



GOVERNMENT OF GHANA

MINISTRY OF WATER RESOURCES,
WORKS AND HOUSING

**COMMUNITY WATER AND
SANITATION AGENCY**

**SMALL TOWNS
SECTOR GUIDELINES**
(Operation and Maintenance Guidelines)

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1 GENERAL PRINCIPLES

The strategic objective of the operation and maintenance guidelines for small towns is to operate and maintain Small Towns Water Supply and Sanitation Systems in such a manner as to ensure sustainability through an effective overall administrative, technical and financial management of the systems by appointed WSDBs with the support of relevant public and private sector institutions. The following general principles shall guide small towns water supply operation and maintenance:

1. Small Towns Water Supply Systems shall be operated and maintained in a sustainable manner by meeting the following requirements:
 - a. Delivering to consumers the design quantity of water.
 - b. Producing water to Ghana Standards Board Water Quality Standards.
 - c. Delivery of water in a cost effective manner (in accordance with tariff guidelines).
 - d. Delivering water in a virtually uninterrupted manner (at least 95% of the time).
 - e. Planned routine and periodic maintenance are carried out for all electro mechanical equipment and civil works structures.
2. Water Supply Systems shall be operated and maintained either directly by the community or through contractual arrangements with private companies.
3. All operational staff of private companies or community members engaged to operate and maintain the systems shall be provided with adequate training and shall be certified to perform their respective duties. Periodic refresher training shall be provided to such staff.
4. Adequate records shall be kept on the operation and maintenance of the water supply system for analysis, reporting and informed decision making.

2 OPERATIONAL MANAGEMENT GUIDELINES

2.1 Piped Systems

The WSDB shall exercise overall management responsibility for Small Town Water Supply and Sanitation by observing sound administrative, technical and financial management practices. The WSDB shall be supported in this capacity by all relevant public and private sector institutions, notably, the Metropolitan/Municipal/District Assembly, CWSA, NGOs and private companies.

Operational Management Options

There shall be four main options for Management of Operations and Maintenance of the Water Supply System.

Option 1: The community, through its WSDB and employees, operates and maintains the Water Supply System entirely by itself (non-mechanised systems e.g. gravity water schemes). A trained Manager, Operator, and Financial/Administrative staff shall be employed by the community to carry out daily operation and maintenance activities. They shall be supported by skilled artisans, e.g. plumbers and masons, from within the community whose services may be procured when necessary on a retainer basis.

Option 2: The community, through its WSDB engages staff for the daily operation (financial, administrative, technical) and maintenance and calls a certified/reputable firm to carry out specialised technical, financial or administrative functions as and when needed. Such functions may include the preparation of financial reports, internal auditing or some aspects of planned maintenance.

Option 3: The community, through its WSDB engages staff for the daily operation (financial, administrative, technical) and maintenance and signs a contract with a firm or firms to perform other specialised technical, financial or administrative functions on a periodic basis. Such functions may include the preparation of financial reports, internal auditing or routine/preventive maintenance.

Option 4: The community, through its WSDB contracts a firm to completely operate and maintain the Water Supply System including meter reading, billing and revenue collection, etc., for an agreed fee. This arrangement enables the WSDB to set performance standards for a set period of time.

Other management options may be adopted where necessary. Each WSDB, in consultation with the community it represents, and with the relevant technical support provided by the CWSA must decide on the management option to be adopted. The choice of the most appropriate option depends on a number of factors, which include:

- The complexity of the Water Supply System;
- The quantity of water being produced/Number of people served;
- The availability of private firms to provide the relevant services required;
- The socio-economic status and heterogeneity status of the community, and
- The interest and commitment of the community towards operational management of the system, etc.

Generally, the following guidelines shall apply:

1. Communities with up to 5,000 people served with non-mechanised systems (e.g. gravity water schemes) may adopt Option 1, provided they are interested and committed to the operational management of the Water Supply Systems themselves.
2. Communities of 5,001 – 10,000 people served with simple boreholes, gravity or slow sand filtration based piped systems may adopt Option 2 or preferably Option 3 to ensure the sustainability of mechanised systems and reduce the repair cost.
3. Communities with populations of above 10,000, and/or communities served with complex Water Supply Systems shall adopt Option 4.

Other options may be considered exclusively for the production and distribution components of the Water Supply System. Option 2 or 3 may be adopted for the management of the production component of a system, provided it consists of a surface water treatment plant or several mechanised boreholes. However, the same or a different option may be adopted for the distribution network, depending on its size and complexity.

Public Education should be carried out regarding the complexity of operation and maintenance of large schemes during the mobilisation and construction phases of the project cycle before commissioning of the Water Supply Systems.

2.2 Sanitation

- Institutions shall be required to put a management system in place to manage latrines.
- Provision of communal/neighbourhood latrines shall be discouraged. Where they are available, the community, through the WSDB shall contract an operator for the management of the latrines.
- Households shall be encouraged to own and manage their own latrines.
- Training shall be provided to all household latrine owners on the operation and maintenance of the latrine facility. Continuing health education and technical assistance shall be provided for owners/managers of all latrines to enable them function properly.
- Where necessary, desludging facilities shall be provided for latrines. However, in smaller communities, households with single pit latrines shall be encouraged to relocate their facilities to new areas when they are full, after about 2 to 3 years of use. Households shall be assisted to return to the location of the first pits after emptying. Technical assistance for relocation shall be provided by the DWD/DWST with support from the CWSA Regional Office. The material from emptied pits shall be used as soil conditioner or disposed off in a manner that is environmentally acceptable.

3 ROLES AND RESPONSIBILITIES FOR O&M

Water and Sanitation Development Boards

The WSDBs shall be responsible for the following administrative functions:

Correspondence Minutes of Board Meeting Community Meetings Preparation of reports (administrative, financial and technical) Receipt and Dispatching of letters, reports, etc. Documentation Management Supervision of Employees Stock keeping of all materials and consumables Preparation and Implementation of Maintenance Schedules Contract Management - Supply contracts - Operation and Maintenance Contracts - Employee contracts - Maintenance of equipment contracts.
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WATSAN Committees

The WATSAN committees shall be responsible for the following primary functions:

Community Mobilisation and Hygiene/ Sanitation Promotion Management of Water Points

Metropolitan/Municipal/District Assembly

The MMDAs shall be responsible for the following primary functions:

Performance Monitoring & Evaluation Approval of Tariff and Annual Budget Back Stopping Auditing Reporting to CWSA Annually on Water and Sanitation Status

Community Water and Sanitation Agency

CWSA shall be responsible for the following primary functions:

Co-ordinating activities of water and sanitation Review of Reports and taking necessary action Performance Monitoring & Evaluation Back Stopping Arbitration Reporting to MWRWH Water quality monitoring Technical and Managerial/Financial Audit of Water Supply Systems
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Table 1 Financial Management Functions

Activity	Watsan Committee/ Vendors	WSDB	WSDB Operating Staff	Responsibility of Private Sector Staff	MMDAs	CWSA Regional Offices
Tariff	Collection from SP	Sets tariff	Collection from private consumers & vendors		Approves tariff	Monitor and provide technical backstopping where necessary
Meter Reading, Billing & Revenue Collection	Standpipe meter reading	Possibly cashier to collect revenue from private households		main responsibility		
Banking		Monitoring by Cashier/Treasurer		-do-		
Accounting (Bookkeeping)		Monitoring by Cashier/Accountant		-do-		
Financial Reporting		Present to Community		-do-		
Checking of Financial Records		Internally, Monthly by WSDB		-do-	Twice a year	
Savings and Investment		WSDB with Investment advice from the Private Sector				
Expenditure		Approves all Expenditure		-do-		
Budgeting		Preliminary Approval		-do-	Final Approval	
Store Keeping/ Stock Taking		-do-	-do-	-do-		

Table 2 Technical Functions

RESPONSIBILITY UNIT						
Activity	WSDB Operator	WSDB Manager	Private Sector Staff	WSDB	MMDAs	CWSA Regional Staff
Pump Operation	x		x			
Trouble Shooting	x		x			
Routine Maintenance	x		x			
Periodic Maintenance	x		x			
Breakdown Maintenance	x		x			
Rehabilitation of System				x	x	
Expansion of System				x		
Water Quality Monitoring	x		x			
Data Collection*	x		x			
Data Interpretation and Reporting		x	x	x		
Monitoring **		x	x	x	x	x
Supervision of Operatives		x	x			
Operation of Production Plant and Source Protection Monitors	x	x	x			

- pump starting/stopping time *
- pump down time *
- quantity of water produced *
- power consumed *
- fuel, lubricants consumed *
- chemical consumption*
- water quality parameters *
- personnel time used in operation and maintenance *
- spare parts, materials consumed for each maintenance activity *

- water quality **
- water quantity **
- cost effectiveness **
- unaccounted for water **
- % down time **
- effectiveness of hygiene education **

4 PERFORMANCE MONITORING

Indicators for performance monitoring shall be adopted and used by communities/DWDs/CWSA to monitor performance in accordance with CWSA guidelines for performance monitoring. Each beneficiary community shall be provided with a list of the indicators and the CWSA guidelines.

4.1 Basic Performance Indicators

The following basic indicators shall be adopted by all communities for performance monitoring:

A. Technical and Operational

1. Water production (lpcd). Expressed as total annual water supplied to the distribution system (including purchased water) per population served.
2. Water consumption (lpcd). Expressed as total annual water sold per population served (includes standpipes, metered connections).
3. Unaccounted for water (%). (Total annual water produced/supplied less total annual water sold) per total annual water produced/supplied.

B. Financial

4. Average tariff. (GH¢/m³). Total annual revenues / annual amount of water sold.
5. Profitability of water service (%). Profit or loss / total annual revenue.
6. Unit operational cost (GH¢/m³ sold GH¢/m³ produced). Total annual cash requirements / total annual volume sold or produced.
7. Connection rate. Expressed as number of connections / population; or number of new applications per month.
8. Bill Collection ratio (%): Bills paid / Total bills issued.

C. Customer Satisfaction

9. Reliability of service (days/year). Number of operational days per year for water supply.
10. Complaints about service. (% of population, or % of connections). Total number of complaints per year expressed as a percentage of the total number of population served, or total number of connections.

D. Organization and Management

11. Number of times WSDB has met community expressed as a percentage of the expected total number of community meetings per year.
12. Staff cost and WSDB allowances as a proportion of operational costs (%). Total annual costs (including benefits) expressed as a percentage of total operational costs (operational costs exclude depreciation, interest and debt service).
13. Water coverage (%). Population using water services / total town population.
14. Contracted out service costs as a proportion of operational costs (%). Total cost of out-sourced services expressed as a percentage of total annual operational costs (operational costs exclude depreciation, interest and debt service).

4.2 Sustainability

The following indicators shall be adopted to assess the overall performance and sustainability of the water supply system:

A. Technical and Operational

Water Production: WP = Design Water Production / Actual Water Produced
Sustainability Criterion: $WP > 1$

Accounted for Water: AFW = Water consumption (per capita total annual water sold) / Water production (per capita total water supplied to distribution system)
Sustainability Criterion: $AFW > 0.80$

A. Financial

Self Financing Ratio: SFR = Total Annual Income / Total Annual Expenditure
Sustainability Criterion: $SFR > 1$

B. Customer Satisfaction

Reliability: RE = Number of operational days / Total number of days per year
Sustainability Criterion: $RE > 0.95$

An aggregated indicator **PS** defined as the arithmetic mean of the indicator values for **WP**, **AFW**, **SFR** and **RE**, shall be adopted to express overall performance and sustainability of the water supply system as follows:

Level I:	$0.90 < PS < 0.95$	Good
Level II:	$0.95 < PS < 1$	Very Good
Level III:	$PS > 1$	Excellent

4.3 Operation and Maintenance Tools

O&M Tools are obtainable from CWSA regional offices, and shall be used in monitoring all small towns' water supply schemes.

5 WATER QUALITY MONITORING

5.1 Preamble

The monitoring of drinking Water Quality is a requirement to ensure the safety of potable water.

In the light of the massive numbers of point sources and piped water systems to be constructed under the National Community Water and Sanitation Programme, it is necessary that the CWSA play a focal role in the monitoring of the water safety of all such sources through direct or indirect contracting of regional and national level laboratories by CWSA to provide water quality analysis services and to report to the CWSA and District Assemblies.

In particular, water safety monitoring of Small Towns water supply systems shall be performed at least twice a year after commissioning/as prescribed in the Water Safety Framework.

A National Water Safety Monitoring programme should be:

- a) Sustainable
- b) Backed by effective legislation at all levels.
- c) Anchored on a data management platform (DiMES).

It is essential to prevent or control pollution of existing water resources through formulation of sound environmental policies, and legislation to ensure effective watershed management and thereby impact positively on water quality.

Water Quality Monitoring shall consist mainly of:

- 1) Examination of Drinking Water Supplies through sampling and analysis to reveal pollution at the time when the water sample is taken and examined.
- 2) Topographical examination of the locality of the water supply system - Sanitary Surveys which may reveal potential sources of pollution, which may not be discovered by sampling and examination.

Examination Of Water Supplies

The examination and analysis of Water Supplies shall cover three (3) areas of investigation, notably:

- Physico-Chemical
- Bacteriological
- Biological

To carry out these examinations, samples shall be taken and analysed according to standard procedures (GSB standards).

5.2 Monitoring Guidelines

The following are the guidelines for monitoring water safety of Small Towns water supply systems:

- 1) Water Quality sampling and analysis should be carried out twice annually for each community water supply system. This shall include physico-chemical and bacteriological analysis based on the parameters outlined in the Water Safety Framework. The full list of parameters is referred to as the 'Baseline Water Quality Parameters'.
- 2) Biological analysis shall be carried out at the intake of systems based on surface waters, and at a frequency to be determined by a qualified Chemist/Bacteriologist at the time of commissioning of the Water Source. The frequency shall not be less than two times a year, or as described in the Water Safety Framework. Where sanitary surveys reveal a necessity for more frequent examination, this should be carried out.
- 3) At production plant level, bacteriological and physico-chemical analysis should be made at least once a month for groundwater supplies and once a week for surface water based supplies, or as described in the Water Safety Framework. The frequency should be related to the severity of estimated risks during monitoring.
- 4) Two people per community shall be trained to carry out sanitary surveys. These shall normally be the caretakers of the WATSAN committees and or the operators employed by the Water and Sanitation Development Boards. They shall record their findings in a standard format to be provided them when they are first trained, and shall send feedbacks (reports) through their WATSANs/WSDB to the District Assemblies and/or CWSA regional office (where necessary) for action.
- 5) Water Quality Sampling and Analysis services shall be performed by recognised institutions, notably GWCL, WRI, SGS or KNUST laboratories and paid for by each community through its tariffs.
- 6) These institutions shall send copies of reports of annual physico-chemical bacteriological and biological analyses to the District Assembly for study and action. A special report shall be made on doubtful sample results and forwarded to the CWSA. Regional Water and Sanitation Engineers of the CWSA shall be required to take relevant action. The final responsibility for action on results of Water Quality Reports lies with the CWSA.

6 ENVIRONMENTAL AND SOCIAL SAFEGUARDS

Environmental and social safeguards shall be an integral part of all small towns water supply and sanitation projects. The key components of the safeguards to be considered in any project shall include the following:

- Identification of key stakeholders at all levels to ensure there is a clear understanding of the project and the impacts it will have on the environment, social and economic well being of the beneficiaries and other stakeholders.
- Identification of Project Affected Persons (PAPs) and communities and how they will be affected by project implementation.
- Identification of how lands will be acquired and the compensation measures/strategies that will be put in place.
- Identification of all relevant environmental and social impacts that will be encountered in project implementation and appropriate mitigation measures.
- Identification of how livelihoods (permanent structures, temporary structures, farms and crops etc) will be affected by the project and the types of compensation measures to be applied as well as determination of key eligibility criteria for determining entitlements for the relevant project affected persons.

7 CAPACITY BUILDING

7.1 Minimum Staff Requirement

The following minimum staffing level is required for the day-to-day operations and routine maintenance.

- a. A System Manager, to be responsible for the overall management of Technical, Financial and Administrative Staff. The incumbent shall possess at least HND or equivalent academic qualification and shall have good oral and communication skills. A technical background may be advantageous. The Manager shall be accountable to the WSDB, and shall prepare and present reports at WSDB meetings.
- b. An Operator, to carry out technical operations and routine maintenance (shall possess technical (NVTI) qualification – electrical or mechanical).
- c. An Administrative/Financial Clerk (shall possess at least RSA stage II or equivalent).
- d. A Revenue Collector (shall possess at least SSSCE).
- e. Vendors, to be responsible for sale of water.
- f. Security, where necessary.

7.2 Supplementary Requirement

An accountant (possessing HND or equivalent) shall be engaged on retainer basis to review available financial records and prepare monthly financial reports.

Skilled personnel shall carry out periodic breakdown and major maintenance. These may include agents of Equipment suppliers, sub contractors, masons, electricians, mechanics, plumbers, etc.

The required personnel may be engaged from within the community or the private sector. A list of suitable private sector firms may be obtained from CWSA Regional Offices and MMDAs.

Services Performed by Private Sector Specialist Firms

- Repair and cleaning of tanks.
- Repair/replacement of valves.
- Maintenance of pumps.
- Rehabilitation of boreholes.
- Repair of intakes (where applicable).
- Repair/replacement of meters.
- Comprehensive Water Quality Analysis.
- Repair and cleaning of treatment units.
- Replacement and washing of filter sand aggregates. (Where applicable)
- Routine maintenance of mechanical and electrical equipment.
- Repair and maintenance of pump houses, treatment plants, chemical houses.
- Repair/maintenance of pipes.

All operating staff shall be paid salaries commensurate with their qualification and experience. All WSDB members shall be paid sitting allowances to be agreed with the community.

7.3 Accountability

To ensure accountability, the following shall be carried out as minimum requirement:

- Checking of financial records monthly.
- Technical, Administrative and Financial Reports must be read out to the Community at least once every six months.

Table 3 Training Requirements

Training to be provided to relevant staff: Community, MMDAs, CWSA and the Private Sector

Types of Beneficiaries	Theoretical	Practical	On the Job	Refresher Training (At least every 3 - 5 years)
Operators	x	x	x	x
System Manager	x	x	x	x
WSDB's/WATSANs	x	x	x	x
Financial/ Administrative Staff	x	x	x	x
Private Sector (Management Staff)	x			x
MMDA Staff	x	x	x	x
CWSA Regional Staff	x	x	x	x
Private Sector (Mechanics, electricians, etc.)	x	x	x	x

Number of people to be trained will be determined by CWSA on an annual basis. Training will be arranged by CWSA. The training to be provided to relevant stakeholders shall be facilitated by the CWSA.

7.4 Manuals for Operation and Maintenance

System specific manuals for the operation and maintenance of all components of the WSS shall be prepared and submitted by the consultants to the community. The required manuals include manuals for operation and maintenance (Administrative, Financial and Technical Manuals).

The needed manuals shall be prepared and submitted by the consultants prior to handing over of each WSS. The relevant personnel shall be trained in the effective use of all manuals.

Three (3) copies each, of manuals on all electro-mechanical equipment shall be submitted by respective suppliers to the consultant. The consultant in turn shall make them available to the relevant community and MMDAs.

8 TARIFF SETTING

The WSDB shall have the responsibility for setting tariff, and shall exercise this responsibility in consultation with the community. The MMDAs shall approve all tariffs.

8.1 Components of Tariff

The components of the tariff should include the following:-

- 1) All water production expenses
- 2) All distribution expenses
- 3) Routine maintenance and other contracts
- 4) Repair work (by staff and private maintenance contracts).
- 5) Water quality monitoring at plant level
- 6) Tariff collection expenses (vendors) (up to 20% of total tariff)
- 7) Replacement cost (20% of 1-6)
- 8) Rehabilitation and Expansion (5% of 1-6)total)
- 9) Sanitation Fund (8% of 1-6)
- 10) Contingency (2% of total (1) – (6)).

The portion of the tariff for major rehabilitation, expansion and replacement shall be invested to add value and safeguard against depreciation.

At the time of project commissioning the community shall maintain an O & M fund of at least 0.5% of the capital cost.

8.2 Tariff Collection

The method of tariff collection shall be the PAY-AS-YOU-FETCH method.

8.3 Production and Distribution Expenses

Production expenses shall include cost of:

- (1) Staff and casual labour working on production including salaries before Tax, SSF contributions, staff medical expenses, expenses on safety equipment, welfare, etc.
- (2) Chemicals for dosing of water and cleaning of treatment units
- (3) Electricity
- (4) Fuel and lubricants
- (5) Any other production expenses

Distribution expenses should include cost of:

- (1) Staff and casual labour working on distribution including salaries before Tax, SSF contributions, staff medical expenses, expenses on safety equipment, welfare, etc.
- (2) Chemicals such as bleaching powder used for cleaning out storage tanks and distribution network pipes, etc.

8.4 Tariff Amounts for Individual/Institutional Customers

- (i) The unit rate of tariff (in ¢/m³) for individuals and non-commercial institutions shall be between 120 and 130% of the normal tariff charged for standpipe customers. That for small-scale commercial entities shall be between 140 and 150% of the normal tariff charged for standpipe customers.

The actual amount to be charged shall be based on the unit rate and the meter reading for the month.

- (ii) Connection Fee shall not exceed the tariff rate for 100m³ of water for that connection. The household shall bear the cost of the service line.
- (iii) Payment of connection fee and deposit amount (about 2 months estimated billing) to be set by the WSDB shall be paid upfront before Connection.
- (iv) A Re-connection fee to be paid by defaulting customers shall be between 5% and 10% of the Connection Fee.

8.5 Billing and Customer Complaints

Billing

Bills for individual/institutional connections should be according to the standard format of Community Water and Sanitation Agency.

Customer Complaints

Each WSDB shall establish a clear procedure for receiving and addressing complaints, which shall be known to the entire community. The WSDB shall respect and comply with these procedures. The entire community shall be notified of any changes in the procedures, when they occur.

9 MANAGEMENT INFORMATION SYSTEM

CWSA has in place a comprehensive monitoring system known as the District Monitoring and Evaluation System (DiMES). DiMES serves as a management tool to capture, store and report information on water and sanitation activities as well as to monitor water and sanitation projects for the rural and small towns sector.

9.1 Planning

The DiMES provides a means for planning for investments for facilities and infrastructure for equitable development through a strategic investment planning model incorporated into the system.

9.2 Monitoring Operation and Maintenance

This Monitoring Operation and Maintenance (MOM) component of the DiMES provides a means of monitoring the functionality of existing facilities as well as the management structures put in place to manage the facilities.

The Regional Offices of CWSA shall maintain a regional database, which will be used to feed the DiMES. The RWSTs shall provide capacity building to the DWDs/DWSTs to enable them obtain the required information on Small Communities in their district. DWDs/DWSTs shall collect and record in standard format all data required for the DiMES and submit every quarter to the RWST who shall prepare quarterly reports. This shall be incorporated in the DiMES at the regional level. The status of each Small Community water system shall be available at the CWSA in the DiMES which shall be updated quarterly.

The RWSTs shall pay regular visits to the DWDs/DWSTs to supervise data collection and provide the necessary on-the-job training for effective data collection. The DWDs/DWSTs shall produce up to date management information on the functionality of all small communities within the Districts so that appropriate and timely action can be taken to solve any problems arising.

9.3 Reporting

This component provides various reports to inform management and also to respond to user requests. Reports can be customized to meet the specific needs of the user. Reports generated from the DiMES can include the following:

- Periodic (monthly, quarterly or annual) reports on functionality of facilities.

- Project implementation updates including status of disbursements.
- Status of construction or rehabilitation of facilities including status of payments.
- Financial performance of an individual facility.

10 SUPPLEMENTARY GUIDELINES

10.1 Private Sector Participation

The private sector shall be responsible for the provision of goods and services with regard to proper operation and maintenance of existing water supply and sanitation systems. These services shall impact positively on small towns and in a sustainable manner. These services shall include among others:

- Technical assistance services for designs, hydrogeological services for expansion of water supply services;
- Capacity building of the WSDBs/WATSANs and DWDs/DWSTs;
- Operation and maintenance of small towns water supply systems;
- Local level maintenance and repair services;
- Specialised services such as repair of electro-mechanical equipment, fishing for pumps and parts and flushing of boreholes;
- Management of water supply schemes.

10.2 Quality Control

Quality control measures are necessary to ensure spare parts required for O&M are of appropriate quality. The following measures shall be put in place to ensure quality control.

- Establishing of a monitoring system in which the performance, the availability, and the quality of the parts are assessed;
- Establishing of procedures for independent quality control agencies for pre-delivery inspection in the country of origin;
- Setting up of consignee end inspection to assure that the quality control checks are carried out to ensure that parts are of acceptable quality.

10.3 Transport and Logistics

The WSDB shall provide transport and other logistics for use by employees to facilitate their work.

Transport allowances shall be negotiated as part of the salaries of the operational staff engaged, if Management Option 2 or 3 is adopted.

Transport allowances shall be paid to board members to enable them carry out all relevant activities.

10.4 Maintenance of Electro-Mechanical Equipment

Warranty Periods for Mechanical/Electrical equipment shall be at least one year, after which period, each community shall sign a contract preferably with an approved local agent of the manufacturers for routine and breakdown maintenance.

All suppliers of electro mechanical equipment shall have local agents capable of providing after sales services and relevant practical and theoretical training, particularly to beneficiary communities and water sector professionals.