Training Material for Community Level Stakeholders

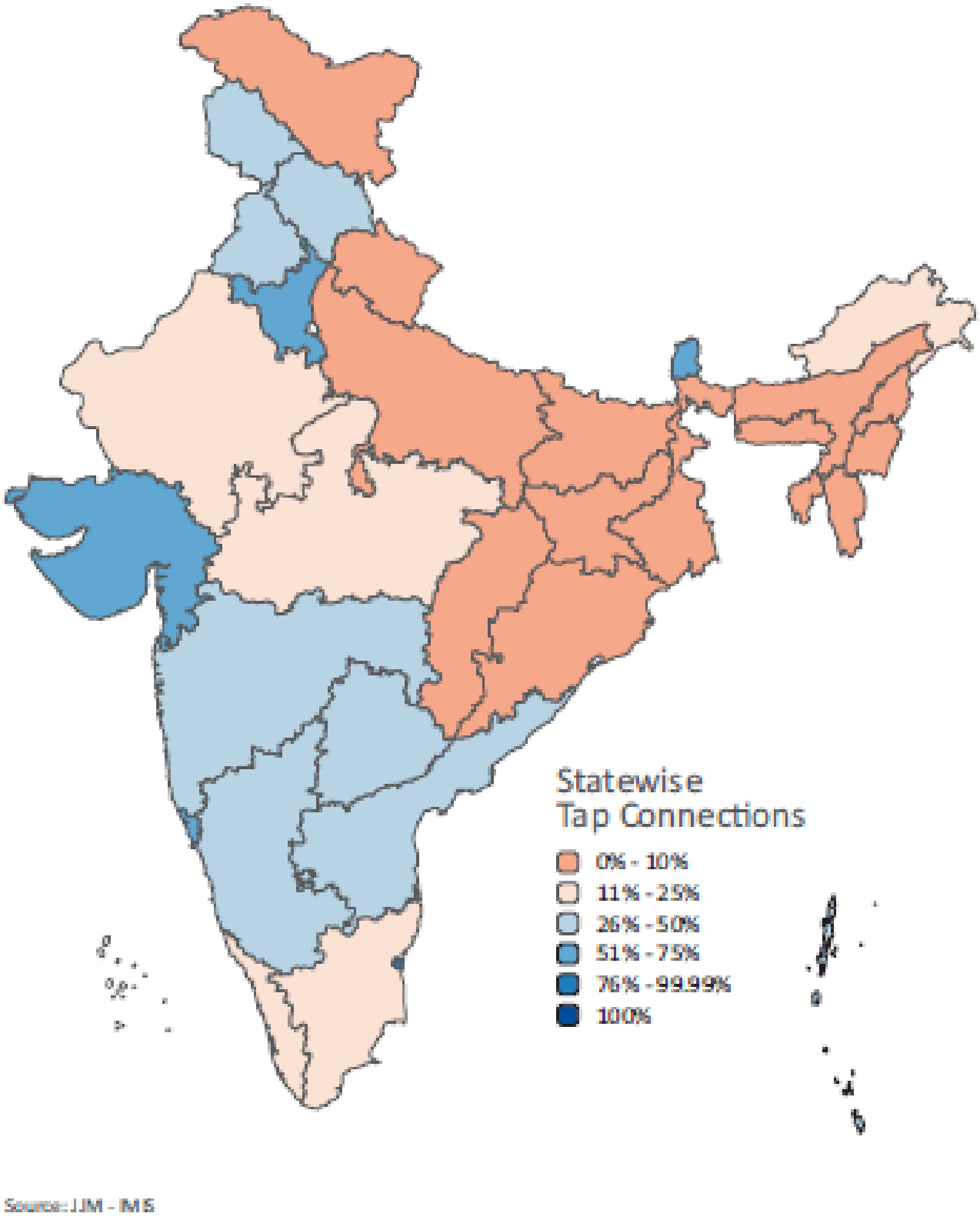
Jal Jeevan Mission

(Har Ghar Jal)

सत्यमेव जयते

Government of India
Ministry of Jal Shakti
Department of Drinking Water and Sanitation
National Jal Jeevan Mission
New Delhi

Status of household tap connections as on 15.08.2019



Source: JJM - MIS

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...Today, our country is working with speed on the 'Har Ghar Jal' mission. I am happy to share that within just 2 years of Jal Jeevan Mission, over 4.5 Crore families have started getting tap water supply. Receiving the blessings from Crores of mothers and sisters is our true capital...

(Prime Minister's address on 75th Independence Day, i.e. 15th August, 2021 from the ramparts of Red Fort, New Delhi)

"...I declare from the Red Fort today that in the days to come, we will take forward the **Jal Jeevan Mission.** The central and the state governments will jointly work on this Jal Jeevan Mission. We have promised to spend more than **Rs. 3.50 Lakh Crore** on this mission in the coming years..."

(Prime Minister's address on 73rd Independence Day, i.e. 15th August, 2019 from the ramparts of Red Fort, New Delhi)

"...I am very proud to tell you that our dream of making available pure drinking water to all the people is getting realized. The solution to several health problems is directly linked to the pure drinking water. It also contributes to that nation's economy. That's why we have started the Jal Jeevan Mission..."

(Prime Minister's address on 74th Independence Day, i.e. 15th August, 2020 from the ramparts of Red Fort, New Delhi)

Contents

Abbreviations

CPHEEO	Central Public Health and Environmental Engineering Organization
CBO	Community-based Organization
CSO	Civil Society Organization
CWPP	Community Water Treatment Plant
DDWS	Department of Drinking Water & Sanitation
DPR	Detailed Project Report
DWSM	District Water and Sanitation Mission
ESR	Elevated Storage Reservoir
FHTC	Functional Household Tap Connection
FTK	Field Test Kit
GoI	Government of India
GP	Gram Panchayat
IEC	Information, Education and Communication
ISA	Implementation Support Agency
JJM	Jal Jeevan Mission
LPCD	Litres Per Capita Per Day
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MVS	Multi village Scheme
NGO	Non - Governmental Organization
NJJM	National Jal Jeevan Mission
O&M	Operation and Maintenance
PFMS	Public Finance Management System
PHED	Public Health Engineering Department
PPP	Public Private Partnership
PRA	Participatory Rural Appraisal
PRI	Panchayati Raj Institution
PWS	Piped Water Supply
RWH	Rain Water Harvesting
RWS	Rural Water Supply
SBM (G)	Swachh Bharat Mission (Grameen)
SHG	Self Help Group
SVS	Single Village Scheme
SWSM	State Water and Sanitation Mission
VAP	Village Action Plan
VO	Village Organization
VWSC	Village Water and Sanitation Committee
WASMO	Water and Sanitation Management Organization
WQM&S	Water Quality Monitoring and Surveillance
KRC	Key Resource Centre
TPIA	Third Party Inspection Agency

1. Introduction

1.1 Background

Jal Jeevan Mission (JJM) has been launched by the Hon'ble Prime Minister of India, on 15th August, 2019, from the ramparts of the Red Fort. The mission, under implementation, in partnership with the States, aims to enable every household in villages to have Functional Household Tap Connection (FHTC) in the next 5 years. It is envisaged that with FHTC, each household will have potable water supply in adequate quantity (at least 55 lpcd) of prescribed quality (as per BIS 10500:2012) on regular and long-term basis. To implement the mission, institutional arrangements at various levels have been made and State's PHE/ RWS Departments are to play a critical role. They have to help Gram Panchayat (GP) and/ or its sub-committee to plan, implement, manage, operate and maintain its in-village water supply systems. A sense of ownership has to be instilled in the village community as they are at the centre of this mission. This will require the current programme implementation structure to transform from infrastructure development to 'utility-based' approach, with strategic shift in focus from water supply 'infrastructure creation' to 'service delivery'.

JJM is implemented through institutional mechanism at four levels, viz. National Jal Jeevan Mission (NJJM) at national level; State Water and Sanitation Mission (SWSM) at state level; District Water and Sanitation Mission (DWSM) at district level; and GP/ Subcommittee of GP, i.e., Village Water and Sanitation Committee (VWSC)/ Pani Samiti/ User Group, etc. In consonance with the 73rd Amendment of the Constitution, GP and/ or its sub-committee, i.e., VWSC/ Pani Samiti/ User Group, etc. are to plan, implement, manage, operate and maintain in-village water supply systems. Decentralized, demand-driven, community-managed implementation of the programme will instilsense of ownership among the local community, develop responsible and responsive leadership at grass root level, create an environment of trust and bring in transparency leading to better implementation and long-term sustainability and proper operation and maintenance of water supply systems.

To achieve the vision of JJM, it is required to re-orient both public health engineering and other non-non-engineering stakeholders. The people managing the water supply services at all levels, i.e., village, GP, district and State, need to be provided with training and leadership programmes so as to enable them to discharge their role in managing the public utilities for assured quality services. The programmes are to be customized to suit different levels covering various technical, managerial and leadership aspects. JJM offers a platform and huge potential to generate the future leadership in water sector through such capacity building/ change management programmes.

1.2 How to use this manual?

The training manual is premised on creating a friendly learning environment, conducive for self-reflection, realization and pro-active behaviour change for nurturing a responsible and responsive governance amongst various stakeholders associated with provisioning water supply in rural India. The thematic areas covered include knowledge and skill, community participation, women empowerment, leadership building among Panchayat representatives, planning, implementation and operation and maintenance of the water supply infrastructure created. The training programme will cover the ethos of Jal Jeevan Mission for good water governance which shall lead to long-term sustainability.

The training methodology in the programme shall essentially be participatory and interactive, combining various methods like small presentations followed by discussion, brainstorming, experience sharing, group work, role plays, simulation games and exercises, case studies, short videos/ films, pre/ post training questionnaire, diagramming, mapping, action planning, exposure visit and meditation for stress management as a cross-cutting methodology for inculcating a positive mental attitude.

The role of trainers is to facilitate the process of learning through building on existing knowledge, skills and behaviour of participants. With regard to Panchayat representatives, the trainer will be a catalyst for stimulating positive change process. The vision of the trainer has to bring about a transformation in the psyche of the participants starting from - 'I cannot' to 'I can' - at the end of the training. The trainer's deep conviction will lead to 'Training for Transformation' – which will build positive, proactive, responsive and rights-based leadership leaving no one behind, fostering values and ethics of good governance.

1.3 Conducting the training programme

- The training programme will be conducted over 4-days. The timing of the training may be altered based on local situation and profile of the participants.
- The training programme begins with registration but since it will be residential training most of the participants would have arrived and registered beforehand.
- The facilitator takes charge of the programme and follows a broad sequence –
    - Introduction of trainers and participants in a participatory way;
    - Presents expectations of the participants drawn from the pre-training test and how the training will meet the expectations;
    - Introduce the training programme with overall session plan and indicative schedule.
- Conduct Session-wise training (as discussed in the Manual)
    - Session 1: Importance of safe water and hygiene;
    - Session 2: Introduction to Jal Jeevan Mission;
    - Session 3: Opportunities, roles and responsibilities of all stakeholders in planning and implementation;
    - Session 4: Enabling environment – development of responsible and responsive leadership;
    - Session 5: Water quality, monitoring and surveillance.
- A recapitulation (recap) session at the end of each day of training, followed by watching playing of some relevant videos/ films. During the recap session, the participants reflect on the entire day's training programme and the learning drawn from it.
- Ice-breakers and warm-up activities are taken up in-between the sessions, as per the need.
- Participants present the group work assigned to them on the previous day before the beginning of the next day training.
- On the final day of the training, the training programme ends with –
    - A session that captures the consolidated learning through the participant's reflection of the sessions, highlights, insights and processes. Then the consolidated summary of the programme is presented and discussed;
    - A session of questions, mutual clarifications and facilitators clarifications;
    - A session that discusses the participant's future action plans for them personally, for their institutions, and for their area and next steps;

- A session that seeks participant's feedback, comments and feelings on the entire programme;
- Formal valediction.

1.4 Framework of training modules

Day 1: PREPARATORY PHASE			
Session	**Duration**	**Content**	**Method/ Activity**
Inaugural Session (45 minutes)			
Session 1: Importance of safe water and hygiene	75 minutes	● Introduction, norms setting and expectations of the participants; ● Sharing design of the training, its objectives and matching it with the expectations of the workshop; ● Familiarization on current scenario in villages; ● Social and cultural water wisdom in rural areas ● Status of WASH in villages; ● Incidence and causes of water borne diseases and its socio-economic impacts; ● Importance of safe drinking water for a family; ● Need for safe drinking water in all the learning centres – schools, anganwadi and ashramshala ● How you foresee your village in 10 years? – Adarsh gram ● What role would you play in making it Adarsh Gram?	● Ice breaking ● Discussion ● Showcasing the story of an Adarsh Gram in the specific state
Tea Break (15 minutes)			
Session 2: Introducing JJM	105 minutes	● Concept of JJM and "Har Ghar Jal"; ● Changing engineering perspective (involving community in village water supply for decision making); ● Traditional drinking water supply Vs Tap water connection. Piped water supply – benefits and impact; ● Vision, mission, objectives, goals and opportunities under JJM; ● Introduction to JJM Dashboard, IMIS overview and grievance redressal mechanism; ● Monitoring water supply at household and institutional level through IoT ● Need for functionality assessment and its report for each place	● Presentation ● Discussion ● Group Exercise ● Brainstorming
Lunch Break (90 minutes)			
Session 3:	90 minutes	● Opportunities under JJM;	● Presentation

Opportunities, Roles and responsibilities of all stakeholders in planning and implementation		● Roles and responsibilities of Pradhan/ Sarpanch, PRI members and Gram Panchayats ● Formation of WIMCs/VWSCs/ Pani Samitis through common consensus during Gram Sabha meeting; ● Roles and responsibilities of ISAs especially in community mobilization, behavior change and support to PRIs; ● Roles and responsibilities of TPIAs ● DWSM and implementation agencies (RWS/ PHED/ Jal Nigam/ Board) – roles and responsibilities ● Role of Community and Users	● Discussion
		Tea Break (15 minutes)	
Session 4: **Enabling Environment – development of responsible and responsive leadership**	45 minutes	● 73rd CAA and relevance to JJM; ● Community mobilization, futuristic village leadership and ownership over JJM assets; ● Involvement of women as primary stakeholder as leader, community mobilizer, skilled professional, implement or and operation as well as maintenance ● Community managed planning, implementation, O&M and monitoring systems; ● Local skill development for implementation and O&M of drinking water systems; ● Institutional convergence and dovetailing of funds from various sources viz SBM, MGNREGA, DMF, 15th FC, CSR fund etc.; ● Central funds – coverage, support, WQM&S, JE-AES; ● Matching state funds; ● Rashtriya Jal Jeevan Kosh.	● Presentation ● Group Discussion
Session 5: **Water Quality monitoring and surveillance**	60 minutes	● Importance of water quality standards – important parameters, frequency of testing, issues and remedies; effect on human health of different parameters ● Sanitary surveillance – objectives and methodology; ● FTK testing – provision and concept; ● Chemical and bacteriological tests by department – awareness creation; ● Facility to public in nearby labs for Water quality testing under JJM – importance and awareness; ● Water quality monitoring and transparency – WQMIS system.	● Presentation ● Discussion

Day 2: PLANNING PHASE			
Session	**Duration**	**Content**	**Method/Activity**
Recap (15 minutes)			
Session 1: Community Participation	90 minutes	• Use of participatory tools for planning; • Community mapping, resource mapping, water source mapping; • Water source strengthening and safety; • Understanding the need for safe tap water, user charges.	• Presentation • Simulation
Tea break (15 minutes)			
Session 2: Village Action Plan	120 minutes	• Inventory of water resources; • Feasibility of scheme – based on technical, financial, social, environmental factors; • Converting existing functional stand post to FHTCs; • Conjunctive use of water; • Water security; • Sustainability: source, system, and scheme; • Village water safety and security plan and budget; • In-village infrastructure components – source, treatment plants/ special treatment, reservoirs/ sumps, disinfection units, distribution network, tap connections, greywater management infrastructure, rainwater harvesting structures, groundwater recharge structures, washing and bathing places, cattle troughs, etc.; • Signage, banners, wall paintings, slogan writing, etc.; • Agree to do meeting; • Inclusion of VAP and activities in GPDP; • Book-keeping and accounting of funds related to O&M.	• Brainstorming • Presentation • Group exercises based on GP Margdarshika formats • Role play
Lunch break (90 minutes)			
Session 3: **Planning and Design**	90 minutes	• Basic design concepts (thumb rules) for in-village; • Components of DPR – In-village infrastructure and multi-village infrastructure (SVS and MVS); • Selection of technical option for water supply schemes based on life cycle cost – presentation of three options; • Plan for greywater management; • Source sustainability – Rainwater harvesting and aquifer recharge; • O&M arrangements and system sustainability; • Planning process under Atal Bhujal Yojana-Convergence; • Presentation and endorsement of DPR in Gram Sabha.	• Presentation • Discussion
Tea Break			

(15 minutes)			
Session 4: **Implementation**	45 minutes	● Tendering by department – overview; ● Work plan management with implementation agency, contractor and ISAs; ● Oversee implementation progress.	● Presentation ● Discussion
Session 5: Briefing for field visit	60 minutes	● Objectives; ● Group formation based on the requirements of participants; ● Methodology; ● Logistics; ● Expected outcomes.	● Discussion

Day 3: FIELD EXPOSURE VISIT			
Session	**Duration**	**Content**	**Method/Activity**
Field Exposure Visit	Suggested topics: ✓ Preparation of VAP by the participants by community participation ✓ Water Source feasibility assessment ✓ Water quality and FTK testing by 5-member surveillance committee ✓ Water borne diseases and its impact on infants, adolescent and adults ✓ Sanitary surveillance and preparation of greywater management plan ✓ Inspection of Water Treatment Plants ✓ Community mapping ✓ Components of O&M ✓ Analyze issues and challenges in functioning of GP/ VWSC/ Pani Samiti in managing water supply systems ✓ Feasibility and functioning of rainwater harvesting and water source recharge structures		
Field visit debriefing	120 minutes	Learnings, observations and experience sharing	● Presentation ● Discussion
Dinner			

Day 4: IMPLEMENATATION PHASE			
Session	**Duration**	**Content**	**Method/ Activity**
Session 1: Overseeing of water supply infrastructure during construction by community	60 minutes	● Monitoring of Construction: progress and quality by GP/ VWSC/ Pani Samiti during implementation phase and facilitate third party inspection, such as: ✓ Sufficient depth of pipe laying as per design and inspection of pipe joints ✓ Inspection for pipe joint, water tank, and household connection leakage ✓ Quality checking of civil works ✓ Assistance in ensuring land availability for construction ✓ Ensuring the quality of construction material by checking test certificates ✓ Review of work progress as per implementation schedule in LoA	● Presentation ● Discussion

		✓ Functionality assessment at tail end HH connection	
Session 2: Post implementation monitoring	60 minutes	● Water source sustainability during lean period; ● Water source protection (environmental safety protocol) and recharge structures; ● Water quality testing of source by department lab and FTK testing; community feedback ● Inspection of treatment plant for functionality; ● Quality checking of pumps, electrical panels, transformer, electric supply, disinfection dosing equipment; ● Checking for residual chlorine in last tap; ● Sanitary surveillance	● Presentation ● Discussion
Tea Break (15 minutes)			
Session 3: GP as a Utility for decentralized management of drinking water systems	60 minutes	● Community contribution under JJM and developing ownership; ● Roles of community contribution and accounting; ● Daily and annual O&M tasks; ● Role of GPs/ VWSCs as water utilities; ● O&M fund, maintaining accounts and registers; ● Skilling; ● Grievance redressal and timely resolution	● Presentation ● Discussion
Session 4: Har Ghar Jal Village declaration protocol	15 minutes	● Familiarization of 'Har Ghar Jal Village' protocol	● Presentation ● Discussion
Lunch Break (90 minutes)			
Session 5: Debriefing on field exposure visit	180 minutes	● Presentation on field visit learnings by the participants; ● Group discussion and way forward; ● Preparation of respective village action plan	● Discussion ● Q and A
Tea Break (15 minutes)			
Concluding session	45 minutes	● Feedback and learning outcomes ● Certificate distribution	● Structured feedback and documentation ● Open house

Day 1: Preparatory Phase

Session 1: Importance of safe water and hygiene

A. Background

Safe and secure water supply plays a crucial role in public health and well-being of the community. Assured availability of potable water is vital for human development. India is home to 18% of the global human population and 15% of the global livestock population. However, it has only 2% land mass and 4% of global freshwater resources. The per capita annual freshwater availability is declining with increasing population and is likely to further go down if present trend of population growth continues.

With the growing population and expanding economic activities, there is an increase in demand for water in various sectors, be it agriculture, industry, domestic, power, recreation, infrastructure development, etc., whereas the source of water is finite. Thus, limited availability coupled with competing demands make drinking water management a complex issue.

The widening demand-supply gap is further compounded by challenges like depletion of groundwater due to over-extraction, poor recharge, low storage capacity, erratic rainfall due to climate change, presence of contaminants, poor Operation and Maintenance (O&M) of water supply systems, etc.

Understanding the importance of water and taking right steps for its efficient management is therefore crucial and needs to be focused on priority.

B. Social and cultural water wisdom in rural areas

Historically, local communities have been known for efficient water management, using their own traditional knowledge and wisdom to fulfil needs of the community in different climatic conditions. Mohenjo-Daro, Dholavira and Harappa were highly developed cities. These cities were well organized and their water storage system, drainage system and water - wells were much ahead of their time, while most parts of the world were living in forests. Communities that flourished around river Indus and other western and northern India had advanced municipal water supply and drainage systems.

There has been a tradition of keeping water bodies clean and worshiping rivers, lakes, ponds, as these were considered holy places. As water is an important part of life most ancient settlements have flourished around places close to water bodies and communities have designed and adopted appropriate water management practices since ancient times. With limited population the systems and structures built in earlier times were adequate to cater to their needs.

The practice of water harvesting and water management through step wells and other means is centuries old. Some notable examples are - Rani Ki Vaw (Stepwell) in Gujarat; Khadin, Kund and Nadi in Rajasthan; Bandhara and Tal in Maharashtra; Bandhi in Madhya Pradesh and Uttar Pradesh; Aahar and Pein in Bihar; Kuhal in Himachal Pradesh; Eris in Tamil Nadu; Surangam in Kerala; etc.

This traditional water wisdom in rural areas has the potential to guide the local communities even today for efficient water management.

C. Initiatives taken so far for drinking water

Since independence, Government of India and State governments have made efforts to improve water supply in rural areas. In 2002, decentralized, demand-based, community-managed sector reform programme was implemented in the entire country as a part of Swajaldhara which gave communities the right to participate in planning, implementation exercise and undertake operation and maintenance of drinking water structures created under the scheme. It would enable them to set up and operate a permanent scheme based on requirement of the village such that every individual receives 40 litres of clean water per day (lpcd).

In the year 2009 - 10, National Rural Drinking Water Programme (NRDWP) was launched to enable all households have access to use safe and adequate drinking water within the premises. In 2013, NRDWP programme proposed increase in availability of clean water to 55 lpcd. In 2017, the programme was reformulated to make it more effective, giving the States right to make a provision for tap water availability to all villagers.

On August 15, 2019, Prime Minister, Shri Narendra Modi announced the launch of Jal Jeevan Mission from the ramparts of Red Fort. Under Har Ghar Jal programme, Jal Jeevan Mission aims to provide 55 lpcd drinking water supply to every rural household of BIS 10,500 standard on a regular and long-term basis at affordable service delivery charges.

D. Current scenario in villages

Over the years water supply infrastructure has undergone transformation. It was observed that from 1951 to 2017, drinking water was supplied to rural population through hand pumps, protected wells or piped water via public stand post. India Mark II hand pump played a very important role in this endeavour, which was used from 1970s to 1990s. Government of India promoted the use to supply water at village level, as usually underground water is clean with exceptions in a few areas.

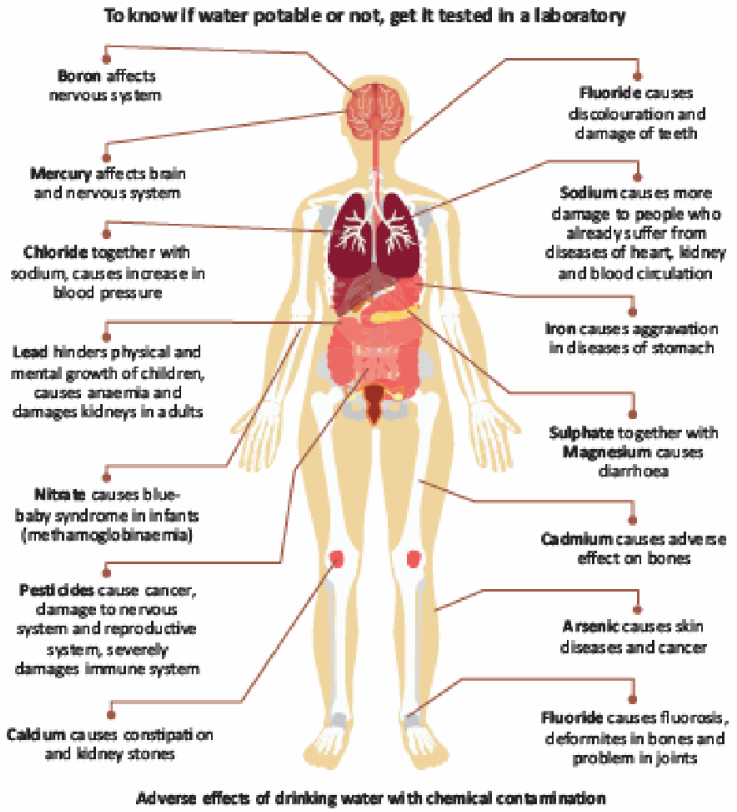
However, some places in the country have water contaminations such as arsenic, iron, nitrate, metal, heavy metal and salinity. In the year 2017, emphasis was laid on provision of water from public stand post through pipes under NRDWP.

E. Importance of safe water and hygiene leading to reduction in incidence of water borne diseases

Many studies have revealed that use of clean water can significantly reduce disease and mortality, especially in case of cholera and typhoid. The health and socio-economic benefit of improved access to safe water and adequate sanitation have been acknowledged and accepted worldwide. Improved water supply facilities have desirable impact on social, economic and health conditions of the society, more so during pandemic situations like Covid 19.

Access to safe drinking water is a fundamental requirement for human existence. Safe drinking water and good sanitation is vital for family's well-being which results in control of enteric diseases reduced incidences of diarrhoea and improved health parameters boosts child development Drinking contaminated water carries the risk of many diseases, some of which can turn deadly therefore, checking the quality of water and using it post treatment is an effective way to avoid ailments related to water borne diseases.

Water borne diseases



Adverse effects of drinking water with chemical contamination

For centuries, women in India have been the care givers who look after the daily requirements of each family member. Water is important for most of these caregiving responsibilities - be it washing utensils or clothes, cleaning the house, bathing children or livestock, arranging water for drinking, cooking or for the cattle.

The responsibility to fetch water usually falls on women. They travel long distances, and make multiple trips to ensure that water is available in sufficient quantity for all in the family. This drudgery increases during summers when available water sources dry up so the travel time and distance increases. The situation becomes even more difficult during ailments, pregnancy, injuries, and old age.

Further challenges were faced by families during the pandemic as gathering at public places was restricted by the administration. With water available only at stand posts, the restriction was difficult to follow. The advisory issued by the Ministry of Health and Family Welfare stressed on the need for frequent washing of hands to avoid spread of Coronavirus. This meant more rounds to the water sources. At this juncture, water warriors of the Jal Jeevan Mission stepped up and risked their

lives to continue the work of laying water pipelines to ensure that more and more tap connections reached rural households.

There have been incidences where the elders in a family were detected with Covid-19 and were advised to isolate themselves. Children were left to fend for themselves. While the neighbours came forward to help with food to the family, the biggest concern was 'who gets water to meet the daily needs?' The children were too young to fetch water. It was to their surprise that the next morning they saw people walking up their home and digging. Soon they learnt that administration has made note of it and it provided tap connection on priority. This is the story of Vaishnavi, Sharavan and Lakshmi from Orumanaiyur village in Trissur district of Kerala.

Frequent visits to the hospitals and doctors not just impacts the health and growth of the body but is also a drain on the finances with payments of fee to the doctors, travel cost towards hospital visits, purchase of medicines and treatment. This is coupled with loss of working days and earnings. The financial loss can be averted if we resort to safe practices, adopting improved hygiene behaviour. Using safe water for direct consumption and cooking is one way of addressing the problem.

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provided a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. The SDGs build on decades of work by countries and the United Nations.

Goal No 6 under SDG focuses on ensuring availability and sustainable management of water and sanitation for all. 2 billion people – which is 26% of world population - lack access to safely managed drinking water (in 2020). Ensuring universal access is also fundamental for Covid-19 recovery. At present, India scores 56.6% in terms of its SDG achievement.

United Nations has fixed 2030 as the goal to provide universal and equitable access to safe and affordable drinking water for all. It stresses on the need to improve the quality of water supplied, halving the proportion of untreated waste water and substantially increasing recycling and safe reuse. SDG aims to support and strengthen local communities through participation in improving water and sanitation management.

Impact of water borne diseases

It is estimated that in India, waterborne diseases have an economic burden of approximately USD 600 million yearly. This is especially true for drought and flood-prone areas, which impact 1/3rd of the country's population. Less than 17 per cent of rural people in India had access to safe managed drinking water at the time of launch of Jal Jeevan Mission on 15th August 2019. There are many regions in the country which suffer from varied forms of water contamination. In this regard, Jal Jeevan Mission is ensuring the water testing laboratories are NABL accredited and testing of water sources and end points is undertaken twice for bacteriological contamination and once for chemical both pre-and-post monsoon.

Moreover, two-thirds of India's 718 districts are affected by extreme water depletion, and the current lack of planning for water safety and security is a major concern. One of the challenges is the fast rate of groundwater depletion in India, which is known as the world's highest user of this source due to the proliferation of drilling over the past few decades. Groundwater from over 30 million access points supplies 85 per cent of drinking water in rural areas and 48 per cent of water requirements in urban areas.

(Source: Progress on drinking water, sanitation and hygiene, 2017, WHO/UNICEF JMP)

F. Status of implementation

At the time of the launch of Jal Jeevan Mission, on 15th August 2019, the status of tap water supply in rural homes was 16.83%, i.e., 3.23 crore out of the total 19.22 crore rural households in the country had access to tap water connection. It means that 15.99 crore households were fetching water from wells, stand posts, hand pumps, rivers or streams to meet their daily household needs.

As of September 2021, 4,29,811 (71%) out of a total of 6,04,813 villages have Piped Water Schemes (PWS). Around 41% households in the country have tap water connections. Since the launch of the Mission, in the last 24 months 4.23 crore tap water connections have been provided pan India which is a 25.67% increase. At present, 78 districts, 931 blocks, 56,827 Gram Panchayats and 1,13,247 villages have achieved 'Har Ghar Jal' (water to every household). Goa, Telangana, Andaman and Nicobar Islands and Puducherry have achieved 100% tap water supply in rural areas[1].

G. What changes do you see in your village in the next 10 years? What would make your village an Adarsh Gram?

Gram Panchayats play a pivotal role under JJM. A road map for the village needs to be drawn showing the desires and aspirations of the villagers. A few indicative areas where interventions can be made in the coming years under water supply are enumerated:

Water for all – universal access

- Functional Household Tap Connection to every household in the village with 55 lpcd water on a regular basis
- Equitable distribution of water in every household, irrespective of its distance from the village

Safe water

- The quality of water supplied is of prescribed standard which is IS 10500 : 2012

[1] Jal Jeevan Samvad, July -2021

- Drinking water sources are protected from any type of contamination
- Behaviour change among households as they practise safe handling and proper storage of drinking water
- Reduced wastage of water and clean surrounding near drinking water source

Improved hygiene and overall well-being

- Improved personal hygiene
- Use of toilet for defecation
- Washing hands with soap after toilet usage and before consuming food
- Frequent washing of hands with soap to avoid spread of Corona virus
- Improved personal hygiene especially during menstruation
- Reduced incidence of diarrhoea and other infectious diseases
- Improved sense of well-being

Water conservation

- Implementation of conventional and non-conventional measures for sustainability of drinking water sources
- Prevention of leakage and unaccounted water;
- Installing taps in every connection to reduce wastage of water
- Installation of rainwater harvesting to be made mandatory in all government buildings/ institutions

Sustainability and community ownership

- Develop sustainable water and sanitation facilities
- Community ownership of water supply infrastructure created under the Har Ghar Jal programme
- Community willingly contributes fund towards operation, repair, maintenance of infrastructure created
- Water and sanitation facilities are sustainable
- The local people are trained to build, repair, operate and maintain the water supply infrastructure
- Employment is generated in the villages itself which helps in addressing migration to cities
- Grey water management is undertaken in the villages

Strong Institutions

- GP is self-sufficient to effectively manage operate and maintain the water supply systems
- Build capacity of Panchayati Raj Institutions and its representatives
- Gram Sabha meetings are regularly held to discuss the issues, develop a plan where women, marginalised, people from minority group, SC/ ST population is equally represented, and their concerns are addressed
- Village Water and Sanitation Committee members are trained to perform the roles and responsibilities assigned
- 5-member surveillance committee is regularly testing quality of water
- District administration is sensitized and plan programme taking note of the concerns raised by the community
- Gram Panchayat is operating and managing the water supply systems
- Effective grievance redressal mechanism is in place

Session 2: Introduction to JJM

Governments at different levels are mandated to provide access to basic amenities to its citizens which includes food, healthcare, water, electricity, housing etc. The Union government is working with the aim to ensure that basic amenities of its citizens are met. A number of schemes are being implemented by the Union and State government based on universal coverage so that 'no one is left behind'. Housing for all, electricity in every household, provision of individual, community and public toilets as part of Swachh Bharat Mission, cooking gas especially focusing on health of women under Ujjwala yojana, financial inclusion, social security, affordable healthcare, and much more.

In our quest for integrated water resources management leading to socio-economic development, in May 2019, Prime Minister Shri Narendra Modi created a unified ministry for water and called it Ministry of Jal Shakti. This was done to ensure that water does not become a limiting factor as integrated water resources management is required to cover both demand and supply side management.

78.62% of rural habitations in India are fully covered, supplying 40 lpcd water while 18.60% are partially covered, which means they have less than 40 lpcd water availability. It also means that the source of water is at a reasonable distance. Another 2.78% rural habitations face drinking water quality issues.

To improve the quality of life, enhance ease of living and reduce the urban-rural divide, Jal Jeevan Mission was announced on 15th August 2019 by the Prime Minister with the aim to provide tap water connection in every rural household by 2024.

At the time of the launch, out of 190 million rural households, only 3.23 crore (17%) rural households had provision of tap water supply in their homes. India resolved to reach the remaining 15.96 crore household in the next five years with an outlay of 3.60 lakh crore.

The provision of household tap connection in rural areas would be a boon for removing 'drudgery' of women, especially girls and improving the 'ease of living' of people. Safe access to potable water within the household will not only improve the health in terms of reduction of water-borne diseases, but at the same time it will also provide an opportunity to women to undertake economic activities as precious time which otherwise is lost in fetching water from a distance is saved.

JJM is a decentralized, demand-driven, community-managed water supply programme, wherein the Gram Panchayats i.e., Local Self Government and/ or 10-15 members Village Water and Sanitation Committees (VWSCs)/ Pani Samitis with minimum 50% women members and suitable representation to marginalized sections of society, play a key role in planning, implementation, management, operation and maintenance (O&M) of in-village water supply system and grey water treatment and reuse.

The mission focuses on empowering the local village community i.e., Gram Panchayats (GPs) to work as 'local public utility'. Capacity building of Gram Panchayat/ VWSCs/ Pani Samiti members is being undertaken to plan, implement, operate, and maintain the in-village water supply infrastructure. Water supply infrastructure is being created in rural India on a massive scale to ensure assured water supply on regular and long-term basis in every home.

The mission is being implemented through a bottom-up approach. For each village, an integrated Village Action Plan (VAP), which includes, inter alia, drinking water source strengthening, water

supply infrastructure, grey water treatment and reuse, regular operation and maintenance, is prepared with the help of water supply/ public health engineers and local NGO/ SHGs/ VOs, etc. The focus is on developing 'responsible and responsive leadership' at village level, so that local community will manage and ensure supply of clean tap water, improved sanitation, better hygiene, public health, etc. to more than 95 crore rural population, thereby improving their quality of life.

Experts are of the opinion that 65-70% of water consumed by the households which flows kitchen, cleaning or bathing area can be treated. The greywater can be reused in agriculture, in kitchen garden etc. Thus, there is a need to link grey water management with Har Ghar Jal programme so that water is used judiciously and not wasted.

There is an urgent need to increase the water use efficiency in agriculture by way of policy regulation, thereby discouraging water guzzler crops and encouraging farmers to grow crops more suited for semi-arid tropics. Water efficient irrigation methods viz. drip and sprinklers should be the default mechanism. Similarly, water use efficiency should be encouraged in the industrial sector also.

Today, due to the efforts of all stakeholders under the JJM, more than 8.4 crore (43.76%) rural households have provision of tap water supply. Since August 2019, despite Covid-19 and with the help of States, 5.17 crore million (27%) households have been provided with tap water connections.

Session 3: Opportunities, roles and responsibilities of all stakeholders in planning and implementation

'Har Ghar Jal', the flagship scheme of government of India is implemented by the State governments and UT administration. As Jal Jeevan Mission is a bottom-up approach, community forms the core of the programme. Based on baseline surveys, resource mapping and felt needs of the community each Gram Panchayat formulates a 5-year 'Village Action Plan' with guidance from Public Health and Engineering Department officials. The requirement of the community has to be borne in mind and local wisdom must be taken into account while planning the water supply scheme.

Planning, implementation, management, operation and maintenance of the infrastructure created in the gram panchayat will be done by the village community. 5% of the capital cost required to develop the infrastructure will be contributed by the villagers in cash/ kind, labour and or both in hilly States, North Eastern and Himalayan States and villages with more than 50% scheduled castes/ scheduled tribes population. In other villages, 10% cost will be borne by the community. The programme is designed so as to instil a sense of ownership among the community.

While developing the VAP one has to ensure that rainwater harvesting structures are built in the village and water conservation measures are in place. Drinking water has to be arranged for livestock also. It is equally important to set up grey water management as it is anticipated that 60% to 70% wastewater coming out from kitchens and bathing areas can be recycled and reused after treatment.

The role of Gram Panchayat is of utmost importance under the programme. A sub-committee (paani Samiti/ VWSC etc) has to be constituted (if already not in place) by the Panchayat during Gram Sabha meeting which will be responsible for community engagement, planning, support in implementation and finally operation and maintenance. The responsibilities of VWSC/Pani samiti include geo-tagging the water supply infrastructure, linking the tap water connection with Aadhaar, regular surveillance of the water supply system to ensure its functionality, collecting user charges

from the community, ensure timely and adequate O&M, ensure participation by women in the meetings as they are the primary stakeholder in the programme and create awareness about the programme.

Implementing Support Agencies (ISAs) are being empanelled by the States/ UTs to extend support to the Panchayats in programme implementation. They also train the foot soldiers in the programme. Key Resource Centres are engaged to build the capacity of the community, Pani Samiti, surveillance committee, Panchayat members, district, state, and national-level officials. Water testing laboratories in the States/ UTs are assigned the responsibility of frequently testing the quality of water supplied and escalating the matter for remedial action in case any contamination is reported. Advance planning has to be made to undertake appropriate disaster mitigation in case of any eventuality. This plan becomes very important in regions which are frequented by natural disasters like earthquake, flood, drought, cloud burst, cyclone etc.

Post successful commissioning of the programme, 10% of project cost is provided by government as 'revolving fund' for operation and maintenance. The amount is deposited in the bank account of the Pani Samiti. The fund available with the Samiti will be used towards breakage, maintenance and salary of technicians.

Session 4: Enabling Environment – developing responsible and responsive leadership

The Constitution of India guarantees justice and liberty to all its citizens and promotes fraternity through fundamental rights which includes Right to Equality.

To extend and deepen democracy and involve the community in governance as well as decision making process by ensuring self-governance at local level, India has ushered democratic decentralization. Power and authority from the State government has been transferred to Panchayati Raj Institutions (PRIs). However, the powers and functions vested in the PRIs vary from state-to-state.

In 1992, the 73rd Constitutional Amendment (Act) was introduced to provide constitutional status to PRIs. On 24th April 1993, the Act came into force. It has been a long journey for the Panchayats from cultural and social structure to constitutional status as an institution of self-governance.

There are 30 lakh elected representatives in the Panchayats. Panchayati Raj system offers distinct space and opportunity for women to participate and lead. With just one stroke nearly 13 lakh women have been brought out from the four walls of the house into public domain. For many elected representatives, their Panchayat tenure may be the first foray outside their home.

This module gives an overview of the Panchayati Raj system highlighting the significance of women's participation in governance.

A. Panchayati Raj, role of women, marginalized population, and community in local self-governance

Overview:

The 73rd Constitutional Amendment is a landmark legislation in the country. The session lays ground for understanding

Session highlights

Salient features of 73rd Constitutional Amendment
State PR Act
PESA Act
Gram Sabha
Functions of PRIs
Role of PRIs under Har Ghar Jal programme
Role of PRIs in strengthening community participation, women, SC/ ST population

the important provisions of the legislation highlighting the role of women in governance.

Draw attention of the participants to the highlights of the session.

Salient Features of 73rd Constitutional Amendment

Activity 1:
Ask the participants about –

- The 73rd Constitutional Amendment and its key features
- How is it useful for the community?
- What change is seen by women through this amendment?

Take their responses and write on the board/ flip chart. Show the chart presentation and discus.

Use Handout 1: Salient features of 73rd Constitutional Amendment (Refer Annexure 1)

73rd Constitutional Amendment

- Gram Sabha is a village Parliament to discuss and deliberate common issues impacting the lives of people living there.
- Village Action Plan is the roadmap for development work in the village for the next 5-years
- Village Action Plan is developed and approved in the Gram Sabha
- The community oversees the implementation of water supply scheme in the village
- Budget, progress made under Jal Jeevan Mission is put forth in the Gram Sabha
- Gram Sabha to address grievance of the community
- Eleventh Schedule lists 29 subjects which fall under the jurisdiction of the Panchayats. Some areas pertaining to water which may impact JJM water supply work is listed as under:
    - Point 3: Minor irrigation, water management and watershed development
    - Point 11: Drinking Water
    - Point 17: Education including primary and secondary schools
    - Point 23: Health and sanitation including hospitals, primary health centres and dispensaries
    - Point 24: Family Welfare
    - Point 25: Women and Child Development
    - Point 27: Welfare of weaker sections including Scheduled Castes and Scheduled Tribes

Activity 2: Discuss the State Panchayati Raj Act and PESA Act

Use Handout 2: State Panchayat Act and Panchayat (Extension to Scheduled Areas) Act 1996 – provisions (Refer Annexure 2)

Sum up 73rd Constitutional Amendment Act, State PR Act and PESA Act

Gram Sabha

Activity 3:

Ask the participants about the Gram Sabha –

- What is a Gram Sabha?
- Who are the participants in the Gram Sabha?
- Role of Sarpanch in the Gram Sabha?
- Why is women participation important under the Jal Jeevan Mission?
- What does it mean that "No One is Left Out"
- What role does community play in Har Ghar Jal implementation?
- What are the powers and functions of the Gram Sabha?
- What is discussed in the Gram Sabha during planning, implementation, sub-committee formation and O&M

Summarize the answers and add inputs to it

Use Handout 3: Gram Sabha (Refer Annexure 3)

Sum up Gram Sabha

Gram Sabha is the basic institution for development, preparing village action plan and overseeing implementation of Har Ghar Jal programme under the Jal Jeevan Mission.

All people living in the village who are 18 years and above, and figure in the voter list are members of the Gram Sabha

Women, members of scheduled castes and scheduled tribes form an integral part of the quorum in the Gram Sabha

Gram Sabha has the power and authority to plan and budget, monitor the implementation of the scheme, control the community resources and ensure sustainability of the programme on long-term basis

Annual development plans, budget estimates, operation and maintenance is approved in the Gram Sabha

Basic functions of PRI and the role of the Sarpanch

Activity 4:

Ask question about functions of PRIs and the role of the Sarpanch and Panchayat Secretary

Summarize the answers and add input to it
Use Handout 4: Functions of PRIs (Refer Annexure 4)

Role of PRIs in strengthening women's empowerment

Activity 5:

Ask each participant their views on how PRIs are instrumental in strengthening women's participation

What actions are taken by the PRI to ensure that women contribute meaningfully in the Gram Sabha?

What change is seen when women are involved in planning the VAP?

Summarize the answers and add input to it

Use Handout 5: Role of women in Gram Sabha (Refer Annexure 5)

Sum up the role of PRIs in strengthening women's participation

Ensure greater participation of women in Gram Sabha meeting as they are the primary managers of water

Role of PRIs in constitution the Village Water and Sanitation Committee/ Pani Samiti

Activity 6

Inform each participant that a Pani Samiti/ Village Water and Sanitation C ommittee will be constituted in every village by the Panchayat (where it does not exist already)

The 10-15 member committee will be constituted in the Gram Sabha under common consensus

Constitution of the committee has to be detailed out

The roles and responsibilities of the Pani Samiti has to be defined

Ask the participants if Pani Samiti has been constituted in their village

If yes, how is it impacting the water supply system

Use Handout 6: Pani Samiti (Refer Annexure 6)

Role of PRIs in forming a water surveillance sub-committee

Activity 7

Inform each participant that a water surveillance sub-committee will be constituted in every village by the Panchayat (where it does not exist already)

The 5-member committee will be constituted in the Gram Sabha under common consensus
Constitution of the committee has to be detailed out
The roles and responsibilities of the surveillance committee has to be defined
Ask the participants if surveillance committee has been constituted in their village
If yes, how is it impacting the water supply system
Use Handout 7: Surveillance Committee (Refer Annexure 7)

Community mobilization and ownership over JJM assets

Mobilization of communities is required to be undertaken on a large scale to make JJM a 'Jan Andolan ' (people's movement). Various PRA tools, IEC/ BCC activities, capacity development, training, etc. have been embedded in all phases of the project cycle to ensure community mobilization and ownership.

The program expects that these tools will help to instil a 'sense of ownership' among the local community, create an environment of trust and bring in transparency leading to better implementation and long-term O&M of water supply systems. It will also ensure equity in accessing supply for every household and regular supply and thus, willingness to pay for services.

The resolution to the problem of water has to be found by the villagers themselves through active participation in all stages of the program. The community has to construct water supply schemes for the village where they have been staying for years. No one can know more about the village than the residents of that village themselves. As rightly put by the PM:

> *'For long-term drinking water security, it is important that local communities and GPs come forward and take responsibility to manage in-village water supply systems and their water resources; and reuse greywater. The community must have a sense of ownership of the assets being created under this Mission.'*

Futuristic village leadership

As learned from successful implementation of previous programmes, the vision of the Sarpanch and the dedicated efforts have a huge impact on development of the village community. It is envisioned that their effective leadership will help sustain drinking water and sanitation facilities, once they are made aware of their roles and responsibilities and the people's needs. This will further encourage them to undertake a 'community-led action-planning process' while remaining accountable towards the people.

JJM presents an unique opportunity for Sarpanches to explore their leadership qualities, involve every member of the community, and meet water demands of their villages in a sustainable manner. It is envisaged under JJM that the community will play a lead role in planning, implementation, management, operation and maintenance of in-village water supply infrastructure thereby leading to FHTCs to every rural household. The willingness of community, reflected through Gram Sabha resolution and community contribution, will be the foremost criterion for planning of water supply system in villages. Therefore, mobilizing the community for collective actions in creation and maintenance of water supply facilities will be a crucial task for the GP under the leadership of Sarpanch.

As leader of the GP, a few important duties of the Sarpanch are as follows:

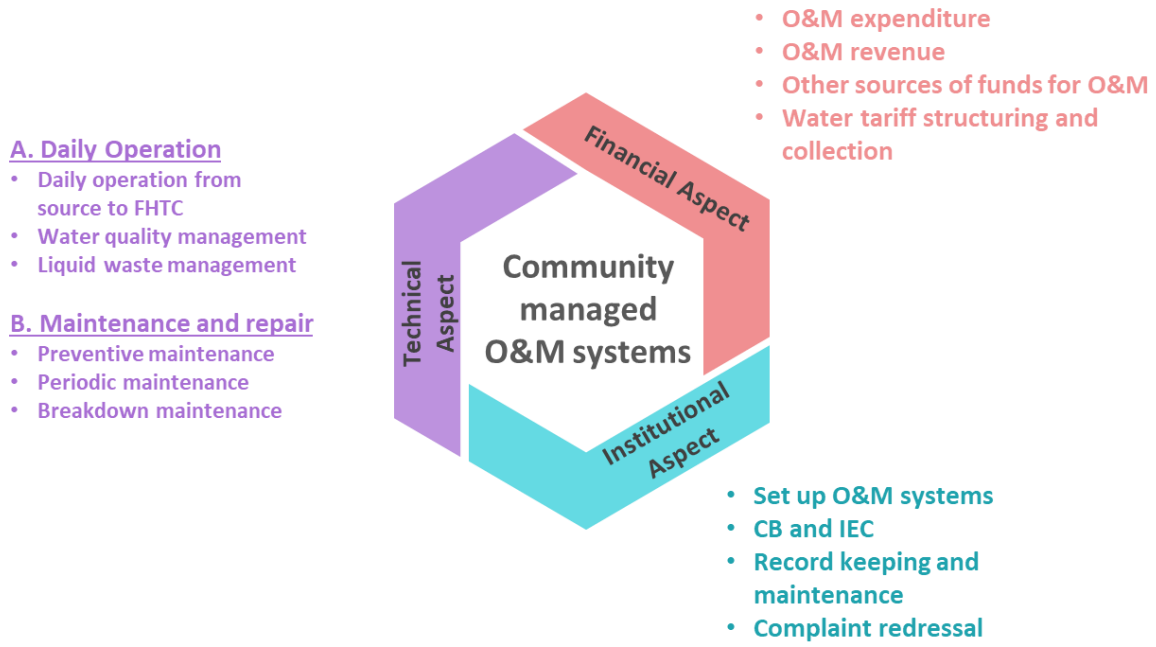
1. Convening Gram Sabha meetings regularly, ensuring community participation, discussing about providing water to all households.
2. Presenting the selection process of VWSC/Pani Samiti members in the Gram Sabha ensuring 50% women representation and comprising of Panchayat members, ASHA workers representation from SC/ ST and underprivileged households.
3. Ensuring transparent resolution of all the issues discussed in Gram Sabha.
4. Ensuring that all sections of the community receive equal water supply.
5. Mobilising the villagers for community contribution towards capital cost of water supply scheme, participation in *Shramdaan,* judicious use of water and avoid wastage of water, adopt safe water storage and handling practices, protect water sources, and active participation in O&M of the scheme and Gram Sabhas on issues of water and sanitation.
6. Provide leadership in resolving water supply related problems.
7. Resolve all issues and challenges in close coordination with PHED, Forest Department and other departments

Community managed O&M systems

Operation and maintenance of water supply scheme is important for having a functional, efficient and sustainable water supply system. Appropriate operation and maintenance (O&M) management of water supply schemes is essential for designed service delivery of safe water throughout the designed life of the scheme.

The GP / VWSC is primarily responsible for regular O&M of the water supply scheme. It is expected that the village community will join the movement and put in concerted efforts to achieve the objective of providing 'Har Ghar Jal' under Jal Jeevan Mission.

As the GPs and the community are responsible for operation and maintenance of village water supply schemes, it is necessary to understand the technical, financial, and institutional aspects of O&M to be able to manage day-today O&M of water supply schemes.



Components of O&M

1. Technical Aspect of O&M

Technical management is the main component of O&M of any water supply scheme. An uninterrupted and efficient running of the system can be ensured only through proper technical management. The technical aspect of O&M consists of daily operations, regular maintenance and repair, water quality management and liquid waste management.

(a) Daily Operations

This includes operation of pumps, storage tanks, the distribution system including pipelines and valves, tap stands (posts), water quality management, documentation, liquid waste management, etc. Simultaneously, it deals with monitoring of the system and necessary repairs.

(b) Regular maintenance and repairs

The purpose of regular maintenance is to see that all civil works (well/ stand posts, switch room etc.), machinery and equipment (pumps, valves, switches etc.) are in optimal running condition and to carry out timely repairs if some of these works fail during operations. This includes preventive maintenance, periodic maintenance, and breakdown maintenance.

(c) Liquid waste management

Wastewater management is an important part of the technical management. If not managed properly, it poses risks to water quality and will indicate suboptimal maintenance of the scheme.

(d) Water quality management

The GP/VWSC has to monitor water quality at the source and in the system on a regular basis and regularly disinfect water using TCL powder or on-line chlorination systems. **Gram Panchayat and/ or its sub-committee, i.e., VWSC/ Pani Samiti/ User Group, etc. should identify, train and appoint 5 women from local community to conduct water quality tests using FTKs/ bacteriological vials and report the results. Details about water quality management are provided in the next session.**

2. Financial Aspect of O&M

After completion and handing over of the scheme, the Gram Panchayat is responsible for management of funds for O&M of the scheme. Efficient and effective management of funds for O&M as per the requirement is called financial management of the water supply scheme.

Government of India has empowered the Gram Panchayats through delegated rights and allocation of fund on the recommendations of the 15th Finance Commission. As one of their key recommendations, the Finance Commission has asked for collection of necessary user fees for operation and maintenance (O&M) of water supply schemes. This will enable the GPs to take care of O&M of the water supply scheme.

(a) Preparation of budget

VWSC and Gram Panchayat along with the community have to prepare the budget for their O&M of the water supply scheme. This is a simple documentation of expenditure items and sources of revenue (GP own source funds, voluntary contributions, user charges, 15th FC funds, funds through convergence, etc.). First the expenditure is calculated by considering expenses such as payment to water person, electricity bills of various equipment, expenses for TCL powder, expenses on repair and maintenance of components, etc.; following which the GP contribution is decided. The balance amount can be obtained from the user charges or water tariff.

(b) Calculation and collection of water tariff

One of the main financial sources for the VWSC to carry out the activities would be water user charges collected from the local community. Based on the annual requirement, Gram Panchayat and/ or its sub-committee along with local community can collectively discuss and fix an amount per household as water user charge which would be paid every month. Alternately, the amount can be fixed on volumetric consumption, where metering is available. Rules may be framed by the GP for timely payment of the water user charge so that security of funds is ensured for VWSC to carry out the O&M of drinking water supply infrastructure.

Gram Sabha should pass a resolution detailing O&M activities, ways to secure required fund for carrying out O&M activities, frame rules towards timely payment of water user charges, fine/ penalty in case timely payment is not made, disincentives for water misuse, etc.

3. Institutional Aspect of O&M

A strong institutional system is important for effective O&M of any water supply scheme. The following institutional aspects need to be considered while setting up such a system –

(a) Hiring O&M service through contractor/SHGs

In case of a newly constructed/augmented drinking water supply scheme, very often the concerned contractor is also responsible for O&M of the scheme for next three to five years. After the completion of the contract period, the Panchayat shall be responsible for O&M of the water supply

scheme. When the GP is unable to manage the scheme, for any reasons, the GP may appoint a self-help group (SHG) or any other local service contractor for repair services.

(b) Distribution of Work and Responsibilities

A dedicated water person/s (as required, based on the complexity of the scheme) at the GP level should be appointed on a part-time or contractual basis, to take care of day-to-day operations of the scheme. S/he would require training by the implementing agency responsible for O&M for minor repairs. The person should be paid a fixed service charge for day-to-day operations, regulation, and management of water supply (to be decided by the GP).

Further, the VWSC/GP members from the respective wards should meet the inhabitants of their wards periodically to ensure that there are no hindrances to the water supply service and take corrective actions if required.

For efficient implementation and management of the scheme, the capacity of the VWSC/GP and village water person requires to be strengthened.

(c) Complaint redressal

The customers always have certain expectations such as, adequate water pressure, regular and timely water supply, and good water quality. However, due to improper operation and untimely maintenance, the water supply may service may not meet these expectations, and such conditions result in complaints which require immediate redressal. Whenever any such complaint is received, the water person should note it down immediately in the complaint register. Then the cause of the complaint should be found, and necessary steps should be taken to redress the cause.

(d) Record Keeping

The person/ contractor/ agency responsible for water supply management in the village is expected to maintain date-wise record of all major and minor repairs, replacement of parts, pumping logbook, history book, TCL stock register, O.T. test, etc. and should present these records to the Gram Panchayat/VWSC periodically.

(e) Local skill development for implementation and O&M of drinking water systems

To achieve the goal of FHTC, to every rural household, in every village/ habitation on long-term basis, skilled human resource in areas like masonry, plumbing, fitting, electricity, etc., will be required. Also, agencies executing the schemes will need high quality human resources on a very large scale since quantum of work will continue to multiply manifold during the project period. For continuous O&M, local skilled persons would be required to service these requirements.

There is a need to plan for skilled human resource in each district and for each village, for which convergence with Pradhan Mantri Kaushal Vikas Kendra (PMKVK) operational in each district will have to be worked out. District-wise requirement of such skilled human resource will need to be identified and their training will have to be taken up on priority through PMKVK. Proper training manual in local vernacular language is to be prepared. It is recommended that such trained persons should be issued certificates and services of such people are utilized in the schemes/ work taken up under JJM.

The skilled human resource will be encouraged to become rural entrepreneurs and start enterprises in the rural water supply sector to meet the emerging demands of plumbing, mason, electrician, motor mechanics, etc.

Session 5: Water Quality Monitoring and Surveillance

A. Introduction

As envisaged under Jal Jeevan Mission, assured availability of potable tap water in adequate quantity, of prescribed quality on a regular and long-term basis in all households, schools, anganwadi centres, ashramshalas (residential school), public/ community health centres, sub-centres, wellness centres, community centres, panchayat offices, etc. is directly linked with improved public health and economic well-being of people. Regular supply of potable tap water to every home improves the quality of life and enhances ease of living. It also helps people, especially women and children, achieve higher personal goals, creates safer environment, reduces pain, disability, and drudgery, associated with fetching water from public sources, especially in isolated, forested, and hilly areas. For children, safe water supply results in better school attendance, with favourable long-term health benefits, including better overall development.

The year 2020 has been very challenging for everyone across the globe. Covid–19 pandemic resulted in loss of lives as well as livelihoods. In unison, the government of India and State Governments/ UT Administrations undertook several preventive measures to contain the spread of virus. Frequent washing of hands with soap is recognised among the most efficient and effective measures in controlling its spread. In this period, public health captured people's imagination, and each one realised the importance of preventive health care. It also made people realise that instead of fetching water from a public source, piped water supply in households is a better option. It will reduce crowding around community water sources. It was also realised that fetching water from a public source poses a huge challenge during a lockdown or when the family was put on quarantine. The realisation brought a sense of urgency to ensure potable tap water supply in adequate quantity for all households and public institutions, viz. schools, anganwadi centres, ashramshalas (tribal residential hostels), PHC/ CHC/ sub-centres, wellness centres, community centres, panchayat offices, etc.

Jal Jeevan Mission focuses on the assured supply of quality water to every household. At the same time, it also educates and creates awareness among people to understand the need for adoption of improved WASH practices. Regular testing of water supplied by PHEDs/ water utilities to households and public institutions is a prerequisite. It is very important to educate the communities about WASH and the ill-effects of contaminated water on the human body, especially infants, children, ailing pregnant women, on public health. Thus, training and educating local village communities, including children in schools, to test water samples and surveillance of water sources as well as delivery points will help in alerting people about possible contamination and prevention of water-borne diseases.

JJM, therefore, focuses on water service delivery adopting a utility approach rather than merely creating water supply infrastructure with tap water connection for every household. The most critical work under JJM is to create awareness among all stakeholders, especially public health engineers, village communities, Gram Panchayats and their sub-committees, user committees, etc. in following the modern public utility approach of assured water service delivery to every family.

B. Water quality and public health

Public health refers[2] to all organised measures (whether public or private) to prevent disease, promote health, and prolong life among the population. A Public Health official is responsible for providing conditions in which people can live a healthy life. Consumption of contaminated water is one of the largest public health issues as it exposes individuals to health risks[3]. Hence, drinking water, contaminated with either geo-genic or anthropogenic or both, has a bigger influence in determining the health of individuals and communities.

Groundwater meets 85%[4] of the rural drinking water requirement. According to an assessment by the Central Ground Water Board in 2018[5], 52% of blocks in the country have, *among other things,* at least one of the geo-genic contaminants, viz. Arsenic, Chloride, Fluoride, Iron, Nitrate and Salinity. States like Telangana and Gujarat have provided safe drinking water to most of their population by changing the rural water source from groundwater to treated surface water. Surface water use is rising and presently meets about 15% of the Indian rural drinking water requirement. However, surface water sources are prone to contamination due to extensive use of chemical fertilisers, pesticides in agriculture, and unabated discharge of untreated/ partially treated sewage/ industrial wastewater in the catchment.

Due to the intermittent water supply in the country, a loss of pressure in the water distribution system leads to a fall in hydraulic integrity[6]. Due of this, contaminants can enter the water supply distribution network. At the time of water supply, the positive pressure in the network prevents contaminants from getting into the network. But, if the scheme is not operational 24x7, illegal pumps used to draw water from the network contaminate the water in the pipes through leaky joints or points of seepage. Moreover, water supply distribution lines may pass through or near existing sewerage systems, making water supply more vulnerable to contamination.

Under JJM, all States/ UTs have been advised to prioritize potable piped water supply to quality-affected areas. As reported by the States/ UTs, currently, **groundwater sources** in 49,232[7] habitations in India have water quality issues. Nearly 20 States in India have drinking water sources contaminated with, *inter alia,* Arsenic, Fluoride, Nitrate, Iron, Salinity or Heavy metals etc. Additionally, the Union Ministry of Health and Family Welfare has identified 61 priority districts spread across five states which are affected by Japanese Encephalitis and Acute Encephalitis.

Chemical and biological contaminations have variable health impacts. An excessive amount of Fluoride in drinking water exposes people to risks of crippling skeletal and/or dental fluorosis. Long-term consumption of water contaminated with Arsenic leads to Arsenic poisoning or Arsenicosis, cancer of the skin, bladder, kidney, lung, or diseases (colour changes and hard patches on palms and soles), blood vessels of legs and feet. A very high concentration of heavy metals in drinking water can lead to poisoning. Biological (pathogens, bacteria, etc.) contamination of drinking water leads to

[2] WHO definition

[3] See the inside of cover page for pictorial representation.

[4] National Compilation of Dynamic Groundwater Resources of India, 2017, by Central Ground Water Board, DoWR, RD and GR.

[5] Groundwater quality in shallow aquifers in India, 2018.

[6] The hydraulic integrity of a water distribution system represents the capacity to provide reliable quantities of water at acceptable pressures.

[7] As on 18th January, 2021

diseases like cholera, dysentery, diarrhoea, typhoid, etc. These have an immediate impact on human body in terms of morbidity and sometimes lead to even mortality.

Water quality refers to the physical, chemical, biological, and radiological characteristics of water. The Bureau of Indian Standards (BIS) has specified safe drinking water quality standards (IS 10500:2012). These standards have two limits[8], i.e., ' *acceptable limits'* and '*permissible limits in the absence of an alternate source'*. In cases where any parameter exceeds the permissible limit, such as chemical or radiological parameter, an investigation should be undertaken with appropriate remedial measures or restrict the use of such water supply for drinking purposes until the water quality tests acceptable limit. In such a case, it is critical to provide an alternative drinking-water supply. It is pertinent that drinking water source(s) are tested, to ensure that -supplied water meets the prescribed standards. Remedial action must be taken if the parameters tested are outside the prescribed limit.

For all new/ existing piped water supply schemes, design requirements of water treatment plants/ community water treatment plants should supply drinking water with quality parameters within the prescribed limits. For more details, BIS Standard must be referred to.

Water quality monitoring is a fundamental tool in the management of safe drinking water supply. Water quality monitoring is defined[9] by the International Organization for Standardization (ISO) as: 'the programmed process of sampling, measurement and subsequent recording or signalling, or both, of various water characteristics, often to access conformity to specified objectives.' Surveillance is regular, specific measurement and observation for water quality management and operational activities.

To pre-empt the issues arising out of poor water quality, a water testing database must be created, maintained, and regularly monitored for investigating and tracking the quality of water supplied, undertaking preventive measures and averting disease outbreaks. The focus must be on testing procedures, using advanced instruments to strengthen water testing, accountability, maintaining the standard of laboratories by getting NABL accreditation and/ or recognition.

The PHED/ RWS Department/ agency responsible for implementing Jal Jeevan Mission in the States and UTs must test the water quality at source at least twice a year, i.e., before and after the monsoon for bacteriological parameters and at least once in a year for chemical parameters.

Surveillance involves active participation of Gram Panchayat and/ or its sub-committee (VWSC/ Pani Samiti/ User Group and the local community in regularly testing water quality using Field Test Kits (FTKs) or water quality testing devices, which are under development. Five persons, preferably women - like local health workers, ASHA workers, GP/ VWSC/ Pani Samiti members, etc. have to be identified and trained in every village to undertake the surveillance activities. These well-trained persons will be responsible for water quality testing and concurrently uploading the data/ report on Water Quality Management Information System (WQMIS). In this way, the GPs and/ or their sub-committees are expected to perform a public utility at the village level. Even though FTK gives an indicative result, it helps in ascertaining whether the water supplier is fulfilling mandated obligations or not.

[8]Except pesticide residue and bacteriological quality.

[9] Water Quality Monitoring - A Practical Guide to the Design and Implementation of Freshwater Quality Studies and Monitoring Programmes, accessed online on 13 February 2021.

The National Rural Water Quality Monitoring and Surveillance programme, launched in February 2005, focuses on water quality monitoring and surveillance. Under the programme, water quality testing laboratories were established at state, district, and sub-district levels.[10]

Under JJM, water quality monitoring and surveillance include:

i.) setting up/ strengthening state, district/ sub-divisional level, or block level laboratories, including ones under PPP mode;
ii.) upgrade existing water quality testing laboratories, which *inter alia* includes equipment, instruments, chemicals/ reagents, glassware, consumables, etc.
iii.) hiring outsourced human resources (excluding regular staff);
iv.) hiring vehicles for transportation of water samples collected from field to the laboratory;
v.) conducting water quality tests for all drinking water sources in all the villages and sample households as per prescribed protocol
vi.) expenses incurred for NABL accreditation/ recognition process, i.e., consultant fee, audit fee, application fee, annual fees, etc.
vii.) additional activities viz., presumptive testing of water quality at Gram Panchayats/ anganwadi centres/ schools using Field Test Kits (FTKs) and to refer the positively tested samples to a nearby water testing laboratory for confirmation;
viii.) a systematic programme of survey including sanitary inspection;
ix.) capacity building and training of various stakeholders;
x.) IEC activities on the importance of consuming safe drinking water, including awareness generation amongst multiple communities.
xi.) corrective action by State PHED/ RWS Department in case of significant water quality contamination, if required, alerting Health Department for mitigation and/ or disciplinary actions especially in Arsenic/ Fluoride, Uranium contaminants and bacteriological contaminations;
xii.) engage communities in surveillance activities such as mandatory sanitary inspection;
xiii.) cross-verification of water quality data and integration with other laboratories of State/ Central government agencies.
xiv.) share the results of water quality testing within the community by way of SMS/ postcards to all the major stakeholders in the community viz. Sarpanch, up-Sarpanch, GP members/ VWSC/ Pani samiti members, etc. The positive results will be upload on IMIS and alert to be sent to officials wherever intervention from PHED/ RWS or Health Department is required, etc.

Up to 2% of total annual JJM allocation to the States/ UTs (both Central and State share) is meant for activities related to water quality monitoring and surveillance. Fund sharing pattern between the Centre and States/ UTs are the same as under JJM except that in the case of States with 50:50 fund sharing under JJM, for WQM&S, it will be on 60:40 between Centre and respective States.

[10]Till date, 2,033 nos. drinking water quality testing laboratories at various levels have been set up by the States/ UTs as on 10.2.2021.

C. Field Testing Kits

The Field Test Kits (FTKs) used for examining physio-chemical contamination in water not only help in initial screening of contamination but at the same time are also effective in generating community awareness on drinking water quality.

Field Test kits are used at grassroot level, i.e., Gram Panchayats/ Village Water and Sanitation Committee for indicative test results. However, water quality testing laboratories may also use the same for primary investigation. The kit is used in conjunction with tablet/ reagents and colour charts to test different parameters. The kit is portable, easy to carry, easy to operate and does not require any power. The kit can test the quality of water under parameters listed below:

- Turbidity by visual comparison method
- pH by pH strips colour comparison method
- Total Hardness by Titrimetric method
- Total Alkalinity by Titrimetric method
- Chloride by Titrimetric method
- Ammonia by visual comparison method (Optional)
- Phosphate by visual comparison method (Optional)
- Residual Chlorine by visual colour comparison method
- Iron by visual colour comparison method
- Nitrate by visual colour comparison method
- Arsenic (by separate Arsenic kit)
- Fluoride by visual colour comparison method
- Bacteriological vials (Presence/ Absence) water test kit (H2S vial test)

A separate arsenic field test kit is available in the market, which can be used by the States where Arsenic is detected in drinking water sources. Gram Panchayat and/ or its sub-committee, i.e., VWSC/ Pani Samiti/ User Group, etc. must ensure testing 100% drinking water sources, including private sources, and water supply at schools, anganwadi centres under its jurisdiction using FTK at least once a month. The monthly test results are uploaded on WQMIS portal.

D. Trainings at GP level

To efficiently carry out water quality testing and monitoring using FTK, the testers (who should primarily be women as per the guidelines) need training in the following:

- use of FTKs for water quality testing of chemical parameters;
- use of FTKs for testing bacteriological contamination of drinking water;
- hands-on training in uploading of FTK test results on WQMIS portal;
- field level training in carrying out monitoring and surveillance activities; and
- explaining the impact on health to the community if contaminated water is consumed directly,
- Community to understand why frequent testing of water is important as parameters can change at any time due to use of fertilizer, leakage, flood, littering etc.
- informing immediate home remedies to check ailment associated with type of contaminated water

E. Sanitary Inspection

As a part of the surveillance activity, a sanitary inspection[11]must be undertaken. A sanitary inspection is an on-site inspection of water supply facility to identify actual and potential sources of microbiological contamination for evaluation of the functionality and operation of the system and external environmental factors (such as toilet location). Sanitary inspection of water supply facility should be carried out from time to time by community as well as by concerned laboratory official. **The sanitary inspection forms are given in Annex- I.** These forms consist of a set of questions which have "yes" or "no" answers. The questions are structured so that the "yes" answers indicate that there is the risk of contamination, and "no" answers indicate that the particular risk is absent. Each "yes" answer scores one point and each "no" answer scores zero points. At the end of the inspection, the points are added up, and the higher the total of identified risks, the greater the risk of contamination.

All the sanitary inspections done by the community can then be sent to the block/ sub-divisional/ district/ State level lab, which should also undertake a minimum of two sanitary inspections in a year along with microbial water quality monitoring to check the reliability of information provided. In Japanese Encephalitis/ Acute Encephalitis Syndrome (JE/AES) and Acute Diarrheal Diseases (ADD) affected districts, the sanitary inspection must be undertaken twice in a year, especially during the monsoon and post-monsoon. Strict surveillance and remedial action by water supply agency is also mandatory during this period.

F. Water quality management information system

In order to pre-empt the issues arising out of poor water quality, if a database of water testing is created, maintained, and regularly analysed, it can provide vital clues in investigating disease outbreaks, verifying the safety of drinking water and assist in taking preventive measures.

The Indian Council of Medical Research (ICMR) has developed a robust online portal on Covid-19 test monitoring information system with a clear data flow protocol. Using the system, the Covid-19 testing laboratories transfer the test results to the tested person, State, and national database and to the concerned local official for surveillance, record, and necessary remedial action. Similarly, NJJM, in partnership with ICMR, has developed an online portal on Water Quality Information Management System (WQMIS). The benefits of WQMIS are as follows:

- automated data flow of water sample test results which can help in assuring the safe supply of drinking water;
- initiate remedial action in case samples tested are beyond prescribed values;
- easy management of inventories, human resources, and financial transaction of the laboratories;
- access to all stakeholders to the laboratories through online mode.

The major features of this portal are as follows:

- all the laboratories in the State/ UTs will be registered and mapped in the portal;

[11]Please refer Jal Jeevan Mission Guidelines Chapter 10, page 60 for description.

- FTK users in every village would be registered in online portal by block/ sub-divisional laboratory in-charge to upload the FTK test results;
- upload the details of water sample and the test results;
- upload the inventory, human resources and fees collected by the respective laboratory;
- If the water sample tested is found to be contaminated, an automated alert will be sent to concerned PHED/ RWS official, DWSM members and also VWSC members to initiate remedial action and public health risk assessment.

The link to access the webpage of JJM- WQMIS is https://neer.icmr.org.in/website/main.php.

WQMIS helps in collecting, storing and analysis of considerable volume of data on water quality across the country, in a standard and easy to use format. Data from FTK testing, water quality sensors from smart water supply system (if available) and water samples tested at different laboratories is integrated to derive a comprehensive picture of the quality of water sources. Also, if the water quality data of a particular sample shows contamination, an alert will be sent to PHE department official, DWSM members as well as VWSC members so that immediate remedial measures can be taken on time.

Day 2: Planning Phase

Session 1: Community participation

A. Background

Jal Jeevan Mission programme has adopted a decentralized, demand-driven, community-managed implementation framework. The planning, implementation, management, operation, and maintenance of in-village water supply systems have been entrusted to GP/ VWSCs and community. It is envisioned that this will instil a 'sense of ownership' among the local community which can further create an environment of trust and bring in transparency leading to better implementation and long-term O&M of water supply systems.

Participatory Rural Appraisal (PRA) or Participatory Learning and Action (PLA) are effective tools to ensure community participation during the planning phase. PRA and PLA are approaches employed by development practitioners to enable effective interaction and participatory planning as well as decision making by communities. The approaches are based on the philosophy of bottom-up participation and empowerment and recognize that if local people participate in the development processes of planning, implementation, and monitoring, they can progressively transform their own lives and surrounding environment. This approach also acknowledges that local wisdom can make facilities and systems more robust and lead to sustainability. This section presents the concept, components and tools of PRA/ PLA which can be used to develop Village Action Plans (VAPs) under JJM.

B. Concept of PRA/ PLA

Participatory Rural Appraisal (PRA) or Participatory Learning and Action (PLA) is an approach, a way of thinking supported by tools and methods to facilitate a demand-led development process and ensure community ownership. It is an approach and method for learning about rural life and conditions from, with and by rural people. The role of the outsider is of a catalyst, to facilitate the processes used for participatory rural appraisal. PRA is an effective tool for community capacity building for participatory analysis, planning, implementation, and O&M of the water supply facilities. It is also a proven method for two-way communication with the community and ensuring community ownership. Community involvement in the project cycle, from planning to implementation and O&M, is non-negotiable for sustainability of projects and processes. It is an established fact that the local community has the best knowledge and insight about their natural resource base, which needs to be integrated while designing the water supply scheme and arriving at an informed choice about the water supply scheme options.

PRA/ PLA can be a mechanism for the selection of appropriate options for water supply schemes by the community, with the support of technical experts.

C. Principles of PRA/ PLA

There are certain principles of PRA/ PLA which need to be followed while facilitating the process. These principles are elaborated below.

Learning from the villagers – Often the preconceived notions of external actors or agencies about schemes do not work in the specific context of a village. It has been recognized that the community has been surviving in the villages for generations and has acquired knowledge about the surrounding environment and resource base. Actually, villagers are capable and well-informed about the situation in the village, its strengths, weakness and also the potential ways of moving forward. The facilitators should respect local knowledge. It is very important that facilitators should have humility, an open mind and respect for the community and their local knowledge. The first principle of PRA is to learn from the community.

Use of effective communication skills – Effective communication with the community is the first step in the PRA process. It is not just sharing what you know and your ideas. It is more important to listen to the people and understand what they have to say. It is a two-way communication. Ensuring clarity in the messages and establishing common terminologies which the community will understand is necessary. Facilitator should use commonly understood language and also suitable media for interaction. If articles like papers, pen, pencil, stones, leaves, flowers are used along with maps, pictures, graphs, or models, then communicating with the literate, as well as people without formal education, is possible at the same time.

Dealing with one's own biases – Many times people responsible for facilitating the design and implementation of water supply schemes are very experienced persons. Over long periods these experts develop certain biases about what will work and what will not work. Their experience is valuable, but sometimes it becomes an impediment in evaluating new ideas and also objectively analysing if some idea will work in a particular situation. Therefore, it is important for the facilitator or expert to know his/her own biases and deal with them with openness in the context of a specific village.

Appreciating reactions and responses of various community groups – The PRA process leads to a better understanding of the village situation. It is important to understand the social set-up and all sections of the communities. During the process the facilitators should carefully listen to the reactions and responses of various community groups and ensure that all have an opportunity to express themselves. It is a delicate process especially in the socio-cultural context of the villages. The facilitator should first trust the communities and carefully encourage women and marginalized groups to present their views. Women in rural areas are most seriously affected by lack of a safe and adequate water supply at their doorstep. They need to be purposefully involved in all the decisions related to the source, system, and service level. Women should be actively engaged in each of the planning steps. Similarly, in many places the voice of the marginalized groups in the village is not considered in designing, implementing, and maintaining the scheme. In many cases it is seen that the marginalized community resides at a distance from the general population therefore they are many times excluded from planning and execution of programme as it is considered to be costly and time taking. But as Jal Jeevan Mission works on the philosophy of 'no one is left behind' we have to

develop an inclusive planning approach where each one is covered be it a person belonging scheduled caste, scheduled tribe, minority group, woman headed household, poor, destitute or child headed household. The process should create an opportunity for these groups to express their views and to get involved in decision making. In this process diverse views will be captured making the process inclusive and will ensure that a more holistic picture emerges which generates robust information leading to the selection of the most appropriate options.

Exchange of information – Generally, information collected is recorded in a register. Very few literate people amongst villagers will be able to understand this information. Illiterate people will never know about this written information. Therefore, information gathered during PRA should be presented in the form of pictures, maps, graphs, illustrations, visuals etc. It is necessary to exchange the information with all villagers in this form. It helps people to come forward to discuss the issues involved and try to remove lacunae, if any. The facilitator group also needs to bring forward issues to discuss. Such discussions will raise important new issues and will create a realistic picture of the village and its requirements. It is best if the information collected through the exercise is shared in meeting and discussed so that people from all walks of life know about it and can add if something is missing and correct statements which according to them are not true.

Verification of information/ triangulation – Open and participatory planning will obviously verify/ triangulate the information collected. Participation of social groups of the village like men and women from different religions, castes and age groups can provide inputs for triangulation. Future activities should be based on this triangulated information. The inputs and insights of experts and the secondary data should also be used for triangulation of information to make it more realistic.

D. Dos and Don'ts of the PRA/ PLA Process

Do	Don't
• Use your own best judgment • Be self-aware and self-critical • Introduce yourself • Triangulate • Establish rapport • Be honest and improvise • Act with respect towards the community • Be flexible • Be nice to people • Be sensitive • Try new things and be bold • Watch listen and learn • Take risks • Learn from mistakes • Share and relax • Empower and support • Encourage people to speak and share their views • Give them time to speak as many people it is not	• Rush • Lecture • Criticize • Interrupt • Dominate • Sabotage • Take yourself too seriously • Collect unnecessary data • Promise things not in your capacity • Create an awe of your own self because in such case people will not be open to sharing their views • Do not use difficult language • Do not wear clothes which does not allow you to mingle with the community • Do not preach as if you know it all • Do not use gadgets which the community has not seen or are not comfortable using as it

immediate that any person will open up • There is nothing right and wrong, opinion will differ and should be respected • Handover the stick	creates a divide interacting • Do not use theory instead practical examples will be more useful • Do not focus on just a few people instead interact with each one present

E. Participatory tools

Following table presents the key PRA/ PLA tools. Key tools are subsequently described in detail.

No.	Tools	Description
1	Preliminary Meeting	Rapport building with the community members, GP members and village level officials.
2	Community/ social mapping	Community/ social mapping tool is used to visualize and situate the location of households and other social facilities/infrastructure in a village. It helps us to learn about social structures and institutions found in the area and social and economic differences between the households. It serves as a baseline for planning. It is the qualitative method to assess the basic village information, water supply sources, water supply scheme components, existing and proposed FHTCs, distribution lines, existing grey water management facilities, etc.
3	Resource Mapping	The objective of resource mapping is to learn villagers' perception of which all-natural resources are found in the village and how they are used. The aim is to understand the status of available resources in the village including rivers, forests, geographic strata, scope for water recharge and storage measures, amount of rainfall, drought in previous years, perennial rivers, depleting ground water table and possible sites, water supply sources, etc.
4	Water Budget	Drinking water budget is an effective tool to assess drinking water availability in the village and its use by community. The difference gives surplus or deficit of water availability from the sources. In this way, it helps to plan for effective management of available water more judiciously and effectively.
5	Seasonality Mapping	Seasonal diagram is used for temporal analysis across annual cycles, with months or seasons as the basic unit of analysis. It reflects the perceptions of the local people regarding seasonal variations on a wide range of items. It is a tool to understand the trends over the decades regarding water level, rainfall, water demand, water tariff, health, land use, cropping pattern, village development, literacy, etc.
6	Water source mapping and scheme transect	Water source mapping and scheme transect helps to observe the facts directly on the field and assess ground level practices and issues of the key components of the scheme in a participatory manner. This is an important tool to understand the current status of water supply sources and infrastructure.
7	Documentation	Documentation of processes, maps and issues identified during participatory assessment. Preparation of action plan.
8	Option Selection Meeting (FGD)	Option selection meetings are an effective tool where the entire community is involved in prioritizing needs and development options.
9	Consent meeting for approving the plan	The aim of this tool is to seek official approval to the final option and developing a sense of ownership and commitment among villagers.

Community/ Social Mapping

Community map is a tool to map the social and physical infrastructure of the village. It is the qualitative method to assess the basic village information, identify the issues and discuss the probable solution. It is effective triggering tool that ensures community participation.

Objectives

- To understand the structure of village and household level water supply facilities.
- To facilitate discussion on various sources available, their location and specific issues.
- To identify potential sources its location and land for storage tank (considering land availability issues) and tap connections, cattle water troughs, distribution lines and valves, common utilities and public institutions, spots of grey water accumulation and interventions for grey water management, etc.
- To trigger villagers and initiate action.

Process

Before

- Inform the community that social map is being developed so everyone must assemble
- Decide the location to draw social map with the villagers
- Ensure the material for drawing social map is available at the location
- Request villagers to draw social map.
- Prior to drawing the map, kindly brief the villagers about the village map and its components (e.g. why community map, what to show, why community map is necessary in planning)

During

- First take a round of the village with the community
- Then draw outline boundary of village with the help of wooden stick and set the direction (North South) on map.
- Request the participants to mark various locations on the map: village structure (existing, potential extension area), existing and potential sources (river, well, bore well/ tube well, hand pump), location of storage tanks and other scheme components, distribution lines and valves, common utilities and public institutions, existing stand posts, wastewater facilities and outlets, existing/ potential interventions for grey water management
- Use different colours of rangoli to map different resources.
- Involve different participant group from village community to ensure inclusion of all groups.
- Make sure that women and marginalised groups also participate and are allowed to voice their concern
- Ensure the documentation of social map on paper by one of the members from the facilitation team.

After

- After completion of drawing the map, discuss the situation of water and sanitation facilities and trigger the community members to initiate simple actions.
- Ensure all aspects of social map are taken up and documented on paper. Read and discuss with villagers the information collected and finalize it with consensus.
- Take photograph of social map.
- Close the process with vote of thanks.

Aids and Material

Rangoli (different colours), wooden stick (3-4 feet), paper, card sheet, marker pen, camera, etc. Use of locally available material will be preferred.

Outcomes

- Understanding the structure of the village, its needs regarding various scheme components and finalization of location wherever necessary.
- Initiation of community action.

Resource Mapping

Resource map is one of the most commonly used PRA tools. Resource map focuses on the natural resources in the village and depicts hills, rivers, water sources, forests, fields, vegetation, geographic strata, scope for water recharge and storage measures, etc. A resource map may also cover habitation.

Objectives

- To understand the available resources in the village including hills, rivers, water sources, forests, fields, vegetation, geographic strata, scope for water recharge and storage measures, etc.

Process

Before

- Before drawing the resource map, provide brief information of the tool to the village community.
- Select the location to draw resource map.
- Select a place which has open space to draw the map and where people can gather around to draw and discuss
- Ensure material required to draw the map is available.

During

- Initially gather at the location from where the entire village and its resources are visible.
- Initiate the drawing process by marking the village boundary and direction.
- Request the villagers to locate the following on the map-
    - Topography (plain, slope, etc.)
    - General information on available resources (river, forest etc.)
    - Source locations and distance of sources from various parts of the village
    - Current conventional and unconventional watershed treatments
    - RWH structures
    - Cropping pattern
- Involvement of villagers from various habitations would make the process more effective and inclusive.
- Make sure that women and marginalised groups participate and are allowed to voice their opinion
- Ensure that documentation of resource map is done by an expert from the facilitation team.
- Discuss issues and challenges faced by the community to preserve/ retain the natural resources to ensure source sustainability

After

- Ensure that the map drawn on paper covers all the marked resources drawn by village community while mapping the resource map.

- Take photograph of the resource map.
- Close the process by vote of thanks.

Aids and Material

Rangoli (different colours), wooden stick (3-4 feet), paper, card sheet, marker pen, camera etc. Use of locally available material will be preferred.

Outcomes

- Understanding the water resources of the village and finalize the locations for various components of the scheme including water sources and relevant strengthening and recharge interventions.
- Initiation of community action.

Water source mapping and scheme transect

Water source mapping and scheme transect is an effective tool for assessment of water supply facilities from source to mouth. The facility of drinking water in the village should be surveyed by visiting the sites in close co-ordination with village water person (*Jalsurakshak*), members of water supply committee, village elders and experienced local residents. The status, issues, potential risks of pollution, needs and probable solutions with respect to all components (water sources, rising/ gravity main, water treatment plant, storage, pumping machinery, disinfection mechanisms and water quality monitoring systems, distribution network, FHTCs, grey water management structures, etc.) should be recorded during the visit. The potential risks of pollution and damage should be discussed, and action plan should be initiated for maintenance and repair required for proper functioning.

Objectives

- To gather information about season wise availability of water sources and present status of various scheme components through assessment of source to mouth journey.
- To create an opportunity to discuss about the problems associated with sources, scheme components and proposed feasible solutions to deal with the problems
- Identify potential locations for water supply facilities considering the topography
- To trigger the villagers for actions by bringing forth the status of water supply

Process

Before

- In the initial stage try and understand the existing water supply facilities available in the village, and only then plan a visit the sources and system components one by one.
- Ensure participation of water person (*Jalsurakshak*)

During

- Assess the existing water supply facilities available in the village through scheme transact involving water person (*Jalsurakshak*), members of VWSC, GP members and villagers.
- Assess the water supply sources (surface/ ground) in the village with the help of a checklist.
- Assess the piped water supply scheme from source to individual connection. This will include assessment of water supply components available in the village (source, rising/ gravity main, water treatment plant, storage, pumping machinery, disinfection mechanisms and water quality monitoring systems, distribution network, FHTCs, grey water management structures) in terms of status, issues, potential risks of pollution, needs and probable solutions

- With respect to source strengthening measure for existing source, assess the existing facilities (available within 500 to 1000 metres from source).
- Identify potential structures in the village which can be used.
- Involve different participant group from village community to ensure inclusion of all groups.
- Make sure that women and the marginalised groups participate and voice their concern
- Record the finding during the assessment process.
- Take photographs of issues pointed out or seen during scheme transact walk.

After

- Discuss the issues addressed through checklist along with the villagers. Discuss on probable solutions to the problems.
- Identify potential options for sources and storage structures.
- Identify potential structures which can be used.

Aids and Material

Assessment checklist, notepad, pen, camera etc. Use of locally available material will be preferred.

Outcomes

- Collection of information about season wise availability of water sources and present status of various scheme components, issues, and probable solutions
- List of structures which can be used for new scheme
- Villagers triggered for action

Session 2: Village Action Plan

A. Introduction:

Village Action Plan (VAP) is a plan prepared by the Gram Panchayat with active participation of the VWSC/ Pani Samiti/ User Group, etc and supported by ISAs etc. The VAP builds on information gathered through baseline survey, community/ social mapping, resource mapping, water budget, seasonality mapping, scheme transect, option selection, consent meeting, and felt needs of village community to provide FHTC to every rural household, treat the generated greywater and plan its reuse, undertake surveillance activities, etc. VAP is a plan made by the community to carry out developmental works for the next 5 years. The VAP is approved in the Gram Sabha, wherein funds from different sources will be dovetailed to implement various components of VAP from different sources like grant from Jal Jeevan Mission, Swachh Bharat Mission, 15th Finance Commission, MGNREGA, etc.

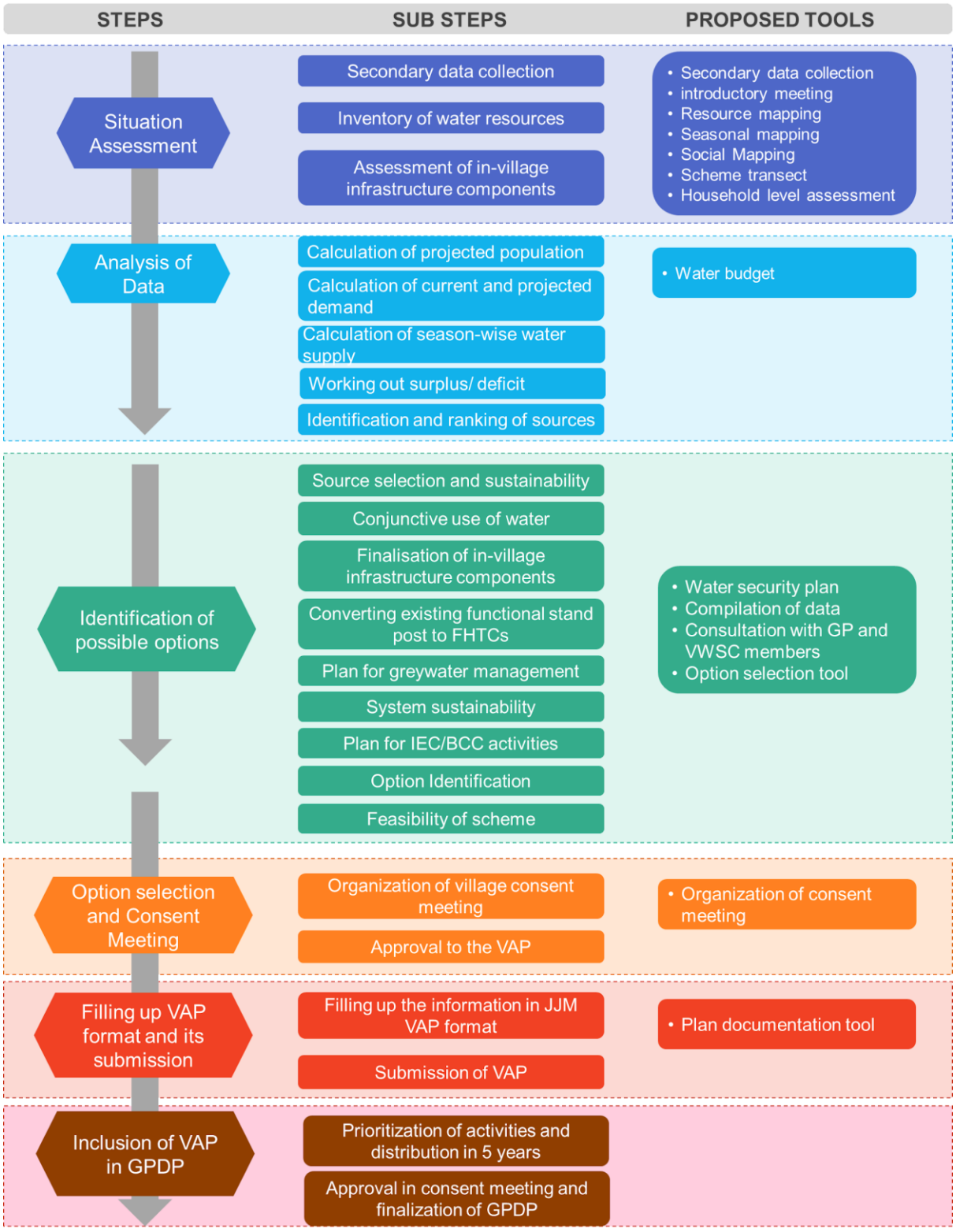
This section elaborates the process and components of VAP preparation process.

B. VAP preparation process

Community led action planning process is a participatory activity in which the community is in the driver's seat. The details of conducting participatory processes is described in the above session in detail.

Below chart shows schematic steps followed in VAP preparation detailing out relevant sub-steps and PRA tools used at each step.

VAP Preparation process flowchart



Step 1: Situation assessment

For effective village level planning, it is important to first understand the existing status of village water supply, institutional set up and financial provisions for O&M of water supply, socio-cultural aspects, local wisdom, felt needs of the community, etc. This step therefore aims at assessing the situation of water supply services in the village.

a. **Secondary data collection**

- To understand the water and sanitation status of the village, required secondary data will be collected in advance from the GP with the help of a checklist on the components listed below. Population data
- Current cattle population
- Agricultural cropping pattern
- Average rainfall
- Topography
- Status of VWSC constitution, details of chairperson and members
- Number of HHs having FHTCs, taking drinking water through private connections, fetching water from stand posts and point sources
- Details of water supply facilities available and its design duration, water supply scheme components and their functionality
- Information of available barefoot technicians (masons, plumbers, mechanics, electricians, etc.)
- On-going and proposed schemes for water supply
- Groundwater status
- O&M details – expenditure, user fee and collection, type and number of maintenance personnel etc.

b. **Inventory of water resources:**

Next step of the VAP preparation process is to understand the availability of water in the village and the need for strengthening of drinking water sources, if required. JJM envisages creation of digital inventory of existing water supply assets (hand pumps, wells, river, ponds, springs, etc.) for planning of additional infrastructure required. Such an inventory of every village will be done during the VAP process.

PRA tools like introductory meeting, resource mapping and seasonal mapping will be used to assess the following aspects-

- History of water supply/ availability in the village, details of any drought/ scarcity/ cyclone/ flood or any other natural calamity pattern; history of any emergency arrangements like water supply through tankers, trains, general trend of water availability etc.;
- Water source locations and distance from various parts of the village, current availability of water in water source (yield measured) and its long-term sustainability, drinking water sources which go dry during summer
- Current conventional and unconventional source strengthening and recharge structures and scope for undertaking source strengthening, ground water recharge measures, RWH structures
- No. of existing structures that can be restored/ cannot be restored

This step will help in mapping available resources in the village, understanding the level of water availability and identifying the scope for restoration of structures, water recharge and source strengthening measures.

c. **Assessment of in-village infrastructure components**

Assessment of in-village infrastructure components is done to understand the status of drinking water facilities and issues associated with it and to understand the retrofitting needs for providing FHTCs to all households. During this step, the water supply system is assessed from source to household connections and the issues associated with each component (pump house, rising main/gravity main, ESR/GSR, distribution line etc.) are identified.

Following aspects will be assessed through PRA tools like Social Mapping, scheme transect and Household level assessment of WASH facilities-

- Assessment of status of all components of existing water supply system from source to FHTC
  - Existing PWS/ mini scheme: pump house, rising main, WTP, ESR/GSR, solar panels, distribution line, stand posts, Household Tap Connections, meters if any, etc.
  - Point sources: Hand pumps, wells, bore wells, etc.
- Water Supply Service Levels, equitable distribution, issues in upgrading the service levels to 55 lpcd, etc.
- Assessment of status of institutional water supply – water supply arrangements in schools, Anganwadi Centres, ashramshalas, Health Centres, Gram Panchayat *ghar*, community managed sanitary complexes, etc.
- Assessment of water quality related status: potability of all drinking water sources, status and process for chemical and bacteriological testing, availability and use of FTKs, history of contamination and water borne diseases
- Grey water management: Status of household level soak pits, community level soak pits and other grey water management measures, identification of grey water hotspots, reuse of water
- Assessment of status of existing washing/ bathing places, cattle troughs and common utilities; location-wise population dependency
- Household level water handling and storage; quantity, frequency, quality and pressure at household level, especially at tail ends, willingness for FHTCs
- Status of VWSC formation, details of chairperson and members, need for strengthening
- Financial aspects: current tariff rates, tariff collection process, revenue from other sources, expenditure heads, gap between revenue and expenditure
- Understanding the profile of the households: families which will not be able to bear the tariff cost due to economic situation (will the Panchayat take the cost or is there any institution/ individual who can volunteer to pay the charges towards the capex and opex cost for these specific families)
- O&M practices, HR available, outsourcing if any
- Understanding the issues, gaps and felt needs of the villagers with respect to all above points
- Discussing the possible solutions with the villagers

This step will reflect the current status of water supply arrangements in the village, issues in its regular O&M and identification of solutions for better service delivery.

Step 2: Analysis of data

Once the existing situation is assessed using PRA tools, the next logical step is to compile the data, synthesize and analyse it to identify the gaps and possible solutions.

a. **Water budget**

After assessment of the existing infrastructure (source and systems) for water supply in the village, water security plan and water budget will be prepared. During this step, first finalize the current and projected demand for water in the village and then compare it with water available data to arrive at the quantity of water, if it is surplus/ deficit.

Following activities will be done under this step-

- Population projection (intermediate and ultimate stage) considering JJM norm
  - 15 years from date (18% increase over present population):
  - Ultimate stage - 30 years from date (32% increase over present population)
- Calculate current and projected (intermediate and ultimate stage) demand @ 55 lpcd including demand for cattle population, institutional demand, and floating population
- Calculate season-wise present supply level
- Workout surplus/ deficit considering the norm of 55 lpcd
- Identification of potential sources and source strengthening measures
- Ranking of sources

Water availability includes water available from all sources. Water requirement based on an assessment of uses such as for drinking, agriculture, industrial use, etc. are calculated. Based on this, the Gram Panchayat will decide the priority of drinking water. If there is a gap between the available water and demand, the Gram Panchayat should find other options for water. The pro forma for the water budget is given below.

Type of Sources	Summer Season			Winter Season		
	Available Water (Supply) (A)	Use of Water (Demand) (B)	Difference (A) - (B)	Available Water (Supply) (A)	Use of Water (Demand) (B)	Difference (A) - (B)
Rain Water Source -1 Source -2						
Ground water Source -1 Source -2						
Surface water Source -1 Source -2						

Proforma for water budget

Step 3: Identification of possible options

After careful assessment of the status of water supply arrangements and its analysis, the participants need to identify the proposed options for each component from source to FHTCs.

a. **Source selection and sustainability**

It is very important to have adequate water in drinking water source/s for successful operation of the schemes. Thus, the village community needs to select proper water source(s) and ensure recharge of the aquifer. PHED/ RWS has Source Finding Committee, having geo-hydrologist, with experience and data to guide on identification of reliable source, which may be consulted for ensuring source sustainability.

As per the analysis appropriate source/s strengthening has to be undertaken to enable assured quantity and quality of water for the design period and should be part of the VAP. Required funds for this can be arranged from MGNREGA, CAMPA, 15th Finance Commission Grants, etc.

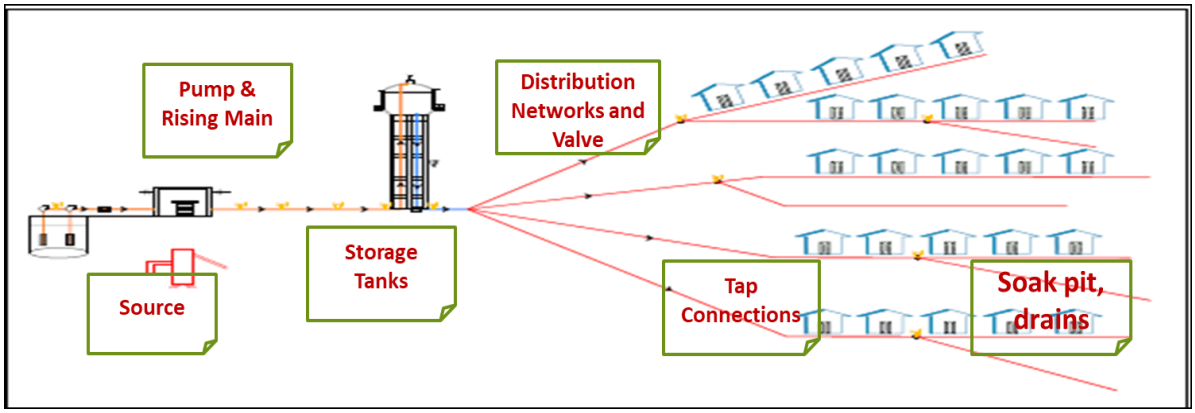
A source can be considered sustainable when it delivers the designed quantity of safe water in all seasons. Primarily, there are two sides to source sustainability: (i) supply-side interventions and (ii) demand-side interventions. The supply-side interventions mainly comprise groundwater recharge interventions which include conventional and unconventional techniques. These interventions aim at enhancing groundwater recharge and improving groundwater levels. Local knowledge and expert advice from trained geohydrologists should be used to determine the type of interventions for a given situation. The demand-side factors are primarily linked to controlling water demand and the usage pattern. Community needs to be sensitized that the water has to be used judiciously. Overall contribution of the demand management measures is much higher than the supply side interventions. Therefore, it is imperative to design and implement demand management measures well and promote efficient use of water.

b. **Conjunctive use of water**

Planning for harmonious use of surface water, groundwater and rainwater is important to ensure availability of water without disruption and also to optimize utilization of sources. This will be done based on water resource inventory developed during situation assessment. In villages falling in drought-prone areas, conjunctive use of multiple sources of water can be explored such as ponds, lakes, rivers, groundwater, supply from long distance, rainwater harvesting and/ or artificial recharge.

c. **Finalization of in-village infrastructure components**

The key components of water supply scheme are - source, rising/ gravity main, water treatment plant, storage, pumping machinery, disinfection mechanisms, water quality monitoring systems, distribution network, FHTCs, and grey water management structures. The components of a water supply scheme are presented in the schematic below-



Components of a water supply scheme

In case of an existing PWS, various possible options for retrofitting/ augmentation of all components of a water supply scheme will be identified based on situation assessment exercise. For a new scheme, options for construction of new components will be identified. Details like capacities, proposed locations, sizes, area/ population served, etc. will also be calculated during this step.

d. **Converting existing functional stand post to FHTCs**

In case of retrofitting schemes, the existing stand posts need to be converted to FHTCs. In case of new schemes, new tap connections are to be provided to all households. It is to be ensured by the GP/ VWSC that no household should be deprived of water connection. All the public institutions in the village viz. school, health-centre, anganwadi centre, panchayat ghar, ashramshalas, etc. have to be provided with tap water connection. Every household is to be provided with equal size of connection, in general ½ inch (12.5 mm). Bigger size connections are not to be provided on demand. If there is requirement of more than one connection, provision should be made in distribution network to maintain minimal pressure.

Aerator tap must be installed in every household and the households those are not using aerator may be requested for using the same. Use of such type of tap, reduces the consumption of water. A tamper-proof flow control valve, which will regulate the flow of water to 5 litres per minute may be used. Flow Control valve should be installed in every household along with a distribution pipeline, to ensure equity in water supply to all households.

e. **Plan for grey water management**

Grey water management schemes should be well planned; only then the village will remain clean after completion of water supply schemes. Depending on the soil type, soak-pit in every household will be a preferable option for the disposal and management of grey water. Grey water should be drained and collected at a place; the treated water may be disposed in the drain or after treatment, can be used for irrigation.

Funds from Swachh Bharat Mission (Grameen) can be tapped for treatment and re-use. In a village, road and drains should be constructed side-by-side for the smooth flow of grey water. Grey water should be disposed of in a soak-pit and not in pond or water bodies directly. Villagers can plant fruit bearing saplings near soak pits so that they will not only help in maintaining the aesthetics but also bear fruits in future.

f. **Sustainability of system**

A strong and sustainable institutional system is important for effective water supply service provision. Plan for strengthening the system needs to be made in the VAP itself. Sustainable system refers to robust VWSC, availability of capable human resources, proper maintenance of records (physical and financial), efficient complaint redressal mechanism, etc. A plan for efficient operations of the above system needs to be prepared under VAP.

Capable human resources are crucial for sustainability of the system. Therefore, the capacity building needs of the GP level functionaries will be identified and a capacity building plan will be prepared.

Similarly, a plan for skill development and entrepreneurship also needs to be prepared to achieve the goal of FHTC on a long-term basis. Skilled human resources such as masons, plumbers, fitters, electricians etc., are required at village/ habitation level. Also, due to the scale of works to be undertaken, skilled workforce will be required, for which locally available labour will have to be trained. Five local women are expected to be identified and trained to undertake WQ monitoring and surveillance activities. A plan needs to be made for listing the existing human resource, training the locally available labour, making arrangements for their deployment, etc.

For financial sustainability of the schemes, various convergence activities need to be planned. The activities to be undertaken through convergence of government schemes will be identified and appropriate application procedure will be initiated. Similarly, efforts need to be taken up at the planning phase itself for collection of community contribution, tariff payment, etc. to ensure that corrective actions are undertaken, and sustainability measures are in place.

g. **Plan for IEC/ BCC activities**

Communication approaches are interrelated and interactive. When strategically combined through an effective IEC plan and its implementation, it helps in the promotion and sustained adoption of positive WASH behaviour. It is important that IEC plan is developed keeping in mind the local context and that its message and communication channels are tailored according to the nature and size of the population of a particular area. Drinking Water Advocacy and Communication Strategy (DWACS) developed by DDWS may be adapted with the current context and messages may be developed accordingly.

Proposed slogans regarding water supply for branding on walls

Water is life, so the source of pure water is its base.
If you pay attention to saving the water source; water availability, make our work easier to provide water in every home.
With water available, there is future
You save water, in turn water will save your life
Rainwater is a gift of nature; it replenishes water source
Water is priceless; make your contribution by recharging the water source.
Public participation in water planning is important.
Donate in cash or kind to ensure no one is left without tap water connection
Use drinking water judiciously
Let us contribute for public welfare, let's provide piped water for all
We have to bring tap water to each house to make it a 'water prabudh gaon'
Let's join hands to provide Har Ghar Jal by 2024
Water is precious jewel of life, try to save it.
Every house must have tap and water from tap.
Water has it's own tomorrow and life dependent on it.
Use water as when required, this your contribution in water conservation.
Every child, young and old, becomes hero by saving water.
You will become thirsty, if you do not save water.
Water is the hope of life try to save it.
Water is the basis of life, consider to save it.

Sample of Sign with Jal Jeevan (1'5"x 2')

Jal Jeevan Mission

Har Ghar jal

Village Name:_____ Block Name:_____ District Name:_____ State Name:_____

Name of Drinking Water Scheme: _____Total Cost Rupee _____ Date of Approval in Gram

Sabha:_____ Centre Fund: Rs. _____ State Fund: _____Community

Contribution: Rs. _____ Cash/ KindDate of Technical Sanction: _____Date of Issue

of Work order: _____ Date of Completion of Work: _____ Name of Agency:_____

Name of Implementing Support Agency: _____

Name of work	Cost in Rs.	Name of the main works	Cost in Rs.	Quantity
Plan of source recharge		Bore/ Bore Work of source		
Water scheme		Rising/ Distribution mains		
Plan for gray water management		Treatment/ Elevated service reservoir (E.S.R)		
Plan for mantinance		Measuring and evaluation functions		

Names and mobile numbers of key persons

Gram Pradhan: _____/_____ Chairman Committee: _____/_____

Panchayat Secretary: _____/_____Engineer: _____/_____ Assistant

Agency:_____/_____

Board (8'x 6') Mission logo

h. **Option identification**

Under this step, all the options identified during previous step for various components will be collated and three alternative options for the scheme execution will be identified. The modalities for allocation of land to the Gram Panchayat and/ or VWSC/ Pani Samiti for the construction of water supply infrastructure in the village will also be finalized.

i. **Feasibility of scheme**

Based on the preferred options, the proposed scheme category under JJM will be finalized. Following are the scheme categories suggested under JJM–

- Retrofitting of on-going schemes taken up under erstwhile NRDWP for the last mile connectivity
- Retrofitting of completed RWS to make it JJM compliant
- SVS in villages having adequate groundwater/ spring water/ local or surface water source of prescribed quality
- SVS in villages having adequate groundwater that needs treatment
- MVS with water grids/ regional water supply schemes for group of villages not having adequate water source and/or quality
- Mini solar power based PWS in isolated/ tribal hamlets

Considerations for testing scheme feasibility:

While selecting an option of water supply scheme, various aspects need to be considered -

- Source Sustainability: First of all, the source has to be sustainable in terms of availability of desired quantity keeping in mind the projected population increase and quality water in all seasons for the design life of a water supply system.
- Technical Appropriateness: Different suitable options must be evaluated to check the technical appropriateness. The option selected and proposed will be required to deliver the desired service for the design life. The role of technical agency is vital to help the community understand the appropriateness. Community should finally select an option that they will be able to technically operate and maintain, with minimal training and support.
- Social acceptability: This is a demand led process. The option needs to be acceptable to the community considering their demand and other social and/or cultural issues if any. Care should be taken to ensure service delivery to the marginalized groups in the village. Participation of women and their say in the process is important and should be decisive.
- Economic affordability: The scheme is ultimately to be managed by GP/ VWSC with community participation. Capital cost and O&M cost implications of each option needs to be appreciated by community leading to selection of an option for they are willing and able to pay.
- Environmental impact: Each option will have environmental implications in terms of ground water sustainability, energy consumption and/or climatic variabilities risks. Environmental impacts needs to be considered with specific reference to sustainability.

Step 4: Option selection and consent meeting

Community selecting an appropriate option for their drinking water supply arrangements is a crucial step in JJM project cycle. While planning and implementing water supply schemes under Jal Jeevan

Mission, it is imperative that proper techno-economic appraisal and socio-economic analysis is carried out, most appropriate option is opted, and necessary approval of the local community/ user group is taken for in-village water supply infrastructure. It will ensure a sense of ownership among the community and is willing to undertake management, operation and maintenance of the system as well as drinking water sources for long-term sustainability. Sustainability of sources, water supply systems and water quality management is directly linked to community selecting the most appropriate option. Therefore, this step is important to identify workable technical options for the scheme from source to FHTCs by considering capital and O&M costs.

Step by step process will have to be facilitated to inform community about the implications of various options to help them arrive at an informed choice. Three alternative options with capital and O&M costs will be finalized and presented to the villagers.

The ISA and PHED/ RWS Department would provide information about the O&M expenses including expenses on electricity for the preferred water supply schemes, which has implications on community contribution for capital cost as well as O&M. While selecting the best techno-socio-economic options, capital as well as O&M expenditure has to be kept to the minimum. Technical specification for the various components of in-village water supply infrastructure will be made available in regional languages so that wards/ Panchayats can also access it. ISA are engaged by the state/ district administration to help in participation by the village community in planning, selection and execution of the programme. The members of the Gram Sabha will approve the Village Action Plan. 80% presence of the village community is mandatory to secure the approval via common consensus.

In the end, community contribution for the selected option will be finalized and approved in the gram sabha meeting. The O&M cost of the selected option shall be calculated and tentative tariff for the option will be derived at. Details pertaining towards one time and recurring cost will be communicated to the villagers.

Step 5: Filling up of VAP Format and its submission

The approved activities for JJM implementation will then be filled in the VAP format (attached as annexure). The VAP format contains 6 sections, which can be filled with the help of information available with the GP or the data collected during PRA process. Following table presents the source of information for each section-

Source of information for filling VAP format

Section number	Section heading	Source of information
I.	**GP Resolution**	Data available with the GP
	Aspiration of village community:	Water budgeting and option selection
II.	**Gram Panchayat and/ or its sub-committee, i.e., VWSC/ Pani Samiti/ User Group etc. details**	Data available with the GP
III.	**General details**	
	Population data	Data available with the GP (2011 census and current data)
	Population projection	Water budgeting
	Current cattle population	Data available with the GP (animal husbandry records)
	Agricultural cropping pattern	Data available with the GP (land use and agriculture data)
	Average district rainfall	Data available with the GP

	Topography	Data available with the GP
IV.	**Situation Analysis**	
	Resource maps and social maps	Resource mapping and social mapping
	Public Institutions	Assessment of in-village infrastructure components
	Total daily requirement of water	Assessment of in-village infrastructure components
	History of water supply	Timeline mapping
	Water quality	Assessment of in-village infrastructure components
	Washing/ bathing blocks	Assessment of in-village infrastructure components
	Schools and anganwadi centre	Assessment of in-village infrastructure components
	GP buildings, PHC, CHC	Assessment of in-village infrastructure components
	Source Sustainability	Assessment of in-village infrastructure components
	Greywater management	Assessment of in-village infrastructure components
V.	**Water Supply Scheme**	
	Scheme category	Option selection
	Identified scheme components	Option selection
VI.	**Convergence**	Option selection and Village action plan preparation

Once the VAP format is filled, it will be submitted to the block/ district for approval.

Inclusion of VAP in GPDP

In line with 73rd Amendment to the Constitution of India, 15th Finance Commission has recommended grants to GPs for next five years i.e., up to 2025-26. It has also identified drinking water supply and sanitation as national priority areas for GPs s and therefore 60% of the fund is provided as tied grant meant for a.) supply of drinking water, rainwater harvesting and water recycling, and b.) sanitation and maintenance of open defecation free (ODF) status.

Gram Panchayats have been mandated to prepare Gram Panchayat Development Plan (GPDP) for rural economic development and social justice. The Gram Panchayat will include the VAP activities in their GPDP plans after the VAP is approved.

The following actions should be taken by the GP to prioritize water and sanitation interventions in the GPDP-

1. During the GPDP primary meeting -
   - Prioritize water and sanitation activities proposed in the action plan
   - Include resource allocation for the activities in the GPDP
   - Finalize specific water and sanitation activities for FYPs and annual plans

2. Presentation of recommendations and approval of proposed activities in the Gram Sabha

3. Documentation of recommendations

4. Finalization of the GPDP

Bookkeeping and accounting by VWSC

The VWSC is required to maintain the following registers

Meeting Register: After the constitution of GP sub-committee, i.e., VWSC/ Pani Samiti, etc. all details of the meetings held by the members like date of the meeting, place, time, members present with signature on the attendance sheet, agenda of the meeting, deliberations, decisions taken,

actions taken on earlier plan, follow-up action for the previous meeting, points which require escalation of the matter to higher authorities etc. should be maintained.

Contribution Register: This register should contain details of all the contribution received from the community with respect to water supply scheme. The name of the family member should be written against the cash contribution received. The signature of the family members should be taken with their consent on the register.

Income-expenditure Register: Once the work pertaining to the drinking water supply scheme begins, an income and expenditure register should be maintained. In this register, VWSC will keep record of the income made and expenditure incurred through the official Bank Account. The last deposited amount from VWSC into the bank account should tally with the money deposited into the bank. On every page of the register, it is necessary to have the signatures of the President of VWSC and Panchayat Secretary.

Bank transaction register: In this register, all the money withdrawn and deposited in the bank for drinking water supply scheme will be recorded

Quality Register: Upon commissioning of the water supply scheme, VWSC has to check the quality of water at both source(s) and delivery points in regular intervals to be decided by VWSC. Water quality testing is to be done twice a year for bacteriological contamination and once a year for chemical contamination. This register will have the details of source/ delivery point tested, type of test, quality of water tested, date of water testing, name of the person who carried the test, etc. The names and contact numbers of the five members from village responsible for water quality surveillance activities should also be mentioned. The testing results should be put up at a prominent location in the village for wide dissemination.

Session 3: Planning and Design

A. Introduction

Planning and design development stage is critical for functionality and long-term sustainability of scheme. Gram panchayat and local community should get involve in scheme planning from the concept stage. State Govt PHED/ RWS and Implementation Support Agencies (ISAs) will provide all technical assistance in source identification, selection of scheme, planning and design and implementation of scheme.

B. Baseline survey

Before planning and design of any rural water supply scheme, baseline survey and site investigation should be carried out as stated below:

Reconnaissance Survey or " RECCE": This survey should be is done during Project Conceptual Stage. Baseline survey will include No. of HHs, family members for FHTC connection, location of potential source, location and details of existing infrastructure, treatment works, reservoir, pumping stations, pipe alignment, etc. GP/ local community will facilitate in Baseline survey.

Desk-Top study: The data collected from secondary sources should be verified as per the ground condition. Tools used for Desk-top study:

Detailed site survey and investigation are recommended before detailed design and preparation of Detailed Project Report (DPR).

C. Source selection

Selection of sustainable source nearby village is the first step for planning and design of drinking water supply. As a result of climate change and excessive consumption of water for other uses like agriculture ground water level is depleting and availability of water is also reducing. Hence, it is necessary to identify appropriate source nearby, which is sustainable for ultimate design i.e., for 30 years. There are mainly two types of sources:

- Ground water and,
- Surface water source (river, lake, stream, spring, etc.).

GP and local community should identify all ground water as well as surface water sources within village boundary and prepare a map highlighting location of all sources. A groundwater source is tapped by means of a tube well and, because of natural filtration, does not require elaborate treatment unless groundwater is contaminated. Therefore, a groundwater-based scheme is cost-effective and easy to construct and operate. It is recommended to do a scientific hydrogeological study to identify the appropriate location and potential yield and sustainable life of borewell. The discharge planned from the tube-well shall be designed based on the safe yield of the aquifer that is being tapped for water. Not ensuring safe yield from the groundwater source may eventually lead to the source becoming dry, and the scheme will become defunct.

Surface source, on the other hand, requires additional components to be constructed and most of the time requires an elaborate treatment as surface water is prone to contamination from multiple sources.

First choice for source selection should be nearby perennial river/ stream/ spring and gravity-based scheme to avoid pumping. In case there is no nearby surface water, and ground water has high yield and good quality ground, it should be selected as source of water supply.

D. Selection of scheme

As per JJM operational guideline schemes has been categorised in following Categories:

Retrofitting Scheme: In case village has existing piped water supply system (PWS), however it is supplying water through Stand post or water quantity is less than 55 lpcd, it can be retrofitted / renovated to provide Functional Household Tap connection (FHTC) within Household premises by extending existing water supply line near household. If require, source should be strengthened/ augmented to meet future water demand.

Single Village Scheme (SVS) : Scheme where local source (ground/ surface) is identified within/ nearby village boundary and water supply system is designed to supply water to single village. Villages with sufficient ground water availability of prescribed quality within the village boundary, SVS is preferred option as it requires less capital and operation& maintenance cost.

Multi Village Scheme (MVS): In case villages don't have nearby sustainable source (ground/ surface) or available ground water source is contaminated, an alternative source nearby should be identified. While planning scheme, water supply should be planned for all en-route villages.

Regional Water Supply Scheme (RWS): In villages with paucity of water and water quality issue in nearby areas especially in drought prone area, water must be transferred through long distance, it

may cross various districts / villages. This type of scheme has higher per capita capital cost, maintenance cost and require skilled manpower. Therefore, State must judiciously plan these type of schemes as last options.

Solar based scheme: In habitations in tribal/hilly / forested area having scattered population, solar power-based scheme should be planned, which has negligible operation and maintenance cost.

Depending on location of source, scheme can be further divided in two groups stated below

Gravity scheme: Gravity scheme can be proposed if the water source is at higher location. In such case water can be conveyed to the village/households by gravity without pumping. The capital and operation cost of gravity scheme is less as compared to pumping scheme, therefore gravity-based scheme is mot preferred option.

Pumping scheme: Pumping scheme is proposed if the source of water is below the ground level of village and/ or is at a distance source form the village and water must be lifted at required level. This scheme has higher capital and operation cost as compared to gravity scheme due to requirement of pumps.

Considering above factors gravity based single village scheme is most preferred option. MVS / Pumping scheme should be last option, whilst selecting appropriate scheme in the planning stage.

PHED / RWS department will consider the availability of water source on long term basis and will prepare the 3 techno-economic feasibility reports in consultation with GP and its subcommittee. PHED / RWS department will also determine the land requirement along with suitable locations for the various components of water supply schemes, for all the 3 techno-economic feasibility reports.

The Gram Sabha would decide the type of Water Supply Scheme to be provided in the village based on the availability of land and of type of source and feasibility report of PHED / RWS department about the SVS or MVS.

Single Village scheme (SVS) is planned and managed by Gram Panchayat and/or its sub-committee, i.e., VWSC/ Pani Samiti/ User Group, etc.

The infrastructure of MVS outside of the village boundary will be planned and managed by PHED/ RWS Department/ Board/ Agency, wherein Gram Panchayat and/ or its sub-committee, i.e., VWSC/ Pani Samiti/ User Group, etc., will manage, operate, and maintain the in-village water supply system.

Group Activity: Source mapping, familiarisation with 3 techno-economic feasible options

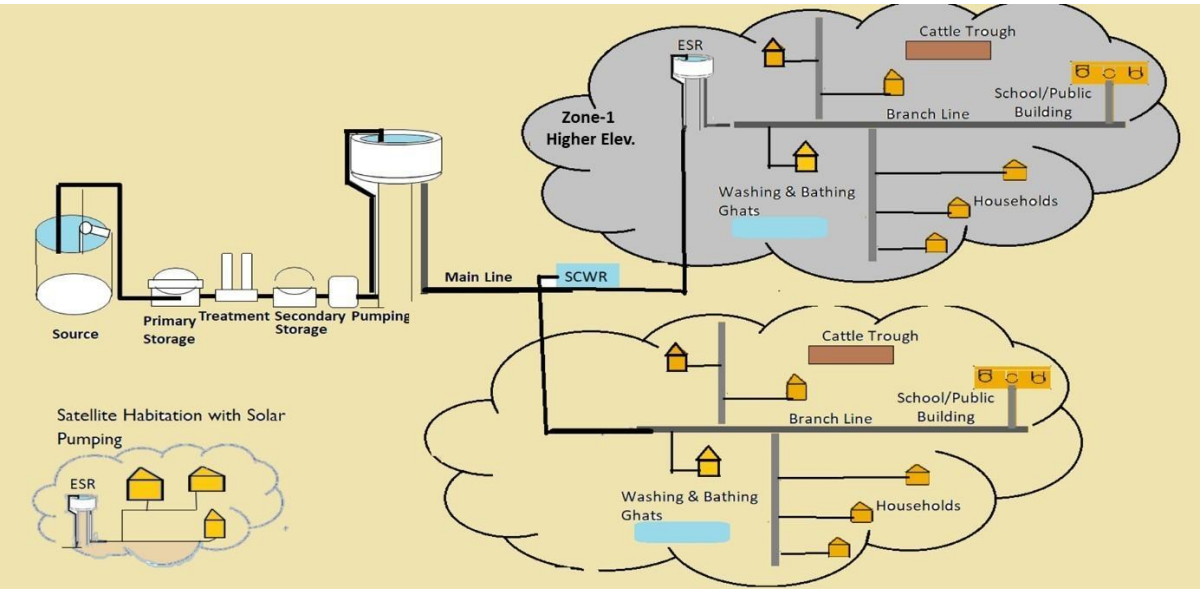
E. Water Supply infrastructure design

The design of water supply system will be done by PHED department, however GP and/or sub-committee should get familiarized with the various aspects of the design, which will help them in decision making and further O&M.

The water supply system consists of various component such as source, intake well, treatment plant, pump house, sump, overhead tank, transmission main, distribution main, house connection, FHTC. The schematic layout of water supply infrastructure has been shown in Fig 1.

Intake well: It is structure to collect water at surface source. In case of ground water tube well is constructed to lift water available below ground.

Transmission Main: The pipe which convey water from source to water treatment plant or water storge tank is called transmission main.



Schematic layout of rural water supply infrastructure

Sump: It is tank which can be constructed below ground, above ground depending on site condition to store water. In general, the capacity of storage take is half day water demand. The village where water supply is through MVS scheme, sump will be located within village boundary, which will act as source of water for village and GP and or sub- committee must manage Sump and water supply systems beyond sump onwards.

Water treatment plant: Water quality at source (ground/ surface) should be testing and depending on water contaminants, appropriate treatment plant is selected. In case of water quality affected habitations if there is delay in planning and implementation of piped water supply as a purely interim measure Community Water Purification Plant (CWPP) may be taken to provide 8-10 lpcd potable water for drinking and cooking.

Distribution pipeline: The distribution pipeline is water supply line coming out from overhead tank, which is laid along road near to households. These pipes should be laid minimum 3 ft below ground level.

Functional House Tap Connection (FHTC): It is household tap connection provided within premises of Household. FHTC will provide minimum 55lpcd of prescribed quality (As per BIS 10500) on regular basis. FHTC should be provided with pedestal support and platform.

5.1 Design period

The design period for various components of rural infrastructure varies. The time to complete the execution works, known as the lag period, should not be counted in the design periods. There are mainly three stages of the design period as stated below:

- Base year : proposed year of completion of the proposed scheme.
- Immediate : base year + 15 years.
- Ultimate stage : base year + 30 years

Example:

If a water supply scheme is proposed in 2021, and the expected construction period (lag period) for the scheme is three years, the design period for the above three stages will be as below

- Base year: 2024 (2021 +3)
- Intermediate year: 2039 (2024+15)
- Ultimate year: 2054 (2024+30)

Source of information for filling VAP format

S. No.	Component	Design Period (Years)
1.	Source (Availability of water)	
	i. Surface water	30
	ii. Ground water	15
2.	Headworks/ Intake Structure	
	i. Dam/ Barrage	50
	ii. Intake Works	30
3.	Treatment Plant:	
	i. Civil Works	30
	ii. Electro-Mechanical Works	15
4.	Reservoirs	30
5.	Pipelines (Raw Water, Clear Water, and Distribution)	30
6.	Pumps and other Mechanical Equipment	15
7.	Motors and other Electrical Equipment	15

5.2 Population projection

The method to be selected for the final population forecast is purely based on accurate judgment and best suitable for the project area. It further depends upon the population trends shown in various methods and local situations related to the population. The best suitable method shall be opted for the final population projection.

In the absence of census data, it becomes difficult to predict the future growth of the population. Therefore, to quickly assess future growth following methods can be adopted:

Intermediate stage – 15 years from the date of completion of the scheme (18% increase over present population): Present Population x 1.18

Ultimate stage – 30 years from the date of completion of the project (32% increase over present population): Present Population x 1.32

5.3 Water demand

The total water demand of the project area shall be calculated by the summation of all water needs multiply by the design year population. The recommended consumptions of water in each use are elaborated below:

Domestic demand: It is recommended that per capita water supply for designing of the scheme for the domestic purpose shall be adopted @ 55 LPCD. However, the state may design the schemes by adopting domestic demand of more than 55 LPCD, but in any case, it should not be less than the specified limit of 55 LPCD.

The following purposes have been considered for calculating the quantity of water for domestic use:

Domestic water demand

Sr. No.	Purpose	Quantity (LPCD)
1.	Drinking	3
2.	Cooking	5
3.	Bathing	15
4.	Washing utensils and house	10
5.	Ablution/ Toilets	10
6.	Washing of clothes and other uses	12
	Total	**55**

Institutional demand: In addition to domestic demand, water demand should be calculated for an institutional area such as Schools, Anganwadi, primary health centre, gram panchayat based on actual floating population data. In the absence of data minimum of 5 % of total demand can be considered for the institutional area.

Livestock demand: It is recommended to consider separate provisions for the livestock demand, i.e., 30 litres per unit per day. There can be a standalone system utilising local sources to meet Livestock demand. Cattle troughs can be constructed at the community level having separate water supply systems based on local sources.

5.4 Pipe Selection

In general, Metallic pipe is used for rising main and non-metallic pipe are used in distribution line depending on site condition. The pipe material used should be ISI marked and no pipe should be exposed or laid above ground.

5.5 Design development

PHED/ RWS Department will be involved in preparation of concept and detailed design report (DPR) based on the decision of Gram Sabha. It consists of the following stages.

- Concept planning/ Feasibility Report (Based on base line survey)
- Detailed Design (Based on Site survey and investigation)
- Technical specification
- Bill of Quantity and Cost Estimate

Detailed Project Report (DPR) will consist of following components

- Project background
- Baseline survey data
- Site survey and investigation report
- Land / power availability
- Statutory approval – source finding committee, other approval
- Selection of source
- Selection of type of scheme
- Population projection
- Water demand assessment
- Design criteria
- Design of each component of infrastructure
- Drawings such as overall layout, pipe alignment, L-section, WTP, Tank, FHTC drawings etc.
- Technical specifications
- Bill of Quantities
- Cost estimate (Capital and Operation& Maintenance)

Once DPR is technically approved by DWSM/SWSM, tender document is prepared to appoint contractor for execution of work.

F. Greywater management

The wastewater generated from kitchen; bathroom is called greywater. The generation of greywater from a rural household is about 65% to 70% of total water supplied. The volume and nature of grey water varies with lifestyle of the population.

6.1 Effect of greywater on health and environment

Grey water is hazardous by nature and a breeding ground for diseases. Grey water, when mixed with faecal matter and other toilet waste, becomes black water, and carries a substantially greater threat of disease. Current practices in managing grey water in rural area needs improvement. There is indiscriminate disposal of grey water in open areas. Vector-borne diseases like malaria, polio, dengue, and cholera are largely arise due to stagnant grey water. GP and local community should make all effort to implement greywater management on priority basis.

6.2 Planning and design of greywater management

Villages with up to 5000 population

For villages with a population up to 5000, a decentralized and household centric approaches like individual soak pits/ leach pits/magic pits/kitchen garden are more feasible and preferred. In some cases, depending on soil structure and topography, community level soak pits can also be adopted.

For villages with a population more than 5000 people, in addition to the above appropriate conveyance systems can also be considered, subject to technical and economic feasibility.

In total, for grey water management in villages, the following options are available, and details are given below.

- HH level treatment units (preferable).
- Community level soak pits.
- Conveyance systems and community level treatments wherever needed.

Household Level Interventions

Soak Pit

A soak pit is a dug-out pit that is filled with graded stones and gravels. Soak pit should not be constructed in a low-lying area where the chances of entrainment of water from nearby areas is high. Soak pits are not advisable in areas with a high-water table as well as near any water sources

Layers of aggregate in soak pit

Layer from Bottom	Height (cm)	Filling Material
First Layer	30	Stone aggregate of size 100 – 150 mm
Second Layer	30	Stone aggregate of size 75-100 mm
Third Layer	25	Stone aggregate of size 50 75 mm
Fourth and Top Layer	15	Torn Gunny Bags, Twigs, and soil, along with perforated earthen pot

Precautions: The pit should not be allowed to be filled with bricks and coarse sand.

Soak Pit with Earthen Pot

Leach Pit

A leach pit is either constructed in honeycomb brick masonry with cavities in alternate layers or by stacking concrete rings having 5–6 holes in each ring. The pit should be located 1 meter away from the house wall. It should be 10 meters away from any drinking groundwater source.

Household Level Leach Pit

Magic Pit

A magic soak pit is a structure comprises of a cement/plastic tank at the centre surrounded by different grades of boulders and stones. The advantage of the magic pit over the leach pit is magic pit also provides the function of de-silting the greywater. It should be at minimum distance of 1m from the Twin-pits.

Magic Pit Soak-pit/leach pit/magic pit, etc.

Kitchen Garden

In kitchen garden, greywater could be used for vegetation. This not only solves the issue of greywater management but also reduces the freshwater demand for the purpose.

Community Level Interventions

Community interventions for greywater are divided into two parts

- Cluster level technology
- Village-level technology

It is advisable to adopt a village level system only in situations where a minimum of 75% of village households cannot be covered by household or cluster options.

Conveyance Systems

a) Closed Drains

These are preferably trapezoidal section with a half round at the base used for conveyance of the greywater from generation source to the designated treatment unit. They are either covered with removable RCC covers or Shahabad tiles or any other material recommend by state/District.

b) Small Bore Pipe System

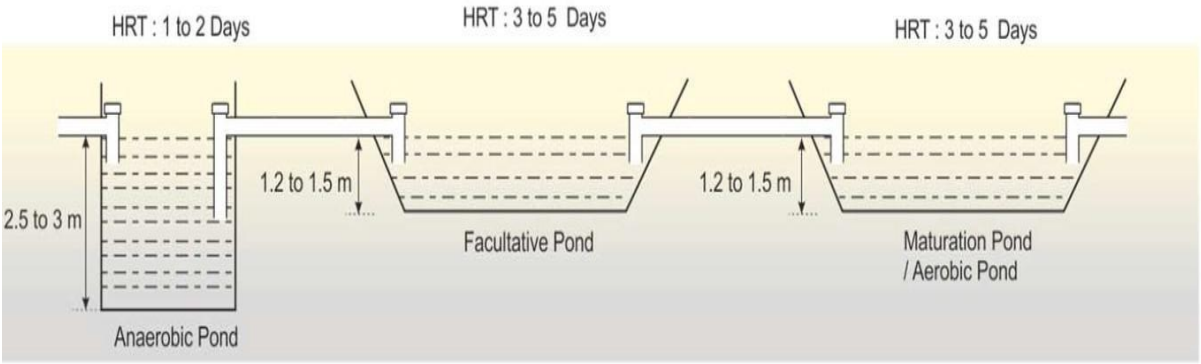
Small bore pipe system is designed to receive only the liquid portion of household greywater for off-site treatment and disposal. Grit, grease and floating materials are separated from the waste flow in interceptor chambers.

Community Leach Pit

Community leach pit is an extended version of household leach pit where multiple houses can be connected to a single leach pit. This option is adopted in areas with space constraints or non-availability of permeable soil in the vicinity of the individual household.

Waste Stabilisation Pond (WSP)

A waste stabilization pond (WSP) is a series of shallow manmade basins that facilitate digestion of organics in the greywater through natural processes within the stipulated retention time. A WSP comprises of - anaerobic, facultative and maturation ponds.



Session 4: Implementation

A. Introduction

Jal Jeevan Mission is community driven time bound Programme to ensure every rural household has a Functional Household Tap Connections (FHTCs) to provide drinking water in adequate quantity (minimum 55 lpcd) of prescribed quality (BIS 10500) on regular basis. State Govt/ UTs will implement the mission across all villages. Each village will be assessed on existing water infrastructure by District Water Sanitation Mission (DWSM) in consultation with the Gram Panchayat and/ or its subcommittee i.e VWSC / Pani Samiti / User Group and Implementing Support Agency (ISA).

A. Implementation strategy

PHED/ RWS Department will provide handhold support to Gram Panchayat and/ or its sub-committee to implement Jal Jeevan Mission. The key implementation strategies are stated below:

- State Water Sanitation Mission (SWSM) will accord priority to retrofit existing infrastructure, viz. completed/ ongoing piped water supply scheme to make it JJM compliant. Further priority will be also accorded to provide FHTCs in water -quality affected areas especially Arsenic, Fluoride, Drought Prone Area (DPA) and Sansad Adarsh Gram Yojana (SAGY) villages
- PHED/RWS Department will help Gram Panchayat (GP) or its Sub-committee to identify the agency for execution and supervise the quality of work implemented, get the work inspected by third party, facilitate the measurements of works implemented and prepare the running bills for payment.
- In villages where GP and /or sub-committee is unable to execute above work, PHED/RWS Department will carry out the execution work. However, operation and maintenance of in-village infrastructure will be done by GP and / or its sub-committee.
- In case, the village is covered under a MVS scheme, the PHED/RWS will ensure the delivery of water into the sump located within village boundary.
- For implementation of in-village infrastructure, SWSM will identify, the specific no. of engineering structures (like Sumps, ESR, treatment plant etc.) to be taken up approved their type design after presentation in Gram Sabha.
- SWSM will finalise contracts in Engineering, Procurement and Construction (EPC) mode and empanel multiple agencies for execution of these structures. The tendering for empanelment of agencies and fixing cost will be done by SWSM, however work order for implementation of in-village Infrastructure will be done by DWSM.

- To minimise time in tendering process, some schemes can be clustered for combined tender depending on no. of villages and value of contract. This will also bring quality contractor.
- Some penalty clauses need to be incorporated in the contract document to dis-incentivise agencies to avoid delay in implementation and adhere to standard quality of works.
- The contract clauses should also be framed to engage and train local resources (such as plumber, electrician fitter, operator, mission) by the contractor. This will create employment opportunity in villages and develop local skill which can be utilised in operation and maintenance.
- A new contract should contain minimum 5 yrs. of Operation and Maintenance.
- ISA will motivate village community to participate in Gram Sabha and majority members of Gram Sabha would adopt a resolution for taking up the scheme.
- The service level of potable drinking water will be minimum 55 lpcd, however State may enhance the same to higher level depending on water availability of drinking water sources for which additional financial resources that may be required, will be met by the State Govt or local community.
- For SVS scheme, the in-village piped water supply infrastructure will consist of development / augmentation of drinking water source, source sustainability measures, water treatment plant (in case source is water quality affected), pumping arrangement, overhead/ underground and distribution network leading to FHTC.
- Sign board 8'x6' to be erected at conspicuous locations giving all relevant details of the scheme such as JJM Logo, total cost of scheme, implementing agency/vendor, name and contact details of EE/ AE/ JE/ Pani Samiti Chairman and Secretary, commencement and completion date of scheme.
- Long term source sustainability measures for surface water-based scheme such as watershed management, water conservation may be taken from convergence fund. I addition to this rainwater harvesting system, grey water management etc. can be implemented through convergence fund.
- For in-village piped water supply infrastructure and related source development to be implemented by GP and/ or its sub-committee will contribute 5% of the capital cost in cash and / or kind and /or labour in hilly and forested areas, NE and Himalayan states and villages having more than 50 % SC/ST population and 10 % of the capital cost in other villages. GP and or its subcommittee may consider exempting individual contribution from poor, infirm, divyang-jan or widow with no source of income.
- The community would be rewarded / incentivised in a phased manner after the commissioning of the scheme to the tune of 10 % of the capital expenditure for O&M of their respective in-village water supply scheme.
- Gram Panchayat or its sub committees will open an account for community contribution and collection of water service charge.

B. Responsibility Matrix

The responsibility of PHED/RWS/ GP during implementation phase are tabulated in Table 1

Sr. No.	Activities	Responsibilities
1	Testing for ground water potential yield and quality	PHED/ RWS
2	Development/ augment of source	GP and PHED/RWS
3	Creation of water supply infrastructure till FHTC including	GP and PHED/RWS

	source sustainability	
4	Inspection / quality control of execution work and	GP/ PHED/RWS through TPIA
5	Entry into MB and preparation of running bills	PHED/RWS
6	Enabling payment post Third Party Inspection	DWSM and GP
7	Geo tagging of assets	PHED/RWS
8	Create and maintain register of accounts	GP and PHED/RWS
9.	Trail runs	GP and PHED/RWS
10.	Installing water measurement devices and integrating with IMIS	DWSM/PHED/RWS Department, GP
11.	Fixing and collection of O&M cost/ water tariff	GP
12.	Scheme commissioning	GP/PHED/ RWD
13	Operation and Maintenance of in-village infrastructure	GP
14	Operation and Maintenance of infrastructure outside village boundary	PHED/RWS
15	Greywater Management	DWSM/GP

C. Project cost

As per JJM operational guideline, apart from water supply infrastructure cost, the cost will include following items

- Borewell recharge structure, in case of local groundwater source
- Washing and bathing complex for poor, landless in SC/ST habitations (need basis)
- Cattle troughs in drought prone area (need basis)
- Green fenced premises housing for in-village water infrastructure such as ESR/ sump, pump room, treatment plant
- Sign board 8'x6' erected at conspicuous locations giving all relevant details

Following cost are inadmissible under JJM

- Operation and maintenance cost
- Purchase of land, vehicle
- Construction/ renovation/ repair of buildings, extension of buildings,
- Tender premium
- Diversion of fund from JJM to State scheme
- Expenditure beyond estimated/ approved cost of the scheme
- Payment of salary to permanent staff

Session 5: Briefing for Field Visit

Planning is important before undertaking a trip in field to oversee the work done in the field. It is therefore crucial to cover all/ most of the aspects for which JJM is working. A list of the preparatory activities to be undertaken before planning a field trip to any location is listed below:

A. Secondary research to select the field visit site

While selecting a village for the site visit, please read up the information about the work undertaken scanning through the reports submitted, data uploaded on IMIS portal of the mission and the presentations made from time-to-time. The team visiting the field should try and cover as many components of the programme as possible. Select a village where water distribution network can be seen, existing water treatment can be assessed or if a new one is under construction or constructed it can be inspected, understand the system created for O&M of water supply infrastructure developed, oversee the specific activities taken up to ensure water source sustainability, efforts

made by the community and the panchayat to protect the water source catchment area, understand the ground water recharge system developed and the role played by village water and sanitation committee in its operation and maintenance. Detailed assessment for the ground work will motivate the field workers to perform better as they will understand that the work is being evaluated and in case any mistakes are seen, corrective action can be undertaken.

The team can also select a village which shows different technological options for water supply taken up by community.

The team visiting the field has the freedom to select two or more villages for any one field visit. The team visiting the field can divide themselves into groups and each group can travel to a different site. The villages can be selected as – one village where water supply work is being carried out under Har Ghar Jal programme while in the other village no work is initiated under the Mission. Visiting different scenarios in the villages will help us understand the comparative problems and possible solutions based on ebapho-climatic conditions.

Session Objective(s): Preparation required before planning a field visit

Session Content(s):

- Developing Village Action Plan through community participation
- Water source feasibility assessment
- Water quality and FTK testing by 5-member surveillance committee
- Water borne diseases and its impact on human life
- Sanitary surveillance and preparation of greywater management plan
- Inspection of Water treatment plants
- Community mapping
- Components of O&M
- Analyze issues and challenges in the functioning of GP/ VWSC/ Pani Samiti and managing water supply systems
- Feasibility and functioning of rainwater harvesting and water source recharge structures

Materials: field kit to be prepared for each group as per tasks assigned. The kit may contain items such as rangoli powder of different color, H2S strips, jars to collect water samples, notebook, pen, chart paper, marker, chalk etc.

Methodology: Presentation and group exercise

Process:

- Facilitator(s) to share the objective of field visit, brief background of the village and procedure to apply different methodologies
- List out the various communities/ local bodies that exist in the village;
- Form groups of the participants attending the training programme and assign each one a task before reaching the village.
- Ask each group to choose their team leader who will facilitate the group activities in the field and a person who will document the information obtained from field/community interaction.
- Provide an overview document to each group. The document may contain general information about the village and project.

- Provide specific information regarding the village/project site, secondary data and some important project documents on the different components of the project.
- Supply required materials such as prescribed format, note-book, pen, chart, marker etc. to each group
- Depute facilitator(s) and/ or subject matter specialist to spend time with each group in order to support them during field visits.
- Brief participants about time of departure and arrival from the field, mode of travel, food arrangement and equipment to be carried by participant for field exercise.
- Clarify the doubts of participants regarding the field visit.

Tips for Trainers/ Facilitators:

Depute a coordinator for the field visit. It is very important to have a designated person who can facilitate the entire visit and take the responsibility for planning of the program. This person should be an expert on the subject, so he/she can really provide participants with additional information and can answer upcoming questions. Ask participants to collect all the information they read, hear, observe, see and feel. You can provide specific questions in the overview document. Encourage the participants to be open-minded and flexible. They may have to adjust their expectations and plans on arrival. Encourage them to interact with the group members and respond to their needs and interests as much as possible.

Day 3: Field Exposure Visit

Session: Field Visit Debriefing

A. Session Objective(s)

Consolidate learning from the fieldwork

B. Method

Group discussion and presentation

C. Materials

Flip charts, markers

D. Process

- Ask participants to discuss key learning in their groups and nominate a member to make a presentation on the same. The group may also decide to present collectively on the assigned topic.
- Agree the time required to make the presentation in consultation with the group members.
- Once the presentation is ready, ask nominated representatives from each group or team to come forward and make their presentation at the plenary session. Each group should be prepared to answer any specific question- that may be asked by the facilitator, expert of member from other group. The discussion or debate should be limited to the field visit undertaken by team. Detailed discussion will not be done until each group has had a chance to make its presentation.
- Encourage participants from other groups to ask questions so that everyone can learn from the experience.
- When the groups are presenting, make a note of their main findings, outcomes and recommendations.
- After the presentations, facilitate a discussion on positive finding/ experiences and gaps to be improved.

E. Tips for Trainers/ Facilitators

- Inform the group members that the presentation need not be elaborate or formal. The most important aspect is the team's reflection, learning and observation from the field which has to be shared with other members attending the training.
- Facilitator's feedback to the participants on the field activities is of great significance since it helps them identify common mistakes, clarify doubts, and fine-tune their skills. Therefore, it is essential to invest considerable time in this session
- Emphasize that fieldwork is an opportunity to learn facilitation skills, where process is more important than the result.

Day 4: Implementation Phase

Session 1: Overseeing of Water Supply Infrastructure during Construction by Community

A. Introduction

It is envisaged that community will play a lead role in planning, implementation, management, operation, and maintenance of in -village water supply infrastructure. The Gram Panchayat and or its sub-committee i.e., VWSC/Panni Samiti / User Group will procure construction services /goods/ materials from agencies / vendors as finalised by SWSM and they will supervise construction of in-village infrastructure including source sustainability, water conservation measure, grey water management etc. Community will facilitate third party inspection, record asset details in GP/ Village asset register. PHED/RWS department, ISA will provide handholding support to GP and/ or its subcommittee to discharge their responsibility. The key responsibilities of community to ensure quality control during construction are elaborated in subsequent paragraphs.

B. Compliance of Quality Assurance Plan

GP and /or sub- committee will ensure Quality Assurance Plan (QAP) highlighting system and process for material testing at factory and project site, storage and handling of material, construction quality monitoring mechanism, measurement of quantity at site etc. are available at project site. They will monitor whether construction is being carried out as per design and drawings. Community will also join inspection along with Third Party Inspection Agency (TPIA) and PHED/RWS officials. They will also participate in routine progress review meeting with contractor.

C. Pipeline laying stage

Pipe laying is one of the major infrastructure components in rural water supply system. In general, Ductile Iron pipes are used in pumping main and HDPE in distribution line. The GP and or its' subcommittee will look following aspects during laying of pipeline:

Test certificates of all the pipes and fittings that are intended to be used in the pipe network proposed in the Village drinking water scheme must be insisted upon. These are supplied by the manufacturers and describe the essential parameters as specified for the specific product by the Indian Standards Institute / Bureau of Indian Standards. The logo of ISI and the specific code to which the product complies should be embossed/ painted on such products.

IS code pipe classification marked on the pipe

When the contractor starts the excavation work at site, the members of the Gram Panchayat (GP) entrusted with quality control duties can use simple tools to ensure that the width and depth of trench for laying the pipeline is adequate. This can be done by using a measuring tape or a wooden/ metal piece that has been cut exactly to size of the width of the trench. Piece No.1.

During excavation, it needs to be ensured that the excavated material is kept at least 1 m away from the edge of excavation to preclude any chances of a collapse of the trench walls as well as the safety of the labour engaged in excavation. This also ensures proper space for inspection as well as caters for working space while lowering the pipes.

Once the trench has been excavated at site, the villagers must ensure that the depth is adequate. This may easily be done by using a measure tape and/or a wooden or metal piece cut exactly to size equal to the depth. Normally, the earth cushion provided on top of the pipe is 1.00 m.

- by placing piece No.1 across the trench and keeping piece No. 2 vertical from the crown of the pipe. If there is no space between the two, the excavation is carried out to the required depth.
- If the vertical piece i.e., piece No.2 is above the horizontal piece, i.e., piece No.1, the required depth of excavation is not yet achieved in the field and more excavation needs to be done.
- If piece No.2 is below the horizontally kept piece No.1, the excavation has been carried in excess and the trench must be backfilled before laying the pipe.

Measurement of trench depth

Along the streets where no vehicular traffic such as a laden tractor trolley, bullock cart or trucks is likely to pass or the ground terrain is rocky, the depth of earth cushion over pipes may be relaxed to 60 cm above the crown of the pipe.

Bedding material if proposed to be used, must be checked for sharp edged stone chips, stones, vegetation, and inorganic waste so that it does not damage the pipe.

It is important to ensure that before laying pipes in the trench, enough thickness of bedding material is spread in the trench to ensure proper cushion.

Normally Medium duty GI pipes/ HDPE pipes are used for distribution network within a village boundary. The Medium duty GI pipes have a blue colour cap provided at both ends to protect the threads already provided for jointing them in the field. A visual examination of all the pipes brought for laying the distribution network must be ensured to check that appropriate pipes are being used by the contractor. The HDPE pipes are black in colour and are available in coil and pipe form. HDPE

pipes being used for water duty have two parallel blue lines running over the pipe. It must be confirmed during visual examination that proper pipes are being laid.

The pipes should be free from visual deformities such as dents and must be perfectly cylindrical in shape. Certain amount of ovality though is permissible in the HDPE pipes, but the ends where pipe lengths are joined must be circular in all cases.

Before laying a HDPE pipe, it should be ensured that it is without any kinks, cracks, or other physically visible deformities.

The Pressure rating of the HDPE pipes is mentioned on the pipe along with the relevant IS Code and the ISI symbol. It must be checked and ensured that any pipe being laid has these markings so that proper quality of ascertained.

After completing the bed preparation, the pipes are lowered. While joining the pipes adequate precaution must be taken to see that the joining is in a straight line. The socket union must be fitted so that there are no chances of a leakage through the freshly completed joint.

If a Ductile Iron (DI) pipe is being used, care must be taken to use the chain pulley block/ shovel to push the pipe until the click sound is heard. The “tight-on” joint is perfectly formed only after the rubber gasket sits in the space provided both on the socket and the spigot ends.

The joint in DI pipes must be square, which means that the deflection in horizontal or vertical direction is not more than the one provided in the design. For a straight line the angle subtended with the horizontal / vertical direction must be “ZERO”.

For jointing HDPE pipes, either electro-fusion coupler or Butt welding is used. While using an electro-fusion coupler, proper power supply and adequate time for the joint to be formed must be ensured. Butt fusion welding is a highly specialised operation, for which proper equipment, stable power source and proper pressure at the joint must be ensured.

Once the pipes have been laid, the trench is then required to be backfilled. During this operation, it must be carefully supervised to ensure that no stones with sharp edges or any organic waste compound, vegetation roots etc. are filled in the trench.

Pipe laying in the trench

Backfilling must be done in layers, adequately watering, and ramming the filled-up earth to obtain proper compaction.

Hydro-testing is an essential part of testing the integrity of the pipeline laid on the ground. For this purpose, sections of pipeline not more than 1km are selected. Water is pumped in the pipeline by closing one end of the pipeline. The pressure in the pipeline is measured by using a pressure gauge suitably installed. Once, the water pressure stabilises, the pumping is stopped. Any observed drop in the pressure is made up by pumping more water. Generally, the hydro-test is conducted at 150% of the work pressure for which the line has been designed. The duration of hydrotest is normally 24 hours. The loss of water pressure if any indicates that there is a leakage somewhere and therefore

the jointing is not perfect. If a pressure drop is observed, hydrotest needs to be carried in smaller section and the leakage point must always be attended to.

HDPE Pipe Testing

D. Quality Checks of Construction Raw Materials

During the project implementation stage, when different components of a drinking water supply scheme such as the water treatment plant including its components, Valve chambers, Air valves, Scour valves, Balancing reservoirs, Overhead tanks etc. are constructed, the GP and its members that are entrusted with the task of quality monitoring, can contribute handsomely, if they are aware of basic checks and verifications that can easily be done by a layman without relying on technical knowledge. This skill requires adequate literacy vis a vis, basic skills with words and numbers. An acquaintance with the English alphabet is mandatorily recommended.

Basic components that are hugely consumed during construction are cement, water, Aggregates (coarse and fine), Bricks, reinforcement steel etc. Some basic ways to ensure the quality of raw materials are briefly mentioned hereunder:

Cement- Various types of cement such as Ordinary Portland cement, Portland Pozzolana, Slag cement of various grades are used for joining bricks, for preparation of concrete, for plastering and flooring etc. Cement must be used within 3 months of its manufacturing, beyond which it loses its cementation property. Therefore, it is the most important constituent quality of which must be monitored in all earnest. Some easy tips are:

- The week of manufacturing is mentioned on each bag. This number varies from 1-52.
- Cement bag must be without any lumps or hardness when felt by hand.
- When hand is inserted in a freshly cut cement bag, it must feel warm.
- If taken on fingertips, cement must feel powdery and not coarse.

Manufacturer details on cement bag

Water: Water used for preparing cement mortar or Concrete, must be clean and free from injurious amounts of oils, acids, alkalis, salts, sugar, organic materials, or other substances that may be deleterious (harmful) to concrete or steel. Potable water is generally considered satisfactory for mixing concrete or preparing mortar.

Aggregates: Both coarse aggregates (stone /metal chips) and fine aggregates (sand) must be free from clay lumps, vegetation, organic waste etc. The stone chips must be of uniform size and have angular shape, they should be free from flaky materials and deformed edges.

Well Graded Aggregates

Flaky Aggregates

Bricks: Bricks are used for constructing walls for different types of structures. The bricks must be having uniform size, well defined edges, well-formed edges. The central depression where, the name/ logo of the manufacturer is placed, also known as FROG must be deep enough to enable proper bonding between different layers. The bricks must produce a metallic sound when struck with the other. Keeping one brick vertical and the other perpendicular to it, drop the bricks from a height of approximately 1m height, the brick on top must break in to two equal parts.

Poor Quality Brick

Good Quality Bricks

Reinforcement steel: Reinforcement steel is essentially provided to impart strength to the concrete structures. The reinforcement steel being used in construction must be free from scales and rust. It should not be brittle or have any cracks on the surface.

Poor Quality Steel

Good Quality Steel

Cement and Reinforcement Steel are supplied with test certificates by the manufacturers. These must be matched with the specifications in the work order. Test certificates pertaining to each lot must be insisted upon and documented in a file kept at site. This is an essential requirement for ensuring quality at site.

E. Quality Checks during Construction stage

While mixing concrete at site, the proportions (quantities and their respective ratios) of different ingredients must be checked for compliance with the one specified. Water: Cement ratio must be checked to ensure that the concrete being mixed has the desired workability.

Slump Test

A simple way of doing this is the "LADDU TEST". Take a sample from the freshly mixed concrete enough to make a Laddu. Roll it between the palms just like you are making a Laddu by hand. After, the concrete has taken the shape of a Laddu, and toss it in the air as if a ball being thrown upwards, it should not come-off. If it comes-off, the desired workability is not there and the Water: Cement ratio must be revised.

This test is applicable for the concrete being mixed for rafts and foundations. For walls, the concrete requires additional workability to ensure that concrete can be compacted in thin sections.

Before pouring concrete the form work (shuttering) erected to give concrete the desired/ designed shape and size must be checked for line and level. It must also be ensured that there are no gaps between two adjacent shutters.

The reinforcement needs to be checked for ensuring that the spacing between two adjacent layers or bars is as specified in the drawing. Proper cover between the formwork and reinforcement must also be ensured.

Proper compaction of cement must be ensured so that the concrete attains the designed strength. This is done using compaction vibrators.

Compressive strength tests (cube tests) are an important part of concrete testing. It is done on a Compression Testing Machine in a laboratory. The cube test reports for both 7-day and 28-day compressive strength tests must be documented in a register.

Construction of Overhead Tank

Check proper watering/ curing of concrete is done whilst constructing reservoir, pump stations, treatment plant etc. There should not be honeycomb in the structure.

F. Functional House Tap Connection (FHTC)

The pipe material for the house service connection can be uPVC/GI/ PE below ground level. Ferule connection can be provided for each household. The pipe above ground / inside pedestal support will be GI. In case house connection pipe crosses through road cutting, the road should be refurbished after laying house service line. House connection pipe should be laid underground along drainage / nala should be avoided to avoid contamination. No pipe

All Functional House Tap Connection (FHTC) should be provided with proper pedestal support and platform.

Construction of FHTC – Bad Practice

Construction of FHTC – Good Practice

G. Review of Work Progress

Once the work is awarded, the GP must ask the Contractor to submit the implementation / Construction schedule identifying the different major activities and the time allocated for their completion. The time allocated for the work can either be defined in terms of days, weeks, fortnights or months.

After the Contractor has furnished the construction schedule, the GP must monitor the progress of each activity by correlating it with the time taken. The percentage progress may be marked in green directly below the activity, once the task is complete, or if other tasks can be begun simultaneously, the other activities may be allowed. Inclement weather may delay the progress, or the contractor might claim inclement weather as a reason for delays; therefore, daily log of weather conditions, including rainy days must be kept recorded in the office of the GP. Similarly, the availability of labour, material and other resources also must be recorded.

H. Functionality assessment at tail end HH Connection

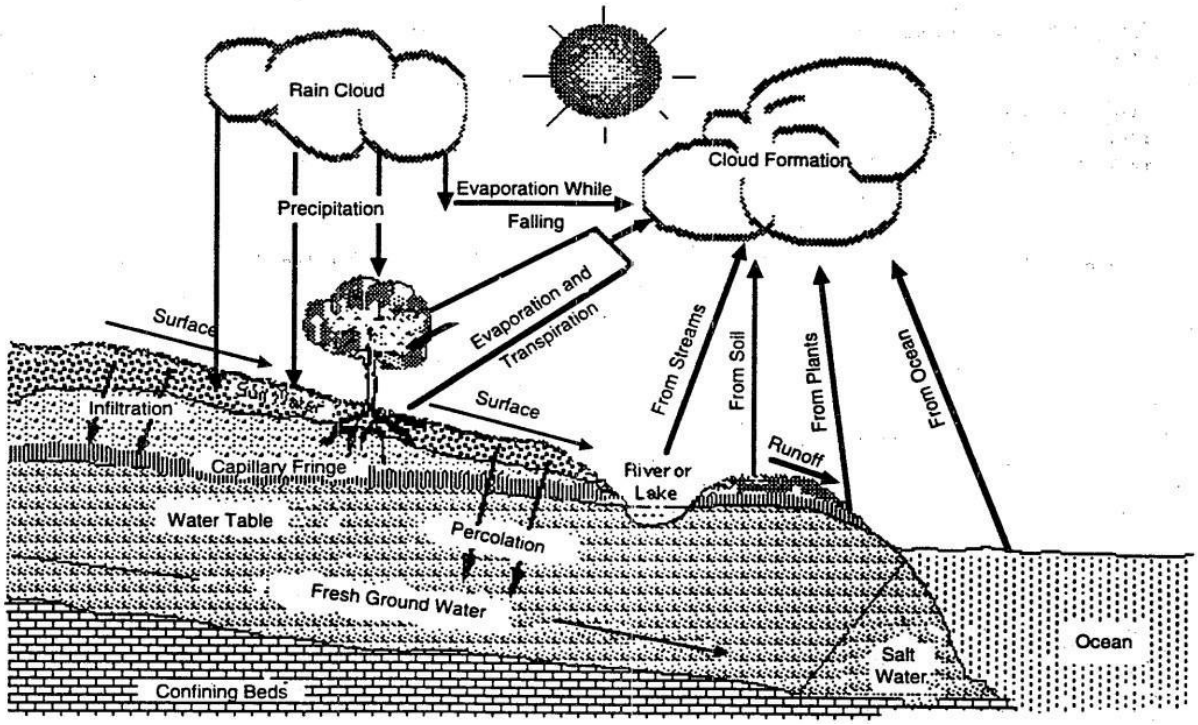
Quality: The field-testing kit (FTK) is a handy tool available with the GP to assess the water quality. The GP or the person entrusted with checking the water quality must ensure that at least 3 samples are taken simultaneously, one tested using the FTK, second sent to the nearest Zonal testing lab (if the results are unsatisfactory) and the third must be sent to the District testing laboratory.

Quantity: A measure of known volume can be used for this purpose. Time taken for filling this measure may be used to estimate the unit flow rate and the quantity made available through the day.

Regularity: It can be checked with the delivery schedule fixed by the GP and recorded each day.

Pressure: The JJM envisages a terminal pressure equal to 7m of water column at the tail-end tap connection. An easy and practical method of checking the pressure is by connecting a water pipe to

The Hydrologic Cycle



the delivery end of the tap. It can be taped to a Bamboo/ steel rod which is 7m long. The bottom end of the bamboo/ steel rod is kept at the same level as the delivery end of the tap, if water comes out of the other end of pipe, when held vertical, the designated pressure has been attained.

Session 2: Post implementation monitoring

A. Water source sustainability during lean period

Rain, snow, hail, sleet are precipitations upon the surface of the earth and may be considered as original sources of all the water supplied. Water, as source of drinking water, occurs as surface water and ground water. Three aspects should be considered in appraising water resources e.g. the quantity, the quality, and the reliability of available water.

Types of Sources

Following are the common water sources:

- Surface sources - a) Rivers, canals, b) streams, c) reservoir and ponds.
- Sub surface sources - a) Infiltration wells, b) Infiltration galleries, local springs.
- Ground water sources - a) Open wells/sanitary wells/bore wells,

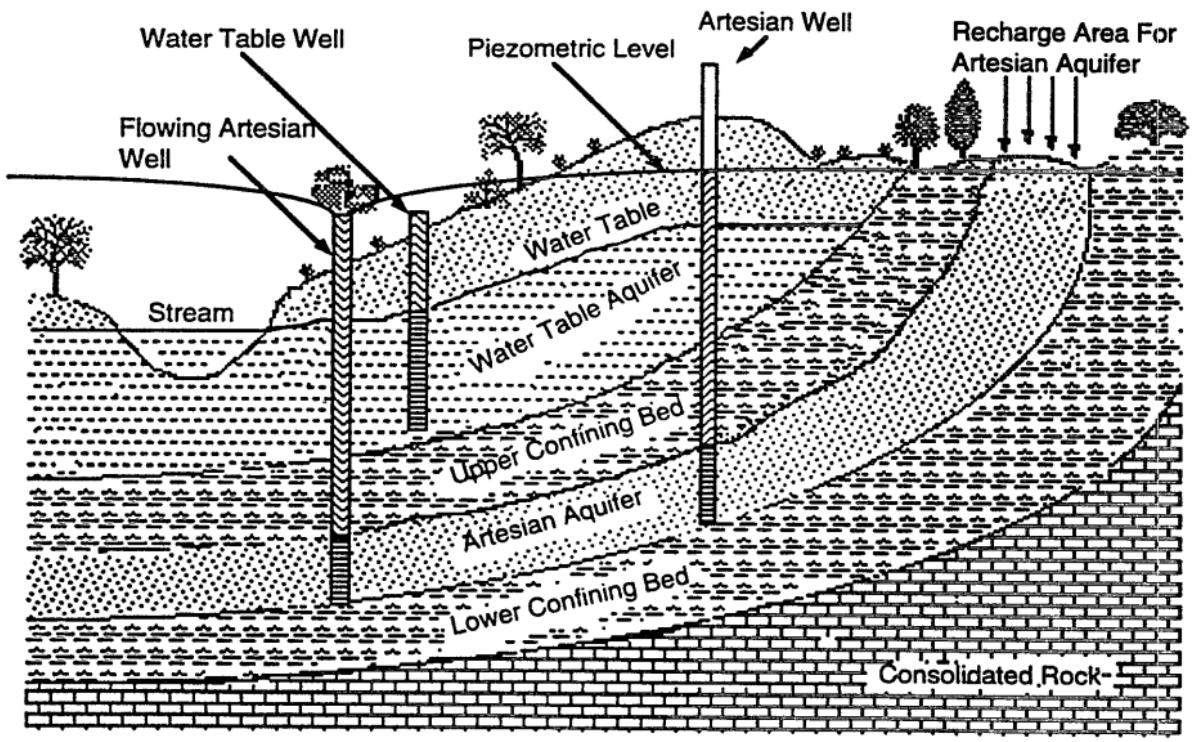
Water source must be reliable and free from any contamination. Harvesting of rainwater in beer ways, renovation of water bodies and other water sources in villages is very important. New life is to be given to the water sources after removing unauthorized occupation and ensure that they are not contaminated further. We may not create, but we can save the water. So, it is imperative to use water consciously as per requirement. Traditional water supply systems need to be protected and made functional to cope up with any emergency situation, dependence on only one system needs to be avoided.

Case Study

The villagers, through the Water Committee, then constructed a check dam to increase the source of drinking water using water harvesting. Another check dam was constructed, three ponds were dug and 30 wells and borewells were augmented with water recharging structures. The villagers also built small individual ponds. All these efforts increased the water storage capacity by 1.70 lakh cubic meters in addition to increasing the water recharging capacity. Two hundred and forty acres of pasture land was scientifically developed to grow fodder. Livestock of the village are allowed to graze on the fodder from 8 AM to 5 PM in designated areas where facilities have also been created to take care of the animals. The villagers displayed community strength and further embraced agriculture and horticulture by using drip irrigation.

Type of Sources	Summer Season			Winter Season		
	Available Water (Supply) (A)	Use of Water (Demand) (B)	Difference (A) - (B)	Available Water (Supply) (A)	Use of Water (Demand) (B)	Difference (A) - (B)
Rain Water Source -1 Source -2						
Ground water Source -1 Source -2						
Surface water Source -1 Source -2						

Ground Water Aquifers



Today, the villagers of Kanakpur have been able to resolve their water problem and Kanakpur has become a prosperous village with all requisite facilities. A sewage treatment plant as well as provision for solid waste management was set up in Kanakpur in 2006 with the help of WASMO.

Women have displayed exemplary leadership. Other people too have become engaged in the initiative, some due to their knowledge and others due to their desire to unite and fulfil their duties. The extraordinary ability of the people of Kankapur village has made this village water rich. There are many other villages in the country that share similar water problems as Kanakpur did. They all need to follow the example of Kanakpur to solve their water problem permanently. With the help of WASMO, such work has been done in every village of Gujarat. The Panchayat or its sub-committee i.e., Village Water and Sanitation Committee undertakes all the responsibility for water related issues. Today, there is no need to deliver water by trains or tankers in Gujarat. Women and children get safe water from the taps in their homes and, as a result, their lives have become much better.

Water Budget

The Gram Panchayat will decide the water budget on the basis of water availability and water requirement. Water availability includes water available from all sources, including from rain. Water requirement based on an assessment of uses such as for drinking, agriculture industrial use, etc. are calculated. Based on this, the Gram Panchayat will decide the priority of drinking water. If there is a gap between the available water and demand, the Gram Panchayat should find other options for water. The proforma below is being given for the water budget.

B. Water source protection (environmental safety protocol) and recharge structures

Empowerment of Panchayats

Government of India empowered the Gram Panchayats through delegated rights and allocation of funds on the recommendations of the 15 Finance Commission. This will ensure more funds for the Gram Panchayat to make their own water related plans, so that the Panchayat can do works on recharge of water

Sources as well as schemes remain sustainable in providing safe water. Successive Finance Commissions have given priority to management of water supply by the Panchayat. Apart from this, water supply is considered as the main function of the Panchayat. The Finance Commission has also asked for the provision of water supply services and collection of necessary user fees for operation and maintenance (O&M) of the water supply schemes. As per the recommendations of the 15 Finance Commission, 60% of total grant is to be compulsorily spent on water supply and sanitation. This will help the local community not only to take up works for water conservation, source strengthening, water supply and grey water management, but also enable them to take care of O&M of the water supply scheme.

With the assistance of the 15 Finance Commission Grants to rural local bodies, the construction of available drinking water sources, including bore well recharge, check dams, structures for the collection of rainwater, repair of ponds, watershed and spring shed, etc. can be undertaken. Maintenance of water scheme, washing and bathing complex for poor people, cattle trough, etc. can also be ensured.

Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA)

This scheme guarantees 100 days of employment to the adult family member of a rural household in a financial year. The employed person can work as unskilled labour in public works at the minimum wage. Under this scheme the Panchayat can carry out works like recharge of water sources, renovation of water bodies, cleaning of ponds, compost pits, etc. The Panchayat must carry out these works to ensure the availability of water in the village.

C. Water quality testing of source by department lab and FTK testing

Water Quality Monitoring

The broad guidelines for undertaking testing of sources/ samples at different level is as follows:

- The sub-divisional/ block laboratory is to test 100% water sources under its jurisdiction; once for chemical parameters and twice for bacteriological parameters (pre and post monsoon) in a year, covering all sources of a block at least for 13 basic water quality parameters. The positively tested samples are to be referred to the district laboratory immediately. The other parameters may be tested as per local contaminants.
- The district level laboratory is to test 250 water sources/ samples per month (i.e., 3,000 in a year as per the target of roster available on IMIS) covering all sources including the positively tested samples referred by the sub-division/ block laboratory/ mobile laboratory at least for 13 basic water quality parameters. The district lab is to also refer the positively tested samples to the State laboratory immediately.
- The State-level laboratory is to test at least 5% of the total drinking water samples across all districts including positively tested samples referred by district/ sub-division/ block/ mobile laboratory.
- Gram Panchayat and/ or its sub-committee, i.e., VWSC/ Pani Samiti, is to ensure testing of 100% drinking water sources including private sources using FTK and undertake sanitary inspection. The test results and sanitary inspection report is also to be submitted to the concerned PHE/ RWS Department.

D. Inspection of treatment plant for functionality

The raw water available from surface water sources is normally not suitable for drinking purposes and needs treatment to produce safe and potable drinking water. Some of the common treatment processes viz. Plain sedimentation, Slow Sand filtration, and Rapid Sand filtration with Coagulation-flocculation units as essential pre-treatment units. Pressure filters and diatomaceous filters have

S. No.	Characteristic	Unit	Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
1.	pH value	–	6.5 - 8.5	No relaxation
2.	Total dissolved solids	Milligram/ litre	500	2,000
3.	Turbidity	NTU	1	5
4.	Chloride	Milligram/ litre	250	1,000
5.	Total alkalinity	Milligram/ litre	200	600
6.	Total hardness	Milligram/ litre	200	600
7.	Sulphate	Milligram/ litre	200	400
8.	Iron	Milligram/ litre	1.0	No relaxation
9.	Total arsenic	Milligram/ litre	0.01	No relaxation
10.	Fluoride	Milligram/ litre	1.0	1.5
11.	Nitrate	Milligram/ litre	45	No relaxation
12.	Total coliform bacteria	Shall not be detectable in any 100 ml sample		
13.	E.coli or thermotolerant coliform bacteria	Shall not be detectable in any 100 ml sample		

been in use though very rarely. Roughing filters are used, under certain circumstances, as pre-treatment units for the conventional filters.

Types of Filtration Plants

The types of Filtration Plants are as follows:

- Slow Sand Filter Plant
- Rapid Sand Filter Plant
- Other types of Filter Plants, which are not used commonly, are:
    a. Pressure filters used as small treatment plant in Industries.
    b. Roughing filters may be used to reduce load on the treatment plants. Small streams of water in the catchment areas may carry large particles and floating matter which can entrap such undesirable material prior to the storage structures of the treatment units.

Activities for Slow Sand Filter

Daily activities

- Check the rate of filtration on the flow indicator – adjust the rate of filtration as needed by turning the filtered water valve
- Check the water level in the filter – adjust the inlet vale as needed to maintain a constant water level
- Remove scum and floating material by further opening the inlet valve for short time
- Check the water level in the clear well
- Sample and check water turbidity – if the inflow turbidity is too high close the intake; if the outflow turbidity is too high report to the supervisor
- Testing water quality
- Complete the logbook
- Testing Water Quality: Daily monitoring of water quality may be done whether it is slow sand filter or rapid sand filter. If the water supply scheme is having laboratory at the water treatment plant site, water quality testing both the raw water and treated water may be carried out daily.

Weekly activities

Clean the water treatment plant site

Monthly activities

- Shut down the filter unit – remove scum and floating material; brush the filter walls; close the inlet, filtered water and distribution valves; drain water to 20 cm below the sand level; increase the filtration rate in the other filter to 0.2 m/h.
- Clean the drained down filter bed – wash boots and equipment before use; scrape upper 2-3 cm in narrow strips and remove scrapings from filter; check, and service, exposed inlet and drain valves; remove cleaning equipment and level sand surface; check and record depth of sand bed; adjust inlet box to the new sand level.
- Re-start the filter – open the recharge valve; check sand surface and level as needed; when water is 20 cm above the sand, open the inlet valve; open the filtered water valve and stop when filtration rate reaches 0.02 m/h; open waste valve for outflow water to flow to waste; open filtered water valve to increase filtration rate every hour by 0.02 m/h until a rate of 0.1 m/h is reached; adjust and check flow daily until safe to drink; close waste valve and open

distribution valve to pass filtered water into the supply; decrease filtration rate of other filter to 0.1 m/h.

- Wash the filter scrapings and store the clean sand.

Annual activities

Check if filter is water tight: close all valves and fill filter box from inlet valve until it overflows – close valve; leave for 24 hours and check if water level reduces; if filter box leaks, report for repair; open filtered water valve to fill outlet chamber and when full, close valve; leave for 24 hours and check if water level reduces; if chamber leaks, report for repair; open drain valve to empty filter; clean the clear well in the outlet chamber; restart filter as per the month clean.

Every two years, activities

Re-sand the filter units – clean the filter as in a monthly filter clean; open drain valve to empty water from the sand bed; remove strip of old sand to one side; place new clean sand on top of exposed gravel, and level; place old sand on top of the new sand to the correct depth of 0.8 m in total, and level the surface; continue in strips until filter is re-sanded; adjust inlet box to new sand level. Re-start the filter as per the monthly clean plan.

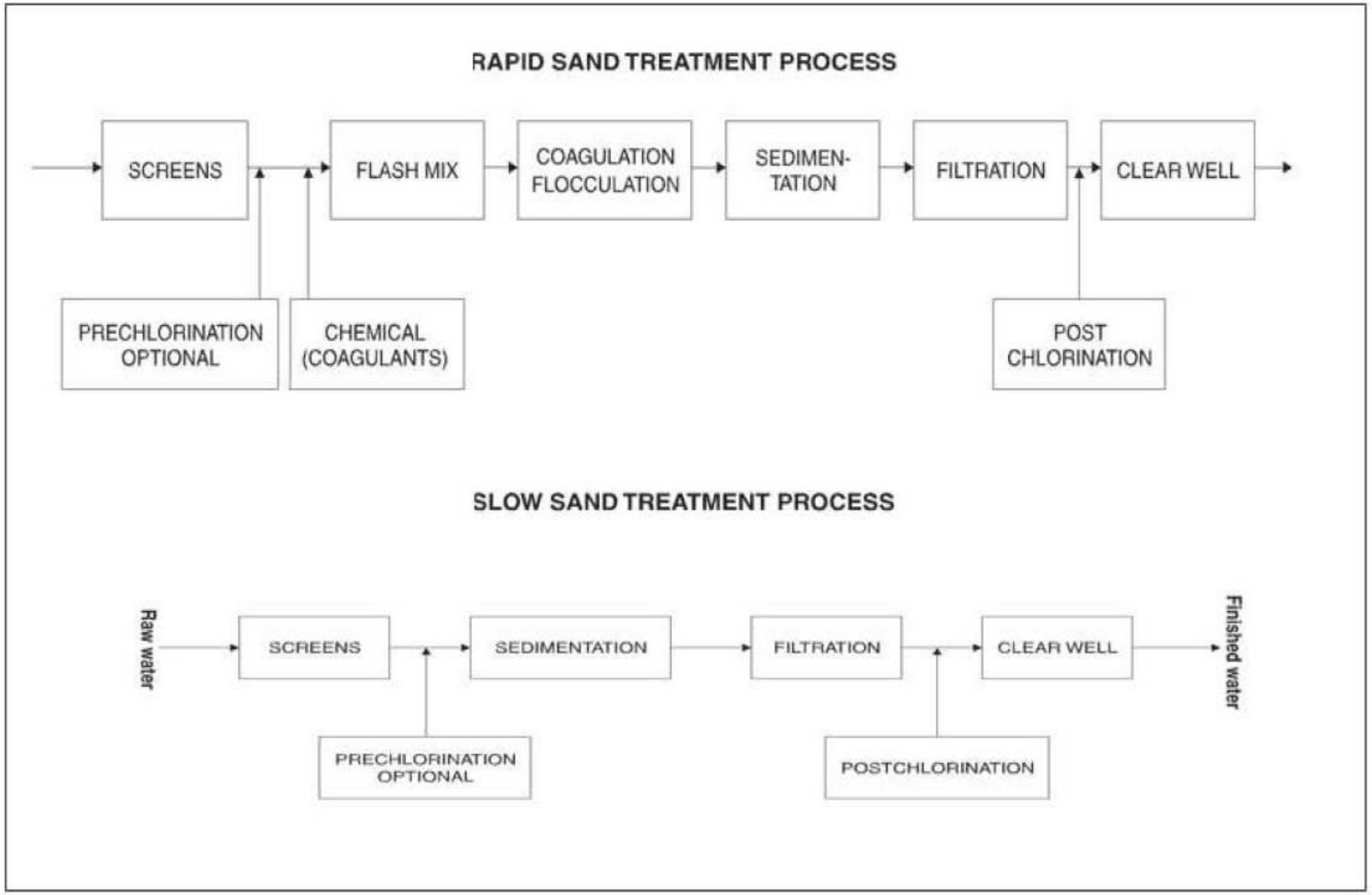
Random checks

Checks on the functioning of the plant by supervising staff including turbidity tests through a turbidity meter, and bacteriological tests of the filtered water.

Record keeping

Records have to be kept for the following activities:

- Daily Source water quality
- Daily Treated water quality
- Names of chemicals used
- Rates of feedings of chemicals
- Daily consumption of chemical and quality of water treated
- Dates of cleaning of filter feds, sedimentation tank and clear water reservoir
- The date and hour of return to full service (end of re-ripening period)
- Raw and filtered water levels (measured each day at the same hour) and daily loss of head.
- The filtration rate, the hourly variations, if any.
- The quality of raw water in physical terms (turbidity, colour) and bacteriological terms (total bacterial count, e-*Coli*.) determined by samples taken each day at the same hour.
- The same quality factors of the filtered water.
- Any incidents occurring e.g., plankton development, rising Schmutzdecke, and unusual weather conditions.



CONVENTIONAL FILTRATION PROCESS

Operational Procedures

The indicators of Normal Operating Conditions: The filter influent and effluent turbidities should be closely watched with a turbid meter. Filter Influent turbidity levels (settled turbidity) can be checked on a periodic basis at the filter or from the laboratory sample tap.

However, the filter effluent turbidity is best monitored and recorded on a continuous basis by an on-line turbidity-meter.

Process Actions

Follow the steps as indicated below:

- Monitor process performance.
- Evaluate turbidity and make appropriate process changes.
- Check and adjust processes equipment (change chemical feed rates).
- Backwash filters.
- Evaluate filter media condition (media loss, mud balls, cracking),
- Visually inspect facilities.

Record Keeping

A daily operations log of process performance data and water quality characteristics shall be recorded and maintained accurately for the following items:

- Process water quality (turbidity, colour, PH and alkalinity).
- Process operation (filters in service, filtration rates, loss of head, length of filter runs, frequency of backwash, backwash rates, and UFRV-unit filter run volume).
- Process water production (water processed, amount of backwash water used, and chemicals used).
- Percentage of water production used to back-wash filters.
- Process equipment performance (types of equipment in operation, equipment adjustments, maintenance procedures performed, and equipment calibration).

E. Checking of pumps, electrical panels, transformer, electric supply, disinfection dosing equipment

Important Points for Operation of the Pumps Various types of pumps are in use and the specification of O&M schedule provided by manufacturers shall be followed. However, the following points shall be observed while operating the pumps:

- Dry running of the pumps should be avoided.
- Centrifugal pumps have to be primed before starting.
- Pumps should be operated only within the recommended range on the head-discharge characteristics of the pump.
    - If pump is operated at point away from duty point, the pump efficiency normally reduces.
    - Operation near the shut off should be avoided, as the operation near the shut off causes substantial recirculation within the pump, resulting in overheating of water in the casing and consequently, overheating of the pump.
- Voltage during operation of pump-motor set should be within + 10% of rated voltage. Similarly, current should be below the rated current as per name plate on the motor.
- Whether the delivery valve should be opened or closed at the time of starting should be decided by examining shape of the power-discharge characteristic of the pump. Pump of low

and medium specific speeds draw lesser power at shut off head and power required increases from shut off to normal operating point. Hence in order to reduce starting load on motor, a pump of low or medium specific speed is started against closed delivery valve. Normally the pumps used in water supply schemes are of low and medium specific speeds. Hence, such pumps need to be started against closed delivery valve. The pumps of high specific speed draw more power at shut off. Such pumps should be started with the delivery valve open.

- The delivery valve should be operated gradually to avoid sudden change in flow velocity which can cause water hammer pressures. It is also necessary to control opening of delivery valve during pipeline - filling period so that the head on the pump is within its operating range to avoid operation on low head and consequent overloading. This is particularly important during charging of the pumping main initially or after shutdown. As head increases the valve shall be gradually opened.
- When the pumps are to be operated in parallel, the pumps should be started and stopped with a time lag between two pumps to restrict change of flow velocity to minimum and to restrict the dip in voltage in incoming feeder. The time lag should be adequate to allow stabilizing the head on the pump, as indicated by a pressure gauge.
- When the pumps are to be operated in series, they should be started and stopped sequentially, but with minimum time lag. Any pump, next in sequence should be started immediately after the delivery valve of the previous pump is even partly opened. Due care should be taken to keep the air vent of the pump next in sequence open, before starting that pump.
- The stuffing box should let a drip of leakage to ensure that no air is passing into the pump and that the packing is getting adequate water for cooling and lubrication. When the stuffing box is grease sealed, adequate refill of the grease should be maintained.
- The running of the duty pumps and the standby should be scheduled so that no pump remains idle for long period and all pumps are in ready-to run condition. Similarly, unequal running should be ensured so that all pumps do not wear equally and become due for overhaul simultaneously. If any undue vibration or noise is noticed, the pump should be stopped immediately and cause for vibration or noise be checked and rectified.
- Bypass valves of all reflux valve, sluice valve and butterfly valve shall be kept in closed position during normal operation of the pumps.
- Frequent starting and stopping should be avoided as each start causes overloading of motor, starter, contactor, and contacts. Though overloading lasts for a few seconds, it reduces life of the equipment.

Annual monitoring of handed over schemes must be done by the department who executed the scheme. Proper record keeping is also very important.

A logbook should be maintained covering the following items:

- Timings when the pumps are started, operated, and stopped in a day, i.e., over a duration of 24 hours,
- Voltage in all three phases,
- Current drawn by each pump-motor set and total current drawn at the installation,
- Frequency,
- Readings of vacuum and pressure gauges,

- Motor winding temperature,
- Bearing temperature for pump and motor,
- Water level in intake/sump,
- Flow meter reading,
- Daily PF over 24 hours duration, and
- Any specific problem or event in the pumping installation or pumping system e.g., burst in pipeline, tripping or fault, power failure.

Similar to history sheet of pump, history sheet of motor should be maintained. The history sheet should contain all important particulars, records of periodical maintenance, repairs, Inspections, and tests. It shall generally include the following:

- Details of motor, rating, model, class of duty, class of insulation, efficiency curve, type test result and type test certificate etc.
- Date of installation and commissioning.
- Addresses of manufacturer and dealer with phone and fax number and e-mail addresses.
- Brief details of monthly, quarterly, half yearly and annual maintenance and observations of inspections about insulation level, air gap etc.
- Details of breakdown, repairs with fault diagnosis.
- Running hours at the time of major repairs.

L.T. STARTERS, BREAKERS AND PANEL

Note: Circuit diagram of starter/breaker should be pasted on door of switch gear and additional copy should be kept on record.

Daily

- Clean the external surface.
- Check for any spark or leakage current.
- Check for overheating.

Monthly

- Blow the dust and clean internal components in the panel, breaker and
- Check and tighten all connections of cable, wires, jumpers and busbars. All carbon deposits shall be cleaned.
- Check relay setting.

Quarterly

- Check all connections as per circuit diagram.
- Check fixed and moving contacts and clean with smooth polish paper, if necessary.
- Check oil level and condition of oil in oil tank. Replace the oil if carbon deposit in suspension is observed or color is black.
- Check insulation resistances.
- Check conditions of insulators.

Yearly

- Check and carry out servicing of all components, thoroughly clean and reassemble.
- Calibrate voltmeter, ammeter, frequency meter etc.

H.T. Breakers, Contactors and Protection Relays

Note: Circuit diagram of breaker/relay circuit should be pasted on door of switch gear and additional copy should be kept on record. Maintenance schedule specified for L.T. breakers are also applicable to H.T. breakers and contactors. In addition, following important points shall be attended for H.T. breakers and contactors.

Monthly

- Check spring charging mechanism and manual cranking arrangement for operation.
- Clean all exposed insulators.
- Check trip circuit and alarm circuit.
- Check opening and closing timing of breaker.

Quarterly

- Check control circuits including connections in marshalling boxes of breakers and transformer.
- Check oil level in MOCB/LOCB/HT OCB and top up with tested oil.
- Yearly / Two yearly1 Testing of protection relay with D.C. injection shall be carried out once in year.
- Servicing of HT breaker and contactor shall be carried out once in 2-3 years.
- Check dielectric strength of oil in breaker and replace if necessary.
- Check male and female contacts for any pitting and measure contact resistance.

Transformer and Transformer Substation

Maintenance schedule as follows shall be applicable for transformer and sub-station equipment's e.g., Lightening arrestor, A.B. switch, D.O. or horn gap fuse, sub-station earthling system etc. This Para is particularly useful for the large schemes. Instructions of state electricity department and chief electrical inspector shall be followed.

Daily Observations and Maintenance

- Check winding temperature and oil temperature in transformer and record. (For large transformers above 1000 kV, the temperature should be recorded hourly).
- Check leakages through CT/PT unit, transformer tank and HT/LT bushings.
- Check colour of silica gel. If silica gel is of pink colour, change the same by spare charge and reactivate old charge for reuse.

Monthly

- Check oil level in transformer tank and top up if required.
- Check relay contacts, cable termination, connections in marshalling box etc.
- Check operation of AB switch and DO fuse assembly.
- Clean radiators free from dust and scales.
- Pour 3-4 buckets (6 to 8 buckets in summer) of water in earth pit. Watering shall be increased to once in a week in summer season. Watering shall be increased to once in a week in summer season. shall preferably contain small amount of salt in solution.
- Inspect lightning arrestor and HT/LT bushing for cracks and dirt.

Quarterly

- Check dielectric strength of transformer oil and change or filter if necessary.
- Check insulation resistance of all equipment's in sub-station, continuity of earthlings and earth leads.

- Check operation of tap changing switch.

Pre-Monsoon and Post-Monsoon Checks and Maintenance

- Check insulation resistance of transformer.
- Test transformer oil for dielectric strength, sludge etc. If necessary, filtration of oil shall be carried out before monsoon.
- Oil shall be tested for dielectric strength after monsoon.

Half-Yearly

- Check dielectric strength of transformer oil in CT/PT and filter or change oil if necessary.
- Check contact faces of AB switch and DO/HG fuse; apply petroleum jelly or grease to moving components of AB switch.

Annual

- Measure resistance of earth pit. Resistance shall not exceed 1 ohm.
- Check bus bar connections, clean contact faces, change rusted nut bolts.
- Calibrate the protection relay for functioning. Check relay setting and correct if necessary.
- Ensure that sub-station area is not water-logged. If required necessary earth fillings with metal spreading at top shall be carried out once in a year. Check drainage arrangement to prevent water logging in substation area and cable trenches.
- Test transformer oil for acidity test.

Special Maintenance

- Painting of transformer tank and steel structure of sub-station equipment's shall be carried out after every two years.
- The core of transformer and winding shall be checked after 5 years for transformer up to 3000 kVA and after 7–10 years for transformers of higher capacity.

F. Checking for residual chlorine in last tap

Chlorine treatment is relatively cheap, readily available and provides prolonged disinfecting action. Though chlorine is generally used for disinfecting potable water it can also be used as an algaecide. Pre-chlorination has specific toxic effect, and it causes death and disintegration of some of the algae. It also assists in removal of algae by coagulation and sedimentation. It prevents growth of algae on basin walls and destroys slime organisms on filter sand thus prolonging filter and facilitating filter washing.

Dosage: Effective chlorine dose should be such that sufficient chlorine is there to react with organic matter, ammonia, iron, manganese, and other reducing substances in water and at the same time leave sufficient chlorine to act as algaecide. Dose required for this purpose may be over 5mg/l. With chlorine treatment essential oils present in algae as well as organic matter of dead algae are liberated this may lead to development of odour and colour and taste. In such cases break point - chlorination is required. Post chlorination dose can be adjusted to obtain minimum 0.2mg/ L residual chlorine in potable water at consumer end.

Method of Application: Chlorine is preferably applied as a strong solution of chlorine from chlorinator. Slurry of bleaching powder can also be used. For algal growth control, generally, chlorine is administered at the entry of raw water before coagulant feeder.

A minimum free chorine residual of 0.2 mg/lit at the receiving reservoir of a transmission system is needed to be maintained. Absence of residual chlorine could indicate potential presence of contamination in transmission system.

The following steps which are required to be taken are:

- Testing of residual chlorine
- Checking the chlorination equipment at the start of the transmission system.
- Searching for source of contamination along the transmission system which has caused the increase in chlorine demands.
- Immediate rectification of the source of contamination

G. Sanitary surveillance.

A sanitary surveillance is an on-site inspection of a water supply facility to identify actual and potential sources of microbiological contamination, including evaluation of the condition of the physical structures (wells, pipes, storage tanks etc), operation of the system and external environmental factors (such as toilet location). The information can be used for deciding appropriate remedial action to improve or protect the drinking water source and supply system so as to eliminate contamination risk.

Sanitary inspections will be carried out for all new and existing sources of water from time to time. The results of the sanitary inspections and remedial actions that need to be taken to improve conditions will be discussed with the community. In JE-AES and Acute Diarrhoeal Diseases affected districts, it is advised to undertake sanitary inspection twice in a year.

The sanitary inspection report shall cover the following:

- Identify potential sources and points of contamination of the water supply.
- Quantify the hazards attributed to the source and supply.
- Provide a clear, graphical means of explaining the hazards to the operator/user.
- Provide clear recommendations for taking remedial actions, to protect and improve the supply.
- Provide basic data for use in systematic, strategic planning for improvement Moreover inspection report should not be restricted to water quality but should take in to account other service condition such as coverage, cost, condition and quantity.

Work Chart for Sanitary Survey

- For collection of adequate information and follow-up work, proper work chart should be prepared considering local requirement. Following should be taken care of:
- Prior knowledge of source, and type of water supply; and map of distribution system.
- Notify the visit in advance, where the assistance of community members is needed.
- Carry prescribed forms and necessary accessories, like sample bottle, sample carry box, analysis kit etc.
- Verify basic data with community.
- Interview community members for drinking water supply quality.
- Verify information gathered by observation during survey.
- Inspection and water sampling should not be haphazard, should follow specific guideline.
- Water samples should be analysed immediately for residual chlorine and thermo tolerant coliform or transported quickly to laboratory in iced boxes.

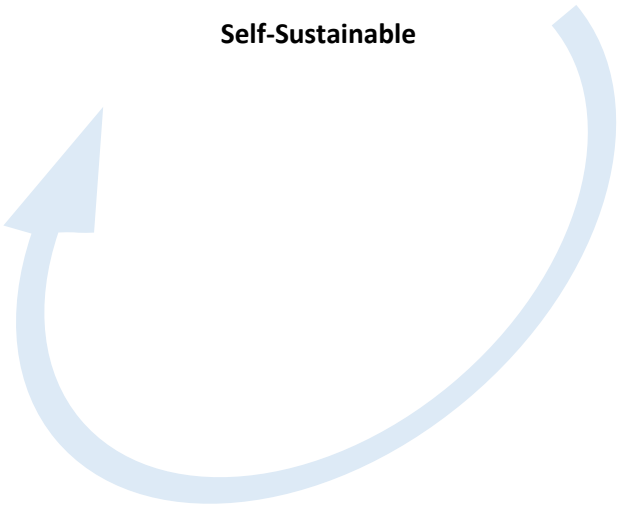
- Complete the sanitary report on site and send it immediately to appropriate authority for follow-up remedial action if necessary.
- Undertake appropriate small repairs at the time of survey in remote areas such as washer changing for leaking taps.
- For pictorial forms, each risk point should be circled and given to member of water committee for follow-up action.

Session 3: GP as a utility for decentralized management of drinking water systems

A. GP as a utility for decentralized management of drinking water systems

Resource person to communicate about GP, its sub-committee their functions and approach as public utility to ensure tap water supply to every rural HH, collect water service charges, take responsibility of O&M, minor repairs, etc.

Following the bottom -up approach, it is expected that every gram panchayat and/ or its sub-committee, i.e., village water and sanitation committee (VWSC)/ Pani Samiti functions as a 'local public utility' in form of service provider and service delivery resource as government entity that can plan, approve, implement, manage, operate and maintain in-village water supply and sanitation services on a regular and long-term basis with focus on service delivery, rather than mere infrastructure creation.



To achieve the goal of JJM in a time-bound manner, RLBs/ Gram Panchayats through 15th Finance Commission tied grant for water and sanitation must shoulder the responsibility for potable water supply to every household, school, anganwadi centre, ashramshala, etc. on long-term and regular basis.

Village Action Plans (VAPs) for the next five years are prepared by VWSCs so that fund made available to PRIs can be gainfully utilized by GPs for assured water supply delivery to homes.

Gram Panchayats or their sub-committees to ensure that water supply schemes are operated and maintained properly, and last their full design period, i.e., the next 30 years.

B. Community Contribution under JJM and developing ownership

a.) GP and its sub-committee in the initial phase is responsible for community contribution and community participation from local villagers, organizations, and institutions in which minimum 5% of total capital cost is required to be generated in the form of cash/ kind or labor.

This contribution from local community, organizations and people increases sense of ownership for O&M of the water supply schemes and infrastructure as it brings ease of living for them.

b.) Making GP a public utility will not only show the willingness of local people but also create a sense of responsibility so that they can maintain the water supply structure as well as limited natural resources.

c.) GPs can create awareness in the community with regard to water related issues and encourage mobilization of people for PRA activities with regard to contribution towards installation of tap connection and payment of monthly user charges. The community has to be sensitized through campaigns on judicious use of water.

Community contribution in form of labour

d.) After calculating the complete cost of water supply schemes, based on the final option selected by Garm Sabha, the PHED / RWS department would provide detailed information to the Panchayat on the amount required for the water supply and community contribution required as capital cost in the meeting of VWSC. The VWSC members shall device methods to collect user charges from households for O&M.

e.) As a utility, later on the community would be rewarded/ incentivized with 10% rebate on the total capital expenditure for their respective in-village water supply scheme.

C. Role- of community contribution and accounting

- Contribute minimum 5% or 10% of total capital cost depending on the area and region in form of cash/ kind or labor or both.
- Ensure willingness of local villagers to participate and instil a sense of ownership.
- Community will closely monitor and observe the functioning of water supply schemes in their villages.
- Community will also undertake regular sanitary inspection and collectively decide on mechanisms to prevent misuse of water.
- create awareness and encourage local self-help group, MPs, MLAs for contribution and participation in village water schemes and its O&M.

Record keeping of contribution

On accounting point of view: -

- GPs to maintain a register for to record the receipt of cash contribution received from the community on regular basis.
- To open a bank account to deposit the contribution received with any scheduled commercial bank.
- Prepare a plan on how to utilize the contribution received and maintain record of receipt and expenditure.

Accounting will bring in transparency to the system and add to the trust as funds are not with an individual but a bank where all records are properly maintained. The mechanism with and develop ownership among them.

1. **In-village piped water supply infrastructure and related source development to be implemented by gram panchayat and/ or its sub-committee VWSC/ Pani Samiti/ user group**

2. **Contribution - 5% of the capital cost in cash and/ or kind and/ or labour in hilly and forested areas, NE and Himalayan States and villages having more than 50% SCs and/ or STs population**

3. **10% of the capital cost in other villages**

   Willingness of community to join the programme and contribute towards installation of tap water connections as mandated under JJM, from at least 80% households in the village is a pre-requisite for taking up water supply scheme

D. Daily and annual O&M task

For O&M of the water supply scheme, the community will have to pay the user fees for the water consumption as fixed by the gram panchayat or its sub-committee, i.e., VWSC/ Pani Samiti/ User Group, etc.:

a.) GP while working as a public utility in water sector needs to look after certain day-to-day, service delivery, O&M tasks.
b.) Ensuring proper use of infrastructure, cleanliness near sources etc.
c.) Carrying out minor repairs as and when required and daily chlorination.
d.) Ensure water delivery to all households in adequate quantity and quality on daily basis.
e.) Ensure that the surveillance team conducts the water quality test using FTKs, as required, in regular intervals.
f.) Hold periodic meetings at least four times in a year and maintain record for the same.
g.) Facilitate third party inspection and functionality assessment.
h.) Group meetings of communities and different stakeholders can be held time-to-time to resolve issues arising during the course of programme implementation.

Group meetings

E. Role- of GP/ VWSC as water utilities

- GP to function as a utility body will create a sub- committee in each village called the Pani samiti / VWSC to specifically work on planning and implementation of water supply schemes, their O&M, monitoring, and surveillance.
- As public utility of a specific village, GP and its sub-committee need to review the water supply schemes and submit technical and financial assistance for betterment of resources

and schemes. VWSC shall prepare the VAP on basis of which execution the scheme will be undertaken with regard to new and old retro fitting schemes.

- Periodic monitoring and surveillance of sources and schemes, supervision of various components under the programme on regular basis has to be carried out so that timely resolution of ongoing and upcoming problems can be sorted.

Inspection of works by locals

- It would be an important role of GP to mobilize and motivate the community to contribute 5-10% of capital expenditure in the initial phase and later this would bring about a behavioural change among communities and local people will make it a practice to contribute more towards their ease of living.
- Ensure formulation of Village Action Plan (VAP) for water supply schemes.
- Supervise construction of in-village infrastructure including source sustainability, grey water reuse, water conservation measures etc.
- VWSC/ Pani Samiti to ensure testing of drinking water sources including private sources using FTK, for which women can be trained.
- Skilling under Atma Nirbhar Bharat would be promoted through VWSC to regularly maintain, operate and repair in-village water supply schemes on regular basis.

F. O&M fund, maintaining accounts and registers

O&M is important for ensuring functionality of household tap connections. O&M fund generated from various sources such as community contribution, MP, MLA funds, other groups contribution in cash will be utilized for bearing recurring costs such as electricity, chemical usage, remuneration for pump operator etc. In order to maintain the account a bank account is required to be opened by the Pani Samiti. The funds collected as community contribution and other government schemes such as incentive funds from JJM, Finance Commission grants etc. will be deposited in the bank account and will be utilized to meet the recurring charges and O&M. Also, VWSC need to maintain regular record- and register- towards fund contributed, utilized and available. A number of registers needs to be maintained by VWSC for keep record of accounts, a meeting register, contribution register, bank transaction register, quality register, income-expenditure register which to help develop a transparent system with regard to fund received and expenditure incurred on O&M.

The community has a key role to play in aspects such as:

- using the revolving fund received from government judiciously
- proper usage of funds received as part of Finance Commission recommendation

- arranging operation of the system through a barefoot technician
- carrying out minor repairs
- chlorination
- water quality testing/ surveillance
- ensuring proper use of infrastructure, cleanliness near sources, etc.
- Gram panchayat and/ or its sub-committee, i.e., VWSC/ Pani Samiti/ User Group, etc. will open an account to receive funds for O&M from different sources such as incentive fund from JJM, Finance Commission grants and community contribution to meet the recurring charges

G. Skilling

The mission requires skilled human resources in areas like masonry, plumbing, fitting, electricity, pump mechanics, etc., in every village/ habitation, whose services will be used for creation of water supply schemes as well as regular O&M. Such a pool of skilled human resource- in rural areas will make villages a self-reliant unit for regular upkeep and maintenance of water supply systems in line with the idea of 'Atma Nirbhar Bharat'. Due to the prevailing pandemic, a lot of skilled labour have returned to their villages, who await employment, so that they are able to earn a living in close proximity to their homes. Villagers may be encouraged to set up a shop for selling goods/ water supply materials which are required for long term functionality and O&M of the infrastructure. The programme is best placed to provide employment opportunities and boost local economy. It can be converged with Pradhan Mantri Kuashal Vikas Kendra. GP as a local utility will focus on local labor and skilled workers which would generate local employment opportunities.

Skilling Training

The skilled human resources will be encouraged to become rural entrepreneurs and start enterprises in rural water supply sector to meet emerging demands of plumbing, mason, electrician, motor mechanics, etc. The objective is to have a reliable and trustworthy arrangement at village level so that potable water supply to rural homes is not disturbed.

H. Grievance redressal and timely resolution

GP as a utility will focus on efficient grievance redressal mechanism of the villagers. Immediate corrective action is required to solve the grievances raised by the community as is done in the case of private players. Timely grievance redressal is a tool to become a utility.

Villagers need to be encouraged to reach out to the Sarpanch or VWSC members for any water related concern instead of PHED/RWS department.

Session 4: Har Ghar Jal Village Declaration Protocol

A. Har Ghar Jal Village declaration protocol

A village is declared Har Ghar Jal if every household and public institution buildings in the village has drinking water supply in adequate quantity (minimum 55 LPCD) and of prescribed quality (BIS:10500) on regular and longterm basis at affordable service delivery charges. The protocols for declaration of Har Ghar Jal Village are described as below:

- Village Water Sanitation Committee (VWSCs) or sub-committee such as Pani Samitis/ User Group has been constituted and approved in Gram Sabha.
- VWSC consists of 10-15 members comprising elected members of Panchayat up to 25% of the composition; 50 % women members and remaining 25 % may consists of representative of weaker sections of the village (SC/ST) proportional to their populations. Senior community leaders of the village may be appointed as members.
- The Gram Panchayat and /or its sub-committee will ensure formulation of 5-year Village Action Plan (VAP) and approval in Gram Sabha.
- The Sarpanch of the village and Village Water Sanitation Committee (VWSC) will certify that 100% household in the village has been provided Functional Household Tap Connections (FHTC) and the certificate will be signed by Panchayat Secretary. Har Ghar Jal Village certificate has been attached as Annexure 9.
- Gram Panchayat has identified 5 women for water quality testing through FTKs and local resources such as plumber, mason, fitter, pump operator and mason.
- All FHTCs is to be linked with the Aadhar number of the head of the household and Aadhar seeding data to be entered in IMIS.
- Up-dation of 100 % Har Ghar Jal village data such as list of beneficiaries, list of VWSC members, 5 women for water quality testing through FTKs, details of resources such as plumber, fitter, pump operator, mason.
- Gram Panchayat will take over responsibility of operation and maintenance of in village-infrastructure of Har Ghar Jal village.
- Real time water quantity and quality monitoring through Sensor based IoT system will be implemented.

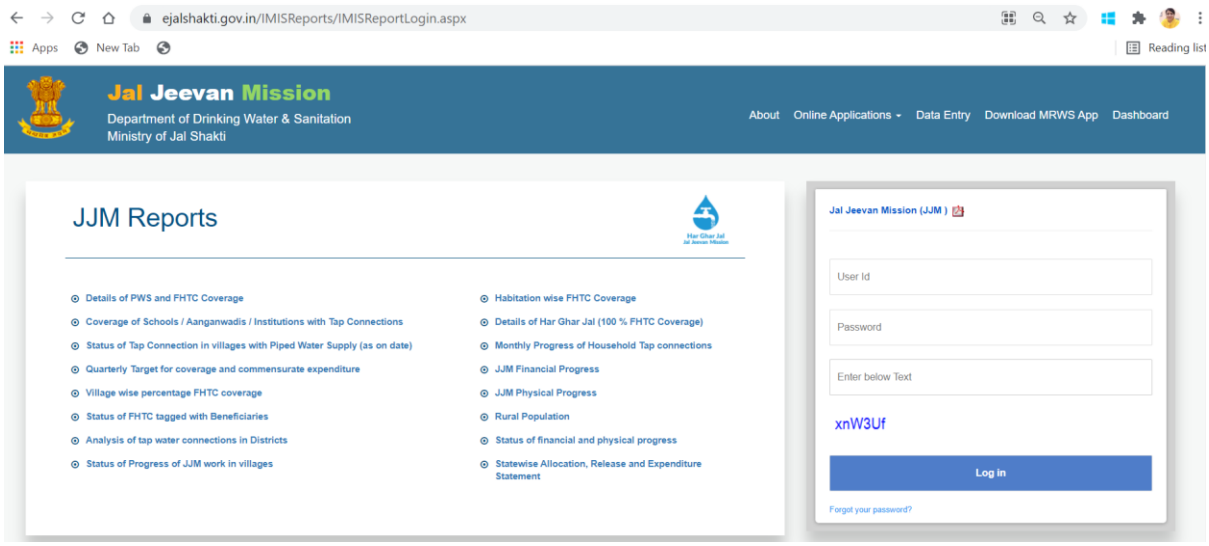
- Village has escrow account and community pays water service charge for operation and maintenance.

B. How to see Har Ghar Jal village details on JJM Dashboard

Real time information related to Har Ghar Jal villages can be viewed on JJM Dashboard and IMIS.

JJM IMIS

https://ejalshakti.gov.in/IMISReports/IMISReportLogin.aspx



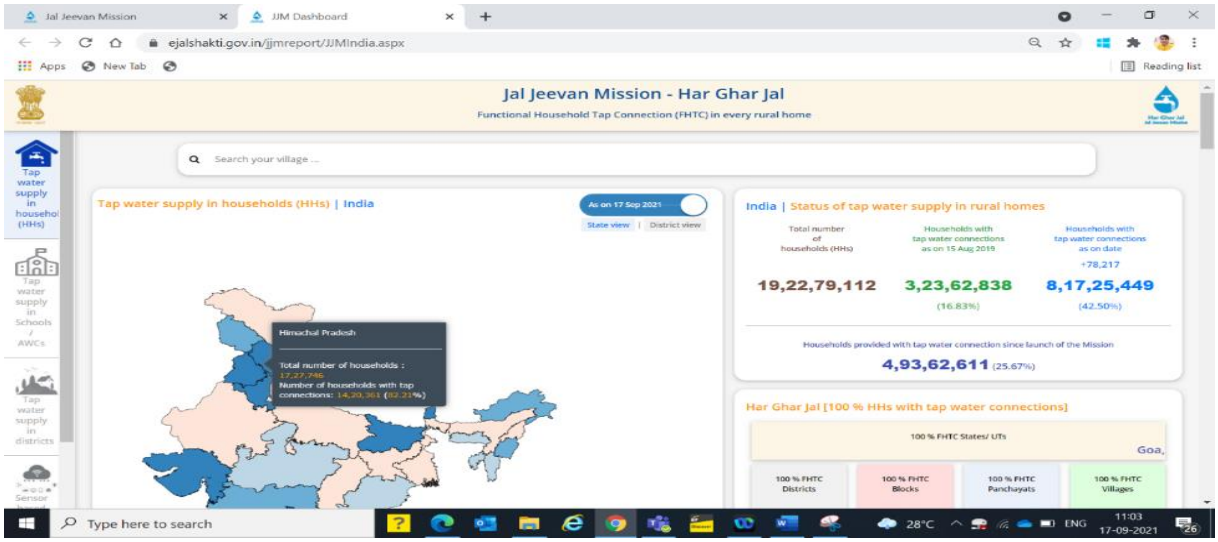
The relevant information related to Har Ghar Villages can be found in IMIS as stated below:

Sr. No.	Description	Form No.
1	Details of beneficiary tagged	Form J6
2	Basic details of Har Ghar Jal villages such as District, No. of Household, FHTC	Form J-8
3	No. of VWSC/VAP formed	Form J-10
4	Entry status of Institutional Mechanism in Har Ghar Jal Villages	Form J-15

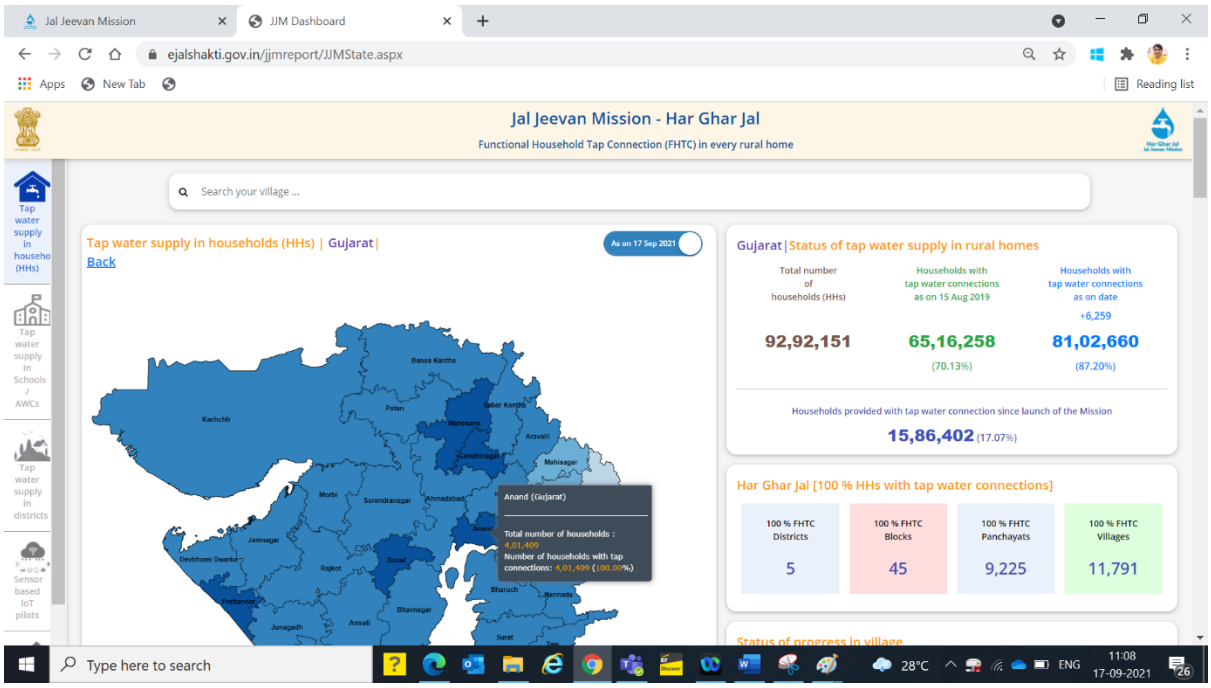
JJM Dashboard

Step – 1 Click on Dashboard

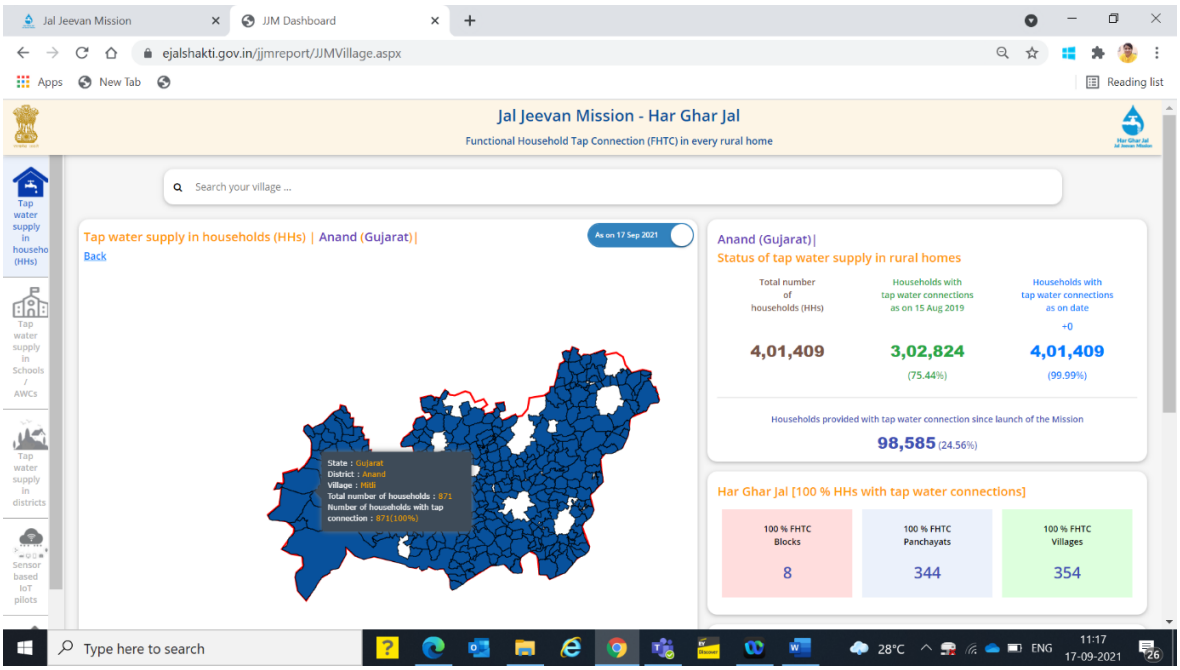
https://ejalshakti.gov.in/jjmreport/JJMIndia.aspx

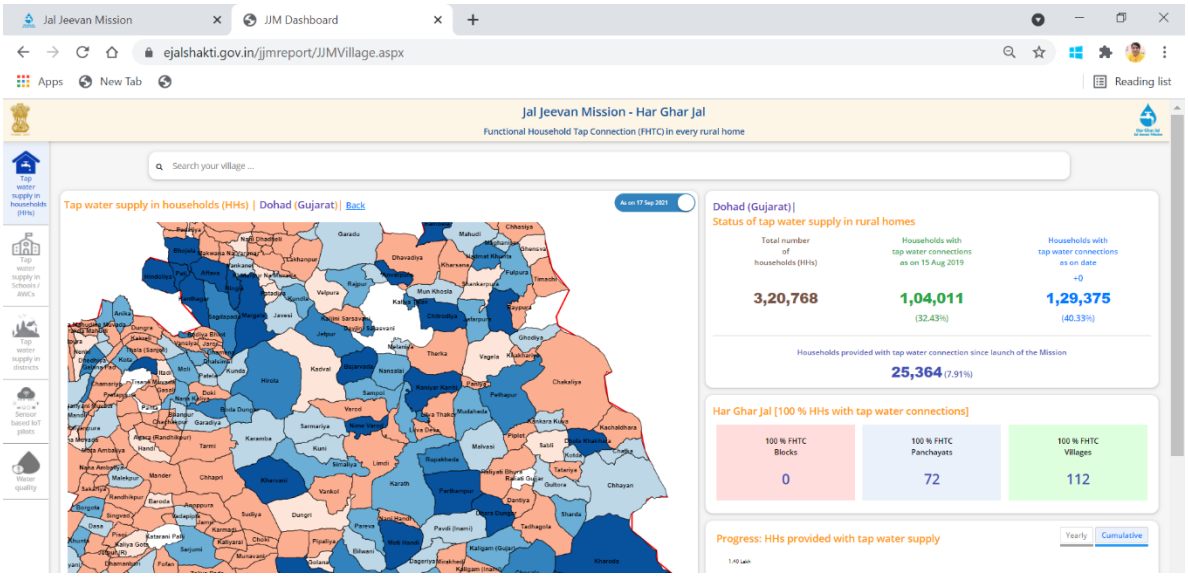


Step – 2: Click on state in the India map
e.g. Gujarat

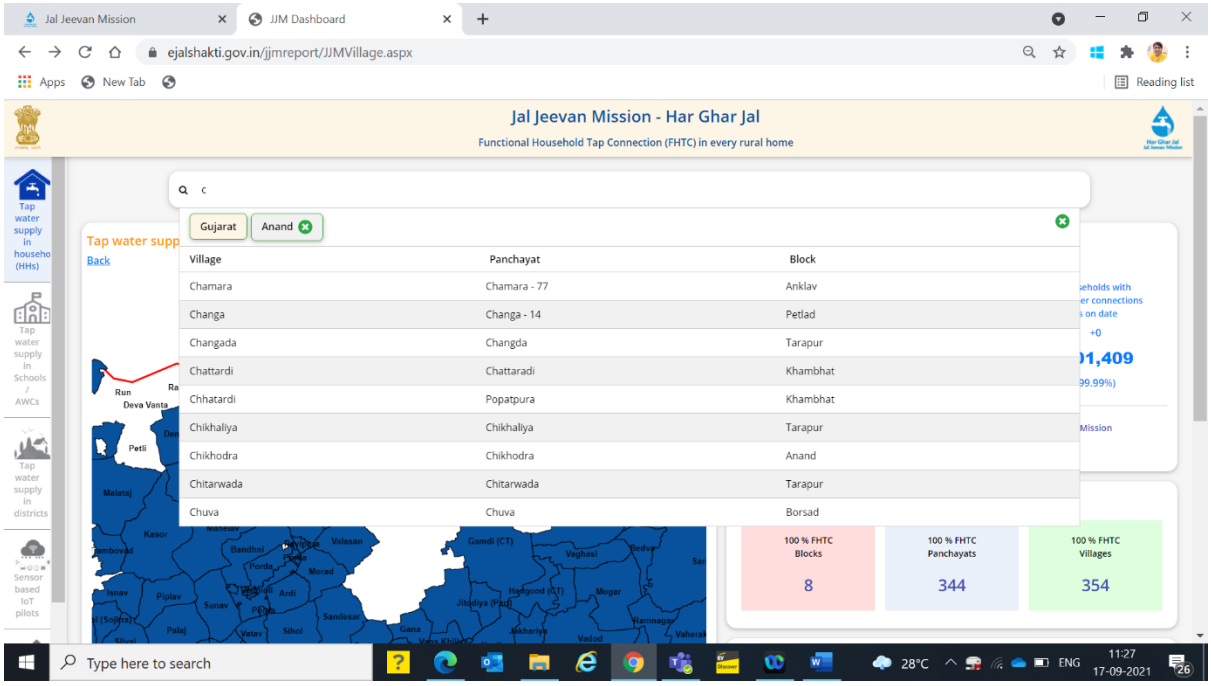


Step – 3: Click on any district
Eg. Anand (Har Ghar Jal District), Dohad (42% covered)

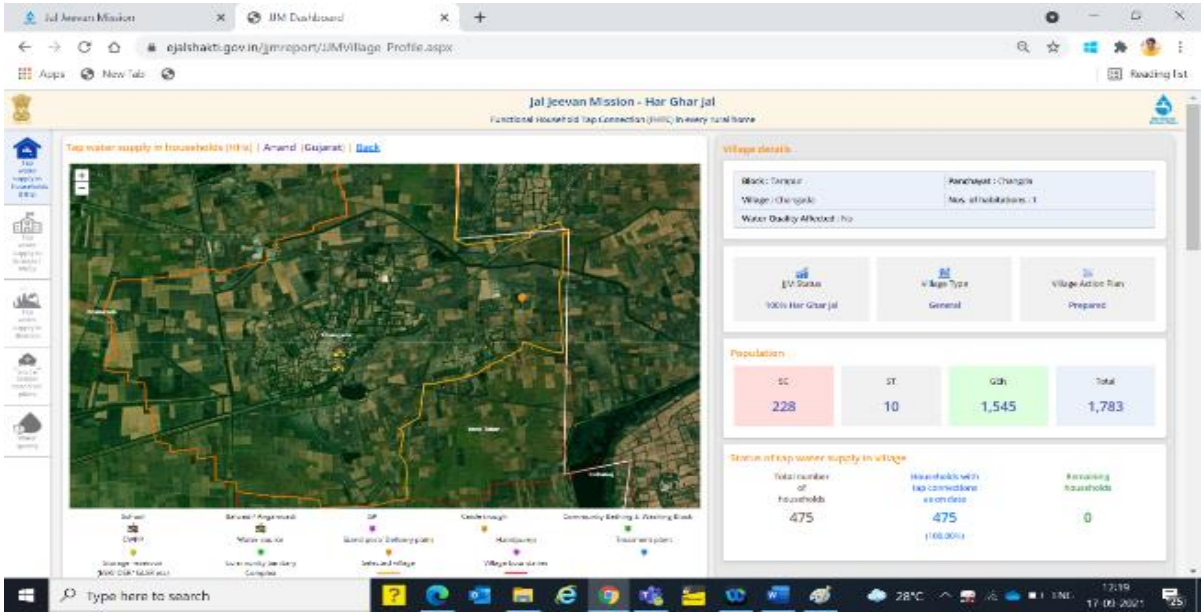




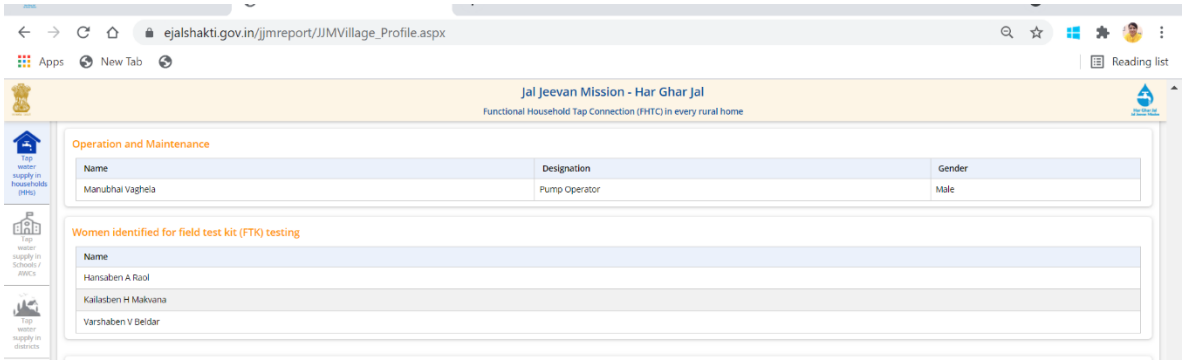
Step –4: Type the name of village

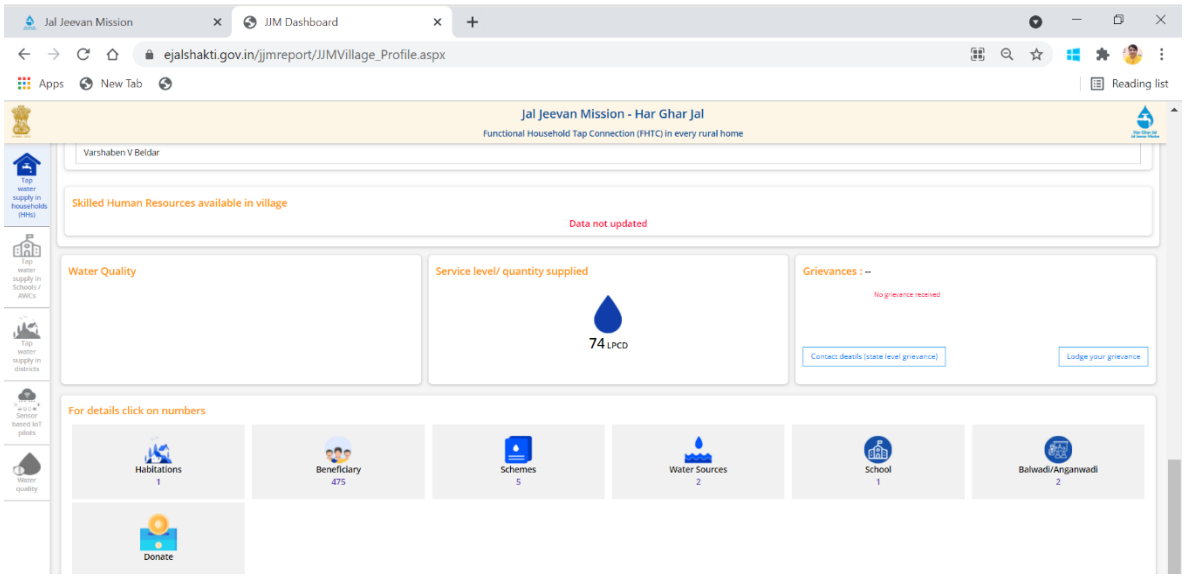


Step – 5: click on village name – eg. Changada

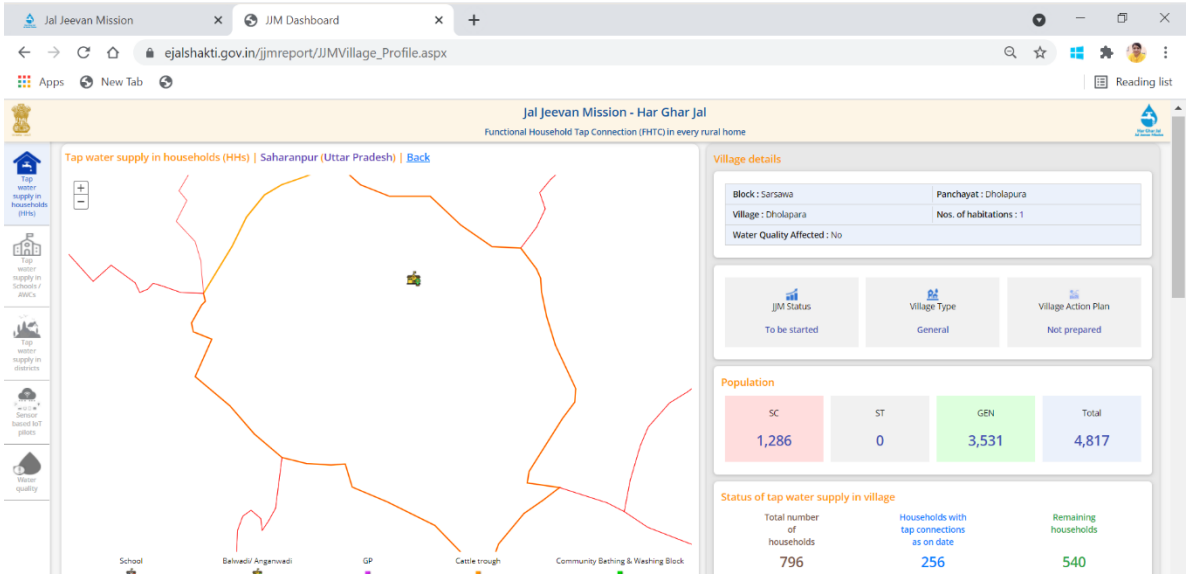


Eg 1, Har Ghar Jal Village – remaining HH=0 and where some of the data is updated





Eg. 2, Village where data is not updated – e.g., UP>Saharanpur>Dholapura village



C. Group Exercise

Participants may be given checklist of Har Ghar Jal villages and asked to provide details related to their village as Annexed in Annex-10

Session 5: Debriefing on Field Exposure Visit

A. Session Objective

Participants will be able to produce a mock village action plan (VAP) of an imagined village including the following steps:

- Planning goal and objectives
- Generation and use of data for planning
- Carrying the exercise in a SMART fashion

B. Methods

Presentation, group exercise, role play, discussion in the plenary

C. Materials Required

Chart paper- and marker-, cards and pin boards

D. Process

- Brief the participants about the role play leading to the preparation of a mock Village Action Plan (VAP)
- Form 3 groups of participants as villagers of three different villages for which VAPs have to be prepared
- Tell them that there 90 minutes are given for the planning exercise as villagers are engaged in planning process
- Ask them to play different roles based on the various stakeholders who are crucial in developing a village action plan
- Appoint an observer from among the participants and ask her/him to record the proceedings
- After the role play exercise is complete and the mock village action plan is prepared, ask the observer to present her/his report
- Summarize the key learning from the role play explaining the various aspects of VAP process
- Facilitator may suggest following format for the action planning

S. No.	Name of activity	Name(s) of the responsible person	Time schedule		Resources required (money, material, manpower)	Checking for acceptance, availability
			When to start	When to complete		

E. Tips for Trainers/ Facilitators:

The trainers/facilitators should facilitate the process in a non-intrusive manner, thereby promoting free and frank discussions within groups. After the role play is over, village action plan is prepared and the observer's report is also presented, the facilitator must summarize the key learning points of the session. Focus should be on practical and experiential learning.

Concluding Session

A. Session Objective

Closure of the training workshop with closing remarks

B. Methods

Proceedings in the plenary, structured feedback and documentation, open house

C. Materials

Certificates, structured feedback and learning format

D. Process

- Ask participants to fill the prescribed feedback format
- 4-5 participants to share their free and frank feedback on the efficacy and usefulness of the workshop in plenary
- Ask representatives from central or state government to give their valedictory address
- Distribution of certificate by representative of central or state representative
- Vote of thanks by organizer

3. Annexures

Handout 1

Salient features of 73rd Constitutional Amendment

The 73rd Constitutional Amendment relates to Gram Panchayats, their creation and structure.

The 73rd Constitutional Amendment came into force on 24th April 1993. Through the amendment, constitutional recognition was granted to the Panchayati Raj Institutions as local self-government institutions. PRIs happen to be the third stratum of governance in the country i.e., Union government, State government and local government

Prior to 73rd amendment, Panchayati Raj was mentioned as a passing reference in Article 40 of the constitution. Under the Directive Principles of the state policy, the states create Panchayati Raj institutions for rural governance. Panchayati Raj system was launched on 2nd October 1959 from Nagaur in Rajasthan but the system could not be uniformly grounded across the country as it was not binding. 73rd amendment was needed to revitalize PRIs as institutions of grassroot democracy.

Summary of the main features of 73rd constitutional amendment.

Provision	Mandatory Provision	Discretionary Provision
Gram Sabha	Establishment of Gram Sabha at village level consisting of people registered in the electoral roll of the village falling within the area of the Panchayat	➢ Powers and functions of Gram Sabha
Three-tier system	A three-tier system of Panchayati Raj institutions exists at village, intermediate and district level	➢ For State with population of less than 20 lakh the provision of intermediate level Panchayat can be waived off
Direct Elections	All seats in the Panchayat are filled by person chosen through direct election from territorial constituency in the Panchayat area	➢ Member of Parliament, Member of Legislative Assembly and Member of Legislative Council can be made members of the Panchayat at Intermediate and District level
Reservation for SC/ ST	Seats are reserved in the Panchayat as members and office of Chairperson based on their population in any Panchayat	➢ Seats are reserved in favour of scheduled castes and scheduled tribes as members of the Panchayat and Chairperson in different tier of the Panchayat based on their population
Reservation for women	1/3rd of the membership in the Panchayat and office of Chairperson is reserved for women	➢ Seats are reserved in favour of women as members of the Panchayat based on their population
Term of Panchayat	The term of the Panchayat is five-years	
Dissolution	If a Panchayat is dissolved before the expiry of 5-years, fresh elections have to be held	

	within 6-months	
Powers authority and responsibility	The Amendment act is not applicable in Scheduled Areas	➢ Power, authority and responsibility of the Panchayats will enable them to function as institutions of self-government ➢ Provision for devolution of powers and responsibility to Panchayats at appropriate levels ➢ Preparation of Village Action Plan ➢ Implementation of Har Ghar Jal scheme as it is part of the subject mentioned in the Eleventh Schedule ➢ Authorize Panchayats to levy taxes, duties, tolls and fees

State Panchayati Raj Act

State Panchayati Raj Act:

State governments comply with the provision listed under the 73rd Amendment Act. However, variations occur in all States with regard to discretionary provisions of devolving functions and powers to the PRIs as per the 29 subjects listed in the Eleventh Schedule.

PESA Act, 1996 – Provisions:

PESA is a Central government enforced law – Panchayat Extension to Scheduled Areas Act. The Act came into force on 24th December 1996 with a one-year time frame given to tribal predominant States (listed in Schedule V of the Constitution) for enforcing this law in tribal areas of the States.

As per 2011 Census, the tribal population in India is 10 crore. These are tribal communities listed as tribes as per Article 342 of the Constitution.

More than half of the scheduled tribe population of the country is concentrated in States of Madhya Pradesh, Jharkhand, Chhattisgarh, Maharashtra, Odisha, and Gujarat. They also have their presence in all States and UTs except Haryana, Punjab, Delhi, Chandigarh, and Puducherry.

In spite of the protection given to the tribal population by the Constitution of India, scheduled tribe still remains the most backward ethnic group in the country. They rank very low on three important indicators of human development – education, health, and income.

PESA gives radical self-governance powers to the tribal community (through special powers bestowed on Gram Sabhas of Schedule V – areas) recognizing the traditional community rights for management of natural resources – as lifeline of tribal economy.

Gram Sabha

Gram Sabha owes its existence to Article 243B and 243 A of the Constitution of India and PESA Act.

Who constitute the Gram Sabha:

All members of the village who are over 18 years of age and are listed in the Voters list are members of the Gram Sabha.

Gram Sabha and women:

Women are members of the Gram Sabha and form an integral part of the quorum. Many State Panchayati Raj Acts have made provision for minimum quorum of women. Participation of women is necessary for ensuring planning and implementation of the programmes and schemes in the Panchayat. It becomes all the more important under Har Ghar Jal as women are the primary water managers. For engendering decision making in Gram Sabha, women have to attend in large numbers and actively participate in Gram Sabha meetings.

Power and Authority:

Gram Sabha has power and authority in following areas:

i.) Planning and Budgeting
ii.) Undertake development activities that are useful to the village
iii.) Execution of the scheme
iv.) Responsible for implementation of government programmes which are funded by Centre and State government
v.) Take decision on how to use local natural resources
vi.) Monitoring and Implementation
vii.) Control over institutions, employees of institutions
viii.) Common resources at village level
ix.) Inclusion and deletion of beneficiary name under any scheme
x.) Engendering decision making in the Gram Sabha
xi.) Address issues like water, sanitation, health, education, domestic violence, skill development through the Gram Sabha

Process at the level of Gram Sabha:

Gram Sabha comes into existence through meetings. Meeting of Gram Sabha is most crucial for the functioning of the Gram Sabha.

Meeting of Gram Sabha is guided and facilitated by the Agenda of the meeting.

Gram Sabha exercises power through decisions on village development

Meeting and Quorum:

Responsibility of organizing meeting of the Gram Sabha lies with the Sarpanch/ Mukhiya of the Gram Panchayat. If the Sarpanch fails to take on the responsibility, it then shifts to the Panchayat Secretary. States also have a role in organizing the Gram Sabha.

Minimum four meetings of the Gram Sabha have to be organized in a year. The dates on which the mandatory Gram Sabhas have to be organized are –

i.) 26th January
ii.) 1st May
iii.) 15th August
iv.) 2nd October

Apart from four mandatory meetings, Gram Panchayat is supposed to call two more meetings in a year –

i.) Annual meeting for approval of Plan and Budget of the Gram Panchayat
ii.) Meeting for discussion and approval of plan and budget of annual administrative and financial report including audit report.

Agenda:

The agenda of the Gram Sabha meeting defines the deliberations. The important points to be noted while drafting the agenda are –

i.) Take up agenda items on which Gram Sabha is competent to take decision
ii.) Agenda items on which Gram Sabha may pass a resolution for other institutions to consider the views of the Gram Sabha

Decision Making:

The process of decision making is important in the Gram Sabha. It needs final decision on each agenda items after discussion and common consensus which is accorded in the minutes of the meeting.

Implementation and Monitoring:

Gram Sabha has the power and responsibility to monitor the work done in the Gram Panchayat and other agencies/ departments.

Handout 4

Functions of PRIs

The basic functions of the Gram Panchayat include:

i.) Prepare Annual Development Plan for the Gram Panchayat based on priorities decided by the Gram Sabha
ii.) Prepare Annual Budget for implementation of the development plan
iii.) Mobilize relief in the event of natural disaster
iv.) Remove encroachment from the common property resources of the villages – common pathways, water bodies, etc.
v.) Mobilize community contribution amongst other things for also development of water supply infrastructure for households and public institutions
vi.) Maintain annual statistics related to villages of the Gram Panchayat
vii.) Enlist and maintain assets of the Gram Panchayat
viii.) Assist in Census operation for population census of humankind, cattle, other natural resources etc.
ix.) Prepare programmes for the Panchayat for provisioning tap water connection in every household, school and anganwadi, ashramshala, healthcare centre, Panchayats Ghar
x.) Prepare Village Action Plan for water supply programme
xi.) Facilitate different surveys
xii.) Exercise control over common property resources
xiii.) Ensure safe drinking water facility of prescribed quality and quantity on regular and long-term basis
xiv.) Ensure safe hygiene and provision for grey water management as basic amenity to the villager
xv.) Work towards water source sustainability
xvi.) Identify the beneficiaries who must be provided with tap water connection in the GP
xvii.) Take appropriate steps for prevention and control of water contamination and spread of water-borne diseases in the Panchayat
xviii.) Oversee effective implementation of services provided for women and children under integrated child development services through anganwadi Centres, available in the villages
xix.) Mobilize income of the GP by levying user charge towards safe tap water connectivity to be used for upkeep, repair, operation and maintenance of the water supply infrastructure created under the programme
xx.) Promote awareness among community on judicious use of water and work towards water source strengthening
xxi.) Constitute Pani Samiti
xxii.) Submit proposal to District Water and Sanitation Mission (DWSM) for technical and financial assistance
xxiii.) Opening of Bank Account for Pani samiti and collection of community contribution
xxiv.) Separate Bank Account has to be opened for receiving community contribution towards in-village/ multi-village infrastructure creation
xxv.) Fund collected will be used towards meeting O&M requirements
xxvi.) Bank account details will have to be made public for maintaining transparency

Handout 5

Role of women in Gram Sabha

Constitution has mandated equal role to both men and women as elected representative or community in the Panchayat. For ensuring and promoting gender mainstreaming in development planning, implementation and inclusion of gender specific needs, the PRIs are expected to focus on critical concerns, in discharge of their roles and responsibilities

i.) Ensure greater participation of women in Gram Sabha meeting to facilitate inclusion of women's needs in development planning and decision making
ii.) Ensure that regular and safe supply of water is made at household, school, anganwadi and healthcare centre
iii.) Promote awareness about Har Ghar Jal at Gram Sabha
iv.) Train local people in developing the infrastructure and undertaking repair works whenever needed
v.) Build capacity of the Pani Samiti and surveillance committee
vi.) Support committee members in their training, confidence building and discharge of duties
vii.) Seek support of ISAs in mobilizing the community
viii.) Create conducive environment for enabling opportunities of strengthening women's role under Har Ghar Jal programme

Presence of women as a critical mass helps in inclusion of actual felt needs of women in decision making. Studies have validated that women-headed Panchayats have brought about a shift in the development agenda, now focusing on water, sanitation, health services, education, livelihood opportunities for women and young girls, ensuring coverage of poor, aged, differently abled and disadvantaged under basic amenities. There has been a significant transformation in development agenda moving to inclusive growth from construction and infrastructure development agenda to service delivery.

Pani Samiti

It is the responsibility of the Gram Panchayat to constitute a Pani Samiti and provide water and sanitation facilities at village level.

Pani Samiti is constituted during the Gram Sabha in which all the adult members are present, and the members are selected through common consensus in open public meeting.

Pani Samiti consists of 10-15 members comprising of 25% elected Gram Panchayat members, 50% women from the village and remaining 25% representatives from weaker section from the village which would include scheduled cates and scheduled tribes in proportion to their population.

Senior community leaders, retired teachers and representatives of institutions may be appointed as members of Pani Samiti. Every caste, community and religion must find representation in the Pani Samiti.

The tenure of the Pani Samiti is 2-3 years. When the tenure of Pani Samiti comes to an end, the State government has to reinstate a Pani Samiti to ensure continuation of services without any hindrance.

The Pani Samiti will discharge the following functions:

i.) Ensure formulation of Village Action Plan (VAP) for water supply scheme
ii.) Plan, design, implement, operate and maintain the in-village water supply scheme
iii.) Provide tap water connection to every existing rural household, any new household that may emerge in future and ensure that scattered households located away from the main settlement are not left out under the programme
iv.) Facilitate procurement of services, goods, materials from agencies at costs finalized by State Water and Sanitation Mission (SWSM)
v.) Open bank account for depositing community contribution and using the funds towards operation and maintenance of personnel and repair work from time-to-time. In case an existing bank account is being used, it should be ensured that a separate ledger is maintained for contribution and incentive fund
vi.) Mobilize and motivate the community to contribute 5-10% of in-village infrastructure capital expenditure (Capex). The contribution can be in the form of cash, or kind or labour
vii.) Create and maintain register for account which reflects community contribution in detail
viii.) Record drinking water asset details in Gram Panchayat's village asset register
ix.) Supervise construction of in-village infrastructure including water source sustainability, grey water reuse and water conservation measures
x.) Facilitate third party inspection and functionality assessment
xi.) Mobilize community for PRA activities, conduct awareness campaigns on judicious use of water, come up with mechanism to ensure no misuse of water and ensure regular IEC campaign including messages at common places for public
xii.) Employ or engage pump operator, barefoot technician to attend regular repair and maintenance

The Pani Samiti Chairperson will convene periodic meetings with the help of its members. JJM guidelines provision for monthly meetings to discuss the water supply situation and present the records. It is mandatory to invite all members of the Pani Samiti for the meeting. The notice of the meeting has to be served in advance so that people are able to participate in it.

Surveillance Committee

A 5-member women sub-committee will be set up by the Gram Panchayat in the village to observe the functioning of the water supply scheme. The committee will be responsible for management, operation and maintenance of the in-village water supply infrastructure.

The community will undertake regular sanitary surveillance and collectively decide on the mechanism to prevent misuse of water.

The committee also undertakes water quality tests from time-to-time to check the quality of water supplied. These tests are conducted using Field Test Kits (FTKs) at water source and delivery points.

It is a means to build the confidence of the people on quality of water supplied and address timely any issue pertaining to water contamination.

Annexure 1

Sanitary inspection form for piped water supply

I. Type of facility PIPED WATER

1. General Information: Zone: Area:
2. Code number linked to scheme ID
3. Date of visit
4. Water samples taken? …….. Sample nos. …… *e-Coli*/100 ml.....

II. Specific diagnostic information for assessment

(Please indicate at which sample site the risk was identified)

Risk sample no

1. Does any stand post[12] leaks? Y/N ……
2. Does surface water collect around any standpost? Y/N ……
3. Is the area uphill of any standpost eroded? Y/N ……
4. Are there exposed pipes close to any standpost? Y/N ……
5. Did you find human excreta on the ground within 10m from any standpost? Y/N ……
6. Is there sewer within 30m of any standpost? Y/N……
7. Has there been discontinuity in water supply in last 10 days at any standpost? Y/N ……
8. Are there signs of leaks in the main pipelines? Y/N……
9. Did the community report of any breakage in pipeline in the last one week? Y/N ……
10. Is the main pipe exposed anywhere in the vicinity? Y/N ……

Total Score of Risks ..../10

Risk score: 9-10 = Very high; 6-8 = High; 3-5 = Medium; 0-3 = Low

III. Results and recommendations:

The following important points of risk were noted: (list nos. 1-10)

Signature of surveyor:

Comments:

[12] In case the village is having 100% tap connections, 5% of the tap connected households can be surveyed along with standposts, if present.

Annexure 2

Sanitary inspection form for piped water with service reservoir

I. Type of facility PIPED WATER WITH SERVICE RESERVOIR

1. General information: Zone: Area:
2. Code number linked to scheme ID
3. Date of visit:
4. Water samples taken? …….. Sample nos. …… *e-coli*/100 ml.....

II. Specific diagnostic information for assessment

(Please indicate at which sample sites the risk was identified) Risk sample no

1. Do any standpipes leak at sample sites? Y/N ……
2. Does water collect around any sample site? Y/N ……
3. Is area uphill eroded at any sample site? Y/N ……..
4. Are pipes exposed close to any sample site? Y/N ……
5. Did you find human excreta on ground within 10m from any standpipe? Y/N ……
6. Id sewer or latrine visible within 30m of sample site? Y/N ……
7. Has there been discontinuity within last 10 days at sample site? Y/N ……
8. Are there signs of leakage in sampling area? Y/N ……
9. Have users reported pipe breakage in last one week? Y/N ……
10. Is the supply mainline found exposed in sampling area? Y/N……
11. Is the service reservoir found cracked or leaking? Y/N ……
12. Are the air vents or inspection cover found insanitary? Y/N ……

Total Score of Risks ..../12

Risk score: 10-12 = Very high; 8-10 = High; 5-7 = Medium; 2-4 = Low;

0-1 = Very Low

III. Results and recommendations:

The following important points of risk were noted: (list nos. 1-12)

Signature of surveyor:

Comments:

Annexure 3

Sanitary inspection form for hydrants and tanker trucks

I. Type of facility HYDRANTS AND TANKER TRUCKS

1. General information: Zone: Area:
2. Code number linked to scheme ID
3. Date of visit:

II. Is water sample taken? …….. Sample nos. …… *e-coli*/100 ml .....

Specific diagnostic information for assessment risk

1. Is the discharge pipe dirty? Y/N……..
2. Is the discharge water found dirty/ smelly/ coloured? Y/N……
3. Is the delivery nozzle found dirty or in poor condition? Y/N……
4. Is there any leakage close to riser pipe of the hydrant? Y/N……
5. Is the base of the riser pipe for the hydrant sealed with concrete apron? Y/N……
6. Has the tanker ever been used for transporting other liquids? Y/N…….
7. Is the inside of the tanker dirty? Y/N……..
8. Does the tanker fill through an inspection cover on the tanker? Y/N……..
9. Is there any direct contact of hand of supplier with discharge water? Y/N……..
10. Does the tanker leak? Y/N……

Total Score of Risks …./10

Risk score: >8/10 = Very high; 6-8/10 = High; 4-7/10 = Intermediate; 0-3/10 = Low

III. Results and recommendations:

The following important points of risk were noted: (list nos. 1-10)
And the authority advised on remedial action Signature of surveyor:
Comments: .....

Annexure 4

Sanitary inspection form for borehole with hand pump

I. Type of Facility BOREHOLE WITH HANDPUMP

1. General information: Zone: Location:
3. Code n umber linked to scheme ID
4. Date of visit:
5. Water sample taken? …….. Sample no. …… e-coli/ 100 ml…….

II. Specific diagnostic information for assessment risk

1. Is there a latrine within 10m of the borehole? Y/N…….
2. Is there a latrine uphill of the borehole? Y/N…….
3. Are there any other sources of pollution within 10m of borehole? Y/N…… (e.g., animal breeding, cultivation, roads, industry etc)
4. Is the drainage faulty allowing ponding within 2 m of the borehole? Y/N……
5. Is the drainage channel cracked, broken or needs cleaning? Y/N……..
6. Is the soakage pit missing or ponding? Y/N…….
7. Is the apron less than 1m in radius? Y/N……..
8. Does spilt water collect in the apron area? Y/N……..
9. Is the apron cracked or damaged? Y/N……..
10. Is the handpump loose at the point of attachment to apron? Y/N…….

Total score of risks …./10

Risk score: 9-10 = Very high; 6-8 = High; 3-5 = Medium; 0-3 = Low

III. Results and recommendations:

The following important points of risk were noted:

Signature of surveyor:

Comments:

Annexure 5

Sanitary inspection form for protected spring

I. Type of facility PROTECTED SPRING

1. General information: Zone: Location:
2. Code number linked to scheme ID
3. Date of Visit:

Water sample taken? …….. Sample no. …… e-coli/ 100 ml.....

II. Specific diagnostic information for assessment risk

1. Is the spring unprotected? Y/N……..
2. Is the masonry protecting the faulty spring ? Y/N……..
3. Is the backfill area behind the retaining wall eroded? Y/N……..
4. Does spilt water flood the collection area? Y/N……..
5. Is the fence absent or faulty? Y/N……..
6. Can animals have access within 10m of the spring? Y/N……
7. Is there a latrine uphill and/or within 30m of the spring? Y/N……
8. Does surface water collect uphill of the spring? Y/N……..
9. Is the diversion ditch above the spring absent or non-functional? Y/N…….
10. Are there any other sources of pollution uphill of the spring? Y/N…….. (e.g., solid waste)

Total score of risks …./10

Risk score: 9-10 = Very high; 6-8 = High; 3-5 = Medium; 0-3 = Low

III. Results and recommendations:

The following important points of risk were noted:

Signature of surveyor:

Comments: ……

Annexure 6

Sanitary inspection form for rainwater collection and storage

I. Type of facility rainwater collection and storage

1. General information: Zone: Location:
2. Code number linked to scheme ID
3. Date of visit:

Water sample taken? …….. Sample no. …… e-coli/ 100 ml.....

II. Specific diagnostic information for assessment risk

1. Is rainwater collected in an open container? Y/N……
2. Are there any visible signs of contamination on the roof of catchment? Y/N…….. (e.g., plants, excreta, dust)
3. Does guttering collect dirty or blocked water? Y/N…….
4. Did you find top or walls of the tank cracked or damaged? Y/N……
5. Is the water collected directly from the tank (no tap on the tank)? Y/N……
6. Is there a bucket in use and has the bucket been left at a place where it can get contaminated? Y/N……
7. Is the tap leaking or damaged? Y/N……..
8. Is the concrete floor under the tap defective or dirty? Y/N……
9. Is there any source of pollution around the tank or water collection area? Y/N……
10. Is the tank clean inside? Y/N……..

Total score of risks …./10

Risk score: 9-10 = Very high; 6-8 = High; 3-5 = Medium; 0-3 = Low

III. Results and recommendations:

The following important points of risk were noted: (list nos. 1-10)

Signature of surveyor:

Comments: .....

Annexure 7

Sanitary inspection form for piped water supply with service reservoir and mechanized pumping

I. Type of facility: **Piped water supply with service reservoir and mechanized pumping**

1. General information: Zone: Location:
2. Code number linked to scheme ID
3. Date of visit:

Water sample taken? …….. Sample no. …… e-coli/ 100 ml.....

II. Specific diagnostic information for assessment risk

1. Does the pipe leak between the source and storage tank? Y/N…….
2. Does surface water collect around the standpost? Y/N …….
3. Do animals have access within 10m of the reservoir Y/N------
4. Is open defecation prevalent or cattle-dung observed within 50 m of the reservoir? Y/N……..
5. Is there a sewer within 30m of any tap stand or reservoir? Y/N--------
6. Are the pipes corroded? Y/N--------
7. Is there sign of leaks in the mains pipes? Y/N…….
8. Are the reservoirs used for human and cattle bathing? Y/N--------
9. Are the buried pipes ever checked for leakage? Y/N--------
10. Are storage tanks cleaned at specified intervals? Y/N--------

Total score of risks …. /10

Risk score: 9-10 = Very high; 6-8 = High; 3-5 = Medium; 0-3 = Low

III. Results and recommendations:

The following important points of risk were noted: (list nos. 1-10)

Signature of surveyor:

Comments: .....

Annexure 8

Sanitary inspection form for the source of dugwell (ringwell)

I. Type of facility: Dugwell (Ringwell)

1. General information: Zone: Location:
2. Code number linked to scheme ID
3. Date of visit:

Water sample taken? …….. Sample no. …… e-coli/ 100 ml.....

II. Specific diagnostic information for assessment risk

1. Is there a latrine or sewer within 30m of the dugwell? Y/N……
2. Is the wall of the well lined properly and the well is adequately covered? Y/N……..
3. Is open defecation is prevalent or cattle-dung found within 50 m of the ringwell? Y/N……..
4. Is the well is used for bathing and washing of clothes? Y/N----
5. Is there any water drainage facility available around platform of the well and does the drainage facility lead to water stagnation within 30 m of the wall? Y/N…….
6. Does the well have fixed stainless steel/ aluminium buckets with chain pulley for drawing water? Y/N…….
7. Is the well deep? Y/N…….
8. Does the water of the well appear visibly clean? Y/N……..
9. Is there any other source of pollution within 10 m of the well? (e.g. animal breeding, cultivation, roads, industry etc) Y/N……..
10. Was the well chlorinated in the last 7 days Y/N……..

Total score of risks ……/10

Risk score: 9-10 = Very high; 6-8 = High; 3-5 = Medium; 0-3 = Low

III. Results and recommendations:

The following important points of risk were noted: (list nos. 1-10)

Signature of surveyor:

Comments: .....

Note: The above-mentioned questionnaire of the sanitary surveys is suggestive. States/UTs may develop their questionnaire as per local needs.

All the sanitary survey formats should have the surveyor's signature and Pradhan/ Sarpanch/ Chairman VWSC of the concerned Gram Panchayat.

Annexure 9

Jal Jeevan Mission

Har Ghar Jal

Village Certificate for 100% Functional Household Tap Connection

Building Partnerships

Changing Lives

I, ----------, Sarpanch/Chairman, Village and Water Sanitation Committee of ----------

----------Gram Panchayat, ---------- District, ----------

State and I ---------- Panchayat Secretary, certify that 100% of functional household tap connection has been provided in village. The proposal has been passed today on ------/------/------ in Gram Sabha.

Signature	Signature
Sarpanch/Chairman/Water Committee	Panchayat Secretary
Name	Name
Official Seal	Official Seal

Annexure 10

Har Ghar Jal Village

Group Exercise

Name:

Role: Gram Pradhan/ VWSC Member

State		No. of Households	
District		Type of scheme (SVs/ MVS/ Solar)	
Block		Source of water (Ground / surface water)	
Panchayat		Har Ghar Village declared on	
Village			

Sr No.	Item	Status (Yes/ No.)	Remarks
1	Whether VWSC and or sub-committee such as Pani Samiti has been constituted and approved in Gram Sabha?		If yes, mention name of VWSC members
2	Whether Village Action Plan (VAP) has been prepared and approved in Gram Sabha?		
3	Whether tap connections have been provided in all Households and Public institutions such as Schools, AWC, Health Centre, GP buildings?		
4	Are you getting adequate and safe water on regular basis?		
5	How many times in a day you get water and for what duration ?		
6	Whether you were involved in preparation of VAP ?		Describe key component of VAP
7	Whether regular Gram Sabha is organised ?		Mention frequency of Gram Sabha organised
8.	Whether Operation and Maintenance of in-village infrastructure has been handed over to GP and/ or sub-committee?		
9.	Whether 5 women has been identified for water quality testing through FTK?		Name the women identify for water quality testing
10.	Whether local resource has been identified and trained for operation and maintenance ?		Name the key resources
11.	Are you paying water service charge?		Describe amount and frequency of payment
12.	Is there any complain grievance redressal mechanism ?		
13	Whether Har Ghar Jal Certificate has been signed by Panchayat Secretary?		

Format for feedback form for online training programmes/ Webinars

Name of the KRC :

Title of the training programme/ Webinar:

Type of online programme: Training/ Webinar

Date:

Please tick (√) the boxes that best represent your opinion -

1. How far was the training programme/ webinar **relevant** to JJM implementation?

Session	Fully relevant	Relevant	Not relevant

2. How do you rate the **resource person/ speaker**?

Name of the Resource Person	Excellent	Very Good	Good	Average*	Below Average*

* If rated average/ below average, your reason(s):

……
……
……

3. How do you rate the **interaction/ discussion** part of the Resource Person's/ Speaker's session?

Name of the Resource Person	Excellent	Very Good	Good	Average*	Below Average*

*If rated average/ below average, your reason(s):

……
……
……

4. How useful was the **training material** provided?

Very useful	Quite useful	Of limited use	Not useful

5. How do you rate the **arrangements** made by the Key Resource Centre *viz.,* timely intimation of the training/ webinar, providing weblink, training material, coordination etc.

Excellent	Very Good	Good	Average*	Below Average*

* If rated average/ below average, your reason(s):

……
……
……

6. What is your **overall rating** of the training programme/ webinar

Excellent	Very Good	Good	Average*	Below Average*

* If rated average/ below average, your reason(s):

……
……
……

7. Were your **expectations** from this online training programme/ webinar fulfilled? If not, indicate reasons.

……
……
……

8. **Suggestion(s)** for improvements:

……
……
……
……

Signature : ……

Name : ……

Designation : ……

Mobile no. : ……

Email ID : ……

Organization of the participant : ……

State : ……

Format for feedback form for residential training programmes/ Workshop

Name of the KRC :

Title of the training programme / Workshop :

Type of residential programme: Training/ Workshop

Date :

Please tick (√) the boxes that best represent your opinion –

1. How far was the training programme/ workshop **relevant** to JJM implementation?

Session	Fully relevant	Relevant	Not relevant*

* If rated not relevant, your reason(s):

……
……
……

2. How do you rate the **resource person/ speaker**?

Name of the Resource Person	Excellent	Very Good	Good	Average*	Below Average*

* If rated average/ below average, your reason(s):

……
……
……

3. How do you rate the **interaction/ discussion** part of the Resource Person's/ Speaker's session?

Name of the Resource Person	Excellent	Very Good	Good	Average*	Below Average*

*If rated average/ below average, your reason(s):

……
……
……

4. How useful do you find the **training material** provided?

Very useful	Quite useful	Of limited use*	Not useful*

* If rated of limited use/ not useful, your reason(s):

……
……
……

5. How do you rate the **communication** made by the Key Resource Centre *viz.* timely intimation of training/ workshop, venue, training material, coordination etc.

Excellent	Very Good	Good	Average*	Below Average*

* If rated average/ below average, your reason(s):

……
……
……

6. How do you rate the **arrangements** made by the Key Resource Centre *viz.* boarding, lodging, food, etc.

	Excellent	Very Good	Good	Average*	Below Average*
Venue arrangements					
Audio-visual aids during training					
Seating arrangements during training					
Accommodation					
Food & beverages					

* If rated average/ below average, your reason(s):

……
……
……

7. What is your **overall rating** of the training programme/ workshop

Excellent	Very Good	Good	Average*	Below Average*

* If rated average/ below average, your reason(s):

……
……
……

8. Were your **expectations** from this training programme/ webinar fulfilled? If not, indicate reasons.

……
……
……

9. **Suggestion(s)** for improvements:

……
……
……
……
……
……

Signature : ……

Name : ……

Designation : ……

Mobile no. : ……

Email ID : ……

Organization of the participant : ……

State : ……

Format for feedback form for non-residential (day-based) training programmes/ Workshop

Name of the KRC:

Title of the training programme/ Workshop:

Type of day programme: Training/ Workshop

Date:

Please tick (√) the boxes that best represent your opinion –

1. How far was the training programme/ workshop **relevant** to JJM implementation?

Session	Fully relevant	Relevant	Not relevant*

* If rated not relevant, your reason(s):

……
……
……

2. How do you rate the **resource person/ speaker**?

Name of the Resource Person	Excellent	Very Good	Good	Average*	Below Average*

* If rated average/ below average, your reason(s):

……
……
……

3. How do you rate the **interaction/ discussion** part of the Resource Person's/ Speaker's session?

Name of the Resource Person	Excellent	Very Good	Good	Average*	Below Average*

*If rated average/ below average, your reason(s):

……
……
……

4. How useful was the **training material** provided?

Very useful	Quite useful	Of limited use*	Not useful*

* If rated of limited use/ not useful, your reason(s):

.....

.....

.....

5. How do you rate the **communications** from the Key Resource Centre *viz.* timely intimation of training/ workshop, venue, training material, coordination etc.

Excellent	Very Good	Good	Average*	Below Average*

* If rated average/ below average, your reason(s):

.....

.....

.....

6. How do you rate the **arrangements** made by the Key Resource Centre *viz.* boarding, lodging, food, etc.

	Excellent	Very Good	Good	Average*	Below Average*
Venue arrangements					
Audio-visual aids during training					
Seating arrangements during training					
Food & beverages					

* If rated average/ below average, your reason(s):

.....

.....

.....

7. What is your **overall rating** of the training programme/ workshop

Excellent	Very Good	Good	Average*	Below Average*

* If rated average/ below average, your reason(s):

……
……
……

8. Were your **expectations** from this training programme/ webinar fulfilled? If not, indicate reasons.

……
……
……

9. **Suggestion(s)** for improvements:

……
……
……
……
……
……

Signature : ……

Name : ……

Designation : ……

Mobile no. : ……

Email ID : ……

Organization of the participant : ……

State : ……

General Instructions for KRCs

Har Ghar Jal
Jal Jeevan Mission

Pre-Training

1. Nominations of participants for training at KRCs can be done by NJJM, DDWS, State Government, parastatal organizations SWSMs, or DWSMs, keeping in view the topics and approved calendar. The KRCs should coordinate with the Nodal Officers of the respective States/ UTs at least two weeks in advance;

2. Nominations sought are twice the number of trainees proposed for any programme to offset the drop-outs and ensure required and approved number of participants as per the Annual Action Plan;

3. In the nomination request letter, explicitly mention the training title, session-wise schedule including resource persons of the programme, and the desired profile of participants (target group);

4. Obtain a confirmed list of participants and formally file their profile (qualification, age, gender, job role, place of posting with State, phone number and e-mail ID) in the data base. Upload the information on the JJM Training Portal before the programme commences;

5. Forward a copy of the training modules (programme course content) well in advance to the participants with a copy to NJJM. KRCs should request all participants to come prepared for sharing their field experience;

6. All participants must be informed to thoroughly study the “Operational Guidelines for the Implementation of Jal Jeevan Mission”, “Margdarshika for Gram Panchayat & VWSC to provide safe drinking water in rural households”, “100-Days Campaign to Provide Piped Water Supply in Anganwadi Centres, Ashramshalas and Schools”, available on JJM Website (www.jaljeevanmission.gov.in).

7. In case of residential programmes, KRCs must ensure appropriate arrangements for boarding, lodging, lecture hall, seating arrangements, audio-visual aids, etc.;

8. Make all necessary logistic arrangement (network connectivity, training material/ module sharing on digital platforms, etc.) in case of online training programmes;

9. KRCs must designate a nodal contact person for each training programme and her/ his contact details should be shared with all participants. The same also needs to be updated on the JJM Training Portal, well in advance. For ensuring better coordination, KRCs can form WhatsApp groups of all participants and the KRC team.

10. KRCs must ensure hassle-free log-in for the online training programmes. For this, a demo/ a brief note on “How to join online workshop?” must be shared with the participants well in advance;

11. Field visits pose extensive logistics challenges. These should be carefully considered before-hand and adequate time and resources should be allocated. KRCs must prepare a safety briefing note - DOs and DON'Ts for site visits and brief all participants before commencing the field visit. A recce visit by the KRC team members is mandatory. This will help KRCs in ground truthing and streamlining the required logistics.;

12. Ensure the field exposure visits provide hands-on experience to participants. It is necessary for KRCs to anchor site visits to a desired change/ outcome that is relevant for participants. For this, identifying the site vis-à-vis nominated participants is of extreme importance;

13. Selection of resource persons is very crucial for success of the training programmes. Keeping in view the topic, resource persons should have sufficient field experience as well as relevant academic insights;

14. All resource persons should internalize the essence of JJM & have experience in the rural drinking water sector so as to address the challenges of JJM implementation;

15. Resource persons must thoroughly study the "Operational Guidelines for the Implementation of Jal Jeevan Mission", "Margdarshika for Gram Panchayat & VWSC to provide safe drinking water in rural households", "100-Days Campaign to Provide Piped Water Supply in Anganwadi Centres, Ashramshalas and Schools", and other materials available on the JJM website (www.jaljeevanmission.gov.in). The links of the above documents are as under:

    a. Operational Guidelines for the Implementation of Jal Jeevan Mission (English) https://jalshakti-ddws.gov.in/sites/default/files/JJM_Operational_Guidelines.pdf

    b. Operational Guidelines for the Implementation of Jal Jeevan Mission (Hindi) https://jalshakti-ddws.gov.in/sites/default/files/JJM_operational_guidelines_hindi.pdf

    c. Margdarshika for Gram Panchayat & VWSC to provide safe drinking water in rural households (English) https://jalshakti-dws.gov.in/sites/default/files/Margdarshika_for_Gram_Panchayat_and_Paani_Samiti.pdf

    d. 100-Days Campaign to Provide Piped Water Supply in Anganwadi Centres, Ashramshalas and Schools (English) https://jalshakti-ddws.gov.in/sites/default/files/100_Days_Campaign_10_Oct_2020.pdf

During Training

1. Make appropriate arrangements, as per Government orders/rules, to ensure compliance of Covid-19 appropriate behaviour;

2. Use JJM- prescribed display banner(s)/ back drops during the training programmes showing the JJM logo, title, date, location and venue of the programme, (sample annexed);

3. Carry out the ice-breaking/ expectation analysis of participants before commencing the programme;

4. KRCs should prepare training modules, audio-visual contents and develop participative learning exercises and games, which are simple & easy to understand and linked to practical examples;

5. KRCs must give thrust to the interactive and participatory approach, experience sharing, peer learning and techniques like brainstorming sessions among the participants than the conventional lecture methodology;

6. A focused approach needs to be adopted by KRCs for educating the participants on JJM objectives, approach, and implementation methodology, thus facilitating their understanding of JJM clearly and thoroughly;

7. Ensure good and clear transmission of voice & videos connectivity for online training programmes;

8. Ensure immediate redressal of issues and clear communications with participants;

9. For residential programmes, provide access to in-house library and post training sports and entertainment facilities (if feasible);

10. KRCs must adhere to the timeline communicated in the schedule of the training programme. It is mandatory to have a slot for Question & Answer at the end of each session;

11. All online training should be recorded for future reference;

12. Separate attendance sheets to be filled on each training day (with session-wise attendance details), duly signed by all the participants and the course coordinator(s).

13. Group photographs, with date & time stamp, must be documented for each training programme, with all the participants, coordinator(s) and resource persons.

14. KRCs must ensure that all participants fill the NJJM's standard feedback forms (annexed) immediately after the completion of the programme.

15. During on-line programmes, it is mandatory for all participants to keep their video on for the entire duration of the programme and maintain decorum;

16. During on-line programmes, KRCs shall take screenshots of participants and attach the same along with attendance sheets submitted to NJJM.

Post-Training

1. Compile the results of the 'expectation analysis' of participants and their feedback;

2. Submit an analytical report to NJJM at the end of each programme along with the attendance record. Short fall in attendance, if any, also must be reported;

3. Ensure the improvement in the subsequent programmes based on the feedback analysis;

4. The KRCs must abide by all the activities and responsibilities mentioned in the “Guidelines for Capacity Building by Key Resource Centres” issued by NJJM, and available on the JJM website https://jalshakti-ddws.gov.in/sites/default/files/revised_krc_guidelines.pdf;

5. Within one month of completion of a training programmes, KRCs must submit the mandatory documents to NJJM *viz.* Utilisation Certificate (in the prescribed format), Audited Statement of Account (audited by CAG empaneled CA) in hard copy to: Under Secretary to the Government of India, JJM-V Division, Room No. 1209, Department of Drinking Water and Sanitation, Ministry of Jal Shakti, Antyodaya Bhavan, CGO Complex, New Delhi-111 003. A soft copy of the above documents along with the attendance sheet(s), screenshots/ group photograph and feedback forms of the participants must be submitted to krc-njjm@gov.in.

W-11011/34/2021–JJM–V–DDWS-Part (2)

Government of India
Ministry of Jal Shakti
Department of Drinking Water and Sanitation
National Jal Jeevan Mission

4th Floor, Antyodaya Bhavan,
CGO Complex, Lodhi Road,
New Delhi – 110 003

Dated 13th January, 2022

To,

Head/ Director
Key Resource Centre under JJM
(All KRCs)

Subject: Instructions for conducting training programmes – reg.
Reference: Consolidated Instructions for KRCs issued vide e-mail dated 03.11.2021.

Madam/ Sir,

Jal Jeevan Mission (JJM) is being implemented to ensure every rural household has assured drinking water supply in adequate quantity of prescribed quality on regular and long-term basis at affordable service delivery charges leading to improvement in living standards of rural communities. To achieve these objectives, greater emphasis is being given to capacity building of stakeholders of all levels.

2. The efforts being made by the KRCs in organizing capacity building programmes under JJM is commendable. It will help in developing 'responsible and responsive leadership' in water sector at multiple levels.

3. To make the capacity building programmes more beneficial to the participants, a list of general instruction to be followed by the Key Resource Centres for organising training programmes was circulated vide email dated 03.11.2021. In addition to the general instructions, the following instructions are also required to be complied with:

i. Two photographs with all the participants – one at beginning(inaugural) and anther at the end of the training programme(valedictory) should be taken (screenshots in case of online programmes with cameras of all participants in on mode);
ii. Session-wise attendance of the participants should be taken and duly authenticated by the Course Coordinator;
iii. Feedback (in the prescribed format) from every participant duly signed by him/ her to be taken. KRCs may translate the feedback form in local languages, if required;
iv. KRCs may explain the importance of feedback form to the participants during the session, if required.

All these information should be e-mailed to NJJM at the end of training programmes at krc-njjm@gov.in.

4. Further, it is also informed that States/ UTs have been requested to ensure that participants attending training programmes being organised by KRCs should submit their feedback forms at the end of training programmes, without fail.

Yours faithfully,

(Dharmendar Rai)
Under Secretary to Govt. of India

Copy to:

Nodal Officer for Support Activities under JJM, all States/ UTs – for information and necessary action.

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Government of India
Ministry of Jal Shakti
Department of Drinking Water and Sanitation
National Jal Jeevan Mission

4th Floor, Antyodaya Bhavan,
CGO Complex, Lodhi Road,
New Delhi – 110 003
Dated 25th January, 2022

To,

Head/ Director
Key Resource Centre under JJM
(All Level-3 KRCs)

Subject: Instructions for conducting L-3 training programmes – reg.

Madam/ Sir,

As you are aware, Jal Jeevan Mission is a time-bound programme. The L3 KRCs are playing a vital role in raising awareness and understanding of the programme among community level stakeholders through their capacity building which is very important for achieving the objective of the Mission.

2. The training programmes for L3 stakeholders have begun in many States. This Department has been receiving feedback from various stakeholders on the trainings organized so far. NJJM is issuing instructions to KRCs from time to time for compliance. However, it has been brought to the attention of this Department that Covid-19 protocols are not being followed properly during residential trainings. This is a matter of serious concern. Therefore, you are once again advised to ensure that all Covid-19 protocols/ precautionary measures are strictly implemented.

3. Further, the following instructions are also required to be complied with:

i.) The KRCs must ensure basic training infrastructure like projector, proper seating arrangements, etc. in all training venues.
ii.) Sessions need to be handled by Resource Persons/Speakers having wide experience and thorough knowledge of JJM & rural drinking water sector.
iii.) Sessions need to be fully interactive through games, quizzes etc. making training more effective.
iv.) Training materials translated into local languages may be shared with the participants.
v.) The training venues should be close to the District/ Blocks from which participants are expected, so that it will be convenient for the participants to attend the trainings.
vi.) The amount approved/ sanctioned for the KRC should be utilized for the purpose for which it is approved/ sanctioned. Diversion of funds/ subletting will lead to termination.
vii.) Obtaining feedback from every participant in the prescribed format is mandatory. If it is in vernacular language, the same is to be translated in Hindi or English before submitting it to NJJM.

6. You are requested to note the above mentioned points for strict compliance.

Yours faithfully,

(Dharmendar Rai)
Under Secretary to Govt. of India