

Sustainability of Water and Sanitation Services

SDG 6: Ensure Access to Water and Sanitation for All



Target 6.1: Safe and affordable drinking water

UN definition: By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

Target 6.2: End open defecation and provide access to sanitation and hygiene

UN definition: By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

Target 6.3: Improve water quality, wastewater treatment and safe reuse

UN definition: By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

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Target 6.4: Increase water use efficiency and ensure freshwater supplies

UN definition: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

Target 6.5: Implement integrated water resources management

UN definition: By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.

Target 6.6: Protect and restore water-related ecosystems

UN definition: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

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Target 6.7: Expand water and sanitation support to developing countries

UN definition: By 2030, expand international cooperation and capacity-building support to developing countries in water and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies.

Target 6.8: Support local engagement in water and sanitation management

UN definition: Support and strengthen the participation of local communities in improving water and sanitation management.

What are the challenges?

In 2024, 2.2 billion people still lacked safely managed drinking water; 3.4 billion people lacked safely managed sanitation,; and 1.7 billion lacked basic hygiene services at home.

Sustainability



The definition of sustainability with respect to water supply or sanitation system indicates:

- Provides an efficient and reliable service at a level which is desired.
- Can be financed or co-financed by the users with limited but feasible external support and technical assistance.
- Is being used in an efficient effective way, without negatively affecting the environment.

Sustainability



- Communities or households must be convinced of the desirability of new water sources, or particularly new excreta disposal facilities, in the first place.
- The financial costs which communities are expected to rise as a contribution to capital or recurrent expenses must be acceptable, affordable, or practicable.
- Communities must have felt ownership of the new infrastructure, so that repairs and maintenance should be taken place.
- Benefits promised at the outset of projects (e.g. dramatically improved health) must be materialized.

Sustainability



- Community education (e.g. hygiene education) and the attitudinal and behavioral change expected to be achieved by it.
- Full community participation or management should be planned in from the start, community-level committees and caretakers should be trained.

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Water services are sustainable if

- the infrastructure operates and is used effectively and efficiently
- the benefits of the service continue to be realised over a prolonged period of time where the quality, quantity, level of service, affordability, reliability, health, and economic spin-offs do not decrease over time
- the infrastructure is maintained in a condition which ensures a reliable and adequate water supply
- all O&M and replacement costs are covered
- water consumed is not over-exploited
- the management of the services is institutionalised (Water services provider in place)
- there is access to sufficient support
- there are no negative effects to the environment
- there are no unplanned external interventions.

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Hard ware and soft ware

- Sustainability is about systems that last – both 'hardware' and 'software'
- **Hardware** is the 'hard' or physical infrastructure such as pumps, pipes, taps and toilets which provide water and sanitation services
- **Software** includes all the systems, structures and activities to ensure that the services function. This includes community awareness and mobilisation, hygiene awareness, establishing management structures, putting in place systems for operations, maintenance and revenue collection, ensuring access to support (especially to community management structures)

Water Sources Hardware

- Rainwater Harvesting
- Field Trenches
- Sand Dams and Subsurface Dams
- Conjunctive Use
- Controlled Drainage
- Fog Drip
- Rivers, Lakes, Springs
- Man-made Reservoirs
- Dug Well, Manual pumping
- Desalination, Water source protection
- Retention basin
- Groundwater Recharge

Water Sources Software

- Creating Policies and a Legal Framework
- Strengthening Enforcement Bodies
- School Campaigns
- Empowering Young People as Promoters
- Media Campaigns - Internet and Email
- Creating Information Material
- Corporate Social Responsibility
- Social Marketing
- Water Charges
- Water Resources Assessment
- Water Allocation

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Key sustainability factors

- Ongoing operation and maintenance
- Financial sustainability (management and cost recovery)
- Appropriate infrastructure choice and design
- Community awareness, responsibility and willingness to pay
- Effective advocacy and communication
- Sound and sustainable institutional arrangements
- Integrated water, sanitation and hygiene services
- Local economic opportunities
- Improved health
- Integrated development planning



Sustainability: social issues

- Community participation and decision making
- Improved health and hygiene
- Effective communication and customer relations
- Involvement of women
- Training and capacity building
- People-centered, developmental approach
- Household responsibilities are understood

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Sustainability: governance issues

- Good policy in place
- WSA fulfills its roles and functions
- Participatory WASH development planning
- Appropriate WSP selected
- Clear roles and responsibilities
- Bylaws and contracts to regulate provision of services
- Monitoring and evaluation for sustainability
- Necessary support in place

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Sustainability: financial issues

- Awareness of all the costs in providing services (life cycle costs)
- Effective use of tariffs, transfers and taxes to ensure that all costs are covered
- Affordable tariff structuring
- Financial bylaws and provisions in place
- Appropriate billing and tariff collection system in place
- Accountability and transparency to customers
- Clear, enforced sanctions for non-payment

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Sustainability: technical issues

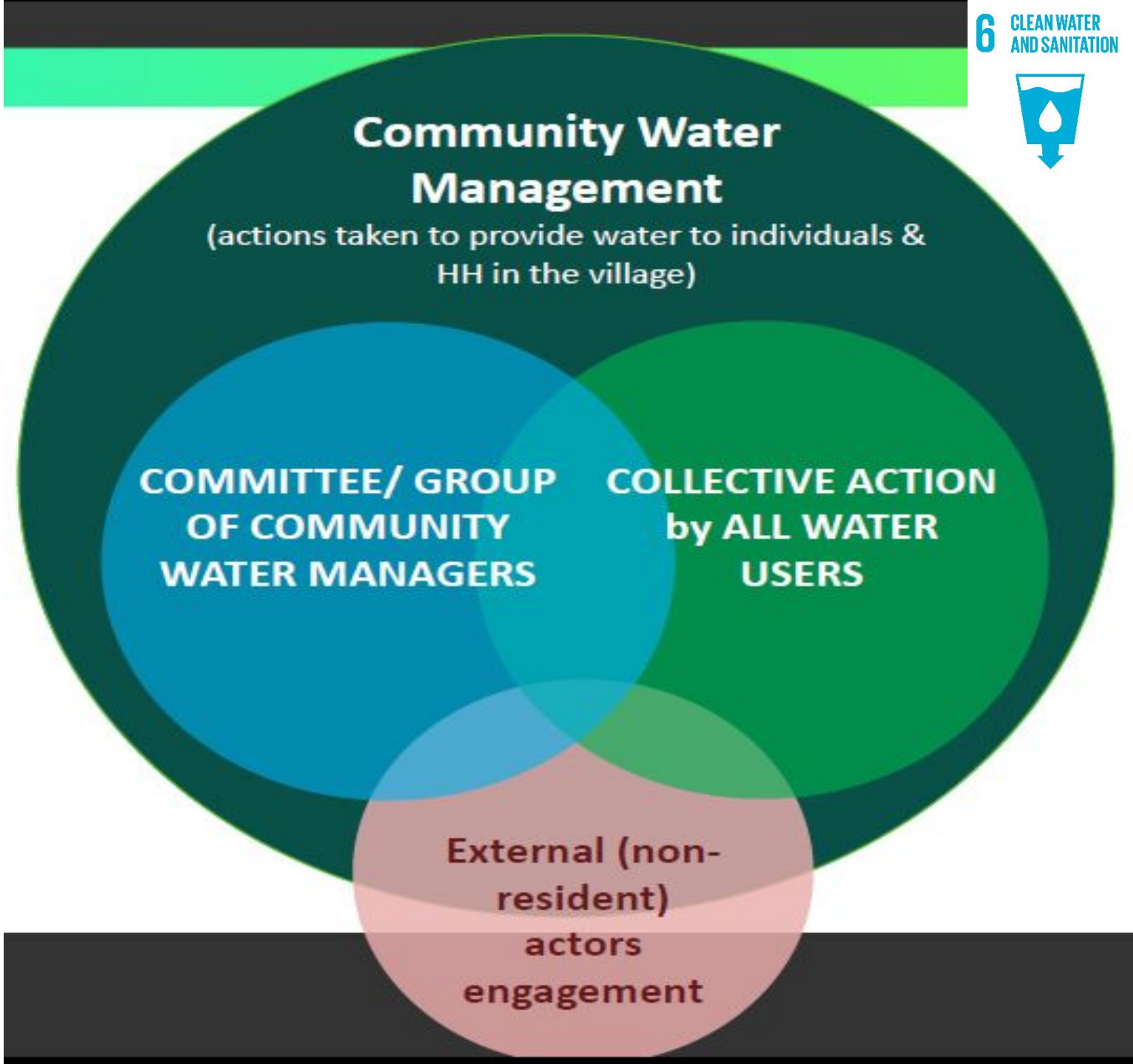
- Appropriate infrastructure choice and design
- Affordable technology
- Good quality implementation
- Ongoing operations and maintenance
- Supply chain management
- Access to technical support
- Integration with institutional and social development issues
- Ensure environmental sustainability

Community



- Group of people with common but also conflicting interests and ideas and different socio-economic and cultural background living in one geographic area.
- Water supply and sanitation systems can be common interest but at the same time source of conflict.
- As example at the community level part of it uses latrines whereas others use the open air.
- A very clear understanding of problems and potential solutions has to be shared by all involved.

“Good” community water management?



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COMMITTEE/ GROUP OF COMMUNITY WATER MANAGERS

1. **Maintenance** (proactive, timely, innovative)
2. Managing / encouraging **WQ Risk management** (mitigate hazards e.g. promote sanitation, maintenance, treatment/promoting HH treatment of poor water)
3. **Planning and managing supply** (multiple sources, storage capacity, plan for future demand and changes)
4. Managing **demand** (supply strategies with multiple water sources, awareness activities, community messaging about why, when and how to conserve water)
5. Efforts to achieve **inclusion** – physical accessibility, participation of gender, youth, vulnerable, all parts of village
6. Use of **policies and rules** (formal, informal)
7. **Managing finances** transparently and competently
8. **Monitoring** to guide improvements and report to community, support finances
9. **Consulting with and Reporting to community** for transparency and accountability
10. **Coordination and leverage between community committees/groups**
11. Ways, means and capacity to **access external support**
12. **Motivate and coordinate collective action**

COLLECTIVE ACTION by ALL WATER USERS

(By individuals, families, communities)

- Financial contribution
- Other direct action - maintenance, (reporting, doing), operations: conserving water use & using multiple sources

External (non-resident) actors engagement

- Technical advice (suited to current and future context) – planning, designing, construction, managing
- Finance – capital
- Spare parts
- Maintenance support
- Monitoring

Community Management- Water Supply

Community-managed water supply systems are decentralized, participatory approaches where local users operate and maintain water infrastructure to ensure safe, sustainable access.

Rainwater reservoir and ponds

- managed by individual or groups
- regular cleaning and desilting is needed to avoid contamination

Handpumps

- placed on shallow and deep wells
- maintained by users, mechanics and DPHE

Community water points

- piped system
- user group chooses a small committee to oversee proper water use and collect money

Community Management- Water Supply

Group taps

- used by taking one private connection and share the bill
- needs good facilitation and overall management structure

Vending Kiosks

- water is sold per bucket at public vending points
- elected water committee employ kiosk holders
- manages fund and takes care of maintenance and repair







Community Water Points

Community Management- Water Supply

Local Distribution Net

- communities buy water from the urban utility
- install metered connection or fills reservoir
- local community distributes to user

Small Autonomous Water Supply

- an elected management committee involves in treatment by multi-stage filtration

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Local Distribution Net

Community Management- Sanitation



Community-led sanitation management empowers local communities to take responsibility for, design, and maintain sanitation facilities.

On-site sanitation systems

- usually constructed by the users
- latrines (Home made, Ventilated Improved Pit, Water Seal) require maintenance
- communal collection for the disposal of latrine pits content

Shared sanitary facilities

- group of families living in the same cluster share one sanitary latrine
- user committee involves in locating and organizing its proper maintenance (fund collection, keep latrines clean)

Community Management- Sanitation

The condominial system

- a shallow sewerage system
- sewer pipes are installed in backyard's of the house and connect to main sewer lines
- community involves in waste collection and recycling

Pay and use latrines

- leased and managed by private sector
- maintenance and upkeep are ensured from revenues

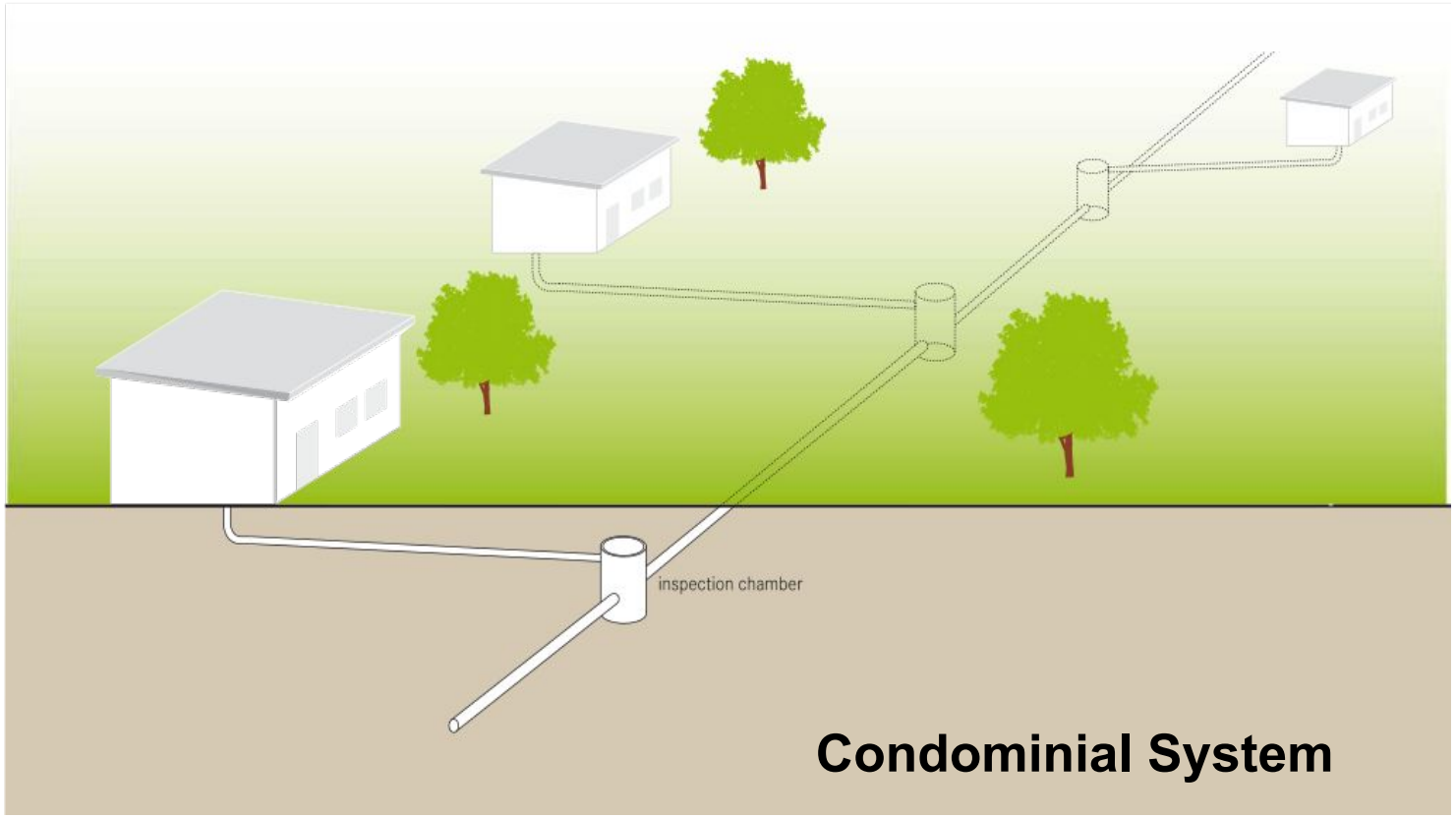
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Shared Latrine



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THESDGREPORT2025
PROGRESS IN WASH SERVICES
(2015–2024)
74%
68%
58%
48%
80%
66%
SAFELY MANAGED DRINKING WATER
SAFELY MANAGED SANITATION
BASIC HYGIENE SERVICES
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United Nations
Department of Economic and Social Affairs
FOR FULL REPORT
UNSTATS.UN.ORG/SDGS/REPORT/2025