



District Level Workshop on Empowering Gram Panchayats in Water Conservation and Solid Waste Management

District Water and Sanitation Mission,
Zilla Parishad Palghar

ग्रामीण भागांमध्ये पावसाचे पाणी साठवणे व पुनर्भरण करणे (रेन वॉटर हार्वेस्टिंग)

सेंटर फॉर वॉटर अंड सॅनिटेशन (CWAS)
सी.आर.डी.एफ, सी.ई.पी.टी युनिव्हर्सिटी
(CRDF-CEPT University)

सहयोगाने
HDFC बँकेचा परिवर्तन उपक्रम



अधिक
वाचण्यासाठी
स्कॅन करा

**ग्रामीण भागांसाठी
घनकचरा व्यवस्थापन
मार्गदर्शक पुस्तिका**

सेंटर फॉर वॉटर अँड सॅनिटेशन (CWAS),
सी.आर.डी.एफ., सी.ई.पी.टी. युनिव्हर्सिटी
(CRDF-CEPT University)

सहयोगाने
HDFC बँकेचा परिवर्तन उपक्रम

MATERIAL RECOVERY FACILITY (MRF)



अधिक
वाचण्यासाठी
स्कॅन करा



District Level Workshop on Water Security and Solid Waste Management

Zilla Parishad, Palghar,

Date: 11th March, 2026



Center For Water and Sanitation, CRDF, CEPT University

CWAS
CENTER FOR WATER
AND SANITATION

CRDF
CEPT RESEARCH
AND DEVELOPMENT
FOUNDATION

CEPT
UNIVERSITY

HDFC BANK
PARIVARTAN
A step towards progress

About CWAS . . .

CEPT University's core focus is human habitat. Through its education, research and advisory activities, it strives to improve the impact of habitat professions in enriching the lives of people in India's villages, towns and cities.

CEPT Research and Development Foundation (CRDF) has been established by the University to manage their research and capacity building activities. There are nine domain-focused centers in the CRDF. The Center for Water and Sanitation (CWAS) is among the first center to be established.

CWAS began its work in 2009 with focus on improving water and sanitation services in India. It carries out activities related to action research and capacity building - working closely with city and state governments, enabling them to improve delivery of services. CWAS is closely engaged with Faculty of Planning at CEPT University. CWAS team teach and guide students of Faculty of Planning.





Water Security



Why Water Security is Critical for Palghar



Approx 40% of rural Maharashtra faces seasonal water scarcity



Increasing water scarcity during summer months



Irregular rainfall and climate change impacts



Groundwater levels are declining; borewells dry up in summers



Women and girls spend hours daily fetching water.

Safe, reliable drinking water is an urgent necessity for all households

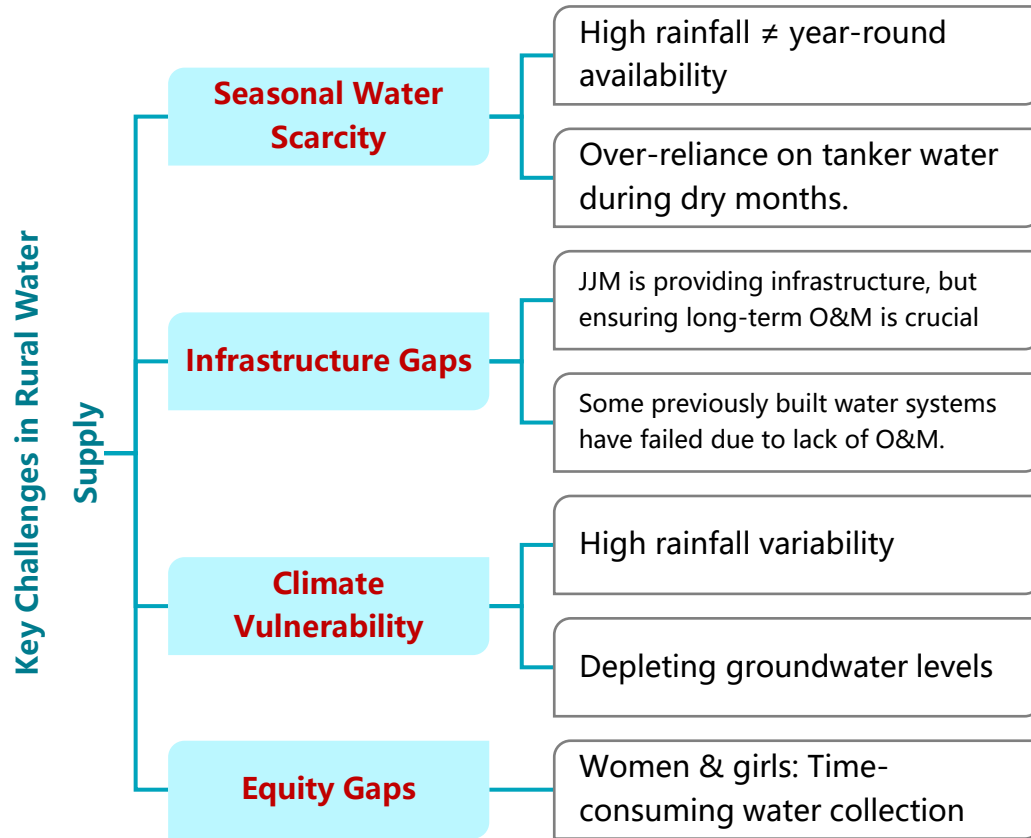
How Villages Currently Manage Water

Current Practice	Key Problem
Open dug wells	Contamination, drying up in summer
Community borewells	Erratic power, frequent breakdown
Jal Jeevan Mission piped schemes	Gaps in coverage, O&M neglect
Rainwater collected in open pots	Unsafe storage, contamination
No water quality testing	Silent health risk

Access is uneven, unreliable, and often unsafe



Key challenges in rural water supply





June-September



March-June

The case of Palghar District: Heavy Monsoons Accompanied by Acute Summer Scarcity

Palghar receives ~2,500 mm of rainfall annually, yet most of it is lost as rapid runoff.

The Conflict: Heavy monsoon rains (June-September) are followed by acute scarcity (March-June).

The Geographical Challenge: Tribal hilly blocks like Mokhada feature rocky terrain where natural groundwater recharge is incredibly slow.

The Social Impact: Schools actively lose attendance during summer months as children are pulled away to help fetch water.

**The Solution: Capture the monsoon surplus → Store it locally → Use it through the dry season.
Storage, not rainfall, is the missing link.**

Strengthening local water security through Rainwater Harvesting



What is RWH?

Collecting and storing rainwater from rooftops or land surfaces for year-round use.

Why it works for Palghar:

- Utilises simple, low-cost structures that can be built at household, community, or institutional levels.
- Requires absolutely zero electricity.
- Designed for low maintenance and easy community management.

The Impact:

Directly increases water availability, reduces groundwater depletion, and empowers communities to manage their own water destiny alongside well revival and mini piped schemes.

Components of Rainwater Harvesting System

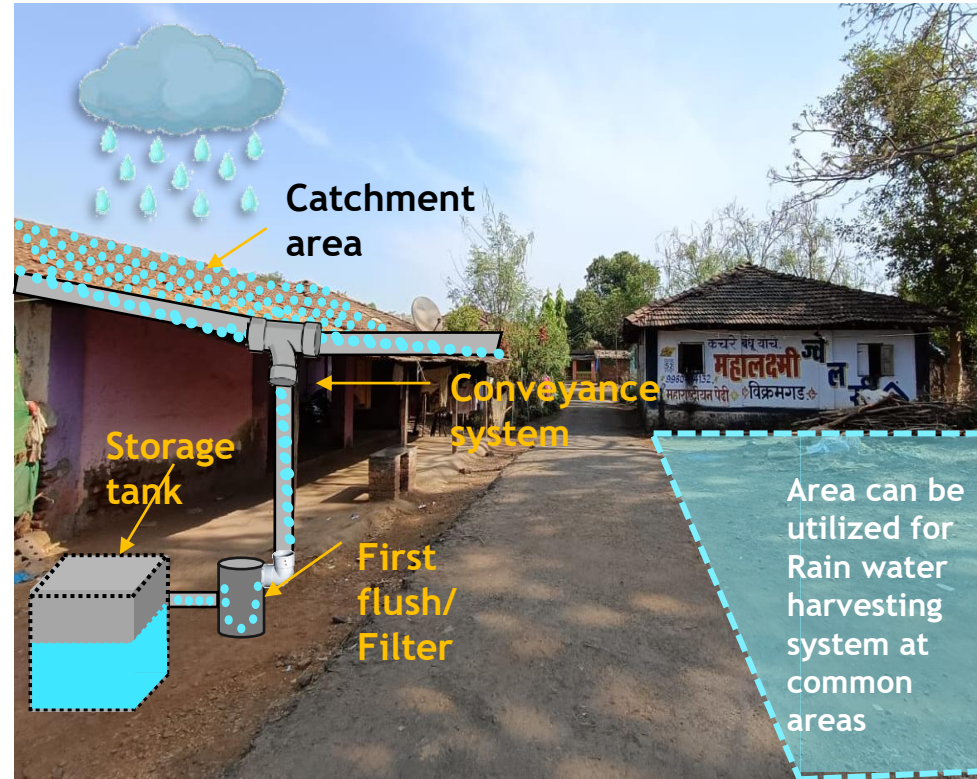
Key Components:

Roof/surface area to collect rainwater

Gutters and pipes to channel water

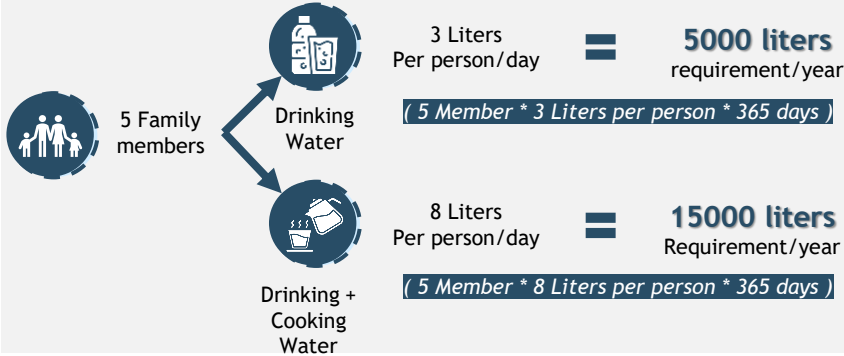
First flush system & Rain Filters

Storage tank and/or recharge structure



Example Design of a Rainwater Harvesting System

Annual drinking and cooking water requirement for a family of five:



Let's assume XY village:

- Annual average rainfall of XY village = 2500 mm/year
- Total households in XY village = 300 households
- Average roof area of households = 80 sq mt
- Runoff co-efficient = 0.8



$$\begin{aligned} \text{Total rainwater harvesting potential per households} &= 2500 * 80 * 0.8 \\ &= 1,60,000 \text{ liters/year} \end{aligned}$$



$$\begin{aligned} \text{Total rainwater harvesting potential for entire XY village} &= 1,60,000 * 300 \\ &= 4,80,00,000 \text{ liters /year} \end{aligned}$$



Let's assume,

$$\begin{aligned} \text{Annual water requirement for one household} &= 70 \text{ lpcd} * 5 \text{ persons} * 365 \text{ days} \\ &= 1,28,000 \text{ liters/year} \end{aligned}$$

Material requirement and costing for RWH Systems

For brick masonry tank (5000 liters)

	Items	Quantity
	Bricks	1600
	Sand	1.2 brass
	Rubble Stone	1 brass
	Cement	12 bags
	Steel (HYSD- 10mm)	80 kgs
	Water proofing solution	2 liters
	MS inspection chamber	1 number
	Handpump	1 number
	Rain filter	1 number
	PVC pipe - 75mm	15 meter



Tentative Cost of RWH Systems

Household Level : Cost - Approx ₹30,000 - ₹70,000

- Basic rooftop system; Depends on roof size & storage capacity

Institutional Level (Schools/Public Buildings) :

Cost - Approx ₹1,00,000 - ₹4,00,000

- Depends on building size & tank capacity

Do's and Don'ts for RWH

Proper rainwater harvesting ensures efficient water conservation and long-term sustainability.

Here are some key dos and don'ts to follow for effective implementation.

Do's of RWH



Divert initial rainwater before collecting it in the storage tank



Clean roof and gutters before every monsoon



Make sure the pipes are well maintained



Ensure the rainwater tank has a tight lid to block sunlight and prevent algae growth.

Don'ts of RWH

Do not store rainwater in tanks without proper covers.



Don't use paints, chemicals or hazardous substances on the roof



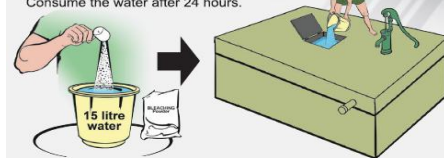
Don't leave the first rain separator valve open!
Remember to close it



Methods to disinfect water

Chlorination

Add scoop of bleaching powder to bucket of water and mix it with sump full of water. Consume the water after 24 hours.



Boiling

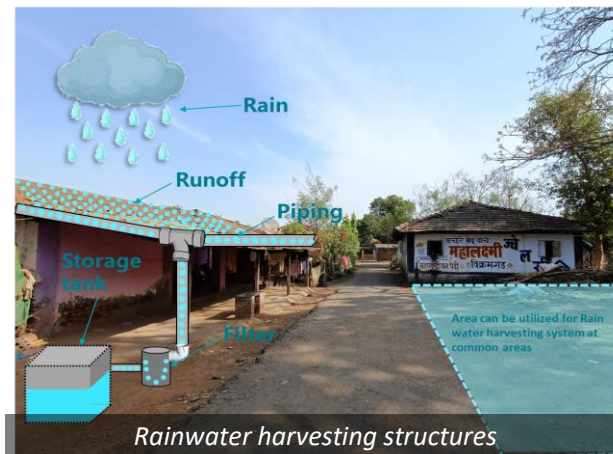


Always boil the water before drinking

Water security initiatives under our support

Rainwater harvesting at community and household level

- Focus on enhancing rainwater storage capacity at local level
- Design of Simple, Low-Cost Prototype Models
- Alignment with Jal Jeevan Mission "Catch the rain, where it falls and when it falls".
- Strengthen and refurbish existing infrastructure, new pilot projects for source sustainability.
- Capacity building and training for operation and maintenance of infrastructure.
- Convergence with PMAY and VBGRAMG schemes for scaling up across all households.



Beneficiary Contribution for digging work



Community level 5000 liters RWH tank

Rain water harvesting- Case examples

Examples of Rainwater harvesting at community and household level



Rain water harvesting

Why Rainwater Harvesting in Schools and Anganwadis?



Many government schools and anganwadis in villages do not have reliable water sources.

Existing water sources such as wells or handpumps often dry up during summer months.

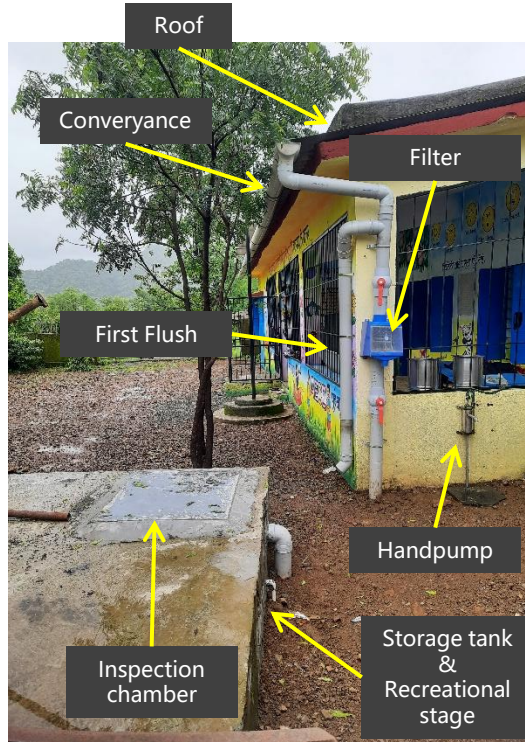
Lack of water affects drinking water availability, sanitation, and hygiene in schools.

Rainwater harvesting helps store rainwater during monsoon for use during dry periods.

Schools can also become demonstration sites to teach students about water conservation and rainwater harvesting.

Rain water harvesting- Case example

Rainwater harvesting at Institutional level



Rain water harvesting

Impact of RWH and Awareness campaigns

Impact of Rainwater Harvesting in Schools

- Stored rainwater provides a reliable source during summer months.
- Ensures water for handwashing, cleaning, and sanitation.
- Schools become demonstration sites for water conservation.
- Better student attendance and a healthier school environment

Capacity Building and O&M

- CWAS conducted training for school staff and community members on operation and maintenance of the RWH system.
- The system was formally handed over to the school management for long-term use.
- A **School Management Committee** has been formed to monitor the system.
- The committee ensures regular maintenance and proper use of the RWH structure.

Awareness and Learning

- Students learn about rainwater harvesting and water conservation, creating awareness from a young age



Rain water harvesting- Case example

Rainwater harvesting at Institutional level



Before



After

Reviving Shallow wells

Revival of dysfunctional wells and demonstrate recharge structures



Non functional well



Well revival



Old well in dilapidated condition



New dug well

The well revival Process

1. De-silting the base
2. Repairing the platform
3. Constructing protective parapet walls
4. Internal lining

Revived wells serve as backup source + groundwater recharge point

Reviving Shallow wells

Revival of dysfunctional wells and demonstrate recharge structures



Impacts of well revival

- Reliable local water source for the village
- Increased storage supports water availability during dry months.
- Improvement in water quality
- Enhanced natural groundwater recharge.
- Reduced risks and ensures safer access.
- Women spend lesser time for fetching water
- Lesser dependence on tankers

Reviving Shallow wells

Revival of dysfunctional wells and demonstrate recharge structures

Before



After



Before



After

Mini Piped Water Supply Schemes



The Approach: Building small- scale piped water systems that utilise reliable local sources (springs, wells, or borewells)



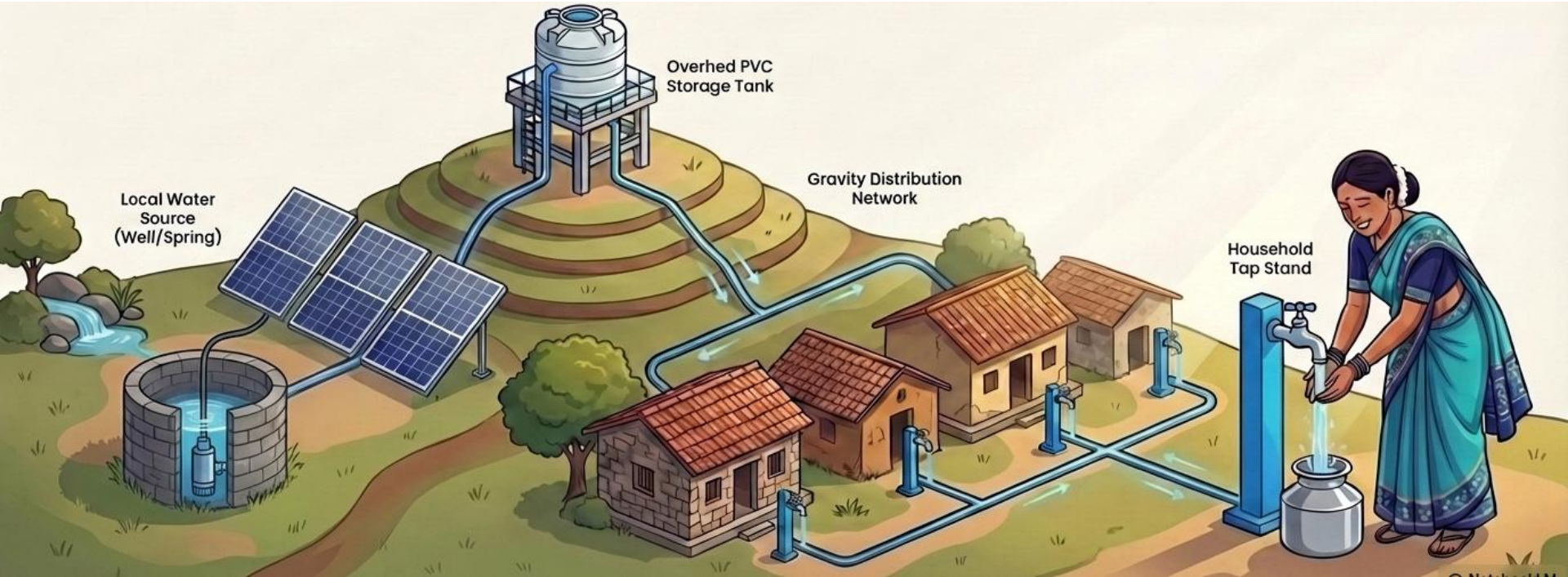
Local Progress: Mini PWS in 3 locations across Palghar and Dahanu blocks. Completed at 2 locations; ongoing at a third



How It Is Executed: Source assessment → Proper storage tank sizing → Pipe-laying → GP-managed O&M.



The Primary Benefit: Significantly reduces dependence on seasonal sources and ensures households receive water directly at their doorsteps



Mini Piped Water Supply Schemes



Completion of mini piped water supply scheme and handover to communities

Mini Piped Water Supply Schemes

Impact of Mini PWS

- Convenient access to drinking water
- Women and families spend less time fetching water
- Local storage and distribution ensure better water availability during dry periods

Operation and Maintenance

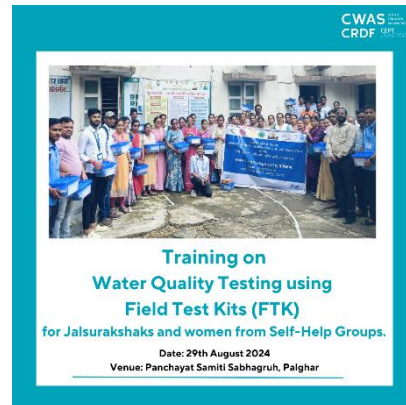
- A village water committee is formed to manage the system
- System is formally handed over to the village committee for long-term management.
- Monthly water user charges are collected to support maintenance and repairs.
- GP and community members monitor and sustain the infrastructure.



Completion of mini piped water supply scheme and handover to communities

Training on Water Quality Testing using Field Test Kits (FTKs)

- CWAS supported Panchayat Samiti, Palghar, Dahanu and Mokhada in Conducting training on water quality testing using Field Test Kits (FTK)
- Training provided to Jal Surakshaks and Self Help Groups on using Field Test Kits (FTKs) for water quality testing.
- Enables monthly testing of drinking water sources at the village level.
- Helps identify contamination in water sources at an early stage.
- Ensures safe drinking water for communities.
- Builds awareness on importance of water quality and safe water practices
- Empowers local stakeholders to monitor and report water quality regularly.



What YOU Can Do - Community Action for Water Security

Key Learnings from the Field



Local water storage is critical



Community Participation - The only way to ensure long-term sustainability.



Convergence with Government Schemes scale these solutions rapidly

Your Action Plan (What YOU Can Do)

Work with your GP to pass resolutions and implement solutions.

Identify specific locations for rainwater harvesting in your village.

Inclusion in GPDP for mobilization of funds

Take ownership to maintain existing wells and water structures

Promote water conservation practices amongst households.

Ensure regular water quality testing.



Solid Waste Management

ग्रामपंचायत गजोड, ता. डहणू, जिला रायचूर
स्यांडपाणी - घनकचरा व्यवस्थापन
सुका खतखडडा क्र. २. ओला कचरा.
जवळ भारत ००

Need for Waste Management

आपण टाकलेला कचरा शेवटी जातो कुठे?



Need for Waste Management

निसर्ग हा कचरा टाकण्याची जागा आहे का?



Current Practices & Challenges



- **Lack of Segregation:** Mixed waste cannot be recycled or sold. By mixing our waste, we destroy its potential economic value.

- **Open Dumping:** Tossing waste at village outskirts creates pollution hotspots and breeds disease vectors.



- **Burning Plastic:** Destroys the environment and creates immediate health hazards for those nearby.



- **Wet Waste in Fields:** Disposing of uncomposted food scraps in open open fields and drains causes foul smells and contamination.



- **Idle Infrastructure:** Many Gram Panchayats have built Material Recovery Facilities (MRFs), but they remain non-operational due to a lack of equipment and training.



NotebookLM

The Power of Source Segregation



(kitchen and food scraps): Must be composted locally to become nutrient-rich soil for agriculture.



(plastic, paper, metal, glass): Must be collected and sent to the MRF to be sorted, baled, and sold to recyclers.



(batteries, medicines): Requires special, separate disposal to prevent soil toxicity.

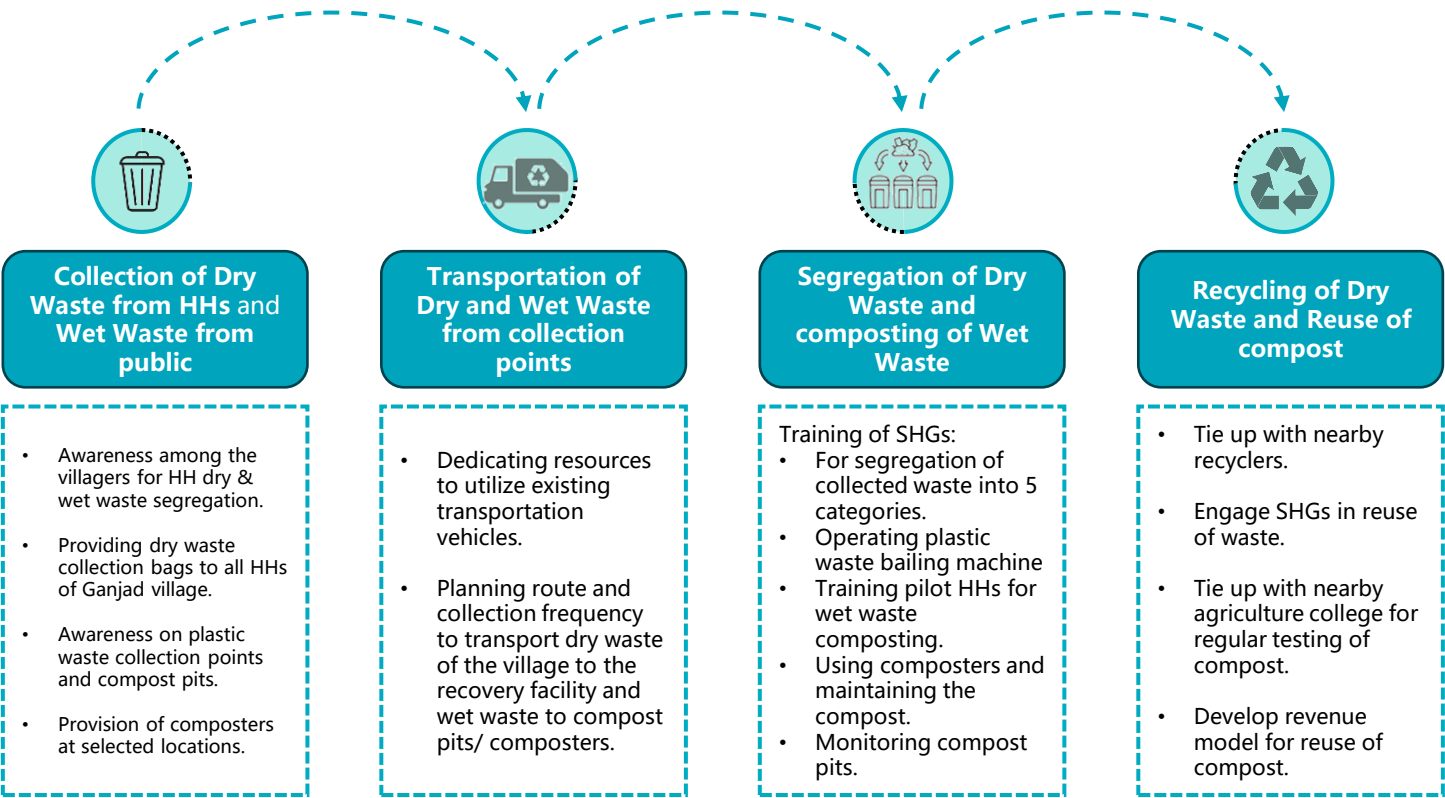
The Golden Rule: Segregated waste has economic value; mixed waste is just garbage that costs the village money to clear.

Simple steps for implementing SWM in villages



Ganjad GP - A Model SWM System

Waste Management Process



Phase 1 – Diwanpada Habitation
Population – 590; Households – 209;
Commercial – 90 shops + 50 (weekly market)

Phase 2 – Ganjad village
Population – 1966; Households – 367;
Commercial – 90 shops + 50(weekly market)

Phase 3 – Inclusion of 3 villages – Navnath, Somnath and Devgaon
Population – 7204; Households – 1342;
Commercial – 90 shops + 50(weekly market)

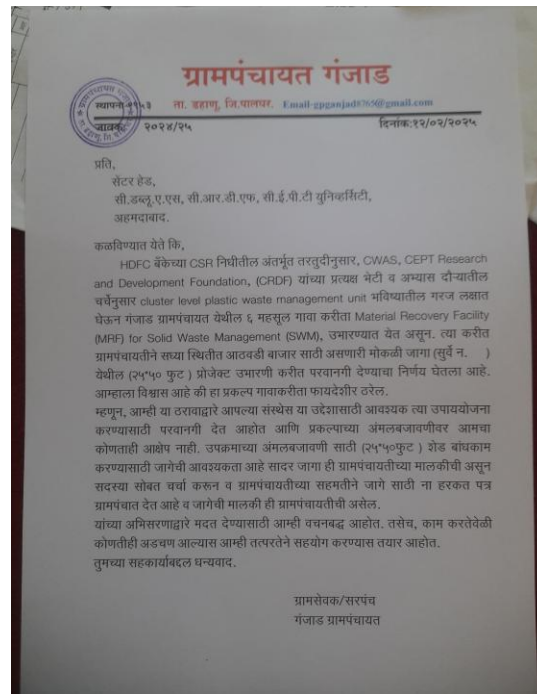
Phase 4 – Inclusion of 2 villages Manipur and Ganesbag
Population – 10027; Households – 1861;
Commercial – 90 shops + 50(weekly market)

A Model SWM System

Gram Sabha meetings

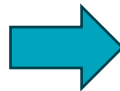


GP resolution

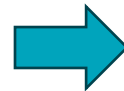


A Model SWM System

Awareness drives and distribution of plastic waste collection bags



Wet waste composters for household and institutional level



A Model SWM System

Improving collection and Transportation system

Wet waste- Daily basis
Dry waste- Weekly basis



A Model SWM System



Material Recovery Facility



Key Operational steps

- Involving women SHG's for operation and maintenance of Material recovery facility
- Cleaning, bailing, shredding of various types of dry waste
- Proper storage of dry waste in facility
- Send sorted dry waste to authorized recyclers
- Maintain records of waste sold for recycling or compost
- Start collecting SWM tax/user charges from household for operation and maintenance of SWM system in your village
- Track revenue generated from recyclables

Technical support for SWM



Support to Gholvad, Manor, Bordi Gram Panchayat for improving SWM in villages

Strengthening the capacity of GPs through expose visits and technical support to effectively utilize the existing infrastructure set up under SBM for its optimum functioning.

Awareness and distribution of storage bags at household level for source segregation.

Strengthening and training villagers/SHGs for operations for waste management facilities and engaging SHGs or sanitation workers for door-to-door collections

Developing operational model/ business model for waste management at cluster level. Explore market linkages linking with waste recyclers nearby Dahanu

A Cleaner Village Begins With Us

Key Actions for Rural Solid Waste Management



🌿 Together, we can build a cleaner, healthier, and sustainable village. 🌿

Convergence with existing Government schemes

Government Schemes for Water and Waste Management in Rural areas

Available capital for village sustainability



Convergence with State Programs

Majhi Vasundhara Abhiyan

Water theme — RWH and aquifer recharge through well/borewell rejuvenation

Earth theme — Waste segregation, dry waste and wet waste management

Enhancement theme – Engagement of SHGs



Strong Panchayats



Prosperous Villages



Sustainable Future

Chief Minister's Samruddha Panchayat Raj Campaign

Water Rich Clean and Green Village - Strengthening water sources
Solid waste and wastewater management

Livelihood Development - Active participation of Self-Help Groups



What GPs can do?



पंचायत समिती मोखाडा
ग्रामपंचायत विभाग



Email : bdomok@gmail.com
ज.क्र.पं.सं.मो.ग्राम/पं.जना/ वसो / ११२ / २०२६
दिनांक - २६ / ०२ / २०२६

प्रति,
१) मा. सरपंच,
ग्रामपंचायत सर्वे,
२) ग्रामपंचायत अधिकारी,
ग्रामपंचायत सर्वे,
ता. मोखाडा जि. पालघर

विषय :- घनकचरा व्यवस्थापना करिता ग्रामपंचायत विकास योजने अंतर्गत निधीची तरतुद करणे बाबत.

उपरोक्त विषयास अनुसरून आपणास कळविण्यात येते कि, पंचायत समिती मोखाडा मार्फत Center for Water and Sanitation (CWAS), CEPT Research and Development Foundation ही संस्था HDFC बँकेच्या मदतीने "गावांना पिण्याच्या पाण्याची शाश्वतता आणि घनकचरा व्यवस्थापन सुधारणे" अंतर्गत सहकार्याने पोशेरा येथे सुक्या कच-यावर प्रक्रिया करणे कामी प्रक्रिया केंद्र उभारण्यात येत आहे. सदर प्रक्रिया केंद्र येथे आपल्या गावात निर्माण होणा-या सुक्या कच-यावर प्रक्रिया करून सदर कचरा पुनर वापरा करिता पाठविण्यात येणार आहे. तरी आपल्या मार्फत आपल्या गावांमध्ये निर्माण होणारा सुक्या कचरा संकलन, विलगीकरण व सुका कचरा प्रक्रिया केंद्र येथे वाहतूक करणे कामी बघत गटांची अथवा कामगारांची नेमणूक करण्यात यावी. तसेच सदर नेमणूक करण्यात आलेल्या बचतगटांच्या मान्यताकरिता सन २०२६-२७ "ग्राम पंचायत विकास आराखडा (GPDP)" या अंतर्गत खर्चता व हागणदारीमुक्त गावाचा दर्जा राखण्यासाठी या घटकामध्ये रक्कम रु. १,२०,०००/- इतकी तरतुद करण्यात यावी व तसा अहवाल पंचायत समिती मोखाडा येथे माहितीसह सादर करण्यात यावा. अन्यथा आपणा मार्फत ग्रामपंचायत विकास योजने अंतर्गत मंजुरी साठी सादर करण्यात येणा-या आराखड्यास पंचायत समिती मार्फत मंजुरी देण्यात येणार नाही याची नोंद घ्यावी.


गटविकास अधिकारी
पंचायत समिती मोखाडा

What GPs can include in GPDP:

- Rainwater harvesting structures
- Well revival and groundwater recharge works
- Water storage infrastructure
- Solid waste management systems
- Operation and maintenance of SWM





**VIKSIT BHARAT -
GUARANTEE FOR ROZGAR
AND AJEEVIKA MISSION
(GRAMIN)**

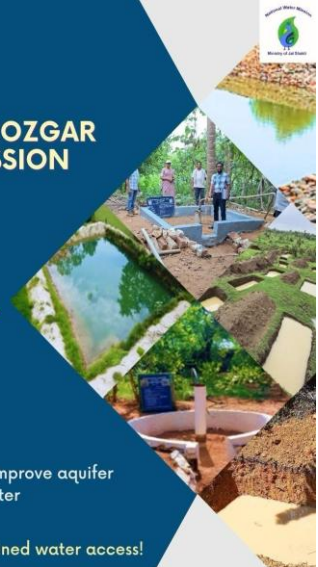
VB- G R A M G



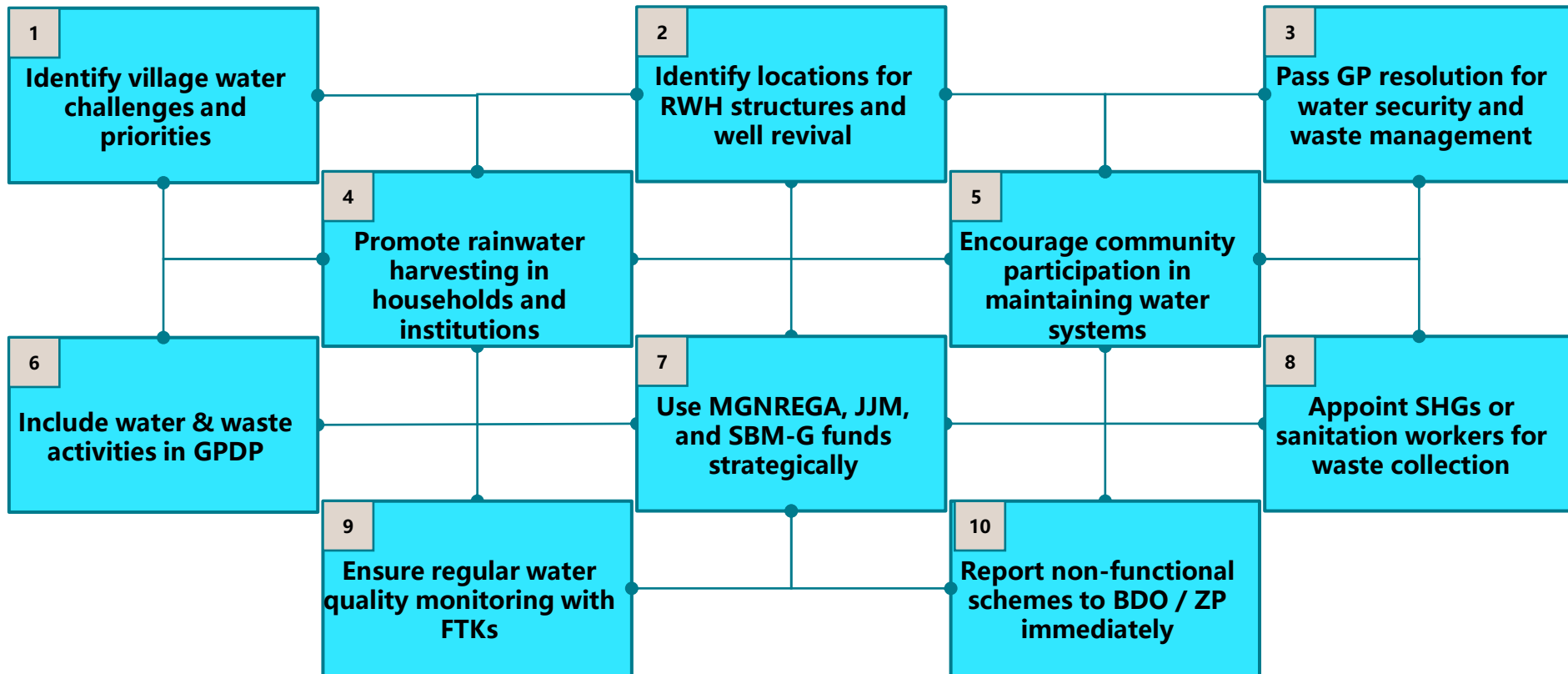
Reviving water bodies, restoring balance!

- Ponds,
- Percolation tanks,
- Recharge pits,
- Recharge shafts,
- Injection wells and
- Water harvesting structures improve aquifer recharge and year-round water availability.

From seasonal scarcity to sustained water access!



What Gram Panchayat's Can Do



Key discussion points

- “What water conservation or waste management activities are currently being implemented in your village, and under which scheme?” [Share your village level experience.](#)
- Would you take up Rainwater harvesting in public buildings and Composting or waste segregation units for your village in next GPDP? Suggest activities for inclusion in your GPDP
- Identify Government schemes under which you will fund these activities?
- “What support do Gram Panchayats need from Block or District officials for implementation of initiatives for water conservation and waste management?”

CWAS CENTER
FOR WATER
AND SANITATION

CRDF CEPT RESEARCH
AND DEVELOPMENT
FOUNDATION

**CEPT
UNIVERSITY**

About us

The Center for Water and Sanitation (CWAS) is a part of CEPT Research and Development Foundation (CRDF) at CEPT University. CWAS undertakes action-research, implementation support, capacity building and advocacy in the field of urban water and sanitation. Acting as a thought catalyst and facilitator, CWAS works closely with all levels of governments - national, state and local to support them in delivering water and sanitation services in an efficient, effective and equitable manner.

Thank you



cwas.org.in
pas.org.in



cwas@cept.ac.in
tiny.cc/pasenews



CEPT_CWAS



[cwas.cept](https://www.instagram.com/cwas.cept)



[cwas.cept](https://www.facebook.com/cwas.cept)



[cwas.cept](https://www.linkedin.com/company/cwas.cept)