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Global Best Practise in the Management of Small Town Water Supplies

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The TPP project

The Tripartite Partnership Project (TPP) aims to strengthen sector capacity for planning and delivery of pro-poor Water, Sanitation and Hygiene (WASH) services in Ghana, through the generation, packaging and dissemination of knowledge, especially with regard to sustainable and equitable management models, based on the partnership between public, private and civil actors.

Within the framework of this project, a number of sector studies have been executed. This included a review of global literature on pro-poor urban and small town WASH services, an institutional mapping of the small town and urban WASH sector in Ghana, and a GIS mapping of small town and urban management models in Ghana. A number of these management models identified in Ghana, was selected for further study through the documentation of case studies. The sector review and case studies have been published under the TPP Working Document series. TPP Working Documents should be considered work-in-progress. Comments and suggestions for improving the documents and enhancing understanding and further refinement of pro-poor urban management models are very welcome.

The first phase of the TPP Project, which concentrated on the sector review studies and the documentation of interesting models and best practices, was funded by members of the Netherlands Water Partnership NGO-Group: ICCO, Aqua for All and SIMAVI.

The best practices gleaned from these studies will be applied in the design of tools and guidelines for replication within the Ghanaian WASH sector. In order to learn from real experiences and to fine-tune methods and tools, a number of pilot projects will be implemented in (peri-) urban areas and small towns. Three of these pilot projects are funded through an Africa Water Facility grant from the African Development Bank. The knowledge components continue to be supported by ICCO, Aqua for All and SIMAVI.

The project is coordinated by TREND Group, in a close collaboration with CONIWAS, CWSA, PRUSPA and IRC International Water and Sanitation centre.

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CONTENTS

- 1. Introduction..... 4
 - 1.1. Reviewed global literature on small town water supply and sanitation 4
- 2. Growing small towns – growing challenges 5
 - 2.1. Growing small towns..... 5
 - 2.2. Defining small towns..... 5
 - 2.3. Challenges to providing services in small towns..... 6
- 3. Water management Models for small towns..... 7
 - 3.1. Water Associations 8
 - 3.2. Water boards..... 9
 - 3.3. Municipal water departments 9
 - 3.4. Small-scale private water companies 10
 - 3.5. Delegated management..... 11
 - 3.6. National or regional utilities 12
 - 3.7. Overview of water management models 13
- 4. Sanitation management models 13
 - 4.1. Collection of human waste 14
 - 4.2. Transport, treatment and disposal of human waste 15
 - 4.3. Overview of sanitation management models..... 15
- 5. Support to small town water and sanitation management models 16
 - 5.1. Direct support 16
 - 5.2. Indirect support: the enabling environment..... 17
 - 5.2.1. Legal framework 17
 - 5.2.2. Regulation 18
- 6. Conclusions 19
- References 20

LIST OF BOXES, FIGURES AND TABLES

Box 1: Urban growth rate.....	5
Box 2: Water Associations in the Morogoro Region, Tanzania.....	9
Box 3: Water boards in Uganda	9
Box 4: Local private independent operators in Mauritania.....	10
Box 5: Short-Term O&M “Management” Contracts in Uganda.....	11
Box 6: Design-Build-Lease arrangements in Vietnam	11
Box 7: Design-Build-Operate Contracts (Cambodia)	12
Box 8: Small Town Management by the National Utility in Uganda.....	12
Box 9: NGO supported community managed public latrines in Addis Ababa	14
Box 10: Community managed suction trucks in Bamako.....	15
Box 11 : Professional support to small towns in Mali	17
Box 12: Regulation of small town operators in Mauritania	18
Figure 1: Estimated market share of the private sector in different parts of the sanitation chain.	14
Table 1: Overview of small town management models.....	8
Table 2: Overview of management models.....	13
Table 3: Overview of sanitation management models	15

1. INTRODUCTION

This report presents an overview of management models for water, sanitation and hygiene service delivery in small towns, as found in global literature. After giving an introduction into the concept of small towns and the challenges related to small town water and sanitation in chapter 2, the report focuses on management models for small town water and sanitation in chapter 3. Chapter 4 takes a closer look at sanitation management models. This is followed by a description of models for providing support to small town water and sanitation management models and the required enabling environment in chapter 5. Finally, the conclusions of this report are presented in chapter 6.

1.1. Reviewed global literature on small town water supply and sanitation

Over the last 10 years, the interest in small town water and sanitation has been on the rise. In 2000, an e-conference took place on the subject of small town water and sanitation, organized by WEDC and the World Bank. Some 350 participants took part in this e-conference (WEDC and WSP 2000). Participants discussed about defining small towns in the context of water and sanitation and exchanged experiences related to various management models for water supply and sanitation in the small town sub-sector.

In 2002, the first international meeting dedicated entirely to small town and multi-village schemes took place in Addis Ababa. This Conference followed the first regional conferences on this topic sponsored by French Cooperation in Ouagadougou in 1998 and in Nouakchott in 2001. The Conference attracted over 200 global practitioners, of which 70% from Africa. It was hosted by the Government of Ethiopia through the Ministry of Water Resources and sponsored by the World Bank, the Water and Sanitation Program, the World Bank Institute, and the Bank-Netherlands-Water-Partnership (BNWP). Key challenges were discussed and ingredients for success identified. (BNWP 2002)

As a follow-up to the conference, the Bank-Netherlands-Water-Partnership initiated a project on small town water and sanitation (generally referred to as “BNWP project No 43”). The project aimed to identify, document, and develop appropriate management and institutional approaches for town water supply and sanitation services in developing countries. Under this project, another e-conference was organised in 2004 (Sansom and Fisher, 2005) and a number of case studies and working papers were prepared and brought together in “Principles of town water supply and sanitation, part 1: water supply” (Pilgrim et al 2007) and “part 2: Sanitation” (Tayler 2007).

Also organisations like IRC International Water and Sanitation Centre, WEDC and the Water and Sanitation Programme (WSP) started to become more and more interested in the special challenges of small town water supply and sanitation services. In 2002, IRC published a working paper on sustainable small town water supply in Africa (Moriarty et al 2002), which was based on a number of case studies. Also WEDC produced a number of papers on the subject (including Mugabi and Njiru, 2006; Njiru and Sansom, 2002). In addition, a number of WSP field notes describe small town water and sanitation management in a number of countries, including the Philippines (Robinson 2003) and Peru (McGregor , 2005).

In general though, it is fair to say that the literature on small towns shows a striking degree of unanimity, indeed it seems that here as in other areas of the WASH sector there is a tendency for multiple authors and institutions to draw on and recycle a limited number of primary sources.

2. GROWING SMALL TOWNS – GROWING CHALLENGES

2.1. Growing small towns

The world is becoming more and more urban. In 2009, the number of people living in urban areas (3.42 billion) surpassed the number living in rural areas (3.41 billion). Virtually all of the expected growth in the world population will be concentrated in the urban areas of the less developed regions. (UNDESA 2010)

Box 1: Urban growth rate

Between 1950 and 2009, the world urban population had an average growth rate of 2.6% per year. Global urban population increased nearly fivefold in this period, from 0.7 billion to 3.4 billion people. From 2009 to 2025, the world urban population is projected to grow at the lower average growth rate of 1.8%, which would imply a doubling of the urban population in 39 years. After 2025, the urban growth rate is expected to decline further to 1.3%, implying a doubling time of 53 years.

Globally, the level of urbanization is expected to rise from 50% in 2009 to 69% in 2050. The more developed regions are expected to see their level of urbanization increase from 75% to 86%, while in the less developed regions, the proportion urban will likely increase from 45% in 2009 to 66% in 2050. (UNDESA 2010)

Small towns account for an increasing proportion of the world's growing population. In 2009, cities with fewer than 100,000 inhabitants accounted for one third of the world urban population, amounting to 1.15 billion people (UNDESA 2010). Pilgrim et al (2007) estimate that for every large town (50,000 to 200,000 people) there are ten smaller ones (2,000 to 50,000 people).

Small towns thus host a very large part of the world's population and this is believed likely to increase in the years to come.

2.2. Defining small towns

It is generally recognised that conceptually 'small towns' are difficult. During the 2000 e-conference on small town water and sanitation, it was suggested to define small towns based on a number of characteristics, including size, technology, water source, management type, operations and maintenance requirements and local infrastructure. Based on the discussions during the e-conference, the following was concluded:

'Small towns are settlements that are sufficiently large and dense to benefit from the economies of scale offered by piped systems, but too small and dispersed to be efficiently managed by a conventional urban water utility. They require formal management arrangements, a legal basis for ownership and management, and the ability to expand to meet the growing demand for water. Small towns usually have populations between 5,000 and 50,000, but can be larger or smaller' (David and Pilgrim 2000)

Commenting on this definition, Njiru and Sansom (2002) note there is no evidence to support the assertion that a "conventional urban water utility" would not be able to efficiently manage water and sanitation services in small towns. According to them, there is no agreement on what constitutes a "conventional" urban water utility, since different institutional models currently exist and manage water and sanitation services with varying levels of performance.

¹ Pilgrim et al (2007) define the population size of small towns, in the grey area between rural and urban, as ranging from 2,000 to 20,000 people for small towns, from 20,000 - 50,000 for medium sized towns and from 50,000 - 200,000 for large towns.

Moriarty et al (2002) note that the definition presented above misses out on important aspects of small towns, in particular their transitional nature, defined by dynamics of change and rapid growth that puts existing systems under pressure and calls for strong planning processes. Similarly, Pilgrim et al (2007) argue that growth rates and settlement patterns are difficult to predict, complicating the planning of service levels. Mugabi and Njiru (2006) also note the transient nature which requires flexibility in planning, implementation and operation (and presumably impacts upon the selection of alternative ways forward).

In addition, Moriarty et al (2002) argue that the focus on piped systems of the above definition is too narrow, as generally a mix of sources can be found in small towns. Mugabi and Njiru (2006) also note that often population densities are lower than in larger towns, impacting upon technology choice. Pilgrim et al (2007) further confirm this suggesting that small towns may have a densely populated core served by a piped system, but less densely populated fringes, served by standposts or other point sources.

In our experience, an additional issue that needs to be taken into account is the mix of rural and urban livelihoods (and thus demand for water) of inhabitants of small towns. On the one hand, this means that salaried professionals living in modern houses will require per-capita service levels comparable to those of larger towns. On the other hand, it may well mean that families living on the periphery of small towns have requirements for water for agricultural or other productive uses that they will seek to take from the domestic system².

2.3. Challenges to providing services in small towns

In general, the services provided in small towns can be considered to exist somewhere in the continuum between the truly rural and the truly urban. In between the high volume, high quality water services provided to people's doorstep, strived for in urban areas; and the lower volume, lower quality water services provided at some distance of people's homes, which are common in most rural areas. Small town services therefore exist somewhere between piped water systems with household connections and communal point sources; and between utility management and community management. In addition, as mentioned by Moriarty et al (2002), small towns exist at a threshold where sanitation and hygiene behaviour of individuals begins to have a serious impact on communities' health and possibly on the quality of the water resources.

Unlike larger towns or cities, these smaller towns often lack the financial and human resources to independently plan, finance, manage, and operate their water supply and sanitation systems (Pilgrim 2007). Identifying, developing and holding on to the human resources required to provide the services required by small towns, is a constant struggle. In general, larger towns with better services, development opportunities and places of leisure, are more attractive for competent professionals than smaller towns, where these facilities are often of lower standard or absent. Smaller towns thus struggle to maintain skilled human resources, with a constant tendency for these to migrate to larger and better equipped centres. Mugabi and Njiru (2006) also note that unlike big urban centres, small towns often lack larger commercial and industrial consumers of water, which means that cross subsidy is not an available option.

² For more information on productive and multiple uses of water, we would like to refer to Van Koppen et al, 2009

3. WATER MANAGEMENT MODELS FOR SMALL TOWNS

In big cities, many (poor) people depend on a variety of secondary and tertiary water service providers. Often different parts of the water supply chain (water acquisition, distribution and delivery) are managed under different management models. For example, water acquisition and treatment by a national utility, which supplies water to a private water tanker, which delivers water to water private water vendors, who sells water to customers). Small town water supply systems are however usually relatively small piped systems, managed in its totality (source, treatment plant, distribution network, water points) under the same management model.

As mentioned by Moriarty et al (2002), there is clearly a wide range of possible management models for small town water services. There is no silver bullet: no one single model that is automatically suitable for water supply in all small towns. The applicability of different models is very context specific. This said, in order for governments to ensure water service provision to citizens, there is a requirement for agreement as to levels of service targeted, financing models used (including levels of tariffs); and the range of management models that are permissible. For services to be provided in a sustainable and professional manner it is important that clarity exists on key issues, such as who owns the different element of the service delivery system, what sort of service they are expected to provide; how it is to be financed; and who will hold service providers accountable. This is a prerequisite to achieving sustainable service delivery.

Below we will try to come to a typology of management models for water services in small town, based on typologies and cases presented in global literature.

Pilgrim et al (2007) identify five common management models, based on a number of case studies done within the framework of the BNWP project 43:

1. Community Water User Associations
2. Municipal Water Departments,
3. Autonomous Town Water Boards
4. Small scale private water companies
5. National or regional utilities serving (a group of) small towns (less common).

The most important attributes (identified as ownership, oversight and operation), as described by Pilgrim et al (2007) of these different models are presented below.

Legal ownership is a reflection of political / constitutional considerations and/or sources of financing. Ownership is usually vested in the served town or community, unless privatisation of services and divestiture of assets is the option being pursued. Clarity as to ownership is important as a precondition for revenues being reinvested in the system (or alternative financing secured) for maintenance, renewal and replacement, and expansion.

Corporate oversight is vested with the body responsible for decision making regarding the management of the water system. It involves activities such as preparing (with the help of the operator) and approving budgets and business plans and performing such other duties as defined in the articles of incorporation and national laws around corporate enterprises. A corporate oversight body is typically responsible for managing the operator.

Actual **operation** includes the day to day management of the water supply hardware, collection of user fees, preparation of business plans etc. This is the responsibility of the operator.

Pilgrim et al (2007) consider **service provision** to be a combination of the corporate oversight and operation roles. Together, corporate oversight and operation define the management model.

The table below gives an overview of the five management models most commonly found in towns, including the arrangements for ownership and service provision (corporate oversight and operations) under the different models. Each of these models is briefly discussed below and some examples are given.

Table 1: Overview of small town management models

Model	Water Association	Water Board	Municipal Water Department	Small-scale Private Water Company	National or regional companies
Ownership	Town / Water Association or central or local government	Town / Water Board	Town	Owner-Manager, and/or shareholders	State
Corporate Oversight	Executive committee of Association	Water Board	Town Council water committee	Owner-Manager	Board of Directors appointed by the Ministry
Operations	System manager and staff, or private operator	System manager and staff, or private operator	Municipal Water Department	Company staff	Managing Director and utility staff
What sizes of towns?	Rural small towns and 'satellite' communities	All sizes of towns	All sizes of towns	Typically start in small towns, but expect to grow	Medium-sized and large towns

Source: Pilgrim et al (2007)

3.1. Water Associations

Ownership of assets under this model can be with either central or local government, or is transferred to the Water Association itself. Decision making is largely in the hands of the community itself, represented by an elected executive committee of the Water Association, which has the corporate oversight role. Operating staff may be employed locally, or the executive committee may choose to contract a private operator. Investment into implementation or rehabilitation of systems under this management model is usually through government grants. (Pilgrim 2007)

Water Associations are typically established in more rural towns where there is no formal public administration, for example when the lowest level of government is at district level and there is no Town Council. As a result, they are not always formally accountable to local government (Pilgrim 2007). The box below gives an example of Water Associations in Tanzania.

Box 2: Water Associations in the Morogoro Region, Tanzania

In the Morogoro Region in Tanzania, a number of piped systems, serving a population of 5,000-28,000 people, mostly through standpipes, in the larger centers also through household and business connections, are managed by local “Water Supply Companies”. These Water Supply Companies consist of 4 groups: the users of the system through a Water User Group Committee, Members of the Company, a Board of Directors. Each year, the users elect the Water User Group Committee. In turn, the Committee elects the Board members. Tariffs are set by the board and collected by the Association. The Water Supply Companies are registered as legal entities, with the members of the company taking over the ownership of the assets from the district.

However, financial performance has been poor. Collection rates are very low, resulting in low reserves that can only cover operation and basic maintenance. Board members lack capacity and experience to manage the systems and lack of confidence may result in authoritarian rule. This, in addition to poor communication with users results in lack of accountability and transparency. There is also lack of capacity and resources at district level, both in the public as well as the private sector, to provide support. To overcome this, it was suggested to form a federation of water companies, to provide management and technical assistance. (Smet, 2000)

3.2. Water boards

In the case of Town Water Boards, the town establishes the Water Board through bye-laws, and invests ownership and oversight in the Water Board, subject to the conditions set out in a performance contract. The Water Board can include representatives from local government, private sector or local professionals. As a local stakeholder model, successful Water Boards therefore balance the interests of stakeholders, with accountability to local government. The model can be applied in small and large towns, provided that local government is active in the town, unlike Water Associations, which do not have a direct link to local government. Operating staff may be employed locally, or the Board may choose to contract a Private Operator. (Pilgrim et al, 2007) Box 1 Box 3 below gives an example from Uganda, where several small town systems are managed by water boards.

Box 3: Water boards in Uganda

In Uganda, a model has been established that requires the town to establish an autonomous water board, and to have them contract a private operator through a Management Contract. In 2004, six operators served 24 small towns, with the towns grouped for procurement purposes but having separate contracts. A process of ‘market consolidation’ is apparent, as the better operators pick up new contracts. Recent support to small towns has focused on the introduction of business planning (financial modelling), through participatory training involving both water boards and operators. (Pilgrim 2007)

3.3. Municipal water departments

In the case of Municipal Water Departments, the municipality³ is the owner of the assets and is responsible for the management of the systems. The Municipal Water Department can either be directly under the Mayor or the Municipal Council, as is the case in smaller municipalities, or under a Public Works Department in larger municipalities⁴. Operations and maintenance are carried out by municipal staff. Very often a Municipal Water Department has little autonomy under the Municipal Council that has created it. Accountability is often imprecise and not based on business plans with agreed performance targets. Water Departments may have their assets and finances ring-fenced, or they may be co-mingled with other municipal

³ “Municipality” refers to an administrative area such as a district, which can include one or more towns. “Town” refers to a single settlement.

⁴ Although, according to Moriarty et al (2002), municipal management tends to occur only in large towns.

services (Pilgrim et al 2007).

Within the municipal management model Moriarty et al (2002) identify a number of possible sub-models:

- Direct municipal management: Municipal Water Department as owner and operator
- Autonomous municipal management: municipality owns the distribution system, but an independent water body manages operation and maintenance.
- Co-operative management: ownership is shared between a municipality and a community based organisation, whereby the community chooses the operator.
- Mixed economy company: capital investments are done through combined private and municipal sources. The municipality manages the system, with contractual agreement to protect private investment.

3.4. Small-scale private water companies

In case of small-scale private water companies, the ownership of physical assets depends on the legal basis (license or type of contract), including the method of financing. In general though, small-scale private companies in the small town sub-sector are also the owners of the assets. Small-scale private companies are usually established as privately owned, limited liability companies, or as a partnership or sole trader enterprise. They normally have been granted a license or a concession contract to allow them to provide services and are fully autonomous in respect to their management and operations. Commercial pressure ensures that they employ trained staff or train them, or outsource specialist activities. (Pilgrim et al 2007). The box below gives an example of small scale private water companies in Mauritania, where these have been very successful.

Box 4: Local private independent operators in Mauritania

In Mauretania, municipalities used to be responsible for managing small town systems directly. However, by 1994, this model had largely proven a failure. A new management model was put in place by the Mauritanian government, which encouraged management by local private independent operators. This was done within the wider framework of job creation. Under this model, the state signs contracts with individuals and companies for the management of small town systems. Local authorities and users are not party to the contracts, but do play an important role in the selection and appointment of the operator.

Three types of operators can be found:

Respected local individual : Respected person (often an elder), with Elementary or secondary school education, Appointed by community (based mostly on social criteria), with a staff consisting of 1 Part-time multi-tasker. These are common operators in villages.

Professionals: Someone available for the position (often retired or almost retired), with previous management experience; selected by community amongst different candidates, with a small technical staff (plumber, pump attendant, clerk). These operators commonly manage the water supply in small centres.

Specialised entrepreneurs: Individual with previous experience with an engineering degree or equivalent, who is selected through a competitive selection based on skills; with a 3-10 full time employees (technical and commercial). These can be mostly found in the somewhat bigger small towns.

Nowadays, some 350 operators are running small town systems. In many towns the operators have invested heavily in extension of the network and provide high level services, focusing on household connections. These operators managed to install some 35,000 individual connections over the last 10 years, far surpassing the number of connections made by the utility (SNDE) in the same period. (Valfrey-Visser et al 2006)

While in (peri-)urban areas recognition and formalisation of private operators and getting these “organic” private operators to sign up with formal frameworks is a major challenge, in small towns the challenge is much more about getting private operators into the small town sector in the first place, (Valfrey-Visser et al 2006). This is because small town water is often seen as unprofitable by private entrepreneurs.

3.5. Delegated management

In addition to pure municipal management and small-scale private providers, Moriarty et al (2002) consider “delegated management” as a model in between the two. Under this model, the municipality continues to own the distribution system and therefore maintains responsibility for capital investments and capital maintenance expenditure (rehabilitation and replacement including), but chooses to delegate the responsibility for operation and minor maintenance to a third party, that operates the system.

As was mentioned above, the same can be thru for water boards and water associations, when the corporate oversight remains with the water association or board, but the operations are delegated to a private operator.

The box below gives an example from Uganda, where private operators are contracted to be responsible for operation and minor maintenance, billing and collection in small towns.

Box 5: Short-Term O&M “Management” Contracts in Uganda

Within the framework of decentralization, the government of Uganda began to transfer operation of responsibility for provision of water and sanitation services to local Water User Associations in 1997. However, a management model better suited to the more complex water supply systems and less homogeneous social structures evident in small towns was needed.

In 2000, the Directorate of Water Development (DWD) decided to explore options for engaging the local private sector. The preferred model was a three-year “management” contract. Under this, the private operator is responsible for operation and minor maintenance, billing, and collection.

The operator deposits revenue into an account that is jointly controlled by the WA and the operator, from which the operator’s management fees are paid. The operator must cover the cost of operations and minor maintenance out of these “management fees,” which are linked to the volume of water sold and the number of bills issued. Revenues collected in excess of this fee, if any, may be used (on approval of the local water authority) to finance repairs, expansions, and renewals. The local water authority (WA) remains in principle responsible for repairs, as well as expansions and improvements. (Triche et al2006)

Private sector participation through contracts that combine design, construction and operation institutions seems to be on the rise, especially in Asia and Latin America. Triche et al (2006) describe a number of these arrangements, including Design-Build-Lease agreements (DBL), as found in the Philippines, Vietnam (see box below) and Cambodia, Design-Build-Operate (DBO) agreements, like in Cambodia (see box below), and Build-Operate (BO) contracts, as found in Paraguay, where private operators have a construction contract with the national sector agency and an operational contract with the local water user association.

Box 6: Design-Build-Lease arrangements in Vietnam

In 2002 the Public-Private Infrastructure Advisory Facility (PPIAF) started piloting design, build, and lease (or DBL) contracts for water supply in 2 small towns in Vietnam (PPIAF 2010). Communities, along with their local authority and provincial water company, take part in designing and implementing the scheme, including the unfamiliar tasks of preparing the projects for bidding, evaluating bids, and awarding the contracts, with the support of PPIAF. Once competitively selected, the private operator carries out the detailed design work on the water supply system, constructs the system, and then operates it for a specified lease period (10 years), before returning it to the provincial water company, as the owner of the assets. The private operator pays a lease fee to

the provincial water company. The operator is bound by a performance bond in case the operator does not meet its obligations. (PPIAF 2010)

The private operator designs, builds, and operates the water system, borrowing funds from the water utility, which the utility offers as an equity investment. After a grace period, the contractor repays the utility, including the debt service fees, out of its revenues. For the utility, the risk of fronting an equity investment under the scheme (15%) is managed because the utility will be the owner of the assets, which will grow in value. This provides an additional incentive for the utility to provide oversight over the private operator. (Kingdom, 2005a)

Results have so far been encouraging. In Lim Town, with a total population of approximately 12,500, consumer take-up of piped connections has been faster than originally envisaged, and individual household consumption has increased. Viable tariffs have been established, and the private operator is already interested in expansion, either through direct investment or bidding for additional DBL contracts. Lim Town has seen the number of connected households grow from 1,792 to 2,336, and a further increase to 2,500 is expected. In addition, fourteen local full-time and six part-time jobs have been created. (PPIAF, 2010)

As mentioned by Kingdom (2005a), it should be noted that there is a competitive market for operators in Vietnam, which enabled this process.

Box 7: Design-Build-Operate Contracts (Cambodia)

Under Design-Build-Operate agreements in Cambodia, a private operator, designs, builds and operates a system for a period of 15 years, after which the contract is renewable for another 15 years. The operator must first connect a pre-defined list of consumers which are considered amongst the poorest segment of the population, before they have access to an investment subsidy provided by the state. Users are expected to pay a uniform tariff that should cover operation and maintenance, taxes and a return to the private operator. (Triche et al 2006).

An advantage of contracts with private operators, which combine design, construction and operation, is that the private operator must operate the system it builds. This helps limit the operator's inclination for over-design. Another advantage of these contracts is that because revenues are directly tied to tariffs, the operator has an incentive to connect customers and provide good customer service, including billing and fee collection. (Kingdom, 2005a)

3.6. National or regional utilities

Large utilities can take a number of different ownership and governance forms, some of which are similar to the water board and private company models described above. National or regional utilities are usually held accountable through a performance contract with the Ministry. In some cases, individual towns have their own system manager. Where system managers are under performance contracts this can improve autonomy and accountability at the local level. Further reform can lead to the establishment of autonomous Town Utilities (although unlike a town water board management model, the system manager would typically remain accountable to a Board of Directors appointed at a higher political level). Local staff may be under contract, rather than government salaries (Pilgrim et al 2007). Small towns served by national utilities are particularly frequent in Francophone West Africa (SONES in Senegal, SODECI in Côte d'Ivoire, SEEG in Gabon, and ONEA in Burkina Faso), and more rarely in some others: North Africa (ONEP in Morocco), (NWSC in Nepal and SANAA in Honduras (Kingdom, 2005b). As presented in the box below, the main water utility in Uganda also serves a number of small towns.

Box 8: Small Town Management by the National Utility in Uganda

The main utility in Uganda, the National Water and Sewerage Corporation (NWSC) serves the Kampala-Entebbe-Jinja metropolitan area, but also twelve other towns, with a population ranging from 20,000 to 110,000. NWSC has the capacity to plan, manage and operate all these systems. Under current reforms, 'unit area' (town) managers have been given increased autonomy through 'delegated' management contracts, and 100-day 'stretch

programs' have lifted performance so that most of the larger towns achieve full cost recovery. On the down side, the towns have little control over investment and management decisions.

Interestingly, there is overlap between the sizes of towns served by the Private Operators (4,000 to 30,000 people) and those served by the utility (NWSC) (20,000 to 110,000 people), and some of the Private Operators are ex-NWSC staff. (Pilgrim et al 2004)

3.7. Overview of water management models

The table below provides an overview of the different management models discussed above. It should be noted that (as mentioned by Moriarty et al (2002)), management models are in practice frequently hybrids of several conceptual models.

Table 2: Overview of management models

Model	Community management		Water board management		Municipal management	Private management		Utility management
Owner	Community or Municipality / Local government					Small private company	State or regional company	
Corporate oversight	Water use association		Water board		Municipal department	Delegated private operator	Small private company	State or regional company
Operations	Water use association	Delegated private operator	Water board	Delegated private operator	Municipal department	Delegated private operator	Small private company	State or regional company

The above shows a variety of management models, including public and private sector, as well as communities and community based organisations. The role of NGOs in the management of small town water systems seems to be limited. That does however not mean that they have no role to play. In the experience of the authors, NGOs commonly play an important role in the implementation of small town water systems, though “software consultancy” (e.g. community mobilisation, awareness creation, community level fund raising to contribute to the capital investment costs etc). In addition, NGOs can provide support to small town water providers, as will be discussed in chapter 5.

4. SANITATION MANAGEMENT MODELS

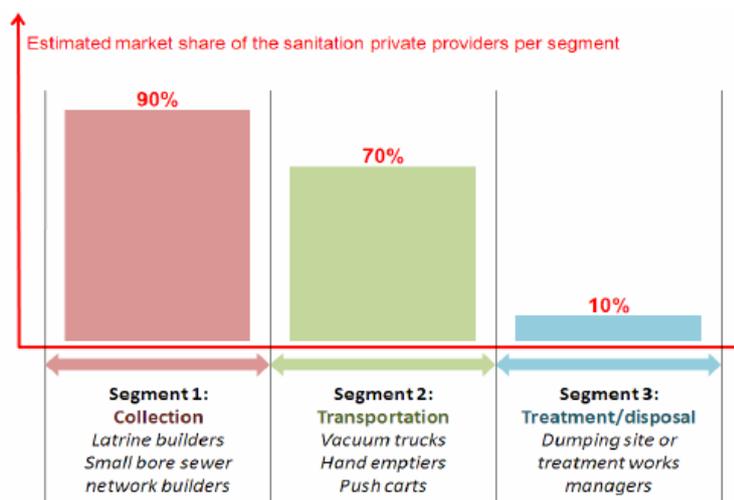
Although, as mentioned in section 2.3, small towns are on the threshold where sanitation and hygiene behaviour of individuals begins to have a serious impact on people’s health, general awareness on this is often low, as is demand for sanitation services. A first step in sanitation interventions is therefore usually the creation of awareness and demand (in which again NGOs often play a critical role). This paper will however not go into detail in these aspects, but will focus on management of sanitation facilities.

According to Collignon and Vezina (2000), on-site treatment is the most appropriate solution for small towns and urban areas where there are fewer than 300 persons per hectare. When the pits fill up, they can be closed and a new one dug, or emptied and the waste buried on the same lot. Alternatively, faeces and urine can be separated and treated on-site (ecosan). In that case, collection, treatment and disposal are commonly managed by the same entity. However, in denser areas (more than 300 persons per hectare), on-site treatment becomes difficult and another disposal site must be found.

4.1. Collection of human waste

Collection of human waste is in most cases (70 to 90 % in African cities, and virtually all poor households) done at household level, with households building their own latrines or septic tanks or hiring others to do so (Collignon and Vezina, 2000). As noted by Schaub-Jones (2009) and illustrated in the figure below, the private sector plays an important role in building these facilities. The facilities are managed by households themselves.

Figure 1: Estimated market share of the private sector in different parts of the sanitation chain.



Source: Valfrey-Visser and Schaub-Jones (2009)

In addition, public toilets play an important role in the collection of human waste, especially in the more densely populated areas, where household facilities are often not an option. As a general rule, public toilets (usually latrines, sometimes combined with blocks of shower facilities) are constructed and owned by the municipality or government with funding made available through projects and donors. Management of the facilities is often delegated to private sector operators, for an initial deposit fee plus a monthly or annual rent or lease fee (WUP 2003). Facilities can also be owned, managed and operated by communities, NGOs or private operators.

There are cases, like in Côte d'Ivoire and Kenya, where facilities have been constructed and funded by an NGO and multi-lateral (UNICEF), where no fee is charged to users (WUP 2003). In most cases however, either cost recovery based fees or subsidised fees are collected from the users of the facilities. Or money is collected from the users if and when required, for example for emptying the pits or septic tanks. An example of this is given in the box below.

Box 9: NGO supported community managed public latrines in Addis Ababa

Through a project undertaken by an NGO, the Integrated Holistic Approach Urban Development Programme (IHA-UDP), sanitation conditions in four Kebeles in Addis Abeba were improved for 42,000 people, i.e. 5,000 households, of which 76% did not have latrines. The NGO approach was based on building an enhanced sense of ownership and responsibility on the part of the users by delegating management of these facilities to them.

Each communal block consists of blocks of latrines, located in a public area, and made up of two to ten rooms. Each room is used by three or four households/households all of which have a key and take turns to clean the latrine. When a pit is filled up, all users contribute funding to get it emptied. Users also select a representative to deal with general management of the latrine, including the coordination of cleaning rosters and collection of money for emptying the pit by vacuum truck. (Simie 2000)

4.2. Transport, treatment and disposal of human waste

When not treated on-site, transport of human waste is commonly done through community, municipality or utility managed pit / septic tank emptying services or sewerage systems. These services can be managed by utilities (or state sewage companies), municipalities, public service providers (delegated or not), NGOs and Community Based Organisations. Treatment and disposal are commonly managed by the public sector (Schaub-Jones 2009) (if managed at all).

The boxes below give examples of these.

Box 10: Community managed suction trucks in Bamako

The community based organisation Sema Saniya GIE operates a number of sanitation business ventures in Bamako. They began with the collection and sorting of household waste for resale and recycling and then added the sale of trash cans, operation of a public toilet and shower facility at the main train station, and septic and latrine pit emptying. In July 1995, they bought a second-hand suction truck with a grant from ACCT (Cultural and Technical Cooperation Agency). Within two years, the success of this operation convinced them to buy a second truck, using their own earnings and a loan from BMCD (Malian Bank of Development Credit), which they reimbursed within a year. Sema Saniya's customers are mostly individual households, who pay cash for a complete pit emptying; the price varies with the distance the truck must travel. (Collignon and Vezina, 2000)

4.3. Overview of sanitation management models

As discussed above and visualised in the table below, there is a great of sanitation management models. The table also gives a number of examples of services managed under the different management models. Often, a combination of management models will be applicable for the delivery of sanitation services, e.g. community managed public latrines, which are periodically emptied by private pit latrine emptiers that dump the human waste at a municipal treatment and disposal facility.

Table 3: Overview of sanitation management models

	Household management	Community management	Private management	Municipal management	Utility / state sewage company management
Collection	latrine or ecosan (self supply)	community managed pit latrine or ecosan		Public or shared facility	
Transport				Septic or pit emptier	
Treatment and disposal					Sewer system

Human waste management in small towns is, like water supply management, the domain of a mix of the public, private and community based sector. NGOs seem to be more involved in raising awareness and demand for sanitation services, but also in initiating and implementing sanitation services.

5. SUPPORT TO SMALL TOWN WATER AND SANITATION MANAGEMENT MODELS

Small town water and sanitation management models need to be supported in a number of ways. This includes direct professional support to small town water and sanitation service providers, as well as indirect support, including the enabling legal and regulatory framework. These elements are discussed below.

5.1. Direct support

Small town service providers typically need professional support in two key areas:

- (i) Training of staff (or the staff of their small scale operator) in routine functions;
- (ii) Supporting non-routine functions through technical assistance: i.e. auditing, business planning, tariff setting, expansion planning, efficiency improvement, trouble shooting and communication, customer relations. (BNWP 2002)

Both are areas where the private sector and local NGOs can play a significant role. An example of training support is the **outreach training** programme in Nigeria, which was established to support small town water management. The objective of the outreach training is to provide cost-effective, practical, on-the-job training. Private sector experts are involved in developing and giving the trainings. A helpdesk consisting of 5 people manage a database of about 500 experts, serving about 250 towns. As courses are designed and implemented, they are added to a growing and regularly updated list of courses. (Pilgrim 2007)

Another way in which training and technical assistance can be provided to small town water and sanitation service providers, is through **franchising** in which business know-how and practices are transferred from a franchisor to a franchisee. The franchisee pays the franchisor for the business know-how and for the use of the franchisor's trademark over a certain period of time, as defined in the contract between franchisee and franchisor. Franchisors can provide franchisees with support in all areas of professional expertise needed to provide a service, including: asset management, billing and collection, engineering (construction, operation and maintenance), human resources management and procurement. The franchisor will provide the franchisee with a range of services. These services can include training, continuous specialist assistance and systems, like accounting systems, consumer databases etc. The franchisee can often also benefit from centralized functions, carried out by the franchisor, to take advantage of economies of scale (e.g. centralized procurement system for certain goods). The franchisor can also assist the franchisee by introducing the franchisee to possible sources of financing. Although franchisor does not finance or guarantee financing for the operations of a franchisee, it may be possible for the franchisor to introduce existing and new franchisees to lending institutions. (Van Ginneken 2004) However, although the potential for franchising in the water and sanitation sector is assumed to be high (Van Ginneken 2004; Wall et al 2009), participle examples and case studies seem to be rare.

In addition to the above, Pilgrim et al (2007) identify **market consolidation** and **aggregation** as possible models for the provision of professional services. Under market consolidation, successful operators are able to grow their business by winning contracts for more towns. In this way, they can grow to full-service operators, providing services to a large number of towns through individual contracts. As an alternative, towns can group together and enter into a single agreement with a full-service operator, or employ their own team of skilled technical

and managerial staff. This is called “aggregation”. Both market consolidation as well as aggregation offer economies of scale and high professional capacity.

Professional support comes at a price, which will typically have to be included in the tariffs; the only alternative being that external bodies need to provide what would effectively be a subsidy (BNWP 2002). The box below gives an example of professional support to small town water services in Mali, which has had a positive effect on the financial management of the systems.

Box 11 : Professional support to small towns in Mali

In Mali, Water User Associations (UA) work closely with a government technical unit called the Council for Supply of Treated Water (CCAEP), based in Bamako. Communicating by radio, CCAEP routinely records operational details, guides the work of the UAs and, in the event of a breakdown, can dispatch spare parts. CCAEP also checks the monthly accounts of each operator, and its staff visit biannually to verify the condition of the water supply systems and to balance the operating accounts with the General Assembly of the UA. Each UA contributes to CCAEP a surcharge of US\$0.025 per cubic metre of water produced.

Comparing the results of six operators that have been working with CCAEP for three to six years with those of three operators not working with CCAEP, it was noted that:

- Those working with CCAEP had an average gross operating surplus of nearly US\$7,000 per year, and redeem an average US\$1,300 after capital allowances; those not working with CCAEP made a loss on both counts.
- Those working with CCAEP had, on average, five times more net available funds.

Although User Associations pay for the services of the CCAEP, the average price charged by UAs to their customers dropped from US\$0.55 to US\$0.30 per cubic metre between 1996 and 2000. Also, the variation between the prices charged by different UAs reduced over this period. (Vezina 2002)

5.2. Indirect support: the enabling environment

Besides direct support, small town water and sanitation service providers need an enabling environment in order to provide high quality services to customers. The creation of this enabling environment can be considered indirect support to the service providers. It includes an enabling legal and regulatory framework, as discussed below.

5.2.1. Legal framework

There is a need for explicit definition of ownership status and roles and responsibilities related to operation and regulation of small town water and sanitation systems. The legal framework under which small town service providers operate, is very important, as this co-determines ownership (Mugabi and Njiru 2006 ; Pilgrim et al 2007). Moriarty et al (2002) also note that there is a need for bodies, like Water Associations and Water Boards, to have legal authority vested in them and have clear independence from local government, in order to be able to develop the necessary contractual arrangements with, for example, small scale private providers; and to implement unpopular decisions, like setting tariffs.

In addition, laws are needed to:

- (i) ensure sustainable access to water resources;
- (ii) establish cost recovery principles for water services;
- (iii) define regulatory mechanisms (BNWP 2002).

Some small town water and sanitation management models operate under public law, others

under commercial. Typically, public law limits the flexibility of the service provider in the critical areas of procurement and staff management, while reducing the rigor associated with reporting and accounting. Models operating under commercial law will have greater obligations in relation to reporting of audited financial statements, yet have much greater flexibility in procurement and staff management. (Pilgrim et al 2007)

Water associations, Water Boards and Municipal Water departments generally fall under public law. Water Associations are typically registered under Cooperative Law (or as a Cooperative, Trust, Company Limited by Guarantee or other form of Voluntary Association), and guided by their Articles of Association. Water Boards are generally established through bylaws. Small scale water companies are commonly established in accordance with corporate commercial law. (Pilgrim et al 2007)

Although the participation of the private sector in improving water and sanitation services is widely encouraged, sector laws to govern private sector participation have not been acted on in many countries (including Cambodia, as mentioned by Triche et al 2006). In the absence of this, often guidelines and procedures are developed by which governments can contract private operators to improve water and sanitation services.

5.2.2. Regulation

Regulation (regulatory oversight) is a critical aspect of providing sustainable services. The primary focus of regulation is to reconcile financial viability with the need to protect customers and the environment and to uphold quality standards. Typically it includes aspects such as the approval of tariffs, fees and investment plans, ensuring that public health conditions are met, monitoring service provider performance (technical and financial standards), and performing any environmental monitoring and enforcement tasks delegated to the town by government. (Pilgrim et al 2007)

Regulation of different aspects can be done by different bodies, as long as the regulator is legally and operationally separate from the service provider (corporate oversight and operational bodies). National and regional level utilities are commonly regulated by national level regulatory frameworks and tools. However, these frameworks and tools are often not well suited for the regulation of small-scale private companies (Valfrey-Visser, 2006) and other water and sanitation service providers in the large number of dispersed small towns. In small town systems, the owner, who often is the municipality, often acts as the local regulatory oversight body for those aspects most directly related to service provision, such as tariff setting (Pilgrim et al 2007). In addition, where communities play a role in the selection of the operator through some form of formal selection process, they can themselves play an important regulatory role (Valfrey-Visser, 2006).

The box below gives an example of regulation of small-scale private water companies from Mauritania.

Box 12: Regulation of small town operators in Mauritania

In 2001, a public institution was created (ANEPA) by the Mauritanian government to supervise and support management by local operators and regulate the small town sector, especially regarding tariff setting. This is one of the rare cases in West Africa where a public institution engages with private operators. (Valfrey-Visser et al 2006)

The Addis Conference (BNWP, 2002) suggested that effective regulation can be enhanced through:

- (i) community oversight;
- (ii) sound contracts and business plans;
- (iii) open communication and consultation mechanisms; and,
- (iv) external auditing and benchmarking.

Finally, we would like to note that transparency and accountability are the outcome of community involvement rather than something that companies provide and customers oversee. The sequencing is important.

6. CONCLUSIONS

Small towns are dynamic entities, somewhere in the continuum between rural communities and large cities. There is a wide range of management models for water and sanitation service provision in small towns: from full community management, to utility management. In between these two extremes, municipal, water board and private management models can be found. Many management models, especially where operation is delegated by a municipality or water board to the private sector, involves a tri-partite partnership between the public, private and civil society sector. Human waste management also is the domain of a mix of the public, private and community based sector, with NGOs mostly involved in soft ware aspects, like creating awareness and demand for sanitation services. In addition, NGOs can play a role in initiating and implementing sanitation services.

Small town water and sanitation service providers, be they community bodies, municipalities, water board or private operators, need direct professional support in the form of training and technical assistance. Promising models for providing this support include market consolidation, aggregation, franchising and outreach training, in which private sector and NGOs can play an important role. Furthermore, there is the need for indirect support, particularly in the form of clear legal frameworks, which define ownership arrangements, as these ownership arrangements determine who is responsible for rehabilitation and replacement of water and sanitation systems.

Regulation of water and sanitation service provision in small towns can be the responsibility of different entities. The regulator should however be legally and operationally independent from the service provider. Commonly, regulation of small town water and sanitation services is the task of municipalities. Also, communities, CBOs and NGOs can have an important role to play in holding service providers accountable for the services they (are supposed to) provide.

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