



GOVERNMENT OF GHANA

MINISTRY OF WATER RESOURCES,
WORKS AND HOUSING

**COMMUNITY WATER AND
SANITATION AGENCY**

**SECTOR GUIDELINES - GENERAL
(Rural Communities & Small Towns)**

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The review was undertaken by three committees. The membership of the committees is as follows:

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LIST OF ACRONYMS AND ABBREVIATIONS

COM	-	Community Ownership & Management
CWSA	-	Community Water and Sanitation Agency
DA	-	District Assembly
DP	-	Development Partner
DWL	-	Dynamic Water Level
DWSP	-	District Water and Sanitation Plan
DWST	-	District Water and Sanitation Team
EPA	-	Environmental Protection Agency
ESS	-	Extension Services Specialist
FMP	-	Facilities and Management Plan
GhIE	-	Ghana Institution of Engineers
GoG	-	Government of Ghana
GPRS	-	Ghana Poverty Reduction Strategy
GSB	-	Ghana Standards Board
GWCL	-	Ghana Water Company Limited
ISO	-	International Standards Organisation
MDGs	-	Millennium Development Goals
MLGRD	-	Ministry of Local Government and Rural Development
MOE	-	Ministry of Education
MOH	-	Ministry of Health
MWRWH	-	Ministry of Water Resources, Works and Housing
NCWSP	-	National Community Water and Sanitation Programme
NEPAD	-	New Partnership for Africa's Development
NGO	-	Non-Governmental Organisation
O&M	-	Operation and Maintenance
ODF	-	Open Defecation Free
PO	-	Partner Organisation
RCC	-	Regional Co-ordinating Council
RWST	-	Regional Water and Sanitation Team
SIP	-	Strategic Investment Plan
STWSP	-	Small Towns Water Supply Project
TA	-	Technical Assistance
VIP	-	Ventilated Improved Pit
WATSAN	-	Water and Sanitation Committee
WHO	-	World Health Organisation
WRC	-	Water Resources Commission
WSE	-	Water and Sanitation Engineer

PREFACE

The CWSA was established by an Act of Parliament to facilitate the provision of safe water and related sanitation services to rural communities and small towns. Until recently, activities in the sub-sector were governed by guidelines which needed to be harmonised, disseminated and operationalised at the local, regional and national levels.

The Ministry of Water Resources, Works and Housing, acting through the CWSA, sought to achieve better co-ordination and management of activities in the sub-sector, by reviewing the existing guidelines to ensure harmonisation and adequate dissemination. In pursuance of this, a Technical Review Committee was established to co-ordinate, assimilate and review comments and contributions made at the local and regional levels. In addition, focus group discussions, consultative meetings and workshops with other stakeholders were organised to solicit views for the review.

The key directives to facilitate delivery of water supply services have been presented in the revised sector guidelines. The objective is to improve coverage of potable water to 76 % of the population by 2015.

The revised document is presented in five (5) volumes, and sets out the basic strategies, design and implementation guidelines necessary to achieve the desired objective of enhancing development of the sub-sector and therefore shall be used by relevant stakeholders at all levels.

This document is Volume I of the revised document.

1 INTRODUCTION

1.1 Background

The National Water Policy (NWP) was launched in 2007 and is underpinned by the principles of the “Africa Water Vision” of the New Partnership for Africa’s Development (NEPAD), the Millennium Development Goals (MDGs) and the Paris Declaration. This is to ensure that Ghana achieves the targets it has set for itself in water and sanitation in consonance with internationally accepted norms and strategies.

There are a number of strategic actions of policy in the NWP, and these look at Water Resources Management, Urban Water Supply and Community Water and Sanitation. The strategic policy action for Community Water and Sanitation identifies key focus areas for the implementation of the policy including:

- Access to potable water
- Decentralised delivery of water and sanitation services
- Finance
- Hygiene education and sanitation (HES)
- Public private partnerships
- Capacity building
- Gender mainstreaming and good governance
- Research and development
- Operation and maintenance
- Monitoring and evaluation

The NWP identifies the national institutions responsible for the implementation of the strategic actions set out in the Policy. This includes the Community Water and Sanitation Agency which was established by an Act of Parliament, Act 564 of 1998, with the objective of coordinating and facilitating the implementation of the National Community Water and Sanitation Programme (NCWSP), in MMDAs.

The NCWSP seeks, among others to achieve an accelerated and equitable delivery of improved water and related sanitation facilities to rural communities and small towns within the context of a decentralised local government administration. The Ghana Water Company Limited (GWCL) previously GWSC, is responsible for provision of safe water to large urban communities. CWSA under its mandate is therefore responsible for facilitating the delivery and maintenance of potable water to all other communities in the country with the support of the relevant Metropolitan, Municipal and District Assemblies (MMDAs). This is done in line with the decentralisation agenda of the Government of Ghana as prescribed in the Local Government Act (Act 462) and the Community Water and Sanitation Act, (Act 564).

1.2 Challenges

The current status of water supply and sanitation in the country leaves much to be desired. The coverage of water supply services in rural communities and small towns is

57.14% (2008¹). The Millennium Development Goals (MDGs) seek to halve the proportion of those who do not have access to potable water and adequate sanitation facilities by the year 2015. The Strategic Investment Plan (SIP) of the CWSA seeks to achieve the target of 76% coverage of water by the target date. The SIP requires a total investment of \$330m to achieve the said targets².

1.3 Vision

Water Supply and Sanitation are essential to the well being of every community. CWSA shall therefore endeavour to provide basic water supply and sanitation facilities to “small communities and towns” which are prepared to meet the strategic requirements of the NCWSP. Communities will be made aware of the public health benefits of good water supply and sanitation services to enable them express demand. The Strategic Investment Plan of the CWSA (2008-2015) envisages about 76% coverage of water supply by the year 2015 in line with target of Millennium Development Goals for Ghana.

1.4 Definition

Within the context of these guidelines, and given the mandate of the CWSA, **Small Communities and Towns** are defined as communities with population between 75 and 50,000 who require improved water supply and related sanitation facilities.

The towns are further categorized based on population as follows:

Small Communities	75 - 2,000
Small Towns - Category I	2,001 - 5,000
Small Towns - Category II	5,001 - 15,000
Small Towns - Category III	15,001 - 30,000
Small Towns - Category IV	30,001 - 50,000

These categories shall form the bases for establishing per capita consumption for design. These communities and towns must be prepared to manage their water supply systems in an efficient and sustainable manner.

2 OBJECTIVES

2.1 Overall Objective

To improve on the public health and economic well being of **Small Communities and Towns** through provision of adequate, safe and sustainable water for domestic, small scale commercial and industrial purposes in a planned and coordinated manner, with integrated hygiene education and sanitation interventions.

2.2 Strategic Objectives

The NCWSP has the following strategic objectives:

¹ CWSA Coverage Data, 2008

² CWSA SIP - 2008 - 2015

- Provide basic water and sanitation services to communities that will pay the normal operation, maintenance and repair cost of their facilities mindful of the need to ensure affordability, equity and fairness for the poor and vulnerable;
- Ensure sustainability of the facilities through Community Ownership and Management (COM), community involvement in the planning and design of facilities, active involvement of women at all stages of the programme, private sector involvement in the provision of goods and services, and public sector promotion and support;
- Maximise health benefits by integrating water, sanitation and hygiene education interventions, including support to establish community level capabilities for hygiene education and latrine construction.

3 BASIC PRINCIPLES

1. Metropolitan/Municipal/District Assemblies shall be the focal point for delivery of water and sanitation facilities and Government Agencies (CWSA) as facilitators and regulators, providing guidelines and setting standards, and providing back-up professional support to MMDAs.
2. MMDAs to benefit from project interventions shall be selected in collaboration with the respective Regional Coordinating Councils (RCCs).
3. MMDAs shall be required to prepare District Water and Sanitation Plans (DWSPs) which shall be an integral part of the Medium Term Plan of the Assembly, detailing out the water and sanitation components of the plan. The DWSPs shall have a ranking of all communities in the district requiring water and sanitation interventions in accordance with laid down criteria. Beneficiary communities shall be selected from the DWSPs.
4. Community Water and Sanitation projects shall consist of water supply and sanitation and hygiene education components for a given community.
5. A Water and Sanitation Development Board (WSDB) shall be established in each small town for the overall management of Water Supply and Sanitation Facilities. WATSANs shall be formed in the various zones/wards of a given town to provide complementary support services. The formation of WSDBs and their operations shall be guided by the national model bye-laws for the establishment and operation of WSDBs.
6. The implementation of all project interventions shall be in accordance with the regulations of the Environmental Protection Agency (EPA) and Water Resource Commission (WRC). An Environmental and Social Management Framework shall be developed for each intervention.
7. Tariffs shall be set by the WSDBs in accordance with CWSA approved tariff setting guidelines. MMDAs shall review and approve all tariffs. *Any reduction in expected tariff revenue as a result of action by the MMDA, e.g., reduced tariff, etc., shall require that*

the MMDA pay the difference in revenue into the WSDB account. The CWSA in collaboration with the RCC shall ensure compliance.

8. Women shall be actively involved at all levels of implementation of the National Community Water Supply and Sanitation Programme.
9. Provision must be made for coverage of institutions such as schools and clinics under an intervention in any community. These institutions must arrange to be provided with adequate water and sanitation facilities.
10. The private sector shall be the provider of consulting, construction, operation and maintenance and other related essential services for delivery of Water and Sanitation Facilities. The private sector shall also provide services for operation and maintenance for communities' populations more than 10,000.
11. Procurement of the services of private sector consultants and contractors shall be in accordance with the Public Procurement Act, Act 663 of the GoG. As much as possible, associations through joint venture or sub contracting arrangements between local and international companies shall be encouraged for their mutual benefit.
12. The CWSA, in partnership with the Government of Ghana, Development Partners (DPs), MMDAs and Communities, shall source funding for the implementation of Small Towns Projects. The disbursement of all funds for eligible payments shall follow the GoG approved financial and accounting procedures.
13. Financial administration of WSDBs and WATSANs shall be guided by the provisions of the Financial Administration Act, Act 654.
14. Water supply and sanitation facilities shall be financed through Government, Development Partners and Private Sector funding arrangements.
15. The normal duration of a typical project cycle shall be four to five years including one-year post-project support.
16. A spare parts distribution network for hand pumps shall be established at the regional and district levels to ensure availability of spares. Trained and certified Area Mechanics shall be available in every district. All Area Mechanics shall be provided periodic training through refresher courses. This shall enhance the sustainability of point sources.
17. Periodic workshops shall be organised for all categories of personnel working for private sector entities involved in the delivery of water and sanitation facilities to communities to upgrade their skills on new developments in the areas of specialisation.
18. NGOs, and other civil society organisations, desirous of providing any water and sanitation facilities in a given small community shall do so within the framework of the NCWSP and in accordance with CWSA operational guidelines.

4 ROLES AND RESPONSIBILITIES OF INSTITUTIONS

4.1 Water Directorate, Ministry of Water Resources, Works and Housing

- a) Overall policy formulation, planning, coordination, collaboration, monitoring and evaluation of programmes for water supply and sanitation.
- b) Initiate and lead sector dialogue on policy and sector-wide planning issues.
- c) Organise annual Ghana Water Forum (GWF) involving all sector stakeholders including GoG, development partners, NGOs, private sector and capacity building institutions for joint water and sanitation sector reviews.
- d) Carry out clearing house functions for funds flow management for projects.

4.2 CWSA

Head Office

- a) To recommend policy changes to the Ministry of Water Resources, Works and Housing and set strategies, procedures, guidelines and standards for water supply and sanitation interventions.
- b) To assist MMDAs to source funds both nationally and internationally.
- c) To provide back-up support to CWSA Regional Offices for Monitoring and Evaluation.
- d) To disseminate sector policies and guidelines to all stakeholders.

Regional Offices (RWST)

- a) To provide professional back-up services to MMDAs staff in all areas especially in the preparation and review of District Water and Sanitation Plans (DWSPs);
- b) To monitor the progress of the Project Cycle;
- c) To enhance sector capacity building through provision of training opportunities to stakeholders at the local, regional and national levels;
- d) To monitor the effectiveness of National policies and CWSA guidelines and standards and to recommend review where necessary;
- e) To organise water quality monitoring for piped systems and ensure the necessary required actions are implemented.

4.3 MMDAs

- a) To prepare District Water and Sanitation Plans in line with medium term plans of the assembly;
- b) To monitor Operation and Maintenance of Systems in terms of Financial, Technical and Administrative performance;
- c) To periodically audit WSDB and WATSAN accounts;
- d) To review and approve community tariffs in accordance with O&M guidelines;
- e) To approve bye-laws for the operation of WSDBs and WATSANs;
- f) To provide technical approval for WSDB plans (extensions etc.);
- g) To disseminate information on water supply, sanitation and hygiene promotion;
- h) To support DWD/DWST to provide technical support to WSDBs and WATSANs;
- i) To let, manage and monitor contracts at the district level.

4.4 WSDBs and WATSANs

- a) To prepare and execute plans for provision of improved water supply and sanitation facilities;
- b) To mobilise funds to pay for operations and maintenance costs;
- c) To set tariffs;
- d) To set application procedures, connection and re-connection fees for service connections;
- e) To ensure sustainability of facilities provided;
- f) To collect technical data on the management of the water supply system;
- g) To prepare financial records for O & M and provide records to MMDA and CWSA for inspection;
- h) To audit financial records internally;
- i) To present reports on management of water supply system twice yearly to the entire community (town);
- j) To facilitate or promote sanitation and hygiene education activities in the towns.

4.5 Private Sector

The private sector shall be responsible for the provision of relevant services. These services shall include but not limited to:

- a) Consultancy (feasibility studies, design, evaluation of bids and construction supervision, hydrogeological services, training, community mobilization and hygiene and sanitation promotion, institutional support, etc.);
- b) Construction (Drilling and Civil Works);
- c) Supply and installation of equipment, spare parts, etc.;
- d) Operation and maintenance of water supply and sanitation infrastructure including electrical/mechanical equipment, hand pumps etc;
- e) Monitoring and Evaluation of projects
- f) Management of Water Supply Schemes.

4.6 Other Stakeholders

The Ministries of Local Government and Rural Development (MLGRD), Education (MOE), Health (MOH), National Development Planning Commission (NDPC), CONIWAS, Academic and Research Organisations and Civil Society shall provide the necessary support for effective implementation and sustainability of all sector interventions.

5 WATER SUPPLY PROJECT CYCLE

The implementation of each water supply project shall be in accordance with the following cycle:

5.1 Project Promotion

Information on the Small Towns Project shall be disseminated in the prospective Community to enable residents to be familiar with the project cycle and procurement procedures. This shall be done by MMDAs with support from CWSA.

5.2 Community Selection and Approval

Each Community shall be selected and approved by the MMDA in accordance with the District Water and Sanitation Plan.

5.3 Community Mobilisation

An extension team comprising technical and non-technical personnel shall be engaged to provide relevant community mobilisation, hygiene and sanitation promotion and participatory planning services in each beneficiary community. WSDBs and WATSANs shall be established and trained to facilitate mobilisation.

5.4 Design

Water supply systems shall be designed in accordance with the relevant CWSA design guidelines and standards to provide and good quality water in sufficient quantity over its design life. All designs are to be finalised in collaboration with the respective communities.

5.5 Construction

Construction of the systems shall be in accordance with the standard specifications and conditions of each contract. Particular attention shall be paid to the time schedule, quality and cost of construction.

5.6 Operation and Maintenance

All operation and maintenance requirements shall be in accordance with CWSA O&M guidelines and shall be specified and documented by the Consultant. The O&M requirements shall be complied with by operators and managers of the systems.

5.7 Post Project

The CWSA shall be assisted to provide relevant post project support (at least one year) to beneficiary communities and DWD/DWSTs to promote achievement of system sustainability, and to enable lessons to be learnt for design of future Small Towns Projects.

6 SUSTAINABILITY

A system may be considered to be sustainable if it provides reliable and good quality water in sufficient quantity over the design life of the system. To ensure sustainability, the system needs to be adequately designed and all operation and maintenance requirements should be met, with the implication that:

- a) Communities ensure the setting and payment of adequate tariffs, and that the systems are managed in a transparent and accountable manner;
- b) The CWSA regional offices and MMDAs ensure effective community management of the systems by monitoring and advising on the administrative, technical and financial performances of the WSDBs.

6.1 Operation and Maintenance

Communities are required to meet the full cost of normal operation and maintenance through accumulated income.

6.2 Repair and Replacement

Communities through accumulated or other income shall undertake all repairs and replacements which occur during the design life of the system.

6.3 Future Expansion

The cost of expansion of the system to additional area(s) shall be borne by the MMDA and the respective community from accumulated revenue and/or other sources, provided the existing water resources have adequate potential to cater for any expansion and it is technically feasible. If expansion is not technically feasible, an alternative will have to be sought by the MMDA.

7 HYGIENE AND SANITATION PROMOTION

7.1 Context

The ultimate goal of water and sanitation interventions is to improve the health conditions of beneficiaries through sustained behavioural change. Communities shall be assisted to attain an Open Defecation Free (ODF) status. All project interventions shall have specific budgetary allocation for hygiene and sanitation promotion (up to 30%) and shall ensure the integration of water, sanitation and hygiene.

All interventions shall be aimed at ensuring ownership and sustainability by investing in community mobilization activities towards the creation of a congenial environment for households to invest in hygiene and sanitation.

The focus of hygiene and sanitation promotion shall be to ensure:

- Safe confinement and disposal of excreta and other wastes;
- Safe handling and use of water;
- Personal, domestic and environmental hygiene; and
- Regular hand washing with soap particularly at critical times.

7.2 Hygiene and Sanitation Promotion Steps

The following strategies shall be used for hygiene and sanitation interventions in a given community:

- Community-Led Total Sanitation;
- Aggressive Social Marketing;
- Establishment of Sanitation Markets;
- Extensive Hygiene Promotion;
- Credit Schemes/Revolving Funds for Sanitation;
- Support for Appropriate Technology Development;
- Deepen Collaboration with Relevant Institutions; and

- Documentation and Promotion of Best Practices.

7.3 Outline of Activities

The outline of activities in the implementation of a Hygiene and Sanitation Intervention are as follows:

- Detailed Baseline Studies;
- Development of IEC Materials;
- Training of Key Actors (WATSANs, WSDBs, EHAs, etc);
- Construction of SANIMARTs;
- Sensitisation and Awareness Creation;
- Latrine Construction based on beneficiary preferences; and
- Follow-up.

The following strategies will be adopted to pursue the vision of the hygiene and sanitation promotion:

7.4 Hygiene and Sanitation Promotion Activities

Hygiene and sanitation promotion shall be carried out by trained WSDBs/WATSANs and other key actors at the community level to include men, women and children. The promotion shall ensure adequate water utilisation from improved sources all year round.

Hygiene and sanitation promotion shall be done using participatory approaches and tools. The promotional activities shall be done in collaboration with Environmental Health Assistants (EHAs) and School Health Coordinators, to facilitate observance of personal, domestic and environmental hygiene in the community. Hygiene and sanitation promotion shall be a continuous activity and shall be carried out at all times and shall be aimed at communities and institutions (basic schools and clinics).

7.5 Technology Options for Sanitation

Technology choice shall be based on the Sanitation Ladder. The Sanitation Ladder involves the broad range of technology options ranging from basic pit latrines to water closet facilities. Trained and certified artisans shall be equipped with knowledge on the Sanitation Ladder approach. Technical designs based on the Sanitation Ladder shall be available at CWSA Offices.

The selected technology option for latrines shall be in accordance with acceptable design criteria and the level of affordability established through baseline studies. Latrines shall be designed in a manner that is girl child friendly. Latrines shall also be designed to meet the needs of the physically challenged.

8 CAPACITY BUILDING

Training shall be provided to all key stakeholders at the local, regional and national levels as an integral part of all projects.

The CWSA shall be supported by the private sector to provide relevant training to various categories of personnel to upgrade skills and capabilities.

Accredited academic institutions shall provide specialised training courses to consolidate the sector training efforts made by the CWSA.

Joint venture partnerships between local and foreign companies shall be encouraged to promote technology and knowledge transfer.

9 SOCIAL AND ENVIRONMENTAL MANAGEMENT

The implementation of all interventions shall comply with the environmental regulations of the Environmental Protection Agency (EPA). All interventions shall ensure that a clear administrative and institutional framework is established. Proper documentation procedures shall be established and shall cater for land acquisition, resettlement or compensation for project affected persons.

As part of each project intervention key stakeholders shall be identified and consulted. The views of all stakeholders shall be considered in project preparation and implementation. Where necessary, there shall be the need to build the capacity of the key stakeholders to ensure they can implement the relevant environmental and social actions effectively.

All project interventions shall identify all relevant environmental and social impacts that will be encountered in project implementation and propose appropriate mitigation measures.

The CWSA, MMDAs and beneficiary communities shall be supported by the EPA to ensure compliance with all social and environmental regulations during project implementation.

10 SPECIFIC IMPLEMENTATION STRATEGIES

10.1 Project Management

a. A Project Steering Committee shall be established to provide technical advisory services, progress monitoring and management support to each Small Towns Project. The committee shall comprise selected representatives of the CWSA, Sector Ministries, RCC(s), Development Partners and Consultant.

b. Project Progress Monitoring shall be primarily through field visits and meetings to be held at least quarterly at which progress reports and other pertinent issues shall be presented and discussed.

- c. Steering committee meetings shall be convened by CWSA.

10.2 Promotion

The MMDAs, through the DWD/DWSTs and with the support of CWSA Regional Offices, shall ensure that all communities that are prospective beneficiaries of a Small Towns Project, are duly sensitised and made aware of eligibility criteria and the various activities to be undertaken at the community level to enable participation in the project.

10.3 Community Development

a. This shall normally be of about 3 months duration. A mobilization assessment report shall be submitted by the community mobilisation team to the CWSA and the relevant MMDA at the end of this phase. An extension team comprising technical and non-technical personnel shall be engaged to provide relevant community mobilisation in each beneficiary community. WSDBs/WATSANs shall be established and trained to facilitate mobilisation of funds for Operation and Maintenance.

b. During Community Development, activities to be carried out shall include the following:

- Community entry
- Community sensitization (Project information dissemination, awareness on hygiene and sanitation, gender mainstreaming)
- Baseline data collection/studies
- Signing of agreement between the Community and MMDA (building commitment)
- Formation and inauguration of WATSAN & WSDBs
- Initial training (WATSANs & WSDBs)
- Launching and mobilization of funds for O&M/opening of bank accounts
- Hygiene and sanitation promotion
- Site selection and land acquisition/documentation (WATSAN/WSDB participation)
- Preparation of sub-project proposals/draft FMP
- Monitoring and support for construction activities
- Detailed training (Management, O&M, etc)
- Facility-user education
- Final FMP
- Follow-up

c. Community Mobilisation activities shall include the following:

- Project information to communities;
- Preparation of baseline socio economic and feasibility studies;
- Support to communities to establish WSDB and WATSANs in accordance with a constitution;
- Support to communities to open bank accounts;
- Mobilization of the community to raise funds towards the O&M of the facilities;
- Training of WSDB and WATSANs; and
- Preparation of FMPs.

10.4 Participatory Planning

Participatory planning shall involve the WSDB/WATSANs and MMDA staff, traditional authorities, assembly members, recognisable community groupings, the consultant and the community at large. The process shall be carried out in an interactive manner to ensure that beneficiary communities are adequately informed about all components of the project intervention.

Communities shall be supported to undertake the following among others;

1. Determination of positions of standpipes, possible pipe routing, tanks positions and other design components;
2. Identification of sources of water, where technically feasible alternatives exist;
3. Securing land rights for water supply projects;
4. Selection of management options for the operation and maintenance of the water supply system;
5. Preparation of Facilities and Management Plan (FMP) with preliminary Water Supply Designs and arrangements for managing the operation and maintenance of the Water Supply System to be provided;
6. Social and environmental action plans and activities.

10.5 Design

a. All designs shall be in accordance with the CWSA Design Guidelines and shall be supported by a design report to be made available by the consultant to the client and CWSA. Hydraulic designs shall be carried out by means of a computer program acceptable to the CWSA. Supporting calculations or computer printouts shall be submitted with all designs to the client and CWSA. Engineering designs shall be simple without excessive automation.

b. Equipment specifications shall be in accordance with British or ISO codes and standards. Codes accepted by the Ghana Institution of Engineers shall be used, where necessary.

c. Water supply system design shall consist of:

1. Source selection;
2. Design of boreholes and intakes, treatment units and other ancillary structures;
3. Hydraulic and engineering design of storage tanks transmission and distribution networks.
4. Selection of Electro mechanical equipment.

d. The main water supply technologies to be adopted shall include:

1. Spring or highland water supply systems;
2. Borehole based piped systems;
3. Surface water based piped systems;
4. Other approved technologies to be adopted, where necessary.

e. Water source selection shall be according to the following priorities:

1. Groundwater abstraction

2. Springs
 3. Surface water sources
- f. Energy source selection shall be according to the following priorities:
1. Grid Electricity;
 2. Solar Energy;
 3. Windmill;
 4. Diesel Generator;
 5. Other relevant sources of energy
- g. Water sources shall be protected by prohibiting human activities within 100 meters radius of the source in case of surface water, and 50 meters in case of ground water.

10.6 Construction

Construction shall be carried out in accordance with the specifications and conditions set out in the relevant Contract Document. Emphasis shall be placed on:

Time - The agreed time schedule for project completion;

Cost - The project cost shall be kept within the contract sum;

Quality - The quality of construction shall be in accordance with the drawing and specifications in the contract.

The progress of construction shall be monitored by the client/CWSA in accordance with these basic principles and the detailed requirements of each works contract.

All works contracts shall include a supply of spares, maintenance tools and occupational safety equipment.

10.7 Operation and Maintenance

a. All small towns water supply systems shall be operated and maintained in a manner to ensure sustainability. A system is considered to be sustainable if it meets the following requirements:

1. Delivering to consumers the design quantity of water
2. Producing water to Ghana Standards Board Water Quality Standards
3. Delivery of water in a cost effective manner (according to tariff guidelines)
4. Delivering water in a virtually uninterrupted manner (at least 95% of the time).
5. Planned routine and periodic maintenance are carried out for all Mechanical/Electrical equipment and Civil Works structure.

b. Water supply systems shall be operated and maintained either directly by the community or through contractual arrangements with private companies.

c. All operational staff of private companies/Communities 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.

d. Adequate records shall be kept on the operation and maintenance of the water supply systems for analysis, decision-making and reporting. The O&M Tools shall be used in the training of O&M staff.

10.8 Sanitation

a. Individual household latrines shall form an integral part of interventions in all communities to maximise health benefits in beneficiary communities. Institutional latrines may be constructed for schools and clinics.

b. The design of latrines shall be in accordance with CWSA design guidelines and the level of affordability established through feasibility studies. Appropriate hygiene and sanitation promotion shall be carried out in all communities in accordance with the Framework for Hygiene and Sanitation for Small Towns Water and Sanitation Projects.

c. Technology choice for latrines shall be based on the Sanitation Ladder. The Sanitation Ladder involves the broad range of technology options ranging from basic pit latrines to Water Closet facilities. All trained and certified artisans shall be equipped with knowledge on the Sanitation Ladder approach. Technical designs based on the Sanitation Ladder shall be available at CWSA regional offices.

d. All latrines shall have hand washing facilities. All latrines shall be designed and constructed according to the following principles:

- Shall be relatively free from flies and odours
- Shall safely dispose of human excreta
- Shall be structurally stable to prevent collapse during its design life.

e. Latrines shall be sited using the following general guidelines:

- Latrines shall be sited a minimum of 50m from borehole (in the case of dry latrines), hand dug well or spring source. For wet latrines hydrogeological expertise should be sought.
- Latrines shall be sited downstream of water sources.
- Public latrines shall be at least 50m from nearest residence and as far as practicable.
- Latrines shall be sited away from trees to prevent obstruction of vent pipes.

10.9 Small Mechanised Piped Systems

Small mechanized piped schemes using decentralized overhead plastic tanks (e.g. polytanks) on galvanized or block work towers. This model will be provided for Category I Towns. The project cycle shall be as for small towns. The major components of the system shall include:

- Mechanized boreholes;
- Transmission mains into decentralised overhead plastic tanks (about 3-4m high);
- 1No. to 3No. standpipes attached to each plastic overhead tank; and
- Institutions (schools and health centres) will be provided with their own overhead tanks.

The main advantages of the small mechanised piped systems are as follows

- Local expertise easily available (consultants and contractors);

- Equipment and materials available locally (with the exception of pumps);
- Reduced construction duration (between 3 and 6 months);
- Reduced construction cost; and
- Relatively low cost for consultancy services.

Small mechanised piped systems have limited opportunities for household connections since standpipes are located close to overhead tanks thereby reducing the length of distribution mains. Expansion of the systems would require further designs to determine new tank locations and the capacity of existing borehole and pump to feed the tank.

10.10 Standardisation of Hand Pumps

To ensure spare parts are always available the following Hand Pumps have been adopted for use. These are:

- For shallow wells
 - Nira AF-85
 - Nira AF-85D
- For deep wells
 - Ghana Modified India Mk 2 (GMIM2)
 - Afridev
 - Vergnet

10.11 Monitoring and Evaluation

a. Monitoring

Progress monitoring of projects shall be carried out to ensure compliance and to improve on performance over the duration of the project.

Design reports, drawings and tender documents shall be reviewed by CWSA Regional Offices to conform to the design guidelines and sound engineering practice. All surface water based schemes and multi-community schemes shall be checked by the Technical Department at the CWSA Head Office.

Monitoring of construction of projects shall be carried out to ensure the works are carried out to specification as required by the national guidelines and contract documents. Construction monitoring shall also ensure that projects are completed within the stipulated time frame, and within budget.

All construction activities shall conform with the social and environmental framework of the project.

Monitoring of Operation and Maintenance activities shall be carried out at various levels. This shall include technical and financial audit of WSDB/WATSAN activities. Water quality monitoring shall be carried out at the required frequency for different systems as stated in the Water Quality Framework.

b. Evaluation

Project evaluation shall be carried out twice yearly through mid-year and end-of-year reviews. End-of-project evaluation shall be carried out for all projects.

All relevant stakeholders shall be involved in project evaluation, especially the end-of-project evaluation. Stakeholders shall include:

- Beneficiary Communities
- Development Partners
- Government Agencies
 - MWRWH, MLGRD, MoFEP, NDPC
 - CWSA
- MMDAs

10.12 Post Project Support

One-year post project support shall be included as part of each project. In addition to this, the CWSA regional offices shall follow-up on all completed projects to enable lessons learnt to be incorporated in the design of future projects. Relevant post project support shall be provided to beneficiary communities and DWD/DWSTs. MMDAs shall monitor the performance of WSDBs/WATSANs, particularly with regard to the administrative, technical and financial management of the water supply systems.