

## OPERATIONS AND MAINTENANCE

### Key messages

- Operation and maintenance is done to ensure efficiency, effectiveness and sustainability of water supply and sanitation facilities.
- It encompasses training on technical, management, financial and institutional aspects.
- Operation and maintenance aims at accomplishing specific project targets, capacity building purposes for project management and long-term sustainability of the project.
- To recover costs of water and sanitation projects, the community should have records of costs, such as investment and recurrent (maintenance and operational).

### What you should do in the community

- Work with the elders, leaders and community members in the community.
- Talk to the community members about the importance of operation and maintenance of water and sanitation facilities.
- Help the community to identify where they can get spares and supplies within the community for operation and maintenance.
- Help the community to come up with a plan on income and expenditure in operation, maintenance and payment for caretakers.
- Assist the community to calculate the unit cost of water and cost per household.
- Help the community to identify those who will take care of the water and sanitation facility.
- Suggest to the community that it's important also to train the local artisans so that they acquire basic skills necessary to carry out operation and maintenance.
- Enable the community to come up with laws and regulations that govern the operation and maintenance of the facilities.

### Key messages on technical aspects of maintenance

- Routine maintenance - to be undertaken by caretaker: Maintenance work that is planned and done on a routine basis to prevent, maintain and preserve the condition of a system and restore them to adequate level of service e.g. fastening of loose bolts, bearings, unclogging of drains.
- Corrective maintenance to be undertaken by mechanic: Replacing/repairing some thing that has failed (such as replacing pump rods, replacing damaged valves and bearings etc).
- Crisis/emergency maintenance to be undertaken by mechanic: Maintenance undertaken only in response to breakdowns and/or public complaints, leading to poor service level, high O&M costs, faster wear and tear of equipment, and users' dissatisfaction.



- Preventive maintenance - to be undertaken by mechanic: Maintenance, including tests, measurements, adjustments, and parts replacement, performed specifically to prevent faults from occurring. The care and servicing by personnel for the purpose of maintaining equipment.

Examples of typical preventive maintenance repairs of a hand pump:

## Steps for trouble shooting/determining causes for a nonfunctioning hand pump - in order of sequence

### A. Pumping but no water flows out

- Check to ensure that there is water in the well or borehole.
- Check to see that the valves on the plunger rod and foot valve housing are not worn out.
- Check the pumping rods for dis-connections.
- Assist the community to select and recruit those to be trained – caretakers and mechanics- in the maintenance of water and sanitation facilities.

### B. It takes too long every morning to pump to have water start flowing

- Check if foot valve is leaking.
- Check rising main, may be leaking.

### C. Noise during pumping

- Check for loose bearings.
- Check for pump rods connectors.
- Check for pump rod centralizers.

## Ways in which the community can get project funds for O&M in order of priority

- Members' contribution (membership fee).
- Water sales.
- Organizing fund raising campaigns.
- From well wishers and friends.

## How to assist the community to come up with computing cost of water

- Assist the community to approximate population of households in a community to be served over a period of say, one month.

- Help the community to estimate the average consumption rate per house hold in the community.
- Explain to the community how to come up with the cost for operation and maintenance which should cover
  - salary for the caretaker.
  - transport cost for banking.
  - administrative costs which include purchase of stationery.
  - other community support services e.g. exchange visits for water committee.
  - purchase of spare parts and hire of artisan to do replacement.
  - cost of water from the service provider.