

Appendix 1

Summary proposal

Mission on the feasibility of a public private partnership on sustainable water supply for urban poor in Ghana

NWP-NGO collaboration in Ghana

Summary Proposal

1 | **NWP-NGO Feasibility Mission to Ghana**

The NWP-NGOs Initiative on water services aims to develop a sustainable public private partnership on water supply management. The most promising approach of Public-Private Partnership for the specific Ghanaian situation will be explored and –eventually, when feasibility looks promising–developed, introduced and tested for sustainability and effectiveness for the urban poor.

It is envisaged that if the demand and need for PPP is high, that Ghanaian private and public partners will take up the PPP challenge for follow-up and identify pilot projects for water supply for the urban poor. The Mission, as presented here, will explore the feasibility; in terms of willingness and capabilities of local and Dutch parties in view of the local context.

Although the urban water service includes the whole water chain (including water sources, supply systems and operation and management services) the emphasis will be on the governance and management of the services for the peri-urban poor. The roles of the local private sector, the public sector and user community in ownership, governance, management and service provision will be addressed to create sustainable systems and services but also to create new economic opportunities.

The NWP-NGOs Group decided to carry out a joint Feasibility Mission (F-Mission) in February 2004. The F-Mission will consist of three Dutch NGO mission members and three Ghanaian public, private and CSO partners. This team will substantially collect information, knowledge and experiences and develop a final analysis on the feasibility of PPP in small towns and peri-urban areas in Ghana.

The team will consult key partners and actors in the Ghanaian urban drinking water sector at national, regional and municipal level. Ultimately, Ghanaians are to become owners of the process and the possible future project.

The mission will explore the feasibility of a PPP approach in different contexts, including:

- Low-income (or poor) section of the city of Tamale. Depending on the water supply source different options can be considered: (i) using the present water distribution network of the city managed by Ghana Water Company Ltd (GWCL). Reticulation system is probably owned by the municipality (or GWCL). Water would be bought in bulk and governance and management of the water systems and services is done by a PPP arrangement; or (ii) using an independent source and reticulation system. Ownership, governance and management of the water source, systems and services are in the hands of a PPP¹.
- Small district town with a population of 25,000-50,000. Either water will be bought in bulk from the GWCL (or another water company) or will come from an independent source and reticulation system. Ownership, governance and management of the water source, systems and services are in the hands of a PPP.

¹ 'Public' in a small town or peri-urban setting includes the common public institutions (such as municipality and utility) and the local user community.

Main questions to assess feasibility

The main purpose of the mission is to assess the feasibility for a PPP on water services for the urban poor in Ghana. Main questions for analysis include:

- Is there demand among the urban poor, Ghanaian NGOs & private sector parties, and national and local (municipal) decision-makers? Specifically in the local context of the regions of the North of Ghana;
- Is there an organisational and (legal) institutional framework at the public and private sectors which can support, sustain and develop initiatives in a PPP approach;
- What are the conditions, requirements and risks and lessons learned of a PPP approach in the local context;
- Are there other sustainable approaches Ghanaian partners have experience with, and what are their conditions and risks; and
- Is there sufficient interest among the key Ghanaian NGOs and private parties to become owners and pro-actors for a possible PPP project being supported by Dutch NGOs.

2| Objective

The main purpose of the F-Mission is to assess the feasibility for a PPP approach on water services for the urban poor in Ghana. The outcome of the mission will serve as an advice to the NWP-NGO group and its Ghanaian and Dutch partners as to go ahead on formulating an identification paper, which will serve as the basis of a possible pilot PPP project in Ghana. As an additional outcome of the F-Mission, the experiences could be added to and used in the Dialogue on PPP, as proposed by NWP and UNESCO-IHE.

3| Methodology and activities

Methodology

- Full involvement of the three NGO partners of the NWP-NGOs in the F-Mission;
- Full involvement of three key Ghanaian partners in the F-Mission;
- Coordination by the Mission leader (IRC) and NWP office

Activities

- Coordination meeting between Ghanaian and Dutch mission partners.
- Information gathering and discussions at national level with private parties, key agencies and stakeholders in order to discuss developments on privatisation and PPP with key government, civil society and private sector agencies in Ghana
 - To identify the current status, trends, political environment, risks and potential;
 - To find lessons from similar past, on-going or planned PPP projects on peri-urban water services for the poor in Ghana
 - To assess the PPP approach in light of the current developments on large scale investments and tenders in the Ghana water sector
 - To assess the interest among the key Ghanaian NGOs and private parties to become owners and pro-actors for a possible PPP project
- Visits to different municipalities: small towns and low-income peri-urban sectors (a short-list of five most potential municipalities/city sectors will be made prior to the F-Mission in consultation with Ghanaian partners)

- To identify the most feasible project locations in consultation with local private parties and key agencies
 - Discussions with local relevant stakeholders on demand/potential for PPP in their area
 - To identify the scope of a possible PPP and the technical, organisational and (legal) institutional feasibility in the local context
 - To assess the interest and potential role of different local private companies, Ghanaian NGOs, national and local government agencies, national water corporations
 - To assess the interest among the local Ghanaian NGOs and private parties to become owners and pro-actors for a possible PPP project
- Wrap up meeting with interested NGOs, private parties, action groups and national and local government representatives (including staff from some potential municipalities) to report on and discuss findings, conclusions and follow-up actions recommended
- Joint analysis and formulation (Ghanaian and Dutch team members) of the feasibility report

4| Local partner organisations and local stakeholders

Different Ghanaian and Europe-based NGOs will be consulted on this feasibility report and the project proposal; they have been very critical towards the privatisation of urban waster supply, for a range of reasons².

Key Ghanaian partner organisations of NWP-NGOs will be involved to the greatest extent possible, as they may become the primary carriers of this project. Other implementing Ghanaian NGOs involved or interested in urban water supply will be met and their potential role assessed.

National and local governmental (municipalities) will be involved as they have overall responsibilities and tasks in urban water services, and they provide the legal and regulatory framework of this PPP model. In many cases they are also the owners of the existing hardware infrastructure.

Private companies involved in management and provision of water services to the urban poor, or even owning the water supply systems, will be involved. Depending on the scope of the private company this can be at the local, regional or national level.

A Tentative list of NGOs, stakeholders to be involved in the F-Mission is attached (Appendix 1).

5| Expected Results and reporting

- Overview of interest from key 'public' and 'private' sector stakeholders for introduction of a PPP in Ghana (key stakeholders include urban poor, Ghanaian NGOs & private sector parties, and national and local (municipal) decision-makers);
- Overview of interest from Ghanaian key 'public' and 'private' sector stakeholders to become drivers and owners of the PPP;
- Key criteria, conditions and requirements for a successful introduction of PPP in Ghana; this refers to institutional (a/o legal framework; regulatory framework), organisational, economical, financial, technical and environmental aspects;
- Risk analysis for introduction and sustainability of a PPP in the target area;

² See publications of ISODEC and CAP, and UK-based Christian Aid and WaterAid-UK

- If relevant most potential locations for the introduction of the PPP with Dutch NGOs' support;
- Overview of present experiences of PPP and other approaches in peri-urban areas and small towns in Ghana with a focus on the poor; overview includes strengths and weaknesses of these experiences;
- Inventory of potential '*private*' sector companies that have capacities and experiences in management and service provision of urban water supply and have expressed interest in PPP;
- As an additional outcome of the mission the experiences of the mission could be added to and used in the Dialogue on PPP.

Within two weeks after the end of the mission, the draft report will be submitted to the funders and the NWP-NGOs Group for comments. Debriefing to the NWP-NGOs group and to the funders is planned; timing depending on meeting agenda of this group.

Comments are expected within three weeks, and then the final report will be submitted within one week after these comments have been received.

7| **Mission composition and provisional itinerary**

The proposed F-Mission period is 31 January-14 February 2004. The mission team consist of the following members.

Name	Organisation	Period
Mr. Jo Smet	IRC	Two weeks
Mrs. Danielle Hirsch	BothENDS	Two weeks
Mr. Floris Leenen	Simavi	First week
Mrs. Marjon Tuinsma	Simavi	Second week
Mr. Eugene Larbi	TREND	Two weeks
Mr. Stephen Ntow	WaterAid	Two weeks
Mr. Charles Berkoh	Bhekans Ventures Ltd	Two weeks

Date	Activity
Sat 31 Jan	A.m. departure NL P.m. arrival Ghana
Sun 1 Feb	Team discussions
Mon 2 Feb	Discussions/meetings in Accra with CWSA, GWCL, WaterAid, ISODEC/CAP; Local Government; private sector companies.
Tue 3 Feb	- Same -
Wed 4 Feb	Travel to Tamale
Thu 5 Feb	Discussions and meetings in Tamale: municipality; GWCL; CWSA; NGOs; private sector companies.
Fri 6 Feb	Visits to peri-urban areas; meetings with local groups/CBOs; follow-up discussions at city level
Sat 7 Feb	-Same- if needed; team discussions
Sun 8 Feb	A.m. Free P.m. team discussions and reporting

Mon 9 Feb	Visit to and discussions with authorities, companies and organisations in two small towns
Tue 10 Feb	Same but two other small towns
Wed 11 Feb	Travel to Accra (by air?? or by road?); reporting
Thu 12 Feb	Follow-up discussions CWSA-GWCL-WaterAid etc; reporting; Round table meeting with all key stakeholders
Fri 13 Feb	Drafting outline proposal and other reporting Departure for NL
Sat 14 Feb	Arrival NL

Appendix 2

Itinerary

Programme of feasibility mission NWP-NGO for water supply to urban poor Northern Ghana 31 Jan-14 Feb 2004

Date	Activity
Sat 31 Jan	A.m. departure NL P.m. arrival Ghana
Sun 1 Feb	p.m. Team discussions
Mon 2 Feb	Public Holiday a.m. and p.m. Team discussions and programme fine-tuning
	Mr (PS) on boreholes, solar pump and water treatment package plants
	Meeting at Danida
Tue 3 Feb	Discussions/meetings in Accra
	Briefing and meeting at RNE
	Meeting at Ministry for Housing and Works, including GWCL
	Meeting at PLAN GHANA
	Meeting at CWSA
	Meeting with Water Sector Review Secretariat
	Meeting with ISODEC and CAP
Wed 4 Feb	Travel to Tamale by air
	Planning meeting
	Meeting with WASHNET
	Meeting with New Energy
	Meeting with Association of Water Boards
	Meeting with Community Partnership for Health Development (member of CAP)
	Meeting with SEND – NGO
Thu 5 Feb	Discussions and meetings in and visit to peri-urban areas of
	Meeting with GWCL Regional office
	Meeting with CWSA CE and CWSA Regional Office
	Visit to peri-urban areas
	Meeting with CAP
Fri 6 Feb	Floris Leenen travels back to Accra Floris Leenen leaves for NL
	Visit to peri-urban areas
	Meeting with Tamale Municipal Water and Sanitation Team
	Meeting with UNICEF

		Meeting with ISODEC Tamale Office
		Preparation for visits to small towns; discussions on content
Sat 7 Feb		Travel to and from Savelugu; 2x0.5 hrs
		a.m./p.m. visit and discussions with representative from DWSB (Water Board), revenue collectors, standpost agents, 'poor people' of Savelugu (Small town)
Sun 8 Feb		A.m. Free p.m. arrival Mrs Marjon Tuinsma p.m. team discussions and reporting
Mon 9 Feb		Travel to and from Salaga; 2x2 hrs
		Visit to and discussions with District Assembly members, opinion leaders, district staff (DWST), DWSB, NGOs and CBOs, private sector and 'poor people' in Salaga (small town)
Tue 10 Feb		Travel to and from Sandema in Upper East Region (via Bolgatanga) ; 2x3 hrs travel
		Discussion with CWSA Bolgatanga
		Visit to and discussions (Upper East Region) with district authorities, DWSB, hired professional staff, 'poor people' in Sandema (small town)
Wed 11 Feb		Travel to Accra by road (flight was cancelled)
		Analysis on options
Thu 12 Feb		Meeting with Association of Private Water Operators
		Meeting with EU
		Meeting with World Bank
		Meeting with WaterAid
		Preparation Round table meeting
Fri 13 Feb		Preparation Round table meeting
		Debriefing and Round Table Discussion at Ministry of Works and
		Final team discussions and agreements on reporting
		Dutch part of team travels to NL
Sat 14 Feb		Arrival NL; Ghanaians travel back to their homes

Appendix 3

List of people met

List of people met

ACCRA

Dr. Charles Brempong-Yeboah	Deputy Minister for Works and Housing
Mr. Minta A. Aboagye	Director Water, Ministry for Works and Housing
Mr S.G.O. Lamptey	Ag. Managing Director GWCL
Mr Francis Kofi Brew	Ag. General Manager (Operations) GWCL
Mr. Arie van der Wiel	Ambassador of the Netherlands
Mr. Mar van der Gaag	Counsellor, Royal Netherlands Embassy
Mr. André Vermeer	First Secretary, Environmental Adviser, Royal Netherlands Embassy
Mr Mogens Mechta	Counsellor, Programme Coordinator, Royal Danish Embassy
Mr. Kojo Eli Bibah	Programme Officer, Royal Danish Embassy
Mr Emmanuel Nkrumah	Project Director, Water Sector Restructuring Project
Mr . Kofi Asamoah	Chief Executive, CWSA Head Office
Mr. Benedict Kubabom	Head Planning, CWSA Head Office
Mr. Robert Van Ess	Head Technology, CWSA Head Office
Mr. Atsu Dartey	Personnel Officer, Task Officer PPIAF, CWSA Head Office
Mr. Kwame Sarkodie	Zonal Planner, CWSA Head Office
Mr. Al-hassan Adam	NCAP
Mr. Jürgen Kettner	Programme Officer, Infrastructure Section, EU
Mrs. Lorretta Roberts	Water and Sanitation Programme Officer PLAN Ghana
Mr. Ben Arthur	Director, ProNet
Dr (Mrs.) Annette van Andel	Programme Officer, SNV Ghana
Mr. Arthur Swatson	Water and Sanitation Specialist, World Bank
Mr. Gabriel Amanfu	Director, VICCO Ventures Ltd
Mr. K. Akator	Technical Director ARMCO Ltd
Mr. S.A. Darkwa	Executive Director DAY Consult
Mr. Seth Okata	CEO DARKATA Eng Services Ltd
Mr. MacJohn Geraldo	DARKATA Engineering Services Ltd
Mr. Augustine Adoboe	Executive Director AD Resources
Mr. E.F. Aboagye	EMOS Consultancy Ltd
Mr. R.M. Bennin	EMOS Consultancy Ltd
Mr. D. Agbola	EMOS Consultancy Ltd

TAMALE

Mr. Matthew Adombiri	Regional Chief Manager, GWCL Northern region
Mr Stephen Nde	Project Engineer, GWCL Northern region
Mr. Wigbert Y. Dogoli	Regional Director, CWSA
Mr. John G. Aduakye	Zonal Hydro-geologist, CWSA
Mr James Omsu-Ansal	Regional Accountant
Mr. Thomas Sayibu	Director, New Energy
Mr Wumbei Abdulei	Training Coordinator, New Energy

Mrs. Constance H. Bukari	Community Development Coordinator, New Energy
Mr. Napaw Makuni	Construction Coordinator, New Energy
Mr Solomon Boar	Head Administration, New Energy
Mr. Sjeik Yakubu Abdul-Kareem	Deputy Director WASHNET-Tamale
Mrs Afishetu Al-Hassan	Treasurer WASHNET-Tamale
Mr Danumin Subiniman	Ex. Secretary Association of Water Boards (Northern, Upper East, Upper West Regions)
Mr. Patrick Apoya	Community Partnership for Health and Development- Tamale
Mr Iddrisu Abdul-Karim	Assistant Director, Tamale Municipal Assembly
Mr Assibi Kumatu	Municipal Water and Sanitation Team, Tamale
Mr . A.M. Baba	Municipal Community Development Officer
Mr Stephen Tecku	Municipal Water Engineer, Municipal Water and Sanitation Team, Tamale
Mr Emmanuel Zan	SEND Tamale
Mr E.A.D. Forson	WES Project Officer, Northern Ghana, UNICEF
Mrs Justina Anglaaere	Director, ISODEC Northern Ghana
Mr Emmanuel Kuyole	Programme Officer, ISODEC Northern Ghana

SAVELUGU – Small Town Northern Region

Mr. Alhaji Abukari Sumani	District Assembly Member; WSDB Member (Water Board)
Mr. Fuseini Salifa	Revenue Collector for Water Board

SALAGA - Small Town in Northern Region

Mr Awudu Abba	District Assembly member
Mr. Mark K. Savah	Chairman Salaga Town Council
Mrs. Margaret Zanabu	Gender Specialist, Water Board
Mr. Alhaji Mohammed	Secretary, Water Board
Mr. Charles B. Soale	Team Leader, DWST
Mr. Mohammed Awai	Salaga Chief
Mr. Abdulai D. Salifu	Treasurer Kpemke A.C.
Mr. Sadiq Ahmed	Opinion leader
Mrs Rose Aliche	Opinion leader
Mr. Amadu Ibrahim	Area Mechanic
Mr. Draman Jerry Jackson	JIDA (NGO)
Mr. Baba Ali Adam	Capacity Building; JIDA (NGO)
Mrs. Jill Pateman	JIDA
Mr. James Achana	Environmental Health Officer, GWEP
Mr. Mahama Felix	SEND Foundation Officer W/A
Mr. Hardmanu Mahnun Penorudas	Family Reproductive Health Programme
Mr. Isaac Imoro Dramani Abaranyo	Promotion of Girl Child Education

Mr. Chindi Joseph	Promotion of Girl Child Education
Mrs Soale A. Grace	EGOWEF
Mr. Adamu Asmaila	AFED
Mr. Umar Alhassan	AFED
Mr. Abudulai Sulemana	EGDA
Mr. Abdulai Issifu	EGDA
Mrs Mahama Alidu	EGDA
Mr. Issifu Seidu	EGDA
Mr. Victor Avungi	EGDA

**SANDEMA Small Town
in Upper East Region**

Rev. James Agake	District Chief Executive
Mr. Ibrahim Al-hassan	District Co-ordinating Director
Mr. Gregory Apintey	Chairman Water Board
Mr. Alangen Raphael	System Manager

Appendix 4

Analysis on profitability of PPP for small town water supply

Profitability Analysis

Cost recovery is a major issue in water services discussions. The debate links discussions on the profitability (cost recovery capacity) of systems to the affordability of water to individual users. In Ghana, profitability and affordability of existing piped systems are not clear. Major factors that may undermine the profitability of the systems include:

- The choice of inappropriate technology that generates high maintenance and operations costs or demands hi-tech skills;
- The availability of alternative water sources, either on a seasonal (wells during and after rainy season) or perennial basis (rivers), allowing people to access water freely;
- The non-payment of government institutions (hospitals, municipal and district assemblies, police, schools etc) which accounts for about 30% - 50% of all the water use;
- Low monetary incomes limits effective demand for water that has price, thus limiting maximum demand/consumption levels

Cost recovery could be said to have different meaning to different institutions. Where as GWCL describes it as full operations and maintenance cost and capital cost recovery, CWSA describes it to include operations and maintenance and minor improvement costs excluding capital cost. The scope of the minor improvement is not clearly defined and therefore it is difficult to access the cost recovery of the water systems. The issue of cost recovery of small town water systems become very important when PPP is being considering for water supply delivery because profit motives become one most important motivating factor that attracts the private to participate. The profitability of a water system is discussed below.

The profitability of water system can be discussed under three main areas comprising technical, financial, and social considerations.

The technical issues consider all circumstances that affect the management cost of the water supply system including production, transmission, distribution and service level.

The production and transmission considers:

1. technology: source – surface water with conventional treatment/slow sand filtration or ground water with minimum chlorination/no treatment
2. distance of water source from community significantly affects the number of pumping hours that increases the operation cost.
3. source of energy for operations could be electricity from national grid, diesel generated or solar generated. The cost of operation with diesel is about 2 to 3 times that of electricity from the national grid. The initial installation cost of solar is very high but has minimal operations cost.

The distribution and service considers:

Pipeline network: simple branch network makes it easier for water delivery to be controlled and measured whilst nested network makes the system prone to illegal connection.

Service type: delivery by standpost offers the opportunity to collect payment as you fetch and reduces the incidence of non-payment. House connection increases consumption but creates the problem of payment accumulation that becomes difficult to collect at the end of the month increasing the number of defaulters.

The financial

1. Tariff structure: consists of flat rate (unmetered), fix volumetric rate (metered), and incremental rate (metered)
2. Tariff determination: tariff determined by the DA/WSDB could undermine cost recovery for political expediency while that determined by the PE could be prohibitive and without taking the poor into consideration.
3. Mode of revenue collection: pay as you fetch will enable almost 100% revenue to be collected. Monthly payment will be difficult to administer but the most probable option for house connection customers. Prepaid could be suitable but there is no experience in the small town water supply in Ghana.

The social

1. Ability to pay: accessing the ability of the community to pay for the water at tariff set. The price for water at the community is between ₵ 100³ and ₵150 per 18 litres which is higher than that sold in the urban centres at ₵65 per 18 litres. The evidence from the communities is that they can pay for the tariff. There is self-adjustment or cross subsidisation mechanism where the poor in society get water without payment. It was evidenced that the old people and the vulnerable are allowed fetching water without paying from the communities visited.
2. Willingness to pay: is the acceptability of the community to pay for the water used which is hinged on the satisfaction of the consumers. The reliability and adequacy of quantity and quality of water supplied influences the willingness of the consumers to pay. Communities were willing to pay for water provided the supply was regular as agreed between the providers and the community.
3. Population density: effective operations is dependent on the customer base of the water system. The critical number of consumers required for full cost recovery of systems has not yet determined but it is acknowledged that systems with customer base of about 20,000 people can generate profits of about 16% of total operations cost (Bekwai Water System – VICCO Ltd). Water systems can be clustered (more than one water systems) under one operator to create the required customer base to make system profitable.
4. Social structure: communities with heterogeneous social structure have difficulties in organising themselves for a common goal. It is envisaged that strong water user groups and their associations can promote payment among community members and would be easier when the community is homogeneous.
5. Trust: trust of community members in the management of water systems by WSDB/PE is very essential to support the management of the system. Transparency, accountability and full involvement of community will promote trust and will make community willing to pay for the water. It is believed that extra contribution to support additional work and/or major repair works will be done by community and this has been demonstrated by 5% capital cost community contribution for projects.

In conclusions it can be said that for water system to be profitable at community level it should be fairly simple technology i.e. groundwater source powered with electricity from grid at close distance from community; distribution and service should ensure close to 100% revenue collection; payment should account for volume of water used; and critical mass of population and consumption of not less than 10,000 people, strong community involvement, transparency, accountability and trust of operators should be fulfilled.

³ Conversion 2004: EURO 1 = ₵ 1,100

Appendix 5

Analysis on feasibility details

Feasibility analysis

Framework of analysis: the overview

For each option the following areas and their key issues are analysed for feasibility of sustainable water services to the urban poor; then requirements and risks identified. To conclude the analysis of each option, an overall statement on the feasibility is made.

1. institutional setting
2. financial sustainability
3. sector/stakeholder capacity
4. ownership
5. community involvement
6. expressed interest in PPP and other options
7. pro-poor and equity arrangements

1. *Institutional setting*

This analyses the institutional arrangements, roles and responsibilities, and possible conflicts. Each of the options is analysed using a frame of 10 key institutional functions and the responsible institution with an extra condition on the explicit pro-poor focus (Table 2). If no overlaps are found between mutually exclusive functions, the first condition towards sustainability is expected to be met.

Table 1: Frame of criteria on institutional functions

Institutional functions	Responsibilities
Ownership	Legal owner of system
Governance	Entity in control of key decisions including planning, tariff setting, budgeting in the name of interest groups; oversight of management
Management	Day-to-day decision making in framework of annual plan, deliverables and budget
Operations	Operation and maintenance activities, billing and tariff collection
Communication to communities	Ensure accountability and transparency, facilitate participation in decision making
Regulation	Protection of the interest of the consumers/ users and environment
Finance (LT)	Ensure long-term financial sustainability, including extensions and major replacements and capacity maintenance
Capacity Building	Ensure adequate human capacity to fulfill responsibilities
Guidance/information	Provide knowledge, information to strengthen fulfillment of responsibilities
Monitoring	Monitoring performance, management and decision making transparency and accessibility of poor people
Pro-poor arrangement	Is there any specific arrangement to ensure accessibility to a minimum quantity of water to poor people and their families?

2. **Financial sustainability**

Capital investments, operation and maintenance costs, tariff setting, billing and revenue collection.

3. **Capacity requirements**

Performance capability and entity availability.

Performance capability describes the ability of the parties involved in the partnership to effectively play their roles as partners and have the requisite expertise to perform specified functions/roles assigned to them as described in the contract agreement.

Entity availability indicates whether sufficient number of individuals/professionals/entrepreneurs is available and whether they are prepared to undertake/participate in WSDB, professional tasks or in PPP.

3. **Ownership**

The key points are the legal ownership and the sense of ownership by the community.

4. **Community involvement**

The analysis is around the involvement of the community of users or the risk of being marginalised. The women are a specific target group as they are the drawers of water and key persons in maintaining hygienic standards at home. The community involvement hinges around key decisions in the management of water service provision including accessibility, reliability, amount and quality of water, and the tariff setting. In case of extensions of the service area and upgrading of the service level, the community is to be involved in the planning, design, construction and management of the system.

5. **Expressed interest**

The interest or preference for a specific option expressed by different stakeholder groups.

6. **Pro-poor and Equity arrangements**

The key issue is whether the option effectively promotes water supply to all ethnic and income groups in the community. Pro-poor and equity arrangements should span all stages of water supply projects/ programmes.

General requirements for all options

A number of requirements are applicable to all options:

1. **Institutional setting**

- autonomy of the institution in charge of governance
- procedures for conflict management between institutions involved
- consumers trust the management and governors

2. **Financial sustainability**

- Capital investment arrangements and cost recovery: for source development, infrastructure development, expansion, and plant and equipment replacement.
- Operations and maintenance arrangements and cost recovery: for repair and maintenance of pipes, plant and equipment; power cost; general administration cost, charges and taxes; employment cost of staff.

- Setting tariffs, Fees, and Charges: appropriate tariff that takes into consideration the balance of system sustainability and affordability to the poor and underprivileged, and profitability to the PE.
- Billing and Revenue collection: billing mechanism, revenue collection administration, and measures against defaulters.
- Payment of all outstanding charges and bills for water consumed by public institutions (or also national government to pass on the allocated funds to the local government or institutions)
- adequate financial transparency and accountability
- internal and external audits

3. **Capacity requirements**

- Performance capability: DA, WSDB, hired Service Professionals, PE etc. requisite expertise and capacities to perform their specified functions/roles
- Entity availability: sufficient number of individuals/professionals/ entrepreneurs available and they are prepared to undertake/participate in WSDB, professional tasks or in PPP
- Availability of Training Courses for different staff (DA, WSDB, WUG, Service Professionals)

4. **Ownership**

- Legislation, indicating that the systems are held in trust for the community;

5. **Community involvement**

- Involvement of community right from the start
- Clear and functioning communication with community of users

6. **Pro-poor and equity arrangements**

- Local arrangements for lifeline water supply to the poor who cannot afford to pay

Small towns: Feasibility per option Analysis per Small Town option

The options in management and operational arrangements for small towns are:

1. Public-Public: DA and WSDB with hired professional staff
2. Public-Public-decentralised: DA, WSDB and WUGs with hired professional staff
3. Public-Private: Agreement between DA/WSDB and Private Operator/Entrepreneur
4. option for increased profitability: Clustering of small towns, under one or several DAs to provide better economy-of-scale see figure 1.
5. Private-Community: agreement between private operator/entrepreneur and community water user group
6. Public-Public-Private-Bulk supply: Agreement between GWCL and DA/WSDB, and between WSDB and Private Operator/Entrepreneur
7. Public-Public-Bulk supply: Agreement between GWCL and DA/WSDB with hired professional staff

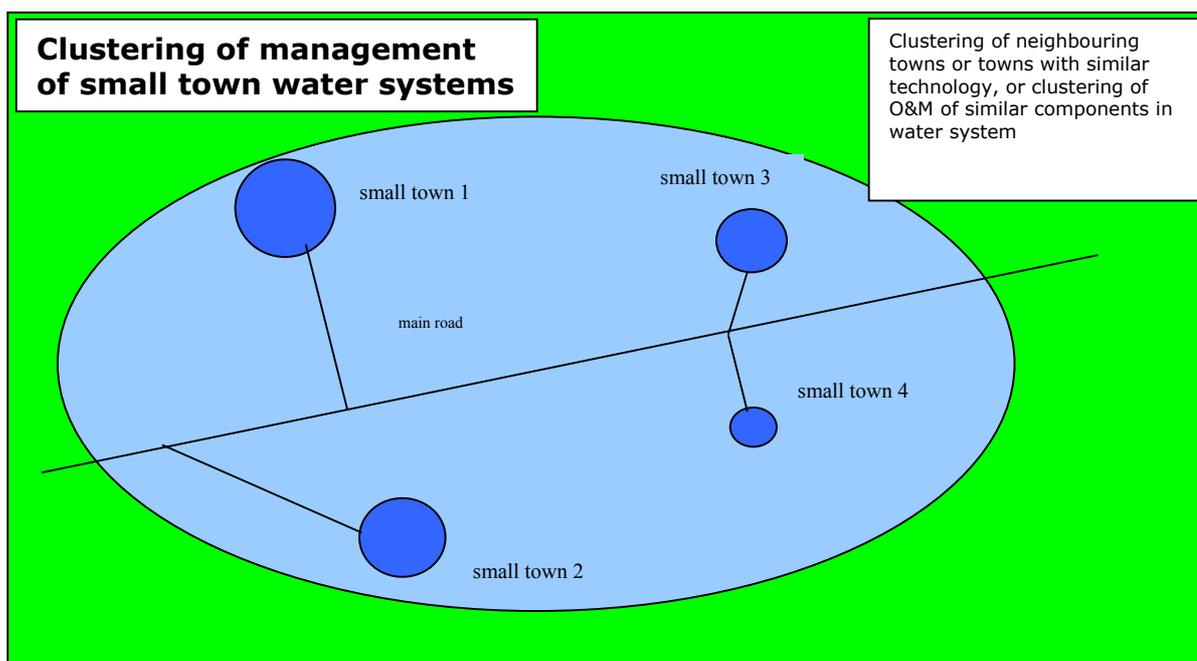


Figure 1: Clustering of small town water supply systems

Public – Public: DA and WSDB with hired professional staff

In this option the DA transfers the management responsibility of the water system to the WSDB. The WSDB engages professionals (service operators) to undertake the operations and maintenance responsibilities and the board maintains the administrative and oversight management responsibility of the water system. The DA is the regulator of the operations of the water supply services.

Institutional Setting

Institutional functions	Responsible institution
Ownership	DA
Governance	WSDB
Management	WSDB and hired staff
Operations	WSDB and hired staff
Communication to communities	WSDB
Regulation	DA
Finance (LT)	DA
Capacity Building	DA; NGOs, ESA
Guidance/information	CSWA, Ministry of LGRD, NGOs, ESA, Association of Water Boards.
Monitoring	CWSA, Ministry of LGRD [?]
Pro-poor arrangement	No

(in italic are the (potentially) supporting institutions; if responsibility of institution is unclear a [?] is added)

This option should be considered as the standard option, as it is applied in the great majority of small towns under the mandate of the CWSA. Whereas the institutional structure fulfilling the key functions of sound water management are clear, the responsibility over capacity building and the maintenance of good quality human resources for decision making, management and operation has not been clearly defined or recognised.

Actor	Responsibility
District Assembly DWST	<ul style="list-style-type: none"> ▪ Monitor O&M – technical, financial, and administration ▪ Contract consultants and contractors and supervise them Audit WSDB account periodically ▪ Review and approve water tariffs ▪ Assist WSDB in setting tariff ▪ Provide technical/financial approval for WSDB plans – extension, new standpipe etc. ▪ Monitor technical and financial status of community managed water system
WSDB	<ul style="list-style-type: none"> ▪ Set tariff, set application procedures, connection and reconnection fees ▪ Pays the Service Operators for their services ▪ Monitor operations of the Service Operators
Service Professional (Operator s-hired)	<ul style="list-style-type: none"> ▪ Production and treatment if required, transmission, and distribution water to the community ▪ Billing of consumers and collection of revenue ▪ Repairs and maintenance of infrastructure, plant and equipment in a sustainable manner

Key requirements and conditions:

- The need for autonomous WSDB
- Capable and confident WSDB
- Availability of procedures for conflict management between WSDB and Consumers

Potential risks:

- DA has too many responsibilities that can result into conflict of interest
- Potential power conflict between the DA and the WSDB.
- High political influence over the autonomy of the WSDB ('Politicised WSDB')
- Hired professionals "run" the system, i.e. they are more the decision-makers than the Water Board
- Lack of trust from consumers

Financial Sustainability

Actor	Responsibility
DA	Capital Investment: <ul style="list-style-type: none"> ▪ Water source development ▪ Pipe distribution network infrastructure development and expansion ▪ Water treatment plant and equipment development and

	replacement
WSDB	<ul style="list-style-type: none"> ▪ Realistic water tariff setting ▪ Setting connection and reconnection fees ▪ Determining other charges ▪ Determining operation, maintenance and repair cost ▪ Billing and revenue collection; possibly delegated to Service Professionals

Key requirements and conditions:

- See general requirements

Potential risks:

- DA/WSDB inability to support capital investment cost that will affect medium- and long-term sustainability
- Lack of cost recovery for old water system which has not been rehabilitated
- Lack of reliability for old water systems which has not yet been rehabilitated.
- Illegal connections
- Parallel water selling system

Capacity Requirement

Key requirements and conditions:

- Where there is no equity/power leverage between DA and WSDB a regulatory instrument/body can promote it.
- Inadequate number of experienced Service Professionals (Operators) is a threat since WSDB may have to do with bad ones.
- Adequate capacities of Service operators
- Availability of Training Institutions

Potential risks:

- DA and WSDB have insufficient capacities to undertake the administrative and oversight management responsibilities.
- The hired service operators have insufficient capacities and administrative/technical skills to perform the operations management of the water system.

Ownership

Key requirements and conditions:

- see general requirements

Community Involvement

Key requirements and conditions:

- See general requirements

Pro-poor and Equity arrangements

Key requirements and conditions:

- See general requirements

Public – Public-decentralised: DA, WSDB and WUGs with hired professional staff

In this option the DA transfers the management responsibility of the water system to the WSDB. The WSDB engages hired Service Professionals (also called Operation Unit) for day-to-day O&M of the production, transmission and distribution system. The WSDB supplies bulk water to Sub-communities (electoral zones and/or rural communities along the pipeline) i.e. Water User Groups (WUGs); volume measurements using bulk meters. The various WUGs engage Service Professionals (Service Operators) to undertake the operations and maintenance responsibilities and maintain the administrative and oversight management responsibility of the water system in the Sub-communities.

Institutional functions	Responsibility
Ownership	District Assembly and community
Governance	WSDB + WUGs
Management	Operating Unit + WUG + hired staff
Operations	Operating Unit + WUG + hired staff
Communication to communities	WSDB + WUGs + OU
Regulation	DA
Finance	DA + WUGs
Capacity Building	DA + WUG, <i>NGOs, ESAs</i>
Guidance/information	<i>CWSA, Ministry of LGRD, NGOs, ESA, Association of Water Boards</i>
Monitoring	<i>CWSA, Ministry of LGRD [?]</i>
Pro-poor arrangement	No

(in italic are the (potentially) supporting institutions; if responsibility of institution is unclear a [?] is added)

Institutional Setting

Actor	Responsibility
District Assembly	<ul style="list-style-type: none"> ▪ Monitor O&M – technical, financial, and administration ▪ Audit WSDB account periodically ▪ Review and approve water tariff ▪ Contract consultants and contractors and supervise them
WSDB	<ul style="list-style-type: none"> ▪ Set water tariff for bulk supply to WUG and other consumer groups ▪ Assist WUGs in setting tariff ▪ Provide technical approval for WUGs plans – extension, new standpipe etc. ▪ Pays the Service Operators (operation Unit) for their services ▪ Monitor operations of the Service Operators ▪ Monitor technical and financial status of community managed water system

WUGs	<ul style="list-style-type: none"> ▪ Set tariff ▪ organise community-based operations and maintenance ▪ Pays the Service Operators for their services ▪ Monitor operations of the Service Operators
Service Professional (Operators)	<ul style="list-style-type: none"> ▪ Distribute and sells water at standpipe to the community ▪ Billing of consumers and collection of revenue ▪ Repairs and maintenance service pipelines and standpipe in a sustainable manner

Key requirements and conditions

- The need for autonomous WSDB
- Interest of stakeholders: WSDB and WUGs expressing interest which can be confirmed by being pro-active, demonstrated capability
- WUGs control WSDB to do good work
- Availability of procedures for conflict management between WSDB and Consumers

Potential risks

- Potential power conflict between the DA and the WSDB.
- High political influence over the autonomy of the WSDB ('Politicised WSDB')
- DA has too many responsibilities that can result into conflict of interest
- Hired staff "runs" the system
- Lack of trust from consumers

Financial Sustainability

Key issues are the same as option 1 but the actors are different.

Actor	Responsibility
DA	Capital Investment: <ul style="list-style-type: none"> ▪ Water source development ▪ Pipe distribution network infrastructure development and expansion ▪ Water treatment plant and equipment development and replacement
WSDB	<ul style="list-style-type: none"> ▪ Realistic water tariff setting for bulk water supply ▪ Setting connection and reconnection fees ▪ Determining other charges ▪ Determining operation, maintenance and repair cost ▪ Billing and revenue collection for bulk and non-bulk supply; possibly delegated to Service Professionals
WUGs	<ul style="list-style-type: none"> ▪ Set tariff for standpipe ▪ Operation, maintenance and repairs of service pipelines and standpipe ▪ Billing and revenue collection at WUG level

Key requirements and conditions

- see general requirements

Potential risks

- DA/WSDB inability to support capital investment cost
- Public institutions do not pay for water consumed.

Capacity Requirement

Key requirements and conditions

- Capable and confident WSDB
- Adequate capacities of service operators (operation Unit)
- Adequate capacities of WUGs to undertake the administrative and oversight management responsibilities
- Hired service operators at WSDB and WUG level have the required technical skills to perform the operations management of the water system

Potential risks

- Where there is no equity/power leverage between DA and WSDB a regulatory instrument/body can promote it.
- Inadequate number of experienced Service Professionals (Operators) is a threat since WSDB may have to do with bad ones.
- DA has too many responsibilities that can result into conflict of interest and lack of capacity to perform effectively
- WUGs level is difficult to control
- Lack of reliability for old water systems not yet rehabilitated.

Ownership

DA has ownership of the water system i.e. the water source and the main transmission whilst the distribution and the service pipelines within the respective WUG areas belong to the WUGs.

Key requirements and conditions

- ownership of WUG systems is legalised through District bye-laws

Community Involvement

see general requirements

Pro-poor and Equity arrangements

See general requirements

Public-Private-Partnership: DA/WSDB, Private Operator/Entrepreneur (PE) an Community of user

In this option the DA/WSDB (on behalf of the 'community') contracts a PE to manage the water system by undertaking the administration and technical management of the water supply services. The PE is expected to be more efficient in these functions than the WSDB. The contract agreement spells out the roles, responsibilities and obligations of the PE and WSDB. The DA is the regulator of the operations of the water supply services.

Institutional functions	Responsibility
Ownership	DA
Governance	WSDB
Management	Private Operator
Operations	Private Operator
Communication to communities	WSDB, Private Operator
Regulation	DA
Finance	DA, Private Operator [?] , <i>ESA,</i>
Capacity Building	DA, Private Operator, <i>NGOs, ESA, Association of Water Boards, Association of Private Operators</i>
Guidance/information	<i>CWSA, Ministry of LGRD, NGOs, ESA, Association of Water Boards, Association of Private Operators</i>
Monitoring	<i>CWSA, Ministry of LGRD [?]</i>
Pro-poor arrangements	No

(in italic are the (potentially) supporting institutions; if responsibility of institution is unclear a [?] is added)

Institutional setting

Actor	Responsibility
District Assembly	<ul style="list-style-type: none"> ▪ Monitor O&M – technical, financial, and administration????? ▪ Audit WSDB account periodically ▪ Review and approve water tariff ▪ Contract consultants and contractors and supervise them
DWST	<ul style="list-style-type: none"> ▪ Assist WSDB in setting tariff ▪ Provide technical approval for WSDB plans – extension, new standpipe etc.
WSDB	<ul style="list-style-type: none"> ▪ Set tariff, application procedures, connection and reconnection fees ▪ Pays the PE as specified in the Agreement for service rendered ▪ Audit accounts of the PE ▪ Supervise operations of the PE
Private Entrepreneur	<ul style="list-style-type: none"> ▪ Production and treatment if required, transmission, and distribution of water to the community ▪ Billing of consumers and collection of revenue ▪ Repairs and maintenance of infrastructure, plant and equipment in a sustainable manner

Key requirements and conditions:

- Availability of procedures for conflict management between PE and WSD, and between PE and Consumers

Potential gains for institutional sustainability:

- clear contractual arrangements between DA/WSDB and PE on provision of certain level of service against an agreed tariff.
- Potential for better communication to community of users
- Good transparency and accountability

Potential risks for institutional sustainability:

- DA has too many responsibilities that can result into conflict of interest and lack of capacity to perform effectively
- Conflicts between the PE, DA and WSDB over the control and decision-making in the water service: who has the authority over what? A smart PE can play DA and WSDB against themselves to his advantage.
- Collusion between PE and DA or WSDB
- A potential power conflict between the DA and the WSDB.
- High political influence over the autonomy of the WSDB (Politicised WSDB)

Financial Sustainability

Actor	Responsibility
DA	Capital Investment: <ul style="list-style-type: none"> ▪ Water source development ▪ Pipe distribution network infrastructure development and expansion ▪ Water treatment plant and equipment development and replacement
WSDB	<ul style="list-style-type: none"> ▪ Realistic water tariff setting ▪ Setting connection and reconnection fees ▪ Determining other charges
PE	<ul style="list-style-type: none"> ▪ Management, operation, maintenance and repair cost ▪ Billing and revenue collection

Key requirements and conditions

- To achieve profitability of PE: Critical mass of population and consumption and realistic tariff, as well possible need for clustering
- Accountability by PE and WSDB for building trust
- Good contractual terms (Format, tariff agreement, conditions for reviewing tariff and processes, clarity between minor and major repairs and the domain of responsibility)
- Adequate cost recovery for O&M and profit margins
- Local arrangements for water supply to the poor who cannot afford to pay as part of contract agreement

Potential risks on Financial Sustainability:

- DA/WSDB inability to support capital investment cost
- Public institutions do not pay for water consumed
- People continue to use unhygienic water from wells especially during the rainy season; this demonstrates a need for community involvement right from the start to assess the future piped water use and the need for health education in order to use good water for at least drinking purposes.
- Lack of profitability for old water system which has not been rehabilitated

Capacity Requirement

Potential requirements and conditions

- Adequate managerial and technical capacities of PE
- sufficiently strong and capable WSDB versus PE (power leverage) for maintaining principle of water being a 'social good'

Potential risks capacity requirement:

- Where there is no equity/power leverage between DA/WSDB and PE a regulatory instrument/body can promote it.
- Inadequate number of experienced PE is a threat since WSDB may have to do with bad PE.
- DA has too many responsibilities that can result into conflict of interest and lack of capacity to perform effectively
- The PE decides to abandoned the water system if there not enough profit for the operations
- The capability of the private to manage large number of small towns' water systems is suspicious.

Ownership

Community Involvement

Potential risks for community involvement:

- True community involvement will mean spending a longer time than usual to implement a project and therefore in an effort to complete a project on time the involvement process will be rushed through and the community commitment will not fully developed.
- Mobilising resources from the community can also delay the project implementation period.

Expressed Interest

The expressed interest for PPP by the DA/WSDB and PE can be confirmed by them being proactive, their demonstrated capability, and benefits gained by all parties in the partnership. There was strong interest among both the public and the private parties.

Pro-poor and Equity arrangements

Potential risks:

- The PE may not necessary give any concession or consideration to the poor since he is profit oriented, and WSDB has insufficient power leverage to correct
- Women may be excluded due to cultural/traditional beliefs

Private-Community: private operator/entrepreneur and community water user groups

Institutional functions	Responsibility
Ownership	Water Users Groups or Private Sector
Governance	Multi-stakeholder Water Board: Water Users, CWSA
Management	Private operator
Operations	Private operator
Communication to	Private operator through WUGs – consumers, and/ or

communities	directly to consumer.
Regulation	[??]
Finance	Private sector, <i>NGOs</i>
Capacity Building	MA [?] , <i>NGOs, ESAs, Training institutions</i>
Guidance/information	<i>NGOs, ESAs, GWCL, MA</i>
Monitoring	[??]
Pro-poor arrangement	No [?]

(in italic are the (potentially) supporting institutions; if responsibility of institution is unclear a [?] is added)

This approach is a stand-alone option that caters for parts of towns and cities where the overall system does not reach, or where sustainable and easily accessible alternative sources of water provision are available. The option described is being developed in Tamale, trying to combine strong community involvement with private entrepreneurship. The initiative is in an early phase, and therefore roles and responsibilities, especially of the MA and GWCL, are not yet clearly defined. One of the major obstacles is the lack of clarity on the roles and responsibilities of GWCL, making it difficult to indicate institutional responsibility for monitoring and regulation.

Public-Public-Private-Bulk supply: GWCL and DA/WSDB, and WSDB and Private Operator/Entrepreneur (zonal option)

Institutional functions	Responsibility
Ownership	DA
Governance	WSDB
Management	Private operator
Operations	Private operator
Communication to communities	Private Operator/GWCL
Regulation	DA
Finance	<i>DAs, ESAs,</i>
Capacity Building	<i>DA, NGOs, ESAs, National Training Inst.</i>
Guidance/information	<i>CWSA, NGOs, ESA, Association of Water Boards, Association of Private Operators</i>
Monitoring	CWSA
Pro-poor arrangement	No

This option centralises production and distribution, delivering bulk water supply to specific zones of a small town. At the moment, no actual town is implementing this option. Again, the role and responsibilities of GWCL 'outsourcing' distribution is unclear.

Analysis and conclusion are the same as for third option: PPP for small towns.

Public-Public-Public-Bulk supply: GWCL and DA/WSDB with hired professional staff

This option consists of GWCL signing an agreement with DA/WSDB to supply bulk treated water (supply is metered). WSDB is then responsible for only the management of the water system i.e. the distribution, tariff setting and revenue collection in the community in which it serves. WSDB hires professionals to undertake the operations and maintenance responsibilities and maintains the administrative management of the water system. This can be in two forms where GWCL supplies water to: i) one-offshoot community (one WSDB, e.g. Savelugu, Northern Region) and ii) cluster of small towns (different WSDBs, no examples in Ghana but practised in Uganda)

Institutional Setting

Institutional functions	Responsibility
Ownership	DA/GWCL
Governance	WSDB
Management	WSDB (hired staff)
Operations	WSDB and hired staff.
Communication to communities	WSDB
Regulation	DA
Finance	DA
Capacity Building	DA, <i>NGOs, ESA, Association of Water Boards, Association of Private Operators</i>
Guidance/information	<i>CWSA, NGOs, ESA, Association of Water Boards, Association of Private Operators</i>
Monitoring	CWSA
Pro-poor arrangement	No

(in italic are the (potentially) supporting institutions; if responsibility of institution is unclear a [?] is added)

Actor	Responsibility
GWCL	<ul style="list-style-type: none"> ▪ Sells bulk treated water to WSDB
District Assembly DWST	<ul style="list-style-type: none"> ▪ Monitor performance technical, financial, and administration ▪ (Internal) Audit WSDB account periodically ▪ Review and approve water tariffs ▪ Contract consultants and contractors and supervise them ▪ Assist WSDB in setting tariff ▪ Provide technical approval for WSDB plans – extension, new standpipe etc. ▪ Monitor technical and financial status of community managed water system
WSDB	<ul style="list-style-type: none"> ▪ Set tariff, set application procedures, connection and reconnection fees ▪ Pays GWC and Operators for their services

	<ul style="list-style-type: none"> ▪ Monitor operations of the Operators
Service Professional	<ul style="list-style-type: none"> ▪ Distribution and service at standpipe ▪ Collection of revenue ▪ Repairs and maintenance of pipes and standpipe

Key requirements and conditions:

- The need for autonomous WSDB

Potential risks:

- potential power conflict between the DA and the WSDB.
- high political influence over the autonomy of the WSDB or 'politicised' WSDB
- Enforcement of agreement between GWCL and WSDB can be a problem
- Hired staff "runs" the system
- DA has too many responsibilities that can result into conflict of interest and lack of capacity to perform effectively
- Lack of reliability for old water systems not yet rehabilitated.

Financial Sustainability

Actor	Responsibility
DA	Capital Investment: <ul style="list-style-type: none"> • Water source development • Pipe distribution network infrastructure development and expansion • Water treatment plant and equipment development and replacement
WSDB	<ul style="list-style-type: none"> ▪ Realistic water tariff setting ▪ Setting connection and reconnection fees ▪ Determining other charges ▪ Operation, maintenance and repair cost ▪ Billing and revenue collection cost
GWCL (PURC)	<ul style="list-style-type: none"> ▪ Set the price for treated water

Key requirements and conditions:

- see general requirements

Potential risks:

- DA/WSDB inability to support capital investment cost
- Public institutions do not pay for water consumed
- Lack of profitability/cost recovery + reserves for old water system which has not been rehabilitated

Capacity Requirement

Key requirements and conditions:

- see general requirements

Potential risks:

- Where there is no equity/power leverage between DA and WSDB a regulatory instrument/body can promote it.
- Inadequate number of experienced Service Professionals (Operators) is a threat since WSDB may have to do with bad ones.
- DA has too many responsibilities that can result into conflict of interest and lack of capacity to perform effectively

Ownership

The main water transmission pipeline belongs to GWC up to where the bulk meter is installed. The take-off transmission from the mains and the water system in the town or community belongs to the DA/WSDB.

Key requirements and conditions:

- see general requirements

Potential risks:

- The unclear position of ownership of the water system is a threat to the WSDB since he is not sure of the consequences after a change of government.
- The right of authority of the DA or the WSDB over the water system is unclear and affects decision making since ownership has not been resolved.

Community Involvement

- see general requirements

Pro-poor and Equity arrangements

- see general requirements

Peri-urban areas: Feasibility per option

Criteria analysis per option

The possible options or operational arrangements are:

1. Public-Private-Partnership: Agreement between GWCL (bulk supply) and Private Entrepreneur (PE) and Water Users Association in peri-urban zones – see figure mmm.
2. Public-Public-Private Partnership: Agreement between GWCL (bulk supply) and WSDB and Private Entrepreneur
3. Public-Public Partnership: Agreement between GWCL (bulk supply) and WSDB with hired professionals
4. Private-Community Partnership: Agreement between Private Entrepreneur and Water User Groups

These options or operational arrangements can be done at different levels of involvement depending on the roles, responsibilities and risk sharing among the various stakeholders.

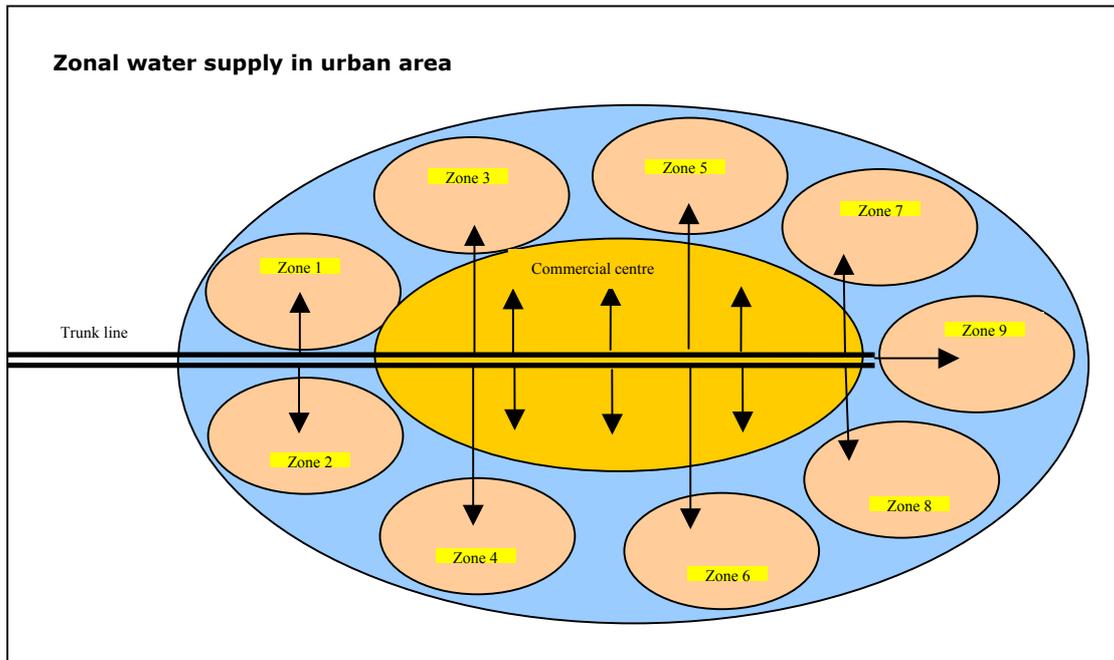


Figure MMM: Zonal water supply in urban and peri-urban areas

Public-Private-Partnership: Agreement between GWCL (Bulk Supply) and per urban zone a Private Entrepreneur (PE) and Water User Association

The GWCL contracts a PE to manage the water system by undertaking the administration and technical management of the water supply services. The PE is expected to be more efficient in these functions than the GWCL.

This option centralises production and distribution by GWCL; they will deliver bulk water supply to specific zones of a small town and to peri-urban areas of bigger cities. At the moment, no actual town or urban area is implementing this option. Again, the role and responsibilities of GWCL in 'outsourcing' the urban/peri-urban distribution is unclear. The restructuring of the urban water supply will transform GWCL into an asset leasing company. Giving them a water production and transmission responsibility (as proposed by several directors and managers in GWCL) is an option to be discussed. But even if larger (local/international) water companies are managing the urban water supply, this option still stands.

It is further unclear whether a city environment allows for strong user associations because of the heterogeneous population composition. As an alternative to strong community involvement to ensure that consumers are represented in decision making processes, a Consumer Association may play an important role in monitoring delivery in peri-urban areas.

Sustainability criteria analysis

Institutional functions	Responsibility
Ownership	GWCL [?]
Governance	GWCL [?]
Management	PE
Operations	PE
Communication to communities	PE and WUA
Regulation	PURC

Finance	MA/ GWCL [?]
Capacity Building	MA, PE, NGOs, ESAs, Association of Private Operators
Guidance/information	Association of Private Operators, Training institutions, NGOs, ESAs
Monitoring	MA [?], MLGRD [?], Consumer Association
Pro-poor arrangement	No

(in italic are the (potentially) supporting institutions; if responsibility of institution is unclear a [?] is added)

Institutional Setting

Actor	Responsibility
GWCL (or a large water company)	<ul style="list-style-type: none"> ▪ produces and transports water to urban areas ▪ Provide bulk water to the Private Entrepreneur ▪ Set water tariffs (PURC) ▪ Charges PE for bulk water ▪ Monitors operations performance of the PE (??)
Private Entrepreneur	<ul style="list-style-type: none"> ▪ Distribution of water to house connections and standpipes ▪ Payment to GWCL for bulk water supplied ▪ Billing of consumers and collection of revenue ▪ Operation, maintenance and repairs of distribution network
WUA	<ul style="list-style-type: none"> ▪ Liaison between the PE and the community ▪ Monitor the performance of the PE

Key requirements and conditions:

- Availability of procedures for conflict management between PE and Consumers
- WUA monitors PE to do good work

Potential risks:

- potential power conflict between the GWCL and the Metro Assembly.
- political influence over the autonomy of the GWCL
- Institutional, financial, monitoring responsibility for water supply in urban zoning is unclear

Financial Sustainability

Actor	Responsibility
GWCL	<p>Capital Investment:</p> <ul style="list-style-type: none"> ▪ Water source development ▪ Pipe distribution network infrastructure development and expansion ▪ Water treatment plant and equipment development and replacement <p>Operations cost:</p> <ul style="list-style-type: none"> ▪ Tariff setting for bulk water and consumer services

	<ul style="list-style-type: none"> ▪ Operation, maintenance and repair cost of major pipelines ▪ Billing and revenue collection cost for bulk water
PE	<ul style="list-style-type: none"> ▪ Setting connection and reconnection fees ▪ connections to households and standpipes ▪ Operation, maintenance and repairs distribution and service pipelines ▪ Billing and collection of consumer services
WUA	<ul style="list-style-type: none"> ▪ No financial obligation

Key requirements and conditions:

- Profitability of the operations
- Transparency and accountability
- Adequate cost recovery for O&M and profit margins

Potential risks:

- GWCL inability to support capital investment cost can affect: system capacity expansion, service reliability, operation performance efficiencies etc in the future.
- Public institutions do not pay for water; PE can not cover costs
- Lack of profitability due to insufficient water supply and/or consumption and low pressures
- High operations cost due to old pipelines, meters and valves
- High level of illegal service pipeline connections
- PE are profit minded and will not consider the poor

Capacity Requirement

Key requirements and conditions:

- Both GWCL and the PE have adequate capacities to perform specified functions/roles while they have an institutional power balance
- The WUA has the required expertise and capacities to perform effectively
- Both GWCL and PE express interests that confirm their being pro-active and motivated

Potential risks:

- no equity/power leverage between GWCL and PE, or between PE and WUA
- Inadequate number of experienced PEs; GWCL (or MA) may have to do with weak PEs
- Responsibility for WUA capacity building is unclear

Ownership

GWCL owns the entire urban water supply system (??).

- see general requirements

Community Involvement

Community involvement at the urban setting may be more difficult than in small towns and therefore very slow. This is due to heterogeneous communities with low cohesion between individual households that makes participation more difficult.

Key requirements and conditions:

- see general requirements

Potential risks:

- High level of community involvement may not be sustainable in the peri-urban setting

Pro-poor and Equity arrangements

- see general requirements

Potential risks:

- Commercial user may dominate decision making (policy-Strategy) as against poor domestic user
- The poor may be excluded in absence of pro-poor policy for lifeline water supply

Public-Public-Private Partnership: Agreement between GWCL (bulk supply) and WSDB and Private Entrepreneur

GWCL provides bulk water to the WSDB on behalf of the peri-urban community. Each electoral (or other demarcated distribution area) has a WSDB. The WSDB transfers the management and operations of the water supply services to PE to perform specific functions that could not be performed efficiently by the WSDB. This option is almost similar to the peri-urban option 1 but the variation is that the WSDB has a role in governance and management of the water supply, either mandated by the GWCL or MA (??).

Public-Public Partnership: Agreement between GWCL (bulk supply) and WSDB with hired professionals

The GWCL or MA (??) mandates the peri-urban water supply services to the WSDB. The option is the same as the previous one, but in this option no PE is contracted to do the day-to-day management of the system. This task is done by the WSDB itself with support from the WUGs and hired professionals.

Institutional functions	Responsibility
Ownership	GWCL [?] or MA [?]
Governance	WSDB, GWCL [?], MA [?]
Management	WSDB + WUGs + hired professionals
Operations	WSDB + WUGs + hired professionals
Communication to communities	WSDB + WUGs
Regulation	PURC
Finance	GWCL [?] and MA [?]
Capacity Building	MA [?], NGOs, ESAs
Guidance/information	[?], <i>Training institutions, NGOs, ESAs, Association of Water Boards</i>
Monitoring	MA [?], MLGRD [?]
Pro-poor arrangement	No

(in italic are the (potentially) supporting institutions; if responsibility of institution is unclear a [?] is added)

Sustainability criteria analysis

Institutional Setting:

- describes the institutional arrangements and the roles and responsibilities.

Actor	Responsibility
GWC	<ul style="list-style-type: none"> ▪ Provide bulk water to the WSDB ▪ Set charges for bulk water ▪ Set tariff (PURC) ▪ Monitor operations performance of the WSDB
WSDB	<ul style="list-style-type: none"> ▪ Pays the GWC and Service Operators for their services ▪ Monitor operations of the Service Operators
WUG	<ul style="list-style-type: none"> ▪ management at standpipe level: operation, maintenance and repairs, and collection of water charges
Service Professionals (Operators)	<ul style="list-style-type: none"> ▪ Distribution and service connections ▪ Billing of consumers and collection of revenue ▪ Repairs and maintenance of Distribution and service pipelines

Key requirements and conditions:

- Availability of procedures for conflict management between PE and Consumers
- WUA monitor PE to do good work

Potential risks:

- potential power conflict between the GWC and the Metro Assembly.
- political influence over the autonomy of the GWC
- Responsibility for WUA capacity building is unclear
- Institutional, Financial, Monitoring responsibility for urban zoning is unclear
- Commercial user may dominate decision making (policy-Strategy) as against poor domestic user

Financial Sustainability

Actor	Responsibility
GWC	<p>Capital Investment:</p> <ul style="list-style-type: none"> • Water source development • Pipe network infrastructure development and expansion • Water treatment plant and equipment development and replacement <p>Operations cost:</p> <ul style="list-style-type: none"> • Tariff setting for bulk water and consumer services • Operation, maintenance and repair cost of major pipelines • Billing and revenue collection cost for bulk water • Setting fees and charges
WSDB	<ul style="list-style-type: none"> • Setting connection and reconnection fees • connections to households and standpipes • Operation, maintenance and repairs distribution and service pipelines • Billing and collection of consumer services
WUG	<ul style="list-style-type: none"> • collection of standpipe consumers' charges • O&M and repair costs

Key requirements and conditions:

- see general requirements

Potential risks:

- GWCL inability to support capital investment cost can affect: system capacity expansion, service reliability, operation performance efficiencies etc in the future.
- Lack of profitability due to insufficient water and low pressures
- High operations cost due to old pipelines, meters and valves
- High level of illegal service pipeline connections

Capacity Requirement

Key requirements and conditions:

- Equity/Power leverage between GWCL and the WSDB; requisite expertise to perform specified functions/roles Adequate capacity of PE
- GWC/WSDB expressing interest which can be confirmed by being pro-active, demonstrated capability, motivated incentive

Potential risks:

- no equity/power leverage between GWCL and WSDB, and between WSDB and WUGs
- Inexperience of WSDB in water supply management is a threat since GWCL.

Ownership

GWC owns the entire urban water supply system. or MA??

- see general requirements

Community Involvement

- see general requirements

Potential risks:

- High level of community involvement may not be sustainable in the peri-urban setting

Pro-poor and Equity arrangements

- see general requirements

Potential risks:

- The poor may be excluded in absence of pro-poor policy for lifeline water supply
- PEs are profit minded and will not consider the poor

Private-Community Partnership: Agreement between Private Entrepreneur and Water User Groups

In this option the Community engages a Private Operator to manage a "stand alone" water system in an urban setting. The Private Operator is responsible for the management of the water system i.e. the production and sales of water to the community in which it serves. The Water User Association or Board representing the Water User Groups supervises and monitors the Private Operator.

Institutional Setting

Institutional functions	Responsibility
Ownership	Water Users Groups / GWCL (<i>Legal</i>), Metropolitan. Assembly, private entrepreneur (depending on who invested in the water system)
Governance	Multi-stakeholder Water Board (or WUA), CWSA, MA, GWCL
Management	Private operator
Operations	Private operator
Communication to communities	Private operator through WUGs to consumers, and/ or directly to consumer.
Regulation	PURC / MA s [Roles need to be defined]
Finance	Private sector, <i>NGOs</i> , MA [?]
Capacity Building	<i>MA [?], NGOs, ESAs, Training institutions</i>
Guidance/information	<i>NGOs, ESAs, GWCL, MA</i>
Monitoring	[??]
Pro-poor arrangement	No [?]

(in italic are the (potentially) supporting institutions; if responsibility of institution is unclear a [?] is added)

Actor	Responsibility
Municipal/ Metro Assembly and DWST	<ul style="list-style-type: none"> ▪ Monitor O&M – technical, financial, and administration ▪ Audit Water Board (WUA) account periodically ▪ Review and approve community water tariff
Water Board/ WUA	<ul style="list-style-type: none"> ▪ Set tariff, set application procedures, connection and reconnection fees ▪ Pay PE ▪ Monitor operations of PE
PE	<ul style="list-style-type: none"> ▪ Distribution and service at standpipe ▪ Collection of revenue ▪ Repairs and maintenance of pipes and standpipe

Key requirements and conditions:

- Good contractual terms (Format, tariff agreement, condition for reviewing tariff and processes, clarity of roles for minor and major repairs)
- Availability of procedures for conflict management between PE and WUA, and between PE and consumers

Potential risks:

- Potential power conflict between the MA and the Water Board; and Water Board and PE.
- High political influence over the autonomy of the Water Board
- Responsibilities of WUGs are unclear

- Institutional, Financial, Monitoring responsibility for water system is unclear
- Legal ownership of GWCL is unclear for "stand alone" water systems in cities.
- Private Operator not reliable

Financial Sustainability

Actor	Responsibility
investor	Capital Investment: <ul style="list-style-type: none"> ▪ Water source development ▪ Pipe network infrastructure development and expansion ▪ System and equipment replacement
Water Board (WUA)	<ul style="list-style-type: none"> ▪ Tariff setting ▪ Other charges ▪ Operation, maintenance and repair cost ▪ Billing and revenue collection cost
Private Operator	<ul style="list-style-type: none"> ▪ Capital Investment for water system development

Key requirements and conditions:

- Possible need for clustering to increase profitability for PE
- Critical mass of population, consumption and tariff to increase profitability PE

Potential risks:

- GWCL, MA, WUA or PE's inability to support capital investment cost can affect: system capacity expansion, service reliability, operation performance efficiencies etc in the future.
- Inability to meet operations cost due to limited scope of service

Capacity Requirement

- see general requirements

Potential risks:

- no equity/power leverage between GWCL, MA and Water Board (WUA) and PE
- MA has too many responsibilities that can result into conflict of interest and lack of capacity to perform effectively
- Technical sustainability: source yield insufficiency

Community involvement

- see general requirements

Ownership

Ownership can be in several hands: private entrepreneur; WUA; MA, GWCL. The one who invested is the owner; unless it is an NGO, they can transfer the ownership to a legal body. If the WUA is the owner, they need a legal status.

- see general requirements

Potential risks:

- The unclear position of ownership of the water system is a threat to the Water Board since they are not sure of the consequences after a change of government.
- The right of authority of the MA or the WSDB over the water system is unclear and affects decision making since ownership has not been resolved.

Pro-poor and Equity arrangements

- see general requirements

Potential risks:

- Commercial user may dominate decision making (policy-Strategy) as against poor domestic user
- The poor may be excluded in absence of pro-poor policy for lifeline water supply
- PE are profit minded and will not consider the poor