for feedback and participation.

viii. **Use Feedback for System Improvement:** Citizen feedback and grievance data are to be analyzed to identify recurring issues and improve service delivery, planning and system performance.

ix. **Development of Integrated Citizen Service Interfaces:** States/ UTs may progressive development and promotion activities shall be integrated with digital interfaces for citizens to access a full range of water supply services, including applications for new connections, connection restoration, service requests,

grievance registration and tracking of resolution. Leveraging interoperability of Sujalam Bharat DPI and Sujal Gaon IDs, States may build context specific applications and use cases that enable end-to-end service delivery at the household level.

Annexure – I

Break Up of O&M Cost (1st to 5th Year)									
Description	Unit	Average Cost of Electric Power for 1 Year (1st-5th Years)	Average Cost of Man Power for 1 Year (1st-5th Years)	Average Cost of Routine Maintenance for 1 Year (1st-5th Years)	Average Cost of Depreciation of Pumps, Motors and Electrical Installations for 1 Year (1st-5th Years)	Average Cost of Chemical Dosing for 1 Year (1st-5th Years)	Average Miscellaneous Expenditure for 1 Year (1st-5th Years)	Replacement cost of Filter Media of IRP after 5 Years	Average cost of O&M of FHTC for 1 Year (1st-5th Years)	Average Total Expenditures for 1 Year (1st-5th Years)
2500 GPH DTW	Per Scheme	55218.36	104628.35	15185.05	6641.16	13804.59	6902.30	20000	7765.08	**230144.93**
5000 GPH DTW	Per Scheme	110436.73	103534.43	30370.10	7630.49	13804.59	13804.59	35000	15530.16	**330111.09**
7500 GPH DTW	Per Scheme	165655.09	103534.43	45555.15	8635.92	13804.59	13804.59	56000	41413.77	**448403.54**
10000 GPH DTW	Per Scheme	220873.45	103534.43	60740.20	9778.25	20706.89	20706.89	70000	103534.43	**609874.54**
15000 GPH DTW	Per Scheme	276091.82	103534.43	75925.25	10928.63	20706.89	27609.18	85000	124241.32	**724037.51**
20000 GPH DTW	Per Scheme	331310.18	103534.43	91110.30	16680.55	20706.89	345 1.48	90000	144948.20	**832801.02**
Innovative Scheme	Per Scheme	111661.96	103534.43	55218.36	6641.16	10000.00	345 1.48	0	155301.65	**476869.03**
1.2 MGD SWTP	Per Scheme	3451147.69	96632. .35	103534.43	1493484.16	44000.00	1242413.17	0	1811852.54	**9111753.34**
0.65 MGD SWTP	Per Scheme	1150382.56	621206.58	55218.36	78226.01	22000.00	690229.54	0	1811852.54	**4429115.60**

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0.55 MGD SWTP	Per Scheme	1035344.31	621206.58	55218.36	76874.31	22000.00	690229.54	0	1811852.54	4312725.64
0.30 MGD SWTP	Per Scheme	1035344.31	414137.72	27609.18	39113.01	20000.00	345114.77	0	1811852.54	3693171.52
0.15 MGD SWTP	Per Scheme	552183.63	207068.86	20706.89	20706.89	14000.00	207068.86	0	1811852.54	2833587.66
SBDTW	Per Scheme	11043.67	0	9663.21	0	0	6902.30	0	5176.72	32785.90

Break Up of O&M Cost (6th to 10th Year)										
Description	**Unit**	**Average Cost of Electric Power for 1 Year (6th-10th Years)**	**Average Cost of Man Power for 1 Year (6th-10th Years)**	**Average Cost of Routine Maintenance for 1 Year (6th-10th Years)**	**Average Cost of Depreciation of Pumps, Motors and Electrical Installations for 1 Year (6th-10th Years)**	**Average Cost of Chemical Dosing for 1 Year (6th-10th Years)**	**Average Miscellaneous Expenditure for 1 Year (6th-10th Years)**	**Replacement cost of Filter Media of IRP after 10 Years**	**Average cost of O&M of FHTC for 1 Year (6th-10th Years Years)**	**Average Total Expenditures for 1 Year (6th-10th Years)**
2500 GPH DTW	Per Scheme	71086.79	133287.74	19548.87	8549.67	17771.70	8885.85	25526	9996.58	**294652.83**
5000 GPH DTW	Per Scheme	142173.59	133287.74	39097.74	9823.31	17771.70	17771.70	44670	19993.16	**424588.78**
7500 GPH DTW	Per Scheme	213260.38	133287.74	58646.60	11117.68	17771.70	17771.70	71472	53315.10	**576642.66**
10000 GPH DTW	Per Scheme	284347.18	133287.74	78195.47	12588.29	26657.55	26657.55	89340	133287.74	**784361.22**
15000 GPH DTW	Per Scheme	355433.97	133287.74	97744.34	14069.26	26657.55	35543.40	108484	159945.29	**931165.47**
20000 GPH DTW	Per Scheme	426520.76	133287.74	117293.21	21474.14	26657.55	44429.25	114865	186602.83	**1071130.81**
Innovative Scheme	Per Scheme	142173.59	133287.74	71086.79	8549.67	10000.00	44429.25	0	199931.61	**609458.64**

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1.2 MGD SWTP	Per Scheme	4442924.61	1244018.89	133287.74	1922675.62	44000.00	1599452.86	0	2332535.42	11718895.14
0.65 MGD SWTP	Per Scheme	1480974.87	799726.43	355433.97	100706.29	22000.00	888584.92	0	2332535.42	5979961.90
0.55 MGD SWTP	Per Scheme	1332877.38	799726.43	71086.79	98966.15	22000.00	888584.92	0	2332535.42	5545777.09
0.30 MGD SWTP	Per Scheme	1332877.38	533150.95	35543.40	50353.15	20000.00	444292.46	0	2332535.42	4748752.76
0.15 MGD SWTP	Per Scheme	710867.94	266575.48	26657.55	26657.55	14000.00	266575.48	0	2332535.42	3643869.41
SBDTW	Per Scheme	14217.36	0	12440.19	0	0	8885.85	0	6664.39	42207.78

Annexure - II

Memorandum of Understanding (MoU) Between respective Drinking Water and Sanitation Division PWD (DWS), Govt. of Tripura and Gram Panchayat (GP)/ Village Committee (VC) on Community Ownership for Effective Management and Operation & Maintenance in Rural Piped Water Supply Schemes at..... GP/VC .....District, Tripura

Preamble:

The Ministry of Jal Shakti, Govt. of India Initiated Implementation of Jal Jeevan Mission (JJM) to address Continuous Drinking Water Security as a rural aspiration and JJM mandated efforts are being materialised in Tripura by Public Works (Drinking Water and Sanitation) Department, PWD (DWS), Govt. of Tripura to cover all rural house hold with such aspiration so that all rural households have access to piped water supply in adequate quantity with home based tap connection providing safe drinking water throughout the year, that meets prevalent national drinking water standards.

The key objective of Jal Jeevan Mission is to ensure no household/public institution is left behind from assured tap water supply and also to facilitate with safe drinking water supply in adequate quantity (55 lpcd) of prescribed quality (BIS:10500), 2012 on regular and long-term basis. For this purpose, the proposed implementation module invites upfront involvement of the respective community on ownership basis by sharing both for infrastructures through community contribution (as JJM Guidelines) as well as necessary Operation & Maintenance (O&M) with affordable service delivery charges.

The PWD (DWS) Tripura, being the nodal Department for the implementation of JJM in the State, has the basic mandate to create in-village water supply infrastructures in the form of Piped Water Supply Schemes (PWSS). After creation and ensuring functionality of PWSSs, necessary focus should be on the much needed service delivery and to ensure that water supply schemes remain functioning properly and lasts its full design period i.e. next 30 years. For that purpose and as per JJM mandate, the Panchayati Raj Institutions (PRIs), i.e. every GP/VC will function as legal entity as envisaged in the 73rd Amendment to the Constitution. Accordingly,

the JJM Operational Guidelines outlined the process as such that there will be a close coordination between the PRIs and District Water and Sanitation Mission (DWSM) to ensure O&M arrangements for all Rural Pipe Water Supply Schemes. In this regard, there will be a provision for allocation of necessary fund from PRIs under Finance Commission (FC) tied grant for the purpose of management and O&M of Village Water Supply Schemes.

Operation & Maintenance of PWSS: 'Operation' in a PWSS refers to necessary routine hourly and daily activities for unit operations in the PWSS to keep the Scheme functional, which is taken care of by an operator, with support from GP/VC. The term 'Maintenance' is defined as the act of maintaining the Scheme with different infrastructures and other related facilities in optimum working order. Maintenance includes also the preventive maintenance /breakdown or corrective maintenance, mechanical adjustment, repairs etc. during emergency or normal breakdown, if any, to ensure the desired service level for the beneficiaries. All O&M activities are likely to be monitored regularly by the respective stakeholders using Performance Evaluation Tool for facilitating real time monitoring.

The O&M policy in rural water supply sector needs to deal with several thrust areas for sustainable water management coupled with aiming at ensuring community involvement for enabling rural communities to plan, build and manage in-village drinking water supply infrastructures. Hence, it is decided that every GP/VC is able to function as a 'local Public Utility Unit' that can manage, operate and maintain in-village water supply services on regular and long-term basis and for that purpose, a MoU needs to be executed at the time of formal handing over for decentralised O&M of the PWSS. The MoU will be executed for formal handing over the PWSS by the respective Assistant Engineer, DWS Sub-Division, PWD (DWS) to GP/VC at the same instant the document regarding Memorandum of Understanding (MoU) provided in the next page will be executed for entrusting the O&M activities by GP/VC.

This Memorandum of Understanding (MoU) is entered on..... day of.....20... between:

I .The Assistant Engineer, DWS Sub-division, Block, District..... (hereinafter called the First Party)

And

II. The Pradhan/Chairman/In charge of Gram Panchayat (GP)/Village Committee (VC) (hereinafter called the GP/VC or Second Party)

This MoU is based on the issue of community ownership to maintain long term sustainability of the PWSS by ensuring functionality and certain specific reference points are as follows-

Decentralised Ownership of PWSS:

As per JJM mandate, the functional rural water supply schemes need to be handed over to the respective community for ownership on O&M activities and hence the O&M approach of Water Supply Schemes needs to be decentralized to the Community under the leadership of respective GP/VCs. Hence, the PWSSs completed and functional under PWD (DWS), should be handed over to the concerned GP/VCs, with meaningful ownership to keep the PWSSs sustained for long term basis.

Scope of MoU:

In accordance with this MoU, both the parties shall undertake to co-ordinate, participate, support and manage the Operation & Maintenance of the PWSS to ensure sustained service from the Scheme. The activities under this MoU shall be carried out with due consideration of O&M policy for "Rural Drinking Water Supply in Tripura. The scope of this MoU shall remain limited within the command area of the PWSS.

The scope of this MoU shall authorize PWD (DWS) to handover the PWSS formally to the respective GP/VC and the details of the PWSS will be as follows:

a. Name of the Scheme:
b. Name of the GP/VC
c. Name of the Village(s):
d. No. of FHTCs provided within the scheme:
e. List of infrastructure units under the in-village piped water supply scheme:
f. Geo Tagging of Assets.

(Separate list of PWSS should attached as per requirement).

Sl. No	Name of the item	Quantity

Requirements for formal handing over the Schemes to GP/VC-

The PWSSs to be handed over for community ownership to maintain long term sustainability of the PWSS, should meet the following criteria to facilitate effective operation & maintenance to ensure desirod level of service.

a. The command area of service under the PWSS should fall within the area of authority of the respective GP/VC.

b. The entire scheme, including all units of operation, should be in a working condition while handing over.

c. The scheme should maintain proper service level in its entire command area ensuring the functionality with regard to quantity and quality of water.

d. Before handing over the PWSS, there should be a joint field inspection into the all infrastructures by the GP/VC Members and PWD (DWS)Officials for spot assessment on the working condition of the PWSS including a trial run for the Scheme to show the desired service level. The proceedings of such assessment, including the comments of all participants in the inspection should be recorded with joint signatures of respective Chairman and Secretary of GP/VC and authorized representatives of PWD(DWS)

e. The probable O&M expenses and the sources for financial resource management should also be outlined in the form of economies of ownership with due focus on water tariff as service delivery charges from beneficiaries and scope of gap funding from the CFC, SFC and other eligible allocation to GP/VCs.

After identification of such schemes eligible for handing over to GP/VC, the Executive Engineer of the respective DWS Division shall prepare the proposal with a request to the concerned GP/VC for handing over the schemes for community ownership to facilitate necessary O&M initiatives to keep the Scheme functional and thereby to maintain long term sustainability of the PWSS.

Different other issues / submissions related to Scheme handing over process are as follows-

- An inventory of all the unit operations indicating their provisions and states of

working/design life, including assets, asset lists, as built drawings etc. should be prepared, which shall be signed jointly by the respective GP/VC Chairman and the concerned Assistant Engineer, DWS Subdivision, PWD (DWS), countersigned by the Executive Engineer of respective DWS Division. One copy of the same should be kept as office record in all respective Offices of the signatories.

- A key plan and details of the entire scheme indicating their scope, process and functional health of each component such as the capacity, functional requirements including type, size and location of control valves /pipelines /private as well as public FHTCs, should be outlined. The details should include the schematic financial status with cost sharing pattern focusing on community contribution, technical specification of infrastructure along with its accessories and future provision, if any, to depict a fair idea on the Scheme provision. This should be duly signed by the respective Assistant Engineer PWD (DWS) countersigned by the Executive Engineer and should be handed over to the Chairman of GP/VC for record purpose, along with a copy of the same maintained in the DWS Division Office for future references, as and when necessary.

If any Departmental manpower is already deployed by the PWD (DWS) to the operation & maintenance of the scheme, then the same will be continued (based on Department's policy) as a supervisory role. However, look after in case any part time contractual staff engaged as panchayat pump operator, then their service should also be considered as the Scheme caretaker / assistant with due consideration of their work experience. Otherwise, the necessary Scheme of any caretaker / assistant might be engaged from the community and such engagement shall be made by the concerned GP/VC, as per location specific demand for managing the O&M activities. Time to time, necessary skilled Nal jal mitra and unskilled workers may also be engaged depending on the scope of repairing or any other works of functional importance.

The authority of electric connection for the Pump house and all installations in the Scheme shall be transferred on the name of the respective GP/VC, having the ownership on the Scheme.

Roles and Responsibilities of PWD (DWS) as the First Party

The first party agrees to undertake the following roles and responsibilities which shall be executed either directly or through other agencies:

a. Prior to handing over of the Scheme infrastructures to the GP/VC, the respective DWS Division shall facilitate necessary guidance with detailed O&M policy and also for Collection of water tariff for recovery by GPs/VCs from beneficiary households. The First Party shall initiate coordinated efforts with other stakeholders / Departments for source sustainability and grey water management.

b. After completion of the water supply scheme and ensuring its functionality to benefit the rural population, the First Party will hand over the scheme to the concerned Second Party for ownership.

c. The DWS Division, being a nodal stakeholder for implementation of JJM, has the basic mandate to create in-village water supply infrastructures in the form of PWSS and accordingly facilitate all necessary supports to the GP/VC in initiating O&M activities for the Scheme, after the same is handed over to GP/VC.

d. For all issues involving technical aspects in connection with operations of the Scheme, the First Party shall provide handholding support to the Second Party.

e. After handing over of the Scheme, the First Party shall initiate monitoring to check/ verify the functionality of the infrastructures of the Scheme from time to time. Based on such monitoring and evaluation on the overall functionality of the Scheme, necessary course corrective measures might be initiated by First Party to bridge the gap, if any, as per Departmental mandate / Govt. policy.

f. After handing over the Schemes to the GP/VC for ownership, the necessary capacity building and orientation shall be conducted by the First Party on O&M approach/issues involving different stakeholders including the scheme caretakers and GP/VC/etc.

Roles and responsibilities of GP/VC as the Second Party :

The second party agrees to undertake the following roles and responsibilities:

a. To operate and maintain the PWSS and thereby ensuring that the Scheme remains functional with all necessary, and thereby ensuring including time to time monitoring

b. To ensure re financial management including CFC & SFC grant and other eligible fund received from GP/VC or State Government for the scheme, including monthly users charge collection

c. Time to time performance evaluation study shall be taken up in the Scheme maintained by GP/VC and based on that, the requisition for any modifications in the Scheme infrastructures shall be initiated by the GP/VC

d. The GP/VC shall maintain registers for recording the collection of monthly user charges and expenditures thereof. It may take necessary actions against the defaulters.

e. The GP/VC shall maintain a Grievance Redressal System and maintain a record of breakdowns indicating the time and duration of break down on the specified format.

f. To facilitate repairing/replacement etc. to any part of the scheme, as and when necessary with close coordination with PWD (DWS) and other authorities.

g. To encourage users for necessary ownership on different units/pipeline etc. under the scheme, the users should be made aware to avoid any wastage of water. GP/VC may initiate all necessary actions to prevent any unlawful activities like fitting extra pump by any household to obtain more water.

h. In case of any new households within the command area of the scheme, after the scheme operation is handed over to the community, the GP/VC may initiate necessary action in consultation with PWD (DWS) to facilitate water connection to such new households.

i. For any sort of necessary extension of the scheme activities the GP/VC may initiate consultation with concerned PWD (DWS) office and approach DWSM for necessary financial sanction and the implementation might be taken up with close coordination of PWD (DWS).

j. To submit monthly reports on regular functions of the PWSS to the Assistant Engineer DWS Subdivision PWD DWS office on:

- Functionality of the Scheme
- Regular Maintenance and Surveillance activities of the Scheme

k. Coordinate with GPs/VCs for necessary release of CFC & SFC and any other funds.

l. Follow the O&M Policy of Rural Water Supply in Tripura in all respect

m. To ensure that sufficient water quality tests are done for the source and FHTCs regularly by the trained women members/laboratories of PWD (DWS) office and submit report concerned PWD (DWS) office.

n. Ensure that trained personal/Nal Jal Mitras are available for addressing issues at community and/or individual level.

Date	Date
Signature	Signature
Name of Assistant Engineer DWS Sub-Division PWD(DWS)	Name of Pradhan/Chairman/Incharge Gram Panchayat (GP)/Village Committee (VC)
Name of the Sub-Division	Name of Gram Panchayat (GP)/Village Committee (VC)
Name of the Block	Name of the Block/Panchayat Samity/Block Advisory Committee
Name of District	Name of District