

## **COMMUNITY BASED OPERATION AND MAINTENANCE MANAGEMENT MANUAL HAS 8 PARTS**

- PART - A INTRODUCTION TO O&M MANAGEMENT
- PART- B DESCRIPTION OF WATER SOURCES AND TECHNOLOGIES
- PART - C TECHNICAL OPERATION AND MAINTENANCE REQUIREMENTS
- PART - D RURAL WATER SUPPLY SCHEMES MANAGEMENT
- PART - E RURAL WATER SUPPLY SPARE PARTS MANAGEMENT
- PART - F COMMUNITY BASED M&E AND REPORTING SYSTEM**
- PART - G WATER SUPPLY SAFETY PLAN
- PART - H PREPARATION OF ACTION PLAN

# Community Based Operation and Maintenance Management Manual for Rural Point Water Supply Schemes Part – F: M&E and Reporting System

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## **6. O&M MONITORING - EVALUATION - REPORTING**

### **6.1 General**

Monitoring and evaluation provide a systematic assessment of the functioning of an O&M system and its benefits to the community. Monitoring is the regular collection of information concerning performance. Evaluation uses monitoring and other data to provide an indication of performance, benefits and trends. Monitoring and evaluation are not ends in themselves. An essential outcome is that the findings are used to improve individual systems and general approaches to O&M at the programme level.

Daily check-ups of O & M and management, is a continuous task of WASHCO after starting to use the water scheme for sustainable use of the water scheme.

The monitoring described in this manual is a part of the overall IMS and M&E system. The section provides guidance on how monitoring of the O&M activities specifically related to capturing data on downtime, function rate of the hand pumps and spring, and the sales of spare parts at Woreda level might be carried out. This includes other data related to the performance of roles & responsibilities by stakeholders in rural water supply at Woreda and kebele levels.

Good monitoring promotes “**Transparency**” and “**Accountability**”, which can be established through “**Communication**” and “**Information sharing**”.

### **6.2 Purpose of the Monitoring**

- To identify the current condition of O & M and Management of the water scheme in order to take necessary actions without delay for ensuring sustainable use of the water scheme.
- To promote information sharing with the WWO and to enable the WWO to grasp the O&MM status of each WASHCO and provide necessary support without delay.

### **6.3 Objective of Monitoring**

- Determine whether communities have access to adequate quantities of safe drinking water (i.e. is 15l/c/d at a distance of 1.5km water of acceptable quality coming out of the spout/tap?).
- Assess performance of different stakeholders and strategies;
- Determine overall success rates for a O&M Management;
- Determine water service coverage figures;
- Identify problems early in order to find timely solutions and pre-empt failures;
- Identify community needs for technical and financial support;
- Measure service effectiveness, efficiency and equity; and Inform decision-makers to improve performance.

### **6.4 Main Monitoring Aspects**

The following are main aspects to be monitored.

❖ **Organizational or Managerial aspects**

- Practice of meeting
- Topics to be discussed and to be decided
- Keeping different records

❖ **Technical aspects**

- Function of the facility
- Practice of preventive maintenance
- Availability of spare parts (in case of hand pump type water scheme)
- Regular replacement of consumable parts of the equipment

❖ **Financial aspects**

- Practice of fee collection
- Amount of income & expenditure of the month
- Last balance in hand (cash) and in the bank

The cashier needs to report regularly to WASHCO and then WASHCO report to the users in community meeting and/or other means of communication such as “water billboard”.

- ✓ How much money has been collected and has been spent & on what?
- ✓ How much money is left in account?
- ✓ Who has not paid their contribution?

WASHCO members should check the accounts book and income and expense book on a regular basis. These financial records should be made available to all members of the community to inspect, ask questions, and get answers.

**6.4.1 Monitoring O&M**

**6.4.1.1 Problem statement**

The major problem with monitoring in RWSS has been the lack of appropriate monitoring tools, inadequate funding to Woreda Water Offices to carry out monitoring activities and the inadequate institutional framework to define the roles and responsibilities in monitoring (lack of a Monitoring mechanism).

**6.4.1.2 What and How to Monitor in O&M activities?**

The entire O&M process revolves around the status of the water point/ hand pump. To maintain the status of the water point, several parameters should be taken into consideration.

Below is an explanation of the parameters and how they relate to O&M of RWS.

**Table 6-1: Four Parameters which affect O&M**

No.	Parameters	Description
1	<b>User contribution</b>	Users contribute agreed amounts towards O&M
2	<b>Availability of spare parts</b>	spare parts and tool kits should be readily available at designated shops/ centers
3	<b>O&amp;M records/IMS/Monitoring</b>	Area pump mechanic prepare records of their repair work, caretaker maintenance books, treasurers prepare and keep records of income & expenditure books, WASHCOs prepare minutes of meetings
4	<b>Availability of skills</b>	For all the components, skills are necessary to manage finances and to know the technical problems to effectively carry out O&M activities

The following table describes what and how to monitor O&M activities according to five (5) O&M mechanisms.

**Table 6-2: What and how to monitor O&M activities**

Parameters/factors	Five O&M Mechanisms	Indicator to show that system is working	Instruction on What to monitor?
1. User contribution	1. Community contribution mechanism	<ul style="list-style-type: none"> <li>a) Availability of O&amp;M funds with WASHCO Treasurer (either at bank or with Treasurer)</li> <li>b) Adoption of banking system for contributions by WASHCO that are willing to do so</li> <li>c) Adoption and utilization of cash book for recording amounts contributed and expenditures</li> <li>d) Existence of RWS Bank Account at district for O&amp;M with funds from WASHCOs and maintaining individual WASHCO ledgers separately</li> </ul>	<ul style="list-style-type: none"> <li>a) WASHCO members inspect available funds with Treasurers. Checks household register, cash book or contribution registers with committee Treasurer. Physical count of cash is essential.</li> <li>b) Check how the Treasurer writes &amp; keeps records of contribution by users</li> <li>c) Check quarterly accumulation of O&amp;M funds at bank</li> </ul>
	2. Supply chain of spare parts mechanism	<ul style="list-style-type: none"> <li>a. Availability of established shop with spare parts</li> <li>b. Presence of trained sales &amp; accounts officers at district level.</li> <li>c. Issuance of receipts on sales made</li> <li>d. Cash deposits at bank</li> <li>e. Stock taking &amp; replenishment</li> </ul>	<ul style="list-style-type: none"> <li>a. Depending on which institution manages the supply chain, (WWO) Checks physical stock through stock taking quarterly using stock cards.</li> <li>b. Checking of bank statements &amp; Sales records should be carried out quarterly</li> <li>c. Reports (sales &amp; financial) should be submitted to WWO quarterly</li> </ul>
2. Availability of spare parts & tool kits	3. Tool kit management Mechanism	<ul style="list-style-type: none"> <li>a. Availability of tool kits at identified ADC centers in wards</li> <li>b. Tool kit management guidelines prepared</li> <li>c. Records of tool kit usage and movement</li> <li>d. Deposits of received tool kit user fees &amp; receipts issued</li> </ul>	<ul style="list-style-type: none"> <li>a. WWO conduct quarterly visit to WASHCO tool kit centers to inspect &amp; verify availability of tools and status, and checking tool kit movement forms to confirm APM activities</li> <li>b. Physical count of cash and receipts of cash received from Area Mechanics</li> </ul>
	4. Monitoring mechanism	<ul style="list-style-type: none"> <li>a. Established systems adopted and operational by WWOs</li> <li>b. O&amp;M information on status of hand pumps from WASHCOs reach WWOs quarterly</li> <li>c. Properly filled in WASHCO &amp; Area Mechanics reports</li> <li>d. IMS data base established &amp; fully operational at LAs</li> </ul>	<ul style="list-style-type: none"> <li>a. Focuses on repair work, performance of caretakers, WASHCOs, and Area mechanics on their roles and responsibilities.</li> <li>b. Holding of quarterly review meetings with Caretakers is essential. All reports must be submitted to WASHCOs and feedback obtained</li> </ul>
3. O&M records/ IMS/ Monitoring			

Parameters/factors	Five O&M Mechanisms	Indicator to show that system is working	Instruction on What to monitor?
4. Availability of skills/knowledge/ (Capacity development)	5. Repair work mechanism	a. Availability of trained WASHCOs members in all wards and able to carry out their roles/ responsibilities in CBM of O&M. b. Availability of APMs (inventory) with necessary skills/capacity to repair hand pumps & timely submission of reports.	a. Check APM reports for reduction in down time and function rate of hand pumps. APM completes this form after each repair, and submits report to WASHCO members b. Analyze frequency of repairs by each APM to determine how active APMs are, and how well they understand the nature of hand pump problems.

### 6.4.2 Monitoring Structures

Woreda Water Offices play a very important role in monitoring work as they are the bridge between communities and WASHCOs. It is not necessary that WWOs or stakeholders to always carry out physical visits to communities and water points because of the fact that it is not cost-effective and is time-consuming to cover vast area of schemes in kebeles. Therefore, it is required to establish bottom-up information flow as described on process diagram below; using CTs and WASHCOs so that WWOs will be able to collect RWS related information periodically and efficiently. For functional bottom-up monitoring structure, WASHCOs must be well-trained and fully aware of their roles and responsibilities.

**Figure 6-1: Monitoring structure under Woreda Water Office**

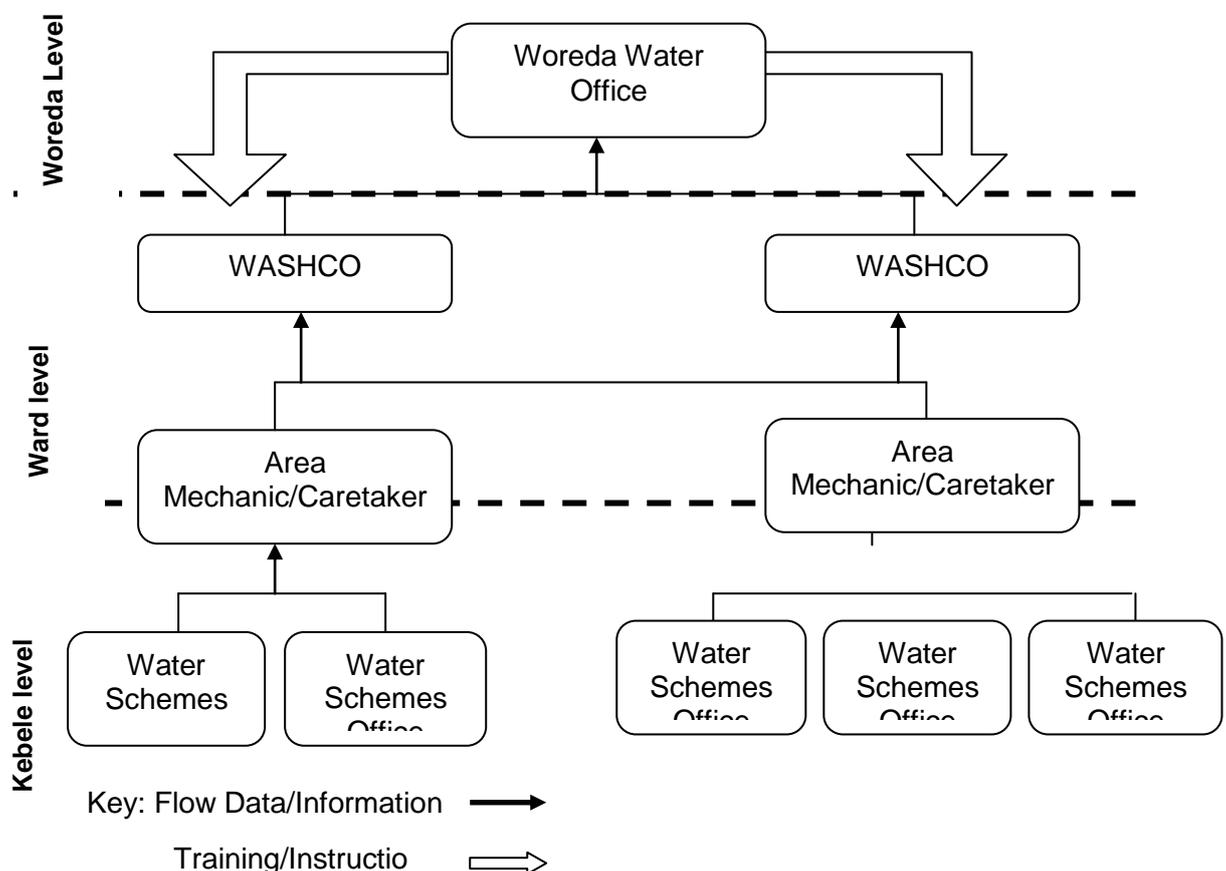
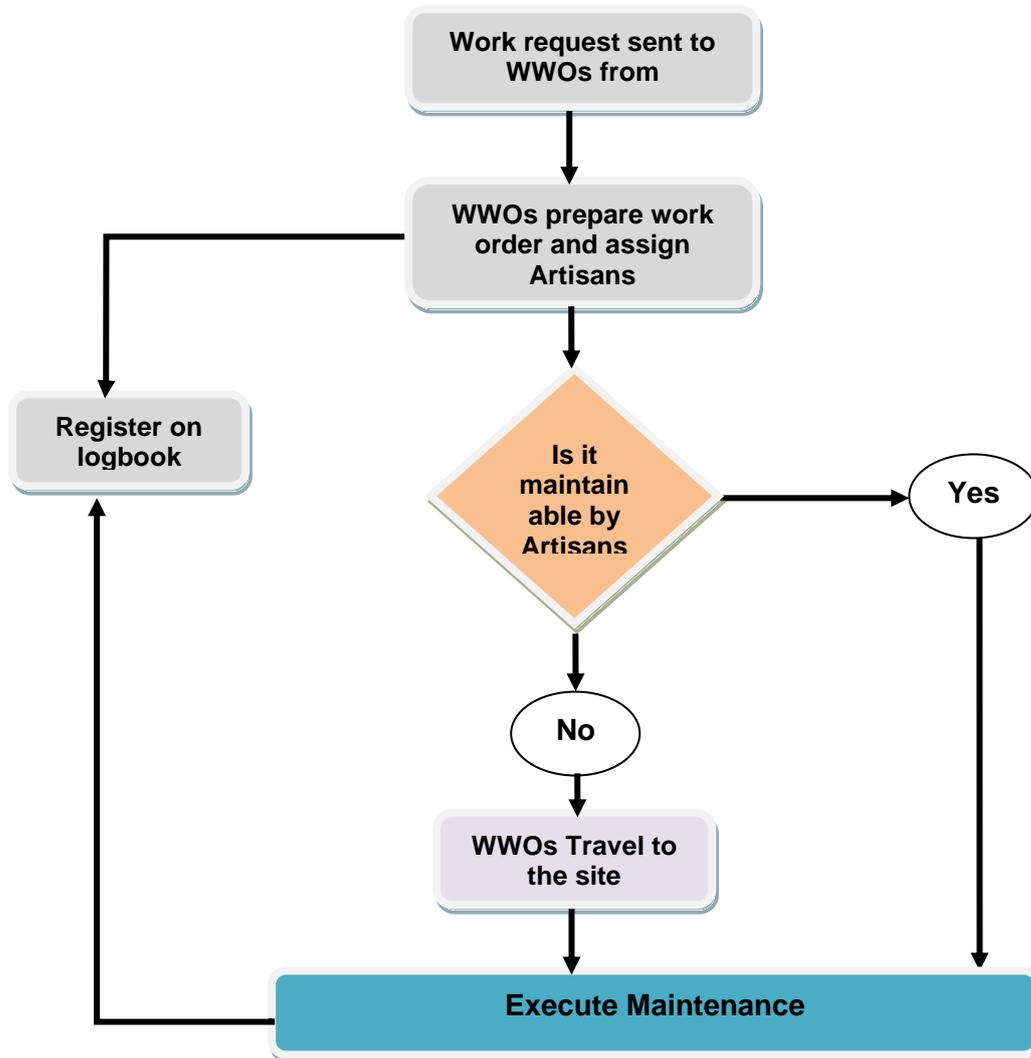


Figure 6-2 shows the work order flow process to execute maintenance activities.

**Figure 6-2: Flow Chart showing Work Order Process**



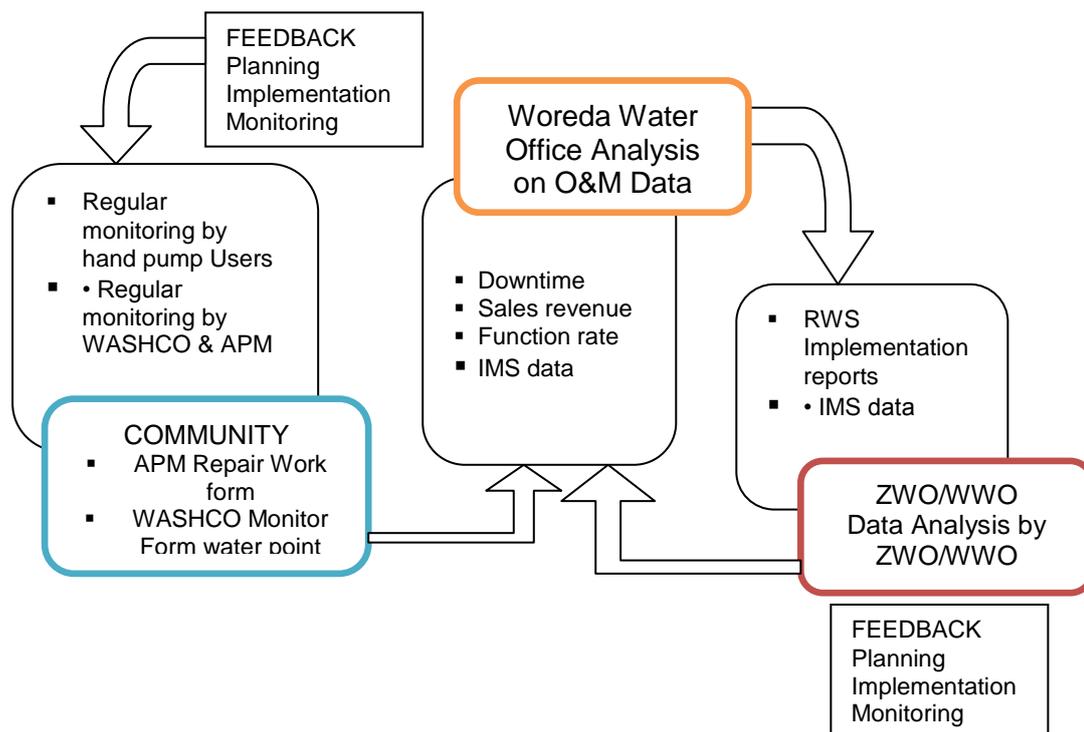
### 6.4.3 Process of Monitoring and Information Flow

Figure 6-3 describes the monitoring process, for O&M and information flow which should be followed by all stakeholders involved in monitoring.

In monitoring, the Woreda WASH Team checks if the established O&M mechanisms are working, and if required information on status of water supply schemes is reaching them. In doing so the major aspects to be monitored are downtime, function rate of hand pumps/point water sources, and the sales revenue at the spare part shop.

The table of parameters and O&M Mechanisms together with the flow chart above clarifies who does what, when and how information and feedback flow for the purpose of monitoring.

**Figure 6-3: Process of monitoring and information flow**



The table below summarizes the stakeholders in O&M, actions to be taken and the specific tools to be used in the monitoring process.

**Table 6-3: Actors and tools for monitoring**

Actors	Roles/ action to be taken	Tools or forms to be used
WWO	<ul style="list-style-type: none"> <li>Receives IMS and M&amp;E reports from WASHCOs</li> <li>Carries out data analyses &amp; overall planning, revision of RWS indicators</li> <li>Prepare &amp; review of manuals for Woreda</li> <li>Implementation &amp; monitoring support to WASHCOs</li> <li>Resource mobilization</li> </ul>	<ul style="list-style-type: none"> <li>IMS and M&amp;E systems Databases</li> <li>RWS implementation reports</li> </ul>
WASHCO	<ul style="list-style-type: none"> <li>Receives monitoring reports from Caretakers</li> <li>Analyses report and provides feedback/ action</li> <li>Prepares O&amp;M report to WWO</li> <li>Prepares sales revenue reports to WWO</li> </ul>	<ul style="list-style-type: none"> <li>WASHCO monitoring check list</li> <li>Sales reports</li> <li>Bank account statements</li> </ul>
APM	<ul style="list-style-type: none"> <li>Prepares APM repair work form and submits to WASHCO</li> <li>Monitor Water Supply Schemes</li> </ul>	<ul style="list-style-type: none"> <li>APM repair work form</li> </ul>
Caretaker	<ul style="list-style-type: none"> <li>Prepares &amp; keeps register for hand pump users</li> <li>Collects O&amp;M funds and records details in register/cash book</li> <li>Write minutes of meetings held</li> <li>Prepares daily maintenance sheet</li> </ul>	<ul style="list-style-type: none"> <li>Caretaker logbook</li> <li>Household register</li> <li>Register for O&amp;M collections/Cash book</li> <li>Minutes of meetings held</li> <li>Sweeping roster</li> <li>Rules and regulations</li> </ul>
Users	Make verbal or written reports to caretaker on hand pump faults	<ul style="list-style-type: none"> <li>Reports</li> </ul>

## 6.5 Monitoring Framework

In order for monitoring to be effective, it is essential that a practicable and sustainable framework be set up. This should include:

- 1) stakeholder responsibilities,
- 2) monitoring schedules and
- 3) Data requirements.

### 6.5.1 Stakeholder responsibilities

Woreda Council provides the optimum institution to assume overall responsibility for monitoring of rural water supplies. Government institutions such as:

Woreda Water Offices are normally responsible for managing monitoring activities, but rather than setting up completely new systems, existing networks can often be used to conduct monitoring. These may include:

- Woreda WASH Team (WWT)
- Woreda Water Offices (WVO)
- Water Extension Workers (proposed like HEW)
- WASHCOs
- Area Pump Mechanic and Caretaker
- Community Members

### 6.5.2 Monitoring Schedule

Quarterly monitoring should take place to allow for seasonal variations in rainfall, water levels, community activities, income and expenditure. Rather than collecting all information every quarter, however, certain activities such as user surveys can be conducted every six months, and information such as water quality data can be collected even less often. Table 6.3 presents an example of a quarterly monitoring schedule for community managed O&M.

**Table 6-4: Quarterly Monitoring Schedule Example**

Activity	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Observe facility status	√	√	√	√
Sustainability snapshot	√	√	√	√
User satisfaction survey		√		√
Interview with WASHCO/Caretaker		√		√
Interview with private Mechanic		√		√
Record groundwater levels	√	√	√	√
Measure water quality		√		
O&M Audit	√			

### 6.5.3 Data processing

Monitoring is only useful if the data collected is managed and used effectively. Performance indicators can be given different weights depending on perceived importance in order to analyze collected data and draw conclusions. Data collecting using the format provided should be filled and stored in the database with computer or recorded file.

### 6.5.4 Monitoring System based on Performance Indicators

Performance Indicators (PIs) are standards used to measure achievement of WASHCO's Caretaker's in the case of rural water supply schemes management. They are measures of change or results brought about by an activity or series of actions. A performance indicator is a guide to show how well WASHCO's and caretakers are doing in meeting their goals and objectives. Indicators are pointers, numbers, facts, opinions or perceptions that measure WASHCO's performance.

The importance of performance standards is underscored to ensure O&M water supply schemes.

The WASHCO's and Caretaker's need to be guided by these standards in the performance of their obligations which include ensuring the following:

- a. Level of O&M is adequate to the cost of the service;
- b. Compliance with required standards (water quality and material specifications);
- c. Operational efficiency;
- d. Achievement of community's satisfaction;
- e. Protection of the environment; and,
- f. Sustainability.

Performance Indicators are being used to monitor and evaluate the operation and maintenance stage of a number of rural water supply schemes. Such indicators serve a valuable purpose in determining the success or otherwise of an individual scheme being monitored and evaluated using a number of criteria on a regular, on-going basis, and provide the basis for timeous and appropriate interventions to assist in the long-term functional and financial sustainability of the schemes.

A good example of performance indicator is the ratio of preventive maintenance conducted to the corrective maintenance done. Before proper maintenance management system is put in place, the need for corrective maintenance might be higher compared to preventive maintenance. Analyses of technical performance (such as breakdown rate) and development of cost histories can be performed.

The Woreda Water Office should start with simple monitoring systems, perhaps just monitoring basic work order progress and basic costs, as shown (forms 1 & 2) in the monthly work request and work order summary and the quarterly report formats.

The following tables show the recommended lists of performance indicators for WWOs. The Regional, Zonal and Woreda WASH Program personnel will use them to perform quick evaluation. They also provide data to compare the performance between different

Woredas and Communities. Maintenance supervisors can use them to grade performance, identify weak spots and focus on improvement efforts. These results can be communicated to top management and form the basis for maintenance planning.

These key performance indicators are selected to implement in the O&M management. The main actors of KPIs implementers are WASHCOs, Caretakers and Area Pump Mechanics, while the responsibility of monitoring whether these KPIs have been implemented or not is WWO teams. All these KPIs are not applied to all WASHCOs. It depends on the situation, eventually can be added as they are necessary.

### 6.5.4.1 Operational Performance Indicators

#### i. Working Scheme

KPI	Unit	Definition	Reason for selection
Working Schemes	%	A simple count of the number of functioning on-spot supply is a direct indication of Operation and Maintenance status	It is one of the performance evaluation of the WASHCO's and Caretakers

Data required calculating coverage:

- A Total Number of functioning on-spot Schemes
- B Total Number of existing Schemes

The indicator is calculated as:

$$\text{Working Schemes (\%)} = \left[ \frac{A}{B} * 100 \right]$$

This indicator also points to the actual benefits that the water supply scheme provides because it is indirectly related to: i) the % of the population using the scheme, and ii) the per capita consumption.

**'Functioning'** means operational at least long enough every day for users to obtain their water requirements.

#### ii. Revenue collection efficiency

KPI	Unit	Definition	Reason for selection
Revenue collection efficiency	%	It is expressed as the total revenue collected in a year (Birr) divided by the total billed revenue in a year	Standard KPI which can determine the collection ratio can be used as a proxy for customer satisfaction with services provided.

The following data are required to calculate the indicator:

- A. Total revenue collected in a year (Birr),
- B. Total tariff revenue in a year (Birr),
- C. The revenue collection efficiency expressed as (%)

The indicator is calculated as:

$$C = \left[ \frac{A}{B} * 100 \right]$$

Note:

This indicator measures the revenue collection efficiency of the WASHCO. This shows how much revenue has been collected compared with how much has been sold in the reporting year.

### iii. Stock Availability

KPI	Unit	Definition	Reason for selection
Stock Availability	%	Effective stock control relies on: i) whether regular stock-takes are carried out, and ii) whether minimum stock levels of spare parts are maintained. Not having the required parts (especially critical items) in stock may seriously affect the WASHCO's ability to provide a reliable water supply.	In order for this indicator to be evaluated it is necessary for the WASHCO to have a list of the stock items considered necessary for the maintenance of the scheme.

Data required calculating coverage:

- A Number of necessary items in stock
- B Total Number of necessary items in stock

$$\text{Stock availability \%} = \left[ \frac{A}{B} * 100 \right]$$

### iv. Water Consumption

KPI	Unit	Definition	Reason for selection
Water Consumption	l/c/d	Total volume water sold to customers per person per day. Calculated as the total volume of water sold (per day) divided by the number of population served. Consumption is a function of tariff, reliability, distance to supply point and availability of alternative sources of water.	The provision of an adequate quantity of potable water to ensure the target set by MoWE for rural community that 15 l/c/d at a distance of 1.5km radius. The per capita consumption measure is particularly useful when viewed over a number of years so that trends in customer use can be tracked at each kebele/Woreda.

The following data are required to calculate the indicator:

- A. Total annual consumptions at point water sources (litres)
- B. Number of households uses the point water source
- C. Average number of persons living in the household
- D. Per capita consumption of point water source (l/c/d)

$$D = \left[ \frac{A}{(B * C * 365)} \right]$$

**Note:**

- Total annual consumption of each user at each point water source should be recorded by the caretaker. Each Jeri can container should be converted in to litres. For example there are Jeri can containing 20 litres and 25 litres.
- The lists of households using each point water sources should be recorded by the Caretaker including the corresponding daily water sold
- The average family size should be taken from CSA or can be obtained from the households

**6.5.4.2 Financial Performance Indicators****i. Basic O&M Cost Recovery**

KPI	Unit	Definition	Reason for selection
<b>Basic O&amp;M Cost Recovery</b>	%	This indicator shows whether the basic O&M cost recovery meets or not. The WASHCO must receive more money that it pays out each month if it is to remain in cost recovery. The scheme is in a break-even position if this indicator is consistently greater than 0%.	It is one of the crucial indicators to be measured to ensure the sustainability of the schemes and meet the water policy.

The following data are required to calculate the indicator:

- A. Total expenditure for operation & maintenance in a year (Birr)
- B. Total revenue (sales) in a year (Birr),
- C. The basic O&M cost recovery expressed as (%)

$$C = \left[ \frac{A}{B} * 100 \right]$$

**Note:**

- Account receivable (i.e. debtors) are included as part of sales,
- A portion of arrear may have to be written off each year according to the probability of being paid,
- Use a twelve-month moving average to smooth out monthly variations.

**ii. Cash Balance**

KPI	Unit	Definition	Reason for selection
<b>Cash Balance</b>	Birr	This indicator shows whether the basic O&M cost recovery meets or not. The WASHCO must receive more money that it pays out each month if it is to remain in cost recovery. The scheme is in a break-even position if this indicator is consistently greater than 0%.	It is one of the crucial indicators to be measure to ensure the sustainability of the schemes and meet the water policy.

The following data are required to calculate the indicator:

- A. Closing balance at end of previous month (Birr)

- B. Payment made in current month (Birr),
- C. Amount received in current month (Birr)
- D. Cash Balance (Birr)

$$D = [A - B + C]$$

**Note:** cash on hand is very important in order for the WASHCO to meet its current expenses. Cash flow problems may be experienced depending on the amount of money tied up, for example, in arrear payments for water. The cash balance indicator will indicate positive or negative trends.

**iii. Late Payment**

KPI	Unit	Definition	Reason for selection
Late Payments	%	If the ratio of accounts receivable (arrears) versus sales is steadily growing, it means that consumers are getting further and further behind in the payment of their accounts.	This indicates the actual collection of the revenue.

The following data are required to calculate the indicator:

- A. Total of arrears payment at end of period (Birr)
- B. Total of sales for period (Birr),
- C. Late payment (%)

$$C = \left[ \frac{A}{B} * 100 \right]$$

**Note:** use a twelve-month moving average to smooth out monthly variations.

**6.5.4.3 Management Performance Indicators**

Management performance addresses the capacity and effectiveness of the management structure and stakeholders, whether WASHCO, Caretaker or private service provider.

**i. Financial Accountability**

KPI	Unit	Definition	Reason for selection
Financial Accountability	%	Good management is not possible without financial accountability. The most basic requirement is that all income and expenditure is recorded in a generally accepted way. From this record, income and expenditure statements can be drawn up and the financial health of a system can be assessed.	This indicator is useful to the WASHCOs to ensure the sustainability of the schemes.

Recommended rate of this indicator are as follows:

Rating	Description
0%	If the WASHCO either cannot or will not disclose details of their income and/or expenditure
33%	If the WASHCO is willing to open its financial records for the inspection, but the records are incomplete and/or inaccurate and/or disorganized.
67%	If the WASHCO is keeping complete and accurate cashbooks for both their Petty Cash and their Current Account.
100%	If the WASHCO is able to produce income and expenditure statements (using generally accepted accounting principles) from their financial records (including accounts payable and account receivable).

**Note:**

At this stage the understanding of the more advanced aspects of the financial statements (for example concepts such as fixed assets, current assets, long term liabilities etc), is not critical. In time, however, those WASHCOs who prove most competent in their financial management could be given further training and taken onto a more advanced level.

**ii. Accountability “Up” to Woreda Water Office**

KPI	Unit	Definition	Reason for selection
Accountability for reporting to WWO	%	The WASHCO’s should accountable to reporting O&M management at regular interval specified in this guideline to the Woreda Water Office. Reporting lead to notify the status of the provision of water supply system in terms of technical, financial and managerial aspects.	Such indicators are important to identify the problems in day to day O&M management of the schemes and to look for immediate solution if problem exists. It is also important for the sector report in terms of the functionality rate of the schemes.

The following data are required to calculate the indicator:

- A. Number of report submitted to WWO
- B. Number of reports required to be submitted
- C. Accountability in delivering reports as (%)

$$C = \left[ \frac{A}{B} * 100 \right]$$

**Note:**

- It is unlikely that any reports will be submitted by the WASHCO unless they are requested by the WWO. The WWO will need to take an active and informed interest in the affairs of the WASHCO, it is to get useful reports from them,

- It is essential that the WWO give clear instructions to the WASHCO’s as to what is required to be included in the reports, and that the reporting requirements are both reasonable and achievable.
- The indicator could be made more sophisticated by adding a “Quality of Reporting” rating. If reports are complete and accurate, that should earn the WASHCO a 100% rating. Less complete or accurate reports should earn a lower rating.

**iii. Accountability “Down” to Community**

KPI	Unit	Definition	Reason for selection
Accountability for reporting to Community	%	The WASHCOs should be accountable to reporting O&M management at regular intervals specified in this guideline to the user community. Reporting leads to notify the status of the provision of water supply system in terms of technical, financial and managerial aspects.	Such indicators are important to report to the user community because it requires contribution of money and problems happening to find out a solution.

The following data are required to calculate the indicator:

- A. Number of meetings held with the community
- B. Number of meetings required to be held
- C. Number of meetings conducted as (%)

$$C = \left[ \frac{A}{B} * 100 \right]$$

The WASHCO as service provider has an obligation to provide adequate water service to the community. Regularly assembled community meetings, to which representatives of the Woreda Water Office are invited, are considered essential to ensure that problems (and compliments!) are heard.

**Notes:**

- It is essential that the WWO give clear instructions to the WASHCO as to what are the minimum reporting requirements for community meetings,
- The most basic requirements for the reporting to community meetings is to tell people how funds have been managed,
- As with the indicator in item (ii) above, the indicator could be made more sophisticated by adding a “Quality of Reporting” rating. If reports are complete and accurate, that should earn the WASHCO a 100% rating. Less complete or accurate reports should earn a lower rating.

**6.5.4.4 Maintenance Performance Indicators**

Maintenance performance is linked to functionality and applies to how well the system is actually maintained. This considers the quality of workmanship, response time, average downtime of the system, and relationship between maintenance provider and users. This applies to observed physical characteristics and customer views and perceptions.

**i) Maintenance costs as a %age of total operating costs**

KPI	Unit	Definition	Reason for selection
Maintenance cost against total operating cost	%	It is a measure of the relative level of maintenance costs in comparison with total operating costs.	Useful to know the expenses for maintenance activities with the over all operation cost, to plan for the future.

The following data are required to calculate the indicator:

- A. Total Annual maintenance cost (Birr),
- B. Total Annual operation and maintenance cost (Birr) excluding depreciation and financing charges
- C. The ratio of the maintenance cost against the overall operation cost (%)

The indicator is calculated as:

$$C = \left[ \frac{A}{B} * 100 \right]$$

**ii) Preventive Maintenance costs as a %age of total Maintenance costs**

KPI	Unit	Definition	Reason for selection
Preventive Maintenance cost against total Maintenance cost	%	It is a measure of the relative level of preventive maintenance costs in comparison with total maintenance costs.	Useful to know the expenses for preventive maintenance activities with the overall maintenance cost, to plan for the future. It indicates how the WASHCO planned to maintain before the scheme dies.

The following data are required to calculate the indicator:

- A. Total Annual preventive maintenance cost (Birr),
- B. Total Annual maintenance cost (Birr)
- C. The ratio of the preventive maintenance cost against the overall maintenance cost (%)

The indicator is calculated as:

$$C = \left[ \frac{A}{B} * 100 \right]$$

**iii) Preventive Maintenance costs as a %age of total Maintenance costs**

KPI	Unit	Definition	Reason for selection
Material cost against total Maintenance cost	%	It is a measure of the relative level of material costs in comparison with total maintenance costs.	Useful to know the expenses for spare parts and maintenance materials against that of the total maintenance costs,

The following data are required to calculate the indicator:

- A. Total material cost (Birr),
- B. Total annual maintenance cost (Birr)
- C. The ratio of the material cost against the overall maintenance cost (%)

The indicator is calculated as:

$$C = \left[ \frac{A}{B} * 100 \right]$$

**6.5.4.5 Environmental performance**

Environmental performance concerns environmental issues that influence or are influenced by the operation of the system. In particular, groundwater issues such as well yields, water levels and water quality can have a major impact on the operation and sustainability of a hand-pump water supply. By regularly monitoring such environmental indicators, problems such as falling water tables can be recognized in good time and appropriate remedial action, such as lowering the hand-pump cylinder, undertaken.

**i) Water Quality**

KPI	Unit	Definition	Reason for selection
Water Quality	No.	A water quality monitoring programme can detect any changes in water quality, which may indicate an Operation and Maintenance problem.	Useful to assess the operational practices of the WWO to ensure the health of the community. In this assessment: assess number of water quality tests undertaken every 6 months

The following data are required to calculate the indicator:

Indicator = Average of quality indices for selected key determinants,

Note:-

- The two key determinants recommended for the water quality monitoring programme are faecal coli forms and turbidity. It is recommended that residual chlorine is measured for reference purposes, but that this does not form part of the indicator.

- It is recommended that the quality index for a particular determinant for a sample meeting the WHO standard be set at 100%, that a Class I be set at 90% and a Class II be set at 70%. The quality index of a determinant which is below Class II standard should be set at 0%.
- It is recommended that at least three samples be taken on at least one sampling trip every six month. The samples should be taken accordingly to the prescribed method, and from different points in the scheme.
- Daily recorded observations by the WASHCO (using simple qualitative criteria such as colour, taste and smell) should be encouraged to supplement the formal water quality monitoring programme.

## 6.6 Performance Evaluation of O&M

Performance evaluation is the outcome of interpreting a range of performance indicators in relation to their respective targets. Indicators are collected at regular intervals through regular reports, to track the way in which a system is performing or an activity is unfolding. Skills and experience are needed in this process of interpretation in order to draw appropriate conclusions. This becomes particularly crucial when dealing with qualitative information.

The outcome performance evaluation has to be helpful in improving the future performance of the water supply system. Lessons have to be learnt from the performance being evaluated and when targets are set for future plan, these lessons have to be taken into account.

Evaluation requires the situation to be assessed both at the beginning and at the end of a certain activity.

The evaluation process begins at the scheme level as reports on input, output and performance, are generated and reported to WWO. The WWO for ZWO and RWB, for verification and assistance. The evaluation result obtained at the regional or Woreda level should be fed back to the respective schemes and management levels, through form shown in Table 6.5.

**Table 6-5: Feedback on Performance Evaluation**

No.	Key Performance Indicators	Criteria for Performance Evaluation	Rating
Woreda Name _____, Name of Kebele _____			
Scheme Name: _____, Name of WaSHCO _____			
1	Operational Performance	1. If the working status of the schemes is >90%, score=5 If between 80 and 89.9%, Score = 3 If between 70 and 79.9%, Score = 1 If < 70%, Score = 0	
		2. If the Stock availability is > 80%, score =5 If between 70 and 79.9%, Score = 3 If between 50 and 69.9%, Score = 1 If < 50%, Score = 0	

No.	Key Performance Indicators	Criteria for Performance Evaluation	Rating
		3. Water Consumption @1.5km radius is >15l/c/d, score =5 If between 10 and 14.9, Score = 3 If < 10%, Score = 1	
2	Financial Indicator	1. Revenue Collection Efficiency: If > 90%, Score = 5 If between 80 and 89.9%, Score = 3 If between 70 and 79.9%, Score = 1 If < 70%, Score = 0  2. Basic O&M Cost Recovery: if > 1.30, Score =5 If between 1.15 and 1.29%, Score = 3 If between 1.0 and 1.14 Score = 1 If < 1.0, Score = 0  3. Late Payment: If < 5%, score =5 If between 10 and 5.1% Score = 3 If between 15 and 10.1 Score = 1 If > 15%, Score = 0	
3	Management Indicator	1. Financial Accountability: <ul style="list-style-type: none"> <li>▪ If the WASHCO is able to produce income and expenditure statements (using generally accepted accounting principles) from their financial records (including accounts payable and account receivable), <b>Score =5</b></li> <li>▪ If the WASHCO is keeping complete and accurate cashbooks for both their Petty Cash and their Current Account., <b>Score = 3</b></li> <li>▪ If the WASHCO is willing to open its financial records for the inspection, but the records are incomplete and/or inaccurate and/or disorganized, <b>Score =1</b></li> <li>▪ If the WASHCO either cannot or will not disclose details of their income and/or expenditure, <b>Score =0</b></li> </ul> 2. Accountability for reporting to WWO If the WASHCO deliver the report by 100%, score =5 If 80%, score = 3 If 60%, score =1 If < 50%, score = 0  3. Accountability “Down” to Community If the WASHCO conduct meeting with community by 100%, score =5	

No.	Key Performance Indicators	Criteria for Performance Evaluation	Rating
		If 80%, score = 3  If 60%, score =1  If < 50%, score = 0	
4	Maintenance Indicator	1. If the number of maintenance personnel divided by the Number of schemes > 80%, score = 5  If between 50% and 79.9%, score =3  If < 50, Score =0  2. If the number of work orders for preventive maintenance divided by the number of total maintenance work orders  >-80%, score =5  If between 50% and 79.9%, score =3  If < 50, Score =0  3. If the number of work orders not completed (due to various ) divided by the number of total work orders (at the end of the month) < 10%, score =5  If between 10 – 20%, score =3  If > 20%, score =1  4. If the preventive maintenance cost divided by the total maintenance cost >25%, score =5  If between 10 – 24.9%, score =3  If < 10%, score =1	

More performance evaluation criteria to measure the performance of the WASHCOs and other stakeholders can be developed so that performance improvement plan develops to strategic for enhancement.

The evaluation should be carried out based on target set and over time. The above score criteria could be changed by discussion with various stakeholders and subject to change.

## 6.7 Performance based Rewarding and Penalty Mechanism

The performance of various stakeholders in the Operation and Maintenance management of the schemes will be evaluated based on the above criteria. For best performed WASHCO’s and other involved stakeholders will be rewarded while poorly performed will be penalized. This rewarding and penalty mechanism should be included in the By-law of the WASHCO. The type of rewarding and penalty should be decided by the region Water Bureau.

Based on the performance indicators specified in Table 6.5, as graded from 5 to 0, can be ranked as if score-5: Best Performed, score-3: Moderately Performed, score-1 Fair Performed, and score 0: bad performed.

**Note:**

- 1) **Minimum score:** WASHCO to score at least 39 marks to be eligible for O & M support fund as a token of appreciation of WASHCO towards sustainability of the scheme.

**Table 6-6: Evaluation Scale / Parameters**

No.	Scale/Rating	Total Score	Remarks
1	Best Performed	65	Sustainable
2	Moderately Performed	39	Moderately Sustainable
3	Fairly Performed	13	Fairly Sustainable
4	Badly Performed	0	Not Sustainable

**6.7.1 Provision for Highest scoring WASHCO:**

WASHCO scoring highest within each Woreda will be publicly recognized at each Woreda Officer (possibly on the occasion of Water Day) in collaboration with Woreda WASH Team. Woreda recognized and awarded special certificate with 15 days and Region Water Bureau/Zone Water office will offer rewarding to each of the best performed WASHCOs based on the above evaluation criteria..

Such mechanism mainly set for WASHCOs and caretakers who involved in O&M management of rural water supply schemes. Such incentive mechanism encourages people to improve their performance and those who perform badly will get lessons and experience to change themselves from best performed WASHCOs and others.

**6.8 Reporting and Documentation****6.8.1 General**

Reporting is an indispensable part of all management systems as it provides the key input to performance evaluation. Control of operation and maintenance activity is defined as obtaining conformity with the organizations plans and policies. Management control is dependent on performance reports and records. The information required for these reports must be generated by the operation and maintenance and accounting systems. Such reports allow management to measure performance and compare actual performance with standards and targets. The results may indicate that corrective action is required to obtain conformity with the plan.

This manual highlights the need of reporting and performance evaluation for the success of operation and maintenance management improvement needs.

## 6.8.2 Report requirements

### a) Daily Report

Daily report prepared by the scheme care takers, operators, or technicians of the water supply service and submitted to WASHCO, using the formats prepared for the purpose.

### b) Monthly Report

Monthly report prepared by the WASHCO and submitted to Woreda Water Office.

### c) Quarterly Report

The Woreda Water Office should submit quarterly performance reports to the ZWO & RWB. The ZWO & RWB, in turn, should compile and assess the quarterly reports received from Woredas and summarize them in to annual reports. These reports will provide data on the performance of O&MM activities, which could be used for analysis. Special trends, needs or requirements should also be conveyed to concerned authorities.

### d) Annual Report

Quarterly report prepared by the WASHCO/WWO and submitted to ZWO and RWB. The Woreda Water office shall provide technical assistance in the preparation of the report.

The following are some of examples of reporting system of WASHCO at two levels; (1) Reporting to the administration (WWO) and (2) Reporting to the user community.

The uniformity of the reporting formats is of paramount importance to all stakeholders involved. It will be highly useful for the reporting format to be uniform and revisable. This means, all Woredas will report in the same way and all reports will provide the same data. Such uniformity allows cross comparison, which will be useful to the Zonal WO & the Bureau, and also will allow WASHCOs and Woredas to “grade” themselves against others. It is also important that the reporting process should not be static. The above performance measures system should be added in the report.

A quarterly report format (form 5) is developed for use by the programme woredas. For the purpose of implementing this procedure, the programme shall apply this reporting format.

## 6.8.3 Reporting to Woreda Water Office

Regular reporting by WASHCO to the WWO is an important step to keep transparency and improvement of WASHCO management through close communication and supervision by supporting agency which is Woreda Water Office at the woreda level. Table 6-6 described the monthly reporting system based on various monitoring activities.

**Table 6-7: Description of Reporting to the Administration**

Monitoring Activity -1	Monthly Reporting to the administration
Objective	<ul style="list-style-type: none"> <li>❖ To enable WASHCO to review O &amp; M and management status regularly (monthly basis)</li> <li>❖ To establish close communication and information sharing between the WASHCO and the WWO</li> </ul>
Main Actors	WASHCO
Procedure	(1) WASHCO members have a meeting to review the following jointly

(See the sample of monthly report attached)	<p>at the end of each month to see;</p> <ul style="list-style-type: none"> <li>❑ <b>Financial aspects:</b> (monthly income and expenditure, balance (total of cash in hand and bank deposit, sufficiency of last balance to cover O &amp; M cost);</li> <li>❑ <b>Technical aspects:</b> (functioning of the water scheme, malfunction observed during the month, stock of spare parts);</li> <li>❑ <b>Management aspects:</b> (work performance of WASHCO members, organization of mass meeting (general assembly) to inform users of O &amp; M and management status, issues to be discussed with users);</li> <li>❑ Others to be discussed with the WWO</li> </ul> <p>(2) Secretary of the WASHCO formulate a monthly report by summarizing the points described above.</p> <p>(3) Submit the report to the WWO (any occasions that one of WASHCO members or other community member (e.g. kebele executive) goes to the Woreda town (e.g. market day, meeting held in woreda town, etc.)</p> <p>When WWO staff receives a monitoring report from WASHCO, he/she checks roughly the report to see if there is any serious problem in the use &amp; management of the water scheme as well as any progress of certain issues.</p>
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A brief monthly reporting for O&M of Afridev hand pump by WASHCO is presented in Table 6-7. It is just a demonstration that subject to modified.

**Table 6-8: Example of Monthly Reporting by WASHCO**

**WASHCO Monthly Report on O & M and Management  
(Example for Afridev hand pump)**

<b>Reporting month (Month/Year)</b>		Sene, 2005 E.C	
<b>1. Name of WASHCO</b>		_____ WASHCO	
<b>2. Name of Woreda/Kebele</b>		_____ Woreda, _____ kebele	
<b>3. Type of Scheme</b> (circle the water scheme managed by the WASHCO)			
<input checked="" type="radio"/> Afridev	<input type="radio"/> Indian Mark II	<input type="radio"/> On-spot spring	
<b>Gravity spring scheme</b>		<b>Motorized scheme</b>	
<b>4. Operation Hours</b>		(1 <sup>st</sup> service ) from 1 to 5 (2 <sup>nd</sup> service) from 9 to 12	
<b>5. Number of households in current use of scheme</b>			50
<b>6. Present WASHCO members</b>			
Chairperson: Tariku Tasew		Store Keeper: Hiwot Kassa	
Secretary: Tadele Kebede		Inspector: Takele Maru	
Cashier: Alemitu Alemu			
<b>7. Person Employee(s)</b>			

Title: Pump attendant	Name: Zeleke Tolla	Salary/annum: (birr): 2000.00				
Title:	Name:	Salary: (birr):				
Title:	Name:	Salary: (birr):				
<b>8.WASHCO Regular Meeting (Date/Month/Year)</b>						
<b>Main Agenda:</b>	(1) Income and expenses of the month					
	(2) Maintenance of Hand-dug well					
	(3) Purchase of spare parts for replacement					
<b>9. WASHCO Ad hoc Meeting (Date/Month/Year) (if any)</b>		None				
Main Agenda						
<b>10.General Assembly (Date/Month/Year)</b>		10/10/2005				
<b>11. Water Tariff</b>	3.00 Birr per household per month					
<b>12. Income of the reporting month</b>						
<b>Water fee collection:</b>	<b>150.00 Birr</b>					
<b>Other source ( )</b>	<b>0.00 Birr</b>					
<b>Total income of the month</b>		<b>150.00 Birr</b>				
<b>13.Expenses of the reporting month</b>						
Remuneration for pump attendant	120.00 Birr					
Transportation for reporting to the WWO	10.00 Birr					
Copy of monitoring form (10 copies)	5.00 Birr					
<b>Total Expenses of the month</b>		<b>135.00 Birr</b>				
<b>14.Bank Account/Micro-Financing(Name of Institute)</b>	Omo Micro Finance					
<b>15. Financial Summary</b>						
Amount of deposit	600.00 Birr					
Amount of cash in hand	120.00 Birr					
Total Amount for O & M fund	1,005.00 Birr					
<b>16. Technical Aspects</b>		Caretaker leader: Tesfu Birehanu				
<b>(1) Weekly Inspection</b>						
Check Date	1.Working condition		2. Does pump handle work Properly? (Yes/No)	3. Are bolts and nuts tightened? (Yes/No)	Remark	
	Check (Circle)	In case of "non-functioning"				
		When stop	When repair			
Hidar 1	Functioning	/	/	Yes	Yes	Water has not come up for unknown reasons
	Non-Functioning					
Hidar 8	Functioning	/	/	Yes	Yes	
	Non-Functioning					
Hidar 15	Functioning	/	/	Yes	Yes	
	Non-Functioning					
Hidar 22	Functioning	Hidar 21	Not yet	No		
	Non-Functioning					
	Functioning					
	Non-Functioning					

<b>(2) Monthly Inspection</b>							
Check Date	1. Stroke Test	2. Bucket Test	3. Check Bearing	Remarks			
	Number of strokes to have water	Number of strokes to fill up 20 liters	Worn out? (Yes/No)	*If stroke or bucket test result increase by 5 times compared to the previous result, you must check plunger and foot-valve according to "maintenance and installation sheet" that are included in the "Maintenance Manual of Afridev hand pump.			
Hidar 1	12	30	No				
<b>(3) Spare Parts Stock</b> (In regard to the "rod centralizer, enter the number of rod in the bracket)							
	U-seal	O-ring	Bobbin	Rod Centralizer	Bearing bush	Hanger Pin	Fulcrum Pin
For 1 year stock	2	1	1	(4)	8	0	0
Present stock	1	1	0	0	0	0	0
Last replacement	01/2004	01/2004	01/2004	01/2004	01/2004	01/2004	01/2004
Next replacement	07/2004	01/2005	01/2005	01/2005	07/2004	01/2006	01/2006
Issues and problems encountered and action taken							
The water scheme has not been functioning since 1 week. We need technical support (inspection) by the Woreda Water Office.							
Date of Submission: Tahisasse 1, 2004				Prepared by: Megersaa Tolla			

#### 6.8.4 Reporting to the Users

Management and performance of the water supply system need to be monitored. Also, community members need to find out when and where it goes wrong and they need to know what action to undertake to remedy the situation.

In particular, money contributed for O& M by water scheme users is **the community's money, so the community should know what is happening to their money.** If this is not done, the service level will go down as a result of breakdown, users will no longer be prepared to pay for O & M and the system will ultimately fall apart.

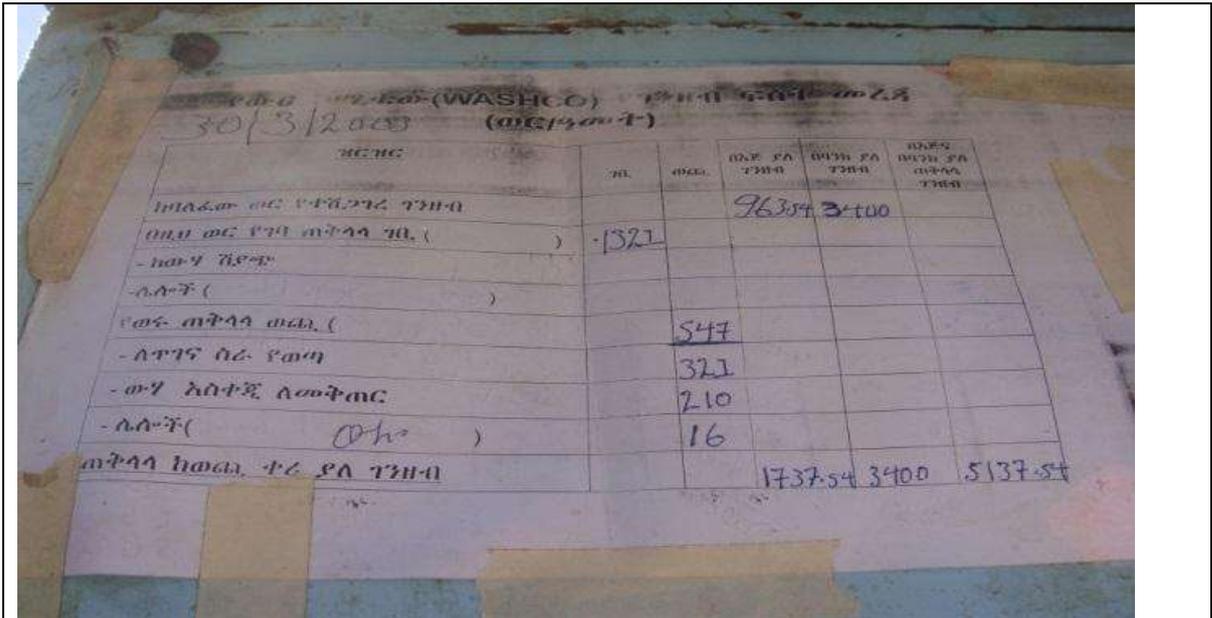
Therefore, "**communication**" and "**transparency**" are keys to ensure "**sustainability**".

Table 6-8 described the monthly reporting content that has to be reported to the user community by the WASHCO.

**Table 6-9: Description of Reporting to the Users**

Monitoring Activity - 2	Monthly Reporting to the Users
Objective	<input type="checkbox"/> To enable users to review O & M and management status regularly (monthly basis) <input type="checkbox"/> To establish transparency and trust between the WASHCO and the

	users
Main Actors	WASHCO
Procedure	<p>WASHCO is expected to share information on O &amp; M and management with the users as mentioned above. There are different communication options:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Option 1: Communication by holding mass meeting</li> <li><input type="checkbox"/> Option 2: Communication with “Billboard”</li> <li><input type="checkbox"/> Option 1: Mass meeting</li> <li><input type="checkbox"/> WASHCO organizes a mass meeting (general meeting) to share monitoring information mentioned above.</li> <li><input type="checkbox"/> In that meeting, WASHCO collect ideas/comments from users and discuss with users how to improve issues with regard to water, sanitation and hygiene observed in the community.</li> <li><input type="checkbox"/> Time, venue convenient for main water scheme users (in most of cases, women) have to be taken into consideration as other community meetings.</li> <li><input type="checkbox"/> Option 2: Information sharing through community billboard             <ul style="list-style-type: none"> <li>▪ WASHCO put important information on a board installed in a place where many community members have chance to look.</li> <li>▪ WASHCO need to update the information regularly so that users can get actual information on the O &amp; M and management of the water scheme.</li> </ul> </li> </ul> <p>(About the water billboard, please refer to the following page).</p>
<p>❖ <b>What is “Water Billboard”?</b></p> <p>“Water billboard” is board installed near the water point for the purpose of communication between WASHCO and users by putting information and raising awareness of users on such different aspects as O &amp; M and management and appropriate water use (see photos below).</p> <p>The usefulness of this communication tool shall be proved by the Region Water Bureau.</p> <p>It is good to let know users the following information.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Basic Information: WASHCO members, User household list, Operation hours, Rules for use</li> <li><input type="checkbox"/> Monitoring information: Income, expenditure, total balance of the WASHCO</li> </ul>	



< Accounting Information (Example)>

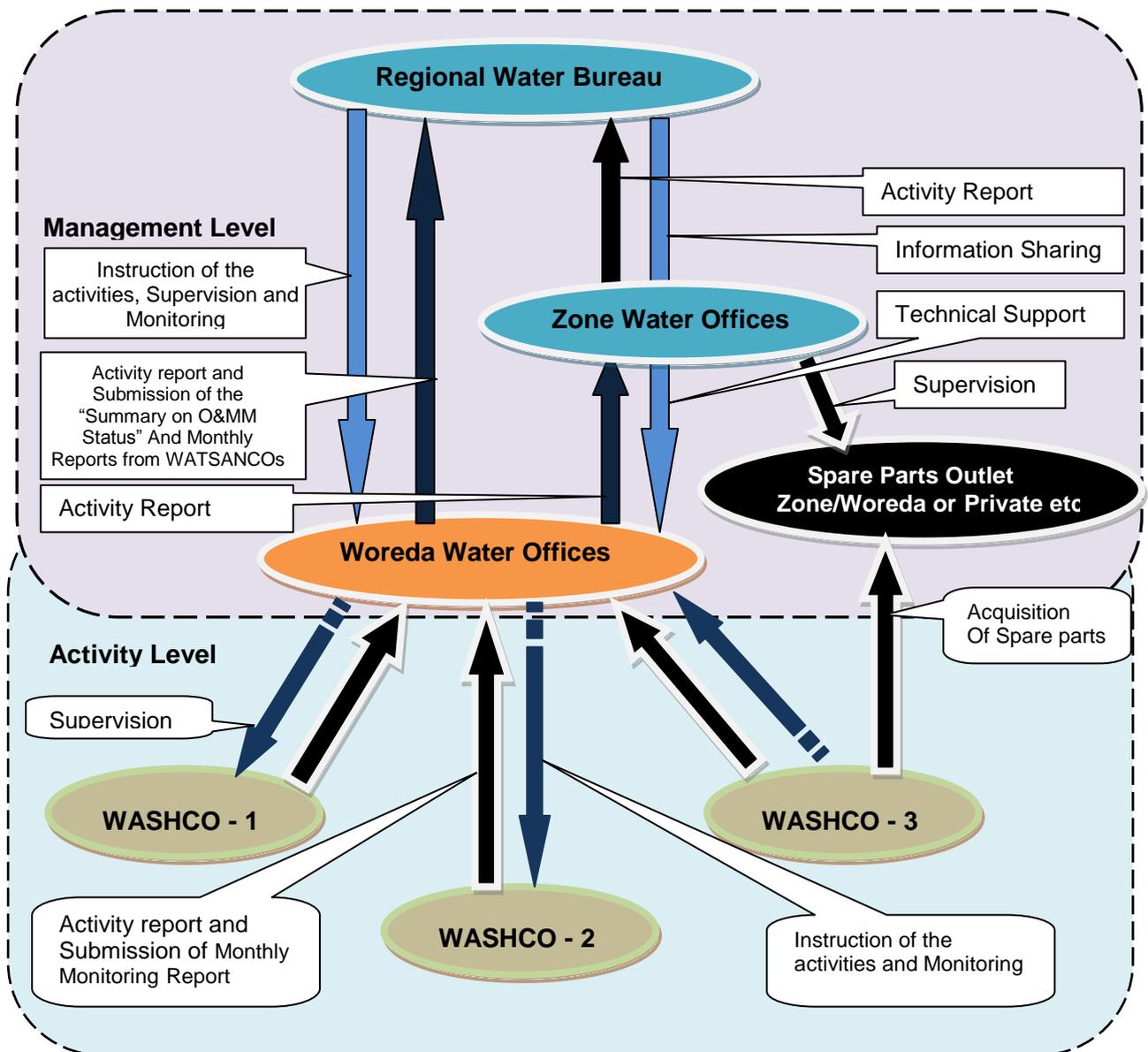
Item	Amount (Birr)
(1) Balance forwarded from the previous month	200.00
(2) Total Income of the month	350.00
1) Water Fee collected	250.00
2) Ad-hoc fee collection	100.00
(3) Total Expenditure of the month	220.00
- Repair works	120.00
- Employees operation and maintenance	100.00
(4) Total Balance of the Month ((2)-(3))	130.00
(5) Balance (1)+(4)	330.00

Option 1 & 2 may be conducted together. Important is “to communicate with users either directly or indirectly” and “to be transparent to the users!”

### 6.8.5 Communication System

In order to sustain the schemes and follow up of the O&M management, various stakeholders should have stable communication system as per listed out above, and described in Figure 6 below.

**Figure-6 1: Communication System for O&M Management of RWS**



### 6.8.6 Documentation

Data/information and reports should be handle properly both in hard as well as softcopies in computer with appropriate computer application such as Microsoft Word, Excel, Access of database management. Hard copies should be labelled and handle in box files.

## Annexes: MONITORING FORMATS

Annex A: Form – 1: Work request (to be filled by WASHCOs and submitted to WWOs)

<b>Work Request:</b>	Work No.: _____
Scheme's Name _____	Scheme type <input type="checkbox"/> <input type="checkbox"/>
Sub Kebele _____	HDW SPD
Kebele _____	Hand Pump type _____
Woreda _____	
Ref No. _____	
Description of the mal-function (break down) _____ _____ _____ _____ _____ _____ _____ _____	Is the scheme functional at the moment? <input type="checkbox"/> <input type="checkbox"/> Yes No
	Date the water supply stopped _____
	Request by _____
	Date request received by Woreda _____

**Annex B: Form – 2: Work Order (to be filled by WWOs and given to WASHCOs/Artisans)**

<b>Work Order</b>	No. _____
Scheme's Name _____ Scheme Type: <input type="checkbox"/> HDW <input type="checkbox"/> SPD Sub Kebele _____ Kebele _____ Hand Pump Type _____ Woreda _____ Ref No. _____	
Description of the work order: _____ _____ _____ _____	Date work order prepared _____ Prepared by _____ Signature _____ Date work order issued to Artisan _____
Report on the executed tasks _____ _____ _____ _____ _____	Date of maintenance _____ Maintained by _____ Signature _____ Maintenance approved by _____ _____ Signature _____





### Annex E: WASHCOs Quarterly Monitoring Report

Consolidated by reporting Officer, the WASHCO member, and Water Extension Workers

Description	Responses
Name of Kebele	
Number of Area Pump Mechanics (Male/female)	
Number of active APMs	
Number of APM water point repair work reports submitted	
Total number of boreholes in catchment area /ward	
Number of boreholes working	
Number of defective boreholes	
Number of boreholes repaired in this quarter	
Number of protected wells working	
Number of protected wells repaired	
Number of people accessing safe water	
WASHCO meetings conducted	
Number of water point/WASHCO inspected/monitored	
Any other:	

**Other Remarks on O&M activities:**

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Prepared by: \_\_\_\_\_

Designation: \_\_\_\_\_

Date: \_\_\_\_\_

