HARNESSING LOCAL POTENTIALS FOR PERI-URBAN WATER SUPPLY IN GHANA   -   Prospects and Challenges

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DECLARATION

I hereby declare that this doctoral dissertation is the result of an independent investigation. Where it is indebted to the work of others, acknowledgements have duly been made.

Kafui Afi Ocloo
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ABSTRACT

More recent development discourse favour a mix of top-down and bottom-up approaches in development. In the discussion that has ensued, much focus has been on the rural and urban contexts of development; thus, leaving the peri-urban situation hardly attended to. The fast growing phenomenon of peri-urban development in developing countries and its associated challenges requires that development discourses recognise and take it into account. Current discussions on the supply of potable water in developing countries have largely focused on the rural and urban contexts and reveal a peri-urban gap. This research seeks to contribute to the intellectual discourse by providing insights on the discourse on peri-urban development.

This research into the harnessing of local potentials for peri-urban water supply draws mainly on the concepts of endogenous development and uses the theory of institutional economics as a supporting theory. It is largely a qualitative research which uses the case study methodology involving two cases in its empirical component, although it incorporates some quantitative methods. The empirical research involved the use of a mix of data gathering methods: interviews, observation and questionnaires.

The main findings of the study are firstly that the quality of the local human resource base from which the leadership of the entire development process is drawn is intrinsic and vital to the determination of the success of the development process with positive and negative potentials. Again, the existence of appropriate local institutions and the creation of an enabling local development environment as well as the presence of institutional interests that generally support the local development process are important. Nonetheless, there exists a seemingly complex and subtle power-play that supports or stifles the success of the water systems depending on who are involved in the system at a particular time. Other key revelations of the research relate to the potentials and the inherent weaknesses of the pluralist leadership system in supporting local development processes; and how in-country pilot projects which form the basis for the formulation of cross country institutional frameworks are not certain to yield successfully functioning frames because they still can be distant to local contexts and appreciation.

The study suggests that there exist good prospects for the pursuit of endogenous development in the peri-urban context and concludes by providing suggestions relating to policy, practice and the conceptual underpinnings of the research. It recommends that pluralist leadership systems be made less susceptible to variations in actors' stance; through the formalization of verbal agreements especially in societies that are heavily dependent on oral communication. Notwithstanding the benefits of pilot projects, this study recommends that the local level is rather assisted to develop its own institutions through processes that may be guided by the outcomes of pilots. It suggests this as a means to achieving a favourable institutional environment in which local institutions can thrive. At conceptual level, the study also recommends that elements of individual decision-making be given more prominence in the endogenous development model.

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LIST OF ABBREVIATIONS

AfDB	-	African Development Bank
AFP	-	Agence France-Presse
AMCOW	-	African Ministers' Council on Water
AU	-	African Union
CBOs	-	Community Based Organisations
CIDA	-	Canadian International Development Agency
CSO	-	Civil Society Organisation
CWSA	-	Community Water and Sanitation Agency
DA	-	District Assembly
DANIDA	-	Danish International Development Agency
DIC	-	Divestiture Implementation Committee
ECA	-	Economic Commission of Africa
EJMA	-	Ejisu-Juaben Municipal Assembly
EPA	-	Environmental Protection Agency
ERP	-	Economic Recovery Program
GOG	-	Government of Ghana
GSB	-	Ghana Standards Board
GSS	-	Ghana Statistical Service
GPRS	-	Ghana Poverty Reduction Strategy
GWCL	-	Ghana Water Company Limited
GWSC	-	Ghana Water and Sewage Corporation
IMF	-	International Monetary Fund
JWS	-	Juaben Water System
KfW	-	Kreditanstalt für Wiederaufbau /German Development Bank
M&E	-	Monitoring and Evaluation
MCD	-	Metropolitan/Municipal Co-ordinating Director
MCE	-	Metropolitan/Municipal Chief Executive
MDG	-	Millennium Development Goal
MOF	-	Ministry of Finance
MPO	-	Metropolitan Planning Officer/Municipal Planning Officer
MWRWH	-	Ministry of Water Resources, Works and Housing
MWST	-	Metropolitan/Municipal Water and Sanitation Team
NCWSP	-	National Community Water and Sanitation Program
NDPC	-	National Development Planning Commission
NEPAD	-	New Partnership for Africa's Development
NGO	-	Non- Governmental Organisation
NLC	-	National Liberation Council
NRC	-	National Redemption Council
O&M	-	Operation and Maintenance
OAWS	-	Oyibi Area Water Scheme
PPP	-	Public-Private-Partnership
PURC	-	Public Utilities Regulatory Commission
RCC	-	Regional Coordinating Council
SAP	-	Structural Adjustment Program
SOEs	-	State Owned Enterprises

SRC	-	Students' Representative Council
UK	-	United Kingdom
UN	-	United Nations
UN-WWAP	-	United Nations World Water Assessment Program
VVU	-	Valley View University
Watsan	-	Water and Sanitation Committee
WHO	-	World Health Organisation
WRC	-	Water Resources Commission
WSD	-	Water Supply Division
WSP-AF	-	Water and Sanitation Program- Africa Region

DEFINITION OF TERMS

Actors - The entities involved in the water system

Functionaries - Employees of the formal institutions that are involved in the water system.

Governance - The process through which the collective affairs of a community or society are managed; and involves the definition of the rules and regulations that guide behavior in the handling of the collective affairs of the governed and principles that guide the apportioning of resources among members of the community.

Informal settlements - Settlements created without the approval of the appropriate formal planning authority

Institutions - Organisations or entities that have become generally accepted either by common agreement or enactment (i.e.institutionalised)

Players - People who have a part to play in the water system.

Politics - Deliberate efforts in social mobilization in order to gain control over something or someone else during the processes involved in the management of collective affairs.

Power - The capacity to determine that influences other institutions' decisions or actions through the actions and decisions taken.

1   Introduction

It is an undisputed fact that there pertains throughout the world great challenges concerning availability of safe water - a situation which is characterised by disparities in the distribution of access to the resource. The disparities are greater within developing countries; and between developed and developing countries exist equally visible disparities. Millions of people in developing countries spend hours walking long distance to access water for their daily household needs. Even so, the water they accessed is often contaminated. Most of these people belong to the poorer cohorts of the societies of developing nations. Within the next half century, the world's population is expected to grow further by 40-50%. This is expected to be accompanied with rapid urbanisation in developing and intermediate countries and industrialization; resulting in increased demand for water (World Water Council, 2009). The urban population is expected to double in Africa as well as Asia (Camdessus et al, 2003: 2). These projections inform us that the already bad situation is not static. It is anticipated that a third of the human race would be facing severe or chronic water shortages by 2025 (USAID, 2007). In acknowledgement of the exigency of the current state of access to safe water, the United Nations (UN) declared 2005-2015 the international water decade: A period during which governments are expected to accelerate their efforts at improving access to safe water for their populations.

Notwithstanding efforts made in recent years, 89% of the world's population in developing regions is likely to have access to safe drinking water by 2015 (UN, 2008: 42). Sub-Saharan Africa is not likely to meet the MDG target of halving the number of people without access to safe water by 2015. Indeed, while significant progress has been made in Eastern Asia, sub-Saharan Africa has made limited progress. African governments to a large extent still bear the cost of new investments in water sector facilities. Their efforts are complemented by foreign aid and grants, international loans and voluntary donations. However, saddled with low gross national incomes, increasing foreign debts and increasing populations, many of these governments with assistance of the international community have sought alternative ways to alleviating the problem. Indeed the turn to international funding for water projects was as a result of the recognition by these governments that their limited resources could not cope with the required rate of increase in facility provision. For some countries, there is a heavy reliance on foreign donor funding for water projects today. Ghana is one such country.

As the old adage goes, 'experience is the best teacher'. Governments and the international donor community have learnt several lessons from their efforts in the water sector in developing countries; based upon which they have evolved new approaches and made adaptations to previous approaches. Among the key lessons learnt has been that the provision of water facilities by itself does not guarantee sustainable supply of water. The provision of the facility must be accompanied by well thought out mechanisms for the sustenance of the facilities. It has also been learnt that by involving beneficiaries in the project cycle, the likelihood of the project being successful and sustainable is increased. Furthermore, these prospects are improved when project/facility management and monitoring activities are decentralised to more local levels; and the local levels are empowered to play these roles. Dynamic partnerships are now encouraged to improve the sector's development in furtherance of sustainable solutions to the current challenges.

Indeed, the immensity of the effect of absence of potable water in rural communities led to a preference among donor agencies for rural focused interventions. Thus while the in-flow of donor funds to the water sector has contributed a lot to the improvement of access to water, it has also contributed to a skew in investment efforts in favour of the rural populations. Simultaneously, the urban and peri-urban need for improved access to potable water has grown. Urban and peri-urban growth has generally not been accompanied by the level of infrastructure development required for improved access to safe water. In peri-urban settlements, the situation is often worse. Peri-urban settlements in Africa are often characterised by informal type development which is often not well planned. In these ill planned communities, it is more difficult to have well structured piped water supply systems. Again, because peri-urban settlements are often neither completely urban nor rural, they easily find themselves left out of programs for rural communities and yet also left out of programs for urban communities. The dichotomous traditional planning approaches that split planning into urban and rural make the situation even glummer[1]. In totality, the foregone suggests that it is necessary that local governments and the communities that they serve be proactive in finding solutions to their problems regarding the management of safe water supply.

1.1   The research problem

Water supply systems in Ghana are generally poor. Most urban areas face irregular supply of potable water. Most peri-urban settlements as well as newly developed urban low cost settlements face a big challenge in obtaining access to reliable and adequate supply of safe water. The Government of Ghana has been involved in several forms of collaborative efforts with development agencies to help improve access to safe water throughout Ghana. Extending coverage of the national water company - which is mainly responsible for supplying water to urban and peri urban communities- has been one of the means adopted for improving potable water supply in urban and peri-urban areas. Nonetheless, several peri- urban communities still have poor or no supply of potable water.

Some peri-urban communities that have been operating small town water systems seem to have succeeded in ensuring regular water supply. The community water sub-sector in Ghana has been formulated on the principles of community management and district ownership. Drawing from lessons learnt from the challenges that the more centralised urban water systems faced, it adopted and adapted mechanisms that would improve upon the performance and sustainability of water projects.

The global shift towards greater participation in water projects as a means to achieving improved project sustainability also guides the approach. Stated basically, the community water sub-sector pursues a decentralised water supply approach. The approach currently being used has been based upon development concepts that emphasise that the co-existence bottom up and top down efforts in a development process is important for the realisation of sustainable development projects. Generally, these strands of literature seem to suggest positive outcomes in the use of such a concept of development in the rural water sector.

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[1] The Africa Water Vision 2025 documents observation that 65% of Africa's rural population lacked access to adequate water supply by 2004 while the urban figure was 26% leaves fails to capture the state of the peri-urban. This is in itself a reflection of the dichotomy in data available on access to safe water in the region (UN Water Africa: 13)

The approach seeks to place the responsibility of provision of water on local actors. While this system has been successful in ensuring regular safe water supply in rural district-capital towns, does it necessarily suit the peri-urban water context? The driving elements that underlie performance in the harnessing of local potentials for formal water supply in the peri-urban context of sub-Saharan Africa remain largely unclear. While literature clearly identifies that the more centralised systems are being used for urban centres and community-based approaches which focus on local potentials have been adopted to increase water supply in rural areas, what principle serves the peri-urban well remains unclear in literature. Although hailed as a seemingly viable alternative to reliance on centrally planned systems, the nature and peculiarities of the peri-urban differ from the urban and the rural. This raises the question of whether this new development paradigm which is based on development originating from the local level or the community would automatically function well in the peri-urban context. The kinds of issues/elements would challenge or improve the performance of such an endogenous based development in the peri-urban area are still not clearly established.

1.2 Significance of the study

The repeated failure of efforts to correct the gaps in service delivery has drained local and donor-sourced financial investments in the water sector, and contributed to the poor state of water and sanitation in Ghana. The sensitivity of the water as a basic human need has made the Ghanaian public sensitive to the direct involvement of the private sector in the provision of pipe-water services. The potential for social unrest in connection with the issue of privatisation of the water services is high. These have limited the options available to policy makers regarding permanent and sustainable solutions to current urban and peri-urban water problems. This notwithstanding, the inadequacy of public resources has made it necessary for consumers to pay more for basic services that they receive: an issue which is not limited to the water sector. Virtually all other sectors of the economy face this issue: health, electricity, sanitation and education. Although being tackled, this problem is likely to remain a development challenge for Ghana for many more years to come. It is therefore logical to expect that projects in the utility sector that seem to have achieved sustained antidotes to perennial piped-water supply problems through the utilisation of local resources would be studied to find out how they have functioned. From the foregone, it is evident that the study of the local-based water supply system (i.e. the small town water systems) for the prospects it holds for improving the water situation in peri-urban settlements is of relevance to Ghana; as it strives to improve access to potable water nationwide. This research explores how the conceptual underpinnings of the small towns' water supply approach have been able to fulfil their promises concerning the potable water supply situation in Ghana, as well as deviations from the conceptual predictions. In doing so, it unveils contexts in which the concepts have stood or failed to hold- thus providing explanations to the performance of the conceptual underpinnings as relevant to the context.

1.3 The research objectives

The objectives of the research will be to:
1. Identify and analyse how local potentials have been harnessed for the operations of the local water supply system

2. Identify and analyse organisational, institutional and service delivery mechanisms put in place support the mobilisation and use to take advantage of local potentials in the operations and management of the system.
3. Identify challenges to the harnessing of potentials at the local level for locality based water supply.
4. Find out what prospects the reliance on endogenous variables has for locality based water systems.
5. Make recommendations based on findings of the study for possible improvement of the harnessing of local potentials for peri-urban water supply and for future study

To adequately fulfill these objectives five broad questions would have to be answered. These questions are as follows:

a. What role have local potentials played in the localised approach to water supply?
b. How have organizational, institutional and process mechanisms been employed to mobilise and use local potentials?
c. How have the system processes been challenged?
d. What are the prospects for the approach?
e. How can the process of harnessing local potentials be improved for the peri-urban supply context?

These broad questions entail several sub-questions which are summarised later in the research methodology.

1.4 Limitations of the study

An important dimension of the research methodology was triangulation through the use of multiple sources of information as well as the use of different modes of analysis where possible. This was necessary because it was not possible to observe most of the process events as they occurred. Therefore there was a need to rely on accounts presented by different sources. In this approach, the preference was for the use of independent sources (sources that were delinked from each other) for obtaining data on the same issue. However, in some instances such triangulation was limited for two main reasons. Firstly, because there was poor documentation of the process events by the institutions/organisations/businesses involved. Secondly, as a result of the localised/or community focused nature of the water system/scheme not much could be found from persons (such as experts and consultants) and institutions outside the district and the communities because they were hardly closely involved in the affairs of the water schemes. In such instances, the triangulation of the interviews conducted with different actors linked to the water system but who were interviewed separately and at different times was relied on.

The population figures used also present some limitations. Population data available was not disaggregated to reveal the peri-urban context. Thus while it was possible to find data categorised according to the rural and the urban, the peri-urban was not a category recognised by data generally available. In some instances therefore national figures for population growth rate was used although this may not be entirely suitable for the peri-urban context as peri-urban areas in Ghana are very fast growing areas whose rate of growth may exceed the national and regional averages.

This study set out to find out what elements are at play in the harnessing of local potentials in the concept of endogenous development. It identifies them and looks at the

prospects and challenges posed by these elements in the endogenous development process. However, it does not involve enough cases to enable it test and define definite causal relationships that will constitute a theory. This is not the aim of the research. This research seeks to point out key elements in the various variables that pose prospects and challenges to which attention must be given when defining localised development processes for the water sector to make them more appropriate to the local peri-urban context.

2 Water sector trends and history in Africa and the developing world

This chapter provides information that gives further details on the background of the research. It commences by presenting water as a development issue in the developing world generally and then considers the position of the African Union in the water as a development issue in Africa. Beyond these, the chapter discusses some of the recent trends and alternative approaches to water supply; including the mobilising local potentials for addressing the water supply issue. It then ends with a look at the history of the water sector in Ghana. This way, the chapter provides the broad and existing contextual foundations to the research.

2.1 Water as a development issue

There exists a strong relationship between access to safe water and the level of development of a country. A look at recent researches undertaken on water reveals the correlation between water and development. According to the United Nations World Water Assessment Program (UN-WWAP) (2006 and 2009) the world's poorest nations also experience the most cases of poor or limited access to safe water. While the importance of water to national development cannot be over emphasized the negative effects of poor access to safe water is also easily recognizable. It translates into long hours spent in search of safe water. Women and children are often the first and visibly impacted by this situation. Education is also affected as children are kept from school because they have to spend long hours in search of water. In sum human capital value and returns eventually gets diminished. The United Nations (UN) Organisation reports a high incidence of malaria, cholera, intestinal worms, schistosomiasis and diarrhea; and a high evidence of avoidable deaths as a result of the use of unsafe drinking water, poor hygiene and sanitation in sub-Saharan Africa. The indubitable links between water and other sectors in the national development process suggest that a poor state of access to safe water creates a poor human development environment which constrains the economic development of the nation. It is a recognised fact that all countries that have achieved a high level of development have done so having disencumbered themselves of such basic human development challenges as morbidity and low life expectancy (World Bank, 1994: 24). While Africa in general faces the water challenge the case of sub-Saharan Africa is particularly egregious.

In order to build and maintain a healthy and productive workforce and achieve high returns on its human capital, sub-Saharan African countries need to seek and device means to tackle the key challenges to its human resources. Access to safe drinking water is one such key challenge to sub-Saharan Africa's human resource. Lee Jong-wook, former director or the World Health Organisation (WHO) notes that 'wherever people achieve reliable access to safe drinking water and adequate sanitation they have won a major battle against a wide range of diseases' (AFP, 2004), and the WHO identifies water as one of the determinants of a nation's public health status – a major factor in determining a nation's human development index. The World Water Development Report (UN-WWAP, 2009 and 2006: 18) for its part describes as inextricably linked, the state of human health and water related conditions; and underscores the need for

urgent improvements in access and management of water as well as sanitation because of their implications for human health and development. However for most sub-Saharan African countries, tackling water as a development issue poses enormous challenges stemming from the complex nature of the needs of developing economies which are characterised by low incomes, poor balance of payments, high birth rates, urbanisation and migration, and low level of education and literacy among others. Added to these are the following significant factors influencing access to safe water throughout the world: population growth and urbanisation, industrialisation, changing climate and governance (UN-WWAP, 2006).

Africa as a continent is generally considered to be blessed with an adequate amount of natural water resources. The issue facing Africa is the need to convert its abundant natural water resources into forms suitable for human consumption. Thus, in the midst of the seeming adequacy of natural water, safe drinking water is still out of reach for millions of people on the African continent. Governance has the solution to many of the water problems in the world today (UN-WWAP, 2006). In the next paragraphs, I present the water governance framework in Africa in order to provide a foundation for further discussion on the central theme of this research.

2.2 The role of the African union in addressing the African water issue

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Box 2.1 Africa's water potential

On the surface, Africa seems to be a continent placed with an abundance of water resources. However, it experiences great variability (time and place) in rainfall patterns, high evaporation, low surface flow, and an uneven distribution of water resources including rainfall such that the areas that have the highest rainfall and surface water flow account for only a small percentage of the continents population. These are in the central African countries, the Gulf of Guinea and the Island countries. Africa also has underground water capacity which is challenged by issues of salinity especially along the coastal regions *(Africa Water Vision, 2025)*.

Although 65 and 25 percent of Africa's rural and urban populations respectively do not have access to adequate supply of safe water (Africa Water Vision 2025, 2000: 13), the exploitation of the continent's water resources for this purpose is rather low[2]. The dire implications of the water problems on the continent's development are now well appreciated by its governments. This recognition is captured in the continent's water vision document which acknowledges the interdependency between development and the access to safe and adequate supply of water and describes it as 'the correspondence between water and poverty'; a situation which for Africa has become a cycle where water and socio-economic development are nodes that are mutually dependent and generating. 'They can be nodes in a vicious cycle that puts societies in a downward spiral of poor economic development and poor access to safe and adequate water supply and sanitation. Alternatively, they can be nodes in a virtuous cycle, reinforcing each other in an autocatalytic way, and leading to an upward spiral in which improved socio-economic development produces resources needed for improved development of water resources that, in turn, buttress and stimulate further socio-economic development'

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[2] Only 3.8% of the continents renewable water resources are withdrawn for use in agriculture, industry and community water supply. Of this total amount withdrawn, only 9% is used for community water supply purposes (Africa Water Vision 2025: 8).

(ibid: 5). Indeed as a result of poverty, Africa's population has low access to safe water supply. This has led to a high incidence of water related and communicable diseases which reduce vitality and affect negatively the continent's economic productivity. Inadequate access to water and sanitation is thus a cause and a result of poverty (ibid).

The issues that compound the current state of the African water sector and further encumber sector progress include conflict and political instability within countries and between countries; weak institutional arrangements and legal frameworks for addressing issues of ownership, management and water resource allocation; the limited involvement of the private or non-public sector in financing the sector even though there is a low capacity in the public sector to cater for the investment requirements of the sector; as well as inadequate stakeholder involvement and public awareness on sector issues. Other factors that will influence the extent of attainment of the water vision for Africa are the population growth and demographic trends, consumption and lifestyle patterns, policies as well as technological choices and technological developments. From the myriad of issues that exist throughout the continent though, the following are some of the key challenges identified as needing redress if significant and sustainable improvement in access to safe water on the continent will be realized:

- Strategies to ensure that all the citizenry of each country have sustainable access to safe and adequate water supply and sanitation services to meet basic needs;
- The development, reformation and strengthening of water-resources institutions to establish good governance and an enabling environment for sustainable management of national water-quantity and water quality issues; including the securing and retaining skilled and motivated water professionals
- The mobilization of political will, securing of commitment, and the creation of awareness among stakeholders with regard to water issues
- Attaining sustainable financing for investments in water supply
- Developing effective systems and capacity for research and development in water and for the collection, assessment, and dissemination of data and information (Africa Water Vision 2025).

Ultimately if the desired improvement in access to safe water is going to be achieved, the commitment of African countries would have to be converted into actions and the linkage and synergic benefits that can be derived from cooperation and coordination in the pursuance of the vision exploited. Indeed, in recognition of the critical nature of the water as an issue for development and to accord it the appropriate attention, the African Union (a union of governments of African countries) set up the African Ministers' Council on Water (AMCOW) to steer continental efforts on water and sanitation and to advice the African Union[3]. Drawing from the Africa Water Vision 2025, AMCOW's work is aimed at guiding the continent to the attainment of an equitable and sustainable use and management of water resources for poverty alleviation, socio-economic development and the environment. To boost progress on water issues on the continent AMCOW has been proactive in its role. The Council has involved itself in mobilizing funds for the sector and cooperating with international agencies forging strategic partnerships in relation to the sector. The Africa Water Facility and the European Union Initiative to which major development partners have contributed are examples of its

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[3] The African Union adopted the New Partnership for Africa's Development (NEPAD) in 2001 to serve as its socio-economic development programme, with the sustainable development and management of Africa's water resources for poverty alleviation and socio-economic development as its aim. NEPAD in turn set up the AMCOW as the principal mechanism for dialoging on policies and coordination of strategies on water and sanitation among African governments and the international community (AMCOW, undated: 1).

resource mobilization activities. AMCOW's resource mobilization actions have been done against the background that in most African countries, the burden of providing utility services and infrastructure rests mainly with the central governments; who saddled with adverse foreign exchange and balance of payments are often unable to fulfill this expectation. For this reason, international support will be needed as the continent seeks alternative and sustainable internal mechanisms to fund and support its water sector. The situation is likely to further deteriorate without a concerted and coordinated effort among African countries and support from the international community to halt the worsening situation and reverse it. Relationships with the UN specialized agencies, Regional Economic Communities and River Basin Organisations in Africa have also been cultivated to boost the achievement of the AMCOWs development goals. AMCOW has done so through its technical Advisory committee and by forging sub-regional agreements (AMCOW Corporate profile: 3).

However, the lot falls on the governments of the respective countries on the continent to perform. The AMCOW lacks the power to enforce and ensure strict conformance and implementation by the governments of programmes leading to the realization of the water vision. Whether Africa succeeds or fails to realize the vision would depend on the governments of the member countries. African countries need to look beyond their internal environs for ideas on how to improve their domestic water supply situations and adapt them in innovative ways to address their particular situations. Drawing from this point, I now present some of the efforts being made in various parts of the developing world including Africa to mobilise local potentials to aid the water sector of respective countries in the face of the difficulties that their status as less developed countries presents. Then, I present Ghana's historical context as Ghana is the focus of this research.

2.3   Efforts of the developing world

The discussion below, which draws much from the work of Seldon James (1998), covers the works of Braadbaart et al (1997) and the IRC who have researched the current trends in rural, urban and peri-urban water supply in developing countries.

Trends in governing the water supply sector in developing countries

Systems of water delivery generally can be categorized into four units. These are processes involved in arresting the water, the treatment of the captured water to make it safe for human consumption, the processes involved in transporting the water to the location where it is likely to be needed (such as to large surface reservoirs and mains), as well as the actual delivery of the water to the consumers (through the outlets). These often involve huge fixed capital investments with long gestation periods. Faced with the high costs of delivering water, many governments of developing countries have been seeking alternative and innovative approaches to governing the sector and tackling the challenges and complexities associated with the more centralised, public approaches that saw government ministries and agencies at the centre of potable water supply to rural, urban and peri-urban. Some of the more recent inclinations have been to view water as an economic good for which there ought to be full cost recovery and economic efficiency in its production processes. Other events that characterise the water landscape have been the advent of self help programmes, the participation of the informal sector, public-private-partnerships, public-private-community partnerships and full scale

privatisation of water services. In the following paragraphs, I discuss these trends in some more detail under 4 sub-headings:
- Fully privatised profit making systems
- Community-self managed systems
- Community managed partnership based systems
– Hybrid systems

Fully privatized profit making systems

Fully privatized systems of formal water supply are found primarily in urban areas with larger populations. These systems which are often run by large private and profit oriented companies are centralized in their operations. They are found to have been introduced as replacement options for the centralized and nationalized systems of water supply that have now become generally recognized as inefficient. In African countries where this system exist most of the companies that manage the water systems are western owned companies operating under lease, management contracts or concession arrangements with the government. Ivory Coast, Guinea, Kenya, Chad, Mozambique, Gabon, Niger, Guinea-Bissau and Niger are some of the countries that have experienced this.

Informal operations of the private sector can also be found in urban areas where the water supply services are poor. In Ghana for example, in response to persistent water problems, there has been a proliferation of privately owned tanker services that cart water to consumers for fees that are much higher than what is charged by the national water supply company. In poor neighbourhoods where some households cannot afford the cost of getting connected to the Ghana national water supply system, some private operators erect stand pipes or construct underground water storage facilities connected to the Ghana Water Company (GWCL) network in their homes from which they illegally sell to neighbours. Although these service are expensive and the safety of some of these tanks cannot be guaranteed, they are still patronised because they are often the only available option to consumers. As a result of the critical role that such secondary private operators play in bringing water to consumers efforts are being made by the GWCL to regularise and regulate their activities for the safety and well being of consumers. The GWCL also seeks to provide more supply points at which tanker operators can source water near the communities that they serve.

Community self-managed systems

For much smaller communities/settlements in developing countries, there exist several other identifiable alternatives to water governance. These are more community-based, non-formal forms of water supply arrangements which demonstrate the extent of willingness of consumers to be involved in providing for their own safe water needs. Some of these schemes are community initiated. For others, the initiation is catalysed and facilitated by aid agencies, local governments or national bodies. The incomes from these systems have not only served to cover expenses but have also sometimes provided surplus for expansion and or re-investment. Through the involvement of the communities in the projects, an enormous amount of capacity building takes place as the members of the beneficiary communities get trained and gain hands-on experience, which does not only contribute to the human capital development in the communities but is an ancillary benefit which in turn contributes to the success and sustainability of the system/project (IRC, 1996). Smaller community self help projects also fall within

this category. Although these initiatives are often on an even smaller scale and often do not serve many communities, they have through local knowledge, skill, ingenuity and commitment to self help provided solutions to water problems in these communities.

Community-managed partnership based systems with the involvement of formal water supply institutions

As an alternative management option that is not centralised, there have emerged set-ups that remove the responsibility of distributing potable water from a central agency to community institutions in partnership arrangements. One such set-up involves user groups. Here, user households pool resources by forming groups, register connections and acquire access to water from the formal water supplier (usually the national utility company). They then share the costs of usage. Community organizers are recommended to guide the formation of clusters of households and decision making (ibid). For many public officials, policy makers and politicians in African countries today, collective household connections are considered a more realistic option for the achievement of development objectives that are related to water. This is because although deemed the ideal option, individual household connections have so far proved difficult to achieve in many of these countries (Water utility partnership – Africa, 2003: 19). Another version which uses local organisations involves community managed vending kiosks at which water is sold by the bucket or receptacles by local utility bodies or committees; or by vending entities to whom concession rights are given to sell the water at agreed rates- a form of public-community-private partnership. In a growing number of settlements in developing countries, community groups control the vending, and a committee manages income and maintenance. These are self –financing systems in which the rate paid by consumers of the water is set to cater for the cost of maintenance of the facilities (IRC, 1996: 30).

Box 2.2 Example of innovative cost-sharing ideas originated by the public sector in Ghana

Sometimes initiatives originate from the public sector or the national utility companies. In Ghana, the national water company (GWCL) as a result of it limited financial resources instituted a cost sharing option with communities through which communities are able to obtain connection to the network quicker than they would have it if they waited for the GWCL to include them in its network expansion program. The communities contribute about 50% of the cost of extending the network to their communities. The funds are collected up front at the community level usually through community level organisations set up for this particular purpose. Some of these community groups are now able to enter into contracts with utility service providers because they have gained legal status (Water Utility Partnership, 2003: 27). No less than 20 communities in Accra benefit from this approach. The approach also provides communities the opportunity to subsidise cost for low income households *(TREND cf. Water Utilities Partnership – Africa, 2003).*

Again, there is the option of Local Distribution Networks in which a group of communities come to an arrangement with the urban utility company to purchase water in bulk. The water is provided by the utility company either in the form of a filled reservoir or a metered main pipe connection. A local group or committee then acts as distributor to residents in the respective settlements through direct connections or shared taps. In Tegucigalpa, Honduras neighbourhoods that are implementing this kind of system seem to have been able to function successfully. This system has succeeded in driving away the exploitative water vendors who supplied water to the urban poor at high rates for their supplies. In other words, through public –private partnerships, the

community assumed responsibilities for the operations and maintenance of autonomous water distribution nets; and they are self-reliant (ibid).

Hybrid systems

Some less usual approaches have been adopted to address the challenges associated with the governing of water for medium sized settlements or small cities. These approaches hinge on the concept of decentralisation. Among alternatives adopted for tackling the water supply situation in small cities and towns is the formation of hybrid systems. These hybrid systems involve service providers who get their structures connected to the government's structure legally or manage existing structures provided by the government in a self-reliant manner that will not require substantial government expenditures. Another alternative is that for secondary cities and small towns, agglomerations of these settlements are created to pool demand in order to make them an attractive market for big private water supply companies. This way a private contractor is able to achieve economies of large scale production by spreading the cost of the capital investment and overheads across several settlements over which it has operating rights (Walker, 1993: 29). Examples where cities or municipalities are lumped up to form a large market base for a single contract may be found in the Philippines and in Mozambique (James, 1998: 7). A further proposition involves a mix of the decentralised formal government and institution system. This proposition suggests combining profit oriented management that is backed by the security of public sector ownership with the benefits of community participation (Braadbaart et al. 1997 in James, 1998: 17). This alternative is based on the Dutch water supply model which is characterised by a set-up in which the water supply infrastructure (as well as the shares of the water company – if a company exists) are owned by the regional and local government representatives, but a public-owned private limited company, which is autonomous and profit- oriented, operates the system. The Dutch system ought to be studied carefully and modified to suit the specific needs of developing countries before being implemented (ibid).

A discussion of recent trends in the water supply in developing countries

The surge in efforts that involve the non-public sector more has been in acknowledgement that the capacity of the central governments of developing countries to cater for increasing water needs of their populations in severely hindered by the financial constraints imposed upon them by their debt repayment conditions and structural adjustment policies as well as the increasing costs of maintaining water facilities and providing or extending them (ibid). The expansion of water services in peri-urban and urban settlements through central government ministries and agencies and the use of the conventional public service delivery arrangements will be difficult to accomplish at the current rate of performance of the central governments (Rondinelli 1991: 416). Therefore with the limited options available to governments of developing countries for funding, the World Bank's water privatization drive has spread through the developing world in various forms. Some governments have found themselves accepting the World Bank's terms of opening up the water sector to privatisation in return for financial assistance for their economies.

However, the adoption of the concept of 'privatisation' as shift in governance approach is not straight forward for small cities and towns because small cities and towns by themselves are not attractive enough to draw to themselves the large

multinational companies that are at the centre of current global water privatization processes. Indeed in several developing countries, while the secondary cities tend to be too large for user managed water schemes, they are also too small and too numerous to attract the interest of the large multinational companies. Meanwhile the search for best practices in water supply to smaller cities has not yielded significant results so far. The fate of peri-urban settlements is no better than that of small cities. Peri-urban settlements are no more attractive to the large multinational companies than the small cities are. The informal and–poorly planned tendencies that generally characterise the peri-urban in developing countries have left several peri-urban settlements without access to formal urban water supply networks; many of which are or were state owned; and have been faced with financial and managerial challenges that have for decades curtailed their efficiency and their ability to expand their service coverage to cope with the fast growing peri-urban settlements. These characteristics again leave the governments of developing countries to search for other feasible arrangements for their small cities, towns and peri-urban areas.

Considering the nature and implications of the financing challenge, Hartvelt and Deiters (1997) note that, except credit and alternative non-conventional financial lending or funding methods are identified and used, the poor will have no access to water. Financing of local water supply systems, which has traditionally relied on the government funds and on development aid; and the nature of water as a social necessity and its monopolistic delivery characteristics are cited among the reasons for the current situation. Today, the likely experiences of the push towards privatisation of water services (which through the World Bank gained grounds between the 1980s and 1990s) and the impacts that it would have on the populations of developing countries are not well known. What is known though is that the impacts of past programs pushed for by the World Bank and the IMF in their dealings with countries in the south of the globe were not always positive. Also, while the impacts of the structural adjustment programs that they pushed for have been well documented much less is known of what the impacts of the privatisation drive would eventually be (Barlow and Clarke, 2004: 1).

Opponents of privatisation argue that the disadvantages of privatisation outweigh the advantages. They point out that after privatisation of water supply in developing countries, the poor who cannot afford the high prices charged get cut off, while huge profits accrue to the supplier companies because cost recovery by passing on the entire cost of service provision to the customer is the driving factor for the investors. Where the poor are cut off, they may begin to the use of unsafe water sources with implications for public health, morbidity, life expectancy and progress towards the achievement of the much desired Millennium Development Goals. Other arguments are that, upon privatisation there is a fall in water quality and little transparency in the dealings of the investor companies (ibid). Like other opponents of privatisation in the water sector, Thornton (2002) contends that there are very few cases of water privatisation on the African continent, which can be considered to have had good effects on the populace. Proponents of privatisation in turn argue that privatisation of water supply results in the provision of better quality services, better quality water, better cost recovery, improved human productivity, relatively cheaper rates, etc.

Indeed, privatisation as a means of decentralising the responsibility for delivering water cannot be ignored in the face of the financial handicaps that governments in developing countries face. The involvement of the private sector however does not necessarily imply that all aspects of the water development issue are left to the private sector. In other words, privatisation need not be full. It can be partial. Privatisation is

viewed in this context to comprise relationships between government, private sector and users: NGOs and CBOs, economic profit seeking entities, local development organisations, churches, academic and research institutions, etc that are not public or government owned entities but which can play useful roles in the development of the water sector (United Nations, 2004: 2). However, in a privatised system, there is a need for a clear definition of roles. There are things that are better done by communities. These include the daily management, operation and maintenance of facilities. The government through its agencies is also more appropriate for undertaking certain functions. It is important that the strengths of the communities and the government are assessed to determine which is better suited for the various sector roles. What is important is that the aspects that the community handles are those aspects for which it has the resources to tackle; and in turn the government allows the local people to handle aspects that they are better positioned to handle (Briscoe and de Ferranti, 1988: 15). The private sector if it has the right capacity will be able to fill gaps or play the roles that neither the communities nor the government are well suited to play (ibid).

The role of government in a privatised water supply system

The need for a clear definition of the roles that the actors play in a privatise water system brings to question the role of the government because it would continue to be an important player which makes key decisions and steers the water sector. Since central governments have the responsibility of protecting the interests of their citizenry and ensuring that they have access to basic needs, governments in developing countries will continue to play a role in the utility supply sector even after privatization has been implemented. The provision of policy and legal frameworks that guide sector operations would continue to be the responsibility of the central government and its agencies/ministries. Through its ministries and departments, the government would also has responsibility for regulation and supervision; and whether the water sector gets fully privatized or partly privatized will be guided of the government's policies. The primary role of government agencies therefore would change to one of facilitation rather than direct service provision and financing. In its facilitating role the government would have to work to remove or minimize the bottlenecks to the participation of private sector suppliers of relevant supply services such as equipment and maintenance and drilling services (Briscoe and de Ferranti, 1988: 2). The government would also have the responsibility of pursuing policies that would make the water sector attractive to private corporate entities to encourage them to get involved in the sector. In contexts where huge capital investments are required private corporate bodies look for long term contracts that will allow them to recoup their investments and assure profits and government policies can be fashioned out to promote such opportunities. While facilitating sector decentralisation, the policies pursued ought to make provision for opportunities for small domestic companies or enterprises to provide water supply where gaps are left by public or large scale public-private joint venture utilities service providers. In other words, the opportunity for involving large public-private partnerships should not close the opportunity for small scale domestic companies. What is important in this regard is that an enabling environment for non-traditional service providers is created so that where possible they can also participate in the sector. There is a possibility for small scale operators to complement the efforts of large scale operators if they have access to financing for their activities (James, 1998: 37).

Beyond creating an enabling environment for private sector involvement and the institutional decentralisation of the water sector, the central government in its

facilitating role can support the sector search for funds. Providing counterpart funds for the setting up of semi-privatised systems; attracting and sourcing foreign aid for the sector, disseminating information to local governments on funding options available for water projects are some of the strategies that the central governmental can use in facilitating the privatised water system.

The role of local government

Local level governments perform functions related and in sync with the policies of the central government while fulfilling local development objectives. These have included informing communities of incentive schemes, community mobilisation, forging partnerships with the private sector, providing incentives for the involvement of the private sector, and provision of counterpart funds for water projects. Other roles that the local government plays in a privatized system includes formulating local policies to develop or expand local capacity (skill and knowledge) to support the utility system, and pursuing the relevant strategies to maintain knowledge generated within the district. Ensuring equity for the poor, ensuring that the due cognizance is taken of traditional approaches to water governance in order not to disturb the already existing balancing mechanisms that ensure equity for the poor, and preventing water conflicts form part of the responsibilities of the local government in a privatized system of water supply.

Beyond these, local government in poor districts where local communities are unable to raise all the funds required to start the construction of the small scale water supply systems can pursue policies that support the communities to acquire water facilities by providing some financial assistance to 'jump-start' the project implementation. In furtherance of its development objectives, the local government can play a supportive role in sourcing and providing these counterpart funds to 'jump-start' the process.

Another major issue worth mentioning in such a discussion of the opinions on the current trends in the water sector concerns the peculiarities that small scale water supply systems have. While small scale and community initiated water supply systems have achieved good fetes, they are also faced with some particular operational challenges. James (ibid) agrees that small scale user run water systems, by virtue of their nature, have some short comings which need to be recognized and addressed. One of the challenges to such small schemes has been that they become too cost intensive when there is an attempt to scale them up. As a result of their nature, successful community initiatives require a lot of human and financial resource investment to strengthen or improve capacity at the local level as well as for construction. These decentralized 'mini-systems', it is further argued are never going to be able to capture the economies of scales that exist in large cities; such as the economies of scale of a Buenos Aires or Manila concession. Indeed, some writers postulate that the small-scale user run water systems do not hold good prospects for the future. Simply put, successful small scale water supply structures which are often based on community initiatives cannot be expanded to a scale that meets the required needs of tomorrow cities as a result of the foundational nature. While this may be true, usually this is not the intention of such small scale water supply systems.

A further issue related to such systems concerns leadership and personality. In some cases, the success of the small scale water schemes have depended on the existence of strong and charismatic individuals who have been the driving force behind the systems. The importance of a committed leadership to the successful operation of water systems that are local based is quite well documented in literature. A challenge however arises when the committed and charismatic leader(s) driving the process refers to a single

individual or very few individuals. Where this is the case, such systems may face a crisis when this leadership is no more present in the community.

Again, local politics and the power play in the institutional environment of the water systems is an issue that poses challenges to small scale water supply systems. As noted earlier, as a result of the very nature of water as a social need its delivery often tends to be monopolistic even in the context of small community based systems. Allowing small scale water supply structures, which operate autonomously or semi-autonomously from the main formal water supply system, means ceding authority to lower levels of government or communities. How well these systems perform especially when they are only semi-autonomous therefore becomes a political issue because it depends on the extent to which authorities are prepared to facilitate and support the establishment and functioning of autonomous systems. Indeed, ceding control of water systems to the local government or community does not only imply losing power. It also (often) implies ceding the possibility of financial gain (Wegelin-Schuringa, cf James ibid).

In sum, the review of writings on water supply approaches in the developing world reveals that no single system design can be characterized as the most appropriate approach for all situations. No single generalization is possible. Each country is different and models ought to be adapted to suit the particular situation of the countries and localities in which they are to be implemented. For example in Ghana, the small towns water system has been formulated drawing from water supply privatization options available, and it explores linkages that exist in the institutional environment as can be found in the practice by the Ahmedabad Municipal Corporation (AMC) in India. By forging links between representatives of the beneficiary communities, NGOs and the private sector the Ahmedabad Municipal Corporation (AMC) successfully implemented water and sanitation delivery projects in poor urban communities through the Slum Networking Project in the Gujarat Province city of Ahmedabad in India (see James, 1998:35; UNDP-World Bank Water and Sanitation Program - South Asia: 1; and Ahmedabad Municipal Corporation, 2005: 21). The local government acts as a facilitator of the process of setting up a local small scale water supply system for which a national body sets the framework within which the systems are established. The community focused approach as is being practiced in several other countries in Africa is also incorporated into the small town water system creating an interesting mix upon which the system for water supply at the local level in Ghana is based.

Evidently, there has been a lot of activity in the water sector in the developing countries aimed at improving the water supply situation and meeting development targets. Sector efforts are initiated and promoted by a diversity of stakeholders. These include national and local governments, private bodies, communities and foreign aid organisations. However current trends in the sector are fashioned on the principles of decentralisation and participation. These are believed by development practitioners to be essential for the success and sustainability of water projects.

The challenges that governments, development practitioners, aid agencies and communities face as they strive to improve the water supply situation are multi-faceted. For the urban and peri-urban settlements, fast population growth, poorly planned settlements and the presence of low income households further complicate the process of coming up with strategies to improve current situations. It behoves the governments of countries to provide guidance for sector efforts leading to the achievement of their penultimate goal for the sector as spelt out in their national development policies.

Section summary

There are several options available for managing the current water situation in the developing world; ranging from full scale public sector management through partnership arrangements to full privatised profit-seeking arrangements. Depending on the nature of the system, the role of the central and local government varies. However, in the light of the pertaining financial challenges and the inclination toward decentralisation, much less direct involvement of governments in the form of facilitative roles at both the local and national levels is currently preferred. In Africa, the lot falls on the governments of the respective countries of the African union to support the continent to attain its water goals by facilitating processes that will promote the development of the water sector. Ghana as a member of the African Union, therefore, has a responsibility to contribute to the attainment of the Africa water vision 2025 by pursuing policies through strategies that will facilitate this. As the country from which the study cases were selected, I present in the following section, Ghana's journey from the pre-colonial era, through the colonial and immediate post independence periods. I also explore current sector trends and comment on their conformance to the Africa Water Vision.

2.4   Tracing the footprints of the water sector in Ghana

To facilitate discussion on the above sub-topic, issues will be grouped into time categories: first, the pre-colonial and colonial eras, and then the post independence era between 1957 and 1982. The next will be the period of the implementation of the Economic Recovery (1983-1986) and Structural Adjustment (1988-1993) Programs which then feed into the current state of the sector.

The pre-colonial approaches to water management

Water is regarded in the traditional Ghanaian context as a god-given gift to life. A basic necessity of life, without which life would be extinguished; it should therefore be free to all persons. The importance of water is seen in the role that water plays in most traditional ceremonies and in its daily application for domestic purposes, farming and cottage industry. Indeed, so important was water in the traditional context that its use was regulated through customary laws prior to the advent of colonialism. Communities evolved rules to govern the use of water. Ownership rights were vested in communities, families and chieftaincy positions. Water resources could not be subjected to personal appropriation by anyone. Local traditional leaders with the guidance of the gods (represented by the fetish priests) administered rules and laws regulating water use.

While documented proof hardly exists of the approaches adopted, it is known that the traditional leaders instituted rules such as bans on farming close to water bodies, banned washing and bathing upstream, and restricted to upstream the fetching of water for domestic uses. Breaching the rules called for punishment prescribed by the fetish priests and administered by traditional leaders. Thus, the fetish priests as messengers of the gods, were important actors in the traditional water governance system. They were key in the declaration of taboos which served as an effective means for achieving compliance of community members to the rules. Communities that shared water bodies discussed and agreed on how to ensure maximum mutual benefits from the water bodies. The traditional laws that regulated the use of water were sometimes so detailed that they even prescribed the tools that could be use to fetch water from the river.

Although spiritual reasons were often given for the taboos, these were done to prevent the pollution of water bodies and reduce the incidence of diseases resulting from the use of polluted water; as well as to ensure the sustainability of the water bodies for future generations. For example, the river banks were said to be the resting place of the gods and farming in this area would disturb the gods and make them visit wrath on the entire community. This belief kept people from farming and felling of trees along the river side and contributed to the sustained flow of the river.

The customary water laws were adequate for governing the relatively simpler contexts of community's domestic use of water resources (Sarpong, 2005). The journey through years of colonialism, nationalization and industrialization introduced other dimensions and more complex issues, which when combined with the enlightenment that came along with education and the heterogeneity that accompanied urbanisation and development challenged the adequacy and efficacy of the traditional water governance. These resulted in changes in laws that governed the use of water, introduced more formal legal systems and ultimately diminished the potency of customary laws on water to such an extent that it is currently hardly accorded full recognition except in very rural communities where there is still a strong hold onto traditions, customs and norms. The customary regime of ownership of water was eventually abolished with the passing of the Water Resources Commission Act of 1996 which vested ownership rights, management and control of water in the President on behalf of the people of the Republic of Ghana (Sarpong, ibid; Water Resource Commission of Ghana, 2008).

Social infrastructure and service management in the colonial era

Colonial rule and its influence on water resource regulation

The influence of traditional rulers in organising and administering water resources first began to dwindle with the influence of British colonial rule. According to Sarpong (2005: 6) the 'plethora of legislation dating from the colonial era vested powers in various ministries, departments and agencies of state, … for the varied and contemporary uses of water including irrigation, power generation, transportation and industrial uses'. Initially, the enactment of legislations by the British colonial rulers was meant to supplement and not affect pre-existing customary laws and rights on water in terms of replacing them. They 'sought to regulate water uses in areas that had hitherto not been addressed by customary law' (Sarpong: 2005). The British adopted an indirect rule approach in the Gold Coast (now Ghana) in which the laws and policies were put in place by the governor with the assistance of executive and legislative councils comprising Europeans[4]. Without dissembling the traditional governance system, the colonial rulers tried to develop a governance structure that incorporate the traditional system of governance while stating and clarifying roles and responsibilities. Thus, a local structure of governance was defined and functioned such that chiefs ruled and were responsible for the immediate needs of their subjects and this included law and order as well as social services within their communities; however, their decisions were subject to the approval of the British governor. Under colonial rule, social services were brought under seemingly unified control, but local leaders through local authorities remained responsible for the actual administration of the services.

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[4] Some Ghanaian chiefs were later admitted to the legislative council

Despite the seemingly positive intentions, the advent of colonialism and the introduction of the powers of the colonial governors who enacted laws or ordinances led to the eventual replacement of traditional customary precepts and erosion of the powers of chiefs with implications for the role of traditional leaders in water governance.

Water infrastructure development under colonial rule

The history of formal water infrastructure development in Ghana dates back to the 1920s when the British colonial masters constructed the first piped water supply systems in Cape Coast. The Water Supply Division of the Public Works Department was then set up to be responsible for the management of the water supply to both urban and peri-urban settlements. The second water supply system was constructed in Accra. Little progress occurred in Ghana between 1926 and 1951 due to the global economic depression in the nineteen thirties which saw revenues plummet so low that they were unable to support development programmes. In the 1940s were the world wars and an aftermath of shortages (NDPC, 2005: i and in GOG, 1959: 1). Despite the decade long global depression of the 1930s and the interruptions to Ghana's export caused by the Second World War which stalled its economic advancements, Ghana was considered a and model colony of the British Empire by the time its rule in Ghana came to an end. The cocoa boom of the 1920s had helped finance its infrastructure to the effect that Ghana –the model colony- already had institutions for the delivery of social services in the area of health and education. It also had a relatively good infrastructure system (NDPC, op cit). Indeed Ghana's first long-term development plan was drawn up during this period by the then governor –Gordon Guggisberg- who had been encouraged by the colony's economic successes during the boom. The intension at this juncture was for the gains from the boom to be used to finance the development plan because it could easily do so (ibid).

Water infrastructure development efforts in the post independence era

The immediate post independence era (1957 - 1982)

Ghana's post independence era has seen the emergence of several governments and as many policy directions all of which attempted to improve the quality of life for the citizenry. Soon after independence, the Nkrumah government pursued a policy of rapid industrialisation as a means to achieving accelerated growth and development. Based on the socialist development model the Nkrumah government embarked on state financed industrialisation and the establishment of state owned agricultural farms as well as the nationalisation of foreign owned companies. The state also financed the development of social infrastructure. Ghana had inherited relatively good social infrastructure and the Nkrumah government developed this further. When deemed necessary commissions were set up to assess and restructure the social service structure inherited from the colonial masters.

Ghana's second national development plan under this first post colonial government of had as one of its key objectives the development of a strong basic services sector including water. Improvement in water supplies was considered necessary to complement the efforts being made in the health sector in order to improve upon the health status of the Ghanaian public. Rural water accounted for about 60% of the water sector budget. New water supply schemes were constructed and old ones extended in urban towns and cities such as Tamale, Cape Coast, Kumasi, Tema, Sekondi-Takoradi

and Accra. The aim was that 'pure drinking water shall be available throughout the country' (GOG 1959: 52). To avoid burdening the government with recurrent costs, water charges were to be set at rates that were sufficient to cover recurrent costs' (ibid). By the time of the next development plan (the seven-year development plan), it was already evident to the government that external capital was no more forthcoming as expected and that domestic capital was a more appropriate source for financing social facilities as long as it was available. Commercial capital, which had already dwindled, was considered non-suitable for such non-profit yielding investments (GOG 1963: 18). Water for domestic use was still considered a priority area. Guided by its ultimate aim to eradicate public stand pipes and achieve house to house delivery throughout the country, the plan again sought to expand water supplies in rural areas. This took the form of provision of boreholes and wells and where such systems were not feasible, such as in dryer sections of the country, reservoirs and artificial ponds formed the basis for the provision of water. Due to the rapid urbanisation in major towns and cities as a result of the pursuit of rapid industrialisation, effort was also made to expand the urban water supply systems (at Akosombo and Kpong) especially to serve the Accra and Tema populations (ibid: 131). Expansions occurred in Kumasi and Sekondi-Takoradi as well. The intentions of this seven-year development plan included the establishment of the National Water and Sewage Authority to systematise all water services. This body was to be non-profit seeking, but was required to operate in such manner that enabled it to meet its operating and overhead costs, as well as payment of loans and interests that accrued on loans taken through its own operations. This authority's mandate was also expected to enable it to 'raise funds to enable it to meet development expenditure in areas where it is not practicable to charge an economic price' (ibid: 124).

By 1964, a sixth of Ghana's population enjoyed good drinking water while the remaining relied mainly on natural sources most of which were unsafe for drinking and polluted (ibid: 130). The implementation of this development plan was interrupted with the overthrow of the socialist Nkrumah government by the National Liberation Council (NLC) government in 1966. By the time of the overthrow of Ghana's first government, social objectives such as free education and public health, mass housing and municipal transport were strongly featured in the country's development agenda (NDPC, 2005: ii and in Second Development Plan 1959-1964: ii).

Although the NLC abandoned most of projects of the Nkrumah government that it perceived to be ambitious and unprofitable, it continued to pursue the policy of social services provision adopted by the Nkrumah regime, while pursuing liberalised policies that sought to attract foreign investments to help improve Ghana's economy. Generally though, the scale of investments in the social service sector, as with all other sectors, was reduced. This was especially necessary because by the time the NLC took over, much of the financial reserves that the British colonial masters passed on to the country at independence were used up. The NLC focused on reducing Ghana's foreign debt accumulated through borrowing while alleviating the burdens of the Ghanaian public. Therefore, while external borrowing to fund 'ambitious' projects were reduced, the tax burden borne by Ghanaians -in the form of taxes on incomes and duties on imported food items- was reduced. The result was that the prices of essential food items were reduced to ensure that a sizeable proportion of the Ghanaian public could afford them. Tax exemptions were given to those whose incomes were considered low[5] while farmers were given a raise in their earnings per bag of cocoa. These policies of reducing

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[5] Below £400 per annum.

external borrowing, paying already accrued national loans and interests, while offering exemptions to the Ghanaian which reduced the funds available locally to the government and led to the state having much less money to spend. Again, actual efforts at socialist development were curtailed because the NLC government was a liberalist one, which was in favour of open economy and privatisation; however, the socialist agenda pursued by the previous government had resulted in people blocks such as trade unions, employees of parastatals and managers of parastatals that had interest in retaining the status quo. These strong blocks constrained the practical steps that the NLC took in the liberalist direction. The NLC therefore was unable to take radical steps to switch to the liberalist direction.

The Busia government (1969-72) which took over from the NLC as the second republic of Ghana, tried to pursue with more aggression the liberalist ideology and revamp the Ghanaian economy more speedily (Gyimaah-Boadi et al, 2000: 32-50; in Aryeetey et al, 2000: 33). However, in 1972 Ghana experienced another coup de-tats which ushered in the National Redemption Council (NRC). This government also attempted to achieve economic growth as did previous governments but for its part, it pursued a policy of development through 'national self- reliance' (ibid; in Aryeetey, E et al, 2000: 35). The NRC launched the Operation Feed Yourself program and put in place several other measures that it considered necessary to help prevent the total collapse of the Ghanaian economy. The water sector did not see any marked improvement in view of the financial challenges that the government faced. Indeed 'in the 1970s, the interventions continued but with limited indication as to what the ultimate development goals were' (Aryeetey, E et al, 2000:1).

Between 1969 and 1981 Ghana had already experienced six different governments with varying ideologies on how to develop the economy which oscillated between socialist and capitalist ideologies. The turbulent political climate was not conducive for the country's economic progress and the social infrastructure development process. Nonetheless, all these governments maintained interest in catering for basic needs including water: the challenge was how to achieve this aim. Unfortunately, none of these governments succeeded in developing significantly the water supply systems that had been inherited from the British colonial masters and improved upon by the Nkrumah Government. Also although several development plans were developed, Ghana for many years did not have a clear water strategy and as a result, there was not great emphasis on the management and conservation of water; water provision was carried out in such manner that did not capture the economic value of producing and conserving water; and there was no effective regulation of the sector.

The periods of economic recovery and structural adjustments – (the 1980s and 1990s)

By the 1980s, Ghana was again under military rule. At this time the Ghanaian economy was too weak to be able to survive without the assistance of the capitalist global economy. Thus although the military regime of the Provisional National Defense Council[6] initially had socialist intentions for solving Ghana's economic and developmental troubles, it was compelled by the peculiarities of the internal and external socio-economic environments to conform to the dictates of the world economic bodies like the Bretton Woods institutions. While other previous governments as a result of the likely political costs and the sense of the need to avoid discontent among the domestic social forces which disfavoured the pursuance of neo-liberal economic

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[6] Provisional National Defense Council toppled the third democratically elected post independence government of the People's National Party (PNP)

reforms of the 1980s - because of the perceived social discomfort and inequities associated with such policies – and shied away from pursuing radical capitalist policies, the PNDC regime was so strong that it was able to implement such policies (Azindow, 2005). The regime was able to pursue policies in favour of devaluation, privatisation and withdrawal of subsidies. Under the PNDC, user fees for the education, water, electricity, health and other services from state entities were effected (Gyimah-Boadi, E. et al: 32-50; in Aryeetey, E et al, 2000: 44). Directly and indirectly the PNDC 'through encouragement to non-government organisations (NGOs), improved access to water supply in rural areas by involving local communities in water and sanitation management projects (NDPC 1995: 7). It became evident internally and externally that if Ghana was going to be able to undertake radical measures to correct its economic decline it would require a government that was a bold as the PNDC regime. To be able to obtain external support from the IMF and the World Bank Ghana had to accept an Economic Recovery Program prescribed by these organizations and the stringent measures prescribed as part of the recovery program.

In 1982, as part of the prescriptions of the World Bank and the International Monetary Fund (IMF) as an adjunct to Ghana's Economic Recovery Program, Ghana was required to divest its state owned enterprises most of which had been ineffective and inefficient for many years. Most of these enterprises already faced a dearth of financial resources and human expertise and skill. Some were saddled with debt, corrupt practices and poor supervision that prevented them from being able to operate in such manner as necessary to achieve their objectives. The state's public utility corporations were operating under heavily subsidised conditions, in which the rates that they charged their consumers were unable to cover their operating costs; and they were unable to account in their revenues, for all their output. For decades, they had been unable to increase their rates because they were unable to obtain approval from the national government to do so. Indeed, increases in rates charged for utilities such as water and electricity were considered politically suicidal. However, considering the ailment of the economy, the PNDC government was largely unable at the time to continue to support these organisations by continuing to provide them the subsidies while they lost revenues as a result of their poor performances. Against this background, Ghana embarked on public sector reforms which saw the divesting of state owned enterprises, emphasized reduction in public expenditure and led to increased emphasis on decentralization and participatory development approaches (Kyei, 2000). These prescriptions were in line with the privatisation drive being pursued at the time by the World Bank and the IMF, with the belief that the private sector is often better able to achieve efficient management. It was argued that diversification of SOEs would 'reduce the size of the public sector and improve the performance of SOEs by mobilising private sector management and capital' thereby reducing government's financial and managerial burdens (DIC). It would ultimately 'unlock the economic potential of Ghana by permitting resources of people, money and technology to be put to their best use and by increasing efficiency….' (ibid).

By 2004, more than three hundred SOEs had been divested. However there still remained several SOEs not divested including the national electricity and water corporations. The challenge with divesting some of these SOEs lay in the nature of the services that they provided. The Electricity Corporation of Ghana and the Ghana Water and Sewage Corporation for example provided utility services that were so politically sensitive that governments had been weary of the implications that their privatization could have on their political future. Thus although the Ghana Water Sewage

Corporation continued to operate in an uneconomically manner, attempts to fully divest it were unsuccessful. In the following paragraphs, I trace the history of the water sector and provide an overview of the current state of the sector.

Institutional history, structural and reforms of the formal water sector in Ghana

The influence of structural adjustment programs

As noted earlier in this chapter, the history of the formal water supply sector began with the construction of the first piped water system in Cape Coast in 1928. It was operated by the water division of the Public Works Department. The second piped water system was constructed in Accra after which several other water systems were put up. The Water Supply Division (WSD) of the Public Works Department had responsibility for both rural and urban piped water supply throughout Ghana. The Division was in 1958 separated from the Public Works Department and placed under the Ministry of Works and Housing. Following recommendations by the World Health Organisation which was based on a study it undertook in reaction to water crisis during the harmattan season in 1959, a 20 year master plan (1960-1980) was developed to address the problems of the sector in Accra and Tema. As part of the plan, the WSD was transformed into the Ghana Water and Sewage Corporation (GWSC) responsible for water supply as well as sanitation in rural and urban areas (GWCL, 2003).

The water sector experienced several efforts aimed at transforming it since the 1980s. Since the beginning of the 1980´s, the Government of Ghana (GOG) introduced a number of policy reforms in the sector that among others were particularly targeted at improving efficiency in rural and urban water supply systems (MWRWH, 2007: 10). As already mentioned, under the ERP, efforts were made to make State Owned Enterprises (SOEs) more economically efficient. In line with this, the existing operational subsidy on water supply was abolished in 1986; and to improve its performance on the rural water supply front, the Rural Water Department within the GWSC was also formed. To improve its operational efficiency the corporation, in 1991, embarked on an exercise to recruit more appropriately qualified personnel for its operations while cutting down existing jobs. 'The water sector benefited tremendously, in terms of policy and funding, during the periods of Economic Recovery (1983-1986) and Structural Adjustment (1988-1993) Programmes. All the sub-sectors namely community water and sanitation, urban water supply and water resources management benefited from the injection of capital, new institutional framework and management strategy which transformed the sector' and improved it (MOF, 2000: 17).

The influence of the international water arena

The changes in the water sector were not only as a result of the need to reduce the financial burden on the GOG. It was also as a reaction to the observations on the water sectors of developing countries across the world where international aid agencies had for years pumped lots of funds into water infrastructure but the projects funded had not been sustainable.

The declaration of the United Nations International Drinking Water Supply and Sanitation decade from 1981 -1990 was done with an understanding that governments and the international external support agencies in the spirit of social goodness had the responsibility of providing as many people as possible with a minimum level of safe water supply (Kleemeier, 2002: 4). Therefore throughout the period of the water decade,

International Aid agencies and NGOs through their activities supported the development of water facilities and services throughout the country. During this period, the Ghana Water and Sewage Corporation remained the national body responsible to water and sanitation development and services provision. It operated a centralized system of provision of water facilities, as well as management and operation and maintenance (O&M) of water facilities all throughout the country. Its centralised monitoring units were unable to keep up with the task and at any particular time only 40% of the countries hand pumps were functioning adequately (ibid: 2). The GWSC blamed the poor maintenance of facilities on the non-payment of tariffs by communities while communities, justified their non-payment of the tariffs with their experiences that the GWSC did not ensure regular and reliable flow of water and did not carry out maintenance work and quickly as desired. In sum they found the GWSCs operations to be less than optimal especially in non-urban areas.

Box 2.3 The GWSC's efforts at maintenance

'GWSC sent out regional teams with trucks and district staff on motorbikes to maintain and repair the supplies. In practice, …the piped systems suffered frequent and sometimes long supply interruptions. These problems worsened as the number of supplies increased. One reason was that GWSC focused its attention on urban supplies, not rural. Also, GWSC collected only enough revenue from rural users to cover 10% of hand-pump maintenance costs and 20% of the operation and maintenance costs for rural piped schemes.' *(Kleemeier, 2002: 2-3)*

The situation of rural communities was worsened because the GWSC had only two or three personnel responsible for managing the affairs of the national rural water and sanitation sector at its head office. This team was responsible for decision making and management of supplies as well as management of projects for rural communities all throughout the country (ibid: 2). External sector support agencies based on their experiences in developing countries including Ghana begun to realize that the centralised approach to providing water facilities, monitoring and maintenance as was being operated by the GWSC needed to be revised. The GWSCs centralized maintenance system could not run and maintain the numerous wells, boreholes and dams dotted throughout the country effectively. 'CIDA and KfW, in their projects, had already begun to look for ways to decentralise maintenance to the communities. DANIDA, which was just entering the sector, had a long-standing commitment to village level operation and maintenance' (ibid).

Indeed problems that had been encountered during the water decade - which had sought to improve safe water supply throughout the world - had practitioners re-think and many began to consider it preferable to see water as an economic good that had to be paid for, and which was better delivered by the private sector. Practitioners on the world scene began to drum for the introduction of privatization into the water sector. The concept was that the levels of service provided should respond to the demand of the users demonstrated in the amount of money they were willing to pay for the service- a demand responsive approach. For Ghana which had been going through a period of economic recovery and structural adjustments prescribed by the World bank and the IMF, the successful implementation of other aspects of the ERP and SAP policies coupled with the challenges of its water sector made Ghana a fertile place for trying the new approach to water supply. Thus at the instance of these institutions Ghana began undertaking comprehensive water sector reforms in the 1990s. The water sector was opened to private sector participation and regulatory bodies that were deemed appropriate were established as part of the structural change process. There was also a

separation of the rural water supply function from that of the urban water supply (Fuest and Haffner: 2007). The program to restructure the sector was initiated in 1993.

Over a period that lasted about a decade, Ghana's water sector went through processes of consensus building on the changes being proposed, policy testing which involved large pilot projects that were sponsored by external support agencies, and discussions of the lessons learned from the pilot projects in local conferences at which sector institutions and the external support agencies participated, to develop new sector strategies based on the outcomes of the deliberations. The strategic outcomes of the deliberations included the split of the rural water sector and the urban water sector as well as the creation of the National Community Water and Sanitation Program (NCWSP) to address the needs of rural and non-urban communities. The operation of rural and some small town water systems were as passed on in 1994 to a newly created, semi-autonomous Community Water and Sanitation Division within the GWCL which adopted a community/district based management approach to its service delivery. The sector deliberations also culminated in the realignment of key sector institutions and led to the formulation of a national water policy to provide an interface among the key stakeholder institutions (MWRWH, 2007: vi).

Again by a parliamentary Act (Act 564) the Community Water and Sanitation Division was also transformed into the Community Water and Sanitation Agency (CWSA) with the mandate to 'facilitate the provision of safe drinking water and related sanitation services to rural Communities and Small Towns in Ghana' (CWSA, undated: 2). It assumed responsibility for the NCWSP. The responsibility for urban sanitation was transferred to local government departments. The broad purpose of water sector restructuring program embarked on in the early 1990s was to improve the supply of water and sewerage services and ultimately contribute to improving the financial viability of the sector.

Key features of the community water approach

In consonance with the sector reforms, a key feature of the new community water sector approach was the use of a demand responsive approach which required that communities were proactive and expressed the need and a demand for the water facilities before they were provided. Demand having to be backed by the ability of the communities to raise 5% of the capital cost of the project by themselves in demonstration of their commitment to the project and their capacity to maintain the water facility once it is provided. Local governments contributed 5% while the GOG or external aid agencies provided the rest of the funds.

Another feature of the approach is its adoption of a community management, operation and maintenance. The community water approach as already noted evolved from the challenges that the GWSC system faced. Thus, learning from the woeful performance of the centralized operating and maintenance system of the GWSC as well as the good performances from pilot projects, a decentralized system of operating and maintaining water facilities and which places the responsibility for these functions on the communities that they served was adopted. Consequently the ownership of the facilities was given to the communities as well. Today this policy has been revised making the local governments the owners of the facilities because they are entities that are recognized, under Ghana's legal system as legal entities; and therefore are able to own property and sue or be sued. Communities on the other hand are not recognized as entities that can own property. Currently, the concept of community management is still

being pursued with communities as stakeholders and direct beneficiaries who manage the water systems on behalf of local governments through water boards.

The community water approach had again as a key feature the decentralization of the important functions, such as those of beneficiary community selection, bid processing and contracting the local governments and their sub-units. The then government of Ghana introduced a shift from its centralized approach to water supply to the involvement of other stakeholders (including the private sector actors, local governments and communities) in line with the reforms required by the Bretton Woods Institutions for its ERP and SAP. The decentralisation process[7] was well underway by the time structural changes in the water sector began to be implemented. Under the decentralised governance system, the works departments of the local governments were to be responsible for implementing developmental decisions at the local level. The community water approach sort to anchor itself in this decentralised governance system; where district engineers and the districts works departments would be responsible for the development of the water sector in their districts. This desire to decentralise the water system to the local levels led the community water programme to create its regional offices to support the works departments of the various local governments. On the contrary, most districts still lacked the full complement of staff and departments (including the works departments) needed to enable them handle the decentralised water system. To prevent the stalling of the decentralisation of the water system to the local levels, the community water program developed mechanisms to circumvent the challenge. It supported District Assemblies to establish district water and sanitation teams to manage the affairs of their water and sanitation sectors and helped in the recruitment of district engineers to provide technical advice to the assemblies.

Also key was the pursuit of a phased approach to the process of decentralising the functions and roles to the local government level. In recognition that most local government were not strong enough in terms of their capacity to handle all the function, the community water approach phased the passing on of the responsibilities to the districts. The purpose was to forestall the collapse of the system not as a result of the pursuance of wrong policies but as a result of implementing the policies within an inadequate institutional frame; which could result with the transfer of roles and functions to units/institutions that would be unable to implement the policies because they were too young and their capacities were not fully developed.

The involvement of the non-public sector actors in the form of CBOs, NGOs, educational and research institutions as well as private business entities in the management, operation and maintenance of the water facilities, training, drilling, supply of materials was another key feature of the community water approach. The involvement of CBOs and NGOs had community mobilization as one of its key reasons. The opening up of the community water sector was in sync with the ideological concept - decentralization - at the time that were being pushed for by the World Bank and the IMF and which favoured privatization[8] of the water sector as a catalyst for improved

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[7] This was introduced by the Local Government Law 1988 (PNDC Law 207) and supported by the Local Government Act of 1993

[8] Privatisation as a form of decentralisation has economic decentralization as its organizing principle; and involves the transfer or sharing of some public functions or administrative and planning functions to/with the private sector, non-governmental organizations (NGOs), communities and community based organizations; and it can also take the form of deregulation or divestiture through which government opens an economy for increased private sector participation (Ileanyionwu, 2001: 6-7). Thus while decentralization usually refers to political reforms that are designed to reduce the control of central

efficiency. The competition introduced through the opening up of the water sector was also expected to drive down implementation and maintenance costs. This represented a clear shift from the centralized approach which made the costs of providing water facilities as well as maintaining them exorbitant. Under the centralized system, the GWSC using its own rigs, carried out most of the drilling for water in Ghana. Some NGOs also carried out drilling activities with their own rigs. The involvement of external drilling companies occurred as part of externally funded projects. There existed in Ghana only one private Ghanaian drilling company and 'the lack of competition made drilling artificially expensive'[9] (Kleemeier, 2002: 2).

Thus through this entire restructuring process the local government, the communities and the private sector have evolved as key players in the country's water sector. Their involvement in the sector now spans planning and implementation of projects, operations and maintenance, capacity development as well as financing and co-financing. For its part the Community Water and Sanitation Agency (CWSA) is becoming, as intended, a facilitating agency in the community water sector, seeking funding for the sector, providing sector policy and operational guidelines and researching, evaluating and revising the sector approach.

The ceding of systems: In the context of the urban sector restructuring, the aim was to make the body responsible for the urban water and sanitation (i.e. GWSC) more efficient through the privatisation of the corporation. To make the corporation attractive to the private sector, the GWSC had to cede to the CWSA urban pipe systems that were not profitable, dysfunctional or had collapsed. The CWSA was to revive these systems through its community based approach. 'Meanwhile, GWSC realised that its own mission would be simplified, not threatened, by turning over the point sources and small piped schemes to community management, and concentrating its efforts on the remaining big schemes' (Kleemeier, 2002: 2). Therefore many small town water systems came under the community water sector. Two and a half thousand hand pumps (ibid: 3) and several small town water schemes were converted to community management.

Sustenance of the small town schemes

The sustainability of small town schemes under community based management is still an issue of debate. The approach has tried to put in place mechanisms that would enable the schemes to generate their own funds for routine and non-routine maintenance as well as expansion. It is believed that the prospects for sustainability of the schemes are good particularly based on the performance of the pilot schemes established by the World Bank and other external agencies; as these schemes are still in operation. However the financial sustainability of this new approach is still yet to be established conclusively (ibid: 5). Indeed this may require a few more years after which many of the system would have experienced the challenges that longer operating water systems tend to experience including the challenge of managing old equipment and undertaking replacements which often are costly in the small town schemes because they rely more on heavier and more complicated machinery than the smaller community managed facilities such as wells.

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government, it engenders changes in authority and has implications for the provision of basic services such as health, water and electricity. (World Bank, Undated)
[9]'In 1990, a borehole drilled in Ghana cost on average US$9,000 compared to … $3,000 in UK and USA' (Kleemeier, 2002: 2).

Other important institutional changes in the water sector

As already indicated, the efforts to revamp the water sector included institutional reforms that saw the setting up of new institutions and the redefinition of the mandates of already existing institutions. The reformation process involved the following major water sector institutions: Ministry of Water Resources Works and Housing, The Public Utilities Regulatory Commission, Water Resources Commission, Environmental Protection Agency and the Ghana Standards Board. The roles of these key institutions are as described below.

The Water Directorate of the Ministry of Water Resources, Works and Housing

The Ministry of Water Resources, Works and Housing (MWRWH) through its water directorate is responsible for setting water sector policies in Ghana. As part of its function, the MWRWH advices government, solicits funds for the development of the sector and monitors sector (urban and rural) performance. It also has oversight responsibility on the private sector participation in the sector through its Water Sector Restructuring Secretariat.

The Water Resources Commission

Prior to the enactment of the Water Resources Commission (WRC) Act, the control, regulation and management of water resources was not the responsibility of any single body or institution. Customary law still governed water and statutory interventions were made to address gaps in the customary law. With the passing of the WRC Act in 1996, the state assumed ownership, management and control of all water resources. The WRC Act vested property and control rights in the President of Ghana on behalf of the people of Ghana.

   The WRC was formed in 1996 as a multi-stakeholder body comprising the major stakeholders in the water sector and is responsible for managing, regulating, and coordinating policies in connection with water resources on behalf of the state. Its responsibilities include proposing plans for the development, conservation and improvement of water resources as well as the use of water resources. In its regulatory role, the WRC among others is in charge of licensing for water abstraction and discharge of waste water. This way, the state through the WRC administers the power to grant water rights and manages water as a public good.

The Public Utilities Regulatory Commission

In 1997, the Public Utilities Regulatory Commission (PURC) was established by the government of Ghana to regulate and oversee the provision of electricity and water supply to consumers. More specifically, the PURC's responsibility includes the economic regulation of urban water and electricity with particular attention to ensuring that the interests of the poor are addressed. The commission seeks to protect the interests of consumers while ensuring fairness, transparency equity and reliability of the utility sector. It regulates utility tariffs and also seeks to protect the interest of the utility companies.

The Environmental Protection Agency

In 1994, the Environmental Protection Agency (EPA) was set up to be responsible for issues of protection of water operations. The EPA in its role is concerned with ensuring the sustainable use of water resources by ensuring the conservation of natural resources

and by reconciling economic development with conservation efforts. The regulation of activities around the catchment area of water resources as well as the determination and setting of standards for effluents are a part of its core responsibility.

It advises the Ministry of Water Resources Works and Housing concerning issues of pollution and control of the use of water resources. With its broad aim being to conserve and improve for improved living conditions for all Ghanaians, it is therefore often involved in the issuance of permits and control for pollution as well as prescribing standard and guidelines to regulate pollution of the environment.

The Ghana Standards Board

The Ghana Standards Board (GSB) is the national standards body. It is among others responsible for National Standards development and dissemination, product testing and inspection in relation to human consumption. As a regulator of the water sector, the GSB is responsible for the development and setting of safe water standards.

Current water sector challenges and policy objectives

For such research into the water sector it is of relevance for the researcher to have an overview of the challenges to the development of the sector. Indeed, the string of sector reforms which saw the re-structuring and re-aligning of sector institutions also led to the identification of the key challenges of the sector and culminated in the preparation in 2007 of the Ghana National Water Policy which in turn outlined policy strategies for the sector. Although the urban and rural sectors differ in the approaches adapted for the delivery of services as well as in the nature and extent of involvement of consumers in management, operations and maintenance, there are certain key sector challenges that cut across both the urban and rural sectors and are as a result relevant to the peri-urban situation. These include the following:

- Improving access to water by increasing coverage while ensuring that even the poor have access to safe water supply, and that water facilities are managed through systems that can assure the sustainability of the facilities and the services that they render.

- Having and operating a tariff system that enables rates to be charged that would enable water systems to be self-sustaining once they are provided; while keeping potable water within the reach of the poor in society.

- Instituting capacity building mechanisms that would continuously build upon existing capacities at all levels to support the various sector and sub-sector objectives. This therefore concerns the national, regional and districts levels as well as the local private firms involved in water supply services. It also concerns organisational capacity development.

- Attracting and utilising the potentials in the private sector through the provision of opportunities for the private sector to participate in the sector in the preparation, implementation and O&M of water facilities and systems; and entering into various forms of partnerships with the private sector in furtherance of the objectives of the sector. In the community water sub-sector where there is the involvement of communities in the operations of the water systems, there is also the further challenge of sustaining Operation and Maintenance by communities for the sustainable/ continued use of facilities during useful-life of installed facilities; and instituting participatory monitoring and evaluation (M&E) systems with feedback

mechanisms that would ensure that stakeholders and the local government are kept informed and M&E at the DA level is improved.

Policy objectives

The policy guiding the sector is informed by these challenges, and benefits from the outcomes of the Strategic Environmental Assessment conducted of Ghana's first Poverty Reduction Strategy (GPRS I) which identified water as an issue whose relevance cuts across all thematic areas. It also draws from the GPRS II which acknowledges that 'improving access to potable water… is critical to achieving favourable health outcomes, which in turn facilitate economic growth and sustained poverty reduction' (NDPC, 2005: 51). Ensuring improved access to potable water for rural, peri-urban and poor urban settlements that have no access to potable water is therefore of prime import in the sector policy. It has the following intentions:

- Facilitating the improvement of access to potable water throughout the country (which within the context of community water further implies providing facilities to communities that will contribute to the capital costs of the water projects as well as the costs of operating, maintaining and extending it) while being mindful of the need for affordability, equity and fairness for the poor and the vulnerable.

- Achieving adequate mobilisation of capital for scaling up the provision of water facilities and improving upon service delivery in a sustainable manner. This also concerns increasing local financing of investments to leverage donor financing to fund the provision, rehabilitation and expansion of water facilities, and encouraging non- traditional sources of funding for the provision of water facilities including the private sector funding.

- Developing and strengthening the human, resources and institutional and operational capacities of the key sector actors such as the DAs, CWSA, CBOs, CSOs, NGOs, and Watsan while building or enhancing the capacity of the local private sector to take up and play their potential roles in service delivery and facility provision in the water sector.

- Promoting the sustained use of facilities through regular and routine maintenance

- Promotion of evidence based decision making.

The policy vision and objectives are set to contribute meaningfully to the realisation of Africa's water vision of creating 'an Africa where there is an equitable and sustainable use and management of water resources for poverty alleviation, socio-economic development, regional cooperation, and the environment' (ECA, AU and AfDB: 2000) but they would require earnest efforts to make the contribution significant.

Section summary

The water sector in Ghana has received varied levels of attention throughout history. As well, the journey travelled has not been wholly internally inspired. Most of the changes have concerned the governance structure and were introduced as means to improving the management of water resources as well as improving access to safe water throughout the country. The inefficient operations of public/ state owned enterprises and corporations as well as the drain that they placed on the financial resources of the national government were key to the introduction of decentralized service provision and therefore the involvement of alternative actors in the water sector. The process led to the separation of urban water supply and sanitation from rural water and sanitation. Thus,

urban sanitation was made the responsibility of the local governments and urban water supply remained the responsibility of the Ghana water company; while rural water was placed under the Ghana Community Water and Sanitation Agency with the local governments responsible for overseeing the maintenance and operations of the water systems provided. The local governments became responsible for sanitation as well.

The peri-urban is not an area specifically addressed in Ghana's national water sector policy. However, between urban and rural water supply exist common issues that are likely to be relevant to the peri-urban context. Among these are – building local capacity to be able to support the newly introduced water supply structure; and achieving self-sustaining systems while ensuring that consumers can afford to continue to patronise potable water supply services and the poor do not get left out. Nonetheless, the water policy is largely in keeping with the Africa Water Vision 2025.

Drawing on the insights that this chapter has provided, I proceed to present and discuss the strategies as well as concepts that inform this research into the challenges and prospects of harnessing local potentials for water supply in peri-urban areas in Ghana, in the following chapter.

3   A CONCEPTUAL FRAMEWORK

This chapter of the document outlines the conceptual issues that form the basis upon which discussions on the cases will be done. Relevant development theories and strategies are discussed within the context of the harnessing of local potentials for peri-urban water supply. With the district in Ghana being the government level that seats this research work, this chapter starts with an explanation of the concept of the district as a unit of development in Ghana. I then present a further delineation of the spatial context by conceptualising 'peri-urban', after which the theory and strategy groundings of this work are presented and other key concepts such as potentials/resources and institutions explored.

3.1   The district as a unit of development

Ghana introduced a decentralised governance and administrative system through its 1992 constitution in which districts were created to serve as smaller units of governance:- the District Assembly fashioned as the highest political authority within the district; with legislative and executive powers. Among its functions are the formulation and execution of plans and programmes as well as strategies for the effective mobilisation of the resources necessary for the overall development of the district. Additionally it has the mandate for levying and collection of taxes, rates, duties and fees within the district (Ministry of Justice, 2005). The Act governing the activities of district assemblies, Local Government Act 462, further incorporates district assemblies (DAs) as legal bodies with perpetual succession that can own property and sell property, enter contractual agreements, and sue or be sued. It spells out other details of the roles the DAs must perform as follows:

- remove obstacles to initiative and development in the district, while taking measures to promote and support productive activities and social development in the district.
- initiate basic infrastructure development programmes in the district
- oversee the development, management and improvement of the district environment as well as its human settlements
- be responsive to the regional coordinating councils as the body in charge of coordinating regional development; and submit for approval district development plans and then execute approved plans
- direct, encourage and support sub-district local government bodies, public agencies and local communities to perform their respective roles in the execution of the approved development plans; while monitoring the execution of programmes and projects and assessing their progress and impacts on the district
- foster the involvement or joint participation with other relevant bodies or persons for the implementation of the plans
- see to the harmonization and integration of actions and projects that are implemented within the district by the various governmental and non-governmental bodies and coordinate their activities so that they are in sync with the developmental goals.

To cater for capacity gaps that exist in some districts, staff are seconded by sector ministries to the DAs to facilitate the districts performance of its roles. Within the context of local development therefore, the district is the lowest level at which development is seated legally; and it is illegal to by-pass the DA in the introduction and implementation of any development projects. What territory qualifies to become a district is determined mainly by the population such that territories with population above 75,000 qualify to become districts while territories with population above 95,000 and 250,000 qualify for the status of municipalities and metropolises respectively. Beyond the population criterion, additional basis that the area should satisfy concern the geographical proximity of the various communities in the area and the economic viability of the area; because the territory needs to be capable of providing, from its own internal resources, the means to provide basic infrastructural and other developmental needs in fulfilment of its roles as outlined above.

With the explanation of the district in Ghana as the lowest level to which development is decentralised, I proceed to discuss ensuing concepts regarding the district from the perspective of this level being a local 'region' in which local governance and planning is seated.

3.2   Defining what is Local

The word 'local' is generally used to refer to a specific area or place, and to connote what is not widespread or vast. In the development field however this meaning leaves room for much variation in the levels of decision making and activity that fit the description 'local'. It is therefore important in a research which focuses on local potentials, to clearly conceptualise what level is referred to as 'local'. Literature suggests two ways of looking at the term 'local'; either based on issues of purpose and the appropriate levels at which institutions should function, or based on issues of identification with an area and commitment to goings-on including collective action. In other words how 'local' is defined depends mainly on the position of the viewer and the purpose which is being considered. This further implies that, what is considered an appropriate interpretation of 'local' depends on whether it is viewed from the bottom (the perspective of the people who are the intended beneficiaries or target) or the top (higher levels of decisions making including the regional and national levels) and can result in different outcomes.

Perspective from the bottom in the context of development work in Africa would often highlight the views of rural folks. For these people what constitutes 'local' is often determined by the level of familiarity with the environment. In this context, the bounds of 'local' is influenced by the existence of a sense of common identity, trust among individuals and some familiarity. Although these three factors are heightened at the household level, they are of relevance for pooling resources together and achieving targets through collective action which is most meaningful when one moves beyond the individual and household levels to the group, community and locality levels (Uphoff, 1992:1); where the challenges are different from the household level and much more effort is needed to achieve results because differences between the various individuals begin to show and have to be managed. This is unlike the household level where roles tend to be rather well defined and the decision making structures as well as whether there will be collective action or not are often less challenged (although some writers, argue that at the level of the household there exist variations in interests and perceptions

which do not make the process of taking decisions as simple and predictable as often assumed. See for example Uphoff, 1986: 13).

Capacities for development at the group, community and locality levels are also increased because various different potentials and resources become available for the intended goals. Indeed individuals recognizing the strength in pooling resources, look out of the household for opportunities of association and corporation and assistance. Groups are the next level closest to the household and they offer opportunities for individuals to find people with similar needs or complementary needs and the opportunity to work together for their own benefit. Within groups, joint action is thought to be easier and more productive because of the common sense of identity that exists as well as the existence of familiarity and trust among the individual members.

Writers on the concept of local also identify the upper limit of what constitutes 'local' as perceived from the bottom to be the 'locality' level, where a locality comprises a group of communities served by a common market centre. Here there still exist some level of familiarity and individual contact and hence a basis for collective decision making and action. However at the groups level (comprising several individuals from different individuals), community level (comprising different households), and locality level (comprising a multiplicity of communities) efforts at achieving collective action are froth with problems and challenges relating to the initiating and sustaining of collective decision processes and interest.

Viewed from the top, 'local' can be defined at the international, national or regional levels. This is especially true in the context of decentralisation that aims to bring decision making powers to the lower levels of national society. The household and group and even locality levels may seem too small and diffuse; and therefore less feasible for national development aid or activities. Viewed from the top therefore the district or the sub-district levels become the most attractive level for seating local development interventions.

Attempting to delineate 'local', Uphoff (ibid) suggests leaving out the household and individual levels because these are rather different units of decision making that are small and do not face the more complicated challenges that confront the groups, community and locality levels. At the same time the national, regional and district levels would appear too global to the individual and therefore unable to attract his commitment to collective decisions and actions. Uphoff casts doubt on the appropriateness of regarding any level higher than the locality level as 'local' because the concept of 'local' draws from the existence of some level of individual contact, familiarity and common interests, noting that "… people's perceptions of common interest and orientation toward collective action will change once the unit of potential action includes a significant number of 'strangers'". He asserts that although the sub-district level, if small, may conform to the locality it will be rare to find it so. Uphoff's contention is that beyond the sub-district and district levels, decision making challenges exist but they are different in nature. Also the bonds that draw individuals together at group, community and locality levels for collective action and decision making are absent because of the presence of a large number of 'stranger'. The structures and the institutions required to tackle issues at these levels are consequently of a different nature. As illustrated in Diagram 3.1 therefore, local levels are appropriately called so when they refer to the locality level, community level and group level.

When 'Local' refers to the district

Although Uphoff suggests that there is hardly any basis for collective decision making and action at the district level one finds, as within some African countries including Ghana, that districts although are places of political decision making and economics activity are also places of social and cultural identity. If indeed the key criteria for deciding what is local as Uphoff indentifies are the existence of economic and social cooperation and exchange, as well as patterns of communication, and the existence of acquaintance through inter-marriages, festivals, trading relations or participation in local activities which in effect lead to the existence of potentials for collective identity and efforts, then the district level in Ghana can be called 'local' (see Diaw, 1994) as it shows these characteristics. Brugger (1986: 44) supports this when he observes that districts are areas of 'cultural identity, and ecological interdependence, and political decision making'. Indeed the key criteria for the formation of districts in Ghana include ensuring uniformity and avoiding the artificial partitioning or grouping of people as done by the colonial masters when creating countries in Africa: a process which saw the formation of countries from tribes that had no relations with each other and little common interests. Underlying this is the critical need to avoid ethnic or tribal conflicts by ensuring homogeneity in the sociological composition of districts; and achieving sociological units that thrive on and foster common interests, social and economic cooperation, effective political administration units that are perceptive of the peculiarities of social and historical identities of the people.

In terms of harnessing potentials for development, the question is - what level one finds the ability of an area to exercise its own developmental opinions and options without having to rely on national efforts, especially in the case where the state is unable to respond adequately to the particular needs of the lower levels. For the purposes of harnessing local potentials for development then, it becomes difficult in the context of Ghana to dissociate the district level from local development efforts. The case of Ghana presents some unique characteristics because the process of decentralization which is expected to extend beyond the district level to the area and unit levels, which are much closer to the individual, has still not been fully realized. The area and unit levels barely exist and lack the resources to perform their roles. They are therefore unable to execute any effective local developmental functions by themselves. They currently play roles that are only supportive of the District level administrative system. Indeed the harnessing of local potentials for development and the decision making processes thereof require that structures be put in place to support the process, which as discussed early is often froth with problems and the challenge of sustaining interests in collective decisions. What structures are put in place and how they operate would vary at each of the levels identified. In the absence of formal collective decision making and collective action structures at the small community or village levels (manifested in the lack of adequately functioning area councils and unit committees), the district level then becomes the next closest level at which this role can be performed. Without usurping the few functions that the committees and councils are able to perform, the District level in Ghana using the resources at its disposal can guide and support collective action and decision making at the group, community and locality levels to realization. This could serve as an appropriate arrangement considering that the districts have generally been created to achieve a good level of 'homogeneity' in their social, economic and cultural composition and the sense of belonging. This research therefore sets 'local' at the district level on the basis that the small town schemes which are the focus of this research can tap from resources in the district that are not necessarily in their 'locality' because they are semi-autonomous arms of the district

assemblies that, with the approval of the district assemblies can tap from beyond their locality to improve their prospects.

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┌─────────────────────────────────────────────────────────────────────┐
│                    1.    International Level                          │
│                              ↕                                        │
│                    2.    National Level                               │
│                              ↕                                        │
│              3.    Regional (State or Provincial) Level               │
│                              ↕                                        │
│                    4.    District Level                               │
│                              ↕                                        │
│                    5.    Sub-district Level                           │
│     ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ↕ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐     │
│     │          6.    LOCALITY LEVEL                            │     │
│     │  (a set of communities having cooperative/commercial     │     │
│     │    relations; this level may be the same as the          │     │
│     │    sub-district level where the sub-district centre       │  L  │
│     │              is a market town)                            │  O  │
│     │                       ↕                                   │  C  │
│     │          7.    COMMUNITY LEVEL                            │  A  │
│     │  (a relatively self-contained, socio-economic-            │  L  │
│     │            residential unit)                              │     │
│     │                       ↕                                   │  L  │
│     │          8.    GROUP LEVEL                                │  E  │
│     │  (a self-identified set of persons having some            │  V  │
│     │   common interest; may be a small residential group       │  E  │
│     │   like a hamlet, or neighborhood, an occupational         │  L  │
│     │   group, or some ethnic, caste, age, sex or other         │  S  │
│     │   grouping)                                               │     │
│     └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ↕ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘     │
│                    9.    Household Level                              │
│                              ↕                                        │
│                   10.    Individual Level                             │
└─────────────────────────────────────────────────────────────────────┘
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Diagram 3.1 Levels of decision making and activity (Adapted from Uphoff, 1986: 11)

3.3   Peri-urban

The term peri-urban, although used by many authors and policy makers, is still not known to have a universal definition. Although used by professionals in fields such as planning, economics, sociology, geography, natural resources management and agriculture among others, the various users define peri-urban in different ways to suit their specific contexts. The term 'peri-urban' is used in the context of the need for food security when discussing food security for the urban poor in Africa. The term is again employed when discussing the preservation of landscape views for tourists in France (Willis, 2005). In both instances, what is being referred to vary widely in characteristics. Literature identifies the simplest definitions of the peri-urban as spatial in nature: 'a zone around the built up area of a city, its perimeter or edge, the "rural-urban fringe" where the city and country land uses overlap' (Willis, 2005: 2), an interface or a

transitional zone between the city and the countryside, which is usually 'not a discrete area but rather a diffuse territory identified by combinations of features and phenomena, generated largely by activities within the urban zone proper' (Nottingham & Liverpool Universities, 1998: 5). Webster (2002:6) defines the peri-urban as 'a new, uneasy equilibrium that is neither totally urban nor sub-urban'. Although various early writers on the concept of the peri-urban viewed the peri-urban in territorial terms, such territorial definitions of the peri-urban though still employed are considered now by some more recent writers to be superseded by other definitional forms. In this vein, Allen (2003: 136) describes the peri-urban as an 'uneasy phenomenon, usually characterised by the loss of rural qualities (like fertile soil agricultural land, natural landscape) or lack of urban attributes (such as services and infrastructure)'. Allen's approach to defining the peri-urban is quite in sync with Pryor's (1968) stance which considers the peri-urban according to land use composition and population dynamics.

Pahl considers the peri-urban to be a result of social processes when he writes 'a new population is invading local communities, bringing in national values and class consciousness at the same time that a new type of community, associated with dispersed living is emerging' (Pahl, 1965: 79). This being mainly as a result of the migration to the city of 'mobile middle class families' oriented to the city and its urban life style.

These varied efforts at defining the phenomenon of the peri-urban all draw on the strength of the known and attempt to use its characteristics to define the relatively newer phenomenon of the peri-urban. In Africa and other developing countries the social and land use composition that characterise the peri-urban include pollution of land and water, poverty, informal settlements and generally poor living conditions; while in more affluent regions of the western world, quality of the environment, seceding of farmlands for residential purposes, heritage, etc are the key issues of concern (Willis, 2005).

Following the use of territorial and social process definitions, have come mixed definitions that combine both ideologies. Literature also reveals non-place definitions of the peri-urban. These definitions which resulted from the transfers of urban functions to sub-urban unit and towns and the development of secondary cities with important functions in the 1960s in the Western world (Adell, 1999) led to the conceptualisation of the urban and the peri-urban as non-place specific. The peri-urban therefore being considered to be a continuum between the urban and the peri-urban.

Drawing from the shift from the traditional spatial planning dichotomy of the rural and urban to percieving the relationship between both the rural and the urban as a continuum in which various social processes are at play, the typology of the peri-urban can be derived using criteria such as proximity to the urban, institutional context, sources of migrant in-flows, as illustrated by Iaquinta and Drescher (2000: 3). Iaquinta and Drescher (ibid) in trying to provide a unified interpretation of the term peri-urban have identified five peri-urban types:
- Village Peri-urban
- Diffuse Peri-urban
- Chain Peri-urban
- In-place Peri-urban
- Absorbed Peri-urban

At the extremes the 'village peri-urban' being 'non-proximate' geographically to the urban while the 'absorbed peri-urban' is considered to have virtually become a part of the city; each type varying from the other in its character in terms of creation process,

proximity to the urban centre, stimulus for change, resistance to change, pace and most likely types of adaption, likelihood of disruptive conflict, etc (ibid: 4). They place much emphasis on the migration and assume it to be key in the growth of the populations of the peri-urban, although not discounting the potentials of natural growth. These details however will not be discussed here.

The various forms of defining the peri-urban and the various names used by writers in trying to define the concept of the peri-urban ('rurban' periphery, urban periphery, suburban, rural-urban fringe, satellites, pseudo-suburbs, pseudo-satellites, urban fringe, periphery, etc) are a reflection of the complexity of the phenomenon that is being considered Willis (op cit). For now, all forms of definitions are provisional in the process 'destined to incompleteness; all are mere attempts at understanding the complexity of that which is, by isolating, by making distinctions, by applying features of the known to the unknown' (Willis, 2005: 2).

The current gap in spatial planning has resulted largely from the fact that most western developed countries from which most spatial planning theories have come did not face the rapid and large scale urbanisation and peri-urbanisation which many developing countries face today. Today the traditional dichotomy of strictly urban and rural planning has been unable to cater adequately for the peculiarities of the peri-urban. Thus, there is now still an on-going search to understand the nature of the phenomenon of the peri-urban and find an appropriate definition for it.

Indeed current definitions that are based on social, linkage and economic characteristics present researchers involved in peri-urban studies with challenges. When considered as defined by Allen (op cit) as an area that is experiencing a loss in rural qualities (eg: changes in the use of formally agricultural lands and the natural landscape, industrial activities) and yet still lacking urban attributes (eg: urban infrastructure and services) then a researcher can also observe his study area for these attributes to help him decide which areas are peri-urban or not. However as the foregone discussion suggests, peri-urban characteristics span conflicts between traditional landowners and migrants, mismatches between administrative institutions and territory, exploitation of labour, degradation of the natural environment and its bio-diversity, incursion of migrants, rapid growth, poor planning, infrastructure and built forms (Willis, 2005). And according to Allen (2003) the peri-urban in developing countries is characterised by 'small farmers, informal settlers, industrial entrepreneurs and middle class commuters...'. They co-exist amid differences in perceptions, interests and practices which sometimes tend to compete. Iaquinta and Drescher (op cit) add characteristics such as sources and nature of the growth, nature of family and social relationships as well as traditions of the area. These together create a maze of characteristics based on rather varied criteria among which little coheres (Willis, ibid). While some of these characteristics can be observed, others are more difficult to observe and require definite data to determine. For researchers in developing countries such as Ghana, the situation gets dire because while information on the urban and rural can be obtained even if not up to date, that of the peri-urban poses an even greater challenge because data is often not disaggregated into urban, peri-urban and rural. Also there is hardly disaggregated data showing the sources of migrants to various districts or settlements in Ghana and the social relationships between migrants and between migrants and the host communities.

There is emerging among researchers and authors in Ghana a common approach to defining peri-urban. This definition employs distance from the city as the key determinant of the peri-urban. The majority of Ghanaian writers on the peri-urban describe settlements that are within a 40 kilometre radius from the urban settlement as

peri-urban. It does not refer to a specific or constitutionally defined settlement area. Drawing from the fundamental definition of the English meanings of the words 'peri' (originating from the Greek word 'peri' which means 'around' or 'about') and 'urban', this definition would seem just okay. Such definition as used in Ghana takes cognisance that peri-urban areas are amorphous in nature, continue to change, and that the term peri-urban does not refer to a particular settlement but a multiplicity of settlements. Such continued use of such territorial definitions affirms Adell's (1999) assertion of the power of spatial metaphors.

Defining the peri-urban in such manner places little emphasis on the other parameters that recent writers including Iaquinta and Drescher and have identified and used in their definition of the peri-urban and its typology.

Another limitation to this definition is that it assumes a uniform distribution of peri-urban settlements around the urban area. This is not always the reality. Especially in many sub-Saharan African countries where transport network is poor, settlement formations are greatly influenced by the already existing transport infrastructure especially roads. As a result, settlements form close to roads so that inhabitants can benefit from easy access to the transportation network.

Again, such a definition may easily lead authors to overlook 'absorbed peri-urban' areas because this kind of peri-urban settlement virtually becomes a part of the city/urban settlement.

Despite its shortcomings, defining the peri-urban in such manner does not imply that the social and institutional characteristics as well as the influence of migration cannot be present. In other words, although this definition does not bring to the fore the various issues that have characterised current attempts to define the concept of the peri-urban (I refer here to issues like the characteristics of the land use, urban attributes in service and infrastructure provision, source of the population - migration, institutions, living and housing conditions among others), it provides a simplified way and an objectively measurable approach to determining which settlements are peri-urban.

Concluding from the contents of existing literature, the peri-urban cannot be said to have a holistic and universally accepted definition. There are overlaps in the definitions used by various writers although the points of emphasis vary. The difficulty in coming up with a holistic definition of the peri-urban is in itself reflective of the complexity of the phenomenon that is concerned and which has failed to fit in the traditional concepts of spatial planning which focused for many years on the dichotomy of the urban and the rural. The experiences in peri-urban development taking place in developing countries were to a large extent not experienced by the developed countries. This probably accounts for the knowledge gap that still exists concerning the phenomenon of peri-urban.

The peri-urban is of great importance in developing countries which today are experiencing rapid urbanisation which has resulted from the migration of large populations to urban areas. In Africa it is an area that is currently experiencing positive and negative changes which are sometimes faster than planners seem able to cope with. While academicians and practitioners try to find definitions that capture adequately the nature and complexity of the concept of the peri-urban, it remains ideal that researchers consider the various definitions so far developed, the issues they raise and where and how they overlap to come up with working definitions that will reduce the risk of failing to capture the totality of the phenomenon being called peri-urban.

In this research, the peri-urban definition is based on the definition used by experts involved in researches on the peri-urban areas which is also used by the Centre for

Development and Policy (CEDEP) Research- a key research organisation involved in development planning in Ghana. Generally the definition often adopted for peri-urban settlements has been settlements that fall within 40kilometers from the urban area. The definition the writers adopt is based on the works of Prof. Kassim Kasanga and of Blake (see Blake, 1997). This definition is tampered to accommodate some of the attributes outlined in literature that are easily determinable, especially within the West African environment. To operationalise it further within the context of water service delivery in Ghana, the definition adopted for this research takes cognisance of the sector policy's implicit definition of the peri-urban. The policy states that the Community Water and Sanitation Agency (CWSA) is responsible for the provision of water to rural areas and unserved peri-urban areas. It is therefore not allowed to get involved in an area that is not rural except it is peri-urban. Again, if an area is not rural but is under the CWSA's community management approach then it is peri-urban.

The peri-urban settlement is therefore described as a settlement that falls within 40kilometers from the city area and has a dearth of urban infrastructure and services, poor infrastructure, presence of migrants, presence of working class commuters, the converting of agricultural land for other non-agricultural purposes, presence of small farmers, and loss of the natural rural landscape which in the context of modern Ghana includes reductions of the power that traditional edicts formally had; and is not rural but is served by a small town water scheme.

3.4 Endogenous development: an overview of context, origins and strategy

As a major concept in this study, endogenous development ought to be explored in appreciable detail. In this sub-section therefore, I explore some aspects of this concept that are relevant to the study. I consider the origins of the concept and the development strategy; and then I consider major components and elements of the concept of an endogenous development strategy as gleaned from literature: these include other concepts like linkages, participation and development resources/potentials. The exploration draws on the postulations of theories such as the theory of collective action and the theory of institutional economics at points when they become relevant.

By the late 1980s, there was a dominant consensus that existing theories spanning the neo-classical economists and Keynesian school of thought that equated growth to development and talked of measuring of growth through the use of quantitative variables such as national product/income/expenditure, aggregate employment and investment, average rate of unemployment, national per capita income, Gross Domestic Product, etc (Stöhr 1986, Vázquez-Barquero, 2006) were inadequate. Growth as measured by these economic variables did not necessarily mean development. It failed to take into account the spatial distribution of growth, and distribution among the different population groups and the conversion of the growth into satisfaction of the people. Development became considered much more than just economic growth, although the economic issues were still of relevance and important to development. It was recognised that development concerns the qualitative transformation of the economy and the society.

There was also a general agreement that the dominant capitalist growth models of development - well known among which were Rostow's stages of growth model that postulated that the process of development involved stages- take-off, sustained growth and finally a stage of mass consumption (a continual, linear and progressive process),

and Perroux's growth pole which suggested that development should be concentrated at growth centres which he called 'Poles'- had neglected societal, political, ecological and structural aspects of development which were more qualitative (Stöhr, ibid).

The growth model suggested that by going through a series of stages which western countries had gone through, less developed regions of the world could achieve the developed state that the western industrialised countries have of mass consumption. The model emphasized efficiency, increase in the rates of savings and investment. The dearth of capital formation was regarded as the main cause of under-development. While pursuing this model could lead to inequalities in the distribution of income and wealth, it was not considered desirable to allow the issue of equity to supersede efficiency; thus efficiency was emphasised with the explanation that the inequities that resulted at the initial stages of the growth process will be evened out in later stages of the process. How this was to be achieved was however not articulated. The focus was therefore on how to accelerate the progress of developing countries to the take-off stage. Policies began to be prescribed by international donor agencies and development experts for African countries for reaching the stage of a critical mass which was needed for take –off. Resource gaps were identified and measured: gap between national savings and investments, government incomes and expenditure, imports and exports. Resources were transferred from the developed countries to the less developed countries to boost the process of take-off to sustained economic growth (Esman and Uphoff 1984: 49).

That by aggressively investing in capital intensive industries governments of less developed countries could stimulate growth which although focused initially in the largest urban centres where the industries are established would eventually trickle down either by itself or through inducement to other areas of the country, was the postulation of the concept. This way economic growth that gets generated at the centre would spread outward and generate regional development (Potter and Unwin 1990: 13); that is, these growth poles' development would trickle-down to peripheral areas which will then develop. The concept is based on the premise that, ripple or trickle down effects will certainly be created through the operation of free market forces. With a strong driving influence from external demand factors, the heavy investments in industry in the growth pole area then serves as the engine for development (ibid). By responding to external demand, few 'dynamic sectoral or geographical clusters' get created and either through spontaneity or inducement the effects trickle down to other areas (Stöhr and Taylor, 1981:1); thus spreading growth. This works well also in top down development approaches characteristic of centrally planned regions.

In pursuit of the promises of both strategies and later those of import substitution, massive investment of capital was made by African governments who spent much of their development efforts promoting the establishment of industries with the hope that it will quicken the process; that is, 'agriculture' financed 'industry'. With the acceptance of inequalities as necessary evil in initial stages, and drawing from Perroux's concept of growth poles, industries were established and concentrated in selected areas usually the large cities with the expectation of trickle-down effects. The state became the dominant actor in the process. Thus the concept of the 'hard state' gained grounds. The direction of development was determined by the state and influenced by the external environment. Thus international development agencies and governments of newly independent countries in Africa enthusiastically pursued top-down development approach guided by these strategies.

Esman and Uphoff (1984: 46) noted that, theories that guided development between the 1950s and 1960s 'emphasized the role of central government and non-local agents'. Local communities in developing countries were regarded as technologically backward, slow to change and reactionary, parochial, as well as inclined to consume rather than to save. They needed to abandon their outmoded technologies for more advanced technology from the more developed countries in order to increase productivity. Throughout this period the importance and role of local organisations in the development process was down-played. Their relevance to the process was mainly as facilitators of the process of transferring imported technology. Locals were considered incapable of doing more than adopting and using the technology and materials brought to them as long as they were uneducated (ibid: 48). Local communities with these characteristics through local organisations were bound to be obstructive to the modernisation necessary for development (see also Bassand 1986 in Bassand et al, 1986).

It is generally agreed that expected progress through the various stages of growth as prescribed by the growth models used by the industrialised countries, failed to materialise in sub-Saharan Africa (Esman and Uphoff, 1984; Fekade, 1994; Agbesinyale, 2003). Neither did the trickle down effects expected of the growth pole strategy materialise in ways expected in Africa. In sum, the African experience did not manifest in ways replicating the experiences of the western developed countries. For example, the concept of growth poles that saw investments concentrating in few urban centres resulted in intense migration to urban areas- a phenomenon that had not been experienced in the western developed countries; and resultant growth of informal settlements along urban fringes. These came with attendant problems of poor infrastructure, poor sanitation and anti-social behaviour on such scale that the west had not experienced. Gaps in urban planning theories and models were revealed as their formulation had been based on the experiences of western countries and they had not made provision for this 'unusual' phenomenon. African governments for their part were increasingly unable to deal with the challenges resulting from the policies they had pursued over the years. The increased focus on industrialising the economy had led to less focus on agriculture. The result was a reduction in agricultural production. Food imports had to be made to augment local production which was hitherto adequate to sustain the local populations. This, coupled with the huge sums of money being spent in the setting up of industries aimed at quickening progress to 'take-off', and falling exchange rates resulted in national indebtedness for many African countries. The increased cost of servicing external debt could not be adequately financed by foreign exchange earnings. Ultimately, hardship was experienced by local populations in many sub-Saharan African countries and resulted in political unrests which had not been anticipated by the models adopted. Several reasons have been extenuated for these failures spanning lack of political will, inadequate social preconditions and institutions.

To lighten the negative effects of these strategies, many countries in Africa adopted import substitution policies. The penultimate intension was to reduce their dependence on external supplies and to correct their balance of payment deficits. To this end, governments pursued policies that emphasised the development of their local economies by focusing local capacity on the production of goods in order to replace goods that they had been importing from other countries. Many of the countries that adopted import substitution policies and set up import substitution industries soon were faced with stagnation. Their foreign exchange deficits could not support the process of importing materials needed for their industries. Ghana adopted import substitution prior to the

commencement of its foreign exchange problems. However, her import substitution industries soon faced this challenge. It is also suggested that the challenges with import substitution were as a result of poor implementation (Steel W.F. 1972:1) rather than shortcomings of the strategy of import substitution itself.

By the 1970s, development economist had indeed learned the useful truth that development is not cast in brick and mortar; and that poor and rich nations or regions would not still exist if this were the case (Po lèse 1999: 306). The search for new ways of viewing development had begun. A new approach was sort to give more recognition to self-dependence, use of appropriate technology and labour-using strategies, equitable growth and income distribution, as well as participation (Esman and Uphoff, 1984: 50). There was a shift towards more autonomous and inward looking development strategies especially for countries that were economically weak or handicapped. These propositions were soon adopted as a strategy for development 'from below'. However, development from below cannot be confidently argued to be able to achieve coordinated national development goals as these are often on much smaller scale and using local resources that often have their limits. Quick and coordinated development requires the continued involvement of the state; a level at which more resources and capacity is available.

This new approach, soon became known as endogenous development (Vázquez-Barquero, 2007). The new meaning of development was as a consequence of a shift in values that occurred in industrialised countries that in the 1960s in which 'development' acquired a new meaning. A shift which according to Brugger (1986:40) can be described as 'a growing interest in "being" which arose after the desire for "having" had been adequately satisfied'. The new view posited that there was much more to development than roads, factories and investment in physical capital (Po lèse, op cit). It argued that there were other forces that affected or contributed to development but which had not been taken into account in the growth function. Regional identity, regional decision making structures, regional ecological circuits structures became recognized to be important contributors (Guindani and Bassand 1982, Naschold 1968, Amery 1976 cf. Stöhr, 1986: 61). Vázquez-Barquero (2007) observed that development became the qualitative transformation of the economy and society while economic growth measures change in economic variables. Nonetheless, Friedman (1986: 211) notes the continued importance of the economic growth variables even in the context of the new perception of development and cautions that it will be impossible to 'create regional enclaves modelled only on social relations that are essentially different from those of the system-in-dominance'. Reality has shown that in the final analysis, regions are an integral part of national economies. He underscores the importance of taking the national context into account when planning endogenous development at the local level, although it may be very capitalist and estranged from the social and cultural domains from which endogenous development draws.

Although largely European in its conceptual origins, the endogenous approach to development has reared its head several times in Ghana's political history. It was subtly implied in the country's adoption of the 'operation feed yourself' approach to development under the NRC government; an approach which resonated in the 'domestication' tag line of the Great Consolidated People's Party- one of the political parties that contested recent presidential elections in Ghana. However, clear formal development programs based on decentralised institutional systems that involved the institution of local governments and sub-district structures (i.e. the unit committees and the area councils) in an endogenous approach became clearly visible in the

decentralisation of the water sector. Ghanaian writers/researchers into the use of the endogenous approach or inclination to development especially at the local level, such as Diaw (1994) and Bacho (2001), planners and politicians familiar with the current decentralised planning framework indeed suggest that the development burden and pace can be respectively lessened and quickened if the processes and conditions within which endogenous development occurs in Ghana are improved. In this context, empowering the sub-district structures within the districts with the necessary financial and logistic resources and the development of the human resource capacity of the sub-district structures are argued to be of particular need in Ghana. To further throw more light on the concept of endogenous development, I now discuss the general theoretical base as well as the details of the strategy in the following paragraphs.

Endogenous development strategy

The strategy

The endogenous development strategy suggests that a region in its development process should not rely mainly on external factors of production, market, consumption etc. The whole economic and developmental chain of transaction or change stays as much as possible within the region. Van der Ploeg (1993) notes that in reality endogenous development effort is not defined in 'ideal typical terms as being exclusively founded on local resources. Rather empirical research indicates that there is a specific balance between "external" and "internal" elements. What is clear is that while in exogenous development strategies external elements compose and determine the conceptual model from which local resource utility is judged, in endogenous development strategies a different balance is encountered. It is the local resources, as combined and developed in local styles … that figure as the starting point as well as the yard stick for the evaluation of the eventual utility of "external" elements'. If the latter may be used to strengthen both the specificity and verve of the former, they will be internalized so as to guarantee maximum fit with local conditions, perspectives and interests (ibid). Writers on the endogenous development strategy identify actors (including innovative groups) and their interactions; institutions and structures; as well as interests, values and practices as elements that influence endogenous development processes. Endogenous in the context of the strategy does not necessarily mean indigenous but internal to the region. Literature (Brugger, 1986; Friedmann, 1986 among others) observes certain preconditions that need to exist in the region in order for it to be able to support an endogenous development process:

- Presence of leadership that is committed to the endogenous development approach and the goals set.
- The existence of potentials (economic, socio-cultural, ecological, political) for development.
- The ability to control relations, movement and exchanges with the external environment especially trade relations in the interest of local development goals.
- Existence of the relevant institutions, structures and processes to support, influence and provide direction for endogenous development goals; as well as help to mobilise local potentials. Institutional relationships and linkages are important for the development preparedness of a locality (Diaw, 1994: 63).

- The existence of appropriate local skills, knowledge and capacity to support the endogenous development approach; including the capacity to identify what areas of the local economy provide a comparative advantage that can be taken advantage of for local development.

- A common understanding, agreement, as well as perspective on the development process such that both indigenes and non-indigenes are committed to the development approach and direction as well as the processes.

- Adequate information and communication networks among groups, as well as information and communication networks that promote the sharing or passing on of information that will help the locality to develop.

Indeed in reality one may not find that all these conditions already exist. However, the interest in pursuing an endogenous approach can prompt the preparation of these preconditions which will then serve as the foundation upon which the strategy rests.

Furthermore, in pursuing an endogenous development strategy, measures that ought to be taken include the following:

- Identification and overcoming of regional constraints to development

- Utilization of regional skills, know-how, materials, culture, values, etc.

- Creation of regional development organisation

- Mobilisation and empowerment of local actors

- Collective learning processes

- Linkages between regions' companies

- Promotion of regional market

To expound the major concept (endogenous development) in a manner relevant to this research, I consider in the following pages 4 broad categories of issues; which when discussed would help yield a holistic view of the major concept. The various variables (which the endogenous approach to the development of water supply and their interrelationships as will be illustrated diagrammatically later in this chapter) can better be appreciated by explaining each of the variables, their internal dynamics (as each comprises several elements), as well as the concepts they comprise. In the following paragraphs, I discuss these elements in further detail; as well as other elements of the endogenous development approach such as the territoriality of the strategy and the role of institutions. First, I present some general ideas relating to the use of an endogenous development strategy. Then in the 3 broad categories that follow, I discuss the concept of local potentials/resources, the actions that support the use of an endogenous approach to development, and then the institutional issues that bear on an endogenous development process.

Generally relevant ideas relating to the use of an endogenous development strategy

Appropriate leadership and decision making structures
Prior to discussing the measures or facilitation of the endogenous development process it is important to consider who guides the entire process and what leadership and decision making mechanisms are required. Endogenous development assumes that there exists a decentralised system of governance in which the local level is empowered to take and implement decisions for the purpose of developing the region. There exist various extents of decentralisation, but a decentralised governance system places less emphasis on the role of the central government and promotes the passing on or sharing of controls to/with local actors; and implies a shift from top-down to bottom-up

participatory systems. Today, the development pendulum rests in favour of development approaches that lie mid-way between a purely centralised and a wholly decentralised approach based on the recognition that some form of centralised control is still necessary to guide activities at the local level in the interest of the achievement of national development agenda.

Devolution - the transfer to autonomous units of local government of authority for decision making, finance and management including the provision of local services; as well as a delegation of political authority to special bodies (Ikeanyionu, 2001: 5) - is important to support the endogenous development process. The existence of a decentralised system within which the region operates although necessary provides no guarantee for success. The region should indeed have the political, functional and fiscal powers to carry out the process otherwise tensions arise within the region and between the national level and the region in terms of what desired goals are and what can actually be achieved. The regions leadership should have the competence to manage the resulting tensions. Between ensuring efficiency and democracy in the development process, participation and responsibility as well as discussion and decision making other tensions are likely to show up in various forms. At the local level in a decentralised system, there is additional need for a local leadership that has the competence to direct and manage the development process; as well as instituting of requisite decision making structures. Knowledge gaps that exist within the leadership need to be identified, assessed and addressed either through training or the use of external resources such as consultants.

Clearly defined structures and processes for making decisions are advantageous. Roles, responsibilities and targets need to be unambiguously defined. The relevant institutional framework ought to be put in place. The decision structures and processes defined and the outcomes that they yield would be richer if the already existing institutions, including traditional/cultural decision making structures, can be incorporated or at least harnessed. Where the already existing institutions are weak they ought to be strengthened to enable them play their roles better. The incorporation of traditional structures would have the additional benefit of improving the sense of belonging and identity in the region (Diaw, 1994: 52). While taking cognisance of the internal framework, the external environment ought not to be forgotten. The region exists within the context defined by the larger national and international environment. It could be beneficial to harmonize the regions strategies with those of the external environment in such manner that will enable the district to maximise its benefits from its exchange and linkage relations with the external environment. Again, key to this process will be the district leadership ability to manage the process tensions that evolve in a manner that will yield the most benefits to the region. A booster for this will be the strengthening of regional competences.

Territorial perceptions and identity

The concept of endogenous development holds development as a territory focused process and not a functional process as had been the trend with the proliferation of multinational organisations that diversified their productive activities across regions leading to specialisations of regions in rather narrow fields: a process that stifled local initiatives and innovations through the limitations posed by the available market. More than an economic area, the region is also seen as a unit of political decision making, ecological interaction and cultural identity. The success of development policies therefore depends on their adaption to the territorial specificities. In other words,

although the endogenous development process may be followed by different regions, the shape that the process takes must be adapted to the conditions in the locality or regions concerns. Endogenous development posits also that development policies would be more effective and efficient if carried out by local actors (Vázquez-Barquero, ibid: 3). The region therefore becomes a network of working relationships and a territory in which the inhabitants identify with themselves and can and do take development decisions (Stöhr, 1981 in Brugger, 1986 in Bassand et al, 1986: 40). Its inhabitants and actors need to understand this and appreciate that whatever progress they make is targeted primarily towards the region.

This requires that the various actors are willing to work together for the achievement of the endogenous goals; and that the local elite who may have links with the external environment that are personally beneficial are willing to place at the fore the territories interests and tamper their personal interests. In territories that are multi-ethnic and have working force or owners of capital who originate from other regions, the questions that may be posed is 'to what extent these inhabitants will be prepared to identify with the territory'; while bearing in mind their allegiances to their home regions- a situation that may be rife in rapidly growing peri-urban settlements. Much depends on the regions leadership's ability to employ mechanisms to communicate and achieve attitude or perception orientation or change that will support the territorial development process.

Also important in the process will be the competence of the leadership for managing the different views and preferences of actors and inhabitants. It is to be expected that tensions will arise in the process of achieving consensus among the various regional interest groups working together for common goals. What should the common goal be? Whose interests will get better served and at whose expense? What action should be taken first, and whose interests should be served first? These are all tensions that will test the competence of leadership for handling the territorial development process.

The territory in reality does not exist in isolation of its environment and environmental influences. For example, the prices of goods change as information spreads through various communication channels about trends on the market rates. Therefore another challenge for the managers of development is ensuring that while remaining aware of the regions environment, and identifying the opportunities in the environment that can be exploited; these are not allowed to influence in detrimental manner the direction of the endogenous development process.

Skills, know-how, materials, culture, values, etc. utilization
The concept of endogenous development assumes that the region has potentials that can be harnessed for the purpose of endogenous development; and that these ought to be used in the development process. It is however silent on the kind or types, nature, quality and quantity, as well as accessibility of these potentials. It remains the responsibility of the leaders of the process to ascertain these. This can pose a real challenge if the region's management is not informed of how this can be done and does not appreciate the importance of identifying what potentials exist within the region. Brugger (1986: 42) notes that the ability to ascertain the above mentioned is the first and a necessary step in the process of endogenous development. Other questions of relevance are then raised such as what decision making structures and institutional measures are required and to boost the exploitation of what kinds of potentials? These, together with the existent potentials are important in determining the amount of power that regions have. However, there exist no clear answers to these in literature. What

exists is a broad range of potentials that have been identified; and they include economic, political, socio-cultural and ecological potentials.

Indeed endogenous development assumes that the local level has some powers to make decisions and plan as well as implement projects. It engenders bottom up development. Planning at the local level therefore is aimed at mobilising resources that are available in the territory for development purposes. A process in which it is essential for the local level to be adequately informed of the types, volume, expanse, quality/capacity and location of its resources as well as its prospects for the future. Such information would be useful in the formulation of policies as it would be a guide to the policy direction that should be taken in the development process. Once identified, potentials should be mobilised or used in such manner that they advance the development goals of the region while ensuring that the livelihood of future generations is not compromised (Poppe 2000: 1). The tendencies for political influences from higher regional and national levels need to be managed or tactfully controlled in order to preserve the endogenous development goals.

At this juncture, it is of importance to discuss development potentials their forms and relationship with development resources as gleaned from literature to outline the context for this research work.

Development resources and potentials

Literature reveals several interpretations of 'resource'. Cloke and Park (1985: 34) observe that the elusiveness of the term results partly from the fact that this subject is inter-disciplinary 'if not multi-disciplinary' and operational definitions employed in the various disciplines vary as a result. Nonetheless, perceived in functional terms, resources are not fixed because resources are what humans employ to serve their needs and wants at any given time. In other words, man appropriates things driven by the desire to satisfy wants and does so with the application of human knowledge and skills existing. It is only when things acquire value by being of use to humans and when humans begin to deploy them for intended purposes that they become resources. "Resources are living phenomena; expanding and contracting in response to human effort and behaviour" (Zimmermann 1972: 8). This suggests that what is not a resource today may be a resource tomorrow and vis-versa. This view of resources is well captured in Zimmerman's observation that 'resources are not, they become' (ibid: 16). More clearly stated 'resources are highly dynamic functional concepts; ... they evolve out of the triune interaction of nature, man, and culture in which nature sets outer limits, but man and culture are largely responsible for the portion of the physical totality that is made available for human use' (Zimmerman 1951, 814-815 cf Bradley, R.L., 2004: 2). Resources are not only tangible things; but include intangibles such as knowledge, freedom and health. For the purpose of this research therefore, what is considered to be a resource for development goes beyond natural resources. Resources are considered to be the things that are available in supply and can be accessed to help meet a goal or fulfil a need. Therefore, a resource may be in the form of material, a person, an asset as well as capital; and as Zimmerman suggests, man is able to extend the limits of what is considered to be a resource as man learns newer and better ways of appropriating them.

The question that then evolves is, what term describes these 'things' while they are in a state of non-deployment by humans if their state of non-deployment does not imply that they cannot be of use? As mentioned earlier, they still possess latent ability that the development practitioner/agent has not found out and which could later be found out and may or may not be developed. These are described as potential resources. In this

document, resources whether they are already being used or not are described as development potentials based on the belief that there are probably prospects for putting to better use those 'potentials' that are already in use.

Man's appropriation of potentials is influenced by social objectives and values and responds to changing institutional frameworks and the technological means available (Zimmermann, 1933: 216 and 1972: 15-16). Man's use of development potentials stirs several issues. In the context of the use of natural resources, it brings up issues of exhaustion and depletion; based on the assumption that some natural resources can only decrease through use. When this is the case, resource conservation, sustainable resource management or finding means of developing the resource or alternative resources become important to address the question of how to ensure a sparing use of the resource (Zimmermann, 1957: 8-9 cf Bradley, R.L., 2004: 2). The spatial distribution of resources also poses challenges because man is unable to find the same kinds resources at every part of the globe and in equal quality and quantity. The dearth resulting from the uneven distribution brings up issues of pooling resources for the attainment of goals. I also bring up issues of resource management, conservation and development. These important issues are discussed in further detail below.

- Management of development resources: Resource management in essence concerns the deployment of resources in such manner that ensures that the maximum benefit is derived. It refers to a community's ability to use its 'human, natural, financial and organisational resources at its disposal in an efficient manner...' (Fekade, 1994: 69). Generally resources may be put to different uses and by different groups of people, subject to their appreciation of it. This leads to competition for the use of resources. Where the purposes to which resources can be put by varying groups is complementary, the groups may corporate to ensure that they each derive the desired benefits. However where the uses to which the resource is put are not complementary but competitive, it may result in conflicts. Conflicts arise from the limited nature of the resource (Cloke and Park, 1985) which has to be used to fulfil many important and yet varied developmental needs; as well as needs of the different stakeholder groups with competing interests for its use. Whichever way the resources is used, it would yield different levels of satisfaction to the different interests. There is a need to allocate the available resources between the various interests in such manner that maximises the benefits and stalls conflicts. The individual, group or unit that is responsible for making these decisions is influenced by its social, economic, political and institutional framework and so these elements are all important in any resource management system (Cloke and Park, 1985: 34). In the context of managing regional development, resources are not limited to what is available within the spatial unit of administration that is concerned but also resources that can be accessed from other sources including the private sector, national and international bodies and agencies.

- Resource conservation: Placing resource conservation in the context of an endogenous development strategy at the local level, how to manage knowledge and skills gained over the years within the region as well as managing the flight of human capital to other regions are relevant issues as they impinge on the quality and future of the local resource base develops. Other specific issues of resource conservation include how to get the local people to appreciate the need to conserve the resource in their use, evolving culturally acceptable mechanisms to conserve the resource.

- Resource development: While the quantity of resources available for use can be expanded by the discovery of more volumes of the resource, resource development which is also sometimes referred to as expansion is not limited to the above. It is

concerned with improving the yield resulting from the deployment of current resources. In the context of territorial development this means more than the creation of savings and surpluses on investments. It concerns improving human capacity and productivity as well as employing alternative means which reduce current reliance on a few resources to satisfy present needs.

- Pooling resources: An important issue when planning development efforts is how the local people can contribute to the development efforts. Questions of relevance here include what resources and potentials exist locally; what forms the contributions will take; challenges and obstacles that would be encountered; and strategies for taking advantage of local resources. While finding possible answers to these questions has to be done even prior to actual efforts at pooling resources, it can sometimes be a challenge identifying and accepting that local people indeed have sometime resources which they can contribute. However, it is wrong to view local people as having no resources and therefore treat them as 'objects' of development rather than 'subjects' (Briscoe and de Ferranti, 1988). Regardless of how small a community is, once they have a common objective with which they identify and have a commitment to achieving it becomes possible for them to pool resources to achieve the set objective (the motivation for individuals to pool resources in collective efforts is discussed in further detail in latter parts of this chapter).

    The strategies adopted for the purpose of pooling resources need to be adjusted to suit the particular circumstances of the population concerned. In a less monetised community for example, opportunities for pooling would have to provide avenues for non-monetary contributions such as labour on project sites and food. Again where incomes resulting from the dominant occupation is seasonal the strategies adopted need to make room for the inevitable seasonality of contributions. From the foregoing discussion on the identification and utilisation of local potentials, it can easily be gleaned that within the context of endogenous development much depends on the presence at the local level of the understanding of the responsibilities that the local level carries as well as drive to initiate and evolve projects and processes at this level. Briscoe and de Ferranti (ibid) contend that local people are their own best asset to bringing change and development to themselves. Drawing from the above, Table 3.1 presents a summary of the key points discussed above concerning the manifestation of local potentials as can be found at the district level in Ghana.

Actions relevant to an endogenous development process

Local initiative and innovation[10]
Development oriented activities that are undertaken by local governments, unions, businesses as well as community groups with the aim of realising improvements in specific territories or spatial areas may be called local development initiatives (Diaw, 1994: 54). The opportunities for bottom-up development as inherent in endogenous development suggests that local groups, local leaders acting on behalf of their communities, community based organisations and local experts need to be able to come up with development initiatives and ideas which the local government can implement or support; although these may be inspired by objectives that serve the interests of particular groups in the society. The origins of endogenous development and the

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[10] Innovation is used in this context to meaning adaptations of inventions. They are not inventions. The smaller changes made to inventions to adapt them to the particular needs of particular contexts. They are not completely new ideas.

Table 3.1 Expressions of endogenous potentials and resources at the district level in Ghana

	Type of potential	Expressions relevant to districts water sector
Potentials	NATURAL (land, water, forests, minerals, air, animals, etc)	- Underground water - River, streams, ponds - Rain water - Forests - Communally owned land - Farm lands - Housing lands
	HUMAN (social troupes/ groups, clubs, clans, etc)	- Cultural groups - Opinion leaders - Chiefs and traditional leaders - Residents' groups - Student and youth groups - Local civil and public servants (usually retired) who can be asked to assist in development efforts - Local elites including the local intellectuals
	ECONOMIC (capital, savings, labour, skills, know-how, entrepre-neurship, etc)	- Small scale businesses- restaurants, sachet water producers, etc - Medium and large scale businesses such as estate construction firms, sachet water producing firm - Local economic groups; for example production groups such as farmers groups and gari processing groups - Hands trained to be able to handle the small town water scheme such as area mechanics, electricians and pumps attendants. - Local banks - Local skilled labour such as masons, plumbers, and carpenters. - Residents and institutions with the ability to pay for water they consume
Facilitators/ Potentials/ Context	TECHNOLOGY (machinery, innovations, inventions, etc	- Rain water harvesting techniques - Adaptations for parts of the water systems components - Local approaches to maintenance of the schemes parts eg. sandbag techniques for the prevention of the exposure of pipelines
	INSTITUTIONAL FRAME (eg. socio -cultural values, social structure, societal objectives, norms; legal, political organisations and institutions)	- Local organisations and institutions such as schools, hospitals, district assembly, judicial courts, traditional courts, - Chieftaincy, decentralised governance frame, judicial and security system - Local bodies such as water and sanitation committees, water boards

Source: Author's construct

emphasis that it places on regional approaches (also referred to in this text as local area) as a better means to solving challenges that other development models have faced inherently emphasises on local ability to evolve or initiate strategies to promote development. The local level needs to be able to stimulate local initiative, ideas and decisions (Brugger, 1986) as well as their implementation; and it would have to count on the explicit or tacit support of local actors (Vázquez-Barquero, 2006). Among others, local development initiatives help to strengthen the competitiveness of the region because it provides the opportunity for latent potentials to be unearthed and used; to bolster the local development and support transitory processes if supported by the requisite local institutional frame with the penultimate aim of bringing into actualisation endogenous development (Blakely 1989: 51, cf. Diaw op cit.).

Opportunities for local inhabitants to be innovative and demonstrate initiative eventually goes to support the drive for territorial identity and fosters a sense of belonging in the region. It is therefore important in achieving support for the endogenous development goals and its absence could leave inhabitants of the region feeling alien to the entire development process and defeat the sense of 'community' (Diaw, op cit). As a result, the promotion of innovation forms an important part of the process of promoting local initiatives. It requires the creation of a milieu that facilitates innovation. This can be done through the provision of technical and financial services to local development and entrepreneurial initiatives that wish to transform innovative ideas. Equally important is the sustenance of local interest in innovative processes for example by ensuring that local entities support the process by adopting and making use of good innovations (Vázquez-Barquero, 2006: 12).

Identification and overcoming of regional constraints to development: The location and size of a region bears on its potentials. It could be expected that larger regions would have more potentials and that the more the potentials that a regions has, the better are its chances of succeeding in an endogenous development process. Again, larger spatial units are more likely to have political functions or an appreciable degree of control of their development process than smaller units. Small units may have high levels of potentials but may lack the political and decision making powers needed to enable them pursue endogenous development. In such instances, they become easy targets for exploitation because they become attractive to national and regional exploiters. In Ghana's small town water system, attempts by the DCEs to hijack boards by placing their cronies on the water boards when they perceive that they can get some benefits is illustrative of this.

Concerning endogenous development, the size of the region and the level of potentials it has are of critical importance in determining its power in negotiating with the external environment on its future and the extent of intrusion of external development influence (Friedman, 1986: 211). Especially in federal structured systems where regions have much more autonomy large '.... regions on whose long term viability the success of capital in managing the broader, national economy depends' can be expected to have more bargaining power (ibid). Larger regions are, in other words, more formidable forces that can negotiate effectively their direction of development; all things being equal. For such large regions that 'can use their countervailing power to negotiate with global capital and with the state for arrangements to favour themselves endogenous development is a viable option.' Implicitly, smaller regions are therefore weaker (ibid; Brugger, 1986). The limited potentials that they have, makes them depend a lot on external exchange relations although they are less powerful in the regional exchange negotiation process as they have less power (economically, technologically,

etc) and less resources to throw onto the negotiating table. Their ability to effectively reduce disadvantageous exchange relations with other regions are limited (Brugger, 1986). Their development can to a high degree be influenced by outsiders.

This raises pertinent questions for local level development in Ghana. For example, can the decisions of large foreign or multinational organisations/ companies and international development agencies be controlled and coordinated in such manner that suits the local development strategy? How can capital investments of multinational agencies which are often controlled by actors remote to the local conditions and interests, and who have many other territorial options from which they can choose to invest, be influenced to ensure that they are in harmony with local preferences as well as persuaded not to move to other territories because of the restrictions that the locality imposes? Such issues concerning 'wild capital', as Brugger calls it, are not limited to multinational companies but concern international donor agencies and national companies such as the Ghana water company and the Ghana electricity company too.

With these challenges known, it becomes the region's responsibility to identify its strengths as well as its weaknesses and the opportunities and challenges that the external environment presents (Poppe, 2001: 1) through planning processes in which the region gains knowledge of its resource conditions, current extent of utilisation, linkages and relations, and mobilises emerging potentials using realistic alternatives that also have to be identified and which will constitute real opportunities for the region to further its development goals. The potentials identified need to be assessed with the regions problems in a process that ensures that the key developmental concerns are addressed and accorded the priority they deserve. Also important is the identification of the capacity related requirements (human and physical capital) of the choices / development alternative selected and the formulation of policy measures to make it available to the development process.

Actor mobilisation and empowerment of local actors
Endogenous development requires the involvement of the ordinary people as actors as far as possible. The strategy is tied to 'a collective process of goal setting' and requires people who have the willingness to work together to achieve collective goals for the common good of society (Brugger, 1986: 53). Simultaneously, it has an orientation to try to influence individual decision making processes in favour of collective goals. The local people need to be able to articulate their views, preferences, problems, goals, and concerns in the process. The benefits to be derived from involving the local people in the development process are well documented in development literature with much reference to the past failures of development efforts that did not involve the people who were the 'target' or beneficiaries.

Literature suggests that by involving the people there is a much better chance of achieving local support for projects as well as commitment of the people to the success and sustenance of the project. Briscoe and de Ferranti (1988: 1) are categorical in their opinion about this, when they state that 'it is the local people themselves, not those trying to help them, who have the most important role. The community itself must be the primary decision maker, the primary investor, the primary maintainer, the primary organizer, and the primary overseer'.

What the region's management or planning officials need to do is to accommodate processes that foster community /actors involvement in the regions development planning processes; and, as Brugger states, keep to a minimum their own role. For this, there is the need for the commitment of officials to participatory processes. Non-

indigene officials can present additional challenges. These are officials who do not hail from the region but, by virtue of being posted or seconded work in the region by a national body, occupy positions that make their contributions key to the regions development. Particularly in the context of Ghana, how much effort such officials are willing to invest in the development process is often limited to the strict dictates of their job descriptions. These officials may be found to be less prepared to put in the extra efforts that the participatory processes being discussed here require. They perceive that their allegiance lies with their home regions. A similar issue may be found with the main owners of property in the region, such as absentee landlords, who are non-indigenes but rent their houses to indigenes while they spend most of their time in their home region or in the large cities. In such cases, they visit the region to assess their properties, collect payments due and make payments due, and issue instructions; after which they travel back to their bases. Typically proceeds from their farms are also transferred to their home regions or other cities and not saved within the host regions' banking system; in which case it could be used to generate capital in the region. As absentee landlords, their bonding with the region is usually weak. They are often less willing to invest in or contribute to the regions development processes. In both instances used as examples above, the level of commitment is rather low.

Consequently it may be necessary for the development process to analyse the behaviour and actions of individual actors and groups as well as how they can be influenced. Brugger (1986: 44) observes that in this regard theories concerning perceptions behaviour and decision making among others become important. Especially at the community level, efforts at achieving the participation of community members as a means to mobilising community input needs to be spelt out in the regions policy and should include appropriate information, communication and education measures to encourage community members to participate in development projects. In this process, the communities become aware of their roles and responsibilities in the development project as well as their rights and the benefits that will accrue for them. Indeed, local level participation is now generally considered one of the key features of good project/program implementation as it provides opportunities for local potentials to be mobilised for development purposes. It is considered to be one of the necessary conditions for sustainable development; and is a 'process of equitable and active involvement of all stakeholders in the formulation of development policies and strategies and in the analysis, planning, implementation, monitoring and evaluation of development activities' (The Food and Agriculture Organisation [FAO] 1999). It is also considered an 'organisational effort within institutions and organisations to increase stakeholder access and control over resources and related decision making...' (FAO, 1999). Participation takes various forms. Adnan et al (1992 cf Pretty, 1995) identify seven forms. These are self-mobilisation, interactive participation, participation for material incentives, participation by constitution, participation in information giving, and passive participation (ibid). The approach used to achieve community participation in project processes will indeed vary from place to place depending on the nature and characteristics of the area. Also, the extent of participation by the local levels may be constrained for reasons such as the low level of readiness/capacity at the local level. However whether there is adequate capacity at the local level or not, local level players should not be denied the opportunity to determine their destiny (Kauzya, 2003: 8).

Participation at various stages of the project process: Writers on participation for development suggest involving the relevant interest groups at an early stage in development projects and encouraging the expression of frank, creative and constructive

discourse and cooperation between the beneficiaries, experts and decision or policy makers concerned. However prior to the international drinking water supply and sanitation decade (1981 – 1990), business and supply practices in the water sector hardly involved beneficiaries in decision making and management. Today, placing people at the centre is the trend for development efforts in the water and sanitation sectors based on the premise that where the planning process is informed and driven by local needs and locals are involved directly there is a better chance for project success. Local input would help to determine what the initial important first steps should be, shape project goals and aims as well as assess alternatives, in the initial phase of interventions; therefore allowing a comprehensive consideration of all the issues that be, whether technical, cultural, social or economic and which would have a bearing on the intervention. Community participation in local level planning process can start right at position zero - where effort is made to find out what development issues as well as problems exist. Beyond this, Friend and Hickling (1997) in their Strategic Choice Approach (SCA) identify four stages in a projects initial phase (also referred to as modes) where participation can occur. These are the shaping, designing, comparing and choosing stages.

During the shaping stage 'strategically relevant questions are selected to shape the focus placed on the problem' (SWH, 2007: 12). The designing phase is where 'plausible options are identified and potential strategies for addressing the problems are designed'; and in the comparing phase the potential strategies designed are evaluated and compared; this involves (a) selecting criteria and indicators for use in assessing the potential strategies, and b) introducing relevant information to aid the comparison (ibid). In the choosing phase, a decision is made on what strategies to follow. The previous three stages are directed toward the phase at which decisions are made and the commitment of the stakeholders is built. During these stages the uncertainties that exist among the stakeholders as well as the gaps in their knowledge are sought (ibid). The participation of beneficiaries in initial stages of water projects allows them to have a choice in the type and level of service they receive based on their financial situation, their perception of their needs and their priorities if they receive sufficient information about the options available and their implications (see World Bank, 1996).

Stakeholder participation in development interventions should however not be limited to the stages where project design through to strategies are determined. For beneficiaries, once they participate in the initiation stages of a water project, they can play important and critical roles in its implementation, operation and maintenance of the system. Participation in operation and maintenance is however 'more difficult and experience is still limited' (ibid). Briscoe and de Ferranti (1988) further observe that where communities make little or no contribution to water projects their commitment to the maintenance and sustenance of the project is very low or non-existent. Making room for beneficiary's participation in the operation and maintenance of water projects additionally requires that institutional arrangements (including rules and procedures, management structures, and assignment of responsibilities among alternative organizations or firms) have input from the beneficiaries themselves and that mechanisms that ensure accountability are incorporated (ibid, World Bank, 1996; see also Mastovak, 2000).

In promoting participatory approaches to water delivery the critical issue is being able to understand what rules and institutional arrangements will be helpful in achieving and supporting stakeholder participation in the water sector; and knowing the circumstances under which stakeholder participation should be sort (see World Bank,

1996). These are to ultimately achieve increasing efficiency, equity, and cost recovery and facilitating the extension of service coverage especially to poor communities.

Kauzya notes that 'the biggest problem for developing countries is that because of very low or sometimes no income, people expect to participate in consumption without paying. This makes consumption unsustainable because there is no support for production'. He postulates that to the 'Ps' of participation (Priority setting, planning, producing, paying- as in fund mobilization for the implementation of a project), consumption –as in payment for service consumed- has to be included for the purpose of improved sustainability through effective participation (shown in the Diagram 3.2). So important is this issue that the United Nations (2004) acknowledged that 'without compensation for the costs incurred, developing country governments usually cannot afford to expand their services to all in need', and the poor who are not serviced often find themselves having to trek long distances to access water and to resort to unsafe sources for their daily use. Considering the multifaceted nature of the issues pertaining to ensuring that people have fair access water supply, this poses additional challenges regarding how to go about the development of payment schemes that will meet the socio-economic and environmental concerns and these will not be easy to achieve (ibid).
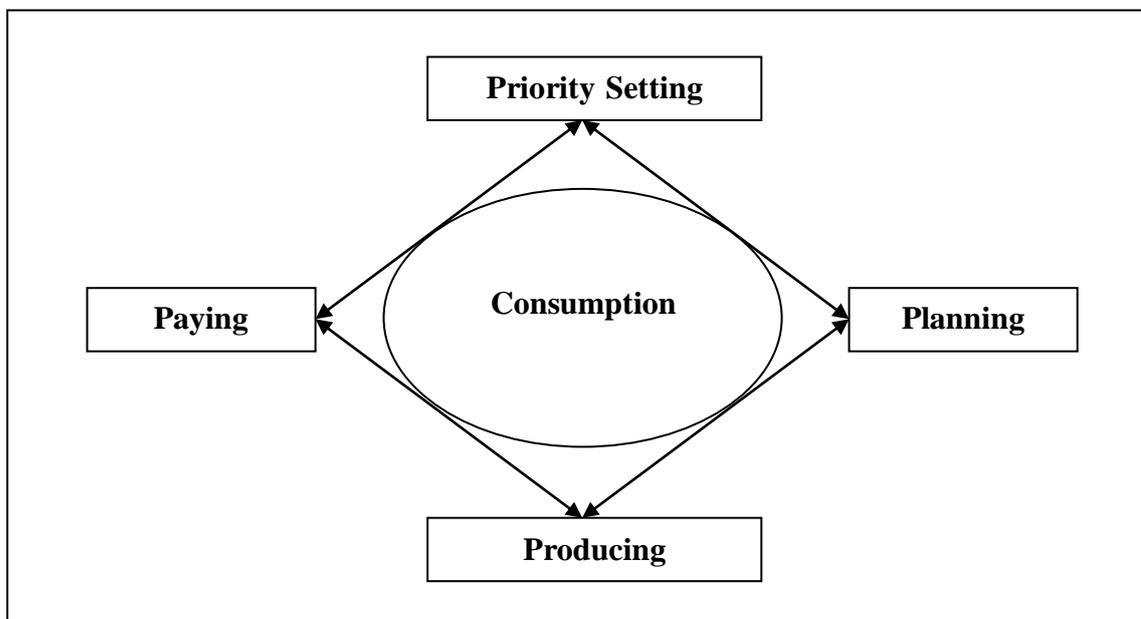
Diagram 3.2   The four Ps plus C of effective participation (Kauzya 2003, 8)

In peri-urban settlements, the process of mobilizing local potentials for development is even more complicated. The heterogeneity of origins of the inhabitants of most peri-urban areas often weakens the commitment of the community members to the locality. The limited of bonding in peri-urban areas, the limited commitment of non-indigenes and the challenge that these pose to participation makes peri-urban settlements require more tact for the success of participatory development processes. Yet, in low and sometimes medium income communities in Ghana the ability to achieve such community commitment can be critical to determining what facilities are available to the community members and ultimately, the pace of development of the area. This is especially true where the community has to rely on self-help efforts to hasten its acquisition of basic utility facilities (please see example in Box 2.2 in previous chapter

for reference on how communities have had to collectively involve themselves in development efforts to hasten their access to water in Ghana). In the light of the importance of participation as a development issue, a researcher into a topic such as this would certainly be interested in exploring what could trigger the interest of members of communities and make them willing to participate in such investments. This is discussed in the following paragraph.

The motivation for participation and the pooling of resources: The stimulus for collectively pooling resources may be internally generated or externally triggered. Triggering this externally will involve forces external to the region realising the local need and introducing into communities change agents. If internal in origin, this could be as a result of a self realisation among members of the community of the need to take steps to address a common need. How many people actually get involved in the collective effort will be a sum of the decisions of the various individuals in the community. Oslon (1965 in Ostrom 2007) using the theory of collective action explains that individuals will participate in the collective effort because of the individual benefit that they expect to get from it, and not because of the benefit that the larger group to which he belongs as a whole will derive. The individual will prefer to make the decision that best maximises his individual benefit even if it results in a reduction in the group benefit. If it is possible for the individual to enjoy the collectively produced good without contributing to the group production of the good, then the individual will prefer to do so. The decision of each individual will be made devoid of the knowledge of and influence from other individuals in the community (Oslon, ibid). But Hardin (1982) observes that individuals may contribute to the production a collective good for other reasons other than his personal benefits. The desire to be known to be associated with the group responsible for the production of the good, for example, may make an individual get involved in the group's activities. What Hardin (ibid) describes as extra rational behaviour.

Reality runs quite contrary to Oslon's belief of intense individuality in decision making. Although the final decision on whether to participate or not in the collective act may be individual, the individual is influenced by the views and opinions of his family members, members of the neighbourhood and the community. The perceptions and attitudes of each of these groups are in turn influenced by the existing socio-cultural environments determined by the norms, values and beliefs of the society, as illustrated in the following diagram. These provide an informal but established frame that bears on the individual's decisions. According to Oslon, where the nature of the good and the number of beneficiaries from the service may make exclusion from consumption difficult, it becomes then easier for the people to free ride. Once there is the opportunity to free-ride, people will prefer not to contribute but to free-ride. Direct incentive for individual consumers to contribute falls and is completely lost to the collective process.

However the actions of the individuals can be controlled by having rules to govern the behaviour of members of a group; and the theory of institutional economics helps to explain this. The theory posits that, the commencement of any form of deliberate and fore-thought on collective action comes with and needs to be supported by the existence of 'institutions'[11] (Commons, 1931). These draw from the already existing socio-cultural norm, values and beliefs. The control of the acts of the individual in the group results in a gain or loss for other members of the group. Where the cost of a member of

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[11] Here the term 'institutions' is used by Commons to refer to rules and rule systems that govern or direct interactions.
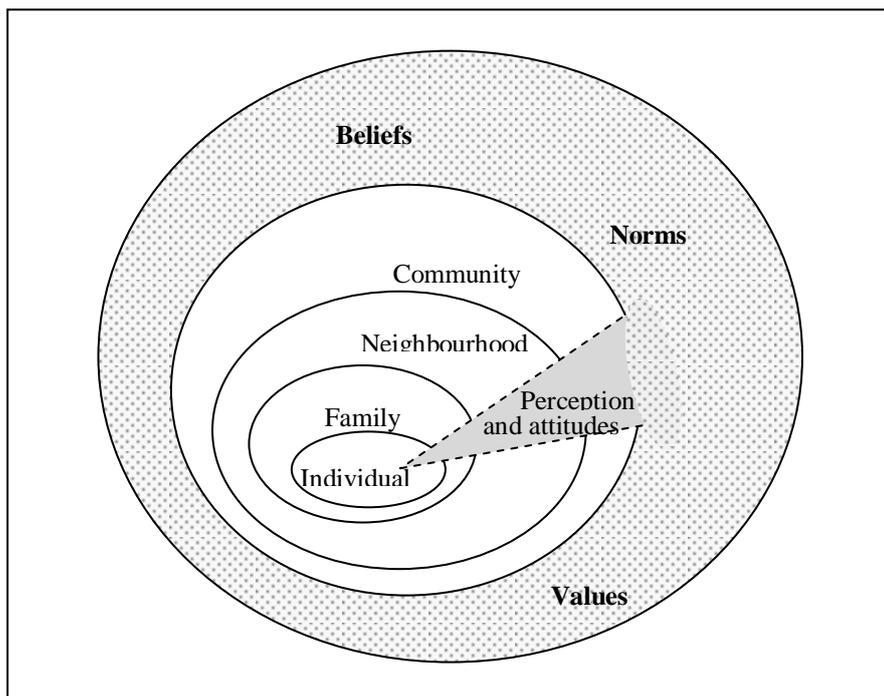
Diagram 3.3   The individual within the broader context of the social environment
Source: Author's construct

the groups is equal the gain to another member of the group based on the assumption that costs and benefits are shared equally among the members of the group. In terms of the enforcement of contributions to the start of a water project, the individual's 'debt' is equivalent to the benefits in terms of the quantity of potable water that accrues to another member of the group, when all members of the group contribute. The 'debt' is therefore the duty or responsibility that is collectively enforced; while the gain or benefit or 'credit' is the corresponding right created by creating the duty (Commons, 1931: 1). 'The resulting social relation is an economic status, consisting of the expectations towards which each party is directing his economic behaviour. On the debt and duty side it is the status of conformity to collective action. On the credit and right side it is a status of security created by the expectation of the said conformity' (Commons, ibid). What Commons describes as 'trans-actions' in which the individual becomes involved and which concern the 'alienation and acquisition between individuals, of the rights of property and liberty created by society, which must be negotiated...'. Through the collective rules therefore participants in the transaction are controlled as well as liberated (to enjoy the benefits), according to the type of moral, economic or political concern. North (undated) suggests that this is indeed the purpose for institutionalisation; noting that ''institutions'[12] are formed to reduce uncertainty in human exchange'. In sum, whether the individual participates in a collective act or not therefore depends on his perceived costs or debt weighed against the perceived gains or credits. If the perceived gains exceed the costs then the perceived gains become motivation for the individual to participate in the collective act.

Local skills and knowledge development

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[12] Here North adopts a meaning for 'institutions' similar to Commons' in the previous page.

The endogenous growth theory's emphasis on human capital (knowledge and skills) and physical capital (technology), and its posit that through learning (acquisition of skill and know-how) technology will get created, and that human capital stock may be formed through on-the-job training, schooling or passing from generation to generation (see Romer, 1994) informs this section. In the first instance, learning and the resulting increase in human capital stock depends on investment in physical capital stock of a region (for example, roads, bridges, manufacturing plants): the more the investment made the more will be the learning that occurs and hence the higher will be the development in human capital. In the second instance, more deliberate investment in education, either in money or time, is expected to impact on learning in the region. Learning in the region is a function of the amount of deliberate investment made in education. Further still, the higher the level of the human capital stock the easier it will be for the acquisition of new knowledge and skills. Romer (1986 in Romer, 1994) identified research and development as another determinant of the state of the human capital stock. He notes that the income of a region is a function of the stock of human capital and technical knowledge devoted to research and development. Where technical knowledge is available and can be accessed by people in publications and blue-prints, and human capital refers to skills and know-how that are rather person bound. The greater the technical knowledge stock of a region the higher will be the productivity of its research sector, and hence knowledge creation which determines the regions income. There is likely to be some already existing technical knowledge and this has to be built on. The development of technical knowledge need not mean a start from the scratch. Bassand (1986: 139 in Bassand et al: 1986) writing on the requirements of the endogenous development strategy observes that the strategy implies a prolonged and concentrated effort in training and consciousness raising.

The level at which a development institution is seated greatly influences its ability to engage in some of these efforts to bolster learning. For the water boards in Ghana for example, the construction of educational facilities is beyond the scope of their activities. Additionally, the management of the scheme is unlikely to have as much human resource as to enable it undertake researches in specialised areas. Therefore, in this process the boards or the institutions have to adopt of alternatives such as learning by participating in training programs or from collective platforms where experiences are shared or collation of relevant information to guide its operations. Networking could provide impetus for improved performance or output. Networking in endogenous development provides frames within which systems of growth and structural change within the region occur (ibid: 55) The concept of networking in endogenous development again engenders processes thru which current mechanisms of endogenous development at the local level get analysed and the extents of usefulness of the various outcomes, institutions and tools are assessed and improved. Networks are systems of relations or contacts that link actors together and which concern themselves with information and technology as well as material goods (ibid, 56). Within this relationship, there exists reciprocity, interdependency, and multiple interconnections and reactions and response of actors. The intensity of interaction among members of the network strengthens the network. Through the formal creation of platforms for networking, members of the network share decisions on their strategic goals, exchange information on technological improvements, new sector innovations and processes.

These support the process of collective learning[13] within the region. To be effective, communication within the network would have to be good, with mechanisms for information sharing and the relevant tools identified and used.

Already existing knowledge: The local people and their traditional leaders have knowledge that can be tapped. These have often developed over many years and from generation to generation. They as the inhabitants of the area have very good knowledge of the area and will be able to provide useful advice, guidance or input to the planning process by drawing from their past experiences; which could be really valuable to the process. For example, in some communities in Ghana, local people can determine with appreciable accuracy the probability of engineers who are trying to site a borehole successfully striking potable water in a given area by observing the nature of the weeds that grow in the area based on their past experiences. This example illustrates that, locals can make useful contributions to the process of mobilising resource. Therefore considering the opinions and knowledge of the locals of their environment is useful, and should be taken advantage of. The learning processes of an endogenous development strategy should recognise this and incorporate systems, avenues or platforms through which communities, without being the regular actors in the sector, can participate in the knowledge and information sharing process.

Regarding local government based water supply systems; this implies that there be conscious efforts to collate and learn from internal and external experiences in the use of the water system; whether they are successes or failures. It also requires that deliberate efforts are made to understand the complex relationships that exist in the process, identifying gaps in skills (including technical, managerial, psycho-social) and improving the individuals' capacities in order to fill the gaps.

Development organisation unit

Local development policy experiences have shown that the management of development initiatives as well as their implementation are most effectively carried out when done through intermediary organisations with boards whose composition represent the local stakeholders; spanning educational centres, entrepreneurial organisations and institutions, the territories public administration, unions and research centres. (Vazquez-Barquero, 2002: 179). The actions of intermediate organisations would need to be coordinated to keep them at pace and in sync with the broader regional objectives. The regions development in other words needs to be organised and ordered through deliberate efforts. The regions body/unit responsible for overseeing these organisations then monitors their performance, constantly appraising their sync with the regions development agenda. It would have to concern itself with the coordination of the activities of the intermediate bodies, fostering intra-regional linkages as well as inter-regional exchange relations to the benefit of the region.

Coordination- The attainment of the aforementioned depends much on the existence of good coordination in the implementation processes. Coordination in this context would mean taking steps to harmonise actions and efforts or arrange and structure efforts so that they match and or complement sector objectives. Intra-regional coordination of the actions of the various players/ actors will require that information flow is good. Local feedback mechanisms need to be strengthened; and the various

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[13] Often involving skilled labour, collective learning involves taking advantage of links and networks such that common knowledge emerges in a region or among institutions with geographical proximity which contributes to co-operation and the solutions to common problems.

actors kept informed and constantly updated on the status and progress of agreed objectives and on new decisions made. Platforms can be created for discussing issues and directions. Progress on objectives and the actors' performance needs to be monitored.

Regional actors, national bodies through their regulatory roles as well as international aid agencies/ NGOs and national NGOs directly involved in the provision of water facilities have individual objectives and differing criteria for determining the type, scale and location of their efforts. The coordination of their efforts in line with the district development plans is necessary. The experience in some districts in Ghana has been that the activities of non-local NGOs are sometimes duplicative; and implemented without consulting the District Assemblies. Such uncoordinated implementation of water projects has led to the uneven spatial distribution of water facilities in some districts; such that while some quarters still need water facilities desperately other quarters have more than they require for a reasonable level of potable water supply. While coordinating development efforts within the region, there is a need for the development organisation unit to take deliberate steps at fostering collaboration among the actors as a means to more meaningful and progressive development.

Collaboration among regions is also useful especially as many regions often by themselves do not have all the expertise and resources required to undertake development. By collaborating with other regions they can support each other and improve upon the outcomes of their efforts. Collaborative action is especially important in issues bordering on ecological interdependencies of regions. For instance, the treatment of forest in one district could lead to the drying up of rivers within the district and impact in neighbouring districts that also rely on these water bodies. Likewise the pollution of rivers by communities upstream would impact on communities downstream that use these rivers as their source of drinking water supply. Through collaborative actions, the regions can manage the use of the resource in such manner that will be mutually beneficial to themselves. As this example illustrates, by collaborating, regions can strengthen their use of their local potentials and their negotiating power. In the process, collaborative learning occurs in which knowledge generation is boosted by the learning from experiences that other districts have had (Brugger, 1986: 54).

Inter-regional coordination- While regional actors and organisations coordinate their activities internally, there is also the need for the region to liaise with actors and organisations in other regions as well. Inter-regional coordination would help inter-regional learning and knowledge sharing, remove tensions between regional development efforts, promote inter-regional support for development efforts and contribute to the development of the nation through the synergic benefits that accrue when neighbouring regions pool their efforts. Inter-regional platforms on which the various regional administrations, intermediary bodies, and actors will be able to regularly interact with other regions in a positive and progressive environment, could be useful tools.

Linkages
As already gleaned, development processes involve interactions between people, organisations and institutions. These relations that involve goal-oriented flows and exchanges of ideas and information that they generate or take advantage of can be

described as linkages[14]. The ability to take advantage of linkage potentials is of relevance to the process of harnessing of potentials for the regions development process because of the synergic benefits that linkages can bring to the development process. To achieve this requires an effort that seeks out opportunities for beneficial linkage relations to be established. Intra-regional linkages the links between the local actors need to be strengthened or created; taken cognisance of, and exploited.

Between the district level and the regional and national levels also exist linkage relations. Rondinelli suggests that relationships need to emerge among the various levels including the community level operatives such as users associations (Rondinelli, 1991: 417). Relationships can be developed to, for example, quicken the sourcing of development support from the national level, often in the form of sector support that is made available to the district; improve access to information, and influence national policy planning. In the context of conflicting use of water resources as cited as an earlier example of a river with more than one riparian community, the social linkages, such as family relations, clan/ethnic and groups relations, that exist between districts can be used as a 'lobbying chip' to win the understanding and willingness of the other districts and communities to collaborate in finding mutually agreeable solutions to the problem. A relevant issue to discuss at this point is therefore what kinds of linkages exist in regions that can be tapped. Literature describes several types of linkages according to the particular subject area. For the purpose of this discussion the following are relevant: socio-cultural linkages, economic linkages, ecological linkages, operational/administrative linkages, and political linkages.

- Political linkages: These are often power relations that are either internal or external to the region, and concern the control of resources that are needed for local development and growth. In the development process and more specifically during the implementation of projects, actors find themselves engaged in transactions with organisations either within the region or at higher levels (especially national level organisations) for resource and authority provisions. Within the context of endogenous development at the local level, it is assumed that there exists a local government that is supportive of local efforts. However beyond the local government, national level organisations/ authorities sometimes require lobbying for the provision of resources. There exist also political institutions at the community level that need to be negotiated with in order that the possibilities for project success are improved. Power-struggles such as may exist between local elites or royal factions within communities can have dire consequences for project success. Other possibilities for power tensions within communities lie in the area of religion and historic conflicts. These political linkages if identified, assessed and debugged of tensions and conflicts could facilitate development processes.

- Operational/administrative linkages: Development efforts especially projects do not exist as isolated interventions. The existence of similar projects in the region or in other regions that have existed much longer and have more experience in operating certain project and in managing the administration and informational needs present useful opportunities. By identifying such projects and the organisations responsible for managing them as well as establishing and maintaining administrative and operational linkages with them, these organisations (whether internal to the district,

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[14] Often involving skilled labour, it is worth noting that collective learning involves taking advantage of links and networks such that common knowledge emerges in a region or among institutions with geographical proximity which contributes to co-operation and the solutions to common problems.

in another region or at the national level) become good sources of administrative and organisational support, bringing valuable advice and support. Discussing these, Coheur et al (2007) observe that the joint development and sharing of trained technical management teams or the outsourcing of administrative functions can contribute to increase the efficiency of community based schemes and compensate for schemes' administrative weaknesses.

- Sometimes as may be found in decentralised departments at the district level in Ghana, the decentralised departments still maintain technical operational links with their mother ministries as most districts do not have the expertise to adequately direct their sector operations. This is often the case in new and still growing decentralised systems. The departments at the district level in Ghana and their operation by technical staff on secondment from mother ministries is one such example.

- Economic linkages: Economic linkages are mainly concerned with the production of goods and services, particularly the movement through the various supply and outputs channels of the inputs and outputs of productive efforts. If sufficiently and rationally developed, economic linkages can yield multiplier effects of investments through forward and backward linkages (Fekade, 1994: 68). In the formative process of local level development, economic linkages are influenced by other forms of linkages discussed in this section and can influence them in return. Socio-cultural linkages can facilitate the creation of more innovative behaviours and are essential to encourage risk taking and entrepreneurship and thereby diversification of the economy (ibid). They, for example, provide avenues for family members to acquire capital to invest in enterprising ventures or engage in innovative works, which in turn could result in economic linkages through the firms and business associations that result. Economic linkages may directly impact on the implementation of water projects through their results – for example, the sale of spare parts. Economic linkages that may not directly impact on the implementation of water projects are nonetheless important. Increased yields on these forms of investment can, further result in backward and forward linkages effects. For example, the resultant increase in incomes generated by production units will increase the tax base of the region. Thus, the local government will be able to get increased revenues from tax and thereby more funds for supporting or undertaking development projects; while the individuals who benefit through rises in their income become better positioned to exercise demand for water services. Regarding backward linkage effects, increased demand by economic entities for water supply could result in increased production and revenues to the water producer; leading to a growth of the water production.

- Ecological linkages: Regions are not just units of decentralised government. They are spatial units that exist within the context of broader ecological zones in which other regions are actors/players influencing the ecological environment by their actions. As a result, regions may also be described as places of ecological interdependencies. A holistic development strategy such as endogenous development which requires a holistic understanding of the territorial context of the region demands that consideration is given to relationships that exist in the ecological zone. Local laws and frameworks aimed at regulating the use of ecological resources will yield limited results if they are not in sync with those of the broader ecological zone. Additionally, the results will be hardly sustainable. For example, efforts implemented midstream by a region seeking to reduce its use of

polluted fresh water - a river- will be of limited benefit if the water is already polluted by communities that are upstream, and out of the region's jurisdiction. To the contrary, good ecological protection strategies implemented in surrounding regions could yield benefits to the region without the region implementing specific polices to protect the river. Important to the process of endogenous development is the management and conservation of local ecological resources in such manner that allows it to be always available and able to support the region's development process over long periods. For benefits such as these, the management of ecological environment within which the region finds itself through the realisation of existing ecological linkages is important.

- Socio-cultural linkages: Socio-cultural linkages influence economic and social units in a region. They derive from entities such as clans, groups and families which may grow and merge to form larger and stronger units such as tribes and nations bonded by common denominators such as language, values and religions. These common denominators shape and regulate the norms of the society and the emergent behavioural patterns. Implicitly, the attitudes that societies exhibit to work, self initiative, use and maintenance of facilities derive much from their socio-cultural background. In regions and countries, one often finds subtle changes and variations in the socio-cultural settings in such manner that suggests that the more spatial proximate settlements often exhibit much more similarities.

- Development projects need to take socio-cultural relations into consideration as they can impact on project viability, success and sustainability. For example, in some Ghanaian societies where water is considered a god-given, free gift for which no one should charge fees, water projects could have a challenge getting the intended beneficiaries to willingly pay for water supplied although it is important for consumers to pay for the services rendered in order to recoup the operation and maintenance costs of the project in furtherance of project sustainability. Again the public's sense of responsibility for maintaining projects whether good or poor often has links to the socio-cultural settings of the community. In a region that has for decades relied on the paternalistic relations with the state to provide its needs and basically 'do everything for it', the introduction of a project that requires the communities to contribute to the maintenance of the project, not to mention the construction, requires that due cognisance is taken of the dependency culture that already exists and addresses it. The socio-cultural denominators and linkages that exist need to be identified and exploited in local development processes. Projects need to be made to fit, as much as possible, the existing socio-cultural denominator and linkages; so that these can in turn support the project. Where necessary projects may have to influence these; but this can be challenging and may require longer periods of intervention in the form of training locals to engineer this in the communities; as well as provision of community members with psychosocial skills.

- Movement and exchange relations: The ability of the region to maintain its internal potentials while developing them further is important to the region's interest to consistently improve upon its human capital and technology accumulation in the growth and development process. Therefore movement and exchange relations need to be managed, controlled or restricted to those that will be beneficial to the development objectives of the region. Exchange opportunities in the external environment that can be used to support local projects should be identified, targeted and exploited; as they will be beneficial relations. Relations that sap regions potentials need to be managed and reduced. In Ghana; some regions' experiences

with labour trained for community based water supply schemes have been that the trained labour sometimes get attracted by more promising opportunities that exist in other regions, and relocate to those regions. This has a debilitating effect on the stock of appropriately skilled hands available within the region. This situation poses challenges to local water schemes for the following additional reasons: the individuals who opt to be trained in the water supply process also do so for economic reasons and not only for the sake of benevolence; measures to limit the movement of trained hands often must include financial incentives although the provision of these incentives is no guarantee that labour will not move to other regions. As long as the incentive to move is greater than the incentive to stay in a particular region rational labour is likely to move; and placing restrictions on the movement to other regions of individuals who benefit from trainings in the water sector could serve as a disincentive for others for they may fear that they will not be able to take up good job offers that they may later find. The pros and cons of controlling exchange and movement relations, as seen in this example, present dilemmas and tensions that leaders of regions have to deal with. Selective use which will bring clear advantages to the region need to be indulged. Already existing non-beneficial relations need to be reduced selectively or influenced.

Section summary

From the foregone paragraphs of this sub-section, it is clear that for a region embarking on an endogenous development approach its leaders ought to remain mindful that the region is not isolated; but exists within a broader national context. Its activities therefore ultimately contribute to the largely national picture. Although the endogenous approach lays emphasis on efforts from below, this emphasis does not completely lose sight of the national framework within which the region exists and carries out its activities. What matters is that effort is made by the leaders of the process to reduce negative influences from the environment external to the region, while taking steps to exploit supportive conditions.

The endogenous development approach is heavily dependent on the existence of local potentials. Potentials may be natural, human- social groups, clans, troupes; economic –savings, capital, labour, skills/ know-how; and institutional or technological. Links with the external environment are relevant to help regions to overcome their deficiencies; as they offer opportunities for the region to tap from non-local sources. All things being equal, larger regions are likely to have more potentials and therefore more bargaining strength in the dealings with their external environment than smaller regions. This notwithstanding, there is a need for a common understanding, agreement and perspective on the development process such that indigenes and non-indigenes are committed to the development approach and direction throughout the entire process; and that as much as possible stakeholder participation is encouraged. What issues underlie the attainment of a sustained common perspective is not explained in the literature. However, what is clear is that clearly defined structures and processes for decision-making and implementation or operation are advantageous. Roles, responsibilities and targets need to be unambiguously defined. A relevant institutional framework ought to be put in place, including the establishment of development organisation units and intermediary institutions to oversee projects where possible. Where institutions already exist but are weak, they ought to be strengthened.

Throughout most of the foregone paragraphs of this chapter, the need to have local institutions that are relevant to the development process and able to perform their roles effectively has been sprinkled without being discussed in detail. In the following paragraphs, I discuss in more detail institutions and their roles in development at the local level but with a skew towards the water sector.

3.5   Institutions

This section defines the context within which the word institution is used in the document. With a focus on institutions found at the local level, it identifies the different kinds of institutions that exist and by discussing their characteristics, points out their strengths in supporting local development efforts. It also touches on the factors in the environment of local institutions that affect their performance. It ends by discussing, briefly, the suitability of certain local institutions for the provision of collective goods.

Development facilitators, actors and academicians today admit the importance of institutional frames to the success of development processes. This position has resulted from many years of experience with unsustained development efforts. It is believed, among the numerous reasons that can be given for the limited accomplishments of the various past Ghanaian governments and the non-sustenance of development interventions, that the 'right policies were implemented within the wrong institutional arrangement' or 'the wrong sequencing of otherwise appropriate policy instruments' (Aryeetey, E et al, 2000: 2). Indeed Mule (undated), Uphoff (1986) and Hansen and Erbaugh (in Southgate and Disinger,1987) are but a few of the writers who identify one of the important causes of the failures of development efforts in developing countries to be the failure of donors and national governments to understand completely the institutional and organisational structures of the respective countries. The World Bank supports this, noting in its experience that the productivity of its investments have often been diminished as a result of the neglect of institutional development issues (World Bank cf Uphoff 1986). Yacoob and Warner (1988 cf Rondinelli 1991: 417) observed that 'the break down and misuse of water supply systems in developing countries can be traced to a variety of causes, but a primary factor is the lack of effective institutional arrangements...' Where the requisite institutional arrangements to foster interest groups' participation do not exist and people perceive water supply systems as being the government's (or the providers) and not their own, they feel little or no responsibility for maintaining them.

These observations from experiences as well as the theoretical discussions on institutions together underscore the importance of considering the issue of institutions in a study such as this. In the following sub–sections, I discuss what institutions are, the typology of institutions, their roles and capacity in development as well as factors that influence their performance. The latter, though tries to show how the environment within which an institution is developed or functions affects its performance, does not attempt to establish the extent of influence that these factors wield on the performance of institution as this will involve assessments which this study is not concerned with.

What are institutions?
There is much discussion in literature about what an institution is. Generally there appears some form of consensus that institutions have to do with 'systems of established and prevalent social rule that structure social interaction' (Hodgson, 2006:2). Hodgson (2006: 13) defines institutions as 'durable systems of established and embedded social

rules that structure social interactions...': social- rule systems not simply rules. While the terms institutions and organisations are sometimes used interchangeably, they are not always the same.

Institutions can be described as societal norms. 'They are stable, recurring patterns of behaviours that help define the choices that a society, and individuals within it make as well as how the choices made are executed' (Mule, undated). Organisations have defined structures, rules, functions, procedures and chains of command (ibid). Organisations may or may not be institutions; and institutions may or may not be organisations. For an organisation to be regarded as an institutions it ought to have 'acquired a special status and legitimacy for having satisfied people's needs and for having met their normative expectations over time' (Uphoff, 1986; 8). This is determined from the perspectives of direct beneficiaries and members of the organisation but also important is the perspective of the community. For example, the service of providing water piped water may be done by a community board for so long that the board soon becomes synonymous with water supply service that it provides. Thus, rather than talking of the service the board provides the beneficiaries talk about the board when they think of their water supply: - Rather than saying the water is needs to be improved, they say the board needs improvement. In other words institutions whether they are in the form of organisations or not are entities or complexes of norms and behaviour that 'persist over time by serving collectively valued purposes' (ibid: 9).

Certainly, organisations are no more valid in developmental issues than other factors like technology, skills and resources among others; and so can by no means be the single explanation of all development challenges/ issues. While recognising this as well as acknowledging that traditions and culture also constitute institutions, my focus in the following paragraphs will be on organisations or/and entities[15] that have become generally permanently accepted either by common agreement or enactment (i.e.institutionalised) because for such entities their roles in development efforts are usually more visible or defined, accepted and they can be more easily identified and assessed. Most of these will be operating at the local level and so I consider them as 'local institutions'. In considering institutions in such manner that lays emphasis on the organisational aspect, I do not ignore the importance of the rules, systems and procedures that are indeed important building blocks in the Ghanaian society and in the organisations/entities which are themselves defined as institutions. It is indeed undesirable in this study to ignore this aspect. Where there is a need to consider these they are referred to by their specific names such as - rules, procedures, structures, functions.

Local institutions characteristics

The kinds of institutions found at the various societal levels vary in their nature, purpose or goals, resource base, structure, etc. For a study which focuses on harnessing local potentials an overview of organisations/institutions at the local level that contribute to development – local institutions- is appropriate. The questions here is what kinds of institutions can be found at the local level? Uphoff (1986) using determinants such as the sector, nature of institution and the roles of the citizenry in relation to the institution identifies six different kinds of local institutions that can be found at the local level, as

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[15] An entity is a thing (i.e. an individual, a team, organisation or partnership) which has a distinct or separately identifiable and legal existence (Oxford Advanced learners', 1995 and Webfinance, 2011).

illustrated in the following table; each of which presents different benefits and challenges when used in local development efforts. They range from purely private forms through more participatory forms to the public forms.

Strengths of local institutions

Each of the local institutional categories and kinds has particular strengths that yield benefits to society. Local Administrations and Local Governments derive much strength from their legitimate status in terms of national governance structures. They often receive resource support from the national government and can get directly involved in sourcing for development support from national, international as well as private institutions. Their legal status also enables them to set rules and indulge in enforcement activities such as the enforcement of rules. Depending on the level of autonomy they have, they are able to direct development and steer an area to achieve set developmental objectives. Especially in the case of local governments (such as the district assemblies in Ghana), because they are elected by the people themselves (constituents) they have legitimacy in society and their activities are often more easily accepted. These characteristics present local governments and local authorities the capacity to achieve certain fetes more easily, but which other kinds of local institutions discussed below would have challenges achieving. These are discussed in further details in the sub-sections following.

Local membership organisations bring together people in a particular geographical area. In other words they are more area based and focused on promoting development within their area. They may engage in direct self-help activities. They can also be involved in fund raising activities to pay for construction of facilities and lobbying for the provision of needed services. They get involved in various sectors of the local economy and are multi-functional. They constitute an extension of the society in which they are formed and therefore are able to lobby and voice concerns with considerable degree of legitimacy derived from the society. However, while local development associations are a form of local membership organisations and usually would be found to be engaged in multiple development activities, the pooling of financial resources is not one of the aims of local development associations. Local membership organisations contribute mostly to public goods (Esman and Uphoff, 1984). However, for local associations because they do not have the legal and taxing powers which local governments and local authorities have, local membership associations have to look out and seek for assistance to obtain the resources that they require to meet their objectives. There is a vulnerability to manipulation here resulting from the terms and conditions that their assisters especially the national government give. Indeed some national governments form local development associations indirectly using political party's local influences as the start point through which development is channelled, although these can better be regarded as political groupings (ibid). Water boards in Ghana are a quasi form of local membership organisations. They are formed by the communities to cater for a rather limited number of sectors- water and sanitation. They are also responsible to the district assemblies who are the owners of the water systems but who have delegated to the communities the role of managing the facility and implementing the objectives of the small town water schemes. Thus while the communities decide who the members of the boards should be and draw from communities, organisations and institutions within the schemes coverage to constitute the board; the board needs the DA to gazette its rules or propositions into bye-laws before they can be enforced.

Cooperatives comprise members who have common needs. They are typically identifiable by their characteristic involvement in the putting together resources through the contributions of their own members for their own benefit. The type of resources pooled vary among cooperatives and span funds, land, labour and products (Esman and Uphoff, 1984: 62). The focus for cooperative organisations is on collective rather than individual benefits. As a result the various members are expected to benefit equally from the organisation. A key strength is the ability of the cooperative to achieve for its members what the individual members by themselves cannot achieve. Examples can be found in Ghana where farmer cooperatives pool financial resources to hire trucks to cart their produce to markets in the major cities for sale because the cost of hiring trucks is so high that the farmers cannot afford to do so individually.

In the case of interest groups such as water users associations, members are not drawn together as a result of geographic locations or for the purpose of pooling resources together. They key aim is often to perform particular functions for the sake of satisfying the needs of the members. Because interest associations seek to further the common interest of their members, their members must share some common characteristic. For the interests of water users, water users' associations can be formed as interest associations that cater for functional interests of its members. Where such an association gets directly involved in the management of water facilities and ensuring sustained access to potable water for its members and as a results indulges itself in the pooling of resources it takes on some the characteristics of cooperatives although as Esmann and Uphoff (ibid) observe; the benefit to each individual is likely to be proportional to his contributions unlike in cooperatives. Interest association may also be based on category based interests; for example, farming mothers, tribal unions, widows union, church groups. Because interests associations generally are not involved in pooling resources and so do not have a strong financial resource base, they are not well positioned to undertake large scale investments by themselves. However they can engage in lobbying in furtherance of the interests of their members.

Service Organisations constitute another visible group especially in the provision of services in poor regions. These are local organisations formed primarily to help persons other than members though members may benefit from them. They are often benevolent

Table 3.2 Typology of local Institutions

Sector	Kind of institution	Nature of institution	Roles of individuals in relation to different kind of local institutions
Public Sector	Local Administration: Local agencies and staff of central government ministries, accountable to bureaucratic superiors	Bureaucratic	Citizens or subjects
	Local Government: Elected or appointed bodies having authority to deal with development and regulatory task and accountable to local residents	Political	Constituents
Participatory/ Voluntary/Intermediate Sector	Member Organisations: Local organisations whose members seek to handle (i) *multiple tasks* eg. Local development associations or village development committees (ii) *specific tasks* eg. Water users' associations managing irrigation or health committees overseeing village programs or (iii) *needs* of members with some particular characteristic or interest in common eg. Mothers' clubs, caste associations, or tenant unions.	Local organisation (based on principle of membership direction and control; these can become institutions) • Self help institutions	Members
	Cooperatives: Kinds of local organisations that pool members' economic resources for their benefit, eg. Marketing associations, credit unions, consumer societies, or producer co-operative	• Self-help institutions	Members
Private Sector	Service Organisations: Local organisations formed primarily to help persons other than members though members may benefit from them. Eg. Religious and charitable organisations, Red Cross, Sociedades de beneficiencia which run rural hospitals in a number of Latin American countries.	• Not-for-profit	Clients or beneficiaries
	Private Businesses: Either independent operations or branches of extra-local enterprises engaged in manufacturing, services and /or trade	Profit oriented	Customers

Source: Derived from Uphoff (1986)

organisations created to help the communities in the region. Church community groups such as the 'Mmaa Kuo', or local 'Women's Aglow' in Ghana, are examples of such an organisation that is found operating at the community level. These groups are normally not accountable to the community but to themselves. Their organisational actions depend on their plans, intentions and goals as well as their capacity at a given time.

Institutional environment

The environment of institutions here refers to the conditions, factors as well as the powers or forces that affect the institutions. Literature on local organisations identifies several factors in the environs of local organisations that influence them in the performance of their roles. Local organisations do not only influence or contribute to the modification of their environs, but they are themselves influenced by their environs. Although there are divergences in perceptions on the extent of these influences, there is a general admission that the environmental context within which local organisations find themselves does have some baring on their activities. Some of these are presented below.

- Support from national or local administrations and governments: An environment that has a local government or local administration that is competent as well as supportive of the activities of local organisations and does not feel threatened by them is likely to promote the development and performance of local organisations. The same applies to the national level. Where local organisations' capacity to provide developmental services are for example limited by their technical skill or knowledge inadequacies they could seek to fill such gaps by soliciting assistance from the local or even national bureaucracy. However, local bureaucracies (i.e. the local administrations /governments) are often slow in their processes and slow to react or adapt to change. The debate on the influence of bureaucracies' ability to obstruct the activities of local organisations and bureaucratic paternalism to stifle the ingenuity of local organisations cautions positive opinions of their influences. Whether a low or high level of support is appropriate for promoting the performance of local organisations would vary based upon circumstances and the particular needs of the local organisation concerned. However, the less local organisations depend on local bureaucracies, the better it is for their performance.

- Community and societal norms: Dependant on the level at which local organisations operate they are influenced by community norms or by broader societal norms- the societal norms being more general and referring to a wider spatial area than community norms which are much closer to the individual. Community norms are usually 'traditional, legitimating unequal rank and power or validating the equal involvement of all in decision-making and benefits'; while broader societal norms vary and include ideological orientations which may be politicised (Esmann and Uphoff, 1984: 122). Where these norms are supportive they are likely to improve the chances of local organisations achieving their goals and vice – versa. This notwithstanding, local organisations can rise above the challenges posed by these norms and achieve their goals. For example, the absence of participation in self-help projects as norm in an area should not keep local organisations from adopting participatory approaches to their interventions; although if institutionalised as a norm in the society, they are likely to face less resistance, all things being equal, in implementing participatory projects.

- Societal homogeneity and levels: It is the case that a homogenous environment is often thought to be stronger in forging unity and cooperation while a non-homogenous environment is thought to be more prone to conflicts. In this light religious, tribal and cultural heterogeneity provide fertile ground for conflicts. While this can be especially true in volatile regions where tribal conflicts are rife and probably historical, the heterogeneity of an environment (as is likely to be found in peri-urban areas) does not by itself suggest that local organisations cannot perform well. There are indeed examples that provide confirmation of this. Implicitly, the likely heterogeneity of the peri-urban should not necessarily keep local organisations from performing well.

  The hierarchical nature of society is also of significant importance and can pose challenges as well as benefits to local institutions. Some degree of inequality or stratification of society can contribute positively to the performance of local organisations. The perception of some members of society (for example, chiefs and educated people) to be better informed and positioned to help in certain endeavours makes other members of society more willing to allow them. On the contrary, in a societal environment where all members consider themselves equally capable, it becomes more difficult to agree on whom leadership roles should be vested in. It is also worth noting that the intensity of need felt by those members of the organisation who belong to the lower strata (eg. tenant labourers) of society may not be appreciated by the leadership especially if the leadership is drawn mainly from the higher strata (eg. chiefs/ traditional rulers, land owners) of society. The leadership would then fail to meet to needs of the members belonging to the lower strata and may rather become an oligarchy that is self serving and self preserving and seeks to prevent penetration of leadership by 'ordinary' members.

- Financial levels: The higher financial earnings are, the more people have and can spend, to the extent that local organisations as discussed above are mainly aimed at producing shared benefits for members or intended beneficiaries. The wealthier a people are the less likely to be found relying on communal efforts to solve their problems, because they have the financial means to address their challenges individually. By implication therefore, self-help efforts for the production of goods for the common benefit are more likely to be rife and prolific in communities with lower income levels where access to public infrastructure such as public stand pipes are more likely to be appreciated.

  While the low income earners have the need to pool resources and seek support from other sources to enable them implement projects, it is observed that the higher income brackets of society are often better placed to tap from sources external to their community because they are often better informed of forms of support, know where to seek assistance, and are more likely to have links with these sources and influential individuals. Their self motivated fund raising efforts are also likely to yield much more than in lower income level communities. As a result, local organisations in such communities are more likely to be able to make more investments and undertake more projects, all things being equal.

- The wealth of natural resources in the spatial area: For micro level projects such as community level water projects, resource endowment could be of much relevance to the success of local organisations, especially when the community water project relies of the availability of surface or underground water within the community or locality; or when local contribution has to be made for the implementation of a project. Local organisations in an area that has the right kind of resource endowment

required for the activities that they are involved in are likely to be in a good position to succeed in their projects; and to attract interventions or support for their intentions. However the nature and extent of resource endowment varies from place to place; and not all local organisations find themselves in areas that are adequately endowed with the relevant resources. The absence of an adequate resource endowment should however not prevent local organisations from achieving their aims. Indeed, the realisation of the dearth can spur local organisations to do more to help themselves in such manner that could result in greater success than may be achieved by those in more resource endowed areas; because it may result in a realisation among local people that they need to help themselves and if they do not do so no one would help them. This propensity is further heightened when the dearth of resources is accompanied by non-proximity to large towns or cities where better services can be accessed. In this case, remoteness becomes a stimulus for local organisations. In the same vein, proximity to urban centres (as can be found in the case of peri-urban settlements) which are better endowed with infrastructure resources can be a setback for local organisations because the need to make more effort to solve local communities' inadequacies can be deferred for the reason that the services or facilities can be accessed at urban centres which are not too far.

Local institutions and suitable roles

Local organisations as a result of their varying kinds and purposes differ in their sectors of operation as well as the stages of the development process at which they involve themselves. However, some local organisations can be involved in multiple sectors and in multiple stages of development processes. In this section, I consider the roles of local institutions in the provision of 'non-urban-typical infrastructure' and the service[16] thereof. I do so with an inclination to the domestic water supply sector because this is the area of interest for this study. Infrastructure is used in this context to refer to all physical facilities that are used to provide services directly to beneficiaries.

In an environment where the national government is unable to provide adequate resources for the development of infrastructure it behoves on local institutions to find alternative ways of mobilising resources if significant local infrastructural development is to be achieved. Rural and non-urban water supply infrastructure options range from rain water harvesting facilities through hand-dug wells with or without pumps to boreholes and small town water systems. In this study, the focus is on the small town water supply systems and these serve areas larger than single communities in Ghana, and involve more complicated technology that require larger infrastructure. Without detracting from the importance of individuals' participation, the following paragraphs further delve into how local institutions can involve themselves in such medium scale non-urban infrastructure.

- Planning and designing: It is important that local institutions, just as individuals, are involved in the planning and designing of local infrastructural projects, as much as possible. Local people often have good understanding of their environment and can make beneficial contributions to the design of projects. When they comprehend the design and plan, they become more capable of helping to implement and operate or run the infrastructure by themselves, especially if the technology used in not

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[16] Where non-urban-typical infrastructure refers to as physical infrastructure that are used to provide water to the population directly but which are commonly found on the landscape of urban areas in developing countries.

exceedingly complicated. For this reason, where local expertise or technical knowledge available locally is likely to be low, it is advantageous to avoid highly technical and complicated designs as these would be more difficult to understand and hence create a gap that could constrain the effective contribution of local institutions to the designing and planning process. Non-participation or limited participation of local institutions as a result of their inability to comprehend complex designs could impact negatively on their involvement in the implementation, operation and maintenance stages of the project. Hence, indirectly the sustainability of the project outcomes is challenged.

A good approach is to use planning processes, infrastructure designs and technologies that are adapted to suit the particular local context and which the local people can easily understand. Adapting interventions to suit the particular needs of the local people means acknowledging that preconceived ideas may not be appropriate for the local environment, admitting that what is acceptable, appropriate and adequate in one community may not work in another, and keeping an open mind while giving the local people the opportunity to contribute to the process.

- Implementation or construction: The complexity of expertise and technology required to implement or construct an infrastructure project bears on the level of involvement of local institutions. Highly technical and mechanised infrastructure is less likely to provide opportunities for local participation. These may require highly specialised equipment and skills as well as huge sums of money that may not be available in the community/locality/ district. Indeed the local government itself may not have the means to implement such projects. On the contrary, smaller scale and low technology implementation processes are often better suited to the involvement of local institutions. For example, local institutions are more likely to be able to get involved in the construction of hand-dug wells fitted with pumps, than to construct ultra-modern water processing facilities to supply water to households. What is important to note in project implementation is that, local participation can be achieved when tasks can be segmented in such manner that allows local institutions such as cooperatives as well as community members to participate in aspects where they have relevant capabilities. This should be considered right at the project designing stage. The technological requirements need to the kept at a level that allows local participation to be achieved. Indeed, it is not always the case that all activities in the infrastructure construction phase can be undertaken locally.

- Operation: Local involvement in the planning, designing and implementation of projects has a positive influence on the degree of willingness at the local level to participate in the operation of infrastructure. This is because by their involvement in the early stages of the project, local understanding, appreciation and commitment to the project objectives are better (Uphoff, 1986:67). There are hardly better alternatives to local management of infrastructure (ibid: 69). What sort of local institution will be appropriate for the operation of infrastructure; remains open to debate. However regarding rural type infrastructure linked with the provision of public goods, Uphoff (ibid) observes that instead of national organisations, local government and their subsidiaries or bodies or boards they set up hold some advantages over cooperatives and other local organisations. This is with regards to the legitimacy of the local government and its statutory powers that enables it to formulate laws and enforce them and penalise defaulters; an authority which other local institutions do not possess. There remains though, good possibility for the effective involvement of cooperatives and member organisations in the operations of

public infrastructure to the extent that the infrastructure is so much valued by members of these organisations that they become committed to ensuring that its operation is well managed for the benefit of its members.

- Maintenance: Different infrastructure require different types of maintenance. How empowered users or beneficiaries of an infrastructure are to handle or address deterioration, opportunities for redress, the existence of clarity about whose responsibility it is to carry out maintenance work, and how easy it is to detect deterioration on an infrastructure all affect the maintenance function. The level and nature of disruption that can be caused by a break down in the operation of an infrastructure varies according to the nature of the infrastructure and the service that it provides. Where deterioration in infrastructure can lead to sudden and costly disruptions as with electricity and water supply, routine maintenance needs to be institutionalised. Like operations, maintenance is best carried out by local level operatives. The intensity of demand and importance of the service delivered to people in the environment of the local institution can influence the discharge of the maintenance function. If the services delivered is considered by local users to be very important, they usually can find 'ways to make one or more local institutions manage maintenance functions effectively' while ensuring that if there are knowledge gaps training is provided to selected persons to enable them fit in the role (ibid:70).

Local institutions in the provision of collective goods[17]

The nature of the service or infrastructure to be provided and related services, the nature of consumption, the use for which it is being provided, technical knowledge involved, and the value that beneficiaries attach to the good all influence the kind of local institutions that get involved in the provision; as well as the stages and activities in which these institutions involve themselves. For this reason it is important to discuss the nature of water as a good that is supplied for domestic use, which is the focus of this study.

In many African societies it is considered undesirable for domestic water supply to be handled on a for-profit basis. It is considered undesirable for services such as water and water infrastructure to be available to only certain persons individually and on purely market basis. This stance stems from a multiplicity of factors, including the United Nations (UN) declaration of water as a human right, and its assertion that water is a social and cultural good and not a mere economic good. The UN stipulates that by virtue of it being a human right everyone is entitled to having affordable, physically accessible, sufficient, safe and acceptable water for personal and domestic use.

At the same time, the capital cost involved in constructing water infrastructure and supplying water makes it more economical to engage in water production and supply for domestic use when there is a large consumer base; and as the consumer base broadens effective monitoring becomes essential but more difficult to achieve in order to prevent defaults by consumers and theft (for example through illegal connections). The institution involved needs to be able to enforce rules regarding access to the good in order to ensure that its investments yield the anticipated profits. This can be done by putting in place incentives (these may be positive incentives that take the form of additional gains to the individual for being a good customer, or negative incentives in

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[17] Where a collective good means a good that is produced as a result of the collective effort or action of a group of people, in which every member of the group contributes.

the form of penal measures clearly spelt out for defaulters) to encourage people to keep to the rules governing access and enforcing the rules by, for example, meting out punishment to defaulters. The challenge with these tasks is that as a result of the usually large number of consumers it may be economically challenging for the institution to do these centrally. Again community perceptions that water should not be 'charged for' can make it difficult for the institution to get its rules of use accepted and institutionalised in the society; as well as enforce the rules. Often in African countries because options for legal redress are unavailable, the only option available to the institution is to cut off the consumer from the water supply. The intensity of efforts required not just in making the investment but also in operating and maintaining it can make this area rather unattractive to many local institutions.

Infrastructure development that does not guarantee the investor returns on his investment is unlikely to be attractive to the profit-seeking private sector. The private investor would like to be sure that profit would be made on the investments. Where this cannot be ensured as is the case with goods for which those who do not pay-up cannot be excluded from consuming it or as with the case of services they cannot be prevented from enjoying the service associated with the infrastructure therefore, it becomes unlikely that private institutions would be keen to get involved. To the contrary, local governments as a result of their legitimacy (acquired as a result of being voted into power) and the statutory powers that they have (which enables them to create and enforce rules), are in a good position to ensure that people who benefit from public infrastructure and services pay for it. Member organisations such as cooperatives for their part often do not have the technical expertise and capital to undertake such projects, although they can be very useful in smaller activities or one-off activities as part of the entire project process.

Indeed having the statutory power and legitimacy does not imply that local governments play this role without challenges. As Uphoff (ibid) observes, local governments, are by themselves often not able to carry out monitoring tasks as effectively as desired in most less developed countries; but they usually have the skills and institutional frame to do so, as a result of which they are often better in performing such routine and long duration monitoring of projects; an area in which member organisations (such as development associations and cooperatives) often fail. This is not to suggest in any way that there do not exist instances in which local cooperatives or associations for example have successfully managed the operations and maintenance of projects. Indeed there are examples of irrigation schemes and other public infrastructure under the management of local associations that have been successful. The key to such successes is often that the local member organisation's members consider the continued operation of the system as important to the realisation of the interest that forms the basis of the continued existence of the organisation.

Although they are spared from the challenge of having to balance profit motives (as with private organisations), have social development objectives, possess inherent legitimacy and have statutory backing, local governments face a dearth of financial resources that cripples their efforts at infrastructure development. In recent decades, the trend has been to encourage the contribution of beneficiary communities to infrastructure projects in the belief that if communities could identify a common reason to pool their resources and contribute to the production of collective goods for their own benefit, the state of local infrastructure and even utility service can be much quicker improved as compared to situations where the local government bares the sole responsibility.

Section summary

This research considers institutions as organisations /entities that have persisted over time, serving collective values and purposes and which have as a result attained a general acceptance among direct beneficiaries, the organisations involved and the communities for their roles. More emphasis is placed on local institutions but local institutions vary in their strengths based on their nature; which is also informed by their origins. Three broad categories of local institutions can be identified- a) local government /administration, b) member organisations and cooperatives c) service organisations and private businesses. In their activities, they are affected by the institutional environment within which they operate. The issues of the institutional environment that affect local institutions include the social structure pertaining to the communities, norms[18], financial levels of those for whom the institution exists, the existence of relevant resources locally to support the affairs of the local institution as well as the disposition of the formal system of governance in the region.

In spite of the implications of the variations in the inherent nature of local institutions and the environmental influences, local institutions are able to participate in local development efforts if the development efforts are tailored in such manner that enables them to contribute in aspects where they have strengths. The fashioning of development projects can therefore result in more success when the peculiarities of local institutions and their strengths and weaknesses are taken into consideration early in project planning and conception.

3.6   An illustrative summary of the conceptual framework

Drawing from the insight provided by the contents in the previous sections of this chapter, my proposition for addressing the challenge of poor water supply in peri-urban is as illustrated in Diagram 3.4. The problem of poor water supply in peri-urban settlements (represented by box 'a') can be addressed, as indicated in box [b], through the harnessing of local potentials. By adopting an endogenous strategy (depicted by box 'c') to the development of water supply in its peri-urban settlements, a district will be able to identify, mobilise and make use of its local resources and potentials (box 'd'). Coupled with policies (legal and institutional framework), use of appropriate technological options, the identification and exploitation of linkage opportunities, as well as development and maintenance of knowledge and skills in the district (box 'e'), the district will be able to improve safe water supply. To support the endogenous approach, relevant institutions/ organisations (box 'f') will have to be established or used to facilitate to process. By bringing these elements together within a framework of an endogenous development approach the district can successfully harness its local potentials for improved water supply in peri-urban settlement (depicted by box 'g').

The district is however constantly being influenced by its external environment. In other words, the district is not isolated from the region, the national and the international environment even when it pursues an endogenous approach to development. These non-local or exogenous factors (also depicted in box [f]), influence local development processes by their policies, programs, projects, etc. For example, international aid agencies provide funding for water projects and they influence how projects are implemented through the conditions that they attach to the assistance that

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[18] An informal rule or guide to social behavior in a community or group which indicates what is correct and what is not.

they provide. The national government through its policies and requirements of local governments determines the amount of authority that the local governments have and the extent to which they can exercise their authority in a decentralised governance framework. The actions of the local government therefore have to fit appropriately and support the development intensions of the central government. Indeed the influence of exogenous factors is important as they set the development direction; and compared to local factors, control huge financial resources, knowledge and skills that are needed for the development at the local level. The influence of exogenous factors also affects the environment within which the district has to implement its development approach. As earlier mentioned the existing decentralised environment, policies, institutions, stakeholders and their roles and responsibilities, linkages, participatory processes and available technical options will all affect the development process. While the district takes advantage of these, it can also influence or create them to support its development goals. However, these facilitating factors and conditions are also influenced by the exogenous environment. For example, the choices of water supply strategies and the technological options available for use will not necessarily have originated from within the district, but from some other part of the country or the world.

POOR WATER SUPPLY IN PERI-URBAN SETTLE-MENTS

a

b **HARNESSING LOCAL POTENTIALS FOR PERI-URBAN WATER SUPPLY**

d **LOCAL RESOURCES/ POTENTIALS**

Natural
(hydrological, land, etc)

Human
(local groups such as youth groups, religious groups, cooperatives, women's groups, local NGOs; work force; traditional leaders, opinion leaders, etc)

Economic
(Capital, technology, production and industrial activity, private sector economic activities, etc; production groups; and Skills: organisational, technical and management skills, etc.)

Institutions
(Schools, churches, hospitals, etc)

e **FACILITATING CONDITIONS/ FACTORS (in district)**

Decentralisation

Access to information and learning

Policy
(legal and institutional framework; approach)

Linkages

Participation

Distribution or division of roles and responsibilities

Technical options as relevant to the natural setting

f **INSTITUTIONS/ ACTORS**

National level NGOs, development agencies Ministry of Water Resources, Works and Housing CWSA RWSTs Regional Coordinating councils

District Assemblies WSDBs WATSANs

Private services providers and/ operators

KEY

⇨ Convergent link

➡ Direction of flow of process

g IMPROVED SAFE WATER SUPPLY IN PERI-URBAN SETTLEMENTS

c **E N D O G E N O U S   D E V E L O P M E N T**

Diagram 3.4   Conceptual framework   79

4. METHODOLOGY

In Chapter 3, I discussed the strategy, concepts and ideas that guided the research. Prior to undertaking any research, it is also important to outline the methods that will guide the conduct. In this Chapter, I present a discussion on the methodological paradigms that guided the entire study, the research questions and the basis for which the research method was chosen. I then present highlights of the empirical research process.

4.1   Type of research

Researchers demonstrate by their choice of theories and the strategies that guide their work, the schools of thought to which they belong. Their perspective on what constitutes valuable knowledge as well as the nature of reality can be gleaned from their choice of research approach (Glesne, 2011: 5). Additionally researchers are hardly ever completely without bias when they make decisions about their research approach (McKereghan, 1998). If it were the case that complete objectivity pertained, this would mean complete ignorance which is unrealistic to expect (ibid). Therefore the subject or knower (referring to the researcher) is always related to the object or known (referring to the topic of the study) somehow. Hence the nature and extent of the relation between the subject and the object is the question, and not whether there exists a relation or not (ibid: 2). In research and planning (and as may be found in other aspects of life), our values affect our pattern of thoughts when we interpret systems (see Norgaard, 1994 and Schönwandt, 2008). As this holds true for the field of social sciences, in a social science research it becomes important for the researcher to make clear his orientation providing logical reasons for the stance taken and showing how it has guided the conduct of the research. This will help make transparent the approach chosen and contribute to the understanding of the outcomes of the research by shedding light on perspectives that informed it.

Literature identifies and discusses two main research types (quantitative and qualitative), and the polarised schools of thoughts behind them. Many writers on research methodology have discussed the merits and demerits of both approaches in such manner that seeks to demonstrate the superiority of one over the other creating a dichotomous situation. Although both schools of thought (quantitative research and qualitative research) advance the strengths of their preferences, it is possible to have a relationship between both views. Gile (ibid) is among other authors who suggest that the polarity existing does not necessarily exist in real situations. McKereghan (op cit) makes similar observations adding that the dichotomy is an appropriate view only when considered in the 'ideal realm'; and emphasises that 'it is important that we avoid reifying pure abstract concepts and treating them as if they are real rather than ideal. Quantitative and qualitative research are ideal ends of a continuum along which actual research takes place'. However if it is the case that they are spectrums at the ends of the same continuum, it becomes of interest to consider the background of both approaches. These extremes are based on certain assumptions that influence the answers that they provide when they are employed in a research.

The assumptions that underlie qualitative and quantitative research methods 'shape the aims of the research inquiry, the roles of the researcher and the researcher –respondent relationship' (Lee, 1992: 88). It is generally accepted that there are two ways of viewing reality: objectively or subjectively. These views inform the assumptions that are the basis of qualitative and quantitative research.

The objectivist view is based on the assumption that nature can be viewed in a manner external to the researcher; because the natural world comprises tangible and relatively immutable formulations or structure and can therefore be measured by considering the relationships between the various elements in the formation. The researcher can do this as an external actor and without allowing his individual opinions or biases to influence his perception of the relationships. The subjectivist view suggests that it is impossible to study adequately a phenomenon devoid the meanings and interpretations that actors accord it, because 'the social world external to individual cognition is made up of nothing more than names, concepts, and labels which are used to structure reality' and are therefore 'artificial creations whose utility is based upon their convenience as tools for describing, making sense of, and negotiating the external world' (Burrell and Morgan, 1979:4; see also Schönwandt, 2008). For this reason the aims, motives and reasons for which people do what they do needs to be considered when studying or trying to understand why people do what they do.

In the context of nature, scope and limits of the concept 'research', the views of positivism and phenomenology are linked to quantitative and qualitative research respectively. Drawing from the two approaches to viewing nature briefly explained above, positivists suggest that occurrences in real life can be explained by identifying regularities and irregularities as well as causal relationships between elements in society's structure, which are themselves hard and have relationships that are recognisable and have cause – effect interrelationships. These interrelations can be objectively identified using experiments and models based on clearly defined elements and structures.

The phenomenologists to the contrary contend that it is not possible to have a purely "objective" knowledge of any subject being transmitted because 'knowledge created is often no more than an expression of the manner in which the researcher as a human being has arbitrarily imposed a personal frame of reference on the world, which is mistakenly perceived as lying in an external and separate realm' (Husserl 1929 cf Lee op cit). As well, the causal relationships will themselves have causes. Therefore human behaviour has to be considered in its entirety. Unless effort is made to understand a phenomenon by considering all its aspects including its environment, the true picture will be lost to the outcomes of the research; because human behaviour cannot be understood in terms of causal relationships as pertains in natural sciences but by finding out meanings and ways in which the various individuals in society through their subjective perceptions formulate and shape roles.

In summary, purely quantitative researches allow the researcher to use structured questions where the response options are predetermined and measurable; but it may neglect the social and cultural construction of the variables which they seek to correlate. Qualitative researches explore a social or human problem. The researcher is able to construct a holistic account through his analysis of written or spoken account of events and processes, while additionally taking into consideration the perspectives of the people who provide the

information. He is able to achieve this even where the phenomena being investigated is complex and can carry out the research in the natural setting of the phenomena. The qualitative approach focuses on descriptions, characteristics, meanings, symbols, concepts, and definitions of things or situations. Denzin and Lincoln (1994) describe qualitative research as an approach that does not have specially dedicated methods but involves a mix of methods and involves the use of a variety of empirical materials such as life stories, interviews, observational, historical and interactional evidence as well as visual texts, and personal experiences to provide accounts, or descriptions or explanations of real life situations and meanings in the lives of individuals. Thus, studying things in their normal setting, attempting to make sense of, or interpret phenomenon in terms of the meaning they bring is what the qualitative researcher does when using the qualitative research approach.

   Whether quantitative or qualitative, the research approach is used can result in different outcomes. But both quantitative and qualitative approaches share the same methodological issues and problems except that the approaches to determining these vary or may not be directly applicable (see Silverman, 1994 and Tobin and Begley, 2004: 390). If so, then a more accurate and productive way of considering research would be as being more quantitative than qualitative but never quantitative as opposed to qualitative (McKereghan, op cit). In reality one finds quantitative researches with qualitative undertones (such as categorisations based on qualitative issues), while qualitative researches often resort to quantitative techniques such as numerical expressions of frequency to support arguments. In other words, actual research may not exactly fit into one or the other of these ideal paradigms (ie. quantitative or qualitative research) (Gile: undated: 1). 'It would perhaps be more beneficial to the context of social science researchers to talk of 'qualitative methods' and 'quantitative methods', which may co-exist to differing extents not only in the same discipline but in the same research projects, and which complement each other' (ibid); hence allowing the researcher through the use of a mix of methods to reap the benefits that are inherent to each method to support his research. The methodology used in this research adopts such a mixed approach to enable me realise the benefits of both qualitative and quantitative methods. Considering the complexity of the phenomenon that is the object of this study, I considered a greater inclination towards the qualitative approach appropriate because it fitted the social nature of the topic and the research questions better. Quantitative data was also gathered to triangulate information obtained from the qualitative approach and secondary sources; and increase the validity of outcomes.

The selected research approach and justification

From the range of research approaches described in literature, the case study approach was chosen for this research work. In deciding on what approach to use for this research, it was important to give consideration to the nature of the topic that is the focus of the research as well as the strengths of the various approaches available to a researcher. In the paragraphs below, I explain the reasons that informed my choice of the case study approach for this research and outline some of the benefits that stand to be gained from the approach.

- Importance of the setting and its preservation: The nature of the focus of this research requires that to have a full understanding of the issues concerned the particular context in which the topic is situated is taken into account. Discussing the prospects and

challenges that districts face in their efforts to improve water supply will be porous without the construction of a solid and relevant contextual foundation for the discussion. Taking the context into account required that the environment within which actual operations/ activities occurred was considered when trying to understand and explain issues. The case study approach is a 'strategy which focuses on understanding the dynamics present within single settings' (Huberman and Miles, 2002: 8). It is appropriate when, as in the case of this research, it is not easy to separate the phenomenon that is being studied from its context; and the context has to be considered when explaining the phenomenon (Yin, 1993). It allows the case's story to be captured in its diversity, exposing its many facets and complexities (Flyvberg, 2004).

- Beyond this, because this study is about studying social phenomena it was important to capture the context peculiarities of the phenomena as this could hold meanings/reasons for the way the phenomena exists the way it does. It was therefore relevant to choose a research method that could be adapted in such manner as to ensure that the peculiarities of the cases researched do not get lost to the output- The case's identity gets preserved. The case study method has inherent strengths in this regard because it provides the researcher the option of handling the issues on a case by case basis, and delving into the causes of existing situations as well as relations between variables in the a particular case; in addition to the causes of the causes or reasons of the reasons. The researcher has lee-way to decide the depth of the search for reasons in each case. Where multiple cases are involved, each can be described and analysed for findings on an individual basis; and then in a cross case analysis, the cases can be brought together and again analysed for broader generalisations to the made. However, this has implications for the generalisability of the findings of the research. Academic research seeks to contribute to already existing knowledge on a given subject. For a study such as this that touches on pertinent issues that are manifesting in reality at the community level in a decentralised governance system, academic research can have the added value of making suggestions for policy targeted at the local government as well as the national government. Whichever is the case, the tendency for case study research to use just a few cases as the bases of analysis constrains the generalisability of the findings. The particularity that cases have and the often few number of cases studied also means that the researcher cannot generalise his findings statistically (Yin, 1993 and Smaling 2003). However, the case study researcher can still generalise the output of such a study within the context of the theory that guided the research but to the similar level or unit of analysis as was used in the study (Yin, ibid):- what Yin describes as 'analytical generalisation in which the previously developed theory is used as a template against which to compare the empirical results of the case study' (Yin, 1994: 31). Smaling (2003: 5) describes this as a 'theory-carried generalisation'. The generalisation and cases selected are based on the replication logic where the researcher does not only select cases that can confirm previously found results or outcomes but those likely to refute it as well; therefore enabling the researcher to using different cases support previous findings or 'thinkings' and reveal other possible dimensions.

- In this research, two cases were used. The aim in this research was to discover how within the context of the endogenous development strategy, the local government based

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water supply systems are fairing, using two cases that were at variance in their project start up characteristics, but not too extreme in the small town water supply turf in Ghana. Between both cases, issues that affect the broad range of variations in small town water projects could be unearthed. The case selection process is further discussed later in this chapter.

- Importance of background reasons: The unearthing of reasons underlying the observed phenomena, in this study, was also of relevance in the choice of the method. For this reason a research method that allowed in-depth data to be collected was more important than one which would have enabled data to be collected on a broad range of issues but without going into much detail. Indeed, such superficial data was unlikely to reveal the useful background explanations that could help achieve the objectives of this research. In cases where such explanations are relevant, the case study or experimental approach can be used (Yin, 1994). For this research however, I used the case study approach because although the experimental approach can be used to provide answers relating to how and why things are the way they are, an experimental approach would have failed to support this research's questions because of the number of variables that the study involved. The contextual variables, which were many and rich, as well as complexly interrelated, therefore made an experimental method difficult to apply.

- Extent of manipulation: This research did not only have the tendency to yield numerous variables that would have to be analysed but I was also unlikely to be able to manipulate the events or actions of the variables at play. For this reason the experimental approach was not appropriate. Again, the delineation of the complexly interrelated variables concerned in this research can be a challenge; and from the perspective of the phenomenologist, it is not appropriate for an investigation into a social phenomenon (such as is the focus of this research) as the causes identified in causal relations would themselves have causes which would also in turn have causes; and it is by observing the variables and the relation as they pertain and function in their normal setting in its entirety that the researcher can comprehend the relations between the various elements and achieve valid observations and analysis.

- Flexibility of the case study approach: The case study approach is flexible and accommodates a flexible researcher; thereby allowing the researcher to adapt to situations on the ground which may be different from what was envisaged during the designing of the research. The researcher can adapt and review the research design if it becomes necessary for the achievement of the research goals; or if it is realised from initial field work that the focus of the research has to be altered.

- Again, especially in the Ghanaian cultural context where schedules drawn are not necessarily adhered to, yet it is considered absurd for anyone to farce this over, the case study approach helps the researcher to adopt a mind-set and process frame that will keep the research from getting as frustrating for the researcher as it could be.

- Combining data collection methods: It is important to adopt strategies for cross checking information in social science research where there is a high propensity for people's subjective opinions to be captured while collecting data without this being realised. The less subjective the type of data used in cross- checking, the better it will be for the output of the research. Literature identifies the codes used for ensuring accuracy

and checking alternative explanations as triangulation. The case study is advantageous because it makes room for triangulation as it allows the combination of a broad variety of data collection methods spanning observation, interviews, documents, etc. The case study method also provides room for complementary use of qualitative and quantitative data in analysis in the same research (Yin, 1994:8). For example, individuals expressions of how often an event occurs can be supported by quantitative proof in the form of frequency calculated - an added strength of the method which helps improve the reliability of data and analysis made.

4.2   The unit of analysis

The unit of analysis for this research is the small town water system at the district level. The district is the level where the decentralised water system in Ghana rests localised piped water systems. Although the ownership of the piped systems legally rests with the local government, the water system is decentralised in such manner that gives some level of autonomy to the inter-community level through the water boards to function as the main players in the districts small town water scheme. Again the small town water sub-sector is only a part of development work in the district water sector not to mention general development efforts at the district level. For these reasons, the district was not selected as the unit of analysis. The beneficiary communities (communities that benefit from the small town water supply system) could not have been the focus of this study either because this would have failed to provide a broad overview of goings-on and a comprehensive account of the subject of the research- the holistic picture would have been lost. Again the resource base that is to be tapped for to support the piped system is not limited to any particular community. To be able to address adequately issue of harnessing local potentials therefore it was appropriate that the district's small town piped water system was used as the unit of analysis.

4.3   Choice of theory and formulation of concepts

Identifying a theory within which to seat a research helps to define the bounds of the research and to direct the researcher on what kind of information will be relevant: it delimits the case study inquiry to its most effective design (Yin, 1993: 4). It guides the researcher in the data collection process in such manner that ensures that only relevant data is collected. A perusal of the national policy on the small town water sector approach revealed the inclination of the approach to a more decentralised and local based operation which draws more on the district's own strengths than on external support. This fits the endogenous development strategy which alludes that development should be from within and should use local resources in order to be more sustainable; but should not necessarily shut out the external influences if they could be of benefit to the local area. The sub-sector strategy had been informed by trends in the development world generally and lessons past water sector interventions in the developing world which were inclined towards local prominence in and commitment to development efforts (see discussion on historical background of the water sector in Ghana and

section on theoretical and conceptual framework). Coupled with fact that the development strategy is illustrative of more recent trends in development theory therefore, the endogenous development strategy was chosen from among several strategies as a major theoretical foundation upon which the issues of concern in this research were examined.

Pooling from propositions of the endogenous growth theory and endogenous development strategy and guided by the key elements of the research topic and the objectives, I developed a conceptual frame which guided the data collection and analysis of this research. The main elements of the conceptual frame are institutions, local, peri-urban, endogenous development strategies, and potentials and resources (natural, human, economic, technological, institutional, linkages).

4.4   Structure of the research

The research questions

The central operatives steering the research design were the elements of the topic, the objectives (see introduction of the report) of the research and the key research question. Three easily identifiable elements of the topic were: what local potentials exist that can be harnessed, how harnessing of local potentials is/can be done, and what issues influence or affect efforts to harness local potentials especially as would be relevant to a local based approach to water supply. Drawing from these, the key research question was formulated as–'can the harnessing of local potentials done as postulated by the concept of endogenous development help improve safe water supply in the peri-urban settlements in Ghana?' To be able to answer the key question, categories of sub-questions were created. The key research question, highlights of the literature review and objective of the research were converged to fashion out criteria and packs of questions that were used to collect data from different sources; and which when put together provided answers to fulfil the research objectives. These packs of questions, referred to as groups, and their contents are described below.

- One group of research questions focused on local potentials: What potentials exist locally and can be used to support the small towns approach; whether they were recognised with the intention of being taken advantage of or are already being used.

- Another group of questions was concerned with strategies being implemented by the district to support the endogenous approach to water supply. It explored the principles underlying the districts piped water supply systems; how roles are distributed and the structure of leadership of the water systems; what measures had been adopted to take advantage of local potentials; how planning is being incorporated in the affairs of the water schemes; as well as how local tradition/culture institutions were reflected in the system. It also dealt with how the actor institutions played their roles and affected each other.

- A third group comprised questions on experiences with the system: These questions dealt primarily with the process issues that were inhibiting the functioning of the

system. It explored process challenges that the formal institutional structure posed as well as those process challenges that arose as a result of the social and cultural context. Also covered was the issue of external interferences in what should be a locally determined system.

- The fourth group comprised questions on the performance of the water schemes and sought to address whether the small towns water supply approach by its reliance on local potentials was a promising option for the future.

- The fifth group comprised questions on how the system could be improved based on experiences obtained from the operations of the small towns system and how the concept on endogenous development could be made more suitable in the contexts of the cases studied.

The frame for the analysis and interpretation of the data collected

Such groups of questions, as above, yielded a broad variety of data on the main research theme. It was therefore necessary to define some basis upon which the data would be analysed in a systematic way to yield results that would be relevant to the research objectives and the research proposition. Such basis once well defined laid the foundation for relevant interpretations as well. Guided by the key research question and the packs of questions derived from it, as well as the concepts derived from literature and the main themes emerging from the data gathered, a five component analytical structure was created. It indicated what combinations of data and type of data would be used to answer each research question. Below are the components created to guide the analysis and interpretation of the data. They comprised issues that could give indications on the state of the harnessing of local potentials for water supply in each system.

Related to the first group of questions, the presence and recognition of potentials was the start point of the analytical frame. The process of exploiting the region's potentials begins with the realisation that there exist potentials that could be taken advantage of and used to support the endogenous approach to development of the small town water scheme. Whether this has been done or not and the existence of evidence of this realisation as well as the using of such potentials to support the water scheme were of interest here. The potentials of relevance span natural potentials which included land, water, forests; economic potentials which comprise capital, savings, labour, skills, know-how, entrepreneurship, experience and technology; institutional frame comprising policy, legal regulations, the political frame, as well as societal norms, and societal objectives; human potentials consisting of social groups, clubs, and clans, etc.

Related to the second group of questions, the second component concerned the definition of institutions and process mechanisms employed for the mobilisation and use of local potentials. The definition of roles among actors, the types of roles identified and being played, and the relationships between the various actors were considered. The other category of issues considered pertained to leadership and decision making structures. Leadership's action to support the sector is important to the progress of the scheme. Leadership in this context covered the entire spectrum of lead institutions involved in the affairs of the water systems whether they were leaders with formal roles or only leaders in

the socio-cultural contexts of the cases studied. Also considered in this component were the system processes and the broad range of measures adopted to foster the functioning of the small town water schemes. Drawing from the realisation of the existence of potentials to be exploited (which was analysed in the first component), this concerned what options exist and what measures had actually been defined and how they were been implemented in furtherance of the endogenous approach to water supply, as well as how the roles defined for the various actors manifested on the ground. It also touches on reasons for taking or not taking advantage of some of the options available. In this broad component, can be found measures relating to fostering participation of the local populace, taking advantage of beneficial linkages/movement/exchange relations that exist within the district as well as out of the district, coordination and co-operation among actors, developing local skills and knowledge generation to support the endogenous water supply effort as well as measures to take advantage of potentials that exist in the district. Local adaptations of technology and local innovations which includes the ways of doing things that have been generated from learning through the passing on of knowledge through generations was also considered.

The third component of the analysis concerned itself with the process challenges, focusing primarily on the inter and intra institutional process events among/in the institutions/organisations as well as the non-institutional actors- these having emerged from the account provided by the actors themselves of their experiences in the event relating to the use of measure, leadership, etc as identified in the above component.

To address the issue of the prospects of the water system the performance of the schemes on two different sets of criteria – national and theoretical - were considered for the complementarity of the scheme performance on both sets of criteria; based upon which indications were obtained on the prospects of the systems being studied.

The last component of the analysis concerned the improvement of the system and recommendations derived from the findings of the study. The performance of the system and system challenges informed this aspect. Based on analogies from the comparison of the cases on these issues, recommendations were made for policy as well as for theory.

The research design and quality

A research method is regarded when it has clearly defined code of operation that guides the use of the approach. This research was spurred by practical issues observed from the peri-urban water situation in Ghana. These practical issues were consolidated to evolve the main intention of this research. This main intention, was then broken down into several sub-intentions called objectives which if adequately addressed would together yield a complete fulfilment of the main intention. After a process of literature review, problem definition and determination of research objectives, a conceptual framework was developed (Chapter 3) to help bound the research. The conceptual framework helped in the determination of the research questions which in turn influenced the approach adopted for the conduct of the empirical study. Prior to the field study, data collection instruments were designed guided by the nature of case study research approach and the research questions. A set of rules of procedure was also established to guide the data collection process as well as the analysis of empirical data. Last but not least, certain issues that determine the quality in case study research were identified and addressed.

The case study approach has its protocols for quality which a user has to follow. In order to come up with well grounded findings, the research has to subject itself to tests. The research design should show a logical relationship between the various components of the research and incorporate mechanisms for testing trustworthiness, credibility, 'confirmability' and data dependability (Yin, 1994). Generally there exist four tests that a research design should fulfil. These are described by most writers on research methodology as construct validity, internal validity, external validity and reliability. Yin (ibid) identifies ways for fulfilling these in case study research and this informed the research design. These are discussed soon in further detail.

Also in case study research, each case is considered a 'whole' study and evidence is sought in each case on the issues that are the subject of the study (Yin, 1994:49). Therefore, as indicated in the following diagram, for each of the study cases, data obtained was analysed separately and a detailed report was done prior to the conduct of a cross-case analysis which helped come up with recommendations. The following diagram is a summary of the research design.

Construct validity

In determining the construct validity, it was necessary to take a critical look at processes for mobilising and using the districts' potentials. To this end, some process issues that were to be investigated were identified (earlier described). As much as possible, an effort was made to find and incorporate all the issues of key relevance to the research topic. Construct validity concerns itself with the extent to which the research actually measures what it set out to measure and consider all the issues that should be considered in researching into the topic. One of the steps taken to achieve this was that the main concepts guiding the study were identified, operationalised and their components or the issues that inform them were explored and taken into account in designing the data collection process. The challenge here was translating ideas or concepts guiding the study into actual indicators, while ensuring that the best or closest or most complete indicator was used. For most issues, it was not practicable to find and apply universally accepted sets of indicators. This was also undesirable because the cases were different. Prior to the field visit the key concepts of the research were formulated and compiled into a conceptual framework. The key concepts were local potentials, participation, and strategies endogenous development strategy. Relevant and likely indicators and proxy indicators were identified and borne in mind.

Again to increase the possibility of having various angles of the same issue and challenge the construct more than one case was selected - they could reveal different issues relating to the same elements being investigated. As well, multiples sources of data were used which helped to improve opportunities for alternative perspectives on the same issue to be raised and checked- thus testing the construct.

Internal validity

Internal validity concerns itself with whether conclusions drawn about relationships among the various process events are accurate. More specifically, it questions the accuracy of causal inferences made about events observed. This issue was of much relevance to this research because although this was a descriptive case study, this research sought to go
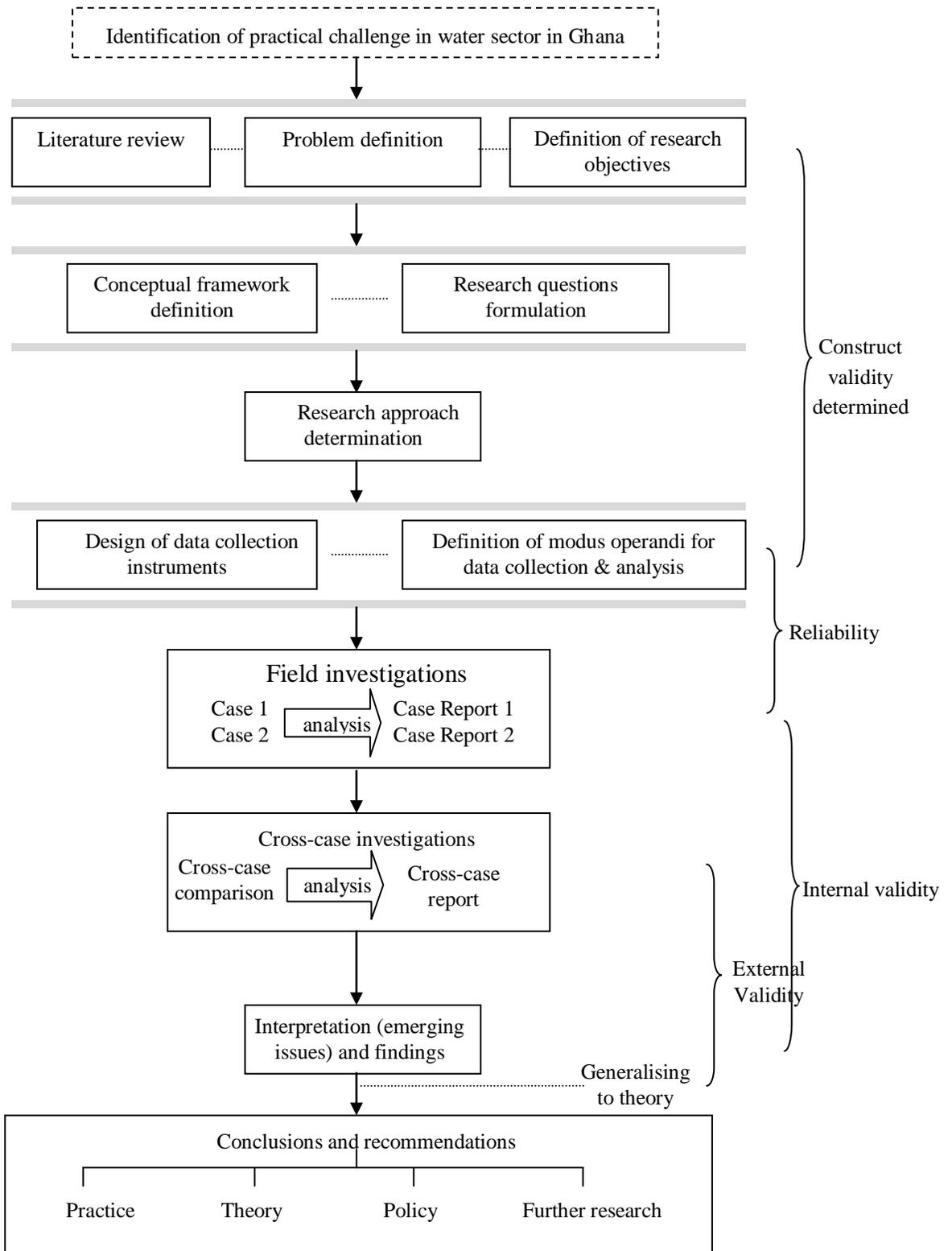
Diagram 4.1   The research design

beyond description to provide explanations for events observed by making inferences about causation. Making inferences was necessary because it was not possible to observe many of the process events directly. The main method used to achieve this was the use of multiple sources of evidence and checking whether the evidence provided by the multiple sources, (such as documents and interviews, multiple interviews on the same issues) are convergent in their explanations. This was done by understanding and noting the sequence in process accounts given during the data collection process as well as how they influenced each other. When necessary, literature was also used to check the explanations about relationships that exist in endogenous development processes and in the concepts of the study. Additionally, I made the effort to check the plausibility of explanations that could exist for the causal relationships by seeking strong alternative explanations from other academic researchers or through self reflection that could challenge the plausibility of the relations identified. Again, the draft reports were given to sector experts and other key informants involved in the research to review and come up with observations and questions.

External validity

External validity concerns itself with generalisation and poses the question - to what extent can the conclusions of this research be generalised? Thus, it establishes the bounds within the findings of the research that can be generalised. More than one case was used, improving the possibility of generalising the findings of this research to the theory and broader peri-urban context in Ghana. The question was how close the conclusions would be to generalisability. What is being ascertained is whether the 'phenomenon studied, the processes indentified, the conclusions drawn' (Yin, 1994: 36) can be extended beyond the studied cases. Since the findings of case studies can be generalised in the context of the theoretical propositions (Yin 1993:39) that guide the research, the conceptual framework was developed early in the research process to guide the subsequent stages, thus setting the domain for generalisation.

Reliability

Reliability is concerned with how probable it is for the same research conducted by another researcher using the same concepts, criteria and methods to arrive at the same findings as this research arrives at. Reliability can be achieved by clearly defining and using 'formal case study protocols and the development of a case study database' to help ensure that if the same protocols were followed later it would result in the same findings (Yin, 1993: 40). To assure reliability, the theoretical concepts were clearly explained and measures/indicators will be carefully chosen and explained. A mix of qualitative and quantitative data collection methods and multiple data sources will be used for cross checking to ensure that the data collected was accurate and representative of what truly pertains on the field. The procedure followed was also documented to enable retracing to be done. Bearing in mind that reliability aims at minimising errors and biases the steps were taken to assure reliability based on Yin's suggestions as well as Silverman's (1994).

Triangulation

For this research triangulation was important for establishing reliability and internal validity. Data was collected from multiple sources with the use of different types of tools to achieve triangulation. The multiple sources of information were basically of three kinds- observation, interviews and documents. Interviews included those conducted with key informants, groups and individuals. The three sources were used to cross check each other to ascertain whether they converged on the issues being probed. Generally, the identification of multiple sources of evidence is accepted as important for assessing the reliability of data which in turn has implications for the validity of the research: where validity refers to the 'the best available approximation to the truth of propositions, including proposition about cause' (Cook and Campbell: 1979:37) drawn at the end of a study/research. It is again an adequate way of checking validity of inferences and confirming causal relationships in case studies. For the purposes of controlling bias and coming up with propositions that are valid, triangulation has also become an important methodological issue that helps cater for tests that establish these concerns in traditional scientific testing methods but which are not exactly compatible to the contexts of qualitative research (see also Nahid Golafshani, 2003; Patton 1987; and Yin 1994).

Triangulation in the analysis of data: In the data gathering process, I collected data from different respondents (at the same level and at different levels). As already mentioned, I collected data using different methods of data collection: interviews, observation and documents. As much as possible, I used the different methods to collect data on the same issues; so that the data that they yielded could be analysed across sources in order that an account that was as close to the reality as possible was obtained.

In order to arrive at conclusions on the cases through the analysis of the data, I relied on triangulation in two main ways. First, to identify the underlying reasons why situations existed the way they did, I analysed the accounts of process events that were provided by the different respondents; and then I compared them to find out traces of commonalities in the analyses. This process involved accounts obtained from respondents of the same level as well as respondents across levels (for example, comparing the analyses of data obtained at the regional level with the outcome of analyses of data obtained at the inter-community level and those of community level).

Secondly, the different methods through which data was collected –interviews, observation and documents, or interviews and questionnaires – were not only used to identify the reality. When relevant, I analysed the data obtained from these different methods of data gathering separately and then compared the outcomes of the analyses to arrive at analytical conclusions on the cases.

4.5   Data collection and management strategies

Data collection

Three main methods of data collection were used: interviews, document investigation, and observation. These methods were used at the national, regional and district levels; except at the community where no document reviews/investigation was done.

Interviews

For a social science researcher using case studies, in-depth interviews allow the researcher to delve deep into issues and thereby uncover the reasons, experiences, views and perceptions that inform people's responses. If well done, the researcher is able to understand better how the respondent's environment affects his responses. This inherent strength of the interview approach to data collection is often lost to observation (and in most cases document investigations) because, if not combined with other methods, observation leaves the researcher to understand by himself the phenomenon that he observes. This can be rather difficult and conclusion derived may be inaccurate because it leaves much room for the researcher to superimpose his personal perceptions evolved from his values and norms when interpreting the phenomenon that he is observing.

To take advantage of this strength of the interview method, semi-structured interviews were a major data collection method used in the research. All interviews were conducted in a semi-structured manner. Instead of using a guide comprising a list of subject area, I prepared question guides for the interviews. The questions were open-ended and the respondents had the opportunity to explore the issues of the questions. This enabled respondents to provide information - freely-expressing the facts as well as their opinions and propositions about the events, while still enabling me to guide the process and keep it focused enough to yield the kind of information that was useful to this research. Respondents for these in-depth interviews were carefully selected to provide important insights and to provide quick access to the history of events. These verbal accounts were considered as leads and insights that could be accurate or inaccurate and which needed to be corroborated by other sources of data. The household level was an exception. Interviews at this level had less provision for the expression of individuals' propositions on the events concerned in the interview because it involved the use of questionnaires. About seven-tenths (29 of 41) of the total number of interviews planned were conducted. The shortfall was due to two main reasons: inability to get the people to interview and changes I made to the field work plan based on information obtained from preceding interviews. For example, I intended to interview members of the district water and sanitation teams separately. However for the purpose of having them triangulate each other's account I revised this on the field to interview the team as a group. This yielded a further challenge because the teams in both districts could not agree on a day on which I was certain to meet them as a group. Eventually, while they gave interviews dates on which I was likely to meet and have the full attention of the entire team this eluded me- they chose a maximum of two main speakers to represent the team of five and although they contributed to the discussions the remaining members of the team went about their usual duties. At the sector ministry, staff turn-over had depleted the water division of the staff who they considered well informed to grant interviews on the small town sector policy by virtue of their long term involvement in the sub-sectors activities. The team was therefore unwilling to grant the interview but referred to the Community Water and Sanitation Agency (CWSA) as the appropriate source from which to collect the policy related information which I sought from the ministry.

The selection of the respondents for the in-depth interviews was based on the criteria that the people chosen were likely to have rich knowledge of the issues that were of concern in this study. Thus, I began with well known sector experts who in addition to providing information on the research issues could identify people in the ministry, the

CWSA and in the study districts who could be rich sources of information. This approach was also used at the community level to select persons who were perceived by members of their communities as being well informed and could articulate the communities' views on issues. For the selection of these key informants at the community level, the input of the district water and sanitation teams, the planning officers, the water and sanitation development boards as well as staff of the water schemes were significant. My interaction with the sector experts, the respondents at the CWSA and the RWST revealed that the regional coordinating council had not been a key player in the sectors activities although the decentralized governance and planning structure expected the team to. With this insight gained from the preceding interviews with people who were well positioned to determine what the valuable sources of information for such a research would be, I altered the fieldwork plan to omit the RCC.

Interviews with the management team of the local governments at the district level were done through a nominated representative whom the team agreed was well informed of the goings-on of the management team as well as the sector and so could respond well to the questions posed. This arrangement was preferable to the team because they found it difficult to meet me as a group. The Municipal/Metropolitan Planning officers were nominated to provide the information on behalf of the management team. However, where relevant (as pertains to issues that were more personal to the desk holder) I conducted follow-up interviews to cross-check information provided by the team's representative.

The group interviews conducted with community groups were to provide insights to socio-cultural issues, the history of access to safe drinking water and the management of water in the community, perceptions about the services of the piped water supply system, and the involvement of the community in water supply processes. Through the discussions that ensued, important issues that deserved attention in this research were revealed such as issues of communities' perceptions of ownership of the project and the community mobilisation at the project start-up phase. The conduct of group interviews at the community level also presented a challenge. According to the fieldwork design, the group discussion were to comprise 7 -12 people. The purpose for planning the conduct of group interviews was to enable me to gain insights by listening to the group members discussing issues as they recounted their experiences. However, this was only realized in Juaben. Alternatively stated, only one-third of the group interviews could be achieved. With the Kpone Seduase dressmakers association, the desired number could not be realized because the group comprised 4 people. In the case of the Oyibi farmers' group, Yeleyele drama group and Oyibi residents association my repeated efforts and visits to the groups (individually or with representatives of the water board or key informant) they were not able to pool the required number of people. Although the discussions in the case of the farmers' group and the drama group began with about 7 people the others were less a part of the discussion as they tried to combine their household chores with the discussion. Thus they are not counted as part of the total number of people interviewed. With the Oyibi residents association, the executives explained that the members could only successfully be pooled for such interviews if it coincided with their quarterly meetings. However, the schedule for the entire fieldwork fell outside their quarterly meeting schedule; and although the executives agreed to grant me an interview only four of the five executives were available on the agreed day, of which two further excused themselves. The major question

here is whether gaps were created in the data available as a result and how the gaps created were made up for.

The information that these groups could yield was not completely lost because some members of the groups were still interviewed (although these cannot be called groups discussions and so were not factored in determining the level of achievement of the fieldwork plan); but their discussions were a lot more limited than would have been the case if more people were involved. The fieldwork design made provision for multiple sources to be used to collect information on the same issues. Therefore the data and perceptions of the community that would have been provided from the group discussions could also be obtained from the key informants and household respondents. My task as a researcher then was to be vigilant during the analysis of the data, looking out for and identifying from these other sources the converging as well as diverging points as these would have been key areas that would have generated discussions in the group interviews; and then following up on them in the subsequent interviews in the district.

For the purposes of documenting the interviews, they were all recorded and notes were taken on the question guide during the interview process; except at the household level where only field notes were made and the questionnaires filled. Taking audio recordings of the interviews enabled the interview to proceed smoothly and with greater speed, as it avoided the long pauses that would have resulted if I had to scribble down all important points made during the process. It also provided opportunities for me to later re-live the interview by re-playing it when necessary to recount the mood and issues during the interview.

Document investigation

Documentary evidence provided an alternative method of data collection. It served as means to augment data obtained from other sources and cross-check information as well. It also in some cases served as the start point for probing as it provided leads that were then further investigated; some of which were not revealed by other data collection methods. Data obtained from documents were not automatically treated as accurate. They were cross-checked with information from other sources for corroboration. When the data did not converge on an issue, further steps were taken to probe further using other data collection methods. A checklist of documents to be collected at each of the levels of data collection was prepared prior to the conduct of interviews with the respondents and augmented during the field work process. Documents used included maps, annual reports, quarterly performance reports, minutes of meetings, letters, water plans, site photographs, etc.

Observation

Opportunities for direct observation are created once the researcher visits the case study 'site'. Observation provides evidence that can give insights to the issues being studied (Yin, 1994). Direct observation as a source of information was used by the researcher to note situations/conditions, operations, events in the study areas as well as non-verbal reactions to issues in the interview processes. It was used by the researcher to witness at first-hand some of the issues that cropped up from the interviews. Observing operation sites, public service points, product quality and records helped in the triangulation of information

obtained from interviews. For example, complaints about the quality and taste of water was corroborated by observing the water; while issues about the surroundings and performance of vendors at the stand pipes were triangulated by observing activities at the stand pipes. The objectives and issues that were the focus of observation were identified prior to actual observation in order to guide the process, through literature and the insights from interviews conducted from the national level to the group and household level. This way, the researcher had clear knowledge of the kinds of things to observe which will be of relevance to the study and provide explanations to situations in the study area. A list was created of these and updated as other issues came up. During the observation process, there exists the risk of bias, which may be tackled by using multiple observers and checking for convergence of accounts. In this research multiple observers were not used. Rather, reference was always made to the respondents to explain what was going on, in order that my own interpretations based on prior exposure and knowledge were not superimposed on the interpretations of the events observed.

The observation process was semi-structured. Using a semi-structured observation approach allowed me to remain open-minded and to observe several aspects of the phenomenon being studied as well as others which seemed relevant. This research sought to achieve in-depth information on the phenomenon that was the focus of the study. As a result, I was keen to observe all relevant aspects of issues concerning the phenomenon whether anticipated or not. Using the semi-structured approach helped achieve this. During the entire process, I looked out for new things that were relevant but had not been anticipated and noted them.

Non-verbal feedback generated from questions posed to respondents was also considered during all interviews. Especially in the Ghanaian context where the expression of opinions and emotions is not always done verbally, it was important that as part of the data collection process non-verbal communication was observed and noted during interviews. These were followed up with probing questions that sort to understand the 'demonstrative' response that the questions generated.

When feasible, photographs were taken for the purpose of recording observations made. This was done with the permission of those concerned or responsible for the subject of the observation. This documentation was necessary for later reference and for the purpose of supporting the outcomes of the research.

Archival records

Archival records can be used to provide both quantitative and qualitative information about an event that is of interest. For this research, archival data was used for the insights it provided to the history of the water sector in Ghana. This was important for tracing the various transitory phases that Ghana's water sector has gone through and how it arrived at the current state. Archival records, depending on the objective for which they were produced, may have biases that the research may be unable to identify. For this reason, the information was cross checked with other sources such as other documents, water sector experts in Ghana and people who had long years of experience in the water sector.

Data management

This concerns the organisation and documentation of field data. The form of the data varied as per the different data collection methods used. The task was therefore to organise the unprocessed data in such manner that had some coherence and enabled retrieval to be done easily. For this purpose, categories of data had to be created. These were done first according to the nature of the data: hard or soft copy; voice data or text data or pictorial.

For hard data (such as notes from interviews), a filing system was defined which separated the data per each case studied, then according to the levels at which the data was collected. Non-case specific data, such as those resulting from national and expert interviews were stored in separate files. The same was done for regional level data. Case maps were stored separately. Different colours of files were used to help make the distinctions easily recognisable.

Audio data followed similar filing system as described above. Each voice recording was further converted into text data producing soft documents for filing. The filing protocol used for the hard copies were applied in filing the soft text versions of the voice recordings.

Separate pictorial folders were created for digital field photographs and maps for each of the study cases. Hard copies of municipal maps and water scheme maps were converted into digital versions and stored on case basis in sub-folders in the main pictorial folder. Photographs taken during the field observation also had sub-folders created for them on case basis and then were filed in the main pictorial folder.

Case reporting

The second aspect of managing field data concerned the production of the case report. Often in case study research, case data are synonymous with the case evidence that gets presented in the case report. The case report should therefore contain enough data to enable the reader to understand the case context and draw independent conclusions (Yin 1994). A report was prepared on each case, providing in-depth insights to the contextual background and incorporating actual data, in the form of quotations or footnotes that could help the reader form his opinions without relying wholly on the case researcher. For each case, an analysis was done and the conclusions drawn were captured in the case report. Then a cross-case discussion was done to compare both cases and a cross-case report was produced which summarised the outcomes of the cross-case discussion.

4.6   Selection of cases

This case study is not just descriptive but it also tries to provide explanations to the phenomena that are observed. It is descriptive because it is aimed at providing a detailed and complete descriptive account of the phenomenon studied within its context. Beyond this however, it is also explanatory because it aims at providing reasons or explanations for the pertaining process practices in the mobilisation and use of local resources for the local level water supply. Based mainly on the writings of Yin (1994, 1993), I used a multiple case study involving two cases that were purposively selected. The selection of cases for the research was not based on sampling logic. Rather the cases were purposively selected. According to Yin (1993) using multiple cases improves the prospects for generalising the

findings of a research but on the basis that the cases are chosen on replication logic (ibid). Multiple case studies often involve 2 or 3 cases although this number is sometimes exceeded. The rich data that results and the researcher's desire to do an in- depth study often makes fewer cases more feasible. This knowledge guided my selection of the cases. However for this study my interest was not only in having similar cases chosen, but to be able to also explore the differences arising from the dissimilarities in project start-up circumstances. To this end, the cases selected were at variance: where in one case, as per the requirements of the small town water policy implementation guidelines - all the supposed physical and social conditions/processes for a successful STWS existed - were created or had been followed; but in the second case, while the physical conditions to support a local water system existed, the required processes for generating a supportive social environment within the communities for the sustenance of the project as determined by the policy guiding the operations of the sub-sector were not particularly implemented as typical of STWSs. Between both variants, the issues that would apply to the performance of many other peri-urban small town water schemes in Ghana are likely to be covered.

Although selection of cases for case study research is generally not based on sampling logic, some distributive factors may set in which will still require attention when conducting a case study research (ibid). For this research the locational context- Peri-urban- was important in making decisions on the spatial location of the cases. It was important to select cases located in the peri-urban areas in order to increase the tendency for the findings to be relevant to the dynamics of the spatial context that is the focus of the research. Secondary data played an important role at this stage in the research process. To be certain that an area was indeed peri-urban its proximity to urban areas was considered and complemented by its display of the visible attributes of peri-urbanisation, as identified in literature. The object was to overlap relevant definitions in order to double check that the study area fulfilled the characteristics of peri-urban settlements. The characteristics

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Box 4.1.   The selection of cases

One case was selected because it had the presence of all the factors that are, according to the principles of the small towns approach, would help ensure a successful scheme. There was direct participation of the communities in the funding, planning and construction phase of the scheme. There was the expressed need by community members for the water project. There was rigorous community sensitisation to the project and community members made direct financial contributions to project. They also participated in decisions about the siting of the scheme. The second case was selected because, contrary to the small town approach's principles, it did not involve the directly expressed need resulting from consultations of individual household in the communities for the water scheme; and financial contributions were not directly made by the community. The expression of the need for the project as well as the financial contributions was made by the traditional council on behalf of the township. The rigorous community sensitisation that normally occurs to raise awareness in the benefitting communities and to mobilise their contributions to the project were therefore missing. Community members were not involved in communal work in the construction phase of the project.

Source: Author's construct, 2010. Based on expert interviews and GWCL key informant interview 11, 2009

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considered were that the district fell within 40 km of the urban area, had presence of migrants, presence and use of rural water services/infrastructure, converting of agricultural land for other non-agricultural purposes, loss of the natural rural landscape, presence of

middle class commuters, and presence of small-scale farmers. Also the Community Water and Sanitation Agency's (CWSA) definition of what constitutes the peri-urban was used: it's not served by the Ghana Water Company Limited (GWCL), it is not rural, has a population of over 2000 and so has a small town water scheme.

Another issue considered was the length of operation of the water scheme within the study area. Most of the small town water schemes (STWS) that are located in peri-urban areas in Ghana are young. Cases selected had to have at least operated for a minimum of 4 years[19] - a period which would have been appreciably long to enable them to face some challenges or at least begin to experience the challenges that the much older water systems in Ghana face; in order for them to be able to yield the necessary data for answering the questions. Consequent to this, the system had to have been continuously operated since its implementation until the time of the conduct of this research. Below are the outcomes of the case/ scheme selection process.

Table 4.1. Sequence of issues in selection of the cases

No.	Issue	Number	Result
1	Regions selected for the probability of finding peri-urban settlements	2	- Greater Accra Region: Environs of the Accra-Tema metropolitan areas - Ashanti Region: Environs of the Kumasi metropolis
2	The local government selected for having peri-urban settlements with small town water systems that are at least 4 years old.	2	- Tema Metropolis - Ejisu Juaben Municipality
3	The scheme selected	2	- Oyibi Area Water scheme in the Tema Municipality - Juaben water scheme in the Ejisu-Juaben Municipality

Source: Author's construct

4.7   Conduct of Field data collection

Levels of data collection

Data was collected at five levels: national, regional, district, inter-community and community. I adopted a strategy that commenced data collection at the national level (this involved more general issues) and then zoomed in progressively through data gathering at the regional level, then the districts and lower levels. Using this strategy, I was able to gather useful insights that progressively and systematically fed into discussion at the subsequent, more focused levels. At the national level, the focus was on the policy frame and the support that national level institutions provide to the districts to enable them perform their roles. Other issues of concern at this level were the sector objectives and

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[19] Arrived at based on consultations with sector practitioners.

approach, and nationwide sector performance data. It was important to collect information at this level because national level actors create rules about quality standards, set limits, and provide broad institutional frames within which the districts perform. This way, they are important actors who influence the small towns approach. National level experts in the water sector, the ministry responsible for the water sector and the agency responsible for the small town water sub-sector (i.e. CWSA) were interviewed at this level.

The regional level has over-sight responsibilities for the district level statutorily. At this level, it is possible to determine the development direction of the entire region of which each district is only a part. Especially in the context of the district based water supply system, the link and role of the regional level in the district water supply approach is well emphasised. For example, policy requires that the region provides technical, supervisory and advisory support to the districts as they may not have the capacity to handle all issues by themselves. The linkage potentials within the districts that can be exploited, technical support and advice that the regional level provides to the district level as well as the challenges that the region as a whole encounters in the use of the small towns approach were some to the issues on which information/data was sort at this level. The regional offices of the Community Water and Sanitation Agency where the regional water and sanitation teams are seated was the focus of data collection at this level.

The district seats the water system. Therefore between the district and inter-community levels a lot of information was collected on a broad range of issues spanning the nature of potentials that the district has which can be exploited to support the approach, measures for taking advantage of local potentials, performance of the water system, and the level of involvement of other actors. The water board, as the body responsible for managing the scheme, was a very important source of information. The executive members were interviewed and checked with other staff of the scheme such as the technicians, accountants and vendors. The executive members rather than the community members on the boards were interviewed because the boards recommended that they provide information on behalf of the board because they were deeply involved and participated in the boards' meetings and so could answer the questions adequately on the boards' behalf. Within the DAs, the water and sanitation teams were also an important source as they had direct responsibility for the sector.

At the community levels information was collected on the experiences with the small towns approach and the level of satisfaction with the STWS's performance, as well as the involvement of community members in the process. Members of community groups, traditional leaders and opinion leaders were involved at this level. The latter two groups of respondents were among others considered to be in good position to further provide traditional perspectives on the use and management of water in the communities and express the views of the people. Also at the community level, the heads of households (or their spouses) were sampled and interviewed. The process for selecting household respondents is explained later in detail in this chapter.

Data collection protocols and preliminary activities undertaken

Prior to the actual field data collection activities it was necessary to prepare the grounds. Preliminary visits were made to the various units of data collection. The aim was to

formally introduce the researcher and through informal discussion to establish a rapport with the units/ individuals who were going to provide information. For such a process to yield the desired outcomes, it was necessary to whet the interest of the institutions/units/individuals involved by communicating to them the benefits that would accrue to them if they contributed to the research. Therefore letters of introduction confirming the researcher as a genuine research student and explaining the main objectives of the research and the benefits to respondent institutions and individuals were circulated. Each of the regional and district administrations involved were formally contacted to request for permission to carry out the research within their territory. Formal permission to use the districts in the regions for the research was obtained from the regional administration. Subsequent to the obtainment, key individuals within the regions and districts were contacted to lead the process of introducing me to the various actors within the region/district from whom information was to be collected; and authorising them to provide the necessary information. Similar processes were carried out at the national level in order to ensure that the right people were available and able to provide input to the research.

Permission obtained from the district assembly does not guarantee that the communities will be willing to provide information to the researcher. Additional protocol was needed to assure this. Here the role of traditional rulers and opinion leaders was important because these are people who live in the communities and are often trusted by community members. Their words and opinions are often found to carry more weight than those of the District Assembly (DA). Traditional leaders and opinion leaders were identified with the help of the District Planning Officer (DPO) and the Water and Sanitation Development Board (WSDB). The WSDB led the process of introducing the researcher to both groups of individuals, at this preliminary stage. The objective was to gain support for the research by according the traditional authorities the due recognition and communicating to them the aim of the research as well as the benefits that the community can derive from it.

Field assistants

Field assistants, who hail from the study districts or districts that had similar cultural settings to that of the study districts and could speak the local language, were identified and trained to assist in data gathering at the household level. It was important for the interviews at the household level to be of such manner that could make the respondents feel at home during the interviews. In Ghana generally, the ability to speak one's language almost immediately stirs a sense of identity or relation. I sought to exploit this while also using people who could appreciate the research approach and the nature of the questions. I oriented the field assistants on the purpose of the research and the tools being used, prior to the commencement of actual data collection activities. They were given adequate time to internalise the instruments and have issues clarified where necessary. This helped equip them to collect the relevant kind of data.

4.8   Sampling

For the qualitative method of data collection

At the national, regional, district, inter-community and community level purposive sampling was the method used to select respondents. The respondents were selected based on how well suited they were to provide responses to questions prepared for each level. This criterion helped to ensure that those who were well positioned to answer the research questions were interviewed. Starting with my knowledge (derived from my working experience in the water sector) of key informants in the water sector and of existing experts, I developed lists of possible respondents (or 'desks') to be interviewed at each level. Prior to the commencement of the data collection process I checked the list with long term sector practitioners who by virtue of the roles they had played could make meaningful contributions to the development of the list.

For the quantitative method of data collection

The selection and use of field assistants

Field assistants were used in the administration of questionnaires at the household level. These were field assistants who had been trained on the questionnaires which were translated into the local language (Twi and Ga). It was important for the interviews at the household level to be conducted by interviewers who could speak the local language of the communities concerned so that the respondents could feel at ease with the interviewer; and therefore feel at home when providing their responses. This step was taken with the knowledge that in Ghana generally, the ability to speak one's language almost immediately stirs a sense of community or relation. I sought to exploit this for the benefit of the research while using people who could appreciate the research approach and the nature of the questions; and ensuring that all the respondents were asked the questions the same way (i.e reading verbatim from the questionnaire). Therefore, field personnel who hailed from the study districts or districts that had similar cultural settings to that of the study districts assisted in data gathering at the household level.

The selection of communities for data gathering

An important aspect of the process was deciding which communities served by the water scheme to involve in the data collection. In order to be able to select communities that could yield information that would reveal the variations in their experiences in relation to the affairs of the water scheme, purposive sampling was used. The insights provided by key informants at the local government level and water board - about the peculiarities of the various communities in terms of their composition, guesstimates about their average economic status and location of the boreholes and tanks - were considered for the purpose of selecting what communities to include in community level interviews. The communities were selected to ensure that together they would capture the experiences of communities with the presence of a high density of residences/ or presence of high number of consumers

of water for domestic purposes (Oyibi), those having a mix of private connections as well as public connections (Oyibi Township and Kpone Seduase), cannot be identified to be characterised by a particular income group, location of extraction activities (Kpone Seduase and Old Sasaabi), the communities farther (in terms of travel time by public transport) from the central operating area of the water scheme (Old Sasaabi) and finally a 'peculiar' community (Estates was chosen because of the general perception of such as area having a population comprising salaried workers with a regular source of income). In sum, data was collected from 3 of the 8 communities served by the Oyibi Area Water Scheme (Oyibi, Old Sasaabi and Kpone Seduase- the communities that fulfilled best the criteria) and the Juaben community served by the Juaben water scheme.

Community mapping

Community mapping: An important input for the collection of data from households in the selected communities was the community map. However, the local governments (that is the Planning department and the Town and Country Planning department), the National Survey department, as well as (in the case of the OAWS) the Water and Sanitation Board did not have maps that showed the spatial distribution of housing units within the communities. Community mapping exercises therefore had to be done as a means of obtaining ideas on the distribution of the households in the various communities from which the household data was to be collected. For this reason, as part of the group interviews, the participants were requested to prepare a hand drawn map showing the important land marks and the houses in their communities such that it depicted the variations in the concentration of houses within the spatial area of their communities. Old Sasaabi did not have any community group. However, a group of community members was assembled for the preparation of the community map.

Once completed, they proceeded to explain the map to the research team. The field team also gave them its interpretation of the spatial distribution of households within the area based upon the map that they had drawn with emphasis on the spatial densities in the distribution of the households in the community. This was done so that the participants could confirm if that was indeed the impression that they sought to give through the map. A few changes were made to the maps as a result of the interpretation of the maps that they had drawn, in order to make it more accurate. These changes were done by the participants themselves.

After the preparation of community maps, it was necessary to check its accuracy by observing the situation in the community. The field team went through the community with the community generated map to verify that they were relatively accurate in terms of the positions of the key landmarks as well and the spatial distribution of houses. Where inaccuracies were noted, the maps (that of Oyibi Township and Kpone Seduase) were corrected to improve upon its accuracy, based on its observations. Generally, the distribution of houses was not altered because it was quite accurate. The maps were validated afterwards with other members of the community and then with key informants in the community.

In Juaben, a map of the area served by the water scheme was obtained from the water board and used to guide the sampling of households. A check was also done to ascertain the

accuracy of the contents of the map (as regards the population density distribution as shown by the housing units in Juaben). Each member of the field team observed independently, the map and the distribution of housing units in Juaben by walking through the community to draw conclusions about the representativeness of the map. Individual observations were then discussed by the entire team to reach a conclusion on the representativeness of the map. The map was confirmed by the team to be representative enough after its discussions and therefore it was used to guide the sampling process.

The community maps guided the spatial distribution of the interviews in the communities. Based upon the spatial rendition on the maps and using the rough counts of the number of households in each community, the proportion of the total number of households in each section of a community was determined. These calculated proportions were in turn used to determine the number of households interviews conducted in each section of the community. The process is explained in more detail in the following paragraphs.

Selection of households

A stratified sampling approach was used to select the households from which to collect the data. Some of the main steps taken are enumerated in the bullet points below.

- Based upon the actual number of households in each of the communities concerned as at 2000 and the national household population growth rate of Ghana, the 2010 household population for each of the communities concerned was estimated.

The regional rates were not available. Using the national household population growth rate presents some limitations to the research because the peri-urban areas of Accra and Kumasi are areas that have been experiencing rapid population growth. However, the national average figure may fail to reveal the rapidity in growth in peri-urban areas. The following table provides further details on the household population in the communities studied.

Table 4.2   Household population

Community	Household population in 2000[1]	Approximate estimate 2010[2]
Oyibi Area Water System		
Oyibi Estates and township	277	338
Old Sasaabi	6	7
Kpone Seduase	93	113
Juaben Water system		
Juaben[20]	2177	2653

[1] *Taken from The Gazetteer (GSS, 2005);*   [2] *Determined using the national 5-yearly household population growth rates as stated by the GSS (2005:59) as 9.8% for 2005 and 11% for 2010.   Source: Author's construct, 2010*

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[20] Although the Juaben water system serves several communities which together make up Juaben, Juaben was considered as a single unit because data on the population figures of the smaller communities was not available.

- Based upon the household population, the sample size was determined to achieve a 10% confidence interval using the formula $n=N/((1+(N*10\%^2))$. The sample size arrived at for each of the communities is as presented in Table 4.3.

Table 4.3   Sample size per community and period of interview

Community	Sample Frame	Sample Size
Oyibi Water System		
Oyibi Estates & Township	338	77
		(i.e. Oyibi Estates - 38[21] Oyibi Township – 39)
Old Sasaabi	7	7
Kpone Seduase	113	53
Juaben Water System		
Juaben	2653	96

Source: Author's construct, 2010

- Oyibi Area Water system: Based upon the outcome to the group mapping process communities were divided into quarters. Using the community maps, the proportion of houses in each quarter was calculated as: (Number of houses countered in a section)/ (Number of houses when number of houses in all the sections are added up). To cross-check the accuracy of the proportions derived from the maps, the field team countered the houses in each quarter to be certain of the proportion of the total number of households in each quarter.

  The underlying assumption was that where there were more houses there were likely to be more households present. Using the proportions derived, the number of interviews to be held in each quarter was then determined.

- The Juaben Water System: It was observed that the structure of the community concentrated most houses at the centre but the concentration became less dense as one moved away from the centre. For this reason a circular approach was used to segment the Juaben community. Three segments were created representing the dense, less dense and least dense areas.

- Based on a major assumption that the densities indicated on the map were similar to the actual on the ground, the number of interviews to be conducted in each segment was determined. The number of housing units within each circle/segment indicated on the map was counted and used to calculate the proportion of the sample size that should be allotted to each circle using simple proportion. Please see the outcome in Table 4.4.

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[21] Information on the household populations of the Oyibi township and the estates were not disaggregated. To have disaggregated data, rough counts of the number of housing units in the estates and the township were done in order to compare them. The figures arrived at from the counts when compared showed that both communities had about the same household populations. As a result, the 77 questionnaires for the area were split equally between the Oyibi township and the estate.

Table 4.4 Proportion of houses found in each section

CIRCLE	No. of housing units on map	No. of housing units per circle		No. (per semi-circle) of houses* that constitutes sample size (96)	
		East of main road	West of main road	East semi-circles (approx)	West semi-circles (approx)
Innermost circle	52	29	23	16	13
Outer circle	83	40	43	22	24
Outermost circle	41	25	16	14	9
Total	176	94	82	52	46

Determined through simple proportion   Source: Author's construct

There was a hundred percent (218 questionnaires) realisation of the planned administration of questionnaires at the household level. As already mention the questioners were interviewer administered. None of the questionnaires had to be set aside during the analysis for being faulty.

Sampling for households with direct connections

In capturing the opinions of households, I remained mindful that within communities served by the STWS there were likely to be more households patronizing the public stand pipes rather than direct connections. Therefore, effort was made to ensure that the opinions of households with direct connections were not left out. Here representativeness was not the issue of concern as the supply scheme's institutional processes were not likely to be very different. What was of import was that their opinions were also captured. To achieve this, the following steps were taken.

- The proportion of the households with direct connection in each community was calculated as: (total number of households that have direct connections)/ (total number of households that patronize the water scheme).

- Based on the proportion arrived at, the proportion of households with direct connections that should be interviewed as part of the sample size was calculated. Table 4.5 shows the conclusions arrived at. It also offers explanations on aspects of the statistically determined sample size that I altered and offers the justifications for the changes. In addition, the sub-points explain how the figures in the table were adjusted to suit the situation on the ground.

- As the Table 4.5 shows, no households with direct connections were interviewed at Old Sasaabi because there were no households with direct connections. There were only 10 households in Kpone Seduase with direct connections. Of this number, 6 households were interviewed.

- The households with direct connections were randomly selected as part of the entire selection process. How many households with direct connections in a section of the community were selected in each (i.e. quarter in the Oyibi area or semi-circle in

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Juaben) was determined based on the same proportions used to determine how many interviews would be conducted in each segment/quarter.

Table 4.5   Number of households with direct connections in each community and number in sample size

Community	Estimated no. of households (approx)	House-holds (hh) sample size	No. of hh with direct connections	Proportion of the total number of hh with direct connections	Quantity of the sample size taken by hh with direct connections	
Oyibi Township and Estate	338	77	Estates⁻ 132 Township- 8	≈0.4	≈31[22]	Estates-29 Township- 2
Kpone Seduase[4]	61[23]	≈38[24]	10	≈0.08 0.16	≈5 ≈6	
Old Sasaabi	7	7	0	0	0	
Juaben	2653	96	320	≈0.12	≈12	

Source: Author's construct, 2010

4.9   Quality checks

Assuring the quality of the processes used to gather data especially at the household level required that some quality monitoring steps were designed and used during the process. The translation of the English version of the household questionnaire to vernacular (Ga and Twi), the use of research assistants, and the use of community generated maps were some of the reasons that additional checks were required. The four bullet-points below explain how this was achieved.

Translation of the household questionnaires

The translation of the household questionnaire from English to Ga and Twi was done by people with the requisite training to do so. To check the quality of the translations, the translated document was reviewed separately by the field assistants. The approach used was that one of the field assistants read the questions out in Ga while the others and I listened and checked with the English version for its accuracy. Through this process inaccuracies were detected, recorded on the questionnaires and finally used to correct the translation and come up with a finalized version.

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[22] The number (31) again had to be split between the township and the estate. Again using simple proportion of the number of houses with direct connection in the township to the estates, the figure for households with direct connections was split between the estates and the township as 29:2. In conducting the actual data collection, the figure for the estates was exceeded because it was not possible to find households without direct connections. All 38 households interviewed in the estate had direct connections.

[23] The figure arrived at based on information obtained from the GSS was 113, however only 61 household could be found in the community when the field team counted.

[24] Calculation based on figure obtained by research team and not GSS information.

Pre-testing

To check the clarity to respondents of the questions contained in the household questionnaire, preliminary interviews were conducted in the two case study areas prior to the actual data collection exercise. In Oyibi, one of the communities that benefit from the water scheme (i.e. New Sasaabi) was selected for the pre-test. In Juaben, the pre-test was conducted with people who worked and resided within the community. In both cases the respondents were purposively selected with the aid of the staff of the water scheme.

The translated questionnaires were used for the pre-test (Ga for Oyibi and Twi for Juaben). Three interviews were conducted in each case. In the Juaben case, no changes were made as a result of the pre-test because the respondents comprehended the questions correctly. In the case of Oyibi, one question had to be modified: the expression 12/11 litres had to be changed to read '34 bucket' because this was the measuring form that the respondents were familiar with. The alteration was made after the first and second respondents could not express their responses in terms of the 12 or 11 litres. With the third respondents no challenge was observed and so the testing ended after the third interview. The change from 12 or 11 litres was also effected on the Twi questionnaire after the management of the water scheme confirmed its appropriateness. At Juaben, the change from 12 or 11 litres to 34 bucket was done before the pre-test of the questionnaire.

Monitoring the conduct of interviews

An important component of the training process was the actual monitoring of the interviews conducted by the field assistants, in order to improve the quality. My participation as an observer in some of the interviews conducted by the field assistants helped achieve this. During the process shortfalls were noted and discussed with the interviewer after the interview. When necessary the interviewer was subtly prompted during the interview through my contribution. However, there were rather few of such instances. This activity was important at the early stages of the data collection processes in order to streamline performance. Beyond the early stages, random interview sit-ins were done to observe and monitor them.

After the collection of the data from the households each of the research assistants spent the evening reviewing the questionnaires that they had filled out. The next morning they handed over the questionnaires to me for review. As a control measure, each questionnaire was checked to ensure that it had been correctly filled.

Problem solving: Problems encountered in the process of collecting the empirical data included non-availability of respondents, roads made difficult to ply because of heavy rains, and expectations of some respondents of financial rewards for the interviews granted. At the end of each field day, the entire team met to discuss the challenges encountered and to fashion out strategies to address them. For the purpose of later reference, record in the form of a problem table was made of the challenges encountered.

In the following chapters, I present the results of the analyses of the data obtained by the application of the methodology explained in this chapter. I consider the conceptual propositions (discussed in detail in Chapter 3) to identify when and how they have manifested in the real life context of the cases studied and then attempt to provide explanations for these.

5 THE OYIBI AREA WATER SCHEME OF THE TEMA METROPOLIS

This chapter provides an account of data collected on the Oyibi Area Water System and my interpretations of the data. It commences with an introduction of the study district -the Tema Metropolis- in order to provide an account of the spatial context within which the water system is being considered. This is then followed by a description of the Oyibi area and the origins of the water scheme in the area. The subsequent sections of the chapter are then structured according to the research questions. They provide answers to the questions on the role that local resources play in the affairs of the scheme, the institutional and service delivery mechanisms employed, and the process challenges experienced in the operation of the water system. The chapter assesses the performance of the water scheme as per national performance assessment criteria. It concludes with a summary of the key findings of the chapter that highlights both the facilitating situations and the situations that have challenged the performance of the water system.

5.1 The Tema metropolis

Physical attributes

The Tema metropolis is located along the eastern coast of Ghana and is about 30 kilometres from Accra, the capital city. The metropolis is bordered to the south by the Gulf of Guinea, to the north by the Akuapim North and Akuapim South districts, to the north-east and east by the Dangme East district, to the west by the Ga district and the Accra Metropolis. A map of the metropolis is provided on the following page showing the main water facilities in the metropolis.

The Tema metropolis covers an area of 396 square kilometres most of which is flat and ranges between 0m and 35m above sea level. The gradient increases away from the coast; and although there are some inselbergs, these are only about 65 kilometres high. The Tema metropolis falls within Ghana's coastal savanna belt. The average annual rainfall ranges between 730mm and 790mm. Tema experiences two main rainfall seasons: a major one usually from April to July and a minor one from September to November. Temperatures range between 29° and 22° Celsius with the warmest periods being from October to April. Humidity values vary widely; and range between 60% and 80% in the wettest periods and 30% in the driest. The driest period is from December to March when the metropolis comes under the influence of the dry north-easterly winds (the Harmattan).

Although the metropolis has streams and rivers, none of the streams flow all year round. Most of them diminish greatly in volume during the dry season but build up again during the rainy season (TMA, 2008: 2). The metropolis is underlain by metamorphic rock comprising granite, gneiss and schist. These are covered by surface soil consisting mainly of the weathered forms of these rocks and not exceeding 12m in depth; and comprising stone, clay and sand. A confined aquifer stretches across most of the Tema metropolitan

area. The potential of ground water is believed to be low because of the nature of the geological materials within which it is found (ibid). Generally, ground water in the metropolis is characterised by heavy salinity as well as hardness that necessitates treatment prior to domestic and industrial consumption.
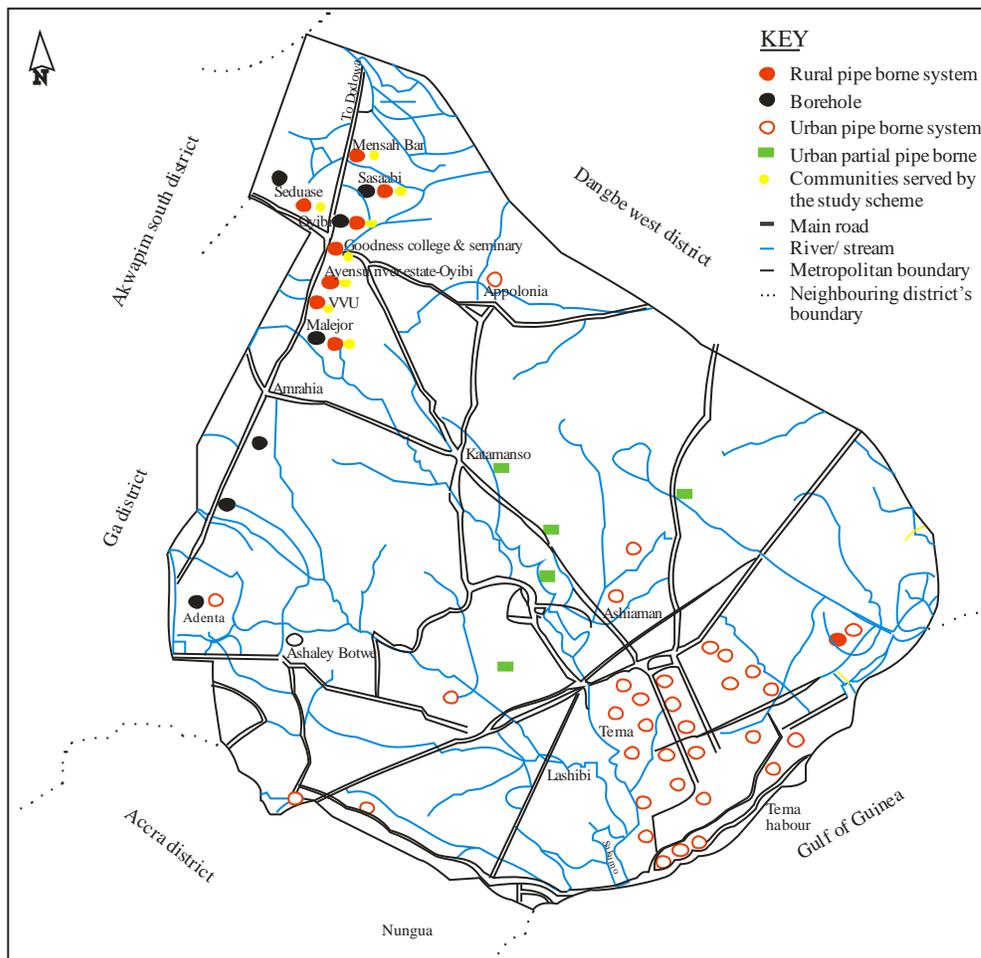
Map 1. The Tema Metropolis and its water facilities. Source: Derived from maps provided by the TMA, 2009

Human attributes

Tema has a projected population of about 749,596[25] (for 2010 according to the 2000 population census) of which less than 10% reside in purely rural communities. Its current growth rate of 4% is largely as a result of migration into the metropolis by people from other parts of the country in search of jobs in industries and at the Tema harbour. Ashaley-Botwe and Sakumono are examples of the communities that have in recent times been experiencing rapid increases in their populations. The significant increase in the population

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[25] Using a 4% growth rate, on Tema's population of 506,400 in 2000 (according to the 2000 population census).

has also been as a result of the construction of new estates by estate development companies operating within the metropolis (TMA, 2008: 29). Today, many areas that could previously have been described as hamlets have also 'registered dramatic increases in population' (TMA, 2008: ix). The population of the metropolis is very diverse ethnically and religiously. Settlements that remain indigenous in their population composition are the poorest in the metropolis (TMA, 2008: 4) these are found especially in the areas where it borders the Dangme West and the Ga districts (GHS).

Economic attributes

Agriculture and closely related activities are not widespread in the metropolis because of the concentration of industries (TMA, 2008: 5). Agricultural activities are mostly found in the peri-urban communities of the metropolis but these farm lands are increasingly under threat as the owners sell them off to estate and industrial developers, who in turn convert them into residential or industrial uses. This is true for small scale farmers as well as large scale farmers (ibid: 5). Although, the Tema metropolis seemingly has higher income levels than other parts of the country, incomes are generally unstable: they vary widely (NDPC/UNDP, 2004: 80). Again, although only 19% of the population is below the poverty line (number of people living on less than $1.00 per day) as of 2004, 44% of the metropolis' population considered themselves either poor or very poor. Their subjective opinions about their status takes issues such as their well being in the past as compared to current situations as well as their current situations in relation to that of other households or persons and their expectations (ibid: 34).

The TMA has been investing in projects aimed at improving access to basic utilities, including water, in the metropolis. Between 2003 and 2009 the water and sanitation sector ranked about the fourth largest beneficiary of the metropolitan assembly's budget. This trend has resulted because water (ibid) and sanitation issues were found to be at the helm of many of the metropolis' health problems; and were of much concern to its residents. Expenditure on development projects within the metropolis is however very much determined by the availability of external grants. This leaves such capital expenditures susceptible to externally generated fluctuations. As of 2003, the highest single contribution to the metropolis' revenue came from grants (58.8%); and this was followed by revenues from rates and then fees and fines which accounted for 17.4% and 13.8% respectively (ibid).

Access to water for domestic use

According to the Metropolis' Human Development Report (2004: 56), majority of the residents have access to piped water although by 2004 there still remained some areas such as Katamanso and Kubekro No. 2 that were without piped water. Today, these areas remain largely without access to safe water. Safe water supply options include pipe borne water, public stand pipes, as well as water tankers supplies. In rural and peri-urban communities' communal ponds, streams and rivers are still being used although they are poorly maintained now and many are silted. Indeed, although the human development report indicates that the metropolis has a better performance on the human development indicators including access to pipe-borne water (NDPC/UNDP, 2004: 11) than some other districts,

access to potable water in the municipality still requires improvement. This is because even in quarters described by the TMA as the least poor areas, or comprising middle to high income earners with optimal access to basic facilities, piped water is rationed. These settlements include Tema, Michel Camp, Lashibi and Sakumono (TMA, 2008: 5). In the poorer and middle income settlements such as Ashiaman for example piped water supply can be found, however, about a quarter of the residents rely on water tanker supplies for their household needs (NDPC/UNDP, 2004: 53). Rural zones of the metropolis have an average of less than 32% piped-water coverage (TMA, 2008: 29). This could go as low as 5% as could be found in the Kpeshie Gonno Zone as of 2008. Coupled with the high cost of tanker supplies, the situation leaves many households to rely on natural and untreated sources of water. The use of such untreated water makes the metropolis record quite high a number of cases of water borne diseases such as bilharzia. The influx of migrants to the metropolis strains further the limited basic utility services and facilities in the metropolis: water, toilets, housing, etc. Indeed, the peri-urban and rural segments of the metropolis are considered areas of low water coverage and are the focus of the metropolis' water development plan (ibid: 30).

The Oyibi area

The 'Oyibi area' falls under the Katamanso zone of the Tema metropolis. The various communities in the Oyibi Area however fall under four different traditional areas. These are the Tema Traditional area, La Traditional area, Nungua traditional area and Kpone traditional area. These are Ga and Dangme ethnic groups. The Oyibi area is currently multi-ethnic with representations from the Ga, Ada, Ewe, and Fante ethnic groups among others. It is also multi-religious. The area has been a net recipient of migrants in recent years. This has not only been as a result of the attractiveness of the Tema metropolis to migrants from rural areas who come in search of factory jobs. It has also been spurred by the development of estates and boarding educational institutions with the Oyibi area. These have attracted to the Oyibi area a population of diverse social backgrounds. The population was estimated to be 9,888 by 2009 with a 2.8% estimated growth rate, according to the WSDB (undated; also Board 2 interview, 2009).

Farming and small scale agro- processing are the dominant economic activities in the area. Farming is done both on large and subsistence scale. Crops grown include maize, pepper, cassava and tomatoes. Agro-processing industries include gari-making and the production of cassava dough. Petty trading is popular among women in the area. The spring-up of estate development activities in the area has also led to the growth of a block making industry which employs both men and women and which has been considered an important source of income for the inhabitants of the area (WSDB, 2004: 5-6; Oyibi group informants interview 2, 2010; Researcher's observation, 2009).

The Oyibi area, like other sections in the Katamanso zone of the Tema metropolis, is less densely populated than other areas of the metropolis and has limited access to socio-economic facilities (TMA, 2008: 29). However, water facilities are of particular importance here. Sources of water supply vary from ponds, dams, boreholes and piped systems acquired under varied conditions which were provided either by community, donors, individual or the public sector efforts. As at 2004, there existed 7 ponds, 3 dams and 3

functioning boreholes fitted with pumps in the area (WSDB, 2004: 7) that were being used by the inhabitants. The ponds in the area were community initiated and served human consumption and farming purposes. The dams were provided to serve farming purposes while boreholes in the area serve human consumption purposes mainly (ibid). Currently, most of the ponds in the area are rather old and silted and so are no more used for human consumption (Oyibi group informants interview 3, 2009; Old Sasaabi community leaders' interview, 2009; WSDB, 2004: 9). Sometimes, people fetch water from the ponds for their domestic use although this is not the dominant practice in the community (ibid; MWST interview 25, 2009). There are at least three ponds that are still used by the communities. At the Oyibi township for example, one of the ponds is still being used for construction and farming purposes (Oyibi group informants interview 3, 2009). At Kpone Seduase, people use water from the ponds for washing cars and clothes (Kpone Seduase opinion leader 1 interview, 2009; Kpone Seduase group interview, 2010).

The construction and inauguration of the Oyibi Area Water Scheme (a small town water scheme) in 2004 boosted immensely access to potable water in the Katamanso zone. The scheme was originally constructed to serve a population of 3,091 in 7 communities (including 2 institutions): Old Saasabi, Malejor, Oyibi Estates and Oyibi township, Kpone Seduase, Valley View University, and the Good News Theological College and Seminary. It has since then been extended to serve 2 other communities in the Katamanso zone: Mensah bar and New Sasaabi.

Origins of the Oyibi Area Water Scheme

The Oyibi area water scheme was a project implemented in response to the request of communities in the Oyibi area. The process was facilitated by the Tema Metropolitan Assembly (TMA) whose main interest in the Oyibi Area Water project was to improve water supply in the Katamanso area. The project took advantage of the provision within Ghana's water policy which allowed the Community Water and Sanitation Agency (CWSA) to provide water to peri-urban areas that were not served by the Ghana Water Company Limited (GWCL). The project was implemented as part of a CWSA donor funded program but with 5% contribution made by the communities and the Metropolitan Assembly respectively.

The metropolitan assembly facilitated the mobilisation of the 5% contributions of communities to the project, provided advisory support to communities for preparing their proposals for acquiring the water facility, and also facilitated the formation of the water and sanitation development board and water and sanitation committees (watsans). The determination of the kind of water system installed and all other technical decisions were made by the CWSA through its technical consultants, but in consultation with the district assembly and the communities.

External contribution to the project through funding was done as a one-off effort. Upon completion of the project, the CWSA passed it on the Metropolitan Assembly which in turn passed it on to an intermediate body (a water board) established to oversee the operations of the projects. The Oyibi Area Water Scheme (OAWS) operates as a self-sustaining scheme. It is expected to generate adequate funds from its operations to cater for its maintenance, operations and expansion. The project was designed to accommodate the area's population growth over a ten-year period. It has a ten year technical life span.

Technical structure of the Oyibi Area Water Scheme (OAWS)

With the guidance of consultants, the WSDB made decisions on the source from which water for the scheme would be taken, and the powering and the distribution mechanisms with the community. The OAWS comprises 2 boreholes located at Old Sasaabi and Kpone Seduase, an overhead tank, 14 public stand pipes in 6 communities, bulk supply lines to 2 institutions and the estates, and direct supply lines to private houses. The boreholes are fitted with submersible pumps that pump the water through a trunk main to a 120 cubic meter high level tank located at Oyibi township. The OAWS has been connected to an already existing network of pipes in Oyibi Estates, Good News Theological College and Seminary, Valley View University, and the Oyibi Junior Secondary School. This pre-existing network was laid by the Ghana Water Company when it was supplying water to these communities.

The water is distributed to the various beneficiary communities primarily using the force of gravity. The educational institutions served by the OAWS also have their own tanks into which water from the OAWS in pumped for redistribution within their campuses. For houses that do not have direct connections, the public stand pipes are installed at vantage points such that each stand pipe can serve up to 300 people. The OAWS currently rations water to its non-indigenous communities: Oyibi estates, Valley View University and Good News Theological college and seminary. As a result of the rationing, individual household storage systems have informally become a part of the water supply system. In order to ensure that they still have access to water during periods when water is not flowing in their section of the community, households fetch and store water in overhead tanks, barrels and buckets among others.

The water system was designed to serve a population of 3,091 and an estimated daily demand of $255.6m^3$ per day (OAWS, 2004: 12). This demand was to be met with a safe yield of $11.88m^3$ per hour or $143m^3$ per day from the Old Sasaabi borehole and $9.72m^3$ per hour or $117m^3$ per day from the Kpone Seduase Borehole based on a 12-hour operation regime (ibid), however, it is currently operating above this level. The pumps have a 16-hour operation regime. The pump at Old Sasaabi is therefore yielding $14m^3$ per hour while Kpone Seduase's also yields $14m^3$ per hour (WSDB).

5.2   The role of local potentials

To answer this broad research question, I first present the data or information obtained from respondents and secondary sources respectively. I then follow this with my interpretations of their opinions. The approach in this section is based on the premise that, if three or more respondents point to the same issues as being their context then it is likely to represent the reality. Where possible the opinions expressed are again triangulated with secondary information and my observations on the field. This section is structured according to the sub-questions of the research. My expectation is that by answering the sub-questions the main research question will in turn be answered because the sub-questions were derived from the broad research question.

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The available local potentials

The OAWS can boast of an availability of potentials spanning the broad categories identified in the conceptual framework developed for this study. Drawing from the convergent points obtained from interviews, documents and observation, the Table 5.1 presents a summary of potentials available to the Oyibi area water scheme.

Table 5.1   Expression of potentials available to the OAWS

Type of potential	Expression of potentials available to the OAWS
NATURAL	Underground water that is suitable for human consumption
HUMAN	A fairly educated population including the chiefs and community elders.
	Presence of communities which are willing to support the localised water system; including the operations and maintenance of the system.
	Presence of knowledgeable people who can be consulted by the board to give the board expert advice on issues
	Presence of people who are 'well connected' and so have contacts that can be tapped by the board to its benefit.
	Presence of traditional leaders
	Community groups such as drama troupes
ECONOMIC	Presence of non-indigene-communities like the universities and estate developed in the area which brings along middle income earners who have greater ability to pay the water rates.
	Real estate development activities in the Oyibi area that attract people to the Oyibi area
	Small scale businesses such as chop bars and road side eateries, block making, and gari processing that rely much on water and provide market.
	Welders, electricians and battery technicians who provide regular maintenance service to the scheme.
	Presence of trainable people. These are people who can be trained to serve on the board.
	Presence of people who could and were trained to serve as technical operators to maintain the pipelines and meters.
	Associations formed for commercial purposes such as the gari-producers association and the Oyibi farmers' group.
INSTITUTIONAL FRAME	TMA's willingness to allow or engage in public-private-community partnerships.
	TMA's political power and mandate to assist the board in implementing and achieving its goals. The TMA is legally mandated to, for example, gazette decisions of the WSDB.
	The existence and functioning of a dual leadership system
	Presence of university and academic institutions that have the knowledge and links that can be exploited to support the scheme: Valley View University, Goodnews Theological College and Seminary.

Source: Author's construct

The potentials being harnessed

To respond to this question, I present an analytical summary of the responses obtained from the various respondents on the field. I consider in Table 5.2, the list of potentials identified in Table 5.1 above as potentials available to the OAWS. The state of utilisation of the potentials is grouped into three categories with three different symbols. The first category (symbolised by the minus [-] sign) are those for which no clear evidence was found of use. The second category (symbolised by the plus [+] sign) are those for which the respondents (at least from 2 different respondent groups) were able to confirm that they were being used. The third category (with the symbol 'o') comprises those potentials that were clearly being used a lot. Based upon the data obtained from respondents in which they explained with examples how and the extent to which potentials are being used, I have categorised the use of the various potentials as in the following table. The lead actors in the water system were asked to assess the use of the potentials by the OAWS. Table 5.2 provides the average (mode) assessment given by the respondents. The potential for which the scheme has virtually no other alternative is the one that is clearly being used a lot. The conclusions that I draw from Table 5.2 are as follows:

- there are potentials such as groups and religious bodies which if tapped could yield benefits indirectly but which are hardly being tapped.

- businesses that rely on water and pay the board for the water that they consume were not identified to be potentials by the actors who are directly responsible for the scheme. Nonetheless the WSDB was able to provide an example of how it had tried to use the potentials in the estate agencies in the Oyibi area using its experience with the KASS valley view estates. However, most businesses that patronise the water supplied by the OAWS contacted the water scheme and so are not customers of the water scheme as a result of pro-active efforts of the water board. Therefore on this point the potential 'local business activities' did not score a clear '+'.

- There was often reference by the respondents in the institutions interviewed to the Valley View University and how it has supported the scheme after the WSDB approached it. The same was true for the TMA. These were indications of the exploitation of these potentials.

The majority (14) of the total number (16) of potentials identified by the respondents are already being exploited by the OAWS. In the next sub-section, I illustrate how the above table's assessment of the utilisation of the potentials in the Oyibi area is justified. The results presented in the Table largely confirmed the outcome of my assessment of the use of these potentials. My assessment of the use of the potentials was based on the information that I gathered from the field interviews.

Table 5.2   Usage of local potentials available by the OAWS

Type of potential	Expression of potentials available to the OAWS	Usage*			Average
		-	+	o	(Mode)
NATURAL	Underground water that is suitable for human consumption			o	o
HUMAN	The population characteristics		+		+
	Presence of communities which are willing to support the water system		+		
	Presence of traditional leaders in the communities		+		
	Community groups such as drama troupes	-			
ECONOMIC	Income levels		+		+
	Local business activities		+		
	- Real estate development activities in the Oyibi area				
	- Small scale businesses such as chop bars and road side eateries, block making, and gari processing that rely much on water and provide market.		+/-		
	Skills and trained labour		+		
	- Welders, electricians and battery technicians who provide regular maintenance service to the scheme.				
	- Presence of trainable people.		+		
	- People who could and were trained to serve as technical operators, board members etc. to support the operations of the scheme.		+		
	Associations formed for commercial purposes such as the gari-producers association and the Oyibi farmers' group.	-			
INSTITUTIONAL POTENTIALS	The Valley View University		+		+
	TMA's willingness to allow or engage in public-private-community partnerships through the policies that it pursues.		+		
	TMA's political power and mandate to assist the board in implementing and achieving its goals.		+		
	The co-existence of two systems of governance	implied			

*Indicates whether there was evidence of use of the potential or not
Scale: - Hardly evidence of use;   + Being used;   o Being used a lot
Source: Author's construct, 2010

How potentials are being used

As the above sub-section shows, the Oyibi area does have potentials that the OAWS can use to support its activities. In this sub-section, I attempt to provide an account of which and how potentials identified above have been used to support the OAWS. I present extracts from the interviews with the respondents as the basis for the conclusions that I draw on the use of the potentials.

Natural

Groundwater

'There is an overhead floating reservoir which is fed by water from 2 boreholes. The Kpone Seduase borehole yields water with less salt than the Old Saasabi borehole yields. The water is pumped from the 2 boreholes that feed into a common main pipe and therefore they get mixed before they are served to the communities.'   - Board 2 interview, 2009

'The scheme has 2 water intake points. The Kpone Seduase one was connected to electricity 1 year ago. The one at Old Saasabi was linked to the national grid less than 2 weeks ago -in July 2009.'   - MWST interview 25, 2009

Picture 5.1 A part of the Old Sasaabi pump system used for extracting the ground water. Source: Author, 2009

From these three sources of data, I established that the OAWS in making use of the ground water potential in the Oyib area.

Human

Population characteristics
The following quotations were taken from interviews with the Board, The Planning Unit and the MWST.

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'Initially the idea was to employ people from the polytechnics to run the system. But thanks to the presence of these tertiary education institutions we have been able to get people who are of even higher qualification than the polytechnic level. Lecturers of the University and seminary are on the board. The Oyibi representative is a chartered accountant. These people are knowledgeable and able to provide the requisite guidance.'   - MWST interview 25, 2009

'An example (of our use of people who are well connected but are not board members) is someone working with mines and energy who told the board how to go about getting connected to the ECG power.'   - Board 2 interview, 2009

'The various members on the board which include representatives from the Universities, with the benefit of the wealth of knowledge from the academic side, are cooperating fully and duly.'   - Planning Unit interview 23, 2009

The quotations show that efforts have been made to use the knowledge and educational background of people within the Oyibi area to the benefit of the water scheme. That the area has a population that is in itself a potential by virtue of the experience, knowledge or education of the population was supported by a member of the residents association. In Box 5.1 below, I present in narrative the account of one of the community members on one of the ways in which community members were able to prove that they had the requisite knowledge that ought to be tapped for the water scheme.

Box 5.1 A narration by Mr. Akwei on the reason water scheme was passed on to the community to manage

On one of my trips to collect data from the households at the Oyibi estates, I gave Mr. Akwei a lift to his community. During the journey, he began to tell me of his experiences at the project start-up phase. The following is an account of what he told me during the short journey:

When the contractor began constructing the network of pipes, Mr. Akwei used to go round out of personal interest to observe how the constructor's staff were working and the changes and progress they had made. After a period, when CWSA/DANIDA had already done the initial inspections of the contractor's work and indicated their satisfaction with his quality of work so that he had the full clearance to proceed, Mr. Akwei revisited some of the work sites and noticed that the diameter of pipes that were being fitted to carry the water to his community were smaller than the contractor had began with. When he enquired from the workers why they had changed the diameter, they indicated that their office had given that instruction. To Mr. Akwei, this meant that the pipeline would be able to carry much less water to the community. This would lower the water pressure and would mean that households in higher lying areas may seldom have water flowing through their pipes.

Mr. Akwei explained that he had been attending the sites meetings at which the community, CWSA and the metropolitan assembly reviewed the progress of work. Therefore at the next session, he questioned why the contractor was using smaller pipes contrary to what the stakeholders had earlier agreed on and elaborated his perceptions of the challenges that would occur as a result. He noted that immediately after the meeting, the CWSA and DANIDA staff went to have a look at the evidence and agreed that the contractor was working contrary to the contractual agreement. The team asked the contractor to remove all the smaller pipes and replace them with pipes of the correct diameter. At this juncture, Mr. Akwei proudly pointed out to me that it was then that they (the project implementers) realised that people in the Oyibi area were not ignorant; but had the potential to manage their own water system. He added that because the mode of managing the OAWS was being debated at about the same time, the project implementers who had favoured the water scheme be given to a private operator manage instead of the water board got convinced that the communities could manage their own water scheme if given the chance to do so.   Source: Informal discussion, 2010

Community member's willingness to support the scheme

That there is willingness among the community members to support the water scheme is indicated in the metropolis' water and sanitation development plan. The plan identifies the willingness of the communities to pay for facilities and well as the maintenance of the facility as opportunities that are available in the entire metropolis (WSDP, 2008: 30). Communities in the Oyibi area corroborate this because they agreed to contribute to the capital cost of the scheme and its maintenance. In discussing the current reality in the Oyibi area, I consider also the willingness of community members to pay their bills and to support the WSDB even if they would rather have changes made according to their preferences. I consider this issue because it can illustrate how willing the community members were to contribute to furthering the interests of the water scheme.

At both Kpone Seduase and Old Sasaabi, where the boreholes were sunk, there is the perception among members of the communities that the water should be supplied to them free of charge because the water is drawn on their land. As a result, members of the community initially resisted the introduction of new water rates by the WSDB. To address this challenge, the WSDB had to rely on the communities' willingness to allow the water scheme to be operated successfully. Indeed without the willingness of the communities the WSDB could not have easily obtained the approval of the TMA for the new water rates. Narrating the events surrounding the introduction of the new rates in 2009, Opinion leader 1 of Kpone Seduase noted that

'Some people think that because the water is taken from here, the price that we in this community pay should be low. However the board members came here and explained to us why this cannot be done and so we all now understand. We are all able to pay. The initial agitations for a reduction have all died down now because members of the community realise that nothing can be done to reduce the price any further. It costs 3 pesewas per bucket.'

- Kpone Seduase opinion leader 1 interview, 2009

On the WSDBs experience at Old Sasaabi, Onukpa (the respondent of the watsan at Old Sasaabi) recounted the challenges when members of the community told him directly that they would not agree to the proposed changes in the water rates. He explained that with time and after the water board met with the community to explain to them the need for the increase, and members of the community had compared the prices proposed to what was being charged in other places in Accra, the community members agreed to the new rate because they realised that the rate proposed by the water board in Oyibi was good although it was higher than the rates charged by the GWCL in the urban areas. These two examples illustrate that the communities are willing to support the measures introduced by the water board if the community are provided adequate information on the measures being implemented.

Economic

Income levels

No direct reference was made by the WSDB, MWST or the Planning Unit to efforts to exploit existing income levels. My examination of the responses to the question 'how do

you find the rates' suggests the current rates are considered by the respondents to be the optimum and that they are willing to pay. As the table below shows, most respondents ranked the current rates as either moderate or high. This suggests that as of now (2010) the WSDB is likely to face challenges if it tries to increase the rates further. This suggests that the WSDB may have exploited the income levels of its customers almost as much as its customers are willing to have their water budget stretched. As the numbers (these are the actual number of responses obtained from households) in the table below show, about half (45%) of the population find the rates moderate, while over one-third (37%) find the rate high.

Table 5.3 Opinions about the current water rates

Ranking	Communities' responses				
	Oyibi Estates	Oyibi Township	Sasaabi	Kpone Seduase	Sum
Low	0	0	1	2	3
Moderate	7	22	4	22	55
High	24	11	1	9	45
Extremely high	7	6	1	5	19

Source: Author's construct, 2010

Business activities
The OAWS has extended its services to cover settlements developed more recently by the Paradiso and Ayensu River estate development companies (Board 2 interview, 2009 and documents). The scheme's services have also been extended to serve private companies on the Oyibi area. These include Top Herbal and Civil Construction Products Ltd. However, as earlier mentioned these actions were not identified by respondents as efforts to exploit local potentials. No mention was made by the WSDB, MWST and the Planning Unit of these having been efforts to exploit the potentials that the activities of business in the area bring. The WSDB pointed out that although such entities are connected to the water scheme and use the water that the scheme produces, the OAWS was approached by these business entities to get connected. The WSDB did not initiate the process. Therefore the WSDB does not consider it an effort that they have made to make use of this potential. The WSDB nonetheless initiated efforts to get the estate development companies hooked onto the OAWS in the initial stages of its operations when it was seeking to expand its customer base. This was stopped after a while when the WSDB noticed that it had challenges meeting the demand for water.

Skills and trained labour
That the board is using this local potential was mentioned by residents in the communities when they commented on their observations of the scheme's operations, as follows:

'The staff are mostly locals. The proper functioning of the scheme is therefore of interest to them. This improves their level of commitment to their work.'
- Oyibi group informants interview 3, 2009

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'There is a plumber in this community who works with the board and manages the pump. It is the board that pays him. Indeed, the board has trained 2 plumbers from this community who work with the system.'

- Old Sasaabi Community leaders' interview, 2009

'The board tries to use whatever local potentials are available within the area.'

- Board 2 interview, 2009

'There is an area electrician who attends to electrical matters. When the generator was being used there was also a battery technician who was contracted to attend to it. Those who work on the pipes are the technical operators and they are from within the Oyibi area. All the employees of the board, except one person, reside in the communities. There are welders in the community whom the board uses when need be.'   - Board 2 interview, 2009

The multiple sources mentioned above confirm that the scheme is indeed making use of local skills and labour in the Oyibi area.

Institutional potentials

The Valley Views University

The Valley View University (VVU) offered institutional support to the water board. The FMP shows that the university at the initial stages of operation of the water scheme gave indication of its willingness to provide technical support to the WSDB (FMP 2004:15). The WSDB availed itself of this indication by accepting the VVUs support in the recruitment and training of staff. A couple of technical people who were German nationals working on the VVUs sewage projects were allowed to assist the WSDB in its recruitment of a manager for the water scheme (Oyibi group informants 2 interview, 2010; Board 2 interview, 2009; Board documents).

The local government's willingness to support through the policies it pursues

The exploitation of the willingness of the TMA to support the water sector activities was demonstrated using two situations. According to the WSDB, it sort and obtained the support of the TMA in its project which connected the Old Sasaabi pump house to the water scheme (Board 2 interview, 2009). The MWST also mentioned that the TMA provided electricity poles to support the extension of the national electricity grid to the Old Sasaabi pump house, as shown in the quotation below

'… the board needed electricity so it wrote to the assembly and the assembly provided the board with electricity poles as a way of supporting the board in its effort to connect electricity to the system.'   - MWST interview 25, 2009

The second example concerned managing the infiltration of water from the GWCL to communities that are being served by the OAWS.

'The board has therefore sought the support of the TMA to prevent the GWCL from doing this. The board wants the TMA to intervene and ensure that the GWCL rather supplies water in bulk to the board so that the board mixes it with the water produced from the wells and then supplies it to the communities.'

- Board 2 interview, 2009

The interview with the MWST confirmed this when it mentioned that

> 'The board through TMA has written to the GWCL to supply the water in bulk to the board so that the board then distributes it and pays GWCL but the GWCL has not responded; just as was experienced in the long delays with the ECG.'
>
> - MWST interview 25, 2009

To further illustrate the TMAs willingness to get involved in public- private partnerships, the planning unit was also able to show documents detailing efforts that the TMA was making to secure public privates partnership arrangements on two fronts although these did not concern water supply. These projects concerned the management of the 10 –acre Kpone refuse dump site and the development of the TEXPO land at Baatsonaa, in partnership with the Jospong groups of companies to serve as a one-stop shopping centre. In the case of the dump site, the TMA is seeking partnership because it realises that it does not have the requisite capacity and finances to manage the dump site by itself. The same applies in the context of developing the TEXPO land.

The existence of a dual system of leadership

Responding to the question on how local actors can contribute to the success of the scheme, the planning office underscored how the water scheme gains from the co-existence of both formal and informal governance systems, as follows:

> 'The chiefs have played a useful role in the project in contributing land and with the unit committee members, opinion leaders, helped make sure people pay for their water.' - Planning Unit interview 23, 2009

The unit committees are a part of the formal decentralised governance system. Explaining to me the TMA's approach to helping communities with water facilities, the MWST illustrated how the formal local governance system through collaboration with the traditional governance system the development of the water sector is furthered, as the comment below shows.

> 'We represent the local administration to facilitate the implementation of the policies (i.e. at the district level). They (the national level bodies) give as guidelines as per the program and as per the period of time and we may alter it to suit our districts need. If it is water, we go into communities of less than 5000. We go into the communities and sensitize them to know their felt needs. If their felt needs fall within that program (like water) then we sensitize them. Our approach is normally to enter the township, we look for their leadership, the chief … and seek to know their problems. If they accept the team and that the issue that the team brought is a problem then they assist the team to organise the rest of the community'. - MWST interview 25, 2009

The interview with the water board did not provide direct statements about the exploitation of the co-existing governance systems. However, my inference from the interviews is that the water board seeks to use either of the two systems depending on which one is better suited to assist in a particular issue. The following two examples below confirm this. First, the WSDB mentioned that to keep people using the OAWS's supply of water it has continued to urge the chiefs not to de-silt the ponds. As a result the ponds are still not de-silted and maintained regularly in the communities. In the second example, when the water

board needed help in forming a formal arrangement with the GWCL it went to the TMA and not the chiefs. These two examples suggest that the WSDB uses both governance systems based on what suits the situation that it encounters better. Based on this observation of the data obtained from the WSDB and the comments of the Planning Unit and the MWST, I conclude that there is effort being made to exploit the potentials in the co-existence of the formal and informal governance systems in the area.

Section summary

The Oyibi area has potentials that can and are being exploited in support of the OAWS. The potentials in the Oyibi area include the presence of a fairly educated population, communities that are willing to support the local water scheme, knowledgeable people who can be consulted to advice the board, people who have good social network, community-based groups and the presence of traditional leaders in the communities. These constitute the human potentials in the Oyibi area. There exist economic potentials as well. These are the presence of non-indigene communities with people who have higher incomes than the indigene communities have, real estate development activities, small scale businesses, local technicians and trainable people. Within the context of institutional frame, the existing potentials include the TMA's political power and mandate, TMA's policy to allow or engage in public-private and community partnerships, the co-existence and function of two systems of leadership (the tradition and formal), and the presence of academic institutions in the area. Evidence exists in the Oyibi area of the use of the potentials in all four categories of potentials mentioned above. Over seven-eighths ($^{7}/_{8}$) of the potentials identified are being harnessed. This is an indication that as far as the potential is identifiable it is likely to be used by the leadership of the scheme in furtherance of the ultimate goal of the OAWS.

5.3   Organisational, institutional and service delivery mechanisms

Incorporation of the harnessing local potentials in the scheme's plan

The OAWS has a plan for the management of the facility. This plan was drawn up at the commencement of the operation of the scheme with the aid of consultants. My examination of the facility management plan (FMP) revealed the following:

- It provides background information about the communities for which the water scheme was designed to serve. The background information covers the social characteristics, population figures, religious and economic activities and the main sources of income. Information about the institutional characteristics is also captured in this plan.

- The FMP mentions existing water facilities as at the time of the commencement of operations of the OAWS and their state; and then, it explains the rationale for the communities' decision to adopt the small town water approach.

- It also explains the design of the water scheme and provides population and water demand projections for a 10-year period.

- The plan provides the rationale for the choice of the type of water supply facility and how community contributions were organised toward the capital cost of the project, in the 'funding mechanism' section.

- In the section on the operation and maintenance (O&M) management, the financial plan for the contribution of communities to the O&M in detailed. Administrative arrangements as well as roles and responsibilities of the TMA are outlined

- Guidelines for establishing the annual operating budget are provided. Also indicated are the requirements for the preparation of the annual budget, tariff setting and book-keeping procedures and auditing requirements.

The document ends with the business plan which enumerates the objectives of the water scheme. In the business plan section, the measures for achieving the objectives of the water scheme - maintaining a good work force, improving service delivery to communities and extension to other communities, improving sale and reducing unaccounted for water, as well as improvement in the water supply - are mentioned. The sections of the business plan presented above and the measures outlined for achieving particular intensions are presented in Table 5.4 (WSDB, 2004).

According to the WSDB (Board 2 interview, 2009), this is the main plan guiding the schemes operations. It is used in conjunction with the broad policy guidelines provided by the CWSA for the sector operatives. As Table 5.4 shows, the measures outlined have in some cases not been further broken down into the specific activities to be undertaken by the WSDB. For example, the plan indicates the need to continue capacity building efforts but fails to indicate the approach to be used or the specific activities to be undertaken. Again, it does not indicate clearly a focus on the use of local potentials as the preferred source of resources for the operations of the scheme. The plan indicates the intention to increase the area served by the OAWS, but fails to indicate the rate of increase over the 10-year life span of the scheme. Such a break down would enable the scheme to know how much expansion the scheme can accommodate over the period and help avoid the need for water rationing as a result of excessive demand which the scheme currently faces.

Upon considering the contents of the document, I conclude that there are gaps in the blue print that guides the operations of the scheme. This is because there has not been outlined the sets of activities to be undertaken. Neither is there identification of underlying assumptions that support or could thwart the efforts of the scheme. The preparation and use of such a frame would make it possible to anticipate steps and activities that need to be taken to ensure that the scheme achieves its objectives. The FMP which was drawn up in 2004 has not been updated since the scheme commenced its operations. Currently, the executive management of the water scheme prepares a list of activities to be undertaken in a year. The management then presents this list to the entire WSDB at the annual end of year meeting at which the performance of the water scheme is discussed. The WSDB reviews the list and approves it to endorse it as the plan to guide the management of the scheme in the following year. The absence of a detailed frame (plan) leaves room for an ad hoc approach to addressing the affairs of the water scheme and a greater chance of missing important steps.

Table 5.4 Contents of the OAWS' business plan

Section of the business plan	Measures outlined	What is hoped to be achieved through the measure
Maintaining a good work force	Capacity building efforts should continue	To secure trained competent and well motivated personnel capable of working to achieve the objectives of the WSDB.
Improving service delivery to communities	Ensure uninterrupted delivery of water	Ensure access to reliable water supply.
	Extend distribution lines	
	Streaming lining modalities for accessing water and informing communities of it.	
Improving sale and reducing unaccounted for water	Expeditiously rectify faults, pipe bursts and leaks and prevent illegal connections.	Reduce the amount of water lost
	Meter public and household water units	
Improvement in the operation of the water supply facility	Maintaining the physical facility through	To avoid long periods of shut down.
	-timely supply of spare parts and replacement items.	
	-Employ operating staff with plumbing background.	

Source: Author's construct, 2010. Based on OAWS' facility management plan

Key organisations/actors involved

In this sub-section, I present my findings from interviews with the Water and Sanitation Development Board (WSDB), the MWST, sector experts and policy documents of the small town water sub-sector. The account presented represents only the information that I found to be the reality in the OAWS' context after I had triangulated the comments or data from the above mentioned sources found that they converged. In paragraph 2, I present a summary of the interpretation of responses obtained from the Planning Unit, the management team, WSDB, MWST and the watsan as they were the sources interviewed because they seemed (from earlier interviews) more deeply involved and interacting with other actors; and therefore could reveal more about goings-on.

After considering the centrality of actors in interactions within the water system, four clearly distinguishable actors in the operations of the water scheme emerge by virtue of the number of other actors whom they interact with and their origination of interaction processes. These are the chiefs/community leaders and opinion leaders, the metropolitan planning office, the WSDB and the metropolitan water and sanitation team (MWST). Of the four, the chiefs, opinion leaders hardly originate interaction with other actors. There are several other actors involved in interactions relating to the water scheme. These include the watsan, community residents, operating staff of the water scheme, as well as the metropolis' chief executive officer and the management team.
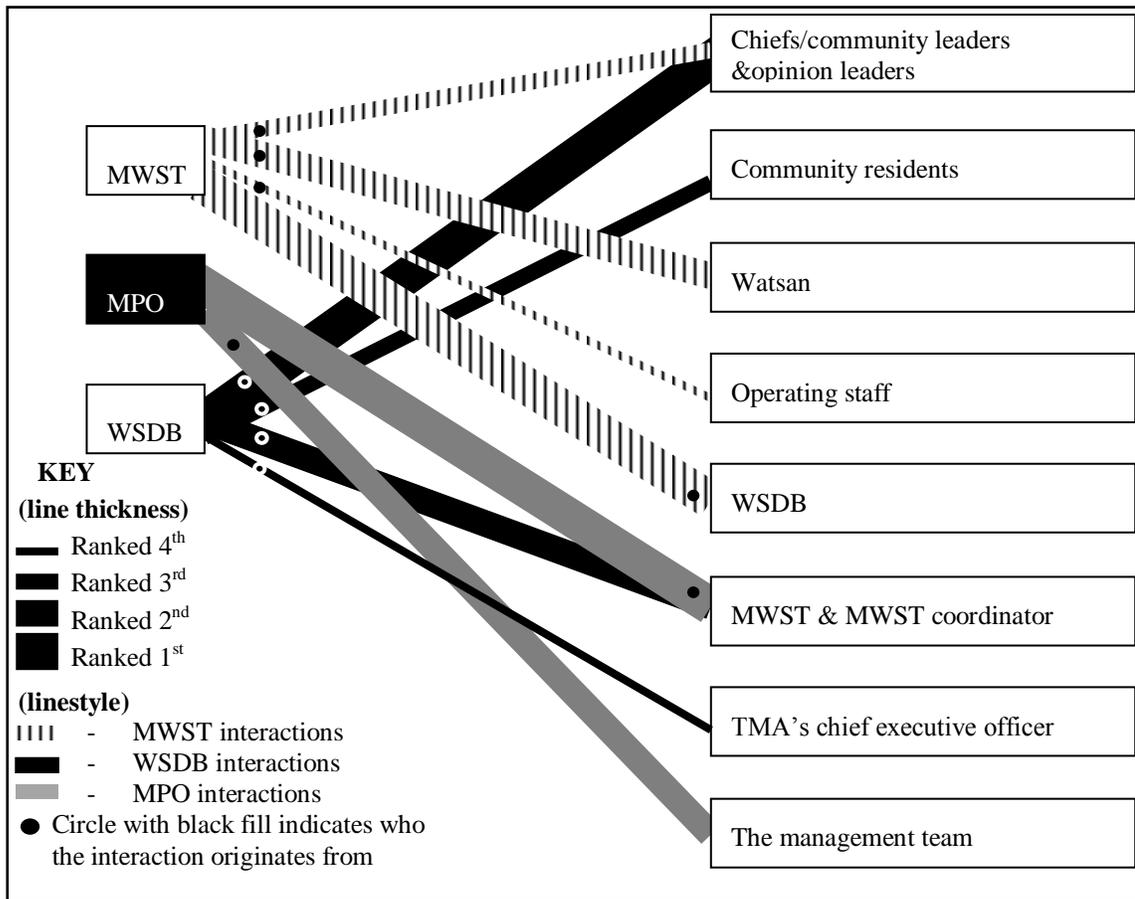
Diagram 5.1. Actor relationships in the Oyibi area water system. Source: Author's construct

In Diagram 5.1, the thickness of the different lines indicates the intensity of interactions among each pair of actors as indicated by the rankings given by each actor interviewed. The different line styles indicate the different actors' interactions; while the circles filled with black are positioned closer to one actor or the other on the line connecting each interacting pair to indicate who often originates the interactions. As the diagram shows, the main originator of interactions relating to the water scheme is the WSDB and the second is the MWST. As the thickness of the lines connecting the MWST and the WSDB show, there is also a significant volume of interaction between the WSDB and the MWST in the process. Another more visible actor group is the chiefs/community leaders and opinion leaders. As the diagram shows, both the WSDB and the MWST interact with this group. The WSDB does its most frequent interactions with this group. This group is however not a main originator in interactions. The Planning Unit is another significant actor in the systems processes. The MPO is a part of the MWST by virtue of his being the coordinator of the MWST. He serves also as the main link between the MWST and the management team. As will be seen later in this chapter, although the WSDB indicates that it interacts with the MCE, the MCE's interactions with the WSDB are informed by the MPO who is

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coordinator of the water sector activities and a member of the management team of which the MCE is a part. The levels at which the main

actors operate span the metropolitan, sub-metropolitan and community levels. By their institutional type, they represent the local government, intermediary entities and the community. In the following paragraphs, I discuss the actors identified under the three institutional types mentioned above.

The local government

The Tema Metropolitan Assembly (TMA) is in the local governmental category. The TMA is the owner of the water scheme as well as the highest formal governance entity within the metropolis. By virtue of both positions, the TMA is an important actor in processes relating to the OAWS. Its support of the water scheme is also influenced by its role as the body responsible for the development of the water sector within the metropolis and its objective of facilitating the provision of safe water. The TMA formulates sector policies and regulates sector activities. Its more direct involvement in the sector is done through the metropolis' water and sanitation team (MWST). The implementation of the metropolis' water and sanitation plan is therefore an integral part of the MWST's responsibility. The MWST's role involves directly supporting as well as monitoring of the sector actors to ensure that they operate within the sector policy frame and contribute to the metropolis' objective. It therefore concerns itself with activities of the WSDB as wells as the communities within the metropolis. The MWST is the link between the various actors and the TMA. The MWST comprises a community development officer, an environmental health officer, an environmental health assistant and a technical engineer. The team is led by the Metropolitan Planning Officer (MPO). As the leader of the MWST and a member of the metropolis' management team[26], the metropolitan planning officer is an important link between the MWST and the metropolis' management team. He is well positioned to obtain the management team's support for the activities of the MWST.

The intermediary entity (development board)

The Water and Sanitation Development Board (WSDB) is not a governmental body. Neither is it a typical private business entity. It is an institution created to operate and manage the water scheme in the interest of the communities (as the consumers) and the Metropolitan Assembly (as the owner of the scheme). It is responsible to the TMA and the communities, and it is the highest level at which O&M activities of the scheme are organised. The WSDB is a semi-autonomous body responsible for the actual operations of the scheme. There is a member of the MWST on the WSDB who represents the TMA. This is an ex-officio member (a non-voting member). The majority of the members are from the beneficiary communities. Each community served by the water scheme has a representative on the board. Larger communities such as the VVU have 2 representatives. Board members are elected to serve on the board for a four year renewable term. The non-permanency of their status gives the communities the opportunity to change them if they are dissatisfied

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[26] The management team comprises the topmost managers in TMA. They are responsible for making the decisions on how the metropolis' development is managed.

with their performance. There are a total of 13 members of which 5 are executive members. The executive members are more closely involved in the daily operations of the scheme, although broad decision-making is done by the entire 13-member board. The system co-ordinator who heads the schemes office and the administrator who is her deputy participate in meetings of the water board as ex-officio members. The community representatives on the board have the responsibility of communicating to their communities the decisions of the board and bring to the board feedback from the communities on the community opinions, perceptions and experiences regarding the measures implemented. The board meets once every quarter.

The WSDB (also referred to in this document as the water board) recruits staff of the scheme by itself. The management staff includes an accountant, an administrator (who currently also serves as the treasurer), and a system manager. As a member of the board, the administrator is therefore responsible for briefing the board on the financial state of the scheme. He is responsible for cross checking financial entries to ensure that they correspond with bank statements on amounts banked. The schemes complement of technical staff includes 6 technical operators who are responsible for inspecting and monitoring the pipelines and the metres. The technical operators include pump caretakers (2) who operate the pumps, regulate the operational hours of the pumps, monitor the operating level of the pumps and keep track of it. These pump attendants are also responsible for detecting and reporting faults on the pump to the schemes office.

Community-based institution

Water and Sanitation Committees (Watsans) are community based institutions from which communities select their representatives to serve on the WSDB. Watsans are responsible for supervising operation and management (O&M) activities but they operate within their communities. For example, they are responsible for direct supervision of the operation of the public stand pipes and vendor activities within their communities. They are also responsible for undertaking minor repairs and maintenance activities but major repairs are done by the water board. The watsans serve as the interface between the WSDB and the community; and compliment the activities of the WSDB. As an important link between the water board and the community, the watsans carry information from the WSDB to the community and also provide feedback to the water board from the communities. The existence of the watsans encourages the community members in their informal monitoring of occurrences in the communities because the community members know that their views will be communicated to the management of the scheme. Members of the watsan are selected from within the communities by the communities themselves. Their scope of work does not extend beyond the particular community in which they were formed. To be able to play the intermediary role that the watsan has, the community representative on the board is also a member of the watsan.

Vendor

Water vendors are persons who have been employed by the watsan to manage the public stand pipes in the communities. There are 14 vendors. The vendors are directly involved in the distribution of the water to consumers because they are responsible for the sale of water

to community members at the 14 public standpipes. They render financial accounts to the watsan through its treasurer. The treasurer in turn pays in the amount accrued to the OAWS' office on a weekly basis. A commission is paid to the vendor at the end of each month. Each vendor is paid 20% of the total sales he makes as commission. The remaining 80% is shared between the watsan and the water board in the ratio 1:15.

Communities and community leaders

The community as a unitary entity that is served by the water schemes is also an actor. Provision of land for sitting the pump houses, the offices of the water board and the location of the public stand pipes were all done with the community as important actors. As actors, the communities indirectly influence the activities of the water scheme through the members that they select to serve on the board and through the feedback that the community provides through their representatives on the board. The communities also exercise oversight functions to ensure that the board and their representatives on the board operate to their satisfaction. On the output side of the water system, the communities are also actors because they consume the water produced by the OAWS. They are therefore an important type of actors without whom the scheme would have difficulty operating. In performing this role the community leaders play an important part. Here, 'community leaders' refers to the chiefs and opinion leaders, and includes the assembly members of the communities. These are the people who champion the cause of their communities and are trusted by members of the communities to do so. For this reason, they have clout within the community.

Leadership of the OAWS

In this sub-section, I present a narrative of field stories relating to two of the processes that are typical to the STWSs. These are the process of setting water rates and the process of undertaking an extension of the water facility. The account presented would be the triangulated account of activities and processes, the flow of events, as well as roles and actors as they occurred in the two processes. In the end, it reveals who leads the process.

In the field data collection exercise, respondents at the household level were asked 'who/which organisation is leading the entire process?' The following diagram summarises the responses obtained from respondents at the households to this question. As Diagram 5.2 shows, almost half the population (49%) does not know who/which organisation is leading the entire process. Of the remaining half, majority (37%) identify the WSDB as institution that is leading the entire process. Eight percent (8%) attributed the leadership to the watsan in the communities. Approximately 1% identified the Tema Metropolitan Assembly (TMA) as the institution leading the entire process. Respondents from the two formal institutions that were identified as the main actors (the TMA and the WSDB) however did not identify one main actor as the ultimate leader. The WSDB and the MWST identified the TMA as the lead actor but with the WSDB responsible for leading the daily operation of the water
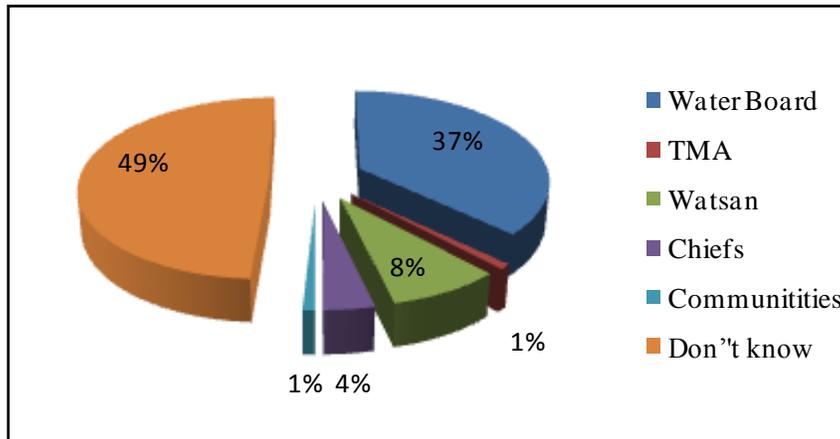
Diagram 5.2 Perceptions on who leads the system. Source: Author's construct, 2010

scheme. The Planning Unit however identified the WSDB as the lead actor, although it is accountable to the TMA. To help clarify the leadership of the system, I explore two issues in the following paragraphs: the process through which water rates get set and the process through which the water scheme gets extended. I consider stories obtained from the main actors already identified - the Planning Unit, MWST and the WSDB- in the processes that were pursued.

The process through which water rates for the OAWS gets re-set – An account of the last the re-set

- The preparatory phase: The last re-set of the rates charged for the water supplied by the OAWS was done in 2009. The processes leading to the actual implementation of the change however commenced in 2007. It commenced after the executive management of the water scheme observed a need for the rates to be reviewed upward. The executive management, which includes the system manager and the administrator, informed the WSDB of this need at its meeting. Subsequently, the WSDB sent out letters through the watsans to the chiefs of the communities served by the water scheme requesting for an opportunity to meet with them. Then, the WSDB met each chief and discussed with them the issue of reviewing the rates. After its meeting with the chiefs, the WSDB again sent out letters addressed to the watsans in each community and requesting that the watsans informs the community members of the WSDB's intention to meet their respective communities to discuss the water rates with them. Once the watsans received the letters, they proceeded to inform and mobilise their respective communities for their meeting with the members of the WSDB. At this meeting, the WSDB informed the community members of the need for an upward adjustment of the water rates in order to enable it cover its operating cost.

- Processing the proposal: While this process was going on, the WSDB wrote a letter to the Tema metropolitan chief executive to inform the TMA of the issue. After meeting all the communities, the WSDB prepared a proposal on the upward adjustment of the water rates and addressed it to the TMA's chief executive. This way the WSDB submitted its proposal to the TMA. However, the proposal was not considered by the

MCE alone. The entire management team of the TMA was informed of the proposal at its meeting; and the team subsequently referred the proposal to the metropolitan planning officer (MPO) to review and advice the management team. Therefore the MPO reviewed the proposal and submitted his recommendations to the management team. As part of his recommendations, the MPO referred the proposal to the works sub-committee for further consideration.

Meanwhile at the community level, the WSDB hinted the members of the communities of the pending increase in the water rates at its annual durbar - a durbar held yearly at which the WSDB renders account to the communities of its stewardship. The WSDB afterwards sent letters to the community chiefs formally informing them of the pending change in the water rate.

- Final approval and implementation: At the TMA, sub-committee for works reviewed the WSDBs proposal and forwarded it to the authority meeting with its recommendations. The authority meeting comprises the head of the various sub-committees. The authority meeting assessed the proposal and being satisfied with it, passed the proposal for presentation at the general assembly. As a result the metropolis' budget department made provision for the project in the metropolis' annual budget which was to be presented at the annual general meeting of the assembly. At the annual general meeting, the MPO presented the proposal for increasing the water rates to the assembly. The general assembly approved the new rate. Having got wind of the general assembly's approval, the WSDB sent out letters to its customers to inform them of the pending change in the rate they will have to pay for the water that they consume. However, the TMA did not give the WSDB the formal approval to charge the new rates in accordance with the outcomes of the general assembly meeting until after the political elections in 2008. TMA gave the formal approval to the WSDB to implement the new rates in January 2009. As a result, the WSDB effected the new rates in January 2009.

The process through which the last extension of the OAWS was done
- Start-up phase: The process of extending the water scheme commenced when the WSDB observed that in order to meet the growing demand for water in the Oyibi area, it needed other sources of water from which the OAWS could tap. The WSDB had also noted the existence of a borehole sunk by the CWSA in Akono but which was not linked to any piped water scheme. Armed with both pieces of information, the WSDB wrote a letter to the TMA to inform it of the need to expand the water scheme and of its desire to approach the CWSA to request for the use of the Akono borehole. The WSDBs letter was received by the MWST and passed on to the MWST coordinator (who is also the Metropolitan planning officer- MPO). The MPO discussed this with the management team and subsequently, the TMA submitted a request to the CWSA on behalf of the WSDB for the release of the Akono borehole. The proposal was prepared by the planning unit. Approximately 3 years after the request was made to the CWSA, the CWSA released the borehole to the TMA.
- Proposal processing phase: The release of the borehole led to the next stage which involved the procedure through which the water scheme would be extended. The MWST coordinator invited the WSDB for a meeting to discuss the need for extending

the scheme. Based on the discussions held with the MWST coordinator, the WSDB prepared and submitted a proposal on the extension of the water scheme to the TMA through the TMAs representative (also the MWST member on the water board) on the water board. In accordance with the internal procedures of the TMA, the MWST member submitted the proposal to the MWST coordinator. The coordinator then duly passed the proposal on to the management team, of which he (being MPO) is a part; but the management team duly referred it to the planning unit to review because the unit had oversight responsibility for the water sector.

As a first step in the review process, the MPO invited the WSDB for a discussion on the content of the proposal and how to proceed with the entire process of extending the water system. The MPO and the budget officer held the discussion with the WSDB because the TMAs budget officer is responsible for financial issues in the assembly; and the process of extending the water scheme had financial implications for the TMA. After the meeting with the WSDB, the MPO gave the management team feedback on his review of the proposal and his discussions with the WSDB. The MPO also referred the proposal to the works sub-committee to assess. Also after its assessment of the WSDBs proposal, the sub-committee on works passed on the proposal to the TMAs authority meeting to assess. After its assessment of the proposal, the authority meeting gave approval for the proposal to be presented to the general assembly. As a result of the authority meeting's approval, the MPO presented the proposal for the extension of the OAWS at the next general meeting of the assembly. The general assembly approved the proposal and the TMA officially (through the chief executive's office) informed the WSDB of the approval.

- Implementation phase: Once the TMA formally approved the proposal to extend the water scheme, the TMAs procurement board arranged a meeting with the executive management of the OAWS to discuss the project implementation process (the 'executive management' refers to the system manager and the administrator of the water scheme). The procurement board also gave approval to the management's proposition on how to handle the implementation of the project. Once the executive management of the OAWS received the formal approval of the procurement board of the proposed project implementation process, it informed the WSDB. The actual implementation of the project then began.

Through the executive management team, the WSDB collated invoices from contractors on various aspect of the project. The board also went through the process of comparing the invoices and selecting the contractors to implement the project. At the community level, the board met the chiefs and community leaders of Akono to inform them of CWSAs release of the borehole to them to augment water supply from the OAWS. The WSDB also informed the chiefs and community leaders of its intension to develop the borehole and link it to the OAWS. The chiefs and community leaders agreed with the intensions of the WSDB to mechanise the borehole and indicated their willingness to support the project. For example they advised the WSDB to lay the trunk main along the sides of an old road which they had earmarked for a road to avoid paying compensation to people across whose farms the pipes would otherwise have to be laid. As a result the WSDB got a surveyor to clearly demarcate the old road so that the pipes could be laid along the sides of the road. In accordance with discussions held

with the chiefs and elders of the community, the project was implemented using mainly labour from the community. The system manager and the administrator supervised the implementation of the project but they tasked consultants/contractors to supervise those aspects of the project that were very technical. The project was completed and due to be commissioned in August 2010 by the TMA. However the commissioning was delayed so that additional accessories could be fitted by the technical team who worked on the pump. It was expected that the borehole would commence operation before the end of the year. The WSDB would send a letter to the TMA to inform it of the completion of the project and to invite the TMA to commission the operation of the borehole prior to the full operation of the borehole. Annex 1 presents a simplified bullet point account of both stories recounted above.

Interpretation

From the accounts provided by the respondents of the two project processes the main actors as well as the leaders in the affairs of the water scheme are evident. As the following frequency table shows, the WSDB and the TMA had the most mentions when the respondents gave their accounts of their experiences with both projects. The TMA was mentioned more on issues that concerned the legitimacy of the projects and the processes through which the WSDB arrived at the project. These were more at the project start-up phase where permissions were sought by the WSDB. References to WSDBs were also found at the projects' start-up phase as they set both processes into motion by first identifying the needs that had to be addressed. However, the WSDB was also heavily mentioned in regard to issues concerning the implementation of the projects and communication with the communities involved. As the last column of the following table shows, the TMA was mentioned 68 times while the WSDB was mentioned 60 times. This shows the TMA being slightly more dominant than the WSDB. Considering that the activities of the TMA were more on permit and regulations issues, these figures suggest that the TMA although not involved in the implementation of the project is very important in determining whether the project happens or not. In this context, the TMA refers to the general assembly as well as the various actors within the assembly who act on the OAWS' requests. The TMA and the WSDB are also major originators of actions. There is little difference between the number of times either actor is mentioned as originating an action. The performance of the TMA and the WSDB is very different from that of the other actors mentioned in the narratives: the traditional authority and community leaders, community members, technicians who are staff of the OAWS, consultants/ private contractors, the watsans and the CWSA. The third most frequently mentioned actor was the traditional authority and community leaders. This group was mentioned once as the originator and six times and the actor playing a supportive role to actions initiated by another actor. Evidently this actor was much less central in the project processes than the WSDB and the TMA were. The fourth most mentioned actor was the community member(s).

From Table 5.5, it is evident that the TMA and the WSDB are lead actors in the Oyibi water system. Within the WSDB, the actual implementation of measures and decisions is done by the systems manager and the administrator but broader leadership decision-making

Table 5.5 A table showing the frequency with which actors were mentioned during the narrations on experiences with both projects

ACTOR	FREQUENCY		
	No. of times actor origin-nated action	No. of times actor played a key supporting role	Total number of times the actor was mentioned
WSDB (including system manager and administrator)	32	28	60
TMA/MWST/MPO/ MCE/MCD/ Budget officer/ management team/ authority meeting/ sub-committee on works/general assembly	33	35	68
Traditional authority & community leaders in the Oyibi area	1	6	7
Community members	0	4	4
Technicians who are staff of the OAWS	0	2	2
Consultants/ Private contractors	1	2	3
Watsan	1	2	3
CWSA	1	2	3

Source: Author's construct, 2011

rests with the entire board. In the TMA, the MWST coordinator who is also the metropolitan planning officer is seen to be the one taking the most number of leadership actions in both accounts. However, his actions cannot be successful without the support of the other actors within the TMA. While some actors originate the actions they are supported by other actors, as the following matrix suggests. Indeed of interest in discussing the leaders of the system, is how the other actors support the lead actors in the actions that they take; as this would also reveal which actors provide support to other actors to shore up their performance in the leadership role.

As Table 5.5 shows the actors who were most often mentioned in supporting actions were again the WSDB and the TMA. Within the TMA, the actors who are not a part of the MWST are mentioned in supporting actions although they are sometimes (on 8 occasions) found originating some actions. These are the sub-committees, the budget officer, authority meeting, the procurement board, the MCD and MCE. Ultimately their actions are meant to support the TMAs decisions of the water systems activities which are being spearheaded by the MWST coordinator. As the following matrix shows, the WSDB is the actor that draws the most on the supporting actions of other actors. It draws on the supporting actions of the TMA, traditional authority/community leaders, community members, technicians who are staff of the OAWS, consultants /private contractors, watsan and the CWSA. However, the TMA and the traditional authority provide the WSDB with the most of leadership support. Since the MWST is the most active actor within the TMA, this suggests that the WSDB gets the most support for its actions from the MWST coordinator and the MWST as a whole. For its part, the TMA draws support for its actions from two actors mainly: the WSDB and the community members. However more than 90% of the support it obtains

Matrix 5.1   Tally showing the number of times an actor is mentioned as supporting an action initiated by the other actor in the OAWS; based on summary tables of both the re-set and the extension of the water scheme

Supporter → / Actor ↓	WSDB	TMA	Traditional authority/community leaders	Community members	Technicians who are staff of the OAWS	Consultants /Private contractors	Watsan	CWSA
WSDB (including system manager and administrator	-	9	5	3	2	2	2	1
TMA*	11	-	0	1	0	0	0	0
Traditional authority/community leaders	0	0	-	0	0	0	0	0
Community members	0	0	0	-	0	0	0	0
Technicians who are staff of the OAWS	0	0	0	0	-	0	0	0
Consultants/Private contractors	0	0	0	0	0	-	0	0
Watsan	0	0	1	1	0	0	-	0
CWSA	1	0	0	0	0	0	0	-

* TMA includes the MWST, MPO, MCE, MCD, Budget officer, Management team, Authority meeting, Sub-committee on works, General assembly

Source: Author's construct, 2011

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from other actors comes from the WSDB. This suggests that while the TMA is the major actor providing support to the WSDB in its actions, the TMA in turn obtains the most of its support for the water system from the WSDB. Generally, in the context of originating and supporting actions, the contributions of all actors (other than the WSDB, TMA and the traditional authority and community leaders) are very low.

Although the traditional authority is not seen as an originator of an activity that requires that other actors support it, the traditional authority's position as the second highest supporter of the activities of the WSDB suggests that the traditional authority is important in the affairs of the scheme. Indeed as will be seen later in this section, the traditional authority plays an important leadership role in the communities which the water system has been unable to ignore particularly because they are the point through which the WSDB and the TMA are able to enter communities and rally the support of community members for their intentions and actions. From the above discussion the TMA and the WSDB emerge as the two institutions that are leading the system. However, they rely on some important and necessary support which the traditional authorities/ community leaders provide in order to boost their activities. That the WSDB is a leading institution confirms the opinions of respondents from the household level. However that the TMA is another lead institution in the system was generally not the opinion of the household respondents.

It is evident that the OAWS has two main institutions in leadership positions. These are the TMA and the WSDB. However the leadership of the system is also hinged onto the traditional authority/community leaders who are at the helm of leadership within the communities served by the water scheme. In the following paragraphs, I discuss the leadership system comprising these three actors and how these actors support the entire leadership of the water system through the different roles that they play. I depict this arrangement in Diagram 5.3 below.
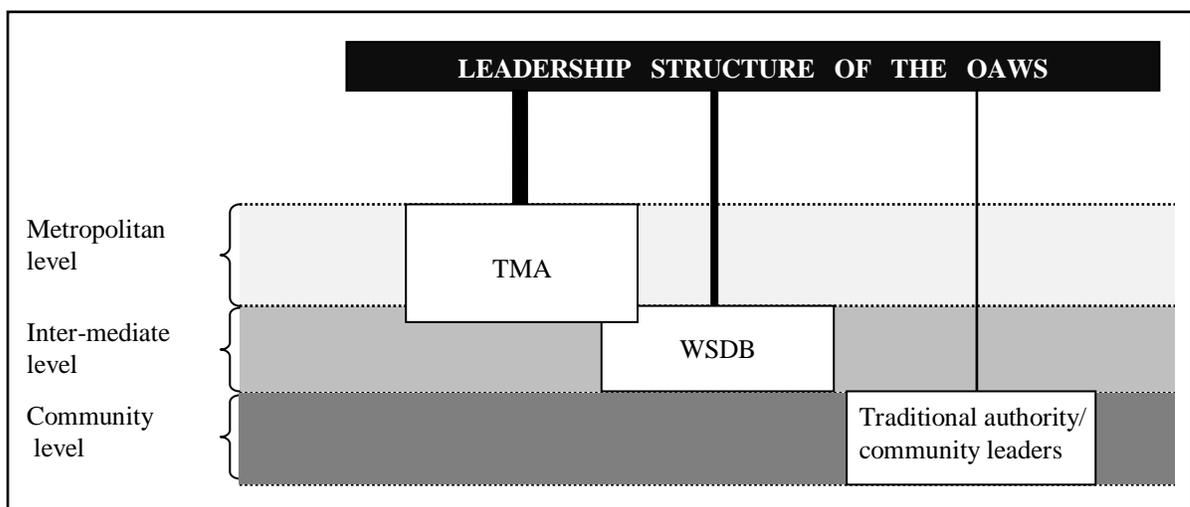
Diagram 5.3   Components of the leadership structure   Source: Author's construct, 2011

As the diagram above shows, the leadership of the system comprises 3 actors at 3 different levels: the metropolitan level, the inter-community level and the community level. Each

actor falls within one category such that the TMA lies within the metropolitan level, the WSDB falls within the inter-mediate level while the traditional authority and community leaders fall within the community level. However, there is an overlap in the leadership because the TMA has representation on the WSDB. As the above diagram therefore shows, the municipal level actor overlaps the inter-mediate level which seats the WSDB. Of the 3 actors in leadership capacity however, the WSDB and the TMA have almost equal performance in terms of the leadership activities which they originate, as the vertical lines in the diagram show. The WSDB and the TMA have the thicker lines while the traditional authority has the thinner liner. Nonetheless, the traditional authority's role is important as will be explained further in this section.

My observation of the operating structure however reveals that the OAWS' leadership structure which comprises the three institutions is also reliant on a fourth entity: the watsan within the communities. In the following paragraphs, I explain the leadership role that each of the above mentioned actors plays in support of the water scheme.

Water and Sanitation Development Board
The WSDB is more directly involved in the affairs of the scheme. It is the main body that drives the actions of the scheme. The centrality of the water board and its role as a leader in the system or as the hub around which activities revolve was confirmed by the fact that while it is the body originating virtually most interactions with the other actors and over half of respondents within the communities who knew about the leadership of the water system identified the WSDB as the leader of the process the WSDB is the actor most frequently found seeking to appropriate the potentials in the other leadership institutions for the benefit of the scheme. Based upon their understanding of the roles, the actors call upon each other for support; using the dictates of the small town policy as justification for their call.

The Tema Metropolitan Assembly (TMA)
The TMA's role as the owner of the scheme and its position as the local government with the responsibility of ensuring the development throughout the metropolis and the power to enact and enforce by-laws account for its lead role in the scheme. As a result, the TMA played a catalytic role in the start of the Oyibi Area water scheme. That the TMA played a catalytic role in the process is illustrated by the following expressions from the Planning Unit 2 and the MWST.

'Initially a study is done to find out needs of the various communities. … A plan was drawn that identified all the areas of need within the metropolis; that is, it identified the areas in the metropolis that lacked amenities. In this, the Oyibi area was identified as a place needing water facilities. Again based on the initial plan a water plan was developed to direct actions in relation to water supply in the metropolis....

In the context of the community interactions relating to the …(*water*).. plan, if the community expresses a need, but the satisfaction of that need through the provision of the requested facility will not solve the root cause of the problem that they hope to solve by acquiring that facility then the assembly has to explain to them how another facility or project will help them address the issue better; and

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get them to be convinced of it and accept it. This approach to provision of facilities in the metropolis is really not supply driven. According to the CWSA approach the community has to pay a percentage of the cost of the project. However if the community is not convinced of the need for the project it will not contribute to the capital cost of the project. Therefore the interaction with the community was an important step in the entire process.'

- Planning Unit interview 23, 2009

'We represent the local administration to facilitate the implementation of the policies (ie the district level). … We go into the communities and sensitize them to know their felt needs. If their felt needs fall within that program (water) then we sensitize them. …After organizing the community, we then form a water and sanitation committee, which is voluntary, to chair the affairs of the program we are going to carry out with the community. So each time we go we will meet the team and brainstorm with them to know how they will support the program because their input is necessary to ensure that they are not just paying lip service to the program.'   - MWST interview 25, 2009

As the foregone analysis of the two projects showed, the TMA was a lead originator of activities. It also is the institution that provides the most support to the WSDB in its operations. The essence of its role in both accounts is seen in the policy support that it provides to the system as well as the support that it provides to the water scheme by virtue of its roles as the institution with oversight responsibility for the water scheme.

The traditional authority/community leaders

The leadership structure's incorporation of the traditional authorities/community leaders is in recognition of their cultural importance to their communities; and in attempt to take advantage of the leadership strengths of the traditional system. The perception of the lead actors is that by gaining the commitment and the support of the chiefs, the chances of successfully gaining community support for the approach to water supply would be improved. Using the chiefs as a starting point therefore, the communities were mobilised to support the project. These views were expressed in the interviews with the key informants at the community level, the MWST, the Planning Unit and the WSDB.

Watsan

Within the communities, the watsans are the leaders of the water sector. The watsan lead the community's management of its water sector. Indeed 20% of respondents at the household level considered the watsan to be leading the water delivery process. The Old Saasabi community leaders and Opinion leader 1 of Kpone Seduase were of the same opinion. As the two process narrations show the WSDB proceeds to contact and deal with the communities in the Oyibi area through the watsans in the communities.

   Recounting an experience of the leadership of the watsan in the water supply process, Mr. Gulegu (WSDB) narrates how effort to motivate the communities to support the project was successfully done through the watsan as follows:

   'This was a challenge. Every year, the ponds are de-silted in the dry season or just before the rainy season sets in, so that when the rains start the ponds can collect a lot of water. But what the watsans did was to convince the chiefs and those who

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are responsible for calling for communal labour for de-silting the ponds to stop doing so, by first explaining to them why they should not do so and getting them to buy in.'   - Board 2 interview, 2009

Actors' performance on their roles

The above sub-section implies that the actors are being able to play their roles and support each other in furtherance of the schemes objective. However, the respondents also indicated shortfalls in the performance of some actors as challenges that the scheme faces. To answer this question therefore, this sub-section presents the challenges that the actors face in the process roles that they play. It presents in narrative the accounts given by the planning unit, MWST, and the WSDB of their experiences. These respondents are the most directly involved in the strategy, decision making and implementation processes. To be captured as a challenge, each point presented had to be confirmed by three sources in the metropolis. Thus although not all direct comments of respondents are captured, I make mention of the respondents who indicated each of the challenges captured.

    In the interviews, the respondents who are more directly involved in the operational and decision making affairs of the water scheme (the planning unit, MWST and WSDB as well as the watsan) were asked how the main actors were affecting their roles. They all gave positive assessments of the way the performance of other main actors on their roles affect their work.

    All respondents indicated some challenges with the water supply system. The challenges concerned the performance of either the TMA or the watsan. Challenges with the performance of the TMA were mentioned by the planning unit, MWST and the WSDB. Challenges with the performance of the watsan were mentioned by the MWST, and the WSDB at the institutional level. Community level interviews also pointed to the challenge mentioned by the MWST in relation to the watsan. This is explained later in further detail.

TMA's operations
Within the institutional arrangements of the system, there are linkages relations that have the potential to support as well as thwart the systems progress. These concern the linkage relations between the water board and the TMA and the relations between the MWST and the TMA. These are linkages that the WSDB cannot change. The semi-autonomous relations that the water board has with the TMA, keeps it still reliant of the TMA as the highest body responsible for the development of the metropolis. The head (MCE) of the TMA, the general assembly, and the members of parliament are expected to promote the development of the metropolis by supporting development projects and that projects are sustainable. However, they constitute a political leadership. The co-existence of official developmental interests and individual interests of the heads within the assembly poses challenges when these interests do not complement each other; particularly as politicians seeking to win the favour of their constituents and retain their political positions. Such leaders have the personal interest in avoiding issues that can trigger disapproval with their constituents. The inherent challenge that the board has experienced is exemplified in the issue of rate setting. The occupants of such positions wanted to keep their places in the next elections. They were therefore hesitant to give approval to increases in the water rates,

lest they became known as the politicians during whose tenure water rates soared. As a result, regardless of the justifications provided for the proposition of new rates, the TMA did not permit the rate increase. The last increase in rates was only approved after the December 2008 national elections although the board requested for approval to increase the rates in November 2007. The following quotes from different sources provide further expression to the challenges relating to the re-set of the water rates and the speed with which the TMA works.

> 'The only problem is that the TMA is too slow in its responses to the board's request. TMA takes too long to react to requests made on it'.
> - Board 2 interview, 2009

> '... from 2004-2008 we sold water at 2 pesewas. We told them we were not making any money and asked that the tariff be increased to 3 pesewas. It took a very long time to get approval for this. Approve was given only in 2009.'
> - Board 2 interview, 2009

> 'Low rates charged which is gradually crippling the scheme because they are unable to cover their costs. So far the assembly has refused to approve the request from the board to increase the water rates because it is concerned about the economic situation of the residents in the communities that depend on the scheme.'
> - MWST interview 25, 2009

> 'When the board puts in a request at the assembly it takes a long while before it is completely attended to or satisfied because there is a long bureaucracy that has to be shortened. … Again the assembly should allow the normal forces of demand and supply to operate in the scheme. The scheme is supposed to make money to cater for itself. It is currently unable to do so but when it wants to increase the water rate charged to enable it cover its operating costs the assembly says no.'
> - Planning Unit 23 interview, 2009

There also exist challenges in terms of the internal relations within the TMA's management. The TMA provides support and guidance to the board through the MWST. However, the support that the TMA provides through the MWST is inherently challenged by the internal processes of the TMA. The non-timely release of funds and logistics by the management team for undertaking activities of the MWSTs plan as well as the slow pace at which the TMA provides feedback or responds to requests from the water and sanitation team poses challenges to its performance as a leader in the water systems processes. The issues that the team and the board consider as urgent are not necessarily treated with the urgency that they may think is required.

Watsan activities
The concept of the watsan as a voluntary community based entity to which members are nominated and which serves as a major channel for communicating with the community has served to bridge the communication gap between the WSDB and the community as well as between the TMA and the community. Although, it seemed to operate successfully at the beginning of the water project (when the OAWS was not yet generating funds), keeping the watsans as non-paid actors, during the full operation of the approach threatens

the performance of the watsan in their communities. The MWST summarises this problem as observed in its monitoring role as follows:

'At the initial stages, there are actions at the community level and, there are watsans formed by community members. The membership of the watsans is voluntary and so the members are not paid. The system then later grows to include the setting up and operation of water boards. However, the members of the board take sitting allowances. This has become an incentive for board members. The watsans nominate representatives to the board to represent the watsan … but the watsans do not take allowances (this is the CWSA policy) and this is becoming a disincentive to them. The participation of watsans is therefore now withering. The members are now coiling back.'   - MWST interview 25, 2009

For its part the Oyibi watsan admit that it does not meet often now because there is not much activity going on. The Old Sasaabi watsan indicates that the same motivation in the form of refreshment is needed to boost the watsans activities which were once vibrant. Such disinterest on the part of the watsan would affect the performance of the sector in the communities' adversely. That there are already lapses in the performance of actors at the community level is evident in the comments of Opinion leader 1 of Kpone Seduase on activities within his community. He observes as follows:

"The system is good. However some of the workers in the communities need strict monitoring and supervision. The vendor does not report at 5a.m. as she is expected to. The idea is that the vendor will come early enough so that the school children can fetch water early enough and bath and go to school; but she does not. She will also explain that even if she comes early the pump attendant would not have started the pump so it will be of no use. The pump attendant is also always late. He gets here at 6a.m. instead of 5a.m. Yet he gets paid the full amount. This is happening because they are not being well monitored and supervised. This is very bad. We are not happy about this. Such people should be replaced by the board in order to satisfy consumers better...
                               - Kpone Seduase opinion leader 1 interview, 2009

The current situation suggests a comparative assessment of the benefits that individual members of the watsan obtain for their involvement in the water scheme has influenced negatively the attitude of members of the watsans who are not members of the water board. It also suggests that the perception of too little benefits for efforts made in the face of the possibility for more benefits to be given dampens the desire of the watsans to get actively involved in their community's water sector.

Section summary

The OAWS has a plan that directs its operations. This is the facility management plan (FMP) drawn up at the commencement of operations of the water scheme. The plan spells out the goal of the scheme and some of the measures to be undertaken by the management of the scheme but this is rather limited in scope. The other document that guides the operation of the scheme is the sector policy's operational guidelines; however, these are rather general guidelines and not tailored to the OAWS in particular. As a result, there are gaps in the blue print that guides the operations of the scheme. The FMP has not been

updated since the commencement of operations of the scheme and the varied measure that literature identifies as possible ways of improving the endogenous approach are not captured in the FMP.

The lead actors involved in the operations to the water scheme can be placed into 3 categories. These are the local government represented by the TMA and its MWST, the intermediate level represented by the WSDB, and the community represented by the traditional authority and community leaders. The watsan is also an important actor at the community level. Other actors in the system include the private sector, academic institutions, the vendors, and the communities as unitary entities. These actors play different roles. However they are expected to augment each other's efforts in support of the water system.

The leadership role is disaggregated and shared by the lead actors in the system. The TMA is a leader by virtue of its position as the owner of the water scheme and the local government. The WSDB is directly responsible for the operation of the water scheme. This is the purpose for which the board was established. These leaders rely on the support of the traditional authorities in the communities served to provide support for their actions because the traditional leaders are often the recognised heads of the communities and are able to influence the communities' reactions to the policies pursued. The watsan are community level leaders responsible for overseeing water supply activities in the communities.

5.3   Measures adopted for mobilising potentials

In this section, I present an account based mainly on interviews conducted with respondents who are a part of the entities that are responsible for strategic decisions that are implemented by the water board as they were best positioned to respond to the question. These are the WSDB and the MWST. The narrative here comprises accounts that were confirmed from more than one source and sometimes draws on confirmations obtained from other actors and community members as well as documents that had bearing on the issues presented, as a means of cross checking the comments that the main strategic decision makers have made. Therefore for each measure described the sources of data are presented in assertion of the reliability of the data. As mentioned in earlier sections of this chapter, the plan that guides the activities of the scheme does not outline the specific activities that ought to be undertaken for the achievement of all the intervention areas identified. Therefore, to assess what measures have been taken, I consider the actual activities that have been implemented along specific themes. These are themes selected from literature and identified as areas that an endogenous- development approach should address. The request which I made to the respondents during the field data collection was for them to give me examples of how they (the institutions that they represent) support the scheme through their roles.

I consider efforts made in seven thematic areas. These are mobilising actors, developing knowledge and skills, access to information from schemes in other districts, exploiting linkages, facilitating local entrepreneurial activities in order to support the water scheme, management of local resources to achieve their sustained use.

Measures for mobilising actors

The time with the most concentration of actor mobilisation activities was the project start-up phase. This was done as part of the project requirements. It involved the mobilisation of communities to make their financial contribution to the capital cost of the project, the formation of the watsans as well as the formation of the water board. The MWST was very much involved in this phase of the mobilisation activities. The communities as actors provided land, communal labour, monitored construction, attended site meetings, and helped in deciding where the public stand pipes should be located, among others. The following references confirmed the communities' contribution to the process.

'-Each household paid to contribute to the capital cost contribution of the community
-There was communal labour
- We helped in the digging trenches for laying the pipes
-Through the watsan, the community participated in site meetings in which CWSA participated and the progress of work was discussed. The community joined the CWSA in the inspection of the lines and work on the field.
- Oyibi group informants interview 3, 2009

-There were open fora in which the community participated. There were workshops organized for the watsans too.
-We made financial contributions.
-We helped dig trenches
-Oyibi gave land for the office of the board.
-The rate per bucket of water was set after the board held discussions with the community and the community had the opportunity to make its opinions known.
- Oyibi Community leaders interview, 2009

'- We contributed funds to the project.
- The people who came to sink the borehole and lay the pipes- we gave them some food to eat while they were working.
- Old Sasaabi community leaders interview, 2009

'The community took part in the site meetings, made decisions on the distribution layout and sites for stand pipes' (WSDB, 2004: 13).

Since the formation of the water board and the transfer of the scheme to the board to manage, the focus of mobilisation activities rests with the WSDB. The board with the aid of a consultant prepared a policy blue print, in the form of the FMP, that spelt out some of the strategies that the board was going to pursue but the specific actor mobilisation measures that are to be undertaken are not exhausted (Board 2 interview, 2009 and document). The WSDB complements the contents of the FMP with the directions that the sector policy document provides. The policy guidelines require that the interactive planning process is continued throughout the operation of the scheme (CWSA, 2004).

When trying to give examples of actor mobilisation activities undertaken since the transfer of the scheme to the WSDB, the annual durbar at which the communities as well as academic and economic entities within the Oyibi area, together with the TMA and the WSDB discuss the board's stewardship of the scheme was mentioned by the WSDB,

MWST and the Oyibi informants group 3. This is an open forum to which all actors and all members of all the communities are invited. At this forum, the board accounts for its stewardship of the scheme for the entire year. When organised, the entire human spectrum of the community ranging from the chiefs and their elders to the children as well as businesses and schools are allowed to express their views (WSDB, MWST, Oyibi informants group 3 interviews, 2009). The broad spectrum of participants is also in recognition that the views and positions taken by the chiefs and elders may be different from those of the broader community. This way the inputs of the actors are mobilised and the actors have the opportunity to play their monitoring or oversight role. The WSDB undertakes other actor mobilisation activities. I present in the following table a list of actor mobilisation efforts that the board has been involved in. These were extracted from my interviews on the field. The table comprises four columns. In the first column the actor that is the focus of the WSDB's actor mobilisation activity is mentioned. This is followed, in the second column, by the particular area that is the focus of the mobilisation effort as per each actor. In the third column of the table, I present paraphrased comments of respondents that indicated whether the activity was indeed being done. In the fourth column the source or the particular actors from whose interviews the quotations and paraphrased statements were taken are also captured.

The WSDB does not employ technologically advanced communication systems such as radio, internet or television in the actor mobilisation process. Actor mobilisation activities are done through basic communication channels such as letters where institutions are concerned and the town crier where communities are concerned.

Measures for developing knowledge and skills

On-the –job learning where staff learn from other staff, or where higher level staff provide in-house training to lower level staff, or training is provided by an external professional brought into the schemes offices to train its staff in specific areas as they are doing their job (this often lasts a longer period of time), contracting of a consultant to come and give a one-off training session, and participation in training organised by external institutions such as the CWSA, are the options used by the OAWS to develop the knowledge and skill of its staff and board members. This is the conclusion that I draw from my interviews with the water board (Board 2 Interviews, 2009 and 2010) MWST interview 2009, Oyibi group informant 2 interview, 2010, training manuals, minutes of board meetings. The respondents in the board interview, for example, mentioned that the scheme contracted a plumber to train its plumbers for a six-month period after they had been trained by the CWSA because the board found that the level of competence even after training by the CWSA was too low. The board considers re-training important in order to promote the efficient operations of the scheme (ibid). The training of watsan, for example, is therefore not treated as a one off event. The board does re-training for the watsan once in two years. The last such training was organised in 2008. The board members also have the opportunity of benefiting from such trainings.

Collective- learning options within the metropolis are limited largely because there is hardly any utility project in the metropolis that is locality based and operates on the basis of

Table 5.6 Mobilisation of actors to support the scheme through their inputs

Actor	Field	Some comments of respondents illustrating mobilisation efforts	Sources/ respondents who gave such response
TMA/MWST	Monitoring and auditing, advice, technical support and logistic support	The TMA is kept involved through its representative on the water board. Often through verbal communication as well as minutes of previous meetings, the representative is informed of meeting dates and attends. TMA is also involved through its management team. The TMA's management team (especially the Metropolitan Chief Executive and the Metropolitan Planning Officer) is informed of and attends the annual community durbar at which the board renders account of its stewardship throughout the year and provides the public the opportunity to ask questions and probe issues (MWST, Board 2 Interviews, 2009).	WSDB, MWST, WSDB documents
		The board has been able to get the TMA to contribute to the scheme by arranging to have the auditor general's department audit the board's account. The board has so far succeeded and twice a year its accounts are audited by the auditor general's department which audits the TMAs accounts; and the TMA pays for this (MWST, Board 2 Interviews, 2009).	
		The TMA "offers advice and supervises. It makes contacts for the board with other institutions or organisations in situations where the clout that it carries as a municipal assembly". For example "when a proposal is being prepared the TMA supports the board to write the proposal which the board then submits to the assembly" (Board 2 interview, 2009). The MWST also gets "invited by the board to provide clarification from the assembly on issues" (MWST interview 25, 2009).	
Private sector	Technical services	There are local electricians in private practice who get contracted when electrical faults occur, according to the WSDB and community members at Old Sasaabi.	Community group, WSDB, WSDB documents
		"After the initial training of the technical operators, the board found out that their level was rather too low to enable them operate the system well. So the board employed the services of a plumber who gave them further training."	WSDB & Board documents
		"There are welders in the community whom the board uses when need be."	WSDB & observation
		"When the generator was being used, there was also a battery technician (eg. G&J technical services) who was contracted to attend to it."	WSDB & Board minutes of meetings
		"Initially Tractor and Equipment was being used to maintain the generator but the board changed this because it was too expensive."	

Table 5.6 continued. Mobilisation of actors to support the scheme through their inputs

Actor	Field	Some comments of respondents illustrating mobilisation efforts	Sources/ respondents who gave such response
		"The board now uses private technicians to maintain the generator. The private technicians are from outside the Oyibi area because the Oyibi area does not have these people."	"
Watsan	Management of water issues in the community	The watsan leads the process in the community	WSDB, Old Saasabi community leaders, WSDB minutes of meetings
		"The watsans are given money for little little repairs and maintenance activities on the ground. Major repairs are done by the water board."	WSDB, Old Sasaabi watsan
		"The vendors are appointed by the watsans in the communities. When they sell water they turn the sales in to the treasurer of the watsan. The treasurer pays this to the board weekly. At the end of the month the vendors commission is calculated as well as the amount due the watsan and this is paid to the watsan."	WSDB & Oyibi group informants 2
		"The watsans are from the communities. They are supposed to report back to the communities and hold meetings with the chiefs and opinion leaders on the decisions taken by the board and to carry feedback from the communities back to the board, so that the board considers the communities' views when making decisions."	"
Community: Representatives on water board	Board meetings on all issues	Participate in board meetings and report to the watsans that they represent. They also bring, to the board's discussions, input from the communities they represent.	WSDB, MWST, Old Sasaabi, watsan
Individuals in the community and out	Accountability, support, approval of policies	One of the main means of obtaining input from the communities has been through the community representatives on the board. These representatives are members of the watsans and live in the communities. They call meetings to discuss water and sanitation issues within their communities and also interact with community members on a one-on-one basis. They then provide feedback to the water board. The call for community members to attend meetings is done through the town-crier.	WSDB, MWST
		The communities are also involved in the operations of the scheme by virtue of the monies that they pay for the water they consume. From the monies that the communities pay for the water they consume, the board is able to make some profits which it saves or invests for O&M and development of the scheme.	WSDB, MWST

Table 5.6 continued. Mobilisation of actors to support the scheme through their inputs

Actor	Field	Some comments of respondents illustrating mobilisation efforts	Sources/ respondents who gave such response
		The board has instituted a reward-scheme for those who reveal information about illegal connections, or detect illegal connection and report them. Such people are given a percentage of the total sum retrieved[27].	WSDB & Oyibi group informants 2
		On using people in the community who are knowledgeable and can direct the board on how to approach things and provide contacts who can help the board in achieving certain things 'an example is someone working with mines and energy who told the board how to go about getting connected to the ECG power'.	WSDB
		"All the employees of the board, except one person, reside in the communities."	WSDB, Yeleyele drama troupe, Board minutes
		An annual community durbar is organised which is open to all community members including the youth. Here, the board presents an account of its performance throughout the year. It is an open forum where the people are expected to express their views and opinions.	WSDB, MWST, Planning Unit, households, watsans
		Community meetings are organised to discuss rates with the community members	MWST, WSDB, Oyibi informants group 3
Chiefs	Accounts rendering, community mobilisation	The chiefs are served with invitation letters inviting them to the quarterly board meetings and the annual community durbars and they do attend. Their elders and opinion leaders attend the meetings too.	MWST, WSDB
		The chiefs serve as the main entry point into the community.	
Opinion leaders	Community mobilisation	For quarterly general board accounting, the particular stakeholders who get invited include opinion leaders	WSDB, MWST
VVU	Training, infrastructure.	The Valley View university provides assistance to the board when the board requests for it; particularly in the training of the WSDB and its staff in order to enable them upgrade themselves. In terms of infrastructure, the VVU offered the board a room to use as their office space. The board used the VVU's conference room.	WSDB, Oyibi group informants interview 2, WSDB minutes

Source: Author's construct, 2010

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[27] When illegal connections are found, the culprits are immediately disconnected and required to pay a fine of 500Gh cedis (aprox. 265 Euros). They are also required to 'produce' the plumber who did the illegal connection. If the culprit fails to do so he is required to pay another 500Gh cedi fine. However, if the culprit is able to 'produce' the plumber, then the plumber is arrested by the police. Additionally, the board calculates the estimated volume of water that the culprits consumed since the illegal connection was done and then charges them with the entire estimated bill.

the locality (where locality in this context refers to a set of communities with cooperative relations by virtue of their sharing of a utility system). Most of the water schemes within the metropolis do not involve the establishment of an inter-community management body to manage the facility. The main collective learning platform that the board uses is not within the metropolis. For example, the CWSA organises sessions for water boards throughout the country to transfer knowledge from the agency to the water boards and to provide the boards the opportunity to share ideas and experiences and thereby learn from each other. The board of the Oyibi Area Water Scheme takes advantage of these opportunities (MWST interview 25 and Board 2 interview, 2009). The association of water boards, which is a body set up to facilitate the interaction and cooperation among water boards is another collective learning platform that the board patronised while the southern belt's chapter was active (Board 2 interview, WSDB minutes, MWST interview 25, 2009). Together these interactions provide (d) opportunities for the board to exchange ideas as well as technical and managerial information that are relevant to improving its operations. They are able to learn how things are being done by other water boards and to imitate or adapt them to suit their context. This way, the ideas obtained through these platforms serve as the collation of relevant experiences of other water boards that further inform the schemes operations.

Access to information from schemes in other districts

The interviews conducted did not reveal any particular efforts being made to obtain information from water schemes operating in other districts in the region or in other parts of the country.

Measures for exploiting linkages

Below are examples of linkages that have been exploited. The examples mentioned below were not categorised by the respondents as efforts to exploit linkages. The categorisation of these efforts as linkage exploiting is my interpretation of the examples based upon their nature and how they were generated which I based on the categorisations in literature of the various types of linkages that exist. The board appears in all examples to have used the linkages in such manner that has boosted its operations. The following examples illustrate this.

Operational or administrative linkages

The board has exploited the operational links that it has with the VVU, CWSA, and the TMA (MWST interview 25, Board 2 interview, 2009). The VVU's provision of training to the members of the WSDB and the arrangement that the VVU made with the OAWS in which foreign staff from Germany working on a VVU project were seconded to the OAWS for a brief period to aid the scheme's recruitment processes, as a means of supporting the scheme and transferring knowledge are examples that I obtained of how the WSDB has exploited its operational linkage relations with the VVU (Board 2 interview, 2009 and Oyibi group informants 2 interview, 2010). The board calls on the members of the MWST

to provide it with ideas on how to quicken the TMAs response to its requests and to lobby the management team in the scheme's interests. This is an example of how the WSDB exploits its operational link with the MWST (Board 2 interview, MWST interview 25, 2009). CWSA is not directly operational in the metropolis, but it has been contacted by the board when technical difficulties have arisen (ibid). Although, CWSA has passed on the water scheme to the TMA and TMA is the owner, the CWSA still has a stake in the scheme; by virtue of its responsibility for the small town water sub-sector. It has therefore remained interested in providing technical support to the scheme and has done so on request through its Greater Accra regional office. The WSDB also mobilised the potential in its operational and administrative linkages with the TMA for the auditing of its accounts. The board requested for the Ghana Audit services' support through the TMA; so the audit service audits the accounts of the OAWS when it is auditing the TMA's account, as the OAWS' external auditor.

Socio-cultural linkages

The influence of chiefs: There are socio-cultural linkages which the scheme has also exploited to its benefit. The chiefs in the Oyibi area still wield influence in their communities. This is particularly so in the more indigenous communities like Old Sasaabi but is little or non-existent in the less indigenous community quarters such as in the estates (like Paradiso Estates and Ayensu River Estates) and in the residential zones of academic institutions (like Goodnews Theological College and Seminary and Valley View University residential campus). The WSDB exploits the influence of the chiefs when it wants to call for community meetings and in getting the community members to agree to patronise the water produced by the scheme. For example the WSDB's effort to reduce one of the alternative sources of water that the communities have – the community ponds - was done by exploiting the link between the chiefs and the community members. In other words, the influence of the chiefs in their communities was used. As a result, the communities still do not de-silt their ponds because the chiefs and community leaders have stopped calling for communal labour for this purpose. Today, although there are communal ponds in the area which are sometimes used for domestic purposes; as may be found in Old Sasaabi, or used for farming purposes as in Oyibi Township, the poorly kept nature of the ponds and their shallowness which does not allow sediments to settle well below the surface to enable clear water to be fetched on the surface makes the pipe-borne water more attractive to the community members; the main exception being cases where the community members cannot afford the rate. The following quotes confirm this.

'... (30%) cannot afford 4 -5 buckets of piped water in a day. So they augment the piped water with that from the pond. This way they spend less money on water. Generally though most (70%) people are able to cope with it and find the rate moderate. They understand that there is a need to pay for the water used in order that there will be money to cater for repairs the general maintenance of the scheme.'   - Kpone Seduase opinion leader 1 interview, 2009

'Now the ponds are only used for farming and construction and no more for anything else.'   – Oyibi group informants interview 3, 2009

'Initially they (members of the communities) thought it was ok to continue to consume from their old sources of water (including ponds and streams). … once a while some of the community members would go back to the old source to use that water. … they sometimes use the water to wash utensils and bath, and sometimes for cooking. So the MWST continues to educate the community on the need to keep to the borehole sourced water.'   - MWST interview 25, 2009

The traditional norms: Traditionally, there were rules guiding the patronage of the ponds. It was prohibited for people to get close to step into the ponds for domestics use with their footwear. It was also disallowed to bring to the pond receptacles that were dirty or cooking pans and pots. Communal cleaning days were set aside on which community members went to the ponds to clean the surroundings of the ponds regularly. That there were rules is evident in respondent's responses:

'People were not allowed to step into the pond with their footwear of dirty feet. People were not allowed to step inside the water. Everyone was expected to stand a distance away from the water itself and then stretch to fetch. Pans that had been put on fire before were not allowed to be dipped into the pond. This because these are the rules that were passed on to us. It was believed that there is something in the pond/water that does not like that, and so it should not be done. Buckets that were used for bathing were not allowed to be dipped in the pond either.'   - Old Sasaabi Community leaders interview, 2009

'It was not allowed to dip pots that had been placed on fire into the pond to fetch water. Everyone had to remove his footwear before stepping into the pond. It was not allowed to dip calabash into the pond. This was what the elders said. It was explained that so was the tradition and that if the people fetched using their calabashes the water will vanish from the surface of the earth. Hence cups were allowed instead.   - Kpone Seduase watsan 2 interview, 2009

'No one was allowed to bath or wash in the pond meant for cooking and drinking. No one was allowed to get into the pond with his footwear or dirty feet. It was also not allowed for cars to be washed close to the ponds.'
                                - Kpone Seduase opinion leader 1 interview, 2009

These rules have been adapted to the current use of the public stand pipes in the Oyibi area. The rules established by the communities to govern the maintenance of the public stand pipes have reflected the traditional norms for managing water sources in the following ways:
- patrons of the public stand pipes are not allowed to mount the platforms with their footwear.
- anyone who brings a dirty receptacle is turned away.
- the water vendors, as managers of the water points, are required to clean the surroundings of the stand pipes daily before they commence selling the water each morning.

Friends and family relations: The exploitation of linkages with friends and family starts informally and is often with individual members of the board or members of the

community who are very much interested in the affairs of the scheme. Members of the community who are interested in the affairs of the scheme feed members of the board with information informally about the links that they have to key people who can help the board. Then, the board acts on the information (Board 2 interview, 2009; Oyibi group informants 2, WSDB documents).

Economic linkages

The board has identified economic linkage potentials which it is already working to operationalise (Board 2 interview, MWST interview 25, 2009).

GWCL: Efforts being made to exploit linkages with the Ghana Water Company Limited (GWCL) were mentioned in my interviews with the MWST and the WSDB. The WSDB is working to establish economic relations with the Ghana Water Company in which the company would supply water to the scheme in bulk for a fee. The WSDB intends to use the water purchased to augment its current production which falls short of the demand in the area. The MWST confirmed that the

> 'The board has … sought the support of the TMA to prevent the GWCL from doing this (supplying the communities served by the OAWS with GWCL water). The board wants the TMA to intervene and ensure that the GWCL rather supplies water in bulk to the board so that the board mixes it with the water produced from the wells and then supplies it to the communities.'   - MWST interview 25, 2009

The anticipated benefits are that domestic and business activities in the Oyibi area that rely much on water will be boosted because the OAWS will stop or reduce its water rationing activities. The inherent benefits can also be viewed from another angle. The scheme is now operating above the production level recommended by the technical experts who installed the pumps (Board 2 Interviews, 2009; checked with documentary sources –the Facility Management Plan, 2004, and WSDB document, undated). Entering such an arrangement will imply that the board will improve its prospect of reverting to operating at the safe level when/ if it is able to get adequate GWCL supplies to augment its production.

Again, there will be benefits to the other party (the GWCL) in the economic arrangement too. Currently, the GWCL sometimes supplies water through the pipelines being used by the OAWS. This threatens the demand for water supplied by the OAWS because the communities in the Oyibi area that were initially served by the GWCL (Oyibi Estates, Good News theological College and Seminary, VVU, Oyibi estates) prefer the taste of the water supplied by GWCL. That the taste of the water supplied by the GWCL is preferred to that of the OAWS was mentioned in interviews with the WSDB, the MWST and the Oyibi group informants 3. But currently, some members are also able to consume the water without having to pay for it through illegal connections. According to the WSDB, by entering an economic relationship, the board can secure its market while improving upon the quality (taste) of its produce (water). The GWCL stands to benefit because by selling the water in bulk to the scheme it would be able to receive payment for the entire amount of water used in the Oyibi are without being responsible for the cost of distribution and the water losses thereof.

Water supply to the Estates: According to the WSDB, another way in which the OAWS exploits economic linkage potentials to its benefit is through the agreements that it enters into with estate development companies and major institutions in the Oyibi Area. Through such arrangements the estate developers connect their estates to the OAWS; likewise the institutions. The Paradiso estates and Goodnews Theological College and Seminary are examples of the estates and institutions that have been involved in such arrangements. The scheme then supplies water to them in bulk for a fee. The management of the distribution of the water is left to the discretion of the community. The WSDB did not indicate that it originated this economic relationship. Table 5.7 summarises the above discussion on linkages, by providing an outline of linkages exploitation efforts. It lists the examples of linkages exploited and categorises those linkages exploited within the Oyibi area separately from those outside the Oyibi area. As the table shows, 5 of the 10 possible linkage categories have been exploited. The board has been able to initiate linkage relations with an external organisation (GWCL) in the economic category. What seems to have motivated the WSDB to take efforts to exploit these linkages are its realization of its limitations and challenges as related to its mandate and the need to fulfil its mandate.

Table 5.7   Summary of linkage utilisation by the OAWS

Type of linkage	Internal	External
Socio-cultural	Traditional norms	-
	Connections with members of the community who are knowledgeable and 'well connected'.	
Economic	Arrangements with the real estate companies operating in the area to supply piped water to the estates that they develop.	Arrangements are being made for an economic relationship with the GWCL in which it would supply water in bulk to the scheme to augment its production.
Operational/administrative	-MWST for technical and advisory opportunities.	–Association with Ghana Association of Water Boards
	-VVU for technical and advisory support including training.	-CWSA for training, technical and advisory support
Political	-	-
Ecological	-	-

Source: Author's construct, 2010

Measures for facilitating local entrepreneurial activities in order to support the water scheme

No examples were found to illustrate how the WSDB facilitated local entrepreneurial activities through the measures that it implemented for the benefit of the water scheme.

Measures for the management of local resources

To answer this sub-question, I consider the examples the respondents were able to provide as deliberate efforts that they made towards managing the resources in a manner that would

ensure that the resources are able to serve the scheme for long periods. I also consider the examples that the WSDB was able to provide for its efforts in developing the resource base of the scheme. Literature identifies the ability of the leadership of the process to be innovative and show initiative as important to the endogenous development process. In earlier sections of this chapter, the initiative of the WSDB had been implied in various ways. In this sub-section therefore, I focus on the show of initiative and innovativeness in the management and development of the resources being used by the OAWS. The examples presented here were not particularly in response to a question that asked the respondents what efforts they had made in resource management, resource development or initiative and innovation. They are categorised based upon my interpretation of the efforts made.

Resource management

The water board's resource management activities include human resource management, production rate management and the management of the use of the technical resources. Table 5.8 which was generated from aspects of interviews conducted with the WSDB that were confirmed by the MWST and/or the Planning Unit or documents shows this.

Resource development

Resource development efforts of the water board have spanned human resource, infrastructure and economic development. Table 5.9 illustrates the board's efforts. Drawing from Tables 5.8 and 5.9, it can be concluded that measures have been taken by the Board to manage and develop some of the potentials that it has been able to identify.

Local initiative and innovation

The demonstration of the board's initiative and innovativeness in the management and development of the resource base can also be seen in some of the examples already mentioned.

Initiative
Legally, the GWCL should not be supplying water to the Oyibi area which is now under the CWSAs community management model (CWSA key informant 5, MWST and Board 2 interviews, 2009). However, faced with the challenge of a high demand for its product the OAWS has initiated a process in co-operation with the TMA to negotiate with the GWCL to supply water in bulk to the OAWS as a way of augmenting the volume of water that the scheme produces (ibid) in an arrangement that could hold benefits for the GWCL as well.

Innovativeness
The scheme seeks to produce water that is safe to drink, well tasting, good looking and not offensive to the communities. There is the perception in the Oyibi area that the water produced from both boreholes differ in taste. The communities find the water from the Old Sasaabi borehole less palatable because of its salt content. Approximately 83% of the population find the water salty although for about a third of this number the water is only a little salty or only sometimes salty. However, it will be technically impossible for the

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Table 5.8. Resource management activities of the OAWS

Area	Activity undertaken
Human resource - Staff succession planning	Technical staff such as the technical operators who are employed, work with trainee assistants. These assistants get trained on the job to be able to operate when the technical operator is unavailable. This reduces the level of shock that the scheme experiences when some staff are not available.
Technical resource - Flashing the system	To manage the taste and quality of the water produced by the scheme in such manner that will keep its consumers satisfied the water board gets the pipes flushed every year. -Planning Unit 2 interview, 2009 and Board 2 interview, 2009
Production rate - Water rationing	The growth of the population in the area has exceeded the anticipated rate of growth at commencement of the project. The population estimate for 2012 was 5940 (WSDB, undated). However, by 2008, the population of the area (the communities that later joint inclusive) was already 6627. This has led to a situation where the board operates the pumps much more intensely than the approved level (safe yield level). Both boreholes are currently operating 4 hours longer than is required to operate at safe yield. The scheme is rationing water to estate houses and to institutions. This is being done in order to satisfy customers without operating the boreholes in such manner that will damage them.
Demand for water - Management of the demand base through the management of alternative water sources	The scheme has managed to reduce this risk of losing demand for its product in the more indigenous communities by liaising with the chiefs of the communities to cut out some of the options. To this end, the annual de-silting of communal ponds which served as sources of water for domestic use was stopped. The chiefs still do not call for community labour to de-silt the ponds. As a result the ponds are unable to hold enough water for the community and the water is no more as clean as it used to be. This has made the ponds a less likely option for community members. The community members now use water from the OAWS. It is worth mentioning here that some of the community members got convinced to use water supplied by the water board after they found out that those who used this source got ill less often than those who used the ponds. Others replace the use of the water from the OAWS with water from other sources especially for uses other than cooking. For the board, the purpose of the measure was to keep community members from using the traditional ponds as their water source for health reasons and to increase the demand base of the scheme. This has been largely achieved according to respondents within the communities.

Source: Author's construct, 2010

Table 5.9 Resource development activities of the OAWS

Area	Illustration
Human resource	Training is used as a means of developing staff's capacity to perform their roles. "The board is taking steps to build the capacity of the staff. The same is being done for the board members also so that they get very effective in the administration of the system. Training of the watsans to make them more effective on the ground to manage the water points is also being considered. Like members of the board the watsans were given training at the initial stages by the CWSA but the board has also provided training. One such training for the watsans was done by the board in 2008. The board considers this important because it believes that as the system grows the ability of the watsan to be efficient in its operations becomes even more important." - Board 2 interview, 2009
Infrastructure	The OAWS is faced with the need to increase its production level to cope with the increased demand. The desire to keep operating at a level that is sustainable while fulfilling the demand requirements is one of the factors that led to the identification and efforts to site another borehole at Akono. The potentials identified in the FMP have therefore not been the limit for the water board. The site of the Akono borehole which although not identified in the plans has been taken advantage (Board 2 interview, 2009) of is evidence of this. This was a site already used by the community because it easily yielded water for the community prior to the creation of the OAWS. It was used as an alternative source to the communal ponds especially during the dry season when the ponds dried up. As the following quote shows there is more than one infrastructure development activity occurring. "The board currently has a small office in which it is operating and so the board is putting up a larger office so that it can employ more staff to help with the operating of the system when the need arises." - Board 2 interview, 2009
Economic resource	The board has invested its profits in securities to yield interest which it intends to use for developmental project within the area, and the extension of the scheme. The board has over 40000 Ghana cedis in investments. According to the WSDB, "The board has invested about 37,000* Ghana cedis and this is yielding interest. The intension is to use the interest it generates to extend the system bit by bit and to avoid touching the capital invested because this way it will be able to continually yield more interest." After its payment of salaries and other bills, 20% of the board's revenue is kept for routine replacements and 10% for hygiene and sanitation promotion. The remaining 70% is invested to yield interest. The board also enters arrangements with estate development companies operating in the area to connect the estates to the water scheme. Indeed this has been because the newly developed residences need access to potable water, and also because of the sense of responsibility that the board feels to the development of the area. However, a very important push factor for the board is the need for it to ensure that the scheme is able to increase its income by increasing its income base.

*Equivalent to 21,142.86 Euros in 2010   Source: Author's construct, 2010

scheme to meet the demand of the communities if the Old Sasaabi borehole is abandoned. The board has therefore adopted innovative approaches to fulfilling its objectives of satisfying the preferences of the communities: the water from GWCL will be mixed with the water from the boreholes in order to tone down the salty taste of the water.

Section summary

Guided by the FMP, the sector policy guidelines and its perceptions of what measures are necessary in the operations of the water scheme, the WSDB has pursued measures to mobilise and use potentials. In terms of taking advantage of the potentials in the various actors, the WSDB has mobilised support from the TMA for auditing and the provision of advice and technical support. In the context of the private sector, the support mobilised has been for the provision of technical services. The watsans exist and are indeed used to help in the management of water issues in the communities. Additionally, through the watsan representatives to the water board, the WSDB involves community representatives in its meetings and in all its decisions. This way, members of the communities are able to provide feedback through their representatives on the watsan and contribute to the policy decisions taken by the WSDB. Through the holding of community durbars, members of the communities have the additional opportunity to hold the WSDB accountable; but the board also gets the opportunity to obtain input and advice from the communities on its operations. These community mobilization efforts at the community level also involve the chiefs and opinion leaders. The potentials of the VVU have also been harnessed in terms of the technical and infrastructural assistance that the board obtained from the VVU on demand.

The main form of knowledge and skill development effort made by the board has been on-the- job training. Training on-the-job has been provided to members of the board; members of staff of the OAWS as well as the scheme's plumbers. The WSDB also organises training for the watsans in the communities that it serves. The WSDB participates in training sessions that the CWSA organises for water boards as it provides a forum where the WSDB can learn and share ideas with other water boards. It also participates in opportunities offered by the association of water boards for the sharing of ideas and learning. Beyond the opportunities that these platforms provide for obtaining information from other districts, the WSDB does not seem to pursue any measures particularly aimed at obtaining information from other districts.

Linkages within and out of the Oyibi area have also been exploited, according to the data obtained from the respondents. Socio-cultural linkages in the form of traditional norms and the connections with members of the community who are knowledgeable and 'well connected' have been used to help improve the performance of the water scheme. There exist arrangements between the water scheme and the real estate companies operating in the area which have resulted in the OAWS supplying piped water to the estates that the companied have developed. This form of economic link is not the only one being harnessed. Arrangements are being made for an economic relationship with the GWCL in which the GWCL would supply water in bulk to the scheme to augment its production. This arrangement is being made with the assistance of the TMA. The WSDB also has the following to show for operational / administrative linkages that it has exploited. It contacts and obtains technical and advisory support for its operations from the MWST. As the local government unit responsible for water and sanitation activities, the MWST is required to perform this role. The board has also succeeded in exploiting its operational relationship with the VVU by obtaining technical and advisory support from the university including training. External linkages to sources of operational support that have been harnessed include the relations with Ghana Association of Water Boards and the CWSA through the training, technical and advisory support training that the CWSA provides to the scheme.

From the data obtained, the WSDB seems to have deliberately made some effort to exploit local entrepreneurial activities. Several examples can be found of efforts made by the WSDB to manage the resources at its disposal in a sustained way and to develop them. Resource management efforts of the WSDB have involved managing the demand base through the management of alternative water source, staff succession planning, water rationing, and maintaining the water quality by flashing the system. Resource development efforts of the board have concerned staff capacity building, extending the water infrastructure and investing the earnings of the scheme to generate interest. In its operations, the WSDB has taken the opportunity to show initiative. Its efforts to establish a mutually beneficial economic relationship with the GWCL is an example of this.

5.4   The process challenges

In this section, I present the issues that the OAWS is confronted with in its operations. The respondents (MWST, WSDB, Planning Unit) who are the most active in the water system were asked to provide examples of the challenges that the system was encountering as per their experiences in the performance of their roles because they are most likely to have a wealth of experiences. The following narrative is based on the interviews conducted. It is mainly a compilation of constraints that were identified by the respondents and which converged; and it takes into account the issues identified in section 5.3.4 on whether the actors are able to perform their roles.

Institutional relations

-   The water board is legally limited by its institutional characteristic. The board is an intermediate body which is not governmental although it works in collaboration with the TMA and is required to obtain the approval of the assembly in some aspects of its work. This is because the TMA is the owner of the facility. The board draws membership from the communities but is not exactly a membership organisation. According to Uphoff, membership organisations are able to make decisions by/for themselves for themselves. The water board finds itself mid-way between both types of institutions. It has the benefit of legitimacy derived from its community-based origins and the ability to have its measures enforced by virtue of its relationship with the TMA. While these present potentials for the board to exploit, they have inherent constraints. According to the respondents, it does not have the latitude to freely modify water rates as wholly autonomous business activities in the metropolis do. It requires the acceptance and approval of either one of the two actors mentioned above and from whom it derives its strengths: the communities or the TMA. Thus, it is not always the case that what is required for the sustained operation of the scheme is done but also what these two parties are comfortable with (Planning Unit, MWST, Board 2 Interviews, 2009).

-   Again as an entity lower than the local government, the board does not have much technical, political or planning clout to influence policies of other higher level institutions such as the GWCL and the ECG. It is a 'sub-district' entity. According to the MWST and Planning Unit, when such influencing becomes necessary, the board has

to rely on its association with the TMA and the stake that the TMA has in the scheme for support to achieve the objective on hand.

- Within the TMA, the MWST depends on the budget office to release funds for it to implement its planned activities. However, the funds are not always readily available to solve problems such as repairing the MWSTs broken down computers. The pickup donated by the National Community Water and Sanitation Program (NCWSP) to the MWST to facilitate its work is also not always readily available to the MWST because it is also used by other departments within the TMA such as the Planning office. Because the Planning Unit and the budget unit are higher than the MWST in the TMAs organisational hierarchy the MWST is dependent on their decisions in order to be able to undertake its planned activities. When there exist such bureaucratic hitches, there is the potential for the MWSTs performance on its role as the entity directly responsible for directly supervising the water sector to be challenged.

Leadership issue

- The composition of the board and staff of the scheme has been an advantage in its local nature; but although not directly identified by respondents, is also a potential challenge to the success of the scheme because of its local nature. The advantage that it provides to the scheme is confirmed by the WSDB's comment below.

> 'When you take a technical operator from the community the issues surrounding the water system concern and affect him. When you take someone from outside the community as technical operator, whatever happens he does not care because it does not affect him directly, as he lives in a different place.'   - Board 2 interview, 2009

In this comment, the WSDB opines that the devotion to solving the schemes problems is higher because of the interest that the workers themselves have in the service that the scheme provides. The localised composition of the water would nonetheless pose a challenge if the people who are selected to serve on the water board do not have the requisite knowledge or capacity to manage the water scheme; and are unable to recognise this and exploit linkages or relations to support them in their role. In such instances, potentials may exist in the local area but may not be harnessed because the board is unable to identify these as potentials.

Performance issues

- According to the MWST and WSDB, the OAWS is limited by the amount of financial resources under its control. For this reason, the WSDB would have to benefit from the financial resources of the entire metropolis (and not just the financial resources in the Oyibi area) in order for it to be able to undertake extension activities.

- The MWST and WSDB (interviews, 2009) also identified as a major problem of the scheme, its inability to account for a lot of the water that it produces. I consider this interesting as this has been identified as one of the main challenges that the centralised urban water supply system in Ghana faces.

Population related issues

The population has been a challenge as the WSDB tries to satisfy as much of the population as possible. Developments in the Oyibi area, such as the availability of piped water that assures residents of a regular and reliable source of potable water[28] have contributed to the rapid population growth that the area has experienced. The following comments from respondents confirm the challenge.

'The population is currently much larger than was planned for because of the influx of immigrants.'   - Kpone Seduase Opinion Leader 1 interview, 2009

The system was installed based on some population projection which will over the estimated time period have allowed the board to raise enough money to cater for the expansion of the scheme. But the rapid expansion of the Oyibi area is not giving the board enough time to be able to cater for the cost of expanding the system.   - MWST interview 25, 2009

'The presence of water among others contributed to the increase in the rate of growth of the Oyibi area. And it was found out that the borehole was soon overused.'   - MWST, interview 25, 2009

The presence of the water has attracted educational institutions, construction and estate companies and business ventures to the area which in turn is using the water; that is, generating demand for the water.
                                                    - Oyibi group informants interview 3, 2009

There is also the influence of real estate activities of real estate companies who have constructed large estates housing facilities, with environments that are attractive to the upper middle class and upper class, for sale.

The available water options

The ponds present a threat to the scheme because the community members do not have to pay for the water that they fetch from the ponds. As earlier noted, the communal ponds are no longer well maintained in the communities at the instance of the WSDB. Nonetheless, the ponds exist and some members of the communities use them as alternative sources of water. Interviews with the Old Sasaabi community leaders, the Oyibi group informants 3 and Kpone Seduase Opinion Leader 1 confirmed this. Although these respondents denied that this practice was rife they also indicated that community members resort to combining water from the ponds with that of the OAWS when they realise that they cannot alter the water rates. This point was however not identified as a challenge by the WSDB which as the point above showed is currently saddled with the challenge of more demand than supply.

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[28] Where potable water is water that is considered to be of quality that's sufficiently safe enough for humans drink.

External influences

The development of the area as a result of the presence of the water has also generated an inter-supplier relationship challenge, according to respondents who are more directly involved in the policy making processes of the scheme. The following quotations taken for the interviews with the respondents explain the challenge

> 'GWCL has seen that there are estates developing nicely in the area and so they also want to penetrate the Oyibi area. The board is not happy about this. According to the water sector policy the GWCL should not go to areas where the CWSA operates and vis versa. But the GWCL now sees this area as a potential to make money. …The attractiveness of the area to the GWCL has only come about because the STWS was set up in the form of the Oyibi Area Water Scheme and the presence of the water attracted developers to the area and new estates sprang up. Because of the influx of people, GWCL wants to take advantage of the situation. If not handled well this can affect the sustainability of the system.'
>
> - MWST interview 25, 2009

> 'GWCL is trying to re-start its activities in the Oyibi area because GWCL now finds that the area is developing fast and estates are springing up. Because GWCL supplies water at a cheaper rate and the GWCL water allegedly tastes better because it has less salt, this poses a threat to the Oyibi scheme.'
>
> - Board 2 interview, 2009

5.5 Performance of the OAWS

In this sub-section, I present a comparative account of the performance of the OAWS using two different sets of criteria. These are criteria derived from literature and the national performance assessment criteria. I end by summarizing the insights I obtain on the prospects for the water scheme based on the revelations of both sets of criteria.

In the context of the conceptual framework of the study

From the data collected in the Oyibi area, the respondents have been able to identify the potentials that exist in the area. When I assessed these potentials for their use in support of the water scheme, the outcome (see Table 5.2) showed that for the majority of the potentials identified, there is indeed evidence that they are being used. These include the natural, human, and institutional potentials as well as economic potentials that are available.

In the context of the existing institutions, there is a clearly defined institutional set up. This is operational, and although there are challenges, no evidence was found that these have halted the performance of the water system. The central institutional operatives of the system are the WSDB, and the TMA. The TMA is mandated with the task of monitoring the performance of the WSDB to ensure that it remains in line with the metropolis' and sector goals. These central operatives have role linkages that enable them to call on each other to support the system. The national level institutions (CWSA and Ministry of Water

Resources, Works and Housing) are relevant but basically provide the policy frame within which the scheme operates. Together, the central institutional operatives work within the framework provided by the national level institutions, and supported by the regional offices of the CWSA, they use facilitating factors in the metropolis to support the water scheme.

Based on the elucidation in earlier sections of this chapter of the measures taken by the WSDB, the following comments can be made of the OAWS in regard to the facilitating conditions and factors (identified in the conceptual framework) of an endogenous development process.

- The scheme operates within a decentralised framework and it has made effort to take advantage of the role definition in the decentralised water governance framework particularly through its exploitation of the role of the metropolitan assembly.

- Distribution of roles and responsibilities are also in conformance with the definition of roles and responsibilities laid down by the sub-sector policy established by the CWSA and approved by the sector ministry as requisite for the successful operation of the system.

- The operational procedures employed by the water system suggests that the policy and legal frameworks that govern the sub-sector are largely followed because they conform to the CWSA's guidelines set to direct the operations of the system in fulfilment of the concept of good governance.

- Efforts have been made by the scheme's management to improve its performance through learning; for the purpose of knowledge and skill development.

- Linkages within the metropolis and out of the metropolis have been exploited primarily as a means to augment the efforts of the OAWS.

- Through the actor mobilisation activities undertaken by the WSDB, actors spanning the community, the private sector, academic institutions and the local government have been involved to various degrees at various levels and times in the affairs of the scheme, as deemed necessary or relevant by the water board for the fulfilment of its mandate.

- Technical options as dictated by the natural setting were largely determined at the project start-up phase, when the initial decisions were made about the technical options available to the scheme. Subsequently, no deliberate effort has been made to change the technical mechanism of the water system, although extensions have been made to the water scheme.

With regard to the above paragraphs therefore the OAWS virtually satisfies the requirements of the conceptual framework. In a real life situation, it can be expected that there will be certain aspects in which the water scheme does not fulfil entirely the conceptual framework. However, because the OAWS has been able to indicate that most of the elements that literature identifies are or have been present or occurring in its system, the scheme can be expected to successfully yield an improved and sustained safe water supply. To ascertain whether the arrangements have indeed yielded the expected results (as per the conceptual framework), I adopt the national parameters for ascertaining the success of such a water scheme to find out if it confirms this. This is discussed in the following sub-section.

In the context of the CWSA criteria

According to the indicators established for the small town water sector, a scheme's performance is judged according to its performance on certain criteria. Alternatively stated, a scheme can only be said to be performing well if it meets some sustainability criteria[29] relating to reliability, self financing capacity, water production and accounted for water. The implication of these sub-sector criteria, is that the various measures pursued in the harnessing of local potentials should culminate in good performance on these indicators. The OAWS is performing well on most of these indicators except on the criteria 'accounted for water'. On this criterion, it exceeds the approved level (15%) by 6%. Its performance on the criteria 'reliability' varies among the communities considered such that it would perform well when communities in which water is not rationed but would perform poorly in communities where water is rationed (the estates, the universities and the theological college). It can be expected to improve its performance on this criterion if its efforts to stop the rationing are successful.

When considered over the broader period of its operations (2004-2008), the performance of the scheme does not provide an entirely positive picture. For this argument, I consider the schemes performance on production, income, and expenditure. As the following diagram shows, the scheme has been increasing its production over its five years of operation although it has been doing so at a reducing rate.
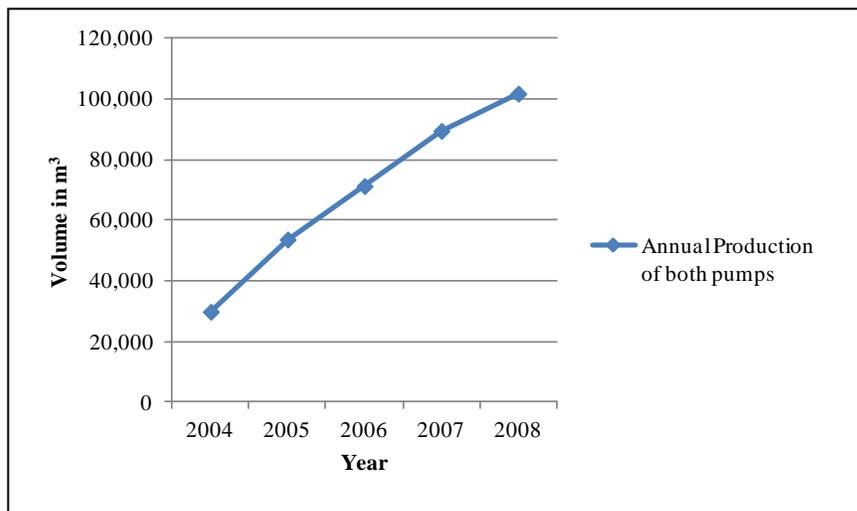
Diagram 5.4   Water Production of the OAWS. Source: Author's construct, 2010

Its income and expenditure accordingly increased between its 1st and 3rd years of operation, as Diagram 5.5 shows. However, although its income remains higher than its expenditure, the scheme experienced a decline in the rates of growth of its income from the 3rd to the 5th years of its operations.

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[29] Calculated as Technical and operational criteria- (a) Water Production / Actual Water Produced (b) Water consumption i.e. per capita total annual water sold / Water production i.e. per capita total water supplied to distribution system; Self financing ratio – Total Annual Income/ Total Annual Expenditure; Reliability- Number of operational days / Total number of days per year; Sustainability performance - Arithmetic mean of all four above; Scale- **Good:**90<PS<95, **Very good:**95<PS<100, **Excellent:** PS>100 (CSWA, 2004).
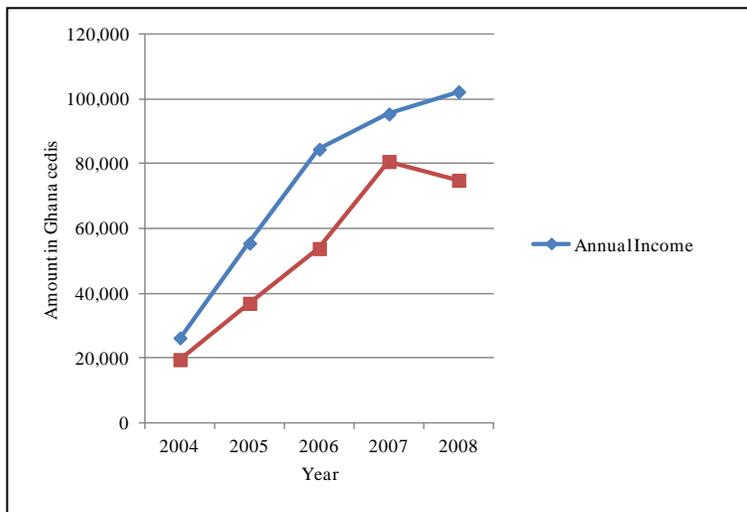
Diagram 5.5 Annual income and expenditure of the OAWS. Source: Author's construct, 2010

Table 5.10 illustrates this clearer in figures. As already observed in Diagram 5.4, the scheme's production of water continued to increase over these years at a reducing rate as well. However, the rate of fall in the increases on income is much sharper than the rate of fall in the increases on production (Please see diagram 5.6). This suggests that the scheme's income is unable to account for all the water that it produces because all things being equal, the fall in the rate of production should be equal to the fall in the rate of decline in income as the price charged for the water has not changed.

Table 5.10 Annual income and expenditure for the OAWS

Year	Annual income*	Annual expenditure*
2004	26,200.12	19,502.82
2005	55,482.12	36,888.85
2006	84,514.59	53,824.56
2007	95,433.82	80,743.77
2008	102,302.84	74,942.92

Amount in Ghana Cedis (Exchange rate 1.7 Ghana Cedis- 1Euro; Year -2010). Source: WSDB documents, unpublished
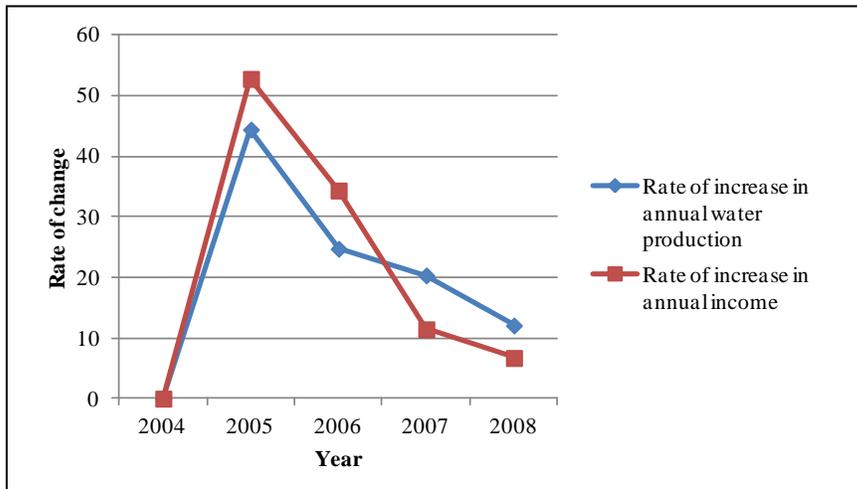
Diagram 5.6   Rate of change in income and production. Source: Author's construct, 2011

As can be expected from the figures in Table 5.10 above, the scheme's performance on the criteria 'self financing ratio' has also not been stable. The following diagram illustrates the trend over the five years of the scheme's operations. Diagram 5.7 shows that the performance of the OAWS on the self-financing ratio initially improved in the first 3 years of operation of the water scheme but then dipped in the fourth year. During the fourth year, the schemes performance of this criterion was even lower than what it was in the first year of the schemes operations. In the fifth year however, it begun to recover; and it improved to its initial position in the first year. Based on the above discussion, I conclude as follows:

- The OAWS can be regarded as entirely reliable as per the parameters for assessing reliability, because it has been operating everyday in a year. However, in reality it cannot be regarded as a reliable source of water if the consumers' ability to access it is considered because the water supply is being rationed to some communities.

- It is experiencing a fall in its revenue although water rates have not been reduced and the total quantity of water that it produces per annum is increasing. The board estimates water loss to be higher than the CWSA approved level of 15%. Therefore the scheme fails to perform well on the 'accounted for water' criterion.

- Its performance on the SFR criterion is above 100. This represents a good performance as per the parameters used assess performance. However these annual and spot-like calculations do not give a comprehensive picture of the trend in the performance of the water scheme. As the diagram below shows, when the performance on SFR is considered over the period 2004 to 2008, the OAWS shows a rise and fall in performance and then an upward trend to recovery. Please see illustration in the diagram below. The diagram suggests that although the OAWS' performance is above 100, it can still improve upon its performance. To be able to foretell the direction in which the performance of the water

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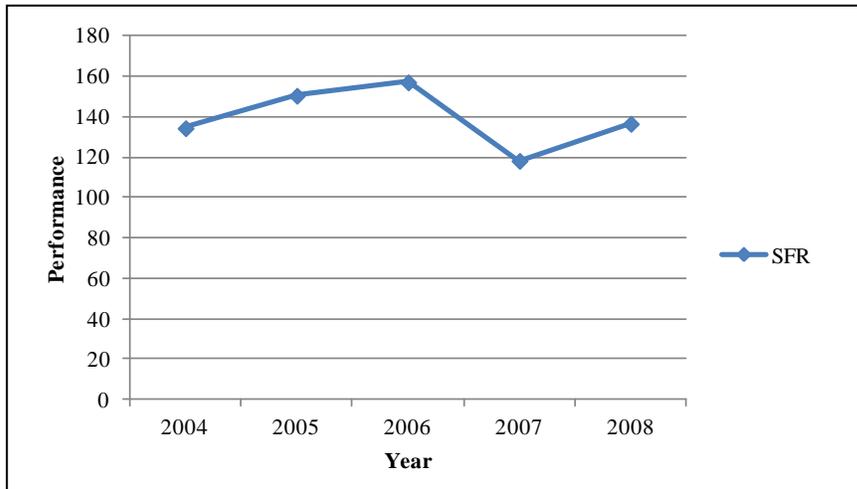
Diagram 5.7 Performance on Self financing ratio. Source: Author's construct, 2010

scheme is heading and take pre-emptive steps, the annual spot calculations on performance on the SFR cannot be adequate. The performance of the scheme on this criterion over the entire period of operation of the scheme should be considered. More importantly though, the background information on the income and expenditure of the scheme over a period would have to be considered when reviewing the performance. Indeed, while the diagram above of SFR shows a relatively excellent performance, Diagram 5.6 above (which contains the details of income and production) immediately indicates a challenge exists and which should be addressed.

Discussion of the outcomes of both assessments

The revelations of the falling performance of the water scheme on the sector criteria seems not to support adequately the concept that the presence of the potentials, clear definition of actors and processes as well as the existence of the facilitating conditions or factors as those indicated in the conceptual framework necessarily leads to an improved water supply performance for the communities; because although, in the OAWS case the system continues to function and the communities have water, there is indication that it is faltering. It suggests that more is needed.

Literature does not say what level of aggressiveness of the endogenous process is necessary to achieve success in endogenous development processes; and this is probably difficult to achieve as local conditions within which such endogenous development processes take place will vary widely. In the context of the small town water sub-sector in Ghana, this is left to the implementers to decide. In the OAWS, who determines what level of effort in the pursuance of the endogenous approach by the scheme is aggressive enough to ensure its success is not clear. Although the TMA through its MWST is responsible for monitoring the performance of the scheme, the MWST's focus has been on monitoring the board's performance on laid down procedures such as with rendering accounts to the communities, rate setting and observance of other procedural requirements determined at the sub-sector level. Therefore the measures identified in literature as having importance in the endogenous process are only monitored in as far as they are captured in detail in the

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sub-sector policy document. When the policy states that the WSDB should hold community durbars twice in a year, the MWST goes out to ascertain if the WSDB is indeed doing so. Since the MWST, as the arm of the TMA, has the oversight responsibility for assessing the schemes performance and offering technical and advisory support, when such a gap is observed in such a research, it is of interest to find out whether the actor responsible for overseeing the performance of the scheme is aware of the state of the scheme's performance and what efforts are being made to address the situation. To be able to address the issue holistically, I consider the state of performance relations in the water system.

The state of performance relations

The process challenges that actors in the water system face are a good point from which to start examining the state of performance relations; because these were identified by the main actors as the obstacles to their own performance. In the sections 5.5 of this chapter, I presented some of the process challenges that the actors face in the performance of their role. These broadly concerned the interdependencies among the main actors and the ability of the actors to perform the roles that they are expected to play. The former group of challenges concerned actors such as the local government management team, as well as the WSDB and the executive management of the water scheme. Others concerned the quality of the leadership that the caliber of people on the water board and the executive management of the water scheme can provide.

Process challenges and performance gaps
The challenges that actors faced were largely as a result of gaps in other actors' performances. As Table 5.11 shows, not all the challenges that actors face are a result of their own actions but as a result of other actors failing to perform as they should. This suggests that while actors perform their roles in the system, they generate challenges for themselves and other actors through what they do or fail to do. These constitute performance gaps which affect other actors as challenges. Not all the challenges that the actors face can be addressed by the actor faced with the challenge. Indeed, the STWS has outlined the responsibilities of actors with the presumption that when the actors perform their responsibilities well they would be supporting each other's role rather than imposing/generating challenges. In the following paragraphs, I consider the gaps in the actors' performance as per their roles as defined by the sub-sector policy, and what gaps their performances have generated in others actors' performance as well. This process will reveal which actors are challenging the system by their actions and inactions as these affect other actors; and how they do so.

There were gaps identified in the performance of actors at the local government, intermediate and community levels of the system as follows:

- A gap which the TMA's performance creates and which the WSDB faces is the TMAs slow response to its request. This slows down the WSDBs pace of work. However the WSDB is unable by itself to address this gap. Although it lobbies the TMAs representative on the water board to push the actors within the TMA to act on its

request, the final push for improved pace of work among the departments can be made by the management team which comprises the departmental heads within the TMA.

- Assessments that ought to be done of the MWSTs reports on the scheme in order to generate a comprehensive view and track comprehensively the trends in operations of the scheme are not being done. This ought to be done by the metropolitan planning officer (MPO) and his department; as the arm of the TMA which has oversight responsibility for water sector. The MPO is in the position to address this gap. In other words, although his unit's failure to do so has caused the gap, the gap can still be rectified by the MPO.

- The MWST is not always able to undertake its planned activities on time because it is sometimes unable to get the required logistics in good time. To help reduce this challenge the MWST tries to make its request for logistics early enough in order for the officers responsible to have enough time to act on the MWSTs request. Although the MWST makes this effort which can indeed result in the timely provision of logistics, the MWST alone is not able to solve this problem. Other units – the budget office, the MCD's unit and the Planning Unit – have a more potent role to play in addressing this challenge as gaps in their performance also generate this challenge which the MWST faces. The budget department makes the decision on when to release funds for the MWSTs activities and so can address the MWST's challenge. Delays in the department's release of funds constitute performance gaps that affect and challenge the MWST's performance. However the budget office being under the superior leadership of the MCD and MCE is subject to and influenced by the MCE and the MCD and therefore their priorities. The priorities of the MCE and the MCD (including those informed by the political interests) are nonetheless within the control of the MCE and MCD respectively. This illustrates a vertical relationship in which the ultimate change can be easily engineered from the topmost in the hierarchy. Table 5.11 is an attempt to show illustratively the actors and their roles, what gaps exist in their performance, who can address the gaps in their performance as well as who can influence the actor who should address the gap into doing so.

- The chiefs in the communities where the boreholes have been sunk have been seeking homage for allowing the boreholes to be located in their communities. However, chiefs and traditional authorities, in fulfilment of their role as community leaders with the interest of their community at heart have been expected to support the water scheme rather than put impediments in the way of the OAWS. To address this gap, the WSDB tries to give them the due recognition/respect to make them feel acknowledged and appreciated for their contribution.

Process challenges and interests

Where actors had personal interests in the water system, they made more effort to get things done to address the challenges they faced whether they resulted from gaps in their own performance or in other actors' performance. As the foregone discussion on challenges

Table 5.11 A table on the process challenges which actors face and inter-actor relations which influence them in the OAWS

Name of actor affect-ted (in the institution)	Challenges the actor faces regarding the water supply system as per the role they are expected to play	Is the actor able to address the challenge by himself?	Is this challenge resulting from some other actors' actions/ inactions?	Which actor(s)?	How has the actor faced with the challenge reacted to the challenges (positively and negatively)?
Board members	Tariffs are too low to enable the WSDB make enough savings to be able to cater for expansion of the water scheme by itself.	No and Yes	Yes	Local politicians & communities	The WSDB lobbies the communities to agree to the changes and then waits on the political heads to agree to gazette the newly proposed water rates.
	Politicians seek to protect their political positions. Their priority is to protect their positions and not because they do not understand the way the system works.	No			
	The TMA delays in acting on requests when the WSDB makes them. The TMA is slow in its operations & the board tries to manage things and to reduce the delays from reliance on the assembly.	No	Yes	The TMAs management team	The WSDB keeps reminding the TMA through the representative on the board of the need for the TMA to act on its requests; which the MWST then does through the MWST co-ordinator.
	Illegal connections are a technical problem	Yes	Yes	The community members	WSDB has an award system in place to encourage people to report illegal connections
	Water losses – The WSDB has not been able to stop this although the WSDB has been trying to work on it to find a solution to the problem. 10% is allowed; but the scheme currently has water losses above 20%.	Yes	No	N/A	It relies on community members to report pipe leakages; and vendors and technical operators to report leakages that they observe during operation of the machines as well.
	The community members consume other sources of water.	No	Yes	Community members	None

Table 5.11 continued. A table on the process challenges which actors face and inter-actor relations which influence them in the OAWS

Name of actor affect--ted (in the institution)	Challenges the actor faces regarding the water supply system as per the role they are expected to play	Is the actor able to address the challenge by himself?	Is this challenge resulting from some other actors' actions/ inactions?	Which actor(s)?	How has the actor faced with the challenge reacted to the challenges (positively and negatively)?
Board members	Some of the community members do not attend the meetings at which the board renders account to the communities because they are busy or they seem to consider other things to me more important than supporting the accountability and transparency efforts of the board	Yes	Yes	Community members	The watsan is responsible for mobilizing the community members for such meetings so the WSDB has tried to encourage the watsans' activities in the communities by introducing sitting allowances for the watsans. This is because when they get more active they will be more active in mobilising community members for the meetings as well.
	Waning activities of the watsan	Yes	Yes	The watsan	The WSDB has tried to encourage watsan activities in the communities by introducing sitting allowances for the watsans.
	Chiefs in the communities (Old Sasaabi and Kpone Seduase) where the boreholes are sited now want homage for allowing the boreholes to be sited on their land	Yes	Yes	Chiefs	WSDB tries to give them the due recognition/respect to make them feel acknowledged
MWST	Intermittent non-timely release of logistics as well as funds by the Planning department, MCD or budget office for the planned activities	No	Yes	MPO, MCD, Budget department	The MWST makes the effort to place its request for logistics from the assembly early enough to avoid delays.
	Varying levels of support as per the priorities of the TMA affect the priority given to activities in MWST plan by the management.	No	Yes	Management team	No mention made of particular action being taken to address this challenge.
MPO	Varying levels of support as per the priorities of the ruling political party affect the attention given to activities in water and sanitation sector.	No	Yes	Management team	No mention made of particular action being taken to address this challenge.

Source: Authors' construct, 2011

showed, subtly underlying the issues of interdependencies among the key actors and their ability to perform the roles that they are expected to play is the issue of varied interests of the main actors. These interests influence the manner in which the actors respond, react and support other actors in the system's processes. All the actors interviewed were able to identify the formal interests of the institutions that they represent in the water scheme as well as indicate why its survival was of import to the institutions. For all the actors, the interests that they identified related primarily to the formal roles that they play in the water system. Please see the Table 5.12 for further detail on the respondents' feedback about actor interests. The feedback illustrate that the actors are aware and conscious that they have a role to play in the system. The metropolitan planning office identified its interest in relation to its responsibility as the unit responsible for overseeing the affairs of the metropolis' water sector; and which has the responsibility to ensure that the operation of the scheme is sustained and that the good aspects of the project are noted for possible replication in other projects.

Table 5.12   Actor responses to the question 'what is your interest in the water scheme?'- OAWS

Respondents	Interests indicated by respondent listed in order of priority
Management team	1. To ensure the was scheme is sustained because if it fails they will not get water from GWCL system any time soon 2. To ensure that the people are not exploited 3. The politicians want to maintain power by ensuring that the people remain pleased with service levels during their /his tenure of office (For example, continued operation of the scheme will boost his political image because if the system collapses during his tenure people will remember that things got worse during his era and this will not be favourable for his political preferences).
MPO	1. To ensure the OAWS is operational so that the communities have water. It is the planning office's responsibility 2. To tap the knowledge from the OAWS to be able to use in other similar projects.
MWST	1. To maintain good relations with the community 2. To monitor the performance of the scheme to ensure that it's sustainable 3. To be able to support the WSDB to gain support of the TMA management team 4. In order to avoid getting lazy and rusty.
WSDB	1. Make water available every day 2. To cut down complaints 3. To keep employees happy, affordability
Watsan	1. That the members of the community have safe water everyday 2. Get allowances /obtain some reward for involvement in the watsan
Traditional authority and opinion leaders	For the people in the community to have access to safe water
Community members	To have adequate supply of potable water

Source: Author's construct, 2011

For the WSDB it was to ensure the successful daily provision of water with minimum complaints from consumers. The MWST seeks to facilitate relations between the WSDB and the management of the metropolis, maintain good relations between the TMA and the communities as well as monitor the performance of the water schemes. While the management team identified ensuring that the scheme is operated sustainable in order to avoid having to bear the responsibility of investing in the provision of new facilities for the communities as its interest. As well, the management team seeks to keep the populace from getting exploited. These interests of the management team are all related to its position as managers of the local government just like the interests. Likewise the fore mentioned interests of the other actors are related to their role definitions. For the watsan, their interest is for the members of their communities to have safe water.

As the table shows, the water board of the water scheme, the watsan and the MWST were the actors that were able to identify among its personal interests as well. The WSDB identified its personal interest in keeping employees happy. This interest is informed by the reality that the members are themselves consumers. The MWST identified its interest in avoiding inactivity in order to avoid getting lazy and rusty. The watsan mentioned getting allowances. On the management team, the MWST, and WSDB in their narration of their experiences with the water scheme are explicit about the existence of personal political interests which influence how the TMA plays its role as the local government. This was also illustrated in the example on how as a result of personal political interests the policy that had to be gazetted for the OAWS was delayed. Although the management team did not explicitly identify politics as one of its interests, political costs of inactions was clearly heighted by the management team when the respondents (the MPO, MCD, and MBO) attempted to indicate the implications to the TMA of not taking the actions that it has to take with regards to the OAWS. This implied that there exist political interests which the management of the metropolis (and more particularly the MCE and the members of parliament) seeks to protect.

Having identified their respective interests as mainly relating primarily to the formal roles rather than personal gains, most of the respondents accordingly identified implications relating to the institutions in which they work mainly when they were asked what the implications will be if they did not do what they were expected to do in their roles. To the management team the implications were first that the OAWS will collapse and the funds will not be readily available to provide another of such a facility. Second, that there will be ripple effects in the communities in the form of diseases, travel time to access water for household use and, the time that will be lost by school children who have to go in search of water. The third implication identified was that there will be a loss of the trust of some other donor agencies who may want to come in later. To the MWST, the implications were first, that the affairs of the EHAs, CDOs and other operatives in the communities and in the districts will not get coordinated and organised in an orderly way. Secondly, the CWSA would have had to do the monitoring of the sub-sector performance in the metropolis by itself. This would have been difficult for the CWSA. Thirdly, the purpose of having an MWST would not be met. The WSDB identified the following as the implications. First, there will be no water for the people. Secondly, the water scheme will not be sustained. Thirdly, the schemes performance will be poor. To the watsan, the implication was that

they would incur the displeasure of the community leaders and community members. The WSDB and MWST, however, also identified personal implications although these were the least when they both listed the perceived implications according to order of gravity. To the WSDB the personal implication was that there will be no employment for the people employed by the water scheme. To the MWST, the personal implication was that team members would get lazy from inactivity and they would rust.

The actors who had earlier been identified as having some personal interest could show or be seen to have made extra effort to address challenges/issues that cropped up, while the others largely could not. (It is worth remembering at this point that for those formal actors who had identified their personal interest in the system it was also possible to identify personal implications of not taking actions to address the challenges they face.) The following bullet points support this argument.

- The MWST did not just wait for the municipality's management to respond better to its needs. In other words, the MWST has not just waited for the MCD, MPO, or budget office to ensure that fewer challenges are put in the MWST's way. Instead, the MWST began sending its logistic request early in anticipation of the delays that occur. The benefit has been that the pick-up vehicle and funds from the budget office are more likely to become available by the time the planned activity is due to be implemented. This effort by the MWST has improved its chances of implementing its planned activities especially those relating to the monitoring of the goings-on in the metropolis' water sector. Although this effort has not completely erased such challenges, the MWST is able to show this as the effort it has made in order to avoid being dormant and to ensure the planned activities indeed get implemented.
- The WSDB including the executive management are interested in having the water scheme continue to function so that they can have water and employment. For these reasons they work proactively to avoid terminal breaks in the operations of the water scheme. For example in the push to have the water rates re-set, enter into a collaborative arrangement with the GWCL, and to extend the water scheme, the WSDB has been proactive.
- The metropolis' management team being responsible for the management and development of the metropolis and headed by a figure with political affiliations (the MCE) and appointed to serve the political interests of the ruling party is seen to direct emphasis to the ruling party's priority areas and not just the priorities spelt out in the municipal development plan. Indeed to be able to live up to the promises that the party made to the electorate during its election campaigns, the municipality's focus sometimes sways to the party's priorities; and a personal gain is served at the expense of the needs of the water scheme. The WSDB's experience in the re-set of the water rates provided a vivid example to illustrate this. The gazetting of the new water rate was not done prior to the conduct of the 2008 national presidential elections because the ruling party could incur the displeasure of the electorate. However, almost immediately after the elections it was gazetted. In order words, as a result of existing political priorities the pattern of support that the MWST, the WSDB and the water sector generally receive may not be favourable as they get skewed to serve the personal political interest of the political head of the metropolis and therefore the ruling party. Indeed, it is worth noting that although over the past two political terms (from 2004-

2009), water has ranked fourth in the metropolis expenditure pattern. This has however only been as a result of the DANIDA funded national Community Water and Sanitation Program (NCWSP) through which the metropolis accessed funds for water projects (TMA budget office, 2010).

Performance gaps, interests, and influences

Having identified that actors who have gone the further mile have been those that have also expressed their personal interest in the scheme, it is necessary to find out which actors influence other actors' performance and can again help solve the challenges that other actors face through the influence that they have. It is relevant to consider this bearing in mind the challenges which actors themselves face for which they are in the position to address adequately. This will help to throw more light on the inter-actor relations that exist within the water system and where the challenging points are.

Almost half (6 of 12) of the process challenges already identified were those that could be addressed by the actors affected themselves. The challenges were seemingly created by other actors, except for one of the twelve (1 of 12). Table 5.11 provided a summary of the findings on the challenges that the actors face. The challenges relating to other actors which the WSDB faces and can address by itself to an appreciable extent are the problems of illegal connections and the poor performance of the watsan. It is able to address the former by identifying and disconnecting illegal connectors. On the latter, it has made the effort to improve the performance of the watsan by introducing an allowance scheme by encouraging watsan members, although the allowance scheme has not yet yielded good results. It behoves the WSDB find alternative ways of revamping community level interest in watsan activities. The WSDB can also influence the community members' interests in attending the annual durbars through effective communication processes.

In the sub-section titled 'process challenges and performance gaps', I established the link between challenges and gaps. Only 5 of all (13) the performance gaps identified were being addressed. All 5 concern the activities of the WSDB and/or the MWST. All 5 gaps were also part of the 6 challenges faced by actors and which could be addressed by the actors who faced the challenge. Of the 5 gaps only 1 was self created (i.e. water losses). It is worth noting here that the WSDB and MWST are the actors who were able to identify that they had some personal interest and they have tried to influence other actors in how they addressed issues concerning the metropolis' water sector:- The WSDB tried to lobby the metropolitan management team and the communities through their chiefs. The MWST to push the budget department, for example, by putting in their requests on time; and influence the TMAs management team by using the MWST coordinator as a link to the management team. The WSDB has also tried to influence the watsans into action by introducing sitting allowances for watsan meetings. It again tried to influence community members to report illegal connectors by instituting an award scheme for those who report illegal connections. Again the WSDB used the influence of the chiefs to try to get community members to patronize water supplied by the OAWS more. Not all efforts made to address the existing gaps have been successful. For example, the watsan activities in the Oyibi area have not been revamped yet; and the MWST still does not always receive timely release of funds or logistics.

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All the other gaps identified but which are not being addressed were those that involved the management team, the MPO, the MCE and the MCD and for which these actors were in a better position to address. These actors did have influence but did not identify any personal interests. They rather identified those pertaining to the formal roles that they play. The MCE is the exception. The MCE has personal political interests however the personal interest rather caused the MCE to put emphasis on areas that did not keep the water sector and the activities of the MWST priority. Guided by these personal interests the MCE is able to influence the priorities of the management team. It is worth noting here that the budget office and MCD had not acted on the challenges faced by the MWST because the political leadership's interests do not make water a number one priority. There are clearly 4 of the 13 gaps identified of which the actor has to rely on some other actor to address. The actors relied on are the MCE, MCD and to some extent the budget office. The 4 gaps are the MWSTs access to funds and logistics and concerns delays in the budget officer's release of financial resources, the slow pace at which the TMA responds to the requests if the WSDB and the management teams provision of logistics to the MWST to implement its plans. In other words, in most cases the actors can themselves address the challenges that they face. In the 4 exceptions, the perpetuation of the gaps continues because it serves the personal interest of the MCE's political affiliations and the budget officer, MPO, MCD's desire to live up to their respective boss' (and ultimately the MCE's) expectations.

The watsan is another example where personal interests have kept the actors from providing the system with the required support. The watsans as an institution have an interest in ensuring that the community members have water but they have relinguished their role as watsans because unlike the WSDB members the members of the watsan do not receive allowances. Although they know that they are needed, the watsans prefer to stay non-vibrant as long as they do not receive allowances. For this reason they do not meet or play their roles as they initially did in the communities. The examples given above suggest that although all the actors work for institutions, those with some personal interests were able to push or take actions to address their challenges even when that involved pushing other actors into action.

However, it is again worth pointing out that, the WSDB and the MWST were able to show that they had some personal interest and could have influenced the gap that was being created in the performance of the watsan but did not do so early enough before the performance of the watsan waned, suggests that the existence of personal interest (in addition to the clear formal role definition) and influence is not enough to push the WSDB or the MWST into action to address the gap. The MWST and the community members have interest in the benefits of the continued proper functioning of the watsan also and could have influenced the WSDB to address the falling performance of the watsan but they did not push the WSDB to address the wane in watsan activities.

Other revelations on the performance of the OAWS

While WSDB is left to decide for itself the level of effort at the mobilisation of local potentials that will be appropriate for successful operations of the water scheme, it has no medium and short term plan that guides its daily operations although it annually prepares a list of actions that have to be take and which the executive management present to the board at its annual end of year meeting. There is no detailed plan document that explains

what measures and activities are to be implemented and for what objectives. What level of actor effort is necessary for the successful operation of the water system, has not been conceived. Being very focused on the details of the sub-sector policy guide, the MWST for example specifically checks if the WSDB has conducted the annual account rendering meetings which the CWSA operational guidelines specify; but it does not check whether the water board needs to collaborate and is collaborating with other water schemes on ways of improving the performance of the OAWS which is also important. Again since the policy guidelines do not specify the measures for knowledge development extensively the MWST's monitoring focus on this element is limited. This situation limits the efficacy of monitoring and evaluation of performance of the system.

With the absence of a clear and strong system that holds those responsible for performing, monitoring and ensuring that the various actors play their respective roles as expected of them, it is difficult, if not impossible, to show that the different actors are held to their best performance of their roles in the OAWS water system. Determination of the right measures and action, assessment of performance adequacy, as well as pursuance and monitoring of the schemes performance on the measures is rest mainly with the WSDB and in this light the WSDB is very much left alone to determine and get the strategies right.

Section summary

With the existence of potentials that can support the water scheme, a clear definition of institutional roles and the efforts made by the water board in pursuit of the successful operation of the water scheme, it can be anticipated that the scheme would reveal a good performance on national level performance indicators. On many of the issues identified in the literature reviewed, the board has made some effort at some point in its operations. Its total performance on the national performance assessment criteria has been good. However, the fall in the scheme's performance on the self-financing ratio and the steeper fall in its income as compared to water production direct attention to the possibility of challenges which may be explicit or subtle. These challenges directly or indirectly impact on the performance of the water scheme. However, as this sub-section showed, most of the challenges would affect the scheme's performance indirectly. Indeed, the challenges faced are mainly concerned with the performance of individuals of their roles in the affairs of the water system; and span issues of resources availability, monitoring and interests which lead to actions and influences.

5.6   Conclusion

The measures so far pursued by the WSDB have contributed to the continued ability of the OAWS to operate five years after its inauguration. However, the current performance of the scheme suggests that more effort is required in the endogenous process to keep the scheme performing well into the future. I am of the opinion that a more aggressive effort is required to achieve this. Some of the areas that the forgone data and analyses pointed to are that prospects for such a scheme are good as:

- The use of the local actors makes people who are more closely related to the scheme responsible for its performance. This has the potential to yield positive effects on the performance of the scheme because the commitment of the actors to the success of the scheme is likely to be high- since they get affected by the performance of the scheme themselves.

- The multi-stakeholder leadership which does entrust one actor with the power to make and implement decision on the scheme improved the chances that the interests of stakeholders will be considered in the decision making and operation processes.

- The nature of the potentials available in the area has boosted the performance of the scheme. Opportunities for obtaining good quality advice from the members of the communities, the presence of at least one higher education institution in the area which has been involved in the operations of the scheme and has provided training for the WSDB and enriched the membership of the board illustrates the positive contribution that the nature of the resource base can have on the board's performance.

- The localised nature of the composition of the water board, the kind of leadership that the scheme will have will depend of the communities from which the people are chosen. The weight of responsibility on the water board implies that, the composition of the board in turn will influence the board's perceptions of how and what things should be done, the potentials that the scheme identifies and takes advantage of, and its ability to assess its own performance and detect looming challenges and take preventive and curative steps to address them.

Identifiable challenges to the process are follows:

- Without a clear definition and ensuring that who plays the monitoring role, assesses the performance of the board holistically and ensures that the board works to address its challenges does so, the falling trends in performance of the scheme may go unnoticed for long and may have dire consequences for the water scheme. This role may require analysis that the members of the board may not be able to do by themselves.

- Also, without a clear and detailed plan to guide the board's activities, it is difficult for the MWST to hold the board accountable for activities that it should have undertaken but which it has failed to. My interview with the MWST showed that their assessment of the performance of the board's performance was more based on criteria set at the national level. Thus the MWST's references to the performance of the board were in line with issues such as- water loss, holding of durbars, rendering of quarterly accounts, approach adopted to re-setting water rates, providing advisory and technical support to the water board, reliability of the service, annual incomes and expenditure, training, etc. These are all mentioned in the policy document of the sector. However, in the operational guidelines drawn up for the small town water sub-sector, not all relevant measures are given. For example, how many training sessions should be conducted for the staff of the scheme per annum is left to the discretion of the WSDB. Without a plan and set targets such activities get undertaken in an ad hoc manner and the MWST cannot monitor these kinds of activities adequately.

- The calibre of the leadership that is instituted to manage the scheme has dire implications for the performance of the water scheme if in the base population from

which the board members are selected there is an absence of people with an appreciable knowledge and capacity to run such a project.

- There exist generally interests of the institutional and intra-institutional actors that support the water system. All the institutions interviewed had interests in the successful functioning of the water system. In terms of intra-institutional actors at the TMA, the MWST and the WSDB, for example, were able to identify additional personal interest in the water scheme. Additionally, the MWST and WSDB were able to show more aggression in the affairs of the water scheme as compared with the MPO and Management team among others. This may also be because the MWST and the WSDB are more directly involved in the water system than some other actors. However that the MPO as coordinator of the MWST is unable to show aggression that the MWST was able to illustrate, suggests that the direct involvement of an actor though important for the actor to be able to show aggression in the water system does not necessarily result in the show of aggression. On the other hand, the interests of other management level actors in the TMA have sometimes resulted in retrogressive effects on the water scheme.

6   THE JUABEN WATER SCHEME OF THE EJISU-JUABEN MUNICIPALITY

In this chapter, I present an account of the Juaben water system based on the data which I collected on the field and my interpretations. The Juaben water scheme is the second case studied in this research and to discuss it, I begin with an introduction of the district within which this water scheme is located – the Ejisu-Juaben municipality. I present the geographical setting as well as the general water situation in the municipality as a prelude that sets the scene for more in-depth discussion of the Juaben water system. Subsequent to this, I present a description of the Juaben community and the origins of the Juaben water scheme. I then proceed to discuss the role that local resources play in the affairs of the scheme, the institutional and service delivery mechanisms employed, the process challenges and prospects for the reliance on the endogenous approach. This will be done by responding to the questions that have guided the research. An assessment is also presented on the performance of the water system on national performance criteria. As was done in the previous chapter, I conclude with a summary of the key findings of the chapter and identify some implications of the key findings for the water scheme.

6.1   The Ejisu-Juaben municipality

The Ejisu-Juaben municipality is approximately 14 kilometers from the Kumasi City in the Ashanti region of Ghana. It is bordered to the north-east and north-west by the Sekyere East and Kwabere East districts, to the south by the Bosomtwe and Asante Akim South districts, to the east by the Asante-Akim North District and to the west by the Kumasi Metropolis. The Ejisu-Juaben municipality covers an area of 637.2km^2. The area rises between 240 and 300km above sea level and is predominantly undulating. It lies within Ghana's wet semi-equatorial belt and has two major seasons: the harmattan and the rainy season. The latter occurs twice in a year, between March and July and between September and November. The average monthly maximum temperature (32°C) is recorded between February and March, while the average minimum temperature (20°C) is recorded from December to January (Anornu et al, 2009: 2). Average temperatures range between 20 and 32 degrees Celsius in March which is the warmest month. The mean annual rainfall is 1200mm. Average relative humidity is 85% in the rainy seasons and 65% in the harmattan season. The driest months are between December and February when the municipality comes under the influence of the dry north-easterly winds (the harmattan winds). Map 2 presents an illustration of the Ejisu-Juaben municipality showing the main water facilities within the municipality.

Map legend:
- ■ Hand-dug well
- ▪ Hand-dug well and borehole
- ● District capital
- ● Small town water supply scheme
- ◉ The study scheme
- — Municipal boundary
- ⋯ Neighbouring district's boundary
- — Main road
- — River/stream
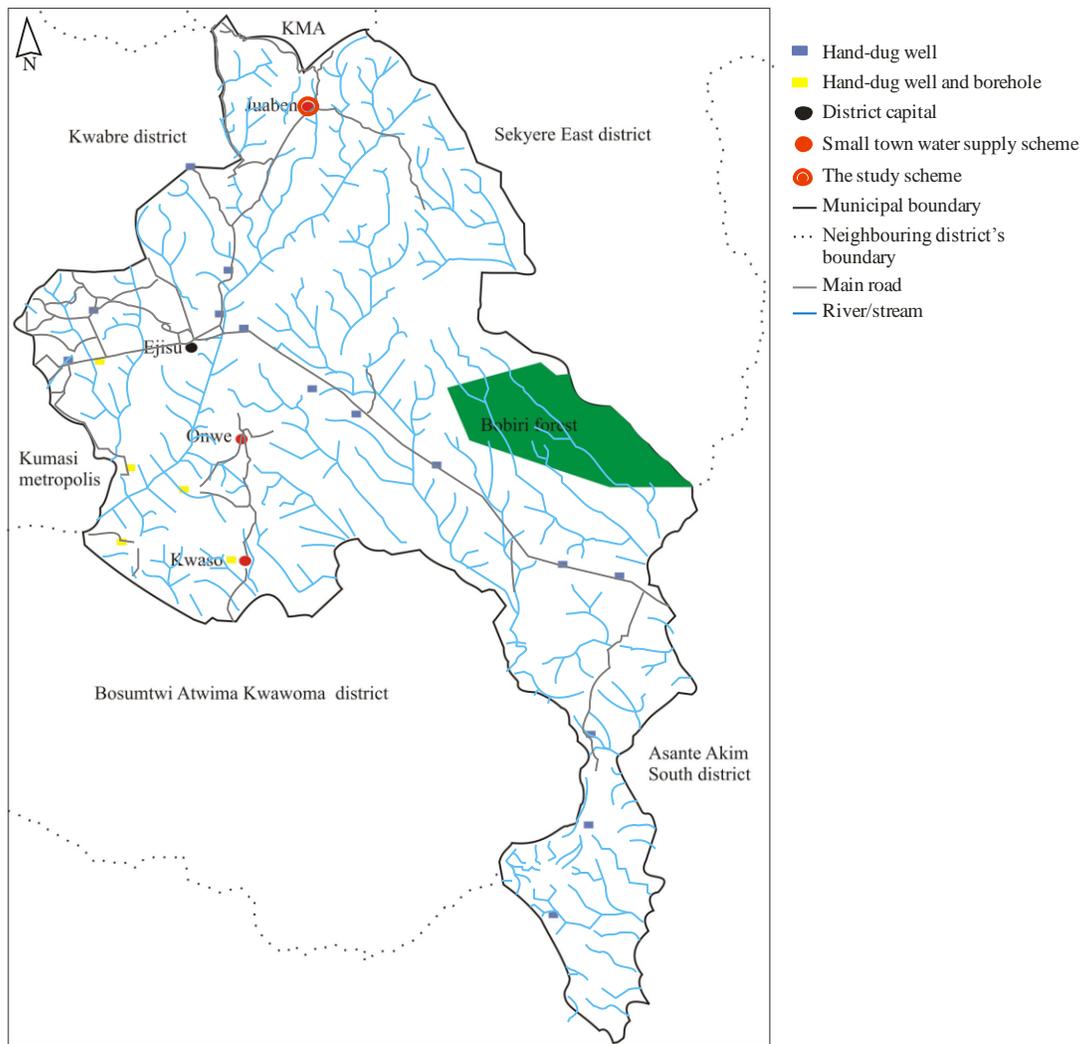
Map 2. Ejisu-Juaben municipality and its water facilities Source: Derived from NDPC (Undated) district poverty maps

Drainage and ground water potential

With the relatively higher annual average rainfall value, the municipality is drained a number of rivers, notable among which are Bankro, Hwere, Baffoe, Anum and Oda. These are not the only surface water bodies in the municipality. There are also ponds and streams. These surface water bodies tend to vary in the volumes between seasons. They fill up and sometimes flood in the rainy season but they dwindle in the Harmattan season. The relatively high average annual rainfall figures of the area, coupled with the rock formation in the municipality which comprise lower and upper Birimian and Granite formations with water bearing and high yielding water capacity due to the faults and fractures increase the ground water potential of the municipality. The ground water potential of the municipality is believed to be good and is the main source of potable water. The municipality has a high borehole drilling success rate of about 88% (EJMA, 2008: 18).

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Human attributes

The municipality has a 2.5% growth rate (GSS, 2000) and an estimated population of 155,365 (based on 2000 population census figure). The municipality is a net-recipient of migrants (EJMA, 2008:15) most of who move to the municipality in order to be close to Kumasi and yet take advantage of the relatively lower cost of housing in the municipality (EJMA, 2006). The trend is growing further with the relocation of some industries from Kumasi to the municipality, and the establishment of an inland port within the municipality, at Boankra. More than 69% of the municipality's population is rural (EJMA, 2007: 8).

Economic attributes

Agriculture is the main economic activity in the municipality (EJMA, 2006: 46). It employs 55.6% (ibid) of the labour force. This is followed by the services sector (33.5%) (ibid: 53) and then the industrial sector (3.1%) (ibid: 56). Farming activities comprise food crop and livestock farming for subsistence and commercial purposes as well as tree crop farming for commercial purposes.

An interesting aspect of the activities of the people in the municipality that sheds light on their economic standing is also the source of fuel for cooking. Approximately forty-eight percent (48.5%) of the population use fuel wood for cooking while almost thirty-seven percent (37.1%) use charcoal for cooking (EJMA, 2006: 83). The rest of the population rely on either electricity or gas. Over 50% of the population is considered to be poor (ibid: 45).

Access to water for domestic use within the municipality

Only 33% of the population has access to potable water within the municipality (EJMA, 2008:17). Sources of water for domestic use range comprise rivers, hand-dug wells, boreholes and pipe systems. The type of water sources used by residents in the municipality is determined mainly by the options available to them. It is predominantly the case that the source used is the only source of potable water accessible to the residents. Proximity of the water source, affordability and health considerations are additional factors that affect the residents' preferences. The problems that generally plague the municipality's water sector include rates being too high for residents, water hardness, long distances to water points and break down of water facilities.

The municipality has a total of 78 hand-dug wells, 167 boreholes and 3 small pipe systems. Although the Ejisu Juaben Municipal Assembly (EJMA) is the body responsible for spearheading the development of water facilities within the municipality, it has not been the sole financier of the water projects within the municipality. It has relied much on the support of local bodies such as the Otumfuo Education fund as well as on foreign funded projects such as the national community water and sanitation program, Village Infrastructure Project and PAMSCAD. More current water projects that have been planned by the municipality seek to involve the beneficiary communities in the funding of the projects.

The Juaben area

Juaben falls within the Juaben zone of the Ejisu-Juaben municipality. It is one of the more densely populated and less rural sections of the municipality. Juaben has an estimated 14,268 residents (based on 2.5% growth rate of the municipality and 2000 census figures). It falls under one traditional authority: the Juaben traditional council. The population is predominantly Asante. Juaben has a secondary school, a small hospital, a circuit court, a police station and a rural bank. For many immigrants, the presence of such urban type facilities makes Juaben one of the most attractive areas in the municipality. The population is nonetheless predominantly Asante (EJMA, 2007: 40).

The dominant economic activity in Juaben is farming, although there is also a small-scale oil-palm industry. The industry has an oil mill which is linked to oil-palm farms that employ local residents.

As in other sections of the municipality, the residents of Juaben access water from ponds, streams, wells, and a pipe water scheme for domestic purposes. The older sources are the ponds and streams. Communal effort to clean and protect the streams and ponds hardly exists. Juaben has the Ampono, Biaa and Gyaakehire streams as well as private wells. Access to wells is largely by private individuals investments. These private individuals allow other residents to access water from their wells for a fee. The use of ponds and rivers has largely been replaced by the use of pipe borne water from the Juaben water scheme mainly for health and ease of access reasons.

Origins of the Juaben water scheme

The introduction of pipe water in Juaben was done by the Ghana Water Company Limited (GWCL) in the 1980s. The GWCL extended its water system to Juaben but under the management of the Effiduase office of the GWCL. Juaben's residents experienced irregular water supply, water shortages, and slow response to their water problems during this period. Their dissatisfaction with the system was clearly pronounced at the swearing-in of the current paramount chief of Juaben. In his coronation speech, the Juabenhene indicated that one of his objectives would be to improve the water situation in the Juaben traditional area and requested that Juaben be given a non-dependent system as a way of reducing the challenges associated with its reliance on the Effiduase office; because whenever there was a problem with the Effiduase system, it affected Juaben. Subsequent to this, the paramount chief pursued this objective and the GWCL established a separate scheme to serve Juaben. The project was commissioned in 1977, and was placed under the management of the GWCL office in Effiduase. However, the scheme still had similar issues as when it was linked to the Effiduase system. The priority of the GWCL was on more urban areas and cities such as Kumasi. Non-urban settlements such as Juaben were not priority areas.

In their attempt to still improve upon the service that they receive the traditional council opted to have the community manage the water scheme by itself. By 2002, the traditional council through the Ejisu-Juaben Municipal Assembly (EJMA) had established an agreement with the GWCL and the GWCL had passed on the facility through the municipal assembly to the community to manage. The GWCL helped Juaben to establish a board to oversee the management of the facility before it passed the facility on to the community.

However the chairman of the water board observes that, by this time the Juaben system barely existed as a viable water scheme. The manager of the scheme comments:

'Many of the pipes for example were asbestos and they were badly deteriorated. The board realised leakages also. It noted that it needed assistance from the govt and CWSA to rehabilitate the system in order for it to be able to function properly or efficiently.'   -Board 1 interview, 2009

The Juaben community therefore opted to be a part the community management model of the Community Water and Sanitation Agency (CWSA) as a means of getting assistance for the revitalisation of the Juaben water scheme. The management of the water scheme with support from the municipal water and sanitation team (MWST) wrote proposals to the CWSA. Based upon the proposal submitted, the Juaben water scheme (JWS) was accepted under the CWSA's criteria for small towns. Then the CWSA's community management model comprising watsans and a water board was introduced into the Juaben water system. The GWCL describes the reason as follows:

'The government decided that the GWSC was too large to operate efficiently. So it was split and the rural and peri-urban was passed to CWSA. The Juaben system was passed on to CWSA along with that of Ejura and others.'
                                                    - GWCL key informant interview 11, 2009

Through the national community water and sanitation program the entire system was rehabilitated. By 2005, the Juaben water scheme was operating under CWSAs community management model.

The EJMA contributed 5% of the capital cost of the water project. However, unlike project start up activities found in most CWSA small town projects, where community mobilisation efforts are undertaken to mobilise funds for the 5% community contribution to the capital cost of the project, the approach adopted in the Juaben area involved the traditional council. The community members were not required to make direct contributions to the rehabilitation of the project. The MWST did not have to play a facilitating role in the mobilisation of the capital cost contributions. The traditional council had savings. It took a lump sum from its savings to make the contribution on behalf of the community residents. The traditional council also donated land for the project. Local labour was organised in support of the scheme in the digging of trenches and clearing of the project sites. Local labour was involved in the project on purely commercial and professional basis: where hands were needed, the contractors recruited people and paid them to work. Technical engineering works or those requiring high level of expertise (such as training and orienting of the community and the EJMA on the new approach) were also done by consultants and contractors hired by the CWSA. As part of the rehabilitation, the scheme – which originally was designed to serve 6 communities/wards: Abessim, Asokwa, Asamanya, Anno, Daaman and Nkwantanang- was extended to serve Ahodwo, Gyaakehire, and Estates. The total population of the wards was 16000 by 2002 (WSDB, 2002: 40). The Juaben water scheme served a total population of 16000 in 2008 although by this time, the population of the Juaben had also grown further.

Technical structure of the Juaben water scheme

The water scheme comprises 4 boreholes fitted with pumps, over 30 public stand pipes, 3 high-level tanks, 1 ground level tank, a booster station where water from the low level tank

gets pumped into the high level tank, a chlorination station and a network of distribution lines. The water is distributed to consumers mainly using the force of gravity. The pipe network is an adaption of the lines that previously formed a part of the Ghana Water Company Limited (GWCL) pipe system in the Ashanti region. Together the boreholes produce an average of 624 cubic meters per day and run about 16 hours in a day. The length of time varies slightly between the rainy season and the dry season when the pumps are run 8-10 hours longer. All the boreholes are being operated at the maximum safe level. In the dry seasons, when the pumps have to be operated a bit longer, the safe operating level is therefore exceeded.

The distribution of the water to consumers is done through the use of gravitational force. Although the system is operating at its highest capacity, the water distribution is currently being rationed among various sections of the community. This is because the use of gravitational force requires that adequate pressure builds up in a water tank before the pipelines are opened up to allow the water to flow to the households. For houses that do not have direct connections, the public stand pipes are installed at vantage points such that each stand pipe (with one outlet) can serve up to 300 people[30]. As a result of the institutionalised rationing, individual household storage systems have informally become a part of the water supply system. Coupled with that fact that the rationing does not appear to follow a clearly reliable schedule, households fetch and store water in overhead tanks, barrels, buckets, pans and other receptacles as a means of ensuring that they still have access to water during periods when water is not flowing in their section of the community.

6.2   The role of local potentials

As was done in chapter 5, I first present the data or information obtained from respondents and secondary sources and subsequently my interpretation of their opinions on what potentials exist and then whether they are being used. Also, where possible I will triangulate the opinions expressed in primary data with information that is available in the form of secondary data and my observations on the field. This section is structured according to the sub-questions of the research. The answers to the sub-questions would together help answer the main research question 6.2 above.

The potentials available

The following table provides a summary of potentials available to the Juaben water scheme. Table 6.1 reveals the potentials that respondents identified when asked what potentials are available within the municipality which the water scheme can tap. These are potentials identified by at least 3 sources within the municipality. Guided by my experience in the water sector and in development work and my practical knowledge of what

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[30]According to the CWSA policy guidelines, a standpipe of a piped scheme serves no more than 300 persons (CWSA, 2005: 1)

- '600 people per standpipe with two outlets; and maximum walking distance to a standpipe shall be 500m. (CWSA, 2004: 4)

development practitioners involved in the water sector consider as potentials, I have considered also other potentials that exist within the municipality but which the institutional respondents did not identify. These are situations, elements, or factors that are generally identified within the development field as potentials and which can be taken advantage of if the managers of the water scheme are aware of their potential. These potentials include community groups or associations such as the market women's association and hair dressers association, local churches that can help in information dissemination and community mobilisation, and the police station that when hooked to the water system uses the water and so extend the water scheme's consumer base and revenue base. There are also people within Juaben who can be picked and trained to perform various roles on the water board or be employed as staff of the water scheme. The respondents also made mention of the existence of natives of Juaben who live outside Ghana and can remit monies for community development as well as those who hail from Juaben and can offer advice to guide development efforts. The late Professor Adu-Boahen and Nana Awuah Ampem are examples. In some instances, some respondents were able to identify a potential or the other but other respondents failed to corroborate this. Therefore these potentials were not presented in Table 6.1. Table 6.2 is a summary of these other potentials.

Table 6.1 Expression of potentials available to the Juaben water scheme

Type of potential	Expression of potentials available to the Juaben water scheme
Natural	Presence of underground water that's suitable for human consumption
Human	The presence of a paramount chief.
	Juaben has people of knowledgeable people who can support the system (i.e. people of the right calibre).
	The presence of educated chiefs
Economic	Technicians and artisans in the private sector whom the assembly can depend on to support the system
	Presence of people who were trained as technical operators to maintain the pumps
	Sachet water producers, food vendors/restaurants, sellers of plumbing parts, hairdressers
Institutional frame	Schools
	A strong traditional system
	The EJMA's political power and mandate to assist the board in implementing and achieving its goals.
	The existence of a dual system of governance

Source: Author's construct, 2009

Table 6.2 Other potentials available to the Juaben water scheme

Type of potential	Expression of potential available to the Juaben water scheme
Human	Juaben has people out of the country.
	People who hail from Juaben or reside in Juaben and who can support the schemes development through the advice that they offer
	Presence of trainable people. These are people who can be trained to serve on the board or to assist the scheme
Economic	Associations formed for commercial purposes such as the hairdressers association and market women's group.
Institutional frame	The presence of basic service providing institutions such as a hospital and police station that make Juaben attractive place for migrants.
	The existence of religious bodies whose influence and links can be tapped in support of the scheme: Apostles Salvation, Methodist Church, Presbyterian church, International central gospel church, etc.

Source: Author's construct, 2009

The potentials being harnessed

In Table 6.3, I present an analytical summary of the data collected from respondents on their experiences and observations about the use of the potentials already identified above, as well as my conclusions thereof. I consider the list of potentials identified in Table 6.1 and 6.2 above as potentials available to the JWS. In Table 6.3, the state of use of the potentials is sorted into three categories using three different symbols. As done in Chapter 5, three categories are used. The first category (symbolised by the minus [-] sign) are those for which no clear evidence was found of use. The second category represents those for which the respondents (at least from 2 different respondent groups) were able to confirm were being used. This category is symbolised by the plus [+] sign. The third category (with the symbol – 'o') comprises those potentials that were clearly being used a lot. The lead actors in the water system were asked to assess the use of the potentials by the JWS. Based upon their average (mode) assessment, Table 6.3 shows which potentials are being used.

The table illustrates that majority of the potentials identified are already being utilised by the water board. The potentials for which the scheme hardly has other alternatives for are those that are clearly being used a lot. The presence of pluses (+) and only one minus (-) suggests that there is some effort being made to use the local potentials.

The conclusions that I draw from the insight that I obtained during the interviews as well as Table 6.3 are as follows:

- There are potentials such as groups, people who reside in Juaben and can support the schemes development, and religious bodies which if tapped could yield benefits indirectly but which according to the management of the water scheme are not being used intensely.

- Businesses that rely on water and pay the board for the water that they consume are not considered by the actors who are directly responsible for the water system to be important potentials. As a result little effort is made to use them.

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- There was often reference by the respondents in the institutions interviewed to the chiefs and how they support the scheme. The same was true for the EJMA. These were indications of the exploitation of these potentials. And implies the exploitation of the potentials in both the formal and informal systems of governance.

As the above table illustrates, the majority (14) of the total number (18) of potentials identified by the respondents are already being utilised by the JWS. In the next sub-section, I discuss using data obtained from respondents, how the potentials indicated in Table 6.3 above are being used and hence justify the assessment of the utilisation of the potentials. Table 6.3 revealed a convergence of my assessment of the use of these potentials (done on the basis of the data that I gathered from the field interviews) with respondents' assessments.

How the potentials are being used

That Juaben has potentials that can be used to support the water scheme has been shown in the above sub-section. In this sub-section, I attempt to provide an account of how the potentials identified above have been used to support the JWS. To achieve this, I present extracts from the interviews with the respondents as the basis for the conclusions that I draw on the use of the potentials. Where single individuals' comments are quoted to support the points made, these are used because they adequately capture the views expressed by other respondents in the data collections process on the same issue.

Natural

Groundwater
   'Availability of good underground water. The system has 6 boreholes. 4 of the boreholes depend on the Juaben' (Board 1 interview, 2009). ...We draw the water to use as our water source.' - Board 1 interview, 2010

   The MWST confirmed noting that the JWS is 'a borehole system'.
   - MWST interview, 2009

Picture 6.1 Submerged pump that feeds the ground level tank.   Source: Author, 2010

Table 6.3. Utilisation of potentials by the JWS

Type of potential	Question /potential	Usage -/+/o	
		Respondents' grading	Summary (mode)
NATURAL	Presence of underground water that's suitable for human consumption	o	o
HUMAN	The presence of a paramount chief.	o	+
	Juaben has people of knowledgeable people who can support the system (i.e. people of the right calibre).	+	
	The presence of educated chiefs	+	
	Juaben has people out of the country	-	
	People who hail or reside in Juaben and who can support the schemes development through the advice that they offer	-	
ECONOMIC	Presence of people who were trained as technical operators to maintain the pumps	+	+
	Presence of trainable people. These are people who can be trained to serve on the board or to assist the scheme.	+	
	Restaurants and chop-bars, sachets water producers, Juaben oil mills and hairdressers.	+	
	Technicians and artisans in the private sector whom the assembly can depend on to support the system	+	
	Associations formed for commercial purposes such as the hairdressers association and market women's group.	-	
	The presence of potable water in Juaben which is in turn attracting more people and factories.	+	
INSTITU-TIONS	Existence of other small town water schemes	+	+
	A strong traditional system	+	
	The presence of basic service provision institutions such as primary schools, a secondary school, hospital, police station that make Juaben attractive place for migrants.	+/-	
	The existence of religious bodies whose influence and links can be tapped in support of the scheme	-	
	The EJMA's political power and mandate to assist the board in implementing and achieving its goals.	+	
	The existence of a dual system of governance	Implied	

Scale: - Hardly evidence of use;   + Being used;   o Being used a lot

*Indicates whether there was evidence of use of the potential or not

Source: Author's construct

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These three sources of data, confirm that the JWS is indeed making use of the underground water potential in Juaben.

Human

Population characteristics
The following comments were taken from interviews with WSDB, Planning Unit and MWST.

On Juaben having knowledgeable people who can support the system: The WSDB (interview 2010) commenting to the presence in Juaben of people of the right calibre notes the following about the Paramount chief '...because of his educational background he understands the technical issues so we involve his support'. There are at least three sub-chiefs who are members of the water board (MWST and Board 1 interviews, 2010) but beyond the current situation with the involvement of the traditional authority the WSDB sees more potential; and the manager of the water scheme expresses this when he mentions that 'there is a need to change the baton and to bring in a new crop of chiefs who will bring new ideas and be more dynamic and this has not been done (ibid).

The MWST (interview, 2010) commenting on this potential notes with reference to the manager and workers that 'those who are working here are from the community'
On the presence of trainable people in Juaben the WSDB's comment suggest that this potential is being harnessed when the system manager points out that 'we have trained and used many', (Board 1 interview, 2010). There are at least 2 educated chiefs on the water board. These are Nana Baah Acheamfuor- who holds a diploma in agriculture mechanisation and Nana O.O. Ponkor Abarim II an engineering technical (ibid).

The comments show that efforts have been made to use the knowledge and educational background potentials in Juaben to the benefit of the water scheme.

Economic

That the economic potentials that have been identified were being used was mentioned in various comments and examples provided by respondents spanning the water board, the municipal water and sanitation team, the community based groups, key informants during the interviews. Under the sub-titles below I present some of the statements that pointed to the use of local economic potentials.

Small and medium scale enterprises that use the water from the scheme or provide inputs that the scheme uses.
 a. Restaurants and chop-bars, sachets water producers, Juaben oil mills and hairdressers.
    - Heads of households identified 2 places where the water from the JWS is bagged for sale.

- Several respondents (including the households, WSDB and MWST) referred to the Juaben oil mills as one of the community's development potentials which uses water from the JWS and serves as a market for the product.
- Chop bars which rely on the water from the JWS are visible in the Juaben community.   -   Observation and interviews conducted in 2009 and 2010

b. Associations formed for commercial purposes.
   Juaben has a hairdressers', and dressmakers' association, as well as the Daakye enti group a market women's group. These have not been considered as potentials by the main actors in the water system and so their potentials have not deliberately been used.

c. Technicians and artisans in the private sector whom the assembly can depend on to support the system.
   The use of the above mentioned potential is indicated in the respondents' comments; some of which are presented below
   'There is also 1 mechanic in this Juaben community whom we use. They assist from time to time with the pumps. Those from outside the district cost much more but we still consult the GWCL.'   - Board 1 interview, 2009

   There are plumbers in the community who help to fix the pipes when they get spoilt.   - Group informant interview, 2010

   'There are plumbers who reside in Juaben community who get called upon by the board to do minor repair works on the system.'   - Juaben group 1 interview, 2009

Presence of people who were trained as technical operators to maintain the pumps
Training was provided by the Community Water and sanitation Program (CWSP) mainly for staff of the Juaben Water Scheme (JWS). The trained hands in the community are therefore mainly people who are currently still working with the JWS.

Presence of trainable people (i.e. people who can be trained to serve on the board or to assist the scheme)
The Planning Unit (interview, 2009) pointed out that the members of the WSDB were selected from within the community and initially did not have adequate knowledge about how to manage the water system and had to be trained. That the MPO observes that after the training the members of the board have been able to play their role supports the notion that there are people within the community who can be trained to serve the water scheme.
   'Fresh graduates and students seeking vacation jobs or waiting to do re-sits are also taken on and trained internally to support the operations of the system in ways such as monitoring of the pipes lines. There are currently 3 such people working here now.'   –Board 1 interview, 2009

   'The pump attendant was made to learn the plumbing aspects on the job from the Mampong team, so he can now handle the plumbing aspects of the system.'
                                    - Juaben community leader 1 interview, 2009
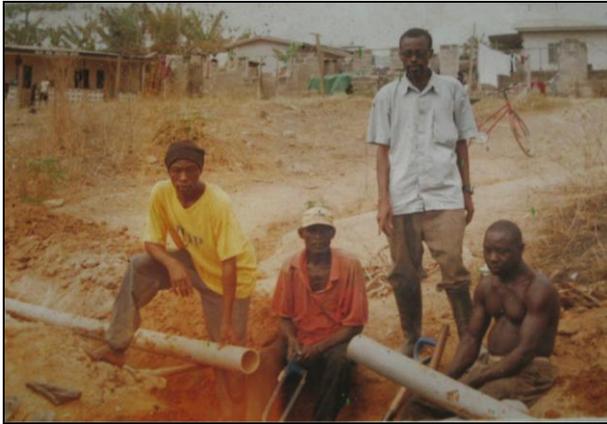
Picture 6.2 Community members employed and learning on-the-job about pipe-laying Source: Accessed from the WSDB library in 2010

Picture 6.3 Community members employed and learning about plumbing services on-the-job   Source: Accessed from the WSDB library in 2010

Institutions

As done under the previous sub-heading, I present below some extracts from interviews conducted at different time and with different respondents in which they indicated through the use of examples their knowledge of the use of local institutional potentials.

Existence of other small town water schemes
    Last the JWS went to Kwaso for an artisan to help solve a problem.

- MWST interview, 2010

    The JWS shares ideas with the other water schemes in the municipality for the mutual benefit of all 3 schemes.   - Board 1 interview, 2010

A strong traditional system
Commenting on the procedure for informing the community of the schemes performance the Community leader 1 underscored the importance of the traditional system as follows
    '... the board ... discuss(es) the result and proceed(s) to present and discuss it with the traditional authority of Juaben before it is presented to the entire community.'
                          – Juaben community leader 1 interview, 2009

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Other comments that touched on the involvement of the chiefs are as follows:

'The chiefs are the figures in the community around whom mobilisation of the people is centered.'   – Planning Unit interview, 2009

'Traditionally, the chiefs own the land and the community on it. Once they donate the land for the system then the system does not have to pay royalties to the chiefs.'   - Planning Unit interview, 2009

'Juaben is not small. It is big. It has an Omanhene. The leaders therefore make payments from their coffers on behalf of the community members. We did not have to make payments or household contributions to the capital cost.'
- Juaben group 1 interview, 2009

The Omanhene is the central point overseeing the proper operation of the water system.   - Household interviews, 2010

The presence of basic service provision institutions such as primary schools, a secondary school, hospital, police station that make Juaben attractive place for migrants.

The stand pipes are positioned so that they can have easy access to water through them.   - Board 1 interview, 2009

'There is a hospital but it has its own source of water (borehole). The other institutions we supply water to are the police station and the secondary school.'
– ibid, 2010

Commenting on how the above potential has been used the MWST notes that, the water has been extended to these institutions.   – MWST interview, 2009

Discussion with staff of the Juaben secondary school and the police station confirmed that they do use water supplied by the JWS.

The EJMA's political power and mandate to assist the board in implementing and achieving its goals.

The WSDB seeks the EJMA's technical, logistical and financial support and does advocacy on behalf of the board.   – Board 1 interview, 2010

The EJMA, 'is the indirect owner of the system because of the role it plays in getting the facility to the people. It is the assembly that requests for assistance and funding among others.'   – Planning Unit interview, 2009

'The MWST sometimes provides in-situ training for the board and the watsans.'
- MWST interview, 2009

The co-existence of two systems of leadership

The water board, the Planning Unit and the MWST in their interviews indicate different ways in which both the EJMA and the traditional system of leadership are used to support the water scheme. Their interviews suggest that when either institution is brought in depends upon the issue at stake and which of the leadership systems is better positioned to help the water scheme achieve its objective. For example

'the DA coordinates support or liaises with the board(s) .... offers advice ... on how to go about certain things- technical or social or administrative'.

<div align="right">- Board 1 interview, 2009</div>

However when land issues are concerned as was the case when hydrologists found the best place to sink boreholes was on someone's plot, the WSDB turned to the traditional leadership in the form of the chiefs to help the WSDB acquire the land. The WSDB's comment below confirms this:

'...the traditional authorities offered the land for siting the pumps for free, the site for locating the board's office was also offered for free. It was in fact someone's land but after exploration geologists found out that that was the place where water could be sited. So the traditional authorities offered another plot of land to the person to motivate the person to release it and then the person released the land.'

<div align="right">- Board 1 interview, 2009</div>

Based on the insights provided by the respondents, such as in the quotation above, I conclude that the processes of the water scheme, do involve the use of the potentials in both the traditional and formal leadership systems.

Section summary

Within Juaben and the municipality within which it falls are potentials which can and are being used to support the Juaben water scheme. Underground water, chiefs and knowledgeable people are important potentials in the area. These fall within the natural and human categories. There exist also skilled hands and trainable people, and small and medium scale enterprises. These were identified as the existing economic potentials. The institutional potentials include other small piped water schemes and the strong traditional system. There exists also the local government system which symbolises the formal leadership system. Added to these is potential generated by the co-existence of both the formal and traditional systems of leadership. Other institutional potentials are in the existence of schools and the police station. Economic associations such as the market women's group and the hairdressers' and beauticians associations contribute to the economic potential of Juaben. There also exist social potentials in the presence of religious groups.

The water scheme has made use of some of the potentials in each of the four categories of potentials mentioned above. About seven-ninths ($^7/_9$) of the potentials identified are being mobilised and used. As Table 6.3 shows, for two-ninths ($^2/_9$) of the potentials there were hardly examples that illustrate their use. For 2 out of the 18 potentials identified (that is Juaben has people out of the country; and people who hail or reside in Juaben and who can support the schemes development through the advice that they offer), none of the respondents thought they were indeed being used. This notwithstanding, I conclude that the WSDB has been using the identifiable potentials.

6.3 Organisational, institutional and service delivery mechanisms

Incorporation of potential mobilisation and use in the scheme's plan

According to the executive management of the water scheme, the contents of quarterly reports that are submitted to the water board by the management of the water scheme, individual reports that members of the water board get from community members, management's monitoring of operations as well as the minutes of executive meetings and annual general meetings form the basis for the actions to be taken by the management of the water scheme. The objectives and the actions are intended to achieve them show in the annual budgets of the water scheme. However, the JWS has not yet developed a business plan or a facility management plan as a holistic guide for its operations and to guide its efforts in the harnessing of the potentials available within the municipality. In other words, the JWS does not have a clearly laid out plan which spells out its objectives for the short and medium term and how it intends to use the potentials available to help it achieve its goals -to provide portable drinking water and a healthy environment to the inhabitants of Juaben (WSDB, 2002: 15).

In the absence of a comprehensive plan, the Juaben Water Scheme (JWS) is unable to provide a good numerical account of the populations of the small communities which together make up the entire Juaben population. There are no clearly identified social and institutional potentials that could make it easier for the process of mobilising and using the local potentials. If a plan exists which captures the rationale for the communities' participation in the affairs of the scheme, the design capacity and the technical limits of the scheme as well as procedural standards for operation and maintenance and the financial plan, then the expectations of the scheme can be more clearly envisaged; the possibility of structuring activities (including staff capacity development) to ensure better performance of the water scheme for improvement, and lurking challenges can then probably be more easily spotted. Indeed, the constitution and status report on the JWS indicate the roles and responsibilities of actors, as well as punitive measures to be taken when the water scheme's bye-laws are broken. There is also some indication of the economic activities in Juaben as well as institutions present. However without a well thought out plan to serve as a frame which guides the affairs of the water scheme, much room is left for an ad hoc approach to the affairs of the water scheme with the higher risk of missing important issues and opportunities.

The key organisations/actors

The key actors of the Juaben water scheme are informed by the role definitions indicated by the Ghana Water Company Limited (GWCL) and the Community Water and Sanitation Agency (CWSA) as conditions for the introduction of their community management models. Currently, what is found in this context is based mainly on the policy guidelines of the CWSA's community management model. This model which assumes district ownership of the facility but with community management relies on the involvement of various actors to make the system work. The information which I present in this section about the actors involved in the water system is based on my interviews with the WSDB, MWST, the

Planning Unit, sector experts and key informants. This narrative only represents the story in aspects where there was a convergence in the opinions of the respondents and/or policy documents.

Upon considering the accounts that respondents gave of the frequency and nature of their interaction with other actors in the water system, five actors emerged as the main local actors involved in the Juaben water system. These are the local government, assembly members, the WSDB and the traditional authority. Although the private sector and communities are generally considered to be important in the affairs of the piped water scheme this did not show in the responses provided by the respondents. The main actors and their importance as the interaction among actors reveals is illustrated in the following diagram. The thickness of the different lines between the actors in the diagram indicates the
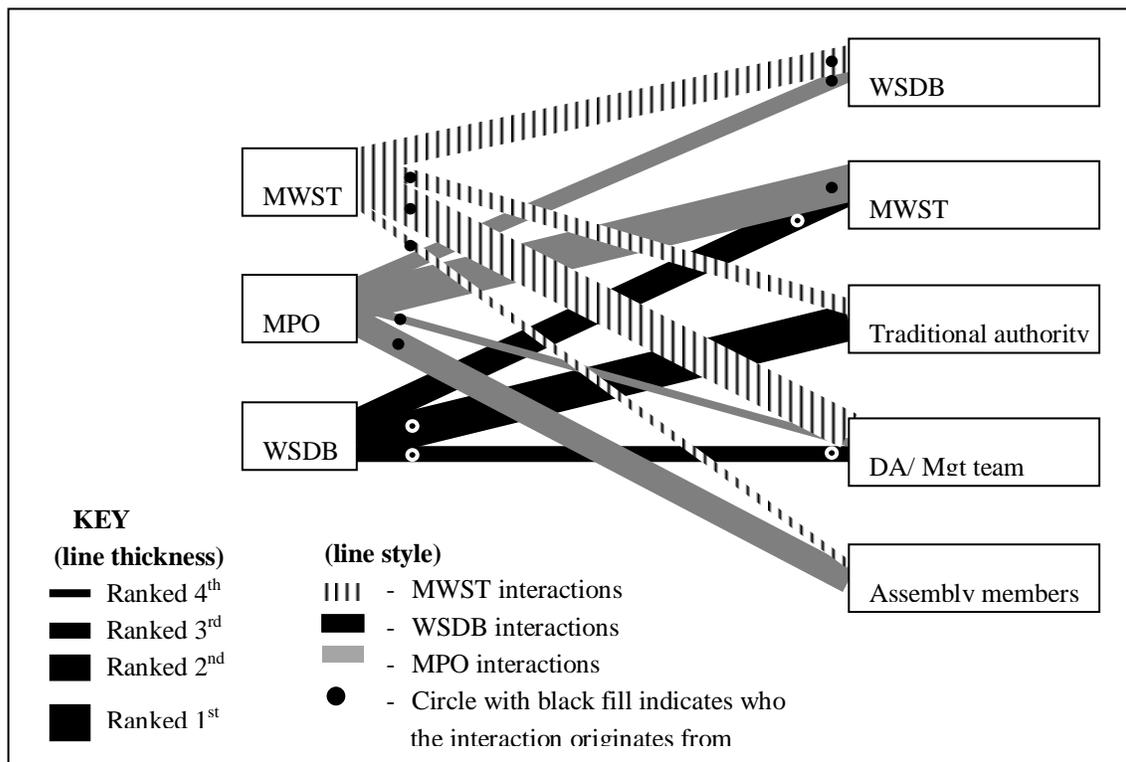
Diagram 6.1 Interactions between actors in the water system Source: Author's construct, 2010

intensity of the interactions among each pair of actors as indicated by the rankings given by each actor interviewed. The different line styles indicate the different actors' interactions; while the circles filled with black are positioned closer to one actor or the other on the line connecting each interacting pair to indicate who often originates the interactions. As the above diagram shows, the main originators of the interactions are the Water and Sanitation Development board (WSDB) and the Municipal Water and Sanitation Team (MWST). However as column 3 in Table 6.4 shows, the WSDB, MWST and Planning Unit are the actors around whom most interactions revolve; with the MWST being the most intense inter-actor. The MWST interacts with all other main actors of the water scheme. The next

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more active inter-actors are the WSDB and the Planning Unit (led by the MPO). Both actors interact with 4 of the other main actors.

Although the MA/management team, assembly members and the traditional authority were also identified as main actors, they seldom originate interaction with other actors as the above diagram shows. As the black circles on the broad lines show of the three, only the MA/management team is seen to have been originating some interaction. This is done with the WSDB and occurs just as much as the WSDB originates interactions with the MA/management team. The WSDB, MWST and the municipal planning officer (MPO) often have to initiate interactions with these three actors as they occupy important roles within the municipality and within the community which cannot be easily overlooked. Assuming that how many other actors an actor interacts with is indication of how key or central the actor is to the JWS's interaction processes generally, then the MWST is the most central actor because it interacts with the most number of other main actors; as Table 6.4 shows. The second position would be occupied by the WSDB and the MPO who mainly interact with 4 of the main actors. The centrality of the various actors in the interactions is also indicative of how critical the role of an actor is. The roles of the main actors are explained in the following paragraphs.

The main actors are found operating either at the municipal level, intermediate level or the community level. Notwithstanding the different levels, how active the actors are in the interactions is influenced by the roles defined for them in the water system. Next, I explain in further detail the roles that the various actors are playing according to the different levels within the actors fall.

Table 6.4. A ranking of the main actors according to the intensity of their interaction with other actors

Who are the main actors?	How many other main actors does this actor interact with?	How central is the actor in the interaction processes?
WSDB	4	2nd
MWST	5	1st
MPO	4	2nd
Traditional authority	2	4th
MA/management team	2	4th
Assembly members	2	4th

Source: Author's construct, 2010

The municipal level

The municipal assembly (i.e. the local government) - The management team, the Planning Unit and the MWST are all part of the municipal assembly. The EJMA is the highest level of formal governance in the municipality. It plays a major role in the context of the Juaben water scheme because it is the legal owner of the water scheme; and as a result has a major stake in its operations. This coupled with its role as the main institution leading the municipality's development and the fact that the responsibility for securing access to safe

water for residents of the municipality rests with it makes the EJMA have a vested interest in the JWS' affairs. It is responsible for formulating policies that broadly guide the development of various sectors of the municipality. However, the direct oversight responsibility for the water sector is performed by the Municipality's Water and Sanitation Team (MWST). The MWST is therefore more responsible for the implementation of the MAs plans and programs for the water sector. Its responsibilities include the monitoring of the activities of community level and sub-municipal level actors to ensure that they remain in sync with the broad sector objectives. The MWST therefore serves as a link between the Juaben water scheme and the municipal assembly (MA). It liaises with the various actors who it deems necessary to involve in order to boost the achievement of the municipality's water sector objectives. The MWST in performing its role provides technical and advisory support to the WSDB and advices the municipal management team on affairs of the JWS. The MWST, which comprises a technical engineer, a hygiene officer and a community development officer, has the municipal planning officer (MPO) as its team leader. This lead role coupled with his position as a member of the municipality's management team makes the MPO the key link between the MWST and the management team.

The management team comprises the chief executive, the coordinating director, the budget officer and the planning officer. This team which is headed by the chief executive is responsible for directing the development of the municipality. The team, by virtue of its position as the one to whom the MWST is accountable, exercises oversight responsibility for the Juaben water scheme.

The intermediate level

The development board - Between the metropolitan assembly and the community-based actors is the Water and Sanitation Development Board (WSDB). The WSDB is a semi-autonomous body created for the management of the water scheme. It comprises representatives of about 50% (that is, the 6 communities that were involved at the start of the scheme) of the communities that are served by the Juaben water scheme, the technical manager of the water scheme and a representative of the Juaben traditional council as chairman of the board. The WSDB is responsible to the EJMA (as the owner of the facility) and the communities (as the direct beneficiaries). It has a five year renewable tenure. Although a multi-stakeholder body, the stakeholders represented on the board are primarily from the communities. The EJMA is allowed representation on the WDSB in order to enable the EJMA to remain directly in touch with the operations of the board. The technical manager of the water scheme is an executive member on the board. As a member of the board, the technical manager is responsible for keeping the board updated on the operations of the scheme. The board recruits the management staff (including the technical manager) and supervises their performance. The management staff in turn in consultation with the board recruits other staff (including the water vendors and security men) to support the operations of the scheme; and the recruitment has to be approved by the board. The following figure illustrates the organisational structure of the scheme.
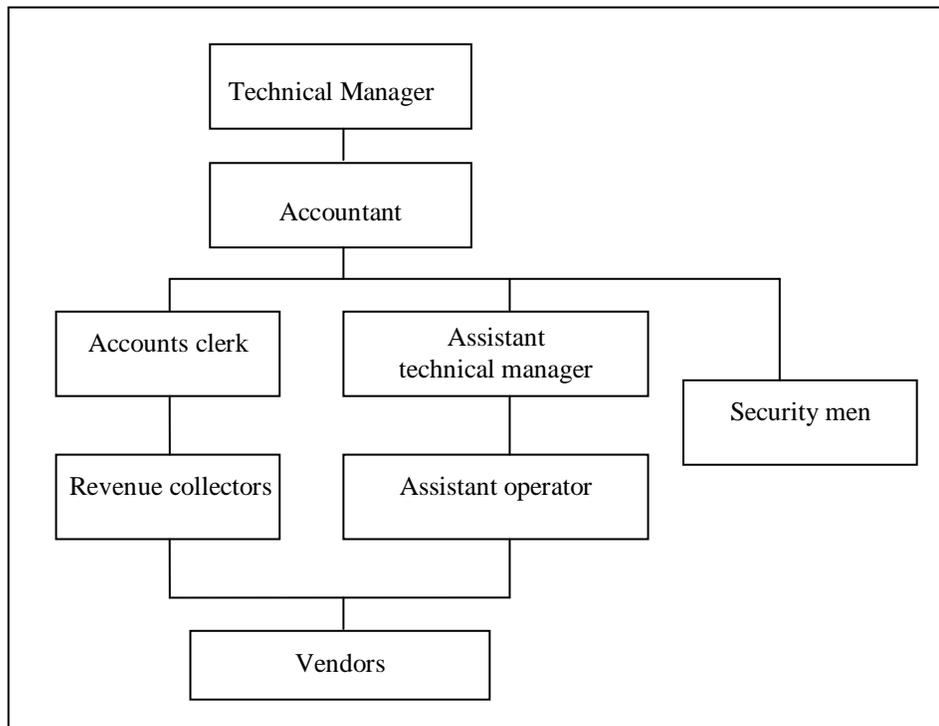
Diagram 6.2 Organisational structure of the operating team. Source: Authors construct, based on discussions with the Juaben water board, 2009

There is a total of 35 staff. These comprise the technical manager and his assistant, an accounts clerk, a secretary, security men (3) and water vendors (27). There are also casual staff (14) who assist in accounting and billing processes. The technical manager's assistant also plays the role of the pump operator and caretaker. He has 11 of the casual staff in his department to assist him.

The water vendors are community based operators who are contracted to operate the public stand pipes within the communities. They are therefore part of the water schemes' water distribution mechanism. They are community members who are recruited by the board directly and are directly responsible to the WSDB. They render account on a daily basis of the amount of water that they sell. At the end of each month, they get commission on the sales that they make. This is equivalent to 20% of their total sales. The board keeps the remaining 80%.

Community level

Traditional authority– Although the sector policy does not clearly state the role for the traditional authority in the affairs of a small town piped water system, the traditional authority is an indispensible part of the Juaben community – a community which is still deeply rooted in its traditions and customs. Based on observations of the achievements of some traditional leaders, such as the Juaben Omanhene, Okyehene and Agbogbomefia of the Asogli state in the Volta region among others in the socio-economic development of their communities, it is generally believed among practitioners that traditional authorities

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can play a positive role and should not be neglected in development projects (see Guri, 2006). With this recognition, the main actors of the JWS interact with the Juaben traditional authority. The traditional authority's support is sought on issues relating to land acquisition, community mobilisation, and the promulgation of community based rules in support of the water scheme. The interaction between actors and the traditional authority is facilitated by the presence of a representative of the traditional authority on the WSDB as the chairman of the board.

Assembly members- As is the case with the traditional authority, the sector policy does not define any particular role for assembly members or other leaders in general. Nonetheless, members of the district assembly are expected to play significant roles in the development of their respective communities. According to the MLGRDE, the assembly members are expected to spearhead development projects in areas such as drainage and electrification (MLGRDE, 2006). Practitioners of the sector do take cognisance of this and involve the assembly members where possible. Indeed the assembly members are considered community leaders and one of the main contacts through which a community can be entered and through which community mobilisation can be started.

Other actors who are considered important in the water sector- There are some other local actors who are identified and considered important by the sector policy but who did not emerge as main actors in the Juaben water system. These are the water and sanitation committees (watsan) and the private sector. In the following paragraphs, I present the role that the watsan and the private sector as main actors are expected to play as per the sub-sector policy. This is based on the sub-sector policy and operational guidelines.

- The watsan: The watsan is in principle a key actor operating in the communities. Watsans are responsible for overseeing water and sanitation activities within the communities in which they are formed. The role of the watsan is primarily to support the role of the WSDB by overseeing the functioning of the system within the community in which the watsan is formed. It is responsible, in principle, for supervising the maintenance of the public stand pipes. It is also responsible for informing the WSDB of major faults through the watsan's representative on the WSDB. Thus, the responsibilities of a watsan do not go beyond its community of origin. The people who get selected to be community representatives on the watsan are those who are perceived to be well respected within the community, are quite knowledgeable on a broad range of issues, and so can be trusted to work in furtherance of the interests of the community.

- The private sector: As perceived by the sub-sector policy, the private sector is expected to provide relevant support services to the water scheme. These services span supply of equipment and spare parts, consulting, as well as construction. Also, the private sector may be involved in the operation and maintenance of the water facility or in the management of the facility. The water scheme is allowed to call upon the private sector to provide services that are beyond its capacity as long as this does not contravene the procurement laws.

Leadership of the JWS

Here, I explain the leadership structure of the Juaben system. I identify who leads the water supply processes based on accounts provided by the WSDB, MWST and the Planning Unit about interactions during the re-set of water rates and extension of the water scheme. I focus on the accounts given by these actors as they have emerged as the main actors in the water system. I use the re-set of the water rate and extension of the water scheme as the main examples because since the transfer of the water system to community use, these have been the major projects that have been undertaken and which required coordination and collaboration among the actors. They also required that some actors take up the challenge of playing a lead role in order for the objectives of projects to be met. The accounts presented in the paragraphs below, represent the outcome of the triangulation of the accounts given by the 3 above mentioned respondents about the process through which the last re-set of the water rate and extension of the water system were done. It highlights the actors involved, their roles as well as the flow of events as they occurred in both processes. I also present the opinions of the households interviewed about who leads the water supply process as a way of cross –checking if the opinions of the households corroborate information obtained from the other sources mentioned above about the leadership of the water scheme.

The process through which water rates for the JWS gets re-set – An account of the last re-set

- Preparatory phase: The last re-set of the water rate was done in between 2004 and 2005. Upon observing the performance of the Juaben Water Scheme (JWS), the WSDB thought that there was a need to increase the rate because the scheme was not breaking even. However, the board thought it was necessary to carry out an assessment of the schemes performance in order to determine whether a change in the water rate was necessary. The board was also of the opinion that if such an assessment concluded that it was necessary to increase the water rate, it would then be easier to convince other stakeholders. For this reason, the water board contacted the Civil Engineering Department of the Kwame Nkrumah University of Science and Technology (KNUST) to research into the situation and to come up with a proposal on what should be done and how. The executive board of the water scheme commissioned the Department of Civil Engineering to undertake this task. The department of civil engineering carried out the assessment without charging a fee. Upon receiving the report, the manager of the water scheme presented it to the entire board of the JWS for study and adoption. This concluded the preparatory phase for the re-set of the rates.

- The negotiation phase: The next phase of the process involved advocacy on the issue. After reviewing the proposal submitted by the Department of Civil Engineering and agreeing on its proposition, the board decided to adopt the proposal. The board held discussions with the Planning Unit at the EJMA to inform it of the need to review the rates upward from 10 pesewas per 12 liter bucket to 15 pesewas. Through their representatives on water board, the board provided to the Planning Unit and the Juaben traditional authority copies of the minutes of the board session at which the issue of reviewing the water rate was discussed. The minutes also indicated what issues were

going to be discussed in the next meeting and thus indicated what next steps were going to be taken in the effort to have the rate changed. This step was taken with the intension of sharing information. The representatives of both institutions were expected to hint their respective institutions of the board's intentions. The MWSTs representative to the board held discussions with the MPO (who is the MWST coordinator) to brief him on the issue and events that led to the conclusion that the rates needed to be reviewed upward. Additionally, the board wrote a letter to the EJMA to inform it of the need to change the rates. The letter was addressed to the Municipal Chief Executive (MCE).

- The decision making phase: The next phase of the process involved the EJMAs reviews and assessments of the WSDBs request; as well as making decisions on whether or not EJMA should approve the WSDBs request to re-set the water rate. Therefore upon receiving the WSDBs letter, the MCE had a meeting with the MWST coordinator and other members of the management team to discuss in general the affairs of the Juaben water scheme. Subsequent to this meeting, the MCE referred the WSDBs letter of request to the planning department to review and advice the management of the municipality on the issue. To be able to fulfil this task, the MPO held discussions with the MWST and obtained insights and suggestions. The MPO then submitted to the MCE a formal recommendation on how to proceed on the issue, based upon the discussions. The recommendations were subsequently discussed with the entire management team of which the MCE and the MPO are members. Based upon the advice of the MPO to the management team, the management team of the EJMA gave approval to the WSDB to implement a 50% increase in the water rate. This increased the rate from 10 pesewas to 15 pesewas. Through the MCE's unit, the EJMA formally wrote to the WSDB to inform it that the requested increase in rates had been approved.

- Information sharing phase: The next phase in the process involved communication about the newly determined rates. This stage involved informing the traditional authority and the community members of the new rates. Communication with the traditional authority to inform it of the upcoming rates was done through the chairman of the water board, who is himself a chief and hence a part of the traditional authority. He communicated the decision to the traditional authority verbally. The process of disseminating information to the community was done through the distribution of the water bills. The information was attached to the monthly bills that were distributed to consumers. A few posters were produced by the water board and posted at its office, at the town hall and at a few vantage points in order to ensure that consumers who did not receive monthly bills also had access to the information. The WSDB also employed the services of the town-crier as well as a mobile van fitted with a public address system to go through the community and announce to the community members the upcoming change in the water rate. These also served to ensure that those consumers who did not receive monthly bills were informed of the pending change.

The process through which the last extension of the Juaben water scheme was done
The extension of the JWS was done as part of the conversion of the water scheme to CWSAs community management model. The community water and sanitation agency

supported the JWS to rehabilitate the infrastructure that it inherited from the GWCL and to extend the scheme so that it could serve more of the Juaben population.

- The preparatory phase: Right after the Juaben community took over the management of the water scheme from the GWCL, the board realized that the facility was run-down and needed to be rehabilitated in order for it to be able to operate efficiently. As a result the chairman of the water board -who is the representative of the traditional council on the water board- informed the traditional authority of the need. In 2001, the EJMA informed its assembly members of the existence of the national community water facility in the municipality which seeks to support communities to obtain and manage their own water facilities. The EJMA tasked the assembly members to inform their communities of the existence of the program. With the support of the traditional authority (which as earlier mentioned was instrumental in Juaben's acquisition of its own independent water system), the WSDB wrote to the EJMA, the CWSA's chief executive officer (CEO) and the Ministry of Water Resources Works and Housing (MWRWH) for support to rehabilitate the water scheme. Again, the traditional authority invited the CEO of the CWSA to Juaben to acquaint himself with the situation. This was done as part of the advocacy for support for the adoption of the water scheme by the CWSA under its Community Water and Sanitation Program. For this reason, the traditional authority held a mini-durbar at the palace to discuss the water issue with the CEO of the CWSA and the representatives of the MWRWH. Presentations made by the CWSA and the MWRWH at the durbar provided advice to the entire community on how to proceed with the desire to get the JWS hooked onto the CWSAs community water and sanitation program (CWSP).

    Based on the guidance given by the CWSA and the MWRWH, the WSDB prepared and submitted a proposal to the CWSA through the EJMA. The proposal submitted to the EJMA through the MCE was passed on to the MWST through its coordinator (the MPO) for evaluation. However, the Juaben community was expected as part of the project requirements to contribute 5% to the capital cost of the project. The need for the community to make a contribution had to be agreed on before the project could commence. The EJMA communicated this project requirement to the WSDB and the board in turn communicated it to the traditional authority. The traditional authority deliberated on the issue and took the responsibility of making the 5% contribution to capital cost on behalf of the community from its development funds. Once informed by the traditional authority of its position regarding the capital cost contribution, the WSDB informed the EJMA of the willingness of the Juaben community to make the 5% contribution to the capital cost of the water project.

After reviewing the collection of community proposals received and short-listing some communities to benefit from the program, the MWST submitted a report to the MCE through the MWST coordinator (the MPO). The MCE further passed on the report to the works sub-committee of the assembly to assess. The sub-committee assessed and approved it. Therefore the Juaben water scheme's proposal was added to the proposals of two other piped-water schemes (for Onwe and Kwaso) which the EJMA submitted to the CWSA through its regional office. The list was assessed by the CWSA's regional office and included in the list of proposals shortlisted and submitted to the CWSA national office for consideration. The outcome of the assessment process saw the CWSA

include the Juaben water scheme in a list of small town pipe projects to be undertaken in the Ejisu Juaben Municipality.

- The implementation phase: The bulk of fund for the project was provided by the community water and sanitation program. The EJMA in collaboration with the CWSA advertised and selected consultants to carry out the rehabilitation and extension of the water scheme; and introduced them to the community before they commenced their operations. The program provided funds for the placement of advertisements. The consultants implemented the project with some support from community level operatives such as the watsan members. It involved selection of a consultant to conduct baseline studies, including capacity audits and training of the scheme's staff on one hand, and actual construction works on the other. In all, 2 consultants and 1 contractor were involved. After the actual placing of the advert and payment for the advert was done and applications had been received, the EJMA through the MWST and in consultation with the CWSA evaluated the applications, and selected one consultant to carry out the initial study. The consultant and the Assembly signed a contract and a copy was submitted to the CWSA –Ashanti region by the EJMA. Once completed vacancies were advertised and a second consultant (a supervising consultant) and a contractor were selected to handle the construction phase of the project.

There was a special account run by the assembly for the program. Therefore on completion of any particular phase of the project the contractor submitted a certificate indicating that he had completed the phase and requesting the EJMA to pay for the work done. Additionally, the consultant responsible for supervising the construction submitted a report on the work done and indicating (if ok) that the Assembly should pay the contractor. The works section -the district engineer, the MWST- a representative inspected the work done and then prepared and submitted an assessment report to the management of the EJMA in which it indicated whether the payment to the consultant should be made. Upon this team's recommendations the assembly paid pay the contractor. On final completion the system was tested. One consultant was involved in the conduct of feasibility studies, designing the engineering aspects of the project and the training of staff of the water scheme. The second was selected to supervise construction aspects. Then, the CWSA formally passed on the system to the EJMA. In collaboration with the CWSA, the EJMA in turn handed over the rehabilitated system to the Juaben community through the WSDB. The process accounts presented above of how the re-set of the water rate and the extension of the water scheme are captured diagrammatically in Diagrams 6.3 and 6.4 respectively.

Interpretation
From both accounts of the project activities that have been undertaken by the water scheme, not only are the main actors evident but those who are playing lead roles come to the fore. Using a simple tally of the number of times that each key actor is mentioned in the capacity of originating an action, it is evident that the WSDB (of which the technical manager is a part) originates much of the activities in the affairs of the scheme. It has the highest tally of 11 and 10 in the re-set of the water rates and in the extension of the scheme respectively. The other major originator of activities in the affairs of the scheme is the municipal assembly. The EJMA records 7 and 20 for both projects respectively. As Table 6.5

Feb. 2010

Board realised need to review water rate

Board tasked the management of the scheme to get an assessment done by KNUST

Preparatory phase

Executive board of the water scheme contacted KNUST to do assessment

KNUST did assessment and submitted proposal to management

The manager then presented the proposal to the board for its study and adoption

WSDB decides to pursue further the change in the water rate

WSDB informs the traditional authority of the need to review the rates for protocol reasons

March 2010

Negotiation phase

WSDB informs head of EJMA of the need to review the rates

EJMAs MCE refers request of the WSDB to MPO to review and advice management team

MPO submits recommendations to the MCE

MPO meets with the MWST to obtain insights and suggestion on the issue

Decision making phase

The entire management team meets to discuss the recommendations

The management team discusses and approves the new rate

The MCE formally communicates the EJMAs approval to the WSDB

WSDB communicates the change to users of the public pipes via posters & verbal announcements

Over the next 6 months the WSDB informs the community of the new

Sept. 2010

Communication phase

WSDB implements new rate

WSDB communicates the change to billed consumers

Jan. 2011

KEY
↓ Arrow indicates direction of influence
↓ Indicates additionally the existence of a parallel activity
▱ Indicates decision-making point
▭ Actions out of the board's main play

Timelines presented in this diagram are approximations made from data provided.

Diagram 6.3 Re-set of water rates   Source: Author's construct, 2011

Preparatory phase

Negotiation phase

Implementation phase

2000

Management detects a need for rehabilitation of the scheme

2001

EJMA informs assembly members of the existence of water program

Board chairman informs traditional authority of need.

With the support of traditional authority, WSDB submits letter of request for assistance

A mini-durbar organised by traditional authority for CEO of CWSA to attend and acquaint himself with situation/ discuss water issue

Based on advice obtained at the durbar the board writes pro-posal and submits it to EJMA

2002

EJMA includes the Juaben in list of communities proposed for CWSP support

EJMA informs board that the community has to make 5% contribution to capital cost

WSDB informs traditional authority that the commu-nity has to make 5% contribution to capital cost

WB informs EJMA of tradi-tional authority's willingness to make the 5% contribution for the community

Traditional authority agrees to and makes the contribution on behalf of the community

2004

Consultant selected & baseline study & training of personnel done.

2005

Project consultant & contractors selected by EJMA in collaboration with CWSA

2006

The consultant and contractors implement the project

2007

CWSA hands over the rehabilitated system to EJMA

EJMA hands over the system to Juaben; in collaboration with CWSA

(1st qtr) 2009

Timelines presented in this diagram are approximations made from data provided.

Diagram 6.4 Extension of the JWS   *Source: Author's construct, 2011*

following shows, the activities are most often (27) originated by the EJMA. The EJMA in this regards comprises the activities of the MWST, the MWST coordinator and the municipality's management team. The next actor who is found originating or generating many actions in support of the activities (21) of the water schemes is the WSDB. The EJMA is also the most ardent supporter of the affairs of the water system. As the table shows, even where the EJMA is not found to be originating the actions, the EJMA scores the highest tally (11) in terms of actors that are found supporting other actors to perform their roles in the interest of the water scheme. The traditional authority in Juaben is the third (3rd) most active player in the affairs of the water scheme. The contributions of the watsan and the more external actors such as the KNUST and the private sector are really low in the context of originating activities and supporting the key actors.

Table 6.5 Frequency tally on actor mentions in the re-set of the water rates and extension of the JWS

ACTOR	FREQUENCY	
	No. of times actor originated the action	No. of times actor was not the originator but played a key supporting role
WSDB	21	9
EJMA	27	21
Traditional authority/ community leaders	4	5
Community members	0	3
Private consultant	2	7
Watsan	0	1
CWSA	2	10
General assembly	0	2
Assembly members	1	0
Contractor	1	2
KNUST	0	1

Source: Author's construct, 2011

Again the EJMA, through the management team, the MWST and the MWST coordinator provides the most support for the activities of the WSDB. The second actor who supports the WSDB processes the most is the traditional authority/community leaders. Although the traditional authority is not the most active provider of support for affairs of the water scheme and was only 6 times the originator of actions, its actions were at stages where its actions and support were critical to the progress of the schemes activities. The traditional council's role in originating an action or being supportive is seen when the chiefs rally support for the WSDBs approach of the EJMA and its efforts to get CWSA to adopt the JWS under its community water and sanitation program (CWSP) as well as in the WSDB informing the traditional authority of its intention to increase the water rates -an action

done to ensure that the scheme does not face the resistance that could result if the chiefs are not informed or supportive of the introduction of the new rates.

The watsan, the CWSA and the KNUST hardly originate activities or play a dominant role in supporting other actors who are originating activities in the schemes processes. From the above discussion of the two activities, it is evident that the WSDB is the lead actor in the scheme's processes. This corroborates the responses of the respondents to the question 'who /which organisation is leading the entire process?' Indeed, the WSDB, the MWST and the MPO all identified the WSDB as the lead actor but who relies on the EJMA for critical support. Within the community, the household heads/or their spouses were asked this question. The majority (5/6) of this group of respondents identified the WSDB as the lead actor. The remaining sixth (1/6) identified the lead actor as either the chiefs or the municipal assembly. Seven-eighths (7/8 or 88%) of the sixth attributed the main actor role to the chiefs.

LEADERSHIP STRUCTURE OF THE JWS

Municipal level

EJMA

Inter-community level

WSDB

Community level

Traditional authority/ community leaders
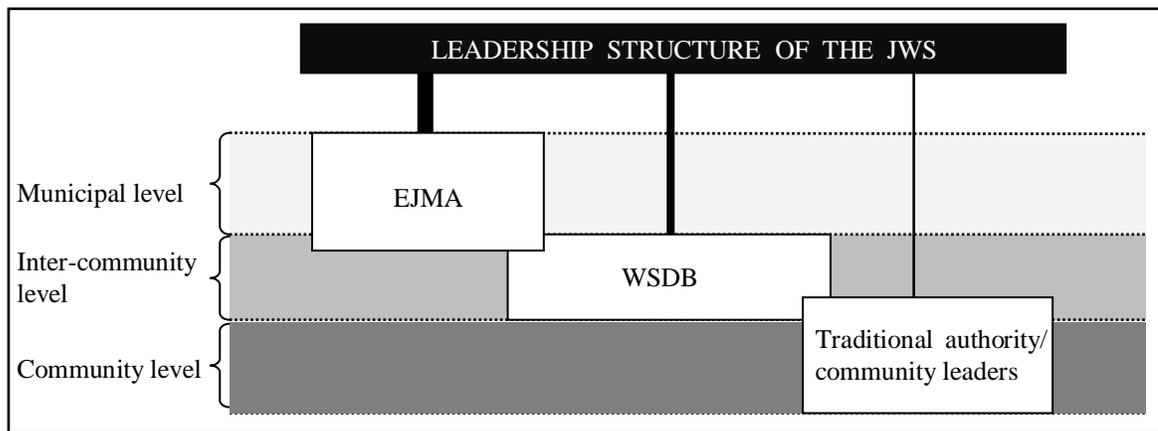
Diagram 6.5 The 3-tier leadership structure of the water system. Source: Author's construct, 2011

As the diagram above shows, the leadership system comprises 3 actors at 3 different levels: the municipal level, the inter-community level and the community level. Each actor falls within one level such that the EJMA represents the municipal level, the WSDB represents the inter-community level and the traditional authority/community leaders represent the community level. There are however overlaps in the leadership because the EJMA and the traditional authority/community leaders have representation on the WSDB. As Diagram 6.5 therefore shows, the municipal level and the community level actors overlap the inter-community level which seats the WSDB. Of the 3 actors in leadership capacity however, the EJMA played the leadership role most frequently, as the thickness of vertical lines in the diagram shows. The EJMA has the thickest line while the traditional authority has the thinnest. Nonetheless, the traditional authority's role is important as will be explained further in this section.

The Ejisu-Juaben Municipal Assembly
Within the Ejisu-Juaben municipality, all small town water supply schemes belong to the municipal assembly. This is because the local government is the legal entity to which the

sub-sector policy entrusts ownership of the water supply schemes. Again, the municipal assembly as the local government has the mandate to enact and enforce by-laws. As with all other district assemblies in Ghana, it has responsibility for overseeing development within the municipality. The latter makes the municipal assembly have a vested interest in the affairs of the water scheme. It is for this reason that the EJMA played an important facilitating role in the establishment of the JWS.

Water and Sanitation Development Board

The WSDB is most directly involved in the affairs of the scheme. It is the main body that drives the actions of the scheme. This is confirmed by the earlier project examples which showed the WSDB as pivotal to the activities of the water scheme (see Table 6.5 also). The pivotal role of the WSDB is confirmed by the fact that it has been the 2nd largest generator of interactions and has the second highest number of other actors with whom it interacts about the scheme's processes. Indeed this is in conformance with the national sub-sector policy framework which makes the WSDB the nexus in the system. The JWS' WSDB operates within the policy frame of the community water sub-sector which suggests that the WSDB pools potentials of other actors in leadership roles and takes advantage of their potentials for the benefit of the water scheme. Also based upon their perception of the role that the WSDB is expected to play within the sub-sector framework, the EJMA and the traditional authority call upon the WSDB to perform its role and support the WSDB in its role.

The traditional authority/community leaders

The leadership role that the traditional authority/community leaders play in the affairs of the JWS cannot be said to have evolved from the sub-sector policy because the policy does not clearly define roles for the traditional authority/community leaders. However, Juaben has a strong traditional system which the water scheme has taken cognisance of. Indeed, so potent is the Juaben traditional authority that it cannot be easily ignored. And as the examples illustrated, the traditional authority played a major role in the introduction of the community management model into the Juaben community. Indeed, the traditional authority had a catalytic role in Juaben obtaining its own water supply system. Its leadership role is still seen in the affairs of the scheme through its representation on the WSDB. It is also seen through the conscious effort that the WSDB makes to inform or involve the traditional authority in its affairs. It is generally accepted among community development practitioners in Ghana that the traditional authority provides a unique opportunity for obtaining community acceptance for projects. For this reason, the WSDB has an interest in keeping the traditional authority close in its scope of affairs in order to easily mobilise community acceptance and support. This was expressed in the interviews with the key informants at the community level, the MWST, the Planning Unit and the WSDB. The MWST expressed this as follows:

> 'The traditional eminence of the chiefs and the understanding of the subjects that they have to obey their chiefs as able leaders, makes it easier to win community support for the projects once the project is successfully communicated to the chiefs /traditional leaders.'   - MWST interview, 2009

Watsan

The leadership structure and institutional arrangements within the Juaben system have not made room for the activities of the watsan. Within the sector policy framework, the watsans of the various communities are the means through which the WSDB maintains close contact with the communities that they serve. In other words, the small town piped water model makes the watsan the lowest institution in the system or the base institution for the water system. That the leadership structure in Juaben loses sight of this is suggested by the following situations which exist in Juaben:

- The community representative on the water board is not a member of the watsan. The representative therefore has no colleges with whom he is working and whom he can hold accountable when situations within the community fall below expectations. The community representative's performance is in turn hampered because he has no one supporting him within the community and also no one holds him accountable within the community, as per his performance of the role.

- The watsan in also not spurred on to work as expected because the other actors do not hold them accountable.

- The community members seem unaware of the existence of a watsan within their community and of the role of the watsan in ensuring that the water delivery services within their communities meet their expectations. They are unaware of the existence of community representatives to the water board.

The leadership gap in the community is communicated in the responses from respondents in a farmers' and hairdressers' groups as seen below

We are not aware of the presence of watsans. If they were existing and functional they could have attended to the concerns of the communities. The unit committees although existing do not do this either. In fact, it is difficult to find them after they get elected. The assembly man is also difficult to find. We have to go to the manager directly.
- Juaben group 1 interview, 2009 and corroborated in Juaben group 2 interview, 2010

None of the members of the hairdressers' group knew of the existence of the watsans in their communities and of the role of the watsan in their communities, as an entity that attends to their concerns.

Actors' performance on their roles

The discussions in the above sub-section indicate that there are actors in the municipality who should by their role definition ensure the successful functioning of the water scheme. Deducing from the accounts considered so far, the actors seem to be able to perform their roles to a large extent. There has also been some hint on aspects in which the system falls short of the institutional set-up that it is expected to have. To address the above question, I consider here some issues that the various actors encounter in the process. I present a narration of the account of experiences provided by the main actors in the system. These are the Planning Unit, WSDB and the MWST because they are directly involved in the

affairs of the water system, as they are involved in decision making, strategy formulation and implementation as well as monitoring operations and maintenance. The views presented here are those that have been triangulated. The triangulation of the views involved actors other than the three mentioned above where appropriate.

In the interviews, the respondents who are more directly involved in the operational and decision making affairs of the water scheme (the Planning Unit, MWST and WSDB) were asked how the main actors were affecting their roles. Although the respondents indicated positive opinions of the performance of the major actors on their roles, they also indicated challenges. The challenges mainly concerned the performance of other actors. These are elucidated below.

- Non-payment of water bills: A key challenge that the JWS has faced in its operations has been the non-payments of water bills by private individuals as well as the Juaben Senior High School. This situation leaves the water scheme with inadequate funds to cater for its operations and invest to obtain interest. The following comments by the MPO and MWST illustrate the problem which was expressed by the WSDB and confirmed by the respondent from the Juaben Senior High School (JSHS).

    'There are some private households that do not pay their bills in time and rather leave it to accumulate. The system also has challenge obtaining payment for water that it supplies to the Juaben senior high school.'
    - MWST interview, 2009

    'Collecting rates after usage with direct household connections and the Juaben secondary school- This puts the board under financial stress. For many months, the school was not paying its water bills. The central government is supposed to pay this for the school but the payments are in huge arrears'. - Planning Unit interview, 2009

In this context the consumers of the water, although not actors at the helm of the scheme's affairs, indirectly negatively impact on the WSDB's ability to perform its role in the management of the water scheme. In the context of the JSHS, the central government is responsible for settling the schools utility bills. However due to inadequate funds, the local government is unable to help the water scheme by settling the bills from its coffers for a later refund from the central government.

- Nepotism: Another challenge identified by the actors was the demands made on the management of the water scheme for favours. These favours involved the requests by members of the traditional authority or community leaders for actions which contravene the policies of the water scheme. An example cited was about requests made for deferring disconnections or penalties due as a result of a consumer's failure to pay his/her bills. The water board of the water scheme expressed the challenge vividly when he observed that

    Juaben is like one unit, because every family is somehow linked to another family. The result is that when there is a problem and someone has to be penalised (whether thru disconnection, taking legal action, causing an arrest, etc) a chief will often come in and say this is my relative, grandson or so, so, and so therefore let us find a softer way to deal with the situation. Now, because the people hold their chieftaincy institution in high esteem the management of the system tries to also give the due recognition and respect

to the institution; and so tries not to just ignore the petitions of the chiefs/sub-chiefs.   - Board 1 interview, 2009

Although the traditional authority play an important role in the kind of leadership support that they provide, they also pose challenges through the same positions which they use to support the affairs of the water scheme.

- Watsan activities: The concept of the watsan is non-operational in Juaben. As a result there exist gaps, which although unrecognised by the major actors and leaders, do not enable the WSDB to be adequately informed and adequately attend to the needs of its consumers. More significantly, the gaps have also resulted in consumers being unable to channel their concerns to the management of the water scheme because they do not know who to communicate to and the management of the water scheme is not as close to the consumers as can be found in situations where there exist watsans. The community members interviewed in the group and individual household interviews did have questions/ issues they were unhappy about relating to rate variations, use of unhygienic buckets by the vendors, inconvenient operationing hours of the vendors, rudeness of vendors, etc; but they did not know how to channel these concerns to the water board, except through a formal report to the management of the scheme. Although they had had concerns, they had not reported their concerns to the water board. They did not know of the existence of watsans in their communities or how the watsan was supposed to help the management of water issues in their community.

Section summary

The affairs of the JWS are largely directed by the broad sub-sector operating and monitoring guidelines. Beyond this, there exists no detailed plan to guide its operations. These broad sub-sector guidelines to a large extent have not been tailored to make them more relevant to the particular context of the JWS. Experiences, observations and the lessons thereof are the main issues that inform the measures that are taken. The activities to be implemented in a year get fed into the schemes annual budget and then the budget serves as the scheme's plan as well. In other words, there is currently no clearly laid down plan which details the processes through which local potentials could be mobilised and used for the successful and sustainable operations of the water scheme.

The main actors in the system span the local government level, the intermediate level and the community level. Specifically the municipal assembly is the main actor at the local government level. Within the municipal assembly are the management team, the MWST and the Planning Unit which are more closely related in the affairs of the water scheme. At the intermediate level is the WSDB who are directly responsible for the management of the water scheme (and also employ the water vendors in the communities). The community level actors are mainly the traditional authority/ community leaders. The different actors play different roles; but in principle they work together for the attainment of the objectives of the water scheme. A key actor identified by the sub-sector operational guidelines – the watsan- is absent in the Juaben system. To a large extent therefore the Juaben context misses out on the benefits that the watsan institution was expected to provide to the system. There is no evidence of any effort made to cater for the gap created in the institutional structure as a result of the absence of the watsan.

Although practically and in principle there exists one actor around whom most of the activities of the water scheme revolve- the WSDB; the leadership of the Juaben system is split among three main actors. These are the EJMA, the WSDB and the traditional authority/community leaders. The EJMA by virtue of its position as the local government responsible for the development of the municipality has a leadership role in the affairs of the JWS. It gazettes bye-laws for the JWS and exercises oversight responsibility in the scheme's affairs. The sub-sector policy makes the WSDB directly responsible for the management of the water scheme. It therefore has responsibility for the operations and maintenance of the water scheme and is therefore the main actor formulating strategies and measures to guide the operations of the water scheme. The traditional authority derives its leadership role mainly from the culture of the Juaben people. The culture places much emphasis on the role on the traditional leaders in the community. The JWS takes cognisance of this and allows the power of the traditional leadership to rub-off it by keeping close to the traditional authority.

The different actors face different issues in the performance of their roles. The non-payment of water bills has been a major challenge to the WSDB. This limits the funds available to the board for the operation of the water scheme. Another major issue for the WSDB has been the demands made by community leaders on the management of the water scheme for favours to people with whom they have close relations. Last but not the least, is the absence of the watsan in the Juaben system. Although not identified by the main actors as posing a challenge, the absence of the watsan has created a gap that has kept the management of the scheme quite distant from the consumers.

6.4   The process measures

Below is a narration on the measures adopted by the main actors for the management and operation of the JWS. The main actors being referred to here are the WSDB and the MWST. Where relevant I draw on the comments from other actors and community members to support the points being made. This is to provide a means for verifying or questioning comments made by the main actors about the measures being adopted in the process of harnessing of local potentials for the water supply.

To determine what measures are being adopted, I consider the actual activities undertaken by the actors. I consider this an appropriate approach in the context of the JWS because the management of the scheme has no blue print of a clearly laid out plan which it is implementing and which could serve as the basis for such an assessment. For this reason, I consider specific themes identified in literature as relevant in the pursuance of an endogenous development process and what the management of the JWS has done in these thematic areas. The themes considered here are actor mobilisation, development of knowledge and skills, access to information from schemes in other districts, linkage exploitation, facilitation of local entrepreneurial activities in order to support the water scheme, and management of local resources to achieve their sustained use. The information provided below was obtained from interviews conducted with actors. In these interviews, the actors were asked to provide examples of what activities had been undertaken in the operations of the water scheme and how they support the water scheme through the roles

that they play. The information presented in this sub-section are accounts that have been confirmed by at least three data sources.

Measures for actor mobilisation

Actor mobilisation efforts commenced at the start-up phase under the CWSA community management model. This is the stage at which the most intense actor mobilisation efforts were made. It involved the mobilisation of community contributions to the capital cost of the project and the establishment of the watsan in the communities. Watsans were initially formed and met regularly to discuss water issues and to support the project consultants (for example in the location of the stand pipes). The mobilisation of the community's financial resources for capital cost contribution was done through the traditional authority. In other words, the traditional authority made the contribution on behalf of the individual households in Juaben; the individual households of the community did not make any financial contributions to the water scheme. The funds provided by the traditional authority were augmented with savings from the prior operations of the scheme. In response to the community mobilisation efforts, the traditional authority also donated pieces of land for the sinking of additional boreholes and water tanks.

Again at the beginning some community meetings were organised by the MWST or the water board to announce the project to the people, explain the system to them and mobilise their support. However, after the JWS' commencement of operations under the CWSAs community management model, the water board has had the responsibility of mobilisation of actors in furtherance of the objectives of the JWS. In this role, the WSDB mobilises support from the private sector to provide technical support services -such as repairs of pipelines- which it pays for. That the WSDB does mobilise actors in support of it objectives is supported by their activities as outlined in Table 6.6. The water board has not prepared a blue print to guide it in its actor mobilisation efforts. As earlier mentioned it relies on the operational guidelines of the CWSA and tried to meet the policy requirements. As a result, some of the efforts that the board had made were not the result of its own policy design. The community fora to discuss rates, EJMAs auditing of the board's accounts, and the quarterly board accounting are such examples.

As the following bullet points indicate, there as some inadequacies in the actor mobilisation process at the community level.

- When asked for examples in which the community's participation was mobilised since the schemes operation under community management model of the CWSA, the WSDB could provide only two activities –a durbar to discuss water rates and an annual durbar to render account to the community. The ability to provide only two instances suggests that not much is being done in this regard.

- Only one individual respondent in the household interviews conducted admitted hearing communication by the board in an effort to mobilise the community to a public hearing. He observed that this is done at dawn –at about 5a.m.- when people are sleeping or have just woken up and trying to prepare for the day's work. A time which he observed is not very conducive for having people's attention because people are either still sleeping or are busily preparing for work. JSHS (interview, 2009) confirms.

Table 6.6   Efforts made to mobilise actors to support the Juaben water scheme through their inputs

Actor	Field	Comments generalisable to respondents illustrating mobilisation efforts	Respondents who gave such response interviews
EJMA/MWST	Training, auditing, advice, technical support	The MA has trained some people whom the system is using. The district's water plan intends to organize training for the water boards and watsans in the districts. 2 years ago such a thing was done and we hope to do it again this year for them. The assembly sends auditors (the assembly's internal auditors or private auditors) once a year to check the board's accounts and advice the board as the external auditor.	WSDB, Planning Unit, MWST, Community leader 1, Documents
Private sector	Technical services	There are plumbers who reside in Juaben community who get called upon by the board to do minor repair works on the system. There is also 1 mechanic in this Juaben community whom we use. They assist from time to time with the pumps.	Juaben group 1, WSDB, Group informant 1
Watsan	None found	We do not encourage the operations of the watsan after the formation of the water boards because often they cause problems for the water boards. In the Juaben case there is no watsan in operation. We are not aware of the presence of watsans.	Planning Unit, Juaben group 1, individual members of the community
Community: *Community representatives on water board*	Board meetings on all issues	The board is supposed to meet quarterly to discuss issues relating to the performance of the water scheme, but it meets twice a year. The executive members meet more often - monthly.	WSDB, Community leader 1, MWST
Individuals in the community and out	Tariff setting, controlling illegal connections and water leakages	Once, that is before introducing the 2nd tariffs ..., a meeting was organised in the Juaben community hall and all members of the community (including the institutions) were invited to this meeting. Here the challenges that the board faces were explained to the community and they were asked the way out of the challenges. Also at this meeting were the vendors because they had/and have been dealing directly with the community members. Between the vendors and the consumers, but in the absence of the members of the board, the issues were sorted out without much hitch. 'The board looking at their operation costs determines what rate will help them cover their costs. Then it organises a meeting in the community to which all members of the community are invited. The community is informed of the	WSDB, MWST, community member.

Actor	Field	Comments generalisable to respondents illustrating mobilisation efforts	Respondents who gave such response interviews
		reasons that the rate has to be increased. If they are convinced then they will agree to the increase. The Juaben durbar ground is used. The assembly is present at the board level meeting where the decision to increase the rate charged and the extent of increase to be done is determined. Before meeting the community, the chiefs and opinion leaders of the various suburbs are invited and the issue is discussed with them before it is eventually presented to the community. So the community leaders can already drop hints in the community of the coming changes and the reasons that inform the changes. This way there is little or no resistance' - MWST interview, 2009.	
		'Because there Juaben area is small, people know each other and the board has communicated to the people there need for them to report illegal connections and pipe bursts, and the community members do so' - ibid.	
Chiefs	Accounts rendered, community mobilisation	The chiefs are the figures in the community around whom mobilization of the people is centered. They help in the mobilization of the community resources. The chiefs (including the sub and paramount chiefs) and the board also collaborate periodically inform the community members/ people within the Juaben area of their roles and responsibilities in relation to the water system.	Planning Unit, Community leader 1, MWST, WSDB
		Accounts are presented to the traditional council annually.	
Opinion leaders	None found	-	
Schools and churches	None found	-	

Source: Author's construct, 2010

the challenges with the comment that the school has never participated in a public meeting organised by the WSDB. The respondent then recommended that the board should have a platform for communicating about the system 'to let the people discuss issue and concerns..... proper education about the system and how things are being done.... ...the school ... has not participated in any of it meetings'. He also recommended that the board renders account to the community –

> 'The board should render account to the community and give the community the opportunity to comment and understand issues. If for example the community know how billing is done then they will have no bad feelings about the bills.'   - JSHS interview, 2009

These recommendations suggest that the school is hardly aware that these opportunities already exist. It also suggests that the WSDB mobilisation efforts are not well known. Effort is made to involve the chiefs through the rendering of accounts and informing them of the goings-on. However, there seems to be less to show for the success of such efforts further down the community level. On the performers' side, it was indicated that the public meetings to render accounts were being done but only one occurrence could be cited since the operations of the water board. From the community side, respondents declined knowledge of such meetings involving individual members of the community. As Diagram 6.6 shows, 89% of respondents had either never attended any such meetings or never heard of it.
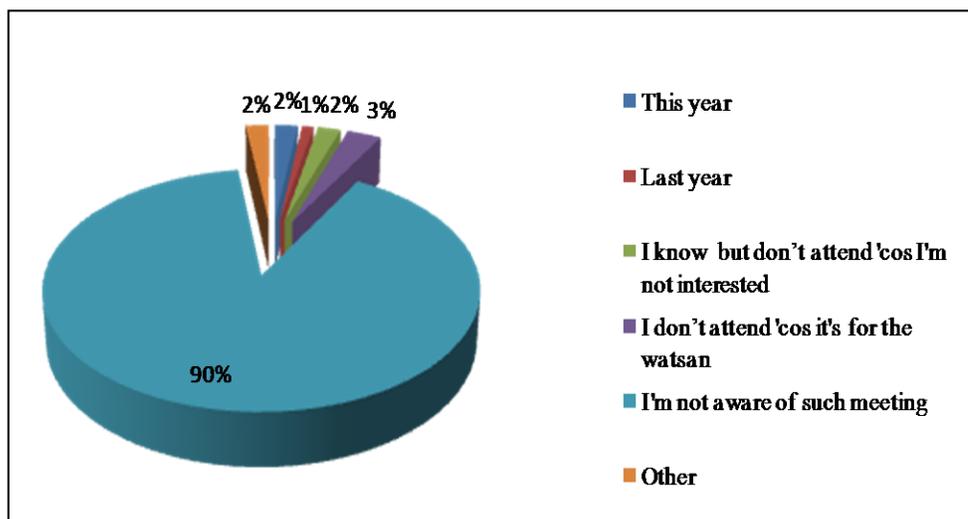
Diagram 6.6   When was the most recent meeting you attended at which the board rendered accounts to the community?   Source: Author's construct, 2011

Communication about actor mobilisation activities is done through basic communication channels such as letters where organisations are concerned and the town-crier where communities are concerned.

Measures for developing knowledge and skills

The determination and implementation of knowledge and skill development measures rests with the WSDB. Initial training was provided by the CWSA to equip the board, the watsan, pump mechanics and vendors to perform their functions. Subsequent to the passing on of the system to the community, additional efforts to develop and maintain the human resource base through learning and management have rested with the WSDB. What training gets done is based primarily on what seems necessary. No plan exist for the board that indicates what numbers of training sessions have to be available to staff per year, what form of training and for which category of staff. The bullet points below illustrate what has been done in the area of skills and knowledge development and were confirmed by the WSDB, MWST, Planning Unit, key informants as well as documentary evidence.

- Where possible operational staff play multiple roles. They are not limited to the particular roles for which they were employed, so that they can learn.

- The board takes advantage of training organised occasionally by the MA for board members and technical staff

- The board and its employees participate in trainings organised by the CWSA

- In the context of collective learning, the water board participates in the platform set up by the MWST for the three water boards in the municipality (Onwe, Kwaso, and Juaben) to discuss and learn from each others.

- The board organises training on-the-job through the management of the water scheme when it considers there is such a need for its staff. The following picture shows an on-the-job training session which the board organised to train security men and pump attendants in the laying of pipes for staff of the water scheme. Picture 6.5 shows members of the watsan, after training on-the-job arranged by the WSDB and conducted by Tabcon consult.

Picture 6.4 On-the-job training for security men and pump attendants organised by the WSDB Source: WSDB. Obtained during interviews conducted in 2010

Picture 6.5 Watsan members after training by Tabcon Consult Source: WSDB. Obtained during interviews conducted in 2010

The needs that cropped up during the operation of the water scheme have been the reason why the WSDB has attached importance to training, learning and skill development. It is also the reason why the WSDB has considered skills and knowledge as potentials and attached much importance to training opportunities that are created by the MWST or the CWSA. This was confirmed in the interview with the system manager and the Chief of Abessim, who has played a major role in the process as the chairman of the WSDB since its formation. The summary in the following box summarises a discussion with the Abessim chief in which this point was made.

Box 5.1 Learning from the Mampong water scheme

The system has been able to tap from the wealth of knowledge of the board chairman. The chairman of the board had to personally and directly get involved with the running of the system initially (the changing of the asbestos pipes to plastic ones, mending cracks, etc.) because the manager of the system was a young polytechnic graduate and hardly had experience in engineering and water management issues.

He often called the people handling the piped water system at Mampong (Asante) to come and help with work on the Juaben system. But, he watched closely what they did in order to learn from it and to reduce the Juaben schemes dependence on the Mampong team. Later on, other staff of the JWS were also made to learn from the Mampong team: The pump attendant was made to learn the plumbing aspects on the job from the Mampong team, so he can now handle the plumbing aspects of the system.

Currently, the night watchmen assist the plumber as day-time workers. The exception is when the work involved is complicated, in which case external support from Mampong, CWSA or elsewhere is sought. Their operations have so far been limited to the system so they have not dealt with household problems.

Source: Author's construct, 2009

Measures for accessing information from schemes in other districts

The management of the JWS avails itself of the opportunity to access information from similar water schemes in other districts through the association of the boards of small town water supply systems in Ghana. The manager of the water scheme attends meetings of the northern zonal branch of the association. The association provides a platform where representatives of the water scheme share ideas and experiences. This is the only illustration provided by the management of the water scheme of its efforts to access information from schemes outside the municipality. However, the last meeting attended by the management was before 2007. This suggests that the platform has not been actively used to access information.

Measures for exploiting linkages

Some linkages that promote the goals of the water scheme have been taken advantage of. Below are some examples of how linkages are being exploited to improve the performance of the water scheme. As Table 6.7 shows, the board has been able to identify some linkages that it has the capacity to harness. The linkages exploited lie in the socio-cultural, economic and operative/administrative categories that were identified in the conceptual framework. There are some linkages that are exploited by the WSDB but for which the WSDB is unable to show itself as the originator of the process of exploiting them. These linkages are in the operational category and concern linkage relations with the CWSA regional office and national offices.

Table 6.7   Summary of linkage utilisation by the JWS

Type of linkage	Internal	External
Socio-cultural	Traditional norms	-
Economic	Water for electricity barter arrangement with the Juaben oil mills	-
Operational/admi -nistrative	MWST for training, technical and advisory opportunities Three-way water board meetings organised by the MWST to enable the three water boards in the district learn from themselves.	- Mampong water scheme for on-the-job training for technical staff - CWSA for training, technical and advisory support offered by the regional and national offices - Association with Ghana Association of Water Boards
Political	-	-
Ecological	-	-

Source: Author's construct, 2010

Socio-cultural linkages

The traditional practice in governing the use of communal water sources was that the traditional authority through the chief priest issued taboos which members of the community were expected to observe. Among the taboos was the rule that dirty receptacles

could not be dipped into some rivers and streams. This taboo enabled the traditional authority to ensure that their sources of water for domestic use remained clean. Also for this reason, people were not allowed to step into the water source either barefooted or with their foot wear. The current approach to maintaining the stand pipe environment borrows from this. Community members are only allowed to fetch water with clean receptacles. They are turned away by the vendors if their receptacles are dirty. That rules about the use of clean receptacles exist was confirmed in discussions with the community groups interviewed and the WSDB. This illustrates how socio-cultural linkages have been used to further the interest of the water scheme for the purpose of achieving good hygiene around the public stand pipes.

Also, the WSDB makes use of its links with the traditional authority by exploiting the clout that the traditional authority has, as the naturally evolved leadership of the community. The WSDB and the traditional authority undertook a joint project to inform the community on hygiene practices as a way of improving the hygiene and sanitation situation in the community. Interviews with the WSDB, community leader 1 and community leader 2 in 2009 and 2010 confirmed this. Using it links with the traditional authority, the WSDB also tapped the clout of the traditional authority by involving the traditional authority during its efforts to obtain assistance from the CWSA for the rehabilitation and extension of the water facility. The WSDB confirms vividly the reason the link to the traditional authority is exploited by the water scheme as follows:

'The chiefs are powerful especially the paramount chief. He is very important in the Asante hierarchy of chiefs. His word is always taken seriously because he is serious and keeps to his word. And by involving the paramount chief in development projects it is very likely to be successful.' - Board 1 interview, 2009

Economic linkages

That the WSDB has been exploiting local economic linkages was also illustrated using examples. The following quotation on the exploitation of economic linkages were taken from the interview conducted with the WSDB and confirmed by the MWST, the Planning Unit and the board minutes.

'... the bulk of electricity that the water system uses is from the Juaben oil mills which ... is owned by the paramount chief. The system was experiencing a lot of power cuts when it was relying on ECG to supply power for its operations. This situation stifled production hence the switch to using power from the Juaben Oil Mills. ...The system has 6 boreholes. 4 of the boreholes depend on the Juaben Oils mills for power supply. In a barter system of payment, the board supplies water to the oil mill for free. Compared to the ECGs supply, this has reduced the power expenditure a lot.'   - Board 1 interview, 2009

Operational/administrative linkages

The scheme exploits its operational and administrative links with the EJMA by participating in training sessions organised by the Municipal Assembly through the MWST; and falling on the MWST for advice on technical issues (WSDB, MWST and MPO interviews, 2009). The scheme also takes advantage of the platform that the MA has created

for the 3 water boards in the municipality to meet and discuss issues of relevance, challenges and approaches to addressing challenges. Although the JWS has not fallen much on the skills of staff from the Onwe or Kwaso water schemes it has at least once borrowed an artisan from the Kwaso piped-water scheme to help solve a problem. The JWS could also provide at least once example in which it loaned its technical staff to one of its sister water schemes. Similarly, the scheme has identified and made use of external operational links with the CWSA which provides technical support and training to the water board to improve its technical capacity. The WSDB does this by participating in training programs which the CWSA organises and approaching the CWSA regional office for technical support (ibid).

The WSDB also makes use of operational /administrative links with Mampong water scheme. The board established a relationship with the Mampong water scheme to enable it learn from the Mampong scheme how to address technical problems that arose when it commenced operating on its own as a community managed scheme. To address shortcomings in the technical skills of its staff, the JWS had an arrangement with the Mampong water scheme to allow staff of the Mampong water scheme to handle the technical problems that arose and in the process train the staff of the JWS as well (WSDB and key informant interviews, 2009).

Measures for facilitating local entrepreneurial activities in support the water scheme

None of the actors interviewed could provide examples that illustrated that deliberate measures had been taken to facilitate local entrepreneurial activities in furtherance of the scheme's goal.

Measures for the management of the local resources

In this sub-section, I explain whether the issue of managing and developing the resource base is being attended to by the water scheme by considering the evidence that the actors were able to provide.

Resource management

The WSDB has not drawn up a plan to guide its resource management efforts. As a result, the efforts made in the management of the resource are based on the needs and realisations that arise in the process of operating the water scheme. The management of the resource base is skewed towards the human resource capacity of the scheme and its product - safe water. In the context of the latter, the aim of the board in to minimise wastage that would result in the loss of income. The quotes below which could be corroborated by documents and Community leader 1's interview show the effort being made.

> 'Juaben scheme has been preventive in its quest to maintain the system and tries to pre-empt and to take action before the system actually breaks down. Pipes exposed as a result of erosion are covered again before they get cracked or broken. Weak parts are replaced before they give way... What the scheme does is to look out for weak points ... and strengthen them.'   - Board 1 interview, 2009

'Also some technicians get engaged to periodically assess the system. For example, one of the boreholes was re-developed to clean it recently. The pump was first removed and a compressor was used to run air into the borehole to clean out all the filth that had settled down below. It spewed out a lot of dirty water. This improves the yield of the borehole. Re-development does not cost more than 3 million. If not done, the pump will get blocked and one day it will just break down while being operated. Then it will cost a lot more (no less than 75 million) to purchase a new one. This is done using the private sector. Re-development is done more often in boreholes where the iron content of the water is higher than normal.'   - Board 1 interview, 2009

Picture 6.6   Staff of the JWS help in the process of re-developing one of the scheme's boreholes as it is carried out by a contractor

Source: WSDB. Obtained during interviews conducted in 2010

In the context of the management of the human resource, the board among others concerns itself with the employment of less expensive labour which the board can afford and then training the labour on-the-job. The chairman of the water board recounts efforts in this regard as follows:

'Fresh graduates and students seeking vacation jobs or waiting to do re-sits are taken on and trained internally to support the operations of the system in ways such as monitoring of the pipes lines.'

                                              - Juaben community leader 1 interview, 2009

This example shows how the board attempts to manage its human resources base which is limited in terms of the number of well qualified staff as well as its limited financial resources by using people who are educated but less qualified and do not yet have relevant work experience. This way the board saves money and gets enough people to do the work on hand. The resource management efforts have been spurred on by need to keep the system working without break downs, or interruptions in the production process on a sustained basis. It appears to depend on what the board understands as needing development or management in order to stall this. Therefore what is not considered relevant by the board seemingly fails to get done.

Development of the resource base

Efforts at developing the resource base also seem skewed toward the human resource, with the aim of improving upon the competence. However, this has been again at the instance of what the board considers important for the success of the scheme. The data collected showed that watchmen of the scheme are being made to build technical capacity so that when the technical people are not available the watchmen can handle the little and uncomplicated technical issues such as switching of the water pump and detecting that there is a problem. The boards aim in developing this human resource base of the scheme is to improve the capacity of the watchmen to support succession in the event of staff unavailability and to ease the strain that could result from the loss of technical staff. Thus this feeds into its human resource management as part of JWS' succession planning efforts.

The JWS has not exploited the possibility for financial capital development through investment of profits. The board knows that this can be done but has not made much effort to undertake such investment. The quotes below support both thoughts

'The board is trying to save money towards such expansion work. The MWST encourages them to solicit help from indigenes of Juaben who are out and abroad to send down money to support the expansion of the facility. The board has also been advised to invest the monies they make to yield interest.'

- MWST interview, 2009

According to its mandate, the scheme is expected to invest a portion of the tariff for major rehabilitation in order to add value and safeguard against depreciation (CWSA, 2004: 16). The WSDB and Community leader 1 confirmed in their interviews (2009) that the development of the resource base through investment of its profits is not being done yet, although it is important.

Drawing from the above, I conclude that the resource management and development is an issue that is being addressed in the JWS because the management of the scheme has made effort to develop the potentials available and to manage those resources within its control. However, the efforts made by the management of the water scheme have not been exhaustive.

Local initiative and innovation

Earlier accounts presented in this document give hints of the water board having used its own initiative at some points in the management of the affairs of the water scheme. The following are examples of efforts made on the board's initiative and innovativeness in the management and use of resources.

Initiative
The most the board is able to show on its initiatives has been after the conversion of the scheme to the community management model. The clearest examples of the use of its own initiative were given by Community leader 1 and the MWST. First, the board established relations with the system at Mampong often to come and help out with work on the Juaben system. Also, the board initiated the process which resulted in the community submitting an application which was added to the Kwaaso and Onwe ones and presented to the CWSA leading to the package to rehabilitate the Juaben system. An example of the board's use of

its initiative is also seen in relation to external auditing of its accounts. The board is responsible for initiating this and pursuing the EJMA to ensure that the EJMA indeed does the auditing. Although, this seems to be the most vivid show of its initiative in the financial issues, the board's performance on this activity, as summarised by the respondents below, has not been as required.

> 'There is supposed to be someone from the assembly who does auditing. The board has requested for this. The external audit was last done 3 year ago. It was done by an external team. Over time this was not done and the board need(s) to know the state of affairs.'   - MWST interview, 2009

How much initiative the board has displayed on the issue of external auditing has been influenced by how much the community, through traditional council has pushed the board on its performance and the board's current push to have its account audited is illustrative of this. The traditional authority has demanded, as a pre-condition for the WSDB holding its durbar, the preparation and submission of the audited accounts of the water scheme. Without this the WSDB is not allowed to hold a community durbar again. For this reason the board is seen to be pushing more to have its accounts audited. It will discuss the outcomes of the audit with the traditional council of Juaben before it is presented to the entire community at the durbar.

Innovation

The management of the water scheme is able to illustrate that effort has been made to adapt the concept of erosion control as found in high technology environments to address the challenge of erosion and the risk of pipe damage. The water scheme has been faced with the need to avert the breaking of the pipes and the implicit cost of repairs. The management of the water scheme therefore adopted the concept of erosion blanket controls to its local environment. Pervious bags containing sand that can gradually get washed away are used instead of high technology bio-degradable blankets, to prevent the pipelines from getting exposed and as a result reduce the risk of the pipelines getting broken. The following quote illustrates this

> 'What the scheme does is to look out for weak points or joints and strengthen them. The staff go round the pipe lines to inspect especially after the rains. We know where the lines pass and that some of the lines may get exposed. So they get a sack of sand and pour on the exposed pipe to fill back or before it rains the sack of sand is put at the known erosion points so that the rains do not expose the pipe lines.'   - Board 1 interview, 2009

Section summary

The measures put in place for mobilising and using local potentials to support the JWS depends very much on the WSDB. The process has not been guided by any document particularly tailored to suit the specific context of the Juaben water scheme. Rather it is guided by the broad sub-sector operating and monitoring guidelines. In accordance with the intentions of the sub-sector policy though, the WSDB has made effort to focus on the use of local potentials in the running of the water scheme. In mobilising support from other actors

in the water system, the WSDB determines which actor to fall on based on the strengths of the actor. The EJMAs support has been mobilised in technical, advisory and advocacy areas. The potentials that the traditional authority has have been mainly for advocacy and community mobilisation as was seen with the involvement of the traditional authority in the process leading to the adoption of the JWS under the CWSAs community management model and in the mobilisation of capital for the water project. The clout of the traditional authority is also mobilised by the WSDB when it seeks to obtain community acceptance for its policies. It does so by winning the support of the traditional authority before approaching the rest of the community members. The watsan is defunct in Juaben. The role that the watsan is expected to play is not being played by any other community level actor; and the members of the water board do not hold feedback meetings with members of their community to obtain or give information on the operations of the water scheme within the community. The main opportunity that community members have to interact closely and openly with the WSDB and communicate their opinions is at the annual durbars at which the WSDB renders account of its stewardship to the community. However, about 90% of the community members do not patronise such annual fora.

On-the-job training is the main method used by the WSDB to develop knowledge and skills of staff and members of the board. On-the-job training has been provided the board and staff on the JWS by the EJMA's MWST, the CWSA and the Mampong water scheme. The scheme takes advantage of training programs organised by the CWSA and the MWST and has an arrangement with the Mampong water scheme which allows it to call on the Mampong water scheme to provide technical training on-the-job for its staff. Additionally, inadequately skilled staff are sometimes employed and made to learn from other staff of the JWS while working as staff of the water scheme. Security men and secondary school graduates have been employed and trained in such manner. Again the WSDB makes use of collective learning platforms provided by the MWST through the platform it creates for the three water schemes in the municipality- at Onwe, Kwaso and Juaben- to meet and discuss issues. The system manager also participates in the meeting of the northern sector chapter of the Association of Water Boards- a platform which offers collective learning opportunities to participants as they are able to arrange to have seminars delivered to them by experts as they deem necessary.

As part of its efforts to mobilise local potentials the WSDB had made use of the existing socio-cultural link within the Juaben community. It falls on the traditions and norms of the community to facilitate its operations. This is especially visible in relation to the traditional authority. The board was able to identify and take advantage of economic linkage opportunity it had with the Juaben oil mill such that the oil mill supplies electricity to JWS in exchange for water. The WSDB has also taken advantage of the administrative and operational links that the water scheme has with the EJMA and the other two small piped water schemes in the municipality to support its operations. Beyond these linkages that are found within the municipality, the JWS has also been able to harness external administrative /operational linkage relations too. The WSDB has harnessed administrative/operational links with the CWSA to its benefit by taking advantage of the training, technical and advisory support that the CWSA is able to provide. It has also made use of external operational links with the Mampong water scheme. Another external operational link that the WSDB uses concerns the Association of Water Boards.

Some effort has been made to exploit the potentials local entrepreneurial activities. The most visible examples have been Juaben oil mill and the local technicians. The water scheme has also made effort to manage and develop its human and technical resource base through efforts such as staff capacity building, successions planning and borehole re-development. The WSDB is able to show its innovativeness using the adaption of modern technologically advanced concepts to its local context. This is illustrated through its adaption of the use of sand bags in the erosion blanket control technique. The WSDB is also able to highlight its initiatives in the process that resulted in the water scheme adopting the CWSA management model as well as in getting the boards accounts audited externally although it demonstrates initiative in several other aspects of the operations of the water scheme.

6.5   The process challenges

The challenges that the JWS has faced in its operations are presented in this section of the chapter. Indeed for such a multi-actor dependent system, it would be incongruous to omit a discussion of the challenges of the system because the role definitions, responsibilities and performance of the individual stakeholders influence the functioning of the system. The account presented below represents information obtained from the main actors on the process challenges they encounter.

Institutional constraints

The water board is limited by its institutional characteristic. The WSDB is a 'sub-district' entity. As a result, it has much more limited resources at its disposal than the municipal assembly. This is more so in technical issues, human resource and political influence (MWST, WSDB, key informant interviews, 2009). It is not a unit of the local government neither is it a community level body. The water board is above a community level institution but below the local government level. It draws its strength from both the local government and the communities. By its close relations with the local government, the WSDB is able to draw on the strengths of the local government particularly in terms of technical support and advisory support. This relation which makes the board depend on the local government on important issues it possible for the local government to stifle the efforts of the water board. It leaves the WSDB susceptible to the pace and preferences of the local government. An example is the external auditing of the accounts of the WSDB. The external audit has not been performed in three years. The WSDB has requested that the EJMA does the audit. However, the EJMA has not had this done. As of 2009, the traditional authority on behalf of the community had barred the WSDB from organising and inviting community members to fora to discuss its account until after the WSDBs accounts have been audited externally.

Another institutional constraint is seen in the EJMA's internal relations. Sometimes activities that the MWST has to undertake are delayed because those activities are not considered to be "priority" by the management team (comprising the Municipal budget officer, planning officer, coordinating director and chief executive and the various sub-committees). As a result, funds for implementing MWST activities (including those for

acquiring the necessary logistics- fuel, boots, repair of motor bikes) do not get released in good time (MWST and Planning Unit interviews, 2009). In such instances, the MWST is unable to provide the support that it has to provide to the sector in a timely manner; and the JWS also gets affected because it is one of the projects that the MWST's activities support. As the JWS may not have the capacity to handle some issue by itself, it is obliged to wait on the MWST even if the wait will be detrimental.

Again in its recognition of the limited clout that it has as a result of its status as an intermediate entity as compared to the clout of the traditional authority in Juaben, the WSDB falls on the traditional authority for support in implementing its projects. However, this not only keeps the WSDB close to the traditional authority but leaves the WSDB susceptible to the demands of the members of the traditional authority in Juaben. For example, the importance of customs and tradition in the community and the norms thereof, which make it disrespectful to turn down the request of the elders, makes it challenging for the manager of the scheme to turn down requests of members of the traditional authority even when they contravene the WSDB's policies.

Leadership issues

The water board does not necessarily have the right calibre of people serving on it because it is a community based entity (MWST and Planning Unit interviews, 2009). The people chosen to serve on the board have to be from the community even if the right calibre is not available in the community (ibid). As a result, even though there may be shortfalls in the measures that are being implemented the members of the board may not be able to identify the shortfall and see the potential problems that could arise from the approach being used. Although this issue was only raised by the MPO and the MWST, this is an important constraint which questions the foundations of the formation of the WSDB. To illustrate this further, the management of the water scheme does have a report on its performance on the contractual arrangement between the JWS and the Juaben Oils Mills. The implication of such a gap is that the management of the scheme will not be able to accurately compare the volume of water that it produces and the volume that it trades to determine what percentage of the total volume of water that is being produced is being lost; in order to rectify problems in the production and supply of the water. If the board members are well informed of the implications of such an important gap, the board will push for the information for its own perusal and it will be available at the offices of the scheme[31]. That this information is not available leads to questions about whether the board is aware of how dire such an information gap can be. If the board is aware of the gap, the question then arises of why such an important gap is not addressed urgently.

Although not identified by any of the respondents interviewed, the leadership challenge appears not to be limited to the WSDB. As per the sector goal, the EJMA has oversight

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[31] Indeed although the management of the water scheme makes the efforts to reduce the volume of water lost through the repair of weak points/joints on the pipes lines, protection of the pipelines and regular monitoring, these measures neither reveal the extent of water loss problem nor help determine whether the efforts being made are adequate and effective or not. Documentation and subsequent analysis of the schemes performance on the issues would help to reveal this.

responsibility on the water scheme. The EJMA exercises this oversight responsibility through the MWST and its coordinator- the MPO. The MWST headed by the Municipal Planning Officer (MPO) is therefore supposed to be able to detect shortfalls in the performance of the water scheme and make efforts to have it operate well. However, these actors have not done performance assessment on the water scheme over the last three years or a comprehensive trend analysis on performance. No proof could be given by these actors. Such steps are important for being able to detect shortfalls in performance and trends that may have dire consequences for the water scheme. Although, such important efforts are not being made and the CWSA Ashanti regional office acknowledges that the performance of the district assemblies are not as expected, there seems not to be any further checks on the performance of the MWST on this role. In other words the team has not been pushed to carry out this task by any higher actor in the EJMA or co-actor in the water system.

Staff resource base constraints

A vivid example of the staff resource base constraint is seen in the management of the technical issues. The JWS employs mainly local people to work on the water scheme. Many of these locally employed staff do not have the requisite experience in the operations and functioning of piped water schemes. Faced with this challenge the water scheme has sometimes called on support from Mampong water scheme to enable it learn from the Mampong scheme. Training over a period allows the staff to develop themselves to the requisite level at which they can operate alone.

6.6   Performance discussion on the JWS

Using criteria derived from literature and the national performance assessment criteria, I present below a comparative account of the performance of the JWS to arrive at conclusions on the performance of the water scheme.

In the context of the conceptual framework of the study

Respondents in the data collection process in Juaben have been able to identify that potentials exist in the community. When these potentials are assessed for their use in support of the water scheme, the outcome (see Table 6.3) shows there is evidence on of the use of more than two-thirds ($^2/_3$) of the potentials. The potentials used are natural, human, economic and institutional.

The system in Juaben has a clearly structured institutional set-up which is largely in line with the national sub-sector policy. The institutional set-up places the WSDB at the centre of the affairs of the water system. It is the central operative that shares its leadership of the system with other leaders of the system- the EJMA and the traditional authority. A main deviation from the national policy guidelines on leadership for the small town water sub-sector has been the watsan which is now defunct. Another deviation is the prominence of the traditional authority in the leadership of the system. Although the sub-sector policy tries to keep low the influence of chiefs, the Juaben system reveals a traditional leadership that is

prominent in the affairs of the Juaben water system. There is however no particular responsibility assigned to the traditional authority as players in the leadership of the water scheme by the actors in the municipality or by the national policy. For its part and in conformance with the policy, the EJMA has the responsibility of monitoring the performance of the WSDB as part of its oversight responsibility for ensuring that the performance of the WSDB remains in line with the sector goals and goals of the municipality. Although the CWSA and the Ministry of Water Resources, Works and Housing (MWRWH) set the national policy frame within which the system operates, there is a closer relation/ linkage in roles between the central operatives – the WSDB and the EJMA. Their work is supported by the regional office of the CWSA which is in turn closer to the Juaben system than the national level operatives (CWSA national and the MWRWH) are. Drawing from the discussions in earlier sections of this chapter, the following can also be said about the JWS regarding the factors and facilitating conditions of an endogenous development process as already identified in the conceptual framework that has guided this research work.

- The JWS operates within a decentralised water governance system in which there are role definitions for actors, and it makes the effort to mobilise and use the potentials of the local government by exploiting the role of the municipal assembly.

- To a large extent the distribution of roles and responsibilities among the actors conform to the definitions provided for the sub-sector guidelines; with the status of the watsan and the traditional authorities being at variance from the provisions of the sub-sector policy.

- The sub-sectors operational guidelines are observed to some extent as the WSDB makes effort to operate according to the guidelines for attaining good governance in the water supply process. Nonetheless, there are shortfalls that suggest that the WSDB as operator of the scheme does not consider itself compelled to follow the guidelines to the letter.

- To improve upon the performance of the scheme, the management provides and takes advantage of learning opportunities for the purpose of developing knowledge and skills for the benefit of the water scheme.

- Linkages with other actors within the metropolis have been used in situations where the scheme needs support from other actors or entities to address the challenges that it faces mainly as a result of its limited capacity or to improve its clout.

- The WSDB does engage in actor mobilisation activities. These activities have spanned the local government level to the community level. It has also involved the EJMA, traditional authority and the private sector. They have all been involved in varying degrees and times depending on the particular interest of the WSDB.

- The existing technology being used in the water production and distribution was not decided by the WSDB but by the project sponsors. No efforts have been made to alter the technology. However, innovative adaptation of technology has been used to maintain the existing network of pipes: an erosion blanket control technology has been innovatively adapted to suit the limited financial capacity of the water scheme.

The account provided by the JWS of its activities does not suggest that all that can be done in pursuance of the tenets of an endogenous development process have indeed been done.

Nonetheless, the JWS have been able to show that it has made some effort on most of the factors or facilitating conditions mentioned in literature as necessary to yield a successful endogenous development. All things being equal, the process should therefore lead to a successfully operating system. In the following sub-section, I consider the national parameters for assessing the performance of a small piped water scheme to find out whether it confirms that the JWS is performing well. This comparison is based on the assumption that if the endogenous process is being followed and expected to lead to successful development then the national quantitative assessment parameters should also reveal that the scheme is performing well.

IN THE CONTEXT OF THE CWSA CRITERIA[32]

According to the CWSA criteria, a scheme can only be said to be performing well if it meets some sustainability criteria relating to reliability, self financing capacity, water production and accounted for water. As the following table shows, the JWS is performing well on the water production criteria. It can also be regarded as performing well on the reliability criteria because it has been in operation everyday of the year. However, using this criterion to assess the reliability of the operations of the water scheme fails to take into consideration whether the water gets supplied to all consumers every day. The JWS is unable to provide water throughout the day on each day to all sections of the community. On the criteria accounted for water and self financing ration however, the scheme's performance has been not been so good. The Table 6.8 summarises the scheme's performance on the various criteria.

Table 6.8 The performance of the JWS on national sustainability criteria

	PERFORMANCE			
CRITERIA	**2005**	**2006**	**2007**	**2008**
Self financing ratio	165.44	160.95	88.07	96.93
Water production	376.94	358.72	379.84	339.58
Reliability	100.00	100.00	100.00	100.00
Accounted for water	53.14	53.29	66.87	55.33

Source: Author's construct, 2010

As the table shows, the scheme's performance on the self financing ratio (SFR) varied significantly between 2006 and 2007. Its performance on this criterion was not good in 2007 (88.07); but it improved slightly to 'good[33]' in 2008 (96.93). However as the

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[32] Calculated as Technical and operational criteria- (a) Water Production / Actual Water Produced (b) Water consumption i.e. per capita total annual water sold / Water production i.e. per capita total water supplied to distribution system; Self financing ratio – Total Annual Income/ Total Annual Expenditure; Reliability- Number of operational days / Total number of days per year; Sustainability performance - Arithmetic mean of all four above; Scale- **Good:**90<PS<95, **Very good:**95<PS<100, **Excellent:** PS>100 (CSWA, 2004).

[33] Where good is defined by CWSA criteria as a performance that is above 90% but below 95%.

following diagram shows, the scheme's production of water has not varied much over the same period.
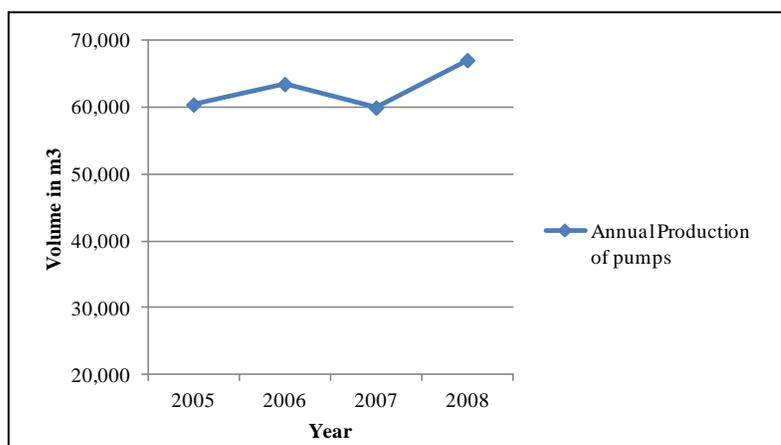
Diagram 6.7   Water production by the JWS from 2005 to 2008. Source: Author's construct, 2010

The following diagram illustrates graphically the variance between expenditure and income of the JWS which account for its performance on the SFR criteria. As the diagram illustrates, the JWS has had its expenditure exceed its income since 2007 (the 3rd year of its operations).
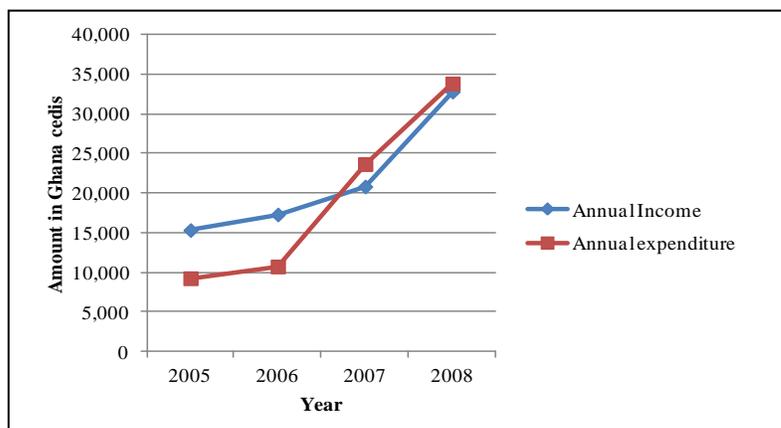
Diagram 6.8   Annual income and expenditure of the JWS from 2005 to 2008. Source: Author's construct, 2010

In all, the JWS' worst performance on the national criteria has been on accounted for water. According to the national criterion, unaccounted for water should not exceed 15%. However, from 2005 to 2008 the scheme has been unable to account for 33% to 47% of the water that it produces. As illustrated in Diagram 6.9, the production of water has not varied greatly over the same period, and neither has unaccounted for water. The following diagram on annual water production and consumption shows that over the period 2005 to 2006 about half the volume of water produced by the JWS was not accounted for. The situation improved in 2007, when the volume of unaccounted for water reduced to a third.

However, the gain was not sustained and by the end of 2008 the volume of unaccounted for water had increased. It is impossible though to conclude that this huge volume of water is lost because the JWS does not have record of the volume of water being supplied to the Juaben oil mill in exchange for electricity power from the oil mill. Based on the above discussion, I conclude as follows:
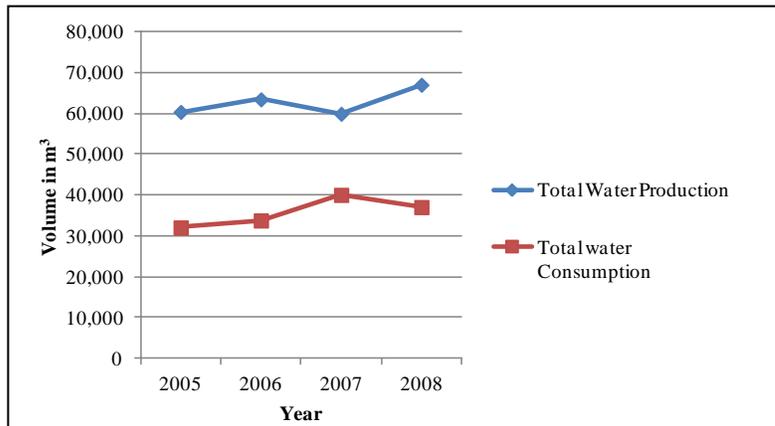
Diagram 6.9   Annual water production and consumption of the JWS from 2005 to 2008
Source: Author's construct, 2010

- Although the JWS operates daily and therefore fulfils the sustainability criteria on reliability, it cannot be regarded as entirely reliable from the consumers' point of view because it is rationing water supply to some communities. Indeed, two-fifths ($^2/_5$) of the respondents in the discussions with Community groups 1 (being all those who patronise the stand pipes) indicated that they often have a challenge knowing when water will be running from the taps in order to plan to fetch water.

- Annual production of water as well as its income and expenditure have been increasing since 2005. However the schemes expenditure has exceeded its income since 2007. Meanwhile the net value of the barter trade with the JWS (the value of the water given and the value of the electricity obtained) is lost to the records on incomes and expenditures.

- The JWS' performance on the SFR criterion has dipped since 2005. As Diagram 6.10 shows, in 2007, the scheme's performance on SFR had fallen to about half what it was in 2005. Although it managed an upward trend in 2008, it only improved by a tenth of its performance in 2007. Although the performance of the scheme in 2008 is rated very good, when its performance on income and expenditure are compared over the same period, it becomes evident that the water scheme can improve its performance on the SFR; because its expenditure still exceeded its income in 2008.
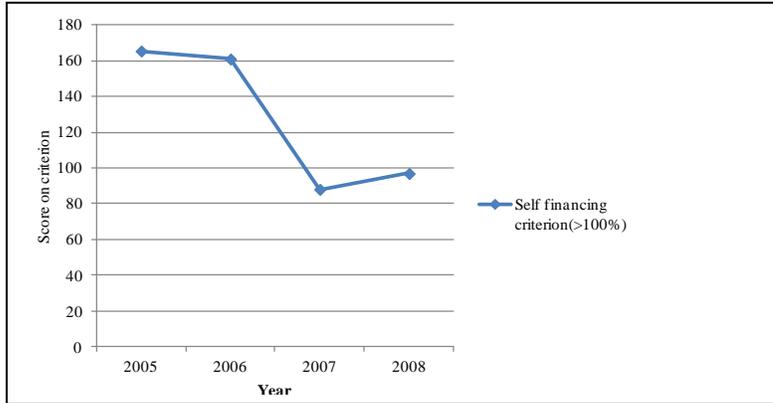
Diagram 6.10 The JWS' performance on the SFR from 2005 to 2008. Source: Author's construct, 2010

Discussion of the outcomes of both two assessments

The performance of the JWS when assessed using the national performance criteria does not suggest that the presence and use of local potentials through measures identified as necessary for an endogenous development will necessarily lead to the attainment of an improved and sustained supply of water to the community; because although the project is still functioning, the above sub-section indicates that there are challenges that need to be addressed if the scheme is to be sustained.

In drawing the above conclusion, I do not try to assess the level of effort that has been made by the JWS while it was pursuing the endogenous approach to water supply. This is because as with the OAWS, I do not have adequate literary basis for the conduct of such an assessment. The mode of operation of the water system in Juaben suggests that the WSDB is left to decide the level of effort that is needed in the operations of the scheme. I arrive at this conclusion because WSDB is allowed to function as a largely autonomous body and although the EJMA through the MWST is responsible for assessing the performance of the water scheme and identifying loopholes that need to be addressed (National sub-sector policy, 2004; CWSA Ashanti region interview, 2009; and MWST and Planning Unit interviews, 2010) it does not dictate to the WSDB what ought to be done. Since the MWST (as the arm of the EJMA) has the oversight responsibility for assessing the schemes performance and offering technical and advisory support, when such a gap is observed in such a research, it is of interest to find out whether the actor responsible for overseeing the performance of the scheme is aware of the state of the scheme's performance. More important though is determining where and what process issues challenge the performance of the water system and how. To be able to answer these questions, I consider the state of performance relations in the affairs of the water system.

The state of performance relations

The process challenges that actors face are a good point to start from in the discussion on the performance relations in the water system. In the sections 6.5 of this chapter, I presented some of the process challenges that the actors face in the performance of their role. These broadly concerned the vertical and horizontal interdependencies among the

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main actors; and the capacity of the actors to perform the roles that they are expected to play. The former group of challenges concerned actors such as the MWST, the planning unit, the municipal management team, as well as the WSDB and the management of the water scheme. The latter concerned the quality of the leadership that the calibre of people on the water board and the executive management of the water scheme can provide.

Process challenges and performance gaps

Most of the challenges that the actors face are as a result of the performance of other actors. Alternatively stated, the majority of the challenges that the actors face are as a result of other actors failing to do as expected of them. These gaps in actor performances have, as Table 6.9 below shows, been the cause of the challenges that stifle the performance of other actors. It is also evident in the table that some actors as a result of their own actions create challenges for themselves. Columns 3 and 4 of Table 6.9 also show that the challenges which the actors faced with the challenge suggested having the ability to address by themselves were those that they created themselves. There are at least 2 of the 7 challenges that actors face which are as a result of gaps in the performance of other actors but which the affected challenged actor can somehow address. In sum, what Table 6.9 illustrates is that the actors may or may not perform satisfactorily in their roles in the Juaben water system. What their performance gap is, can have implications for other actors in the system and impact on the other actors' performance of their roles as well. Using the example listed in the Table 6.9, I elucidate this further in the following bullet points.

- The MA sometimes delays in responding to the WSDB's requests. A vivid example given was the MAs delay in getting the accounts of the JWS audited by the external auditors of the EJMA. As a result, the WSDB has not been able to present to its stakeholders at the community level its audited accounts over the past 3 years during which the scheme has been under its stewardship. The WSDB performance on account rendering falls short of the expectations of the community and the spirit of the sub-sector policy.

- Delays in the MAs response to requests made on it also affect the MWSTs ability to perform its monitoring, supervisory and training functions. By July 2009 for example the MWST had not yet started implementing the trainings programs that it had planned for the year because it had not received funds for this.

- Again the priorities of the management team of the EJMA inform the nature of the support that the MA provides to the various development sectors of the municipality. Thus, if the priorities of the management team do not favour the water sector, then the entire sector and the MWST's performance is affected as less attention gets devoted to the sector.

- Chiefs as community leaders are traditionally expected to support the development of their communities and their people. In their effort to support the people in their community, some chief's performance fall short of furthering the development of their community because they thwart the efforts of the management of the water scheme to improve the system's performance. The chiefs do this when they make requests on the system manager for lenient treatment for offenders of the water system; for example,

Table 6.9   The process challenges which actors in the Juaben water system face and inter-actor relations that influence them

Name of actor affect-ted	Challenges the actor faces regarding the water supply system as per the role they are expected to play	Is the actor able to address the challenge by itself?	Is this challenge resulting from some other actors' actions/ inactions?	Which actor(s)	How has the actor faced with the challenge reacted to the challenges (positive and negative)
WSDB	The EJMA sometimes does not respond promptly to the requests of the water board	No	Yes	EJMA	The board chairman and the system manager try to lobby the EJMA through the MWST and the Planning Unit
WSDB	External auditing of the JWS' accounts has not been done for the past 3 years by the EJMA although the WSDB has requested for it.	No	Yes	MCD	The WSDB is lobbying the EJMA through the MWST and Planning Unit to get this done
MWST	The MWST is sometimes not able to implement its plan in a timely manner because it is unable to get funds and logistics from the EJMA to do so.	No & Yes	Yes	MCD & budget department	The MWST uses the public transport for its monitoring trips for example when this is possible. However for more costly activities such as trainings it waits on the budget department and & the MCD's unit to release funds
MWST	Sometimes the priorities of the management of the MA do not allow the activities of the water sector receive adequate attention.	No	Yes	MCD & MCE	No example was found of efforts to address this. The WSDB therefore abides by the default priorities of the management.
Executive management	Members of the traditional authority make requests of the executive management that undermine the policies of the JWS when they for example make requests that people should not be disconnected for none payment of water bills or prosecuted for illegal connections.	Yes	Yes	Chiefs	The system manager has been raising the awareness of those who approach him for such favours of how such steps can negatively affect the JWS.
WSDB	There are sometimes shortcomings that result because the board that manages the water scheme in not necessarily made up of people with experience or expertise in managing water schemes.	Yes	No	N/A	The board members participate in trainings organized by the MWST and the CWSA regional and national offices.

Name of actor affect-ted	Challenges the actor faces regarding the water supply system as per the role they are expected to play	Is the actor able to address the challenge by itself?	Is this challenge resulting from some other actors' actions/ inactions?	Which actor(s)	How has the actor faced with the challenge reacted to the challenges (positive and negative)
Executive board members	With its preference on using local people, the staff by the water scheme employed are not always of the requisite calibre.	Yes	No	N/A	The board organizes various forms of capacity building opportunities for the staff of the JWS

Source: Author's construct, 2011

- people who make illegal connections to the water system and later get caught – thus urging the system manager to disregard the policies of the water scheme.

Process challenges and interests

Underlying the challenges was the issue of varied interests of the various main actors which influence the manner in which the actors respond, react and support other actors in the system's processes. All the actors interviewed confirmed that they have interests in the water scheme and that the survival of the water scheme is important to them. For all the actors, the interests that they identified related primarily to the formal roles that they play in the water system. All actors identified first their interest pertaining to their formal roles. This illustrates that the actors are aware and conscious that they have a role to play in the system. The various actors and the interests that they identified in the Juaben water system are tabulated on the following page. The interests of the Planning Unit are first that the operation of the system is sustained in the interest of the assembly, secondly that the JWS runs efficiently and thirdly that the assembly continues to maintain the due supervisory control that it has in the affairs of the Juaben water system. The interest of the MWST is mainly to fulfil its responsibilities as the body in charge of the water and sanitation sector in the municipality. The interests of the WSDB are first to make safe water available to the communities served by the JWS; second, to provide the water and sanitation at affordable rates; third, to expand the facility; fourth, to improve the performance of the JWS and improve its technology; and fifth, to obtain support for the JWS. As the team in charge of the development of the entire municipality the management team has an interest in ensuring that the municipality does not retrogress in development. The interest of the management team is therefore that the JWS does not collapse so that the MA does not have to face the need(s) that existed before the setting up of the JWS (WSDB, Planning Unit, management team interviews, 2010). Please see Table 6.10 for a summary of the interests of the respondents. As Table 6.10 shows, the MWST were able to go beyond the identifying the interests as pertains to their formal roles to identifying their personal interests in the water scheme. The chiefs who were interviewed as key informants also indentified personal interests in the water scheme. The chiefs expressed their personal interest in maintaining the confidence that the people have in them to bring and manage the development of the community. The MWST mentioned the joy it obtains from being able to help the communities and the pride the members of the MWST will have when their names are mentioned in discussions about people who have been of invaluable help to community water in the municipality. For his part, the MPO indicated a personal interest in water as a development issue. Respondents at the EJMA also pointed out the personal political interest of a chief executive in fulfilling national political party preferences.

After identifying interests that related mainly to the formal roles rather than personal gains, most of the respondents, accordingly, first identified any implications to their formal roles rather than to themselves (personally) of their failures to perform their respective roles in the system's processes well. To the WSDB the formal implications of not performing well were that the board may be sued legally. Ultimately, its image would have undermined itself. The implications identified by the Planning Unit were that water would lose its recognition and priority in the affairs of the MA especially because the planning officer is instrumental/ important in projects. The MWST identified that the system will not be

Table 6.10   The response of actor in the Juaben water system to the question 'what is your interest in the water scheme?'

Respondents	Interests indicated by respondent listed in order of priority
Management team	1. That the facility does not collapse and bring back the same need that previously existed 2. Fulfilling promises made during political campaigns
MPO	1. To ensure that the system is sustained 2. That the system runs efficiently 3. To ensure that the MA does not lose its oversight control 4. Personally, interested in water as a development issue
MWST	1. It is our responsibility to work 2. To have a good name
WSDB	1. To make safe water available to the community 2. Provide water and sanitation at affordable rates 3. To expand the facility 4. To improve the performance, operational efficiency and technology of the JWS 5. To obtain support for the JWS
Traditional authority /chiefs	To maintain the hope and confidence that the community has in its chief
Community members	To obtain piped-water always when they want it and at affordable rates

Source: Author's construct, 2011

effective. However, these actors could also indicate some personal implications. To the WSDB, the chiefs on the board would have their image (as people capable of leading their community) tarnished (It is worth noting here that the chiefs are an important part of the WSDB). The MWST was able to identify implications to itself by looking at the efforts that it had already made to get the water system functioning and how all the efforts of the MWST members so far of which they are proud off would have been in vain.

The actors who had earlier identified as having some personal interest could show or be seen to have made extra effort to address challenges/issues that they encountered, while the others largely could not. For example

- The MWST did not just wait for the municipality's management to respond better to its needs. Regarding its broken down motor for example, the MWST instead uses 'trotros' and taxis or borrows the MA's vehicle to go round. Although this has not yet yielded a change to the ready availability of logistics, the MWST is able to show additional effort made to avoid the hold-ups (that originate within the EJMA) in its role.

- The community chiefs in appreciation of their responsibility for the welfare of the community have as an important interest, helping the members of their communities. They are found lobbying the system manager on behalf of the members of their community to whom they are closely related. This is considered important- It is considered important to help one's own kindred. For this reason, the chiefs make the move to lobby the system manager to bend rules. Indeed, even while discussing the interests of the WSDB the particular personal interest of the chiefs on the board was

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highlighted as being for the chiefs to be able to maintain the trust and respect of their community members.

- The MCE as head of the municipal assembly (hence the management team) and having been appointed to serve the political interests of the ruling party is seen to direct emphasis to the ruling party's priority areas and not just the priorities spelt out in the municipal development plan. Indeed to be able to live up to the parties promises to the electorate during its election campaigns, the municipality's focus sometimes sways to the party's priorities; and a personal interest/gain is served at the expense of the municipality's development plan (generated through a participatory process) because this approach serves to improve the chances of the party being re-elected during the next political elections. While guided by the political priorities the MA's spending pattern may or may not favour the role of the MWST and the water sector in general because it may reduce or increase the priority ranking of the water sector which ranked 6th in the ranking of needs during the development planning process in 2009 (Indeed since 2009, the ranking of the water sector has not fallen within the first 9 lead areas of in the MAs expenditure). For this reason, skews that occur in the spending pattern are seen to follow party priorities and they influence the way the budget department expends the municipality's development budget, and implicitly the financial support it provides to the MWST.

Performance gaps, interests and influences

Having identified that actors who have gone the further mile have been those that have also expressed their personal interest in the scheme, it is necessary to find out which actor influences other actors and can solve the challenges that other actor faces. It is also relevant to consider the challenges which actors face but which they are in the position to address adequately. This will help to bring to the fore the inter-actor relations that exist within the water system and where the challenging points are.

All the challenges identified were such that the actors who were affected by the challenge could themselves address them somehow. The challenges were mostly created by other actors, except for two of seven (2 of 7). These 2 concern the WSDB. Table 6.9 provided a summary of the challenges that the actors face. The challenges that were created by the WSDB itself and affected its own performance could be addressed by the WSDB itself. The WSDB addresses the shortcomings of the board members as managers of the water scheme by having members of the WSDB participate in training programs that are organised by the MWST and the CWSA to build the capacities of members of the water board. Also to address the challenge of using staff who are not particularly of the right calibre, the WSDB offers such staff capacity building opportunities such as on-the-job training.

As mentioned in earlier paragraphs of this sub-section, the challenges that the actors face are mainly as a result of gaps in the performance of other actors in the Juaben water system. There are very few (5 out of 14) of the performance gaps on which efforts are being made to address. Four (4) of the performance gaps that are being addressed involve the WSDB and 1 involves the MWST. Two (2) of the 4 gaps were created by the WSDB itself through its own performance. The other 2 concern other actors: the community chiefs who make demands on the management of the water system and the community members who make

illegal connections or do not pay their water bills. It is worth mentioning again here that the chiefs on the WSDB have a personal interest in ensuring that the scheme continues to operate and serve members of their community. The WSDB has been trying to influence the chief's who try to assist community members to skip their penalties. To do so the system manager introduces into the discussions that ensue, when he is approached by the chiefs, awareness raising issues that enable the chiefs to appreciate how costly their actions will eventually be. Through communicating and awareness creation on the evils of non-payment of water bills and illegal connections, the WSDB also tries to influence the members of the Juaben community to be good citizens who pay for the water that they use and report those who illegally tap onto the JWS. The MWST is able to provide an example in its effort to address the logistic challenge that it faces by using the 'trotros' and taxis when their motor has broken down and the MA's vehicle is not available for use. However, when the MAs vehicle is available and not in use by other departments the MWST requests for and uses the vehicle. Not all efforts made to address the performance gaps have been adequate and therefore yielded very good results. For example, that the MWST uses the public transport sometimes does not address its logistic needs because this option is not ideal and other logistics that the team needs to make some of these trips are not necessarily available when the MWST has the will to use the public transport. Also, that the WSDB encourages community members to report illegal connections and community members indeed report illegal connections has not stopped people from continuing to tap onto the water system illegally.

The main actors who were in the position to address or influence the addressing of the performance gaps that were not being attended to were the WSDB, MCD, MCE, Budget office and the Planning Unit. These actors did have the influences over the performance gaps. However as earlier indicated these actors do not have personal interests in the affairs of the JWS; except for board members who are also chiefs. The MCE is an exception though. He has personal interests that are political in nature and which make him place emphasis on the priorities of the political party that selected him to be the chief executive of the EJMA. The personal interests of the office holder (MCE) as the political head of the EJMA indeed influences the priorities of the management team and may not necessarily make the water sector a priority. As the Planning Unit notes, often the political leadership is more interested in building schools and markets that people easily see and can be completed in relatively short periods and thus bring political scores to the ruling party. The Unit observes that this sometimes prevents funds from getting to the less priority sectors; and between 2000 and 2008 water was not a high priority area. The budget office and the coordinating director's unit are thus influenced by the chief executive's priorities. For example, the logistic needs of the MWST are largely beyond the MWSTs control. The team has to rely on the budget office to address these needs which largely involve the availability of funds. Indeed although the unit of the coordinating director is responsible for the daily administration of the assembly, his approval for the release of funds still relies on the budget office. That the budget office has not addressed this issue has made the challenge persist. However as already mentioned the spending priorities of the budget office are guided by the overall spending priorities of the assembly in general which is heavily influenced by the chief executive. In sum, the political leadership's interests influence the budget office and MCD's actions and this affects the MWSTs functions. The gaps that have

persisted although they can be addressed by some members of the management team concern the EJMAs slow response to the requests of the WSDB and the MWST, and the delay in making funds and logistics available to the MWST for its activities.

Another performance gap that is not being addressed concerns the monitoring and assessment of the performance of the JWS. This is the responsibility of the EJMA. While the MWST monitors the WSDB and calls the board to correction of process deviations, there seems not to be such a mechanism within the MA that pushes the Planning Unit to conduct the periodic assessments of the water scheme's performance. Also in the case of the assembly members' role as members of the water board, the WSDB is well positioned to push the assembly members to perform the role as communication channels between the WSDB and the community members. However, the WSDB has not taken steps to achieve this.

Summary

The above discussion shows that within the water system most of the performance gaps create challenges for actors but are not being addressed. Most of the gaps created generate challenges for other actors. The majority of the gaps concerning the performance of the EJMA concern also interests and influences of the actors within the assembly. The MWST which had indicated that they had personal interests in the success of the water scheme were able to show extra efforts they had deliberately made to circumvent the challenges. For its part the political management (symbolised by the MCE) of the EJMA has interests and directs the performance of the entire management team along the lines of interest; which has not favoured the MWST for sometimes. The interests of the members of the management team of meeting the expectations of the boss of the EJMA makes them tow the lines of the political leadership of the MA. That the MPO indicated a personal interest in water as a development issue and members of the water board who are chiefs have a personal interest in the successful operating of the water system but both actors have gaps which they have the mandate and capacity to address but which they have not done suggests that interest alone is not enough to make actors act on all issues. The planning officer has not been conducting assessments on the performance of the scheme and the members of the board have not made the effort to ensure that good communication flow is maintained with the community members. There seems to be no actor within the MA or within the water system calling both actors to order on their performance in both issues.

A re-cap of other previous revelations on the performance of the JWS: No operational guidelines blue print exists that has been tailored to the JWS particularly and addresses the strategy needs of the water scheme (in terms of measures to adopt); and thereby guides the performance of the WSDB and the MWST and serves as a basis for monitoring and evaluation. In other words, there is no prior determination of what level of actor effort is necessary for the successful operation of the water system. The WSDB is left to decide for itself what level of effort at the mobilisation of local potentials will be appropriate for successful operations of the water scheme. The MWST which monitors the performance of the water board on behalf of the municipal assembly tries to follow the national guidelines provided by the CWSA for the operations of small pipes water schemes. As a result the measures that can be found in literature as being necessary in the endogenous development

process are not necessarily monitored; especially where they have not been indicated in the national policy guide on operations. Again since the policy guidelines do not specify the measures for knowledge development, resource development and linkages extensively the MWST's monitoring of such issues is limited. Coupled with the absence of a system that effectively holds accountable those responsible for performance, monitoring and ensuring that the various actors play their respective roles as expected of them, it cannot be shown that the different actors are held to the best performance of their roles in the Juaben water system. The WSDB is largely on its own in the determination, pursuance, monitoring and assessment of adequacy of its performance.

6.6   Conclusion

The process measures that WSDB has implemented in the management of the JWS have been a contributory factor to the continued functioning of the JWS since it commenced its operation under the CWSAs community management model in 2005. The analyses presented in earlier sections of this chapter nonetheless suggest that the performance of the JWS leaves room for improvement in order to improve the prospects for success of the use of the model. Some of the aspects in the foregone data and analysis that point to prospects of the water scheme are as listed below.

- The involvement of local actors, particularly the chiefs - who are community leaders -had the potential of improving the performance of the water scheme because the local people felt more committed to supporting the measures or rules that were introduced with their community leaders' approval.

- The use in Juaben of a multi-stakeholder leadership structure did reduce the risk of the interest of a single stakeholder's interests being served as the actors checked each others' performance in the leadership role. There were instances when the MWST checked the leadership decision-making of the board and the WSDB through the system manager checked the chiefs who lead the community. The chiefs for their part have taken steps to check the WSDB on account rendering to the community by insisting that the WSDB should do the external audit before it fixes anymore meetings with the community.

- Interests have served the JWS well. It was key in the take-off of the water scheme. It is seen in the desire of the chiefs to obtain a water supply scheme that was self managed and the effort they made as a result of this interest to assist the WSDB to obtain support from the CWSA. Interests have also led the MWST to make good efforts in which they have sought to promote the successful functioning of the scheme. These interests which have helped the Juaben water system are personal. However, the institutional actors also have institutional interests that make them willing to support the water scheme.

- The nature of the potentials available in the community within which the water scheme has been situated has had effect on the performance of the water scheme. For example, the existence in Juaben of persons (for example, Nana Abessimhene who is a retired engineering technician) who can lead the technical and management process boosted the take-off of the water project.

Identifiable challenges that the process poses to the process are as follows:

- It is generally expected and accepted that as the institution that is responsible for the overall supervision of the water systems in the municipality, the EJMA through the MWST and the Planning Unit will assess and monitor the overall performance of the scheme. However within the Juaben water system, there is no such requirement on performance assessment being done by the MA. It is also not clear who checks to ensure that the Planning Unit performs this task as head of the MWST which is more directly responsible for the water sector. The MCE and MCD have not required this of the Planning Unit or the MWST. That this is done regularly and comprehensively is important for noticing dips in the performance of the JWS. The MPOs interests have not been enough push to get it done.

- The MWST noted that during its monitoring it checks visits whether the WSDB is observing the process requirements detailed by the sub-sector policy guidelines. However, the findings of the monitoring efforts do not get pooled into a more comprehensive assessment of the performance of the scheme and the entire system. Also the sub-sector guidelines do not provide a comprehensive account of the possible management measures that could be adopted in the mobilisation of potentials in support of the performance of the water scheme. Since there is no comprehensive plan guiding the operations of the JWS, by solely using the sector guidelines, the MWSTs monitoring and assessment of the JWS' performance is bound to have inadequacies. The absence of a comprehensive guide on the issues and measures worth considering in managing the water scheme and hence monitoring it and as well as the failure of the MWST and the Planning Unit to conduct a comprehensive and periodic assessments of the performance of the water scheme could result in critical issues such as the falling performance of the water scheme going unnoticed.

- Such comprehensive performance analyses have not been done by the board either. That the majority of the members have no prior- knowledge or experience in the management of small piped water schemes leaves the board challenged. Indeed because the board is left to determine how much effort to make and how much effort is adequate the absence of prior experience or knowledge poses a real challenge. This points to the base population from which the board members are selected. What is a potential that can and ought to be tapped, how can it be tapped and what approach can be used to tap the resource are all questions that fall on the WSDBs domain. In other words, because the WSDB is formed by the communities themselves, the nature of the human resource base in the community affects the performance of the WSDB as it affects what things are perceived as potentials and how they should be tapped, and the ideas that the WSDB members have about managing the Juaben water scheme including what to look out for when checking the schemes performance and preventing problems.

- Although the practice of involving several actors in the process has been among others to facilitate the performance of actors in the system and in the process enable mutual checks on performance, the performance in the internal structure of each institutional actor is left to the institutional actor to determine. Thus while lapses show in the inter-actor relation between the municipal assembly and the WSDB (eg. concerning external auditing of WSDB account), more internal inter-actor challenges seem to exist within the WSDB (between the board chairman and the system manager) and the EJMA

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(between the MWST and the budget department and the municipal assembly's management as a whole) which do not enable the MWST and the system manager to perform as desired of them.

- The interests of the actors within the institutions can pose a challenge to the successful function of the Juaben water system. Within the institutions exist internal inter-actor relations and dependencies which makes some actors able to influence the others' ability to perform their roles. This was seen in the relations between the MWST and the budget office as well as between the MCE's unit and the other members of the management team. In the latter, the interest and subsequent influence of the MCE's unit was able to stall the progress of the work of the MWST; while leaving the Planning Unit with little or no push to analyse thoroughly the performance of the municipality's water sector and hence the performance of the JWS.

7 DISCUSSION AND INTERPRETATION OF THE REVELATIONS FROM THE CASES

The existence in both water systems of a focus on local potentials and the attempts to use potentials that are external to the spatial area covered by the assemblies when the potentials within the area directly served by the schemes do not suffice to address issues suggests that deliberate efforts have continued to be made in both water schemes toward an endogenous development process after their transfer to the respective communities. The forms of the measures used have been varied between the water schemes and have varied at different times on the projects' phases. Without seeking to address the issue of adequacy of intensity of efforts made, but rather using proof of the application of measures that are identified as important in endogenous development efforts, both schemes demonstrate largely that the measures adopted have supported their continuous operations. To this extent therefore the two cases seem to have supported the conceptual framework that guided this research process; and which suggests that when local potentials are available and encounter an existing institutional framework that can support the local development process but under some facilitating conditions, then the efforts to achieve improved supply of safe water in the peri-urban context will be successful.

7.1 The role of local potentials

The water projects are anchored on the presence of local potentials which may be natural, human, economic, or institutional. Within the OAWS, the responsibility for identification and mobilisation of potentials rests with the water board as the central actor in the affairs of the scheme. The water board has been able to identify various potentials and has made the effort to take advantage of them. As the Table 7.1 shows, about 90% of the potentials identified by respondents have been utilised in some way by the board. The focus of the board seems to also have been on the use of those potentials closest to it. It seems to look beyond the metropolis' when the potentials external are more capable of supporting it to achieve its intensions. Justifying this approach the WSDB observes that

> 'When you take technical operators from the community the issues surrounding the water system concern and affect him. When you take someone from outside the community as technical operator, whatever happens he does not care because it does not affect him directly, as he lives in a different place. So the person who resides in the community is the right person to put there.' – WSDB interview, 2009

The scheme has been involved in attempt to control the influence of external actors on its operations- the efforts to control the activities of the GWCL are illustrative of this. In its resource management effort, the scheme has also engaged in efforts to prevent the exhaustion of its water resource base by seeking alternatives that reduce the intensity of exploitation of its boreholes. While doing so, it has also taken steps to develop its resource base by locating additional sites for drilling. This is to help increase the volume of the

water resource base. The resource development effort of the scheme extends to its financial resources where it invests its profits in financial securities. Between both schemes, more than 77% of the potentials available are being mobilised and used. The Table 7.1 illustrates this further. They reflect a preference for using potentials within the locality and accessing those outside the locality to make up for the shortfalls when it is noticed that the needed potential is not accessible locally. The differences in performance lie with the water boards that are tasked with the responsibility. As already noted, both water boards seem to have recognised their role and responsibility for evolving and initiating the mobilisation and use of potentials.

Table 7.1 Comparison of the utilisation of resources

Type of potential	Utilisation by the water schemes *	
	OAWS Summary	JWS Summary
Natural	1 of 1	1 of 1
Human	3 of 4	3 of 5
Economic	6 of 6	5 of 6
Institutional frame	4 of 4	5 of 6
Sum	14 of 15 (93.3%)	14 of 18 (77.8%)

* Refers to number utilized out of total number identified   Source: Author's construct, 2011

Therefore on the issue that local potentials need to be harnessed in the endogenous process the schemes fulfil this. However, without a clear itemisation of the various potentials available in the locality both schemes are pursuing an ad hoc approach in which potentials may be missed. Also they do so without a national guide on what potentials can be used. Indeed the kind of potentials existing are so varied between districts that it is perhaps more prudent that the sub-sector policy does not attempt to itemize potentials and suggest how they may be used. Although writers on endogenous development indicate the importance of the harnessing local potentials to the development process they all fall short of indicating what kinds of potentials, where and when to use them. This is in the right direction as it would be virtually impossible or at best undesirable to prepare such itemization because what constitute potentials depend on spatial, social, and cultural, etc contexts which vary widely among continents, regions, countries and districts across the world. However, this leaves the task of potential identification to the boards that were set up to manage the water schemes. What is considered to be a potential and the understanding of how the potentials can be used are issues that therefore rest with the water boards. Faced with the limited spatial territory within which the systems function and (all things being equal) therefore limited potentials, the ability of the boards to identify as much of the existing potentials can be important to the successful operation of the system because the potentials form the very foundation of the harnessing process. This issue directs emphasis to the knowledge level of the boards; and if the assertion in literature that smaller territories are likely to have fewer potentials is true, then there is likely to be less potential to handle this issue at the water scheme's level which covers even smaller territories than the districts in which they operate. Because the boards are multi- community based, the boards' constitution is very

much based on the nature of the populace in the communities served by the scheme. Thus although the lead institution in the direct affairs of the scheme is the board and the board makes the decisions about what potentials there are and what to do to harness them the potentials, the penultimate determinant seems to be the nature of the human resource base in the communities from which the boards get formed.

7.2   Functioning of the institutional framework

The institutional framework comprised formal institutions spanning the national, regional, districts and sub-district levels. The formal institutions were basically those institutions that were identified by the sub-sector policy and had roles such as clearly defined by the policy. Included in the scope of formal institutions therefore were the international development agencies such as DANIDA which is the main funder of the National Community Water and Sanitation Program in Ghana, the Community Water and Sanitation Agency (CWSA) and the Ministry of Water Resources Works and Housing at the national level. At the regional level, the scope of formal institutions included the CWSAs regional offices and the regional coordinating councils. From the district level to the community level are found the local government units, the Water and Sanitation Development Boards, as well as the water and sanitation teams (watsans). Spanning the national, regional and district levels are the private sector operatives. However, the institutions that were directly linked to the functioning of the water systems were those at the district level and below. The fashioning out by the policy guide of institutions was based on Ghana's context, and as noted in the literature review had been based on the outcomes of pilot projects undertaken in Ghana (see also Mastovak, 2000). This is a plus for the sub-sector because the use of institutions that are inappropriate to specific contexts and therefore cannot adequately support projects was identified as one of the reasons for several failed projects in Ghana. The roles and responsibilities and the functioning of virtually the entire complement of actors in the capacities designed for them is indicative of the prominence of the national guide in the affairs of the systems at the district level.

The institutional set up appears to be very much hinged to the decentralized planning and governance framework in which local governments oversee development in the districts with the aid of sub-district structures (see also Mastovak, 2000). However, in the absence of the works department in the districts and the non-functioning of the area councils and unit committees (which are the sub-district structures), the MWSTs which the CWSA helped to set up and the water boards are involved in the system in such manner that allows the continuation of the process of decentralizing the water to the lowest possible level. Thus, the cases fulfil the requirement for the decentralized system to exist for the endogenous process to thrive. The decentralized process (institutional, financial and planning) also shows that allowing the local level to own and manage its affairs also allows the local actors to alter the system as they deem better for their local purposes albeit with the potential of retrogressive effects which although foreseen at the national level may not be foreseen at the local level. This is evident in the state of the watsan in the institutional structure in both cases – a state of limbo- which creates a gap in the process of communicating with and mobilising the community. This suggests that as with many other

processes the concept of decentralizing water service provision to the local level introduces new challenges that have to be considered.

Within the context of both systems studied, the local governments have the responsibility for catalysing the repair of such institutional flaws when they are identified because the local governments have oversight responsibility for the local water sector. It has the mandate to call on the regional level of the CWSA to support it in addressing such issues if there is such a need. However, the question that crops up concerns how adept the local governments themselves are for this kind of function which requires alertness and pro-activeness. While both local governments have the legal powers and mandate which they are able to use to support the water schemes, Uphoff's anticipated weakness of government institutions is also evident in the institutional set up in both cases.

For example, the local governments' slow pace of response to matters that arise and the existence of lapses that are hardly checked are seen to affect the water systems in both cases. The monitoring of the affairs of the system is a case in point. Although all the actors/players have some monitoring roles to play by virtue of the mutual checks that they are expected to have on each other, the formal monitoring of the performance of the water scheme and the system as a whole is the responsibility of the local government. However, this is barely being done by the local governments; and their planning units which bear the responsibility on behalf of the local governments, are not being checked either. The extended effect of this lax is that there is hardly pressure on the WSDBs to correct some of the performance gaps of the schemes and the system generally. Another example is that although literature suggests that local people who are the direct recipients of the service can more accurately identify gaps in the services and the delivery structure, knowledge level(s) of the main actor(s) and technical capacity have the potential of limiting their performance on this function. For instance, to be able to anticipate the trend in the performance of the water scheme some set of information is needed for the generation of this knowledge. The process of determining the knowledge may be too complex for the lay persons in the community; including the board members. For such reasons, the institutional set up of the STWS which makes the local government (which is likely to have the capacity to conduct such assessment) responsible -through its oversight role- for assessing the performance of the water schemes seems appropriate. The paternalistic role defined for the local government has in some aspects of the affairs of the water system - such as being able to identify such gaps and catalyse processes to steer the system onto the right track - makes its lapses more impacting on the system; as such failures of the local government constitute gaps that have other linkage effects that are stifling and which both systems are better off avoiding. Again, the systems indicate attempt to incorporate good governance practices in their operations. To this end leadership decision making is not left to one actor. Rather decisions are made in leadership systems which allow the local government and chiefs to cross-check the actions and decisions made by each other. But going back to the fore mentioned point, the local government is able to stall progress on the implementation of decisions through the inter-dependencies that this kind of leadership structure creates.

7.3   Application of measures

Beyond the institutional and leadership structure, it is worth considering how existing facilitating conditions identified were used in the affairs of the systems. I discuss this by looking at the process events. That local actors are well positioned to manage their own affairs seems to be the guiding belief shared between the national level and the local level as far as what measures to adopt and how so are concerned. The facilitating conditions identified in literature included the existence of a formal system of governance in which local actors are allowed to determine the direction of development of their districts or locality; the existence of access to information and learning for the sake knowledge generation; policy regulatory framework which spells out the institutional framework within which the development process takes place as a guide to the functioning of the development system; the existence of opportunities for participation of the populace in determining the direction of development as a means of ensuring that development efforts are not top-down but bottom-up processes guided by the broad development goals at the top and which provide opportunities not only for vertical communication but also horizontal communication in the development process; and the possibility of exploiting internal linkage opportunities to be used in favour of the local development process as well as external linkages that would augment those that are available in the district. Other conditions that are relevant to facilitating the local development process are that, the technical options that are needed to enable the development process stand exist, and that there is a clear definition and distribution of role and responsibilities of the various actors in the system.

In the earlier chapters on the conceptual framework of this research, I indicated that in reality the facilitating conditions identified in literature may not all be found existing in all cases. In Ghana's community water sector's context however, virtually all the pre-conditions exist: there exist potentials locally and (with the association of the local government) some opportunity for the water system to control the movements or exchanges with external actors in the interest of its objectives; through the CWSA, a well thought out institutional structure which is designed to support the decentralized water sector was introduced into the districts and the CWSA also has extensively elaborated guidelines for the functioning of the water systems. Indeed, the current recommended institutional framework was based on over 25 years of incremental learning from projects implemented in the water sectors by the government of Ghana with support from the foreign donor agencies such as CIDA and the World Bank. Skills, knowledge and related capacity can be found at the local level as well. There seem not to be formally introduced barriers to access to information or the formation of networks among groups in the district. Indeed, the majority of the conditions identified in literature as necessary do exist currently in the contexts of the cases studied. In accordance with the postulations in literature that local people are able to and better positioned to implement run and maintain their own developmental (see for example Briscoe and de Ferranti, 1988 and Mastovak, 2000), the water boards are in charge of the operation, daily monitoring and maintenance of the water schemes. They directly make decisions on the mobilization and use of potentials in the context of the existing facilitating conditions. The decisions that have been made span the broad range of areas identified in literature where efforts have to be made in the processes

that mobilize local potentials; and they require that the boards are able to discern what things are important, necessary and urgent as well as what are not. This is a great deal of responsibility carried by the water boards.

As the two cases showed, the nature and extent of mobilization and use of the local potentials vary especially as they are left at the discretion of the boards. This is rightly so in order to fulfil the characteristics of the system being a localised one. It is based on the assumption that the local actors have the capacity to handle the process decisions. In the course of handling the schemes, there have been efforts made to overcome the constraints that the limited resources under the control of the boards pose. The boards have done this primarily by falling on the linkage relations that they have with other actors for support. They have shown instances where through on their own initiative they have avoided or tackled problem situations. Indeed, they illustrate the ability to handle external influences (including support) through the use of linkages that give their efforts more weight (or clout). They therefore fulfil these issues that Brugger (1986) and Vazquez-Barquero (2006) raise in their writings; although in terms of initiative, the boards have focused on internal stimulation, which does not lead them to try to stimulate initiative in the district in general.

Nonetheless, challenges may be posed if the measures are left at the discretion of the local actors when they are not entirely capable of handling the more technical issues. The technical capacity of the main leader (i.e. the lead institution) in the process to direct the affairs of the process is therefore vital. The structure of the leadership of the water system which places the most weight on the WSDBs makes the composition of the boards very important; as how much the board is able to achieve depends on how much it knows (knowledge of what measures to employ is what is of importance here). Because of the localized nature of the leadership, the quality of the individuals who have been selected to serve on the board affects the quality of the leadership that the scheme gets. If the board members have good knowledge of how to manage a water scheme and mobilise potentials for development as well as perceive problems and how to avoid them, then the chances for the process are likely to be good. Since the members of the board are required to be chosen from the beneficiary communities the nature of the knowledge base as dictated by the human resource of the communities concerned becomes a determinant of the quality of members and hence the quality of efforts that the boards makes. Thus the issue of commitment of the leadership which literature clearly indentifies as a requisite condition as well as the ability to manage inter –actor relations seem not to cover completely the issues associated with leadership. Beyond leadership commitment, the boards' capacity is also very important as it also affects the performance of the development project and I suggest that it depends on the human resource base of the communities although it can be developed further through training.

The status of planning could be illustrative here. Planning is a key activity in the management of companies, business or institutions. It is important to the successful operations of local organizations too (see Esmann and Uphoff, 1984). Planning in such entities is considered important to guide the entity towards the attainment of its goals. It enables the entity to determine what and when to take various steps to ensure that it attains its objectives in the short and medium term and ultimately its long term goal. It is also important to the issues of resource conservation and development which often concern the medium and long terms. As an operational guide it serves as a reference document which

indicates the resource requirements for each stage of the operations of the entity and serves as a yard stick for measuring how the entity is performing. The water boards in the context of the systems studied are not only expected to be involved in operational planning but also in development planning as they are responsible for improving sanitation conditions in their respective communities. Thus on the development front they face the questions –'where are we going' and 'how do we get there' and to address these they need to be mindful of 'where they are now' and 'where they have come from'. Planning need not be sophisticated but it ought to be done in an adequate and meaningful manner that would provide a good sense of direction for the future. It can therefore be done without a high level of literacy (as university graduates for example may possess) (see Esmann and Uphoff, 1984). Incidentally, this important activity is hardly being done by the water schemes. In the absence of well elaborated plans, the benefits that accrue from the ability to assess own performance and anticipate future resource needs get easily lost to the systems – as things get done in ad hoc and piecemeal manner. Neither do the schemes conduct detailed analyses on the performance trends of the schemes to be able to know how sharp the rises or dips in performances are.

   In this example, the preparation of the business plan or operation plan - what seems imperative for the ordinary business or institution for its compelling benefits is not highly regarded in the schemes' affairs and this absence brings along the risks already suggested. The members of the water boards were drawn from the communities because they were considered to be the people who had the capacity to represent adequately the communities. If the members are mostly not informed of the enormous importance of planning to a business entity, how it should be done, and when it should be done then the board cannot be expected to attach much importance to the planning task. In such context, as is found in both systems studied, the boards reveal through the efforts that they are making their desire to ensure the continuous operation of the water schemes; however that good planning is needed but is not being done seems not to be recognized as an issue at all. The closest that the boards come to planning is seen in their annual budgets in which a list of activities to be undertaken in the year is indicated- a form of check list for the year. Indeed, they do not recognise that this is a gap in the schemes' operations.

Responses to the mobilization of actor potentials

The response of actors to the mobilization efforts of the system is important as it affects the extent to which the collective interest can be realized (see Brugger, op cit). Although not much emphasized in literature on endogenous development, Brugger (ibid) identifies in his writings the importance of having to influence the decision making processes of individuals in favour of the collective process. Brugger (ibid) however does not explain in detail how the individual's decision making process affects or is affected by the endogenous system where there are multiple individuals involved. Both (the individual's decision-making process and the influencing of the individual's decision-making process) issues go beyond the start up phase of the project; and beyond the managing of inter-actor relations and the associated tensions which literature identifies the boards have to face. As the cases show, the responses of some actors/ players have varied between the start up and current operational phase of the project. The accounts presented of the initial phases of the project

suggest that in the beginning there existed much willingness among the actors/players (the local governments, traditional authority, the board, watsan and community members) regardless of the heterogeneous nature of the populations; because there was a need based upon which they had the common interest to address. The common force that pooled their interests was the opportunity for access to safe water easily. Today, the situation seems different. There seems to be no such strong pull factor. Thus while literature on endogenous development identifies that the leadership of the endogenous development process should be committed to the process in order for it to have a chance to be successful, the issue of commitment can be variable in terms of time and in terms of the preferences and interests of the individuals who occupy the desks involved in the system processes. It is also true that interests differ and change among individual community members and over time. For this reason, it would be idealistic to expect that there will be a common understanding and perspective of the development process, projects and priorities throughout the periods of project start-up, implementation as well as operation.

The institutions involved have all got institutional interests in the successful operations of the water schemes. As the cases show, the individuals and teams which are involved directly or indirectly in the water scheme have varied interests which influence how they relate and support the water system. Not only do the cases show that the actors' actions are influenced by their interests but that some actors are able to go beyond themselves and influence others to take actions that suit their (the instigator's) interests. This was clearly shown in examples cited of the actions and interests of the chiefs, for instance. The internal dynamics in the management teams were examples also. In the examples that highlighted interests, the actors had motivations that served their individual preferences and that were informed by their interests in having things in a particular way. This was the case notwithstanding that the actors knew what their roles were, that their roles were expected to benefit the water schemes' functioning, that the water schemes were for a collective benefit of all the individual communities that relied on the schemes, and that by satisfying their individual preferences and therefore interests they affect the system in terms of benefits that would have accrued to it; and therefore to the collective interest.

The easily identifiable actors involved in the water schemes were the WSDBs, the management teams, the MWSTs, the chiefs and the community leaders. Within the management teams, the more visible functionaries as far as the affairs of the water systems were concerned were the planning officers, the coordinating directors, the budget officers and the chief executives. For some of these functionaries, only formal interests or interests relating to their formal roles were identifiable. When considered as a unitary entity, the management teams in both systems are the examples here. For some actors, only personal interests were identifiable. These were the chiefs and the community members. For some other functionaries, both formal and personal interests were identifiable. These were the MWSTs, the WSDBs, and the MCEs; although one MPO was able to express his interests in both the formal and personal way. For some players, it was possible to identify the personal implications of their actions (notwithstanding whether their actions supported the system or not); in line with their personal interests. These concerned players who had either only personal interests or personal and formal interests. They were the MWSTs, WSDB, MCEs, chiefs and community members. For the chiefs for example, whether concerning homage as in the OAWS or as in the JWS being able to lead by helping the board to

manage the system, the personal implication bordered on the respect or recognition it accorded them eventually, as chiefs. For community members, personal implications identifiable concerned satisfaction they got from having access to safe water or being able to access it without paying (illegally). Either way, there was a personal implication.

Again in the systems, it was possible show for some players that they had gone the extra mile to do some things to achieve formal objectives (those pertaining to their jobs) or personal ones. These players were the MWSTs, WSDBs, MCEs, chiefs and community members. The MCEs had done these indirectly through the influence that their interests had on the members of their respective management teams. For the MPOs, MWSTs, management teams, chiefs and watsans there seemed to be no established and readily identifiable formal negative implications to them if they faltered in the their performance. What is worth noting is that from amongst all the players only those with some form of personal interests identified were seen to have made extra efforts to achieve an objective they had either set for themselves or gotten by virtue of the positions they occupied. With the exception of the MPO of the EJMA, each functionary in this category (i.e. personal interests could be identified) engaged in what they did or exerted influences to make things happen to suit them in a manner that fed into their personal interests. Again for each of them some negative implications to themselves of not going the extra mile on the issues on which they acted was perceptible. This seems to suggest that when there was the coupled existence of personal interests and perceptions of the negative personal implications of not taking the actions that they took, the functionaries then had enough motivation to move into taking the actions that they took. The existence of formal interests only did not appear to have had such effect; because none of the actors for whom only formal interests were identified showed such efforts. This highlights the strength of the personal over the formal even in such collective projects particularly in such a context where there are not clear, formally established punitive measures for the wrong actions taken or inactions; as is found in the cases studied. Diagram 7.1 illustrates these. It suggests that team decisions can be influenced by the collective individual preferences because how the teams act or react depends on their interests (personal) as well as their preferences which are influenced by members of the team themselves (as they exert peer pressure on each other) and not just their understanding of their formal roles.

In almost all instances, it was not evident what the punitive implications of the actions that the players took, if detrimental to the water schemes, would be. The exceptions were the instances of illegal connections and non-payment of water bills in which case penalties were administered and seemed to have served as a deterrent to prospective illegal connectors and defaulters pursuing their interests. This relation is in consonance with the assertions of Douglas North (2009) and Hodgson (2006) of the relevance of rules and controls and how these can shape humans' actions.

Looking back at the interplay of responsibility, interest and individual implication it can be argued that players/actors in the system may know 'the right thing to do', or 'the responsible thing to do' or 'the ideal thing to do', or 'the duty to be fulfilled' but this is not adequate reason to make them do as they should. The following examples illustrate this:

- The MPOs know that their departments ought to monitor adequately the schemes' performance and assess it; but they relent on this responsibility.

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Diagram showing nested ovals with actor categories:

- **Actors for whom only formal interests were identifiable**
  - • **Management team** (as 1 unit)
  - • **Budget officer**
  - • **MCDs**

- **Actors for whom both personal and formal interests were identifiable**
  - • **MPO**
  - • **MWSTs**
  - • **MCEs**
  - • **WSDBs**

- **Actors for whom only personal interests were identifiable**
  - • **Chiefs**
  - • **Community members**
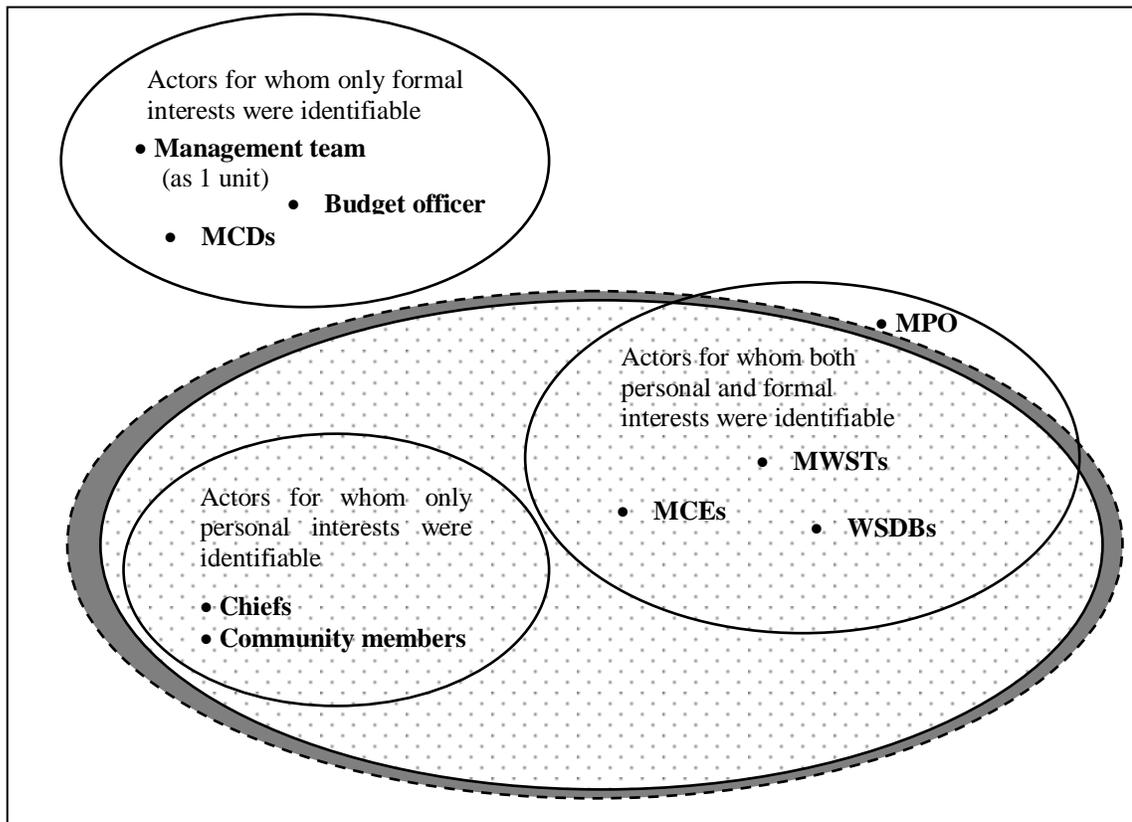
KEY

☐ The actors for whom personal implications were identified. Incidentally, all were in line with their personal interests.

▦ Actors who had gone the extra mile to do something to serve formal or personal interests.

☐ Actors in the water system

Diagram 7.1 Actors and actor tendencies.   Source: Author's construct, 2011

- The political heads in the local government unit know that the developmental priorities are set in the medium term plans of the district based upon which the various departments in the local government draw up their plans for funding. However, this is not always allowed to determine the spending pattern of the local government if it does not fall in line with the political preferences of the ruling party.

- Community members know that they should connect to the water systems legally and pay their bills regularly and on time, but some community members do not

- The chiefs in the source communities in Oyibi know that they ought to support the water system and not thwart it because it is for the common good of the people, but they threaten to thwart the scheme.

These examples illustrate that the goodwill of the actors/players although necessary, and even if pronounced at the start-up of the project, does not seem to be adequate to get actors to perform or act as they should in support of the system throughout its lifespan.

Linking the actor mobilization to leadership, needs and negative implications

The water boards as the leaders directly responsible for operations have interest in the schemes operating successfully and they mobilize other institutions to help them realise this. This way they try to avert the situation in which they fail to realize their goals (the negative implication). If the board fails to realize the possible negative implication of not involving an actor (alternatively stated as the benefit that the actor's involvement could bring) it consequently does not involve the actor in the affairs of the scheme; as in its opinion, it serves no purpose to do so. Both cases showed flaws in the ability of the WSDB to foresee the eventual negative implications of looming challenges on their operations. As a result, the WSDBs did not take the needed actions and now the situations have deteriorated or are at least still not being checked. This points back to the issue of leadership capacity; because in many instances where there was a negative implication foreseen the WSDBs took action to address or prevent it. As pertains to the watsan, both WSDBs did not appear to fully appreciate the value of the watsan. They seemed to have been of the opinion that they could function without the watsan / the watsan is not essential. Alternatively, stated the watsan as a local institution did not develop from the practical local experience of a need which would have allowed the actors to appreciate the watsan as a necessary institution; and so value it highly (see also Healey, 2006: 326). In the Juaben water scheme, none of the actors considered the absence of the watsan to be a gap although the sub-sector policy guideline considers it so. That the WSDB of the OAWS let the activities of the watsan wane and encountered the gap before it put in place measures to revamp the watsans' activities also illustrates this because the efforts to revamp the watsan have been at the instance of the current need to address gaps in the links with the communities. The WSDB realized the need to have the watsan as an institution operating and so is taking steps to revamp it but in the JWS it is still not recognized that there is a real need for an institution such as the watsan so the watsan is not being mobilised.

The lead institution in water issues in the community- the watsans'- performance in the OAWS also shows how its perceptions of what needs exist and possible negative implications affect how it mobilises itself. The watsan know their role and how it fits into the institutional structure of the water system. In times when the project was being implemented, the watsan was very active and this continued in the first two years of the operations of the watsan. Now, the communities (including the watsan members themselves) have safe water. That need is satisfied. There are no problems with the water system in the community. The watsan members' interests have shifted to the desire for allowances and other concerns. This reason is now so strong – it is stronger than the issue of getting water because there is no problem with the water system currently. The members therefore prefer to engage in other activities that fulfil their interests more than attending watsan meetings; – a situation which arose because the allowances which they desired were not made available to them. Currently, although the allowances have been introduced, they still have a preference for attending to other personal issues knowing this would not affect their access to safe water. Although this example is limited to the OAWS because it is only in this system that the watsan seemed to be functioning, the watsans' performance illustrates how the willingness to contribute to development efforts or to solving a problem is heightened if the participants appreciate that there is a problem or a need for which they

have an interest to address; and how planning gets challenged in the absence of such a condition.

Commitment to territorial obligations

A major impetus for a shift to the decentralised and participatory approach to water supply in Ghana has been the belief that local people can make their own decisions and that local people have the capacity to help themselves and control their resources; and for this reason, they should not be denied the opportunity to determine their own destiny (see FAO, 1999 and Kauzya, 2003). This assumes that at the local level there exists a realisation of the obligation to handle internal developmental issues. However, as the cases show this cannot be counted on when local government functionaries are concerned. How committed can the employees of the local government be to the local development goals and objectives when they may not hail from the district or live in the district but were only posted to occupy positions there for a period? In reality 'politicians and officials are subject to all kinds of influence in all areas of governance work' (Healey, 2006: 221). The holder of the key to the general inclination of the MA seems to be the chief executive because he is the leader of the entire MA machinery through the management team which he heads. Additionally, the staff have an interest in meeting the expectations of their boss – the MCE. The chief executives however are functionaries placed in their positions by an external player. For this reason they have obligations that are external to their districts as well.

Indeed with the MCE being the topmost official in the district and being selected/placed in his position by the national level (which has the prerogative to select the functionary), it is virtually impossible to control who serves as the MCE or to control his obligations. The link that MCE has with the national level indeed places him in the position to engage in transactions with the national level for the benefit of the district. Such transactions include the lobbying for projects for the communities within his district. But this institutional arrangement which makes the selection of the MCE the prerogative of the national level easily places a bottleneck in the attainment in the districts of the condition that, the leadership of the territory should be committed to the territories' goals and objectives. In reality, not all the districts' developmental activities may be considered priority by the national level. Indeed, both cases studied showed that while the actors within the assemblies knew the importance of water issues, the MWSTs did not always have what they needed in order to perform their roles because their issues were not considered to be spending priorities for the MAs budget. In this example, what becomes evident is that the continued link to the national priorities although necessary to steer national development coherently also challenges the element of self determination[34] at the district level; primarily because when there remains a strong desire to fulfil national political party objectives, the commitment of leaders to the more inward goals and objective seems to be of much less importance.

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[34] The expression self determination is used here to express the ability of the district level to determine its own developmental direction without allowing itself to be unnecessarily influenced by the national level in its direction of development.

Section summary

When the issue of measures taken is considered certain issues come to light. First, the technical capacity of the boards influences the measures that they take. Indeed, this has some link to the already existing capacity of the human resource base of the spatial area from which the board is created. Nonetheless, this capacity can be improved through training. Secondly, the people involved in the local water systems can be categorized according to their perceptions of their interests and implications (positive and negative) of their actions for themselves: these influence their motivations for the actions that they take. Thirdly, the state of minds of the people involved has not been static. Rather, it has varied over the periods of the projects in such manner that suggests that knowing what ought to be done and the clear definition of roles does not mean that things would necessarily get done.

   To sum these up, as Diagram 7.2 shows, in the localized water supply systems the local potentials and institutions/actors are brought together with facilitating factors and decisions are made which lead to actions. However, the decisions that lead to actions encounter pressures which affect them. These pressures (which also relate to the technical capacity of the leadership) reveal themselves in the subtle play of interest – preferences – influences.
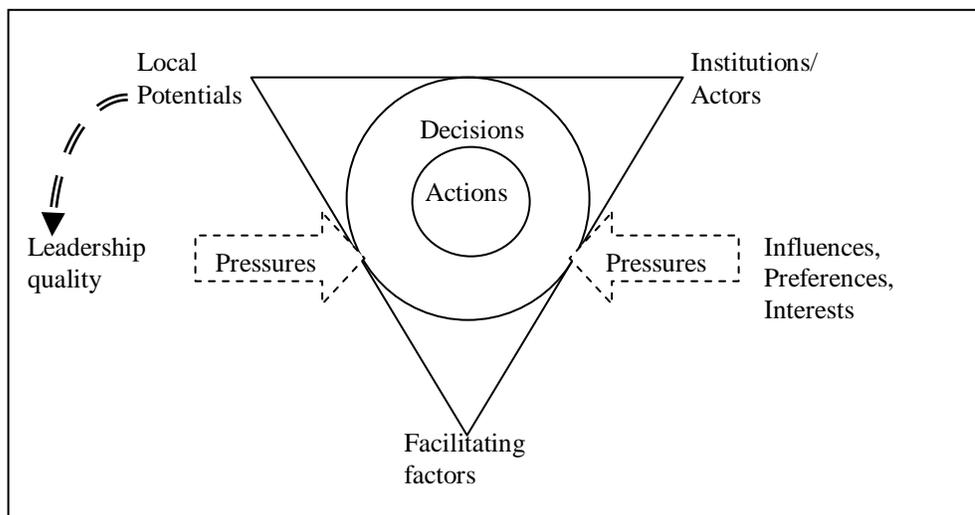
Diagram 7.2 Elements at play in the endogenous water supply process in the peri-urban
Source: Author's construct, 2011

7.4   Cultural norms and formal institutional processes

The gradual admittance of culture into development paradigm in Ghana has been as a result of the realisation of the resilience of local institutions rooted in tradition and culture despite the influx of western style development and the realisation that some development efforts fail to achieve the desired results because they fail to take into account the local/indigenous practices (Kendie and Guri, 2007: 332). It is argued that for development projects to be sustainable in the long term they ought to be anchored on strong local institutions; and these local institutions ought to be linked to or take cognisance of cultural norms in order for them to be adequately appropriate to the local context (ibid, also Bergdall, 1988). The

use of western style institutions introduced during Ghana's period under British colonisation and the continued promulgation of such institutions resulted at some point in Ghana's developmental history in the down play of more traditional institutions on development issues. Today, we see a change such that traditional institutions are recognised in local development processes. Actually, the institutional landscape currently reveals the existence of a recognised dual institutional system in which there are formal institutions and traditional ones; and sometimes overlaps in their responsibilities.

The integration of the traditional system of governance with the formal one can get challenged when the insignia of traditional rule changes hands. The case of land for development presents a useful example here. In development projects, the chiefs' donation of land are acts of goodwill towards the project and not contracts; and new chiefs can have different opinions of projects while the chiefs who donate the lands for the project can also change their minds. Some chiefs also do not consider themselves to be bound by their verbal commitments on the leasing of land to people. Thus while verbal communication suffices in the traditional structure, the formal structure ought to also ensure that as per its formality, its agreements with the traditional institutions are documented legally; in order to secure the agreements and protect them from future retractions and therefore minimise the tendency in the future for tensions to erupt. The Old Sasaabi example confirms how possible this situation is in the affairs of the water systems. The Ejisu-Juaben municipality has conflicts and chieftaincy disputes relating to land which generally affects the willingness of people to invest there and limits the support from the populace for development projects that involve some chiefs (EJMA, 2006). Likewise, the Ga traditional system has several chieftaincy and land disputes. In both cases studied, efforts were not made to support arrangements with the traditional authorities on land given to the water schemes by the chiefs with legal documentation despite the risk involved in not doing so. Alternatively stated, the exploitation of opportunities for complementarity between the two forms of governance through land arrangements for the water schemes are not secured legally; and this leaves gaps in the arrangements that can impact negatively on the operations of the water schemes in the future, if disagreements occur between the local government and the water board on one hand and the traditional authority on the other hand.

It is undeniable that power tensions exist which the processes of the water system are better rid of. For this reason, it is seemingly more prudent for the arrangements between formal institutions and the traditional institutions – such as has been made in land issues in the two cases studied – to go beyond verbal communication; although the Ghanaian society is predominantly a society that is reliant on verbal communication rather than written communication.

Reflections on the pluralist leadership structure of the water system

Although the challenges identified above relate primarily to the appropriation of land, it suggests how the overlaps in roles although intended to be complementary can get disruptive. All things being equal, for a water project set up to serve the interest of the community members, it should not happen that the community-based leaders – in the studied cases, the traditional authority - conflict with the rest of the leadership of the water

scheme because they stand to benefit from it as people who govern in the interest of the members of their communities. A similar disposition can be expected of the water boards and the district assemblies. However, when the nature of background of the trio is examined a bit more closely slight differences become evident as a result of the nature of their comprehension of their mandate, the volume of resource controlled and interests.

Mandate

As noted earlier in this report, the local government derives its strength from its legal mandate provided under the 1992 constitution. The players at the local government are functionaries who occupy their respective positions by virtue of their status as employees, election or by assignment by the president of the republic. Together, their mandate is to attend to the development of the district. For its part, the community leadership involved – the traditional authority -comprises representatives of the communities who occupy their positions through family lineage and derive their power to rule from the traditions of the community. The water boards comprise representatives of various communities benefitting from the water scheme who were selected by the community members with the support of the chiefs or selected directly by the chiefs themselves. Viewed from the top, the local government fits into the formal governance structure which establishes the rules by which all sections of the country's population play. With the support of this structure, it is able to achieve much by harnessing its formality. Viewed from the below however, the traditional authority seem to be more institutionalised[35]; being the governance system that the communities instituted themselves and which served them prior to the introduction of western style governance in Ghana by the colonial masters. Drawing from the belief in the wisdom of the forefathers, communities in Ghana still recognise and accept the rule of chiefs although the dominance of the institution has been tampered by the formal system of governance with its more extensive and yet elaborate structure (see Ubink, 2008 and Donkor, 2005).

Today, the weak sub-district structures in the decentralised governance structure also make the traditional authority a relevant institution for supporting the system at the local level. With the unit committees and the area councils that would have carried the local governance structure right down to the communities barely existing, the potency of community-based leaders – such the chiefs in the cases studied - presents an avenue for supporting the formal system of governance as they can support the mobilisation of community members for the objectives (including development objectives) of the formal system. In sum, the formal system of governance draws from the strengths of the traditional system. Along with the WSDB, they have mandates of seeing to the development of their communities although they draw their mandates from different sources. Also, they adopt different approaches to handling their objectives although they are able to support each other.

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[35] Meaning recognised and accepted.

Resource control

Not only do the lead institutions of the water systems vary in the source of their mandate. They also have differences in the volume and nature of the resources that they control.

Being an integral part of the decentralised governance system and the highest formal authority at the local level, the district assemblies have financial resources at their disposal for the development of the entire district. They receive national remittances in the form of the district assemblies' common fund and have the legal mandate to tax economic activities (such as through market tolls) in the district to generate funds to support its activities. It receives 55% of the revenue that accrues from the sale of stools lands too (M.O.J, 2005:148). The assemblies also have a complement of skilled staff with the technical capacity to facilitate the assemblies' performance of their roles. However, the traditional authorities seem to have less capacity. Like the local government, it does obtain revenue from the royalties paid to it by companies located on its land and from the sale of land. But the traditional authorities do not have the extensive complement of staff as the local government has. From my experience working with communities, district assemblies and interacting with traditional authorities as well as my involvement in more social events in the traditional settings, I know this is generally true in Ghana. The traditional authorities in the communities served by the water scheme did not seem to dispute this. Indeed, this does not seem necessary as a traditional authority is only concentrated on the affairs of the community(ies) that it is responsible for and a more limited range of issues. Thereby, it does not find itself saddled with the responsibilities that the district assemblies bear. In terms of technical equipment also, they seem to have less capacity than the district assemblies. The water boards also have limited scope of resources at their disposal. Their affairs are only concentrated in the communities that they serve and the resources they control directly are those directly related to the water scheme: the staff of the water scheme, the technical equipment/facilities of the water scheme as well as the revenue that it generates through its operations.

Interests

Beyond the differences in technical, human and financial resources at the disposal of the three lead institutions, the institutions have converging interests and yet divergences as well. They converge on the interest of having the communities served with potable water. Nonetheless, as earlier indicated community leaders (i.e. the chiefs) and the lead functionaries are able to diverge from the general and convergent interests of the systems. A divergence in the interests of the staff/heads of the district assemblies is perceivable: as functionaries they may not have many ties to the local area, because they are not natives of the area. However because of the traditional nature of the source of the power of the chiefs in which, per trust, chiefs are expected to take care of communal resources in the interest of the entire community, the question that evolves is how the interests of the chief can go against that of the good of the entire community.

Chiefs ruled for the community benefit and in a democratic manner deciding for the good of the community before coming into contact with colonialists. As part of the British' indirect rule, chiefs became agents of the British rule and they collected taxes for the colonial masters. This way, there was a gradual shift from seeing their rule as having to be

for the benefit of the common good of the community towards a rather more personal view of rule in which some chiefs began to rule as though communal properties especially communal lands associated with the stools belonged to their families alone; thus eroding the original more communal interests of chiefs. Today chiefs can be found in conflict with members of their communities as a result of their failures to see to the interests of their community's members. As a result, assuming that chiefs automatically have the interests of the members of their communities as priority can be misleading (see Donkoh 2005; Ananth Pur and Moore 2010 and Ubink J. 2008). With this explanation, the more individualistic positions of the chiefs in the Juaben, Kpone Seduase and Old Sasaabi become easier to perceive.

The intensions of the adoption of the pluralist system of leadership for the water systems has been mainly to facilitate the operations to the water system and check the risk of abuse of the system- to prevent it from being exploited for the benefit of a few in the society to the detriment of the rest in the society- by having the three lead actors check each other's decisions (interviews with sector experts Okan, 2009 and Alhassan, 2009; CWSA key informant Kwarteng, 2009; and the CWSA O&M Guidelines, 2004). The pluralist approach recognises that there are diversities in interests (see Healey, 2006: 222). As would be explained in the following paragraph, it is also able to provide the opportunity for antagonistic situations that can introduce hitches to the process of decision making or challenge decisions taken. The pluralist system which was recommended by the CWSA was informed by the performance on the pilot projects and knowledge of the risk of projects being monopolised by influential people at the local level and in the communities generated from its experiences with initial small town water projects. It provides room for the water boards and the local government to decide and include potent community-based actors on the leadership platform. However as the cases show, the leadership structure still has gaps which enable the lead actors to detract from the good course deepened by their differences in mandate, resources and interests. The following paragraphs explain this further.

As already shown, the institutions derive strength from their mandates. There is strength derived from the control of resources also: the volume and the nature of the resources. For this reason, as local government has many resources (such as human, technical knowledge, equipment, financial) under its control it is able to do a lot of development efforts/project. It has more of such strength than the traditional authority has under its control. Although the chiefs have less strength in the context of equipment, technical knowledge, financial resources, they have strength in the form of their control of land which for the water project is very important for the sighting of the boreholes, laying of pipeline and for the offices of the water boards. They are also aware that they have clout. Their actions in relation to the donation of land and their demands/requests of the water board show that they are aware that they have some clout and power which they derive not only from the mandates that they have but also from the resources that are (as a result) under their control. They are also aware of the importance of tradition to the people in the communities –to many communities the traditions are still held in esteem as it is regarded as the fabric that identifies them and binds them together. Thus although the regional land administration units exist, chiefs still regard land as belonging to the traditional authority. Indeed, so strong is the concept of the traditional authority among Ghanaian cultural practices

(ammamrɛ) generally that the formal system of governance did not try to usurp the authority of chiefs in appropriation of communal lands. The chiefs are aware of this. For these reasons and because of the indispensible nature of land to the project, the chiefs become holders of much power as they for example hold the power to determine how land is appropriated and have the possibility of ignoring the regional land authority that gives formal approval.

Such imbalances in perceptions of power, strengthen the negotiating position of the chiefs and in the context of the water projects can leaves the traditional authority feeling that it has a slight urge over others involved on the leadership platform. And with this perception of having more power (as in the OAWS), depending on the traditional authority's interests and preferences it could get inclined to thwart or support the system unilaterally- i.e. without waiting on the collaborative decision making that takes place on the leadership platform. In other words, the perception of having more power than the other institutions could make the traditional authority less willing to be collaborative and negotiate process issues. While the traditional authority has been used as the main example here, this could hold true for the other institutions involved in the collaborative decision making process (see the Marxist postulation of how governments rule to serve the elite and the interests of groups and can, by virtue of the power they, have make rules that restrict the capacities of other groups to seek their own interests; such that the wants and actions of the other groups though legitimate become illegitimate by the rules that get established by the government). The TMA's holding of the OAWS' much needed rate change also illustrates a similar pattern. Although its intention was for the interests of the communities, the Juaben traditional authority's decision not to allow the water board to present its accounts to the community members was as a result of the power it has as a result of its mandate; and it shows the use of the traditional authority's power to block the implementation of laid down processes to serve its interests without the consent of the two other lead actors.

Thus the pluralist leadership system in which the consensus of all the actors of a decision is required but in which there are differences in the control of resources and nature of the source of the mandate of the institutions introduces power differences which can lead to hitches that have the potential to stifle performance on decisions and observance of agreements particularly when the interests of the lead institutions are at variance with each others'. The elements that influence, affect or tamper the performance of the institutions seem to be the power that the institutions perceive that they have over other institutions to influence the process and which result either from the source of their mandate or control of resources; and the interests that the institutions have and want to serve.

Section summary

The existing institutional framework of both water systems, comprise a combination of both traditional and formal governance systems; with the expectation that they would support each other for the success of the system. However, the variabilities in the traditional system-specifically the issues of rulership succession and land disputes as well as changes in opinions about development projects- make it necessary for arrangements reached in the corporative processes go beyond verbally communicated forms in order to reduce the disposition of the system to the variabilities.

Again the adoption of pluralist leadership structures has been done to aid the water systems to draw on the strengths of the multiple lead actors involved, while allowing the actors to protect the system by checking each other's action. Although in the cases used chiefs turn out to be involved, what is worth noting is not that they are traditional leaders; but that the leadership platform tries to make use of local leaders who are potent- an important issue for the endogenous development strategy is identifying such potentials in community heads or lead figures and making use of them. In the process, nonetheless, issues still arise which challenge the attainment of this intention. One major issue concerns the imbalances between the mandates, volume of resources controlled, and interests of the lead actors. These generate differences in the perceptions of the actors about the balances /imbalances in clout or power (i.e what they can do).

Both situations generate tensions which the water systems are better off without. It is laudable that the system's design was based on practical lessons from pilot projects undertaken in Ghana and the institutions were designed based upon the observed needs during the pilots; but what remains is the addressing of the existing gaps to reduce the likelihood of a lead actor detracting – that is, strengthening the current system rules/ frame within which the leadership operations occur.

7.5   Technical equipment capacity

In selecting technology and related equipment for the production function, it is important that due consideration is given to the conditions of the production unit or as in the context of this research- the water schemes. The equipment involved ought to be able to contribute to the improvement of the production process; and there should be the possibility of optimal usage of the equipment in the production process during its lifetime. In selecting the kind of equipment, the kind of production, the task/job at hand and its complexity, space for the location of the equipment as well as the condition under which the production process occurs are issues that ought to be considered. The consideration of the condition under which production occurs ought to cover the financial context within which production will take place in consonance with the efficiency that it will bring to the production process. Also to be able to manage and control equipment availability to the production process it is important to know the characteristics of the production process (see Soldat, 1997: 1, 2.)

The technology[36] adopted for both water systems was selected based on how well it suited the local context. In the introduction of piped water schemes, the communities were required to contribute to the capital cost as a way of indicating among others their ability to pay for the water produced and to contribute to the sustained operation of the schemes. When the communities made this indication, effort was made to adopt water production techniques that lowered the costs of production; by cutting out the need for treatment by tapping from sources that were potable- underground water. These efforts were made for the purpose of achieving suitability to the local context. As the cases indicate there exists knowledge in the community that was not developed by the water projects but which

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[36] 'Technology is defined as a set of production activities, which include the use of raw material, equipment, energy, human resources and should result in the realization of planned job tasks' (Soldat 1997: 2).

support the water schemes. Some of this knowledge was developed further by the projects through training to build human technical capacity for supporting the schemes. There however exist gaps in the technical capacity for handling the engineering/hard ware aspects of the water schemes. In this regard, that there exist the techniques to detect and control water losses in the scheme did not stop the water loses from occurring or make it easier for the WSDBs to address the issue of water lost through leakages or illegal connections efficiently, because the WSDBs do not have the technical equipment which they indicated they were aware of could help locate the problems. They are aware of the existence of technology and related technical equipment to control this problem but they do not have the means to acquire it.

The boards are making the effort to control the loss of water by monitoring and encouraging people to observe and report anomalies. This has been their practice since the schemes' operations. However, in both schemes the amount of water lost remains above the national approved level of 15%. The related effect of this situation is that the schemes' have lower revenues than they should; and with current revenue barely above incomes, this could have negative implications for sustenance of the schemes. This issue of access to the technical equipment is indicative that not only is it relevant that whether the technology to support the process is available and suits the local context is considered in designing the project but the maintenance of the technology should also be financially accessible to the schemes. Alternatively stated, the availability of technological options that suit the local context though necessary is not an adequate description of the necessary facilitating condition as far as technology is concerned. The technical equipment related to the managing of the schemes exist but they are not available in the districts and the financial resource that is required to acquire it is not available.

7.6   Systems of accountability and monitoring

While the operation and maintenance of local utility projects are best carried out by local level operatives, local level operatives have also been considered to be in good position to monitor the performance of the local utility project; because of their need for the services that the project provides and their closeness to the service delivery point. These perspectives which can be gleaned from literature are incorporated in the Juaben and Oyibi water systems. The maintenance function is handled mainly by the WSDB with assistance of the watsan (where the watsan exists). The watsan handles minor maintenance issues on behalf of the WSDBs. The other local level operative that supports the maintenance function is the private sector; in the form of plumbers, electricians, pump mechanics, etc.

In performing their maintenance role the WSDBs are guided by the sector policy guide on maintenance which outlines what to look out for, the level of the entity which handles maintenance, what financial provisions are made for larger maintenance tasks and system extensions and how to channel feedback on maintenance issues to the WSDBs so that the boards can address them. While maintenance is much more an affair for the community and inter-community level entities, the monitoring function extends beyond these two levels and involves the local government level as well as the regional level in a system that involves horizontal as well as vertical monitoring. In the monitoring structure of the system, community members monitor the quality of service delivered within their

communities. This involves observing and assessing the performance of the water vendors as well as illegal connectors to the water system. Where they have concerns or observe anomalies, they report these to the watsans who either manage the situation at the local level (if it is a minor situation such as minor repairs) or pass on the information to the water boards. The community members also have the opportunity to monitor the performance of the WSDBs by participating in the community durbars at which the boards render account of their stewardship to the communities. In Juaben's context where there is no watsan, the community members rather go directly to the WSDB through the board's office. Through the watsans and directly, the community members monitor the performance of community members as well as the performance of the water boards. Whether the concerns of the communities are being worked on by the watsan is also checked by the community members particularly through their chiefs and by the WSDBs.

The WSDB's performance is further checked by the MWSTs of which the MPOs are co-ordinators. Whether the WSDBs are meeting all the operational requirements and therefore performing as expected of them is checked by the MWSTs through their monitoring visits. In turn, whether the local government through their MWSTs are exercising their oversight responsibilities as expected of them is monitored by the CWSA's regional offices (i.e. through the regional water and sanitation teams- RWSTs) which makes monitoring visits to the water systems during their visits to the districts. Generally though, the RWSTs do not have the mandate to enforce the observance of the monitoring requirements by the local governments. They can only advocate that things are done as expected by the sub-sector policy (CWSA Ashanti region interview, 2009 and CWSA headquarters interviews 2009).

Within the local government units, the MPOs monitor the performance of the MWSTs. However when the MWSTs play their part by undertaking the monitoring activities, the outcomes do not get fed into a more comprehensive assessment of the performance of the water systems which will enable comprehensive and meaningful conclusions to be drawn about the performance of the water systems. These two issues constitute gaps in the monitoring system that challenge the efficacy of the institutional set up for monitoring. The MPOs agree that such comprehensive assessments of the performance of the water systems are relevant and important to the local governments' role as overseer of the water system. The CWSA admits that there are gaps in the local governments' performance of the monitoring function and that as much effort as has to be made is not being made (CWSA interviews, 2009) but there is no mechanism within the institutional structure that makes it possible to enforce the performance of the local governments' role. The failure of the local governments to perform their role well has generated a gap which the RWSTs are aware of but have been unable to ensure get closed; and this leaves the efficacy of the monitoring system in limbo. This suggests that although the local level may be the more appropriate level at which monitoring could be done, the performance of this role at the local level once linked to the local government still bears some of the challenges associated with the more nationalised systems of monitoring that accompanied the centralised operations of the national water company; as the MA being a governmental institution has the limitations that plague public institutions (see Uphoff's typology of local institutions, 1986).

7.7 Recovering cost while maintaining patronage

The water schemes in both cases are faced with the challenge of controlling the quantity of water that they lose during the supply process. This has implications for their economic standing. The water rates charged by both water schemes per cubic meter are quite higher than the rates charged in the urban cities of Accra and Kumasi. However the low rates charged by the Ghana Water Company Limited (GWCL) in the urban areas cannot be used as a basis for determining whether the rates charged by the community water schemes are too high or not because the GWCL has a larger consumer base and large scale production not to mention its inefficiencies that have made their efforts to increase rates draw frowns from the communities that they serve. For these reasons it is more appropriate to consider the small town water schemes as units on their own. Learning from other failed development projects, the ability of the water schemes to sustain themselves was an issue right from the beginning of both community water projects. Drawing from the national goals which have relied heavily on the conditions dictated by the foreign agencies from which funds were acquired for the water projects, the small town water schemes were established with the ultimate intension that they will achieve increasing efficiency, sustainable operations and make and save enough revenue which will enable them to cater for extensions by themselves.

So far the ability to save enough money to cater for the extension of the water scheme (which includes drilling new boreholes) eludes both water schemes[37], and both water boards in their interviews (2009 and 2010; see also MWRWH, 2004) admitted this limitation. In both water schemes only the cost of production of the water –excluding the cost of the capital investment made- is being charged to the consumers and the scheme receives no subsidies from the local government. As the graphs of the schemes' performance on revenue and expenditure showed as of 2008 both scheme were barely making profits. The WSDBs and the MWSTs have fears that when the rates charged are increased people will go back to their old practices of using water from unsafe sources and therefore defeat the health intentions of the project. Local politicians fear that when the cost of the water is increased it will be attributed to the ruling party and will make them loose favour with the members of the community; and hence make the community members vote them out of office at the next election opportunity. Another concern of the WSDBs is that the communities may revolt against high prices and simply refuse to pay the rates. While the effects of participating in the schemes processes such as paying for the water consumed and participating in the decision making processes cannot be disregarded for being of no value, the operational environment[38] of the water schemes which are characterized by the availability of alternative sources of water, political concerns and water related health issues limit how far participation in the payment for the cost of production can be carried--- what Kauzya (2003) in his description of effective participation in the provision of water supply services describes as 'consumption'.

To describe the issue further, I consider the availability of alternative sources of water which community members can access without having to pay for. Indeed in both Juaben

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[37] Expenditure of the OAWS on the Akono project commenced in April 2010 and so it had no effect on the expenditure –revenue status of the water scheme over the four years being considered in this research.
[38] The local environment external to the technical, internal operations of the water scheme.

and the Oyibi areas, the communities supplied by the piped water schemes still use alternative sources of water such as rain water, wells, ponds streams and rivers. This was confirmed by the water boards as well as the chiefs in both areas. It is worth reiterating here that these communities are predominantly farming communities and so they are not characterized by the 'affluent' lifestyles often found in the cities. Although they recognize the benefits of the piped water, the community members also do not consider it prohibitive to utilize these other alternative sources of water for the reason that their forefathers used these sources of water. Currently, less than 10% percent of the households use only the water supplied by the piped water scheme. The rest combine the pipe-borne water with at least one of the alternative sources of water identified above. Less than 30% and 25% of the population consider the water rates to be low or moderate respectively. That the percentage of people who do not use alternative source of water does not correspond to the percentage of people who consider the rates to be okay (i.e. either low or moderate) suggests that regardless of the perceptions about the rates there is a tendency for the people to use alternative sources of water. Interviews with the WSDBs confirmed that this was a general, practice in the communities. In the case of the OAWS, almost 70% of the population uses alternative sources of water in addition to the water supplied by the OAWS; although about 50% percent consider the rates to be okay.

While this state of affairs suggests how high the tendency is for the population to use alternative sources and how real the risk is of people substituting their patronage of the water supplied by the water schemes for the other alternatives that are available, it challenges the ability of the water boards to increase the water rates as they deem prudent for the operations of the water schemes. The boards are restricted in the changes that they are able to make to the rates. In sum, while it is expected that the water schemes will be able to set appropriate rates[39] and make enough savings to be able to handle major repairs and expansions of the water schemes by the time their design life span is up, the current operational environment coupled with the limited savings of the system challenges the ability for the schemes to achieve this objective; and illustrates how the propositions about consumer participation in cost recovery gets limited. It is indeed appropriate that the community members compensate the water scheme for the costs incurred in providing them the water; but going by the current state of both schemes and their operational environments this contribution may not be adequate to relief the local government of the responsibility of finding and providing funds for the extension of the water schemes to other communities that may be close to the water scheme but un-served. The foregone discussions in this chapter have recapped how the water systems have been designed and have operated over the past years. Beyond this, it has attempted to explain how things are done in the water systems; while concentrating on important issues and trends that emerged from the analyses presented in earlier chapters of this document. It has attempted to explain why things are the way they are and to reveal the gaps in the systems.

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[39] These are the rates which the WSDBs consider adequate to support their objectives of covering their operational costs, having excess to enable them cater for extensions without having to rely mainly on support from other actors and providing sanitation facilities

8 CONCLUSIONS, KEY ISSUES AND RECOMMENDATIONS

In this chapter, I present my conclusions on the entire study. I pay particular attention to the discussions and the key messages in Chapter 7 to draw conclusions upon which I then make recommendations for the future; while pooling from the rich insights that I gained throughout the analytical processes reported in the entire document. I identify the main findings/issues of the research and make relevant recommendations for the national and local levels. Recommendations relating to the conceptual level and for further research are also made in this chapter.

8.1 General conclusions

There is a wealth of literature that postulates about the positives of the pursuance of development in which local people manage their own development either after it has been self – started or engineered externally through the introduction of agents that instigate change. The development concept of local people taking charge of their own development seems to have been lauded and adapted for several recent projects in reaction to the lessons learnt from experiences in water projects implemented, often with foreign donor funds, but which failed to be sustained after the projects ended and external support was withdrawn. But in the context of the peri-urban pipe-water supply in sub-Saharan Africa not much literature exists on the performance of this approach to development. Peri-urban settlements are neither purely urban nor purely rural, thus they present a mix of urban and rural challenges as well as challenges simply peculiar to peri-urban settlements. For this reason, the study of the functioning of the endogenous model in the peri-urban context is relevant in order to contribute to the building of related literature and knowledge that particularly reveals whether the various elements that are deemed to be at play together perform as anticipated. Indeed, as development theories have mainly evolved from the experiences of the western countries most of which moved from rural to urban without facing challenges of peri-urbanisation which countries in sub-Saharan Africa currently face such a study helps reveal the performance, appropriateness and adaptations needed in developing conceptual models of development that suit peri-urban development.

The analysis reveals that there are indeed potentials in the districts that can and are being mobilised for water development and that when the local people/actors as leaders of the development process are themselves aware of the potentials, they make the effort to harness them in furtherance of the performance of the system; as much as they perceive that they can. The analysis seems to suggest that the harnessing of local potentials as done by the small town model, which focuses on the use of local potentials and local management, does help improve water supply in the peri-urban settlements. This is mainly true to the extent that the systems are still operating after 5 years and they have pursued an 'endo' approach to management. The continued operation of the schemes after 4-5 years of their commissioning (although short) provides a window for optimism especially if the challenges of the systems are addressed. Both schemes have excellent performances as per the sustainability criteria of the national

sub-sector policy. This suggests a propensity for success in the use of this approach for the delivery of water supply in the peri-urban areas in Ghana.

Drawing from the above point, credit can be accorded the local leaderships which have handled the systems since their conversion to community management, especially because the regional and national level actors' involvement in the affairs of the water system have been minimal and often at the instance of the leadership of the water systems. This suggests that with a leadership that is capable, such a local system can run successfully with little involvement of the regional and national levels; and there exists such capability at the local level. That almost all actors interviewed had interest in the systems' continued operation because they perceived some benefits suggests that the water scheme is relevant and the actors are likely to be positively inclined to supporting the systems if need be. Nonetheless, this cannot be taken as assured. While the institutions involved have all got interest in the successful and sustained performance of the water systems, the actual performance of the functionaries or individuals involved in the systems do not always converge with the interests of the institutions. This creates conflicts which hinder the otherwise smooth performance of the systems as individuals are the catalysts in the system that make things happen. Without mechanisms that limit the pursuance of individual interests, the analysis shows that these interests can thwart the system. Again individual and informal institutional priorities oscillate: sectors, projects and issues that receive much attention change among people and over time - what was considered a dire need four years ago may no more be perceived as a 'need' today. This reality introduces challenges into the water systems as it affects the kind of support that it gets from the players.

The trend analysis of the performance of the schemes and the discussion of the process challenges and issues suggest that while the presence of clearly defined institutions, local potentials, linkages and factors such as the existence of a decentralised planning and governance system, opportunities to access information and learning, a clearly defined policy framework and a clear institutional framework, linkage opportunities, the use of stakeholder participation in the project, as well as the existence of technical options as relevant to the natural setting led to the successes so far chalked by the system, they can be augmented to improve the concept of endogenous development as practiced in peri-urban water supply in Ghana particularly by paying attention to the issues of the human resource base upon which the leadership of the system is built, accessibility of technology, institutional mechanisms that contribute to the regulation the behaviour of the actors (functionaries and non-functionaries).

8.2 Key issues /findings and recommendations for policy

The national framework within which the systems operate

- The community human resource factor: ***The Community Water and Sanitation Agency should continue to foster capacity development through the creation of learning opportunities at which the board members participate and learn and therefore build their knowledge in the management of the water systems. The CWSA already provides such opportunities. However, more effort ought to be made to keep active the peer learning platforms that are managed by the water boards themselves.***

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On the normative level, the heavy reliance of the water systems on the leadership capacity of the water boards draws attention to the knowledge levels of the members of the water boards because this is what determines their ability to make the right decisions to steer the affairs of the water scheme in the right direction. The already existing knowledge base in the community is an important factor in this vein. There is also the reality that the communities for which the water system is established wish to run the water system directly through the water boards (and not pass it on to a private operator to run). They have the mandate to determine this. To address the challenges that result from this situation when the knowledge base is perceived to be relatively low the CWSA's continued provision and support of opportunities for the members of the water boards to receive training and re-training is appropriate. Also, by encouraging the water boards to participate in peer learning and knowledge sharing platforms such as the association of water boards, they avail themselves of the benefits of peer learning and develop their knowledge levels especially as the membership capacities of the different water boards are not likely to be exactly the same.

- The planning frame: ***To encourage the water boards to plan, the CWSA should introduce planning into the operational and monitoring guidelines such that having one FMP prepared at the beginning of the project is not all the documented planning done. Such an introduction is likely to be effective because the sub-sector policy operation and maintenance guidelines carry much weight in the affairs of the individual water schemes as they place much emphasis on the operational guidelines provided by the CWSA. For full operationalisation, there will also be a need to assess the existing state of knowledge among water boards and design and provide capacity building opportunities where gaps are identified in the capacity to plan.***

As observed in earlier chapters, the body of guidelines, rules and regulations formulated at the national level has largely been the framework which guides the small town water supply process. This is good as it provides the general nation-wide structure within which the various small water systems can define their functioning modes. Beyond this however, the systems have no clear or well defined district specific operational guides which (while remaining within the national framework) defines and elaborates how the systems should function as well as the short and medium term goals of the systems. The local governments under which they fall respectively have not paid attention to or helped the schemes to develop these. As a result, much of the process of mobilising potentials as done by the water boards is ad hoc. Performance therefore cannot be easily assessed and the results fed into future plans. If incorporated into the policy guidelines however, the issue of planning is likely to be given significant attention in the operations of the schemes.

- Internal structure of the local governments: ***The CWSA should advocate for improved support of the water systems by their local governments. The local governments should be encouraged to institute rules and requirements that would make their functionaries more responsive to and accountable for their roles in the water system. These could be in the form of monitoring and performance assessing mechanisms that could shore up the performance of functionaries. The penultimate aim would be to contribute to the provision of more support for the other institutions as they perform their roles; and***

thereby improve the benefit that accrues from having such a system structured to harness the benefits of inter-actor dependencies. The process of encouraging the local governments in this direction should be done in collaboration with the National Development Planning Commission and the Ministry of Local Government and Rural Development who, according to the national decentralisation structure, have closer relations with the local governments.

Indeed as earlier explained, the semi-autonomous status of the boards that manage the water scheme and the continued link to the local government has both positive and negative implications for the water scheme. In terms of the positive implications, the local governments are able to use their clout and position as the local government to facilitate the work of the water boards. In terms of the negatively implications, the tie to the local government structure (if not only the physical structure but also the service provided) makes it possible that the process of providing the service gets influenced and affected by the internal affairs of the local government including the pace of work at the local government. Uphoff notes in his writings and the cases confirmed the slow pace of the governmental institutions and cast doubt on the local governments' ability to streamline the institutional set up to correct flaws. How the local governments address their internal pace of work remains largely beyond the CWSA. The thought of divulging the provision of the water service from the local governments has not been embraced by sector practitioners and experts yet, because of concerns about the risk of abuse by the management of the water schemes and the powerful people within the communities may appropriate the service process to their advantage and to the detriment of the poor. Since the local government is unlikely to be separated from the water systems in the near future, sustained advocacy that sends out messages which underscore the need for local governments to improve the support that they provide to the water systems (and therefore the other actor institutions involved) is necessary in order to create the opportunity for internally engineered support mechanisms within the local governments' structure.

- The influence of politics on functionaries: *Again, the CWSA should employ advocacy to get the heads of the local governments to place much premium on the local development priorities and intensions as contained in the development plans and be more "endo" (or seeking of the interests of the district's spatial territory) in their approach to development; as well as being broader minded on long term perspectives of the development of their districts.*

While pointing out the need for functionaries' performance to be monitored and assessed and making related recommendation, the more elusive challenge may be the political heads of the local government institutions who are appointed by their political parties and have interests in fulfilling their parties manifestos and not just the medium term development plans drawn up by the planning unit through participatory processes. Their preferences and allegiances play a key role in the direction in which they steer the affairs of the local government units which they head, and staff of the unit tend to tow their line. Often the choice is a personal decision made. With the strong link of the head of the local government institution to the national level, the agenda of getting the leadership to be more "endo" can be elusive especially because the chief executives are often selected and

positioned to further the interests of the parties that nominate them as chief executives. Nonetheless, this can be achieved through strong advocacy.

- The fashioning of community level institutions: ***Rather than superimposing the structure derived from the pilot phase, the water systems should evolve their community level institutional needs through facilitated processes; so that the community –level institutions (the watsan) can flourish when established.***

The complement of local actors in the water systems largely conforms to the specifications of the sub-sector policy guide. It seems to be the case that the various institutions are performing the roles that the policy guide identifies for them. The community level institution (the watsan) is an exception. That this community level institution's performance has either been allowed to wane or the institution has virtually not been allowed to function draws to question the mode of introduction of the watsan. Viewed from the role of the 'Top' the situation seems to be as a result of the extent of appreciation that actors have of the watsan. This community level institution was, based on the outcomes of pilot projects, created because experts viewed it as important to the institutional structure of the water system, at the community level – a seemingly plausible reason. However, that the watsan does not seem to be fully appreciated for the contribution it can make to the water scheme draws to question its origins. The cases suggest that if they had resulted from a gap or need recognised by the community they would have been more likely to be considered as essential to the system by the actors. In the Oyibi case for example, once there was a felt gap, effort was made to revamp the watsan activities which had been allowed to wane. The Oyibi Area Water Scheme (OAWS) had the benefit of previous experience of the system with a functioning watsan. In other words, if the participatory development theorists' proposition and that of the psychologist approach to explaining the setting up of formidable institutions is true, this will make the actors better appreciate the watsan's role as well as allow and support it to function.

Often though, a project cannot wait for a community to come to this realisation before introducing a relevant institution. Project funding may already have ended before the community comes to this realisation or the water scheme may already have collapsed as a result of the gap. For the above reasons, a mid-way has to be found without, abandoning the revelations of the pilot projects. Through the facilitated processes being recommended here, the local actors can be guided to a realisation of the need for community level institutions to complement their efforts.

- The interplay of interests and performance: ***The CWSA should draw attention to the performance gaps which emerge as a result of the play of interests. It should make the existence and proper functioning of relevant checks a pre-requisite for supporting districts that have already had such support and seeks further projects from the CWSA. This would help draw attention to the issues.***

The cases reveal that a major issue in the affairs of the water systems has been the interplay between needs, interests, perceived negative implications and benefits. While formal interests seemed to all favour the system, personal interests seem to play significantly in the affairs of the systems both positively and negatively. This was true for both community /individual beneficiaries of the scheme and the individuals who were

involved in the affairs of the water system by virtue of the desks they occupied. Actors' interests and preferences influence their performance in the water system. Beyond this, these issues also resulted in inter-actor influences that can have positive or negative implications for the water system. Indeed, although formal roles and procedures seem to have been elaborated by the sub-sector policy and are being used as a guide for the systems' operations; more remains to be done in terms of instituted rules and regulations that effectively give actors the impetus not to act or function in such manner that thwarts the water system.

The question remains how, what and in what form can mechanisms be introduced that make acting in such manner that favours the water system, and be attractive to the functionaries as well as the beneficiaries in the entire system? The diversity of socio-cultural contexts makes it virtually impossible to formulate detailed policy that addresses this issue adequately for each context. By creating circumstances (through the creation of rules, regulations and requirements) in which the actors see an interest in pursuing the right or appropriate course or alternatively seeing the implications of not doing so as too unattractive, the actors are likely to shape their performance in for fall in sync with the goals of the system.

- Access to technology: ***Through a policy of promoting inter-scheme co-operation, CWSA should encourage the piped-water systems to acquire the equipment; which can be periodically fitted to the pipe-network to detect leakages, or to hire companies that can periodically fit automatic detectors and assess leakages in the system on a rotational basis which allows each water scheme in the system to benefit.*** It is important that policy consideration is given to this issue as it has been a major challenge for the water systems just as with the national water company.

The technologies upon which the water systems were based were those considered appropriate for the local context. Accordingly, the technological approaches to running the schemes have been limited to the context specificities. The context specificities include the financial contexts of the schemes which make the water boards opt for cheaper and less efficient techniques such as seen in their efforts to control water losses. Water loss is an important problem as it could stifle progress in the affairs of the water schemes, however its resolution has so far eluded the schemes. To help reduce the challenge of water losses the sub-sector policy already limits the number of direct connections as a means of reducing the pipe-network and the potential for high water losses.

The limitations posed by the unwillingness of community members to pay higher rates for the water that they consume and their preparedness to use alternative sources of water make it further important that the issue of water loss is addressed. This is because by reducing the water lost to the barest minimum the water schemes can increase the volume of water that they sell to obtain more revenue and thus reduce the limitation to revenue posed by the community members' unwillingness to pay higher rates.

- The pluralist leadership structure: ***In the CWSA's small town water system operational guidelines emphasis should be laid on the need to concretise agreements in order to make the leadership structure of the systems less vulnerable to the play of power and interests that do not serve the shared interest of the water systems.***

The pluralist leadership/decision making structure that has been adopted by the water systems introduces the elements of power play; although it attempts to avoid the situation in which there is one lead actor who is able to make decisions unilaterally. It does so because although the institutions that are in the lead role have interest in the successful functioning of the water schemes, their interests oscillate in time and affects their reactions to the affairs of the water schemes either positively or negatively. The extent to which a lead actor goes is influenced by the power that the actor perceives that it has and its interests. The source of the lead institution's mandate and the amount of resources that it controls are what give it the power. The cases also showed that when an actor perceives that it has the capacity to take an action in its interest without any real harmful/negative implications (to itself), then it seemingly gets less willing to negotiate action.

More practically, such instances- in which the lead institution perceives that it has the power to take certain actions because it perceives that it is stronger and will have little or no real negative implications for its actions although its interests will be served- can result in significant shifts in the stance of the lead actor in different times of the project phase. Drawing from the source –the perceived superiority in power- the leaders in the water scheme although may have different roles ought to guard the system against hijacking by one lead actor. Equity in power relations may not be always assured but the systems can ensure that they get as close to this as possible through the checks that they institute to govern their relations. Therefore, such checks should include the steps to concretise agreements and make the leadership structure less vulnerable to the play of power and interests that do not serve the shared interest of the water system.

Recommendations for the local level

Since the water systems are seated at the local level, there exist efforts that the actors involved at the local level can make to help improve the performance of the water systems. For this reason it is ideal that the recommendations contained in this report also take into consideration the potential for the local level to contribute in this regard. In the following paragraphs, I attempt to address the local level.

- Leadership: The existence of multiple leaders who are relevant in seemingly variant ways to the water system calls for attention because of the challenges that they bring to bear on the water system. *To protect the system from the changeability of decisions of the institutions involved the unanimous decisions taken and agreements reached should be protected with appropriate documentation*.

- Monitoring and planning: My recommendations on monitoring and planning concern two key actors: the local government (i.e. its panning unit and the MWST) and the WSDB. *First, the local governments should make it a requirement for the planning units to present annual reports that specifically focus on the sectors or issues that they are specifically responsible for. This should not only be in the form of written reports but should include a forum at which management of the local government discusses the contents and adequacy of the reports.* Without regular monitoring and comprehensive assessments of the performance of the water schemes important opportunities to improve upon the performance of the water scheme can be missed. This responsibility which rests

with the planning unit should be done annually or every two years in a process which culminates in the planning unit presenting a performance assessment report to the district's management, the water board and traditional authority. This way it becomes something that the water board knows and expects as feedback on its performance which can help it improve upon its performance; and the planning unit feels obliged to do because the stakeholders expect it. Together the leadership can then share ideas on performance of the scheme.

Second, the MWST should encourage the WSDBs to plan and assist the WSDBs to develop their capacity to plan. The extent of planning in the affairs of the water schemes also requires redress especially because the schemes' plans could enable the MWST to exercise better oversight responsibility as it would highlight more clearly the intensions of the scheme and the direction of development. It would help bring up issues for monitoring that are much more specific to the local area than the national performance monitoring criteria that are currently being used are able to. When used as an augmentation of the current guide which the MWST is using it could provide a more holistic complement of issues that would strengthen the MWSTs performance on the oversight function. Whether the water boards have adequate appreciation of the essence of such short and medium term planning and have the capacity to plan ought to be ascertained by the MWST. Where this is found lacking the situation/existing capacity can be improved through processes facilitated by the MWST prior to the commencement of the actual institutionalisation of planning in the affairs of the water scheme.

- *Addressing implications of the human resource base*: ***The MWST in its monitoring activities should look out for capacity gaps and design or advice of the board on capacity building opportunities that will address the gaps.*** The limitations introduced by the community based composition of the water boards, when the members of the board have no prior experience in the management of water or other utility services, ought not to be ignored. Indeed, such conditions make the performance of the assessments by the MAs important for the successful performance of the water scheme especially because the MWSTs through such assessments can identify gaps in capacity, be able to prompt members of the water boards and where necessary provide training to strengthen their managerial and technical capacity.

- *Performance of the watsan*: ***As should pertain with other main actors, their interests and concerns ought to be heeded and addressed amicably on a level platform which leaves the actor feeling recognised and more willing to support the system; and the watsan ought not to be treated differently.*** This document has highlighted among others the play of interests as intrinsic to the manner in which roles are performed in the systems and the extent to which it can support or thwart the systems' processes. For this reason, although the watsans are not in the position to address the interests which they desire to fulfil by themselves, their interests ought not to be ignored.

While the above point holds for the Oyibi system where the watsans function, the same recommendation cannot hold for the Juaben system because the watsan seems never to have taken root in the system. Since the watsan was intended to serve as a bridge between the water board and the community ***the JWS' board should assess the current state of relations with members of the community that it serves to ascertain by itself whether the***

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non-existence of the watsan has indeed resulted in a gap in the flow of information with the community and failure to notice and adequately address problems which the community members face. The outcomes of such research and assessment of the opportunities that the existence of the watsan presents and weaknesses that its absence introduces to the water system would inform the board on the appropriate steps to take as far as the watsan is concerned.

Most of the recommendations contribute to the attainment of the CWSA's second specific objective for the small town water sector; which is to ensure sustainability through effective community ownership and management of facilities. At the local level, the water and sanitation development plans reveal that the recommendations have implications for the water and health sectors. For the TMA, the recommendations fall mainly under its policy strategy of playing a facilitating role in supporting all communities including small towns to plan, implement and manage their respective water and sanitation facilities and services; as indicated in its water and sanitation development plan 2008-2010. For the EJMA, the recommendations contribute to its policy strategy of playing a facilitating role in supporting all communities including small towns to plan and manage their water and sanitation facilities, as stated in its water and sanitation development plan 2009-2012.

Reflections on the conceptual level

Three identifiable findings feed into the concept that guided this research. These are the issues of technology, leadership and interests.

- *The level of accessibility of the technology required to support the endogenous process has to be considered in a framework designed to guide the development process.* The presence of technology to support the local development process is identified in literature as a prerequisite in the pursuance of an endogenous approach to development. However, the cases studied suggest that it is important also that the accessibility of the technology to endogenous projects is factored in; as the existence of technologies that can support the system does not necessarily make it accessible to the system. The two cases studied suggested this on the issue of controlling water losses. Currently, although available, the technologies for automatically detecting where water is being lost are beyond the financial capacities of both water schemes.

- *The local human resource base is an element that has to be factored into an endogenous framework for development, especially when the leadership of the process is highly localised.* As a result of the localised nature of the water supply system, and in particular the intermediate body, the quality of the leadership of the system appeared to be heavily dependent on and therefore affected by the human resource available locally. The local human resource base determined the kind of people who could be found to lead the system which in turn influenced the perceptions of the leadership on the management process and ultimately affected the operations and performance of the system. The research therefore suggests that for a self-managed process, the human resource base becomes an important element in influencing how far the development process goes to harness the local potentials from which it was itself created, and how well the development process is managed.

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- *The decision –making processes of the people involved should to be factored into the conceptual model because it weighs heavily on the endogenous process.* That the individual beneficiaries stood to benefit from participating in the collective efforts seemed not to mean they would not try to seek their self-centred interests. This can be explained as, that the collective benefits of the project were known did not mean the actors and beneficiaries were automatically prepared to support the water system always; or to make decisions that favoured the scheme. Therefore, that there is a leadership structure clearly defined and operational, as well as a participation in the endogenous process where local institutions are brought together with potentials and facilitating conditions seems not to be an adequate explication of a conceptual weighed against negative implications to the individual making a decision, and its implications on the actions of other actors (formal or informal actors- i.e. including those only in personal capacity) seemed intrinsic to the process. Personal interests influenced how actors reacted to the facilitating factors and the affairs of the scheme. Therefore revelations about the significant play of interests in the affairs of the systems as demonstrated by both cases cannot be ignored. The cases draw attention to the individual decision making processes of the functionaries involved as well as the beneficiaries. The ubiquitous emergence of the issue - of interest (or need)→ preferences as per the weighed interests (needs) or options→ perceptions of negative implications→ and actions - suggest that beyond the institutions, the endogenous process is hinged to the decision making processes of the individuals involved in a fundamental way; but which cannot be assumed to be constant (that is- unchanging). For this reason, the decision making process in which actors trade off interests based on their perceptions of the negative implications and preferences/weighted interests ought to be linked to the conceptual model in order to make it more comprehensive. This issue seems hardly highlighted by literature on the endogenous development approach. There exists a range of theories on human social behaviour that try to explain how humans cooperate and make decisions in collective efforts as well as personally; and although I do not intend to commence a discussion of these theories at this point, they may provide critical insights leading to the achievement of the sustainable operation of locality based projects under locality management. The following diagram is an attempt to summarise diagrammatically the conceptual findings in the peri-urban, local level's context in sub-Saharan Africa.

The diagram illustrates that from the already existing human resource base the quality of the most central leader which affects the way the actor responsible for determining what potentials exist and how or whether they get used is determined. The lead actors' perceptions of what can and should be done are also reliant on the quality of the leadership and influences what actions actually get taken. Alongside, the institutions and non-institutional actors (including the consumers of the water) make and take decisions in a process in which they feed in their interests which motivates them to act and their perceptions of the implications of their actions or inactions. Thus, the eventual output of the process is not limited to institutional interests.

LOCAL RESOURCES/ POTENTIALS

-Natural
-Economic
-Institutions
-Human

FACILITATING CONDITIONS/FACTORS (in district)

Decentralisation

Access to information and learning

Policy

Linkages

Participation

Distribution of roles & responsibilities

Existence and access to technical options as relevant to the natural setting and the context of the development project

INSTITUTIONS/ ACTORS

National level actors

Regional level actors

Local government level actors

Intermediate level actors

Community level actors

Private sector actors

INDIVIDUAL DECISION MAKING

(In)actions → Effects

Motivations

Interests

Perceptions of personal /team implications of (in)actions

ACTIONS TAKEN

Quality of the local human resource base → Quality of the most central leader of the system → Perceptions of development possibilities /how the potentials can be used

IMPROVED SAFE WATER SUPPLY IN PERI-URBAN SETTLEMENTS

E N D O G E N O U S   D E V E L O P M E N T

KEY

→ Direction of influence   ■ Start point   ⇒ Direction of flow of process   ⦚⦚⦚⦚ Existence of linkage in the harnessing process

Diagram 8.1   A modification of the conceptual model

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Recommendations for further research

- Planning in the perceived absence of need: The findings of this research indicates at some point the challenge of achieving actor/players appreciation or commitment to processes which was heightened at some phases of the projects but for which there is little or no urgency either because the needs that led to the willingness of the actors/players to commit to the process has been largely fulfilled or other issues that are perceived to be more relevant/important have arisen. In reality planners and development practitioners in Ghana encounter these challenges as they try to encourage development at the local level. If a community prefers to have a brass band instead of a water project even though the society is experiencing challenges associated with use of unsafe water, what should the planner or the practitioner do? The brass-band is the community's priority and they are willing to pool resources to support the attainment of the band because of the prestige it will bring the community. Additionally, they perceive that their fore-fathers used unsafe water and yet survived and lived long. However from the professional health, development or the planning perspective, it may seem more meaningful to opt for the water project as there are project funds available for it and it has several spill-over effects. ***Further research into peri-urban context of the handling of such dilemmas –which is similar to what the watsan in Oyibi present – and drawing from practical experiences that highlight successes and challenges, will help provide useful insight for planning the handling of locality based, peri-urban development projects.***

- Prospects for augmenting the model with other models need to be checked: The conclusions of this research suggest that there exist gaps in the conceptual model that guided the study which need to be addressed. One of the conclusions derived from the research was that there was a role for personal decision-making processes and this should be factored into the model. However, the research findings do not point out which conceptual model on human social behaviour can best support the endogenous development model. ***Due to the prominence of the issues of social behaviour in the study I recommend further research into the theories of human social behaviour and decision-making to find out how best they can be introduced to support the endogenous model of development.***

- Relevance of the recommendations: This study focused on two cases from which I drew conclusions and made recommendations for policy and concept. However, the adaptations recommended of the model that guided the research were not examined to ascertain whether they make the model conclusive enough. The contribution of this research would be most meaningful if the insights that it has provided make the development model more relevant to the peri-urban context and does so comprehensively. When the postulations of existing literature and the findings of this research are brought together, can it be said that the necessary issues that have to be unearthed been unearthed now? This remains unclear. ***There is thus a need for further research to test the current body of knowledge of which the findings of this research***

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is now a part, to ascertain its adequacy for guiding development in the peri-urban, local level's context in Ghana.

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ANNEXES

THE INSTITUTIONAL PROCESSES THROUGH WHICH THE WATER RATE WAS RE-SET

1. The executive management of the OAWS realises the need for the rate charged to be increased
2. This need is communicated to the board by the executive management
3. Community representatives on the water board discuss the need for a change/review of water rate
4. Through the watsan, letters were sent to the chiefs and community leaders informing them of the desire of the WSDB to meet them on the issue
5. Meeting held with chiefs and opinion leaders to inform them of the WSDBs intensions
6. The WSDB sends letters to watsans in each community to tell them to inform the communities on the WSDBs intentions to meet with the community
7. The watsan mobilises the community for a meeting with the WSDB
8. The WSDB holds meeting with community members in each community to put the issue before them
9. The WSDB writes letter to TMA to inform TMA of need to change the water rate
10. The WSDB drafts a proposal after the community level meetings were done to inform TMA of need to change the water rate
11. WSDB submits the proposal sent to TMA addressed to the MCE
12. MCE passes the proposal on to the management team to look at
13. The management team passes the proposal to the planning department to study for its advice.
14. After reviewing the contents of the proposal, the planning department discusses content of the proposal and its recommendations with management team
15. Meanwhile, the WSDB gives the communities hint of upcoming review of rates at the annual durbar
16. The planning department refers the proposal to the sub-committee for works to assess after it presents is recommendations to the management team that the rate needs to be reviewed.
17. The WSDB sends out letters to all chiefs to inform them of the pending change in water rate
18. The sub-committee for works reviews the proposal and forwards it to the authority meeting with its recommendations.
19. Authority meeting comprising heads of sub-committees meets to assess proposal and consequently refers it to general assembly.
20. TMA's budget unit makes budgetary provision for this project in the annual budget
21. The MPO presents the proposal at the general assembly meetings after the authority meeting agrees with the contents
22. The general assembly approves the new rate
23. The WSDB sends out letters sent to all consumers informing them of the pending change in water rate.
24. TMA puts this for the year 2008 for political reasons
25. TMA gives approval for the WSDB to commence charging the new rates from Jan 2009 in Dec after 2008 elections
26. WB starts charging new water rates in Jan 2009

Annex 1   Bullet point accounts of the re-set of water rates and the extension of the OAWS

Source: Author's construct, 2011

Annex 1 cont'd. THE INSTITUTIONAL PROCESSES INVOLVED IN THE EXTENSION OF THE OAWS

1. WSDB detects a need to increase its sources of water

2. WSDB writes letter to inform TMA of need to extend the water scheme and the need to approach CWSA for the Akono borehole

3. The MWST receives the letter to TMA and passes it on to the MPO

4. The TMA acts on the WSDB's request by contacting th CWSA on behalf of the WSDB

5. CWSA releases the Akono borehole to the WSDB 2-3 years later

6. WSDB meets with the MWST coordinator to discuss its need further

7. The WSDB prepares a proposal on the desired expansion of the water scheme and then submits it to the TMA through TMA's rep on the WSDB.

8. The TMA's representative on the WSDB submits the proposal to the MWST coordinator who then submits it to the management team

9. The proposal is then passed on to the planning department by the management team to review

10. The MWST coordinator and the budget officer invite the WSDB for discussion and decision making on how to go about the procurement process

11. The MWST coordinator then discusses the content of the proposal discussed with management team at the management team's meeting.

12. Afterwards the planning department refers the proposal to the sub-committee for works to assess the proposal.

13. The sub-committee for works looks at it and refers it to the authority meeting with its comments.

14. Authority meeting comprising heads of sub-committees meets to assess proposal and consequently refer it to general assembly.

15. The MPO/MWST coordinator presents the proposal at the general assembly for members to approve if members of the authority meeting are okay with the proposal.

16. The general assembly approves the proposal.

17. TMA officially gives the WSDB approval for the extension to be done.

18. Meeting arranged for the executive management of the water scheme and the TMA's procurement board to discuss the issue.

19. TMAs procurement board gives approval for the project

20. The executive management of the OAWS gives the general board (WSDB) a report on the procurement committees approval of the project

21. The WSDB through the executive management collates invoices from contractors

22. The WSDB discusses the invoices and selects contractors to implement the project.

23. The WSDB holds meeting with chiefs and elders of Akono to inform them of the release and the WSDB's intensions of developing the borehole.

24. Chiefs and community leaders agree to the intensions of the water board to mechanise the borehole

25. The WSDB (at meeting with chiefs and elders) obtains advice that the use of an old road as a less expensive option for laying the pipelines

26. The WSDB gets a surveyor to demarcate the old road clearly so that pipes can be laid along the road.

27. The project gets implemented by the WSDB using direct labour

28. The general project supervision is done by the executive management of the scheme.

29. Consultants/contractors are tasked to supervise the very technical aspects of the project

30. Project construction completed (currently there are a few things to be completed before the project can be commissioned).

31. The WSDB will send a letter written to TMA on completion of implementation to invite the TMA to participate in the completion of the project.

Source: Author's construct, 2011

Annex 2   Sample of household questionnaire (Twi)

ADESUADEƐ/NHWEHWEMU NO NYINSOƆ

Nsemmisa a edidisoɔ yi ka nsemmisa ne nketahodie ahodoɔ a yɛnam so deeyɛ nhwehwɛmu ne adesu adeɛ afa kwan a yɛbɛtumi de □nkuro nketowoa□ so nsuo mpontuo aboa asi nsusɛm ho haw a yɛhun u no wɔ kuro ne   mpɔtɛmo babiree wɔ Ghana ha. Nhwehwɛmu no nyinasoɔ a edimuu paa ara ne sɛ ɛbɛboa na akyerɛ ɔkwan a yɛnam so betumi de mpontudwuma a ɛfa nsuosɛm ho aba nkuro nketewa a ewɔ mpɔtemoo ha, na ɛnam so yɛtumi de akɔ Ghana afanaa nyinaa. Wo yɛ kuroba yi, mepɛ sɛ me fa s aa akwanya yi so ne wo twetwe nkɔmɔ fa nsuo a wonya firi Oyibi mu no ho. W□adwenkyerɛ beboa a ma nhwehwɛmu hi adi mu na ɛnam so aboa Ghanafoɔ nyinaa.

NSƐMMISAFOƆ HO NSƐM
Nsɛmmisafoɔ no din...Da a Ɛtɔ So..................................
Kuro anaa mpotɛmoo din..

NSƐM NO MUAEFOƆ HO NSƐM
Muayɛfoɔ fie noma...   efie a ɛtɔ so..
Ehenefa na efie no si...
Efie no ahosuo/ ahyensodeɛ..
Neɛma titiri bɛn na ɛbɛn a ɛbetumi ama y'ahunu fie no?
....
....
Muayɛfoo no din ....   Barima ☐   Ɔbaa ☐
Wo abusuakuo a ete fie ha ye sɛn?..
Musuakuo dodoɔ sɛn na ɛwɔ fie ha?   Abusuakuo baako ☐   Musuakuo Ahoroɔ bebiree ☐

NKETAHODIE MU NSEMMISA
1.   Wo nya nsuo firi Jubenman nsuo no no mu?   Aane ☐ Daabi ☐
2.   Se wo buaa daabi a aden nti (ma nkyerɛkyeremu)?
....
....
3.   Ehenefa bio na wo nya nsuo de ye wofie adeɛ?
....
4.   Hena na Juabenman nsuo no ye ne dea? Asemble no☐ Kuro mu ha hene☐ Aban☐
      Nkuro a wonya so mfasoɔ nyinaa☐ Kuro baako pe (bɔ din)☐ Me nnim☐
5.   Adɛn nti na woreka saa? ma nkyerɛkyeremu
....
....
6.   Hwan na wodi STWS no anim wo kuro mu ha? WSDB abedwakuo no☐ Asɛmbly no ☐
      WATSAN ☐ Ahenfo ☐Ɔmanfoɔ ☐
7.   Mepa wokyew kyerekyere womuayɛ no mu
....
....
8.   Ansa na nsuo yi rebɛ kuro yi mu no, wo boa yɛ?   Aane ☐ Daabi ☐
(sɛ nyianoofoɔ no buaa daabi a kɔ nsɛmmisa a ɛtɔ so dubaako)
9.   Sɛ wo buaa aane a mepa wokyew kyere ɔkwan a wofaa so boaa yɛ?

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....

....

10. Edeɛn potee na ɛhyɛ wo nkoran ma woboaa yɛ? Akwanya sɛ menya nsuo☐ Eyɛ nhyɛ☐
    Metiaseɛ sɛ eye m☐asodie☐ Sɛ ɛyɛ biribi foforo a kyerɛ...

11. Se wo buaa daabi a kyere dee nti? Na mente ha saa bre no☐ Na m☐ani nye ho☐ M☐asodie☐
Sɛ ɛyɛ biribi foforo a kyerɛ ....

12. Wo daso de wo ho hyɛ nsuo yi ho nhyehyeɛ mu? Aane☐ Daabi☐
(Sɛ nyianoofoɔ no buaa daabi a kɔ nsɛmmisa a ɛtɔ so dunum)

13. Sɛ wo buaa aane a, mepa wokyew kyere ɔkwan a wofaa so boae

....

....

14. Sɛ wobuaa aane a ɛdeɛn potee na ɛhyɛ wo nkoran ma woboa? Akwanya sɛ menya nsuo ☐
Ɛyɛ nhyɛ ☐ Me tiaseɛ sɛ eye m☐asodie ☐ Sɛ ɛyɛ biribi foforɔ a kyerɛ ☐..

....

14b) Sɛ woyii muae no mu nea eboro baako a, hyehyɛ no nidisoɔ kwam so
Deɛ edi kan ....
Deɛ eto so mienu...
Deɛ ɛto so miensa..
Deɛ ɛto so nnan...

15. Sɛ wo buaa daabi a aden nti (ma nkyerɛkyeremu)? Na m☐ani nye ho☐ Me nya nsuo firi
baabi foforɔ☐ Sɛ ɛyɛ biribi foforo a kyerɛ ☐ ....

16. Mepa wokyɛw hyehyɛ wo muaye no nidisoɔ kwan so?

....

....

17. Sɛ WATSANfoɔ no hyia toatoa adwene fa nsuo no ho a woko bi? Aane☐ Daabi☐

18. Se wo buaa aane a empere dodoo sen na wo ko bi? Baako nawɔtwemmienu biara ☐
    Baako abosome miensa biara ☐ Baako afe biara☐ Sɛ ɛyɛ biribi foforɔ a kyerɛ ☐.....................

....

19. Sɛ wo buaa aane a aden nti (ma nkyerekyeremu)? ....

....

20. Sɛ wo buaa daabi a aden nti (ma nkyerɛkyerɛmu)?

....

....

21. Ansa na nsuo yi reba kuromu ha no, kwan bɛn so na na mo fa so nya nsuo?
21b. Afei nso kwan ben so na an kuro no faso bɔ baabi a monya nsuo no ho ban?

....

....

22. Sɛ wode kwan a na mofa so bɔ kanee nsuo no ho ban no toto nnɛ deɛ yi ho a, nsɛsodeɛ bɛn na
wo hunu?

....

....

23. Akyedeɛ ne nneɛma titiri bɛn na ewo kuromu ha a enam so betumi de mpontuo aba?

....

....

b) Emu deɛ ɛwo hene na na ɛboa ma Juabenman nsuso yi ho adwuma ne mpontuo rekɔso? kyerɛ
kwan a ɛfa so boa

....
....

24 Wɔadwene mu no, sika pɛ nwuma ben na ewo kuro yi mu a eboa ma Juabenman nsuo no kɔ
so? kyerɛ kwan a saa nwuma yi fa so boa nsuo no nkɔsoɔ
....
....

24i. Nipa anaa nwumakuo bi wɔ kuro yi mu a ɔtɔne anaa sɛ ɔyɛ nsuo no ho akadeɛ ne neɛma a se ese
ɛ a wɔde siesie? Aane   Daabi
24ii. Sɛ wo buaa aane a aɛn nti, bɔ bi din
....
....

24iii. Mo wɔ nnipa nimdefo *(electricians, plumbers, welders)* wo kuro yi mu a wotumi siesie
        STWS no aberɛ a ɛho ate kyema?   Aane ☐ Daabi ☐
 24iv. Sɛ wo buaa aane a bobɔ ebi din? ....
....

25. Kyerɛ wɔadwen fa nsuo a wonya firi Juabenman nsuo no mu ho fa;
   • Nsuo no anii fɛ? Eho behia sɛ wo bɛyɛ biribi afa ho?
   • Nsuo no pampae? Eho behia sɛ wo bɛyɛ biribi afa ho?
   • Nsuo no dɛ? Eho behia sɛ wo bɛyɛ biribi afa ho?
Nsuo no anii fɛ?...
....
Nsuo no dɛ?..
....
Nsuo no pampae? ....
....

Nsuo dodoɔ a wonya
Mepa wokyew, ka wo suahunu fa nsɛmfua a ɛdidisoɔ fa Juabenman nsuo no ho
26. Dɔnhwere dodoo sen wo dakoro mu na wonya nsuo firi Juabenman nsuo no mu? Dɔnhwere aduo
nuna☐ Dɔnhwere dummienu☐ Dɔnhwere nsia ☐ Dɔnhwere mmiensa☐ Sɛ ɛyɛ biribi foforoɔa
kyerɛ ☐...
27. Nsuo no ba fiti berɛ bɛn kosi berɛ bɛn?..
28. Wo gye di sɛ edeɛn nti na nsuo no mma dabiara?
....
....
....
29. Wo nya nsuo ma ne so wɔadeyɛ nyinaa dabiara da? Aane ☐   Daabi ☐
30. Sɛ wo buaa daabi a, adɛn nti (ma nkyerɛkyerɛmu)?
....
....
....

Nsuo ho ka
31. Ɛmperɛ dodo sɛn na wotua nsuo ka? Sɛ Me tua a na m'bu dabiara ☐ Bosome biara ☐ Sɛ ɛyɛ bi
ribi foforoɔ a kyerɛ☐ ....
32. Ɔkwan a wotua nsuo ka no yɛ ma wo?   Aane ☐ Daabi ☐
33. Me pa wokyɛw kyerɛ wo muae no mu

....

....

34. Eberɛ a wotua nsuo ka no yɛ ma wo?   Aane ☐ Daabi ☐

35. Me pa wokyew kyerɛ wo muayɛ no mu

....

....

36. Nsuo 34 bokiti baako ye sen? ....

37. Eboɔ no te wo sɛn? Ɛda fɔm ☐ Ɛda fɔm kakra ☐ Ɛwɔ sro ☐ Ɛwɔ sro dodo ☐

Me pa wokyɛw kyerɛ wo muae no mu ....

38. Nsesayɛ bɛn na wonya a anka wopɛ wɔ nsuo no boɔ ho?

....

....

39. Bosome biara mu no, wode wani bu a sika sɛn na wo de ye efie ntotoyɛ?

(ayie, sukuuho ka, ayaresa ho ka,ntaadeɛ ne nkanea ho ka)

....

....

40. Ɛka sɛn na wobɔ wɔ nsuo ho bosome biaara? GHC 1-10☐ 11-20☐ 21-30☐ 31-40☐ 41-50☐
    51-60 ☐ 61-70 ☐ >70 ☐

41. Da bɛn na etwa too a wonyaa nsuo firii baabi foforo ka Juabenman nsuo no ho? ....

42. Ehene fa na wonyaa saa nsuo no firii yɛ? ....

43. Nkotabuo nhyiamu bɛn na mpanimfoɔ a wohwe nsuo yi so afrɛ nansie a wako bi? Bosoeme a etwaamu yi☐   Bosome mmiensa a etwamu yi☐   Afe a etwam yi☐ Metee nso na ɛho nhia me☐ Metee nso na eye Watsanfoɔ nhyiamu nti mankɔ☐   Mante ho hwee☐   Sɛ ɛyɛ biribi foforɔ a kyerɛ☐ ....

44. Mperɛ dodoɔ sɛn na nhyiamu a ɛte saa tae ba so?
Afe biara☐   Bosome mmeinsa biara ☐ Mennim ☐

45. Ɔkwan bɛn so na Juabenman nsuo yi anya nsunsuansoɔ wɔ wo so (kwan pa ne bonee so)

....

....

46. Wadwenkyerɛ wo kwan bi sei a wofa so ma kuro bi so foɔ nsuo ne sɛn?

....

....

47.   Kwan a wo fa so nya nsuo firi Juabenman nsuo no mu no te wo sɛn? Mani gye ho paa☐ Mani gye ho ☐ Mani gye ho kakra ☐   Mani nnye ho koraa ☐

48. ƆKwan bɛn so na yebetumi aye Juabenman nsuo no be yie paa ara ama wonya ahotosoɔ wɔ ne an idasoɔ wo mu?

....

....

Annex 3   Interview guide for the District Water and Sanitation Board

HARNESSING LOCAL POTENTIALS FOR WATER SUPPLY

Data Collection tool for the District Water and Sanitation Board

Tool: Interview guide   **Respondents:** District Water and Sanitation Board

Introduction:

This interview forms part of a set of interviews and discussions being undertaken as part of an academic research to assess the prospects of the STWS as an option to solving the water supply challenges that exist in Ghana's peri-urban settlements. One of the aims of the research is to develop recommendations to help improve the Small Towns approach and the replicability of the system in other parts of the country.

As a result of the key nature of your role as the board responsible for the STWS, I have chosen to have a session with you to discuss the issues that concern the implementation of the --*Oyibi / Ejisu Juaben system*--. Your input will help enrich the contents and findings of this study.

Questions:

CATEGORY A: Questions in this category seek to establish the district's developmental orientation and direction as regards water supply.

  * Where do you hail from?   ***** How long have you been here in this district?

1.   When was the scheme established?

2.   a. Has membership of the board changed since its formation?
      b. What is the constitution of the board?
      c. How are the members of the board selected?
....
....

3.   In what ways did you participate in the preparation of the district development plan?
....
....

4.   Is there a plan which has been drawn up to guide the affairs of the water scheme?
....
....
If yes, can I have a look at it?.............................

5.   What potentials exist at the district that can be used to support the system?

....
....

PLEASE TELL ME THE STORY OF THE OYIBI/JUABEN SYSTEM*
CATEGORY B. Management of the system

6.   Is the system being run on a 'for profit'/ cover total supply cost / subsidised basis/ free or charitable basis?

....
....

7.   What are some of the steps that you have taken to ensure the continuous operation of the system?
Administrative/managerial ....

Financial..
Operational/Technical...
Human resource ....
Other ....

8. Please tell me some more about how you are operating the system

i. To which consumption units is water being supplied (eg. single household connections, multiple household connections, public stand pipes, institutions, etc.)
ii. Billing method for the various consumption units
iii. Delivery mechanisms being used
iv. Record keeping or database management
v. Determination of rates
vi. Annual budgeting
vii. Ability of rates to cover the full supply cost[*] (operation, maintenance, rehabilitation and expansion costs)? Please provide reasons for your answer.
viii. Performance of internal audits
ix. Performance of annual external accounts audits
x. Accountability and transparency to community
xi. Where you source parts and fittings for the system

....
....
....

Rates

9. How much is charged per litre of water? ....

10. How was the rate set? ....
....

11. Who set the rate? ....

12. Are consumers able to pay the rate? ....
....

13. What percentage of consumers are able to pay? ....

14. What are the reasons consumers default in payment? ....
....

Community level skills

15. Please give examples of people within the community selling or producing parts for the pumps and other machines being used in the water supply process, if any.
....
....

16. Are there mechanics or fitters, etc within the community who attend to the STWS? Please provide examples.
....
....

17. Are there mechanics or fitters, etc within the community who are trained and have the skills to attend to the system, although they are not doing so now? Please provide examples and explain why.
....
....

18. How long did the training done for the plumbers by the local plumber last? ....

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CATEGORY C. Questions in this category focus on organisational, institutional and service delivery mechanisms that have been put in place to facilitate the STWS

19. Who are the main actors in the district's STWS? And what are their roles?

a) ....

....

b) ....

20. Please give examples of how they affect you in your role *(including what they are doing well)*.

....

....

21. Who/ which organisation is leading and coordinating the entire process?

....

....

22. Please give me examples of how the DA supports you in your role and the system as a whole; as well as the benefits and difficulties you have experienced.

....

....

23. Please give me examples of how you support the scheme through your role.

a. Leadership's commitment	i. Access to information from other districts or the region
b. Mobilisation /use of locally available resources	
c. Common understanding & commitment among actors, functionaries and communities	j. Sharing of information using local communication and information networks
d. Coordinating sector activities and fostering cooperation	*Exploiting linkages and relations*
e. Exploiting inter-institutional linkages and relationships	k. Taking advantage of linkages/movement /exchange relations: intra-district, inter-district and district –national level institutions
f. Coordinating sector activities and fostering cooperation	
g. Fostering community involvement (in planning, designing, implementation, operation & maintenance, and monitoring)	*Local economic activities*
Learning and communication	l. Taking advantage of local entrepreneurial activities
h. Learning, knowledge and skill generating and maintaining	

....

....

24. Give examples of how communities have participated in the STWS. –**Planning**, **Designing**, **Implementation**, **Operation** and **maintenance**, **Monitoring**, and **Making decisions**.

....

....

25. Please explain how you have succeeded in motivating communities to pool resources to support this system; and challenges that you have had faced.

....

....

Finance

26. Please give examples of some financial resource challenges you have faced while managing the system

....

....

Culture

27. Please give examples of how the local culture has supported or thwarted your efforts.

....

28. Please give some examples of how external institutional arrangements (organisations/ frameworks/ structures/ processes) interfere, limit or influence adversely your performance and the achievements of plans/ efforts/ goals for the system. Or facilitate them.

....
....

CATEGORY D: Achievements and challenges

29. Please give examples of other successes that the system has had so far?

....
....

30. Please give examples of how you (DWSB) and the use of district's own **resources** and **local actors** contributed to these successes and benefited:
   i) The community   ii) The local government   iii) The district

....
....

31. Please give me some examples of challenges or failures that you have experienced in your role? (**technical**- equipment or human resource in terms of number and skill, **economic**, **political**, **ecological**, **informational** and **communicational**, **operational**)

Administrative/managerial...
Technical ....
Political ....
Financial ....
Human resource ....
Others ....

32. Please explain using your experiences, how local factors or the lack of them may have contributed to these problems?
....
....

CATEGORY E: Questions in this category focus on the viability and replicability of the STWS

Some of the problems that the GWCL system faces are:
– Loss through leakages
– Poor collection rates (were governmental agencies default more than private consumers do)
– Poor headline efficiency [+]
– Low rates charged consumers which do not cover production costs
- Maintaining good drinking water quality

33. Please give examples or instances of how you have succeeded in avoiding these problems.

a. Measures	provision from the previous GWCL monopoly.
b. The recent decentralised planning system	
c. Decentralising/ splitting the roles of water	d. Reliance on local potentials

....
....

[+]   Where this is expressed as the percentage of water produced which is converted into income collected.

34. Please give suggestions on how this district based water supply approach be improved? You may use examples.

    a. Harnessing local potentials (ecological, economic, socio-cultural, political, human) and taking advantage of traditional water management approaches

    b. Obtaining participation and/or commitment (among local officials, leadership, communities and stakeholders) to endogenous strategy being adopted for water supply

    c. Taking advantage of linkages and of exchange relations

    d. Developing and maintaining local knowledge and skill

    e. Learning

    f. Improving performance of actors (capacity, mandate, policy, etc)

    g. Taking advantage of local economic activities

    h. The sustainability of the system

....
....

CATEGORY F: Concluding comments

35. Based on your experiences, would you say that the district has the requisite resources locally to make the small towns approach work?
....
....

36. Please give examples of ways in which government and other actors can support such a district based water supply system and your role?
....
....

37. What contribution do you think the system will be making to the district 5 years from now?
....
....
....

FURTHER QUESTIONS FOR THE OYIBI WSDB

During my visit to the water scheme last year, I asked several questions to which you provided me answers. My efforts to analyse the data I collected has brought up some more question which I would like to ask you in order to help complete the research process. Your input is of much importance to the process.

INTERVIEW

1. [QUESTIONS ON INTERACTION WITH OTHER ACTORS]

Record in tabular format on extra sheets.

Purpose: To assess the extent and nature of interaction among stake holders

    i. Who are the main actors you interact with?
    ii. Why do you interact with these stakeholders?
    iii. How often do you meet with each of the mentioned main actors in a month?
    iv. Can I have look at 3 documentations in which you communicate about meetings with each of the above mentioned actors?

v.   In what other ways do you interact with these main actors?
vi.   Please rank the actors according to how intensely you interact with them?
vii.   Please provide reason for the ranks you have given
viii.   What can you show to support this (proof)?
ix.   Who usually is the originator of the communication or interaction process in the context of each of the actors?
x.   Please explain your answer to the above question
xi.   What is the dominant channel you use for communicating with each of the above mentioned actors?

(The levels of the actor mobilisation efforts of the water scheme)
Purpose: To find out the levels at which the various actors get mobilised

In my previous interaction with you and other the key actors in the water scheme, I gathered that there are efforts made to mobilise the various sub-sector actors to advance the goals of the (.....*Oyibi*....) water scheme. Among the actors that you identified were the private sector, the water board, the MWST, the chiefs, the metropolitan Assembly, academic institutions, and individual community members.
xii.   Are these actors potentials mobilised for policy /strategy level support or for implementing the policy /strategy decisions already made?

   Policy /strategy level   – Actors names   Implementation level - Actor names

2.   [QUESTIONS ON MOTIVATION FOR ACTIONS TAKEN BY THE BOARD AND OTHER ACTORS]

   i.   What motivates you to take the actions that you take in the operation of the water scheme?
   ....
   ....

   ii.   What are the implications of not taking the actions that you take for you as managers of the scheme?
   ....
   ....

   iii.   Which of the implications is graver to you? Please rank them in order of gravity.
   ....
   ....

   iv.   How do you determine what actions have to be taken to support the water scheme?
   ....
   ....

3.   [QUESTIONS ON PERFORMANCE MONITORING]
Purpose: To find out about the mechanism for monitoring the scheme's performance

   i. Through what process do you assess your performance on your role? Please narrate to me how you did this last year.
   ....
   ....

   ii. Who is responsible for assessing the performance of the board on its own plan (the technical details)?
   ....
   ....

   iii. Please narrate to me how this actor did this last year.
   ....
   ....

   iv. What is your assessment of the schemes performance over its years of operation?
   ....
   ....

v. Please explain to me how you arrive at this conclusion (the parameters considered and how you derived them)

....

....

4. [QUESTIONS ON INTERESTS AND INFLUENCE COME HERE]

Record in tabular format on extra sheet.

Purpose: To capture the interest and power relations among the various actors

i. What are your interests in the OAWS? ………..………...…………………………………………

ii. Please rank your interests in order of priority: ....

Interests

iii. Please comment on the interest of that some other actors have in the success of the scheme?

iv. What issues influence the actor's interest in the scheme

v. Which actor has the most interest in the scheme (Please rank all the actors with 1 being the highest)

Influence

vi. Where is the influence of the actor most found Policy, Strategy determination, Operations , Monitoring. (Indicate for each actor order of areas of most influence, if the area of influence is more than one)

vii. Does this actor have influence on what you do?

viii. If yes, why does this actor have influence on what you do?

ix. Please rank the stakeholders in order of the extent of influence on the decisions of the scheme (1 being the topmost rank)

x. Please rank the stakeholders in order of the extent of influence on the implementation of the decisions of the scheme (1 being the topmost rank)

5. [QUESTIONS ON LEADERSHIP OF THE SCHEME COME HERE]

Record in tabular format on extra sheet.

Purpose: To capture the importance and influence of the lead institutions in the water processes

From earlier interactions with the key actors in the metropolis, I understood that extension of the water scheme and rate-setting are key activities in which actors (from the MA to the communities) are somehow involved. If so,

i) please narrate to me your last experience on how the process of extending the water scheme got done;

ii) secondly, please narrate to me how the last process of re-setting water rates got done.

In both recounts, please indicate the actors involved and the various roles they played, including your institution's.

i) How the last extension of the water system was done?
Events/actions - Actor(s) who took the action - Reason(s) for actions taken - Effects of actions taken and how it helped the next stage of the process - Other comments

ii) How the last re-set of the water rate was done
Events/actions - Actor(s) who took the action - Reason(s) for actions taken - Effects of actions taken and how it helped the next stage of the process - Other comments

OPERATIONS OF THE WATER SCHEME

6. Water production continues to increase but revenue is dropping although the rates stay same. What are the reasons? ....

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ASSESSMENT OF THE USE OF POTENTIALS BY THE WATER SCHEME

Purpose: To capture the perceptions about the use of locally available resources

In my previous interaction with you and other the key actors in the water scheme, I understood that the potentials of the area are related to the human beings, business activities, existing institutions and the natural environment of this area.

Using symbols, three signs '-','+', 'o' please grade the extent of use of the potentials (where - means you hardly know of evidence that it is being used, '+' means the potential is being used and 'o' means the potential is being used intensively) Use '99' if you have absolutely no idea.

Information on potentials in Oyibi

No.	EXPRESSION OF POTENTIALS AVAILABLE TO THE OAWS	GRADE
1)	Underground water that is suitable for human consumption	-
2)	A hill that gives the potential of using gravitational force to distribute the water	-
3)	The growing population of the area.	-
4)	A fairly educated population including the chiefs and community elders.	-
5)	Presence of communities which are willing to support the localised water system; including the operations and maintenance of the system.	-
6)	Presence of knowledgeable people who can be consulted by the board to give the board expert advice on issues	-
7)	Presence of people who are 'well connected' and so have contacts that can be tapped by the board to its benefit.	-
8)	Community-based groups	-
9)	Opinion leaders	-
10)	Presence of non-indigene-communities like the universities and estate developed in the area which brings along middle income earners who have greater ability to pay the water rates.	-
11)	Real estate development activities in the Oyibi area that attract people to the Oyibi area	-
12)	Small scale businesses such as chop bars and road side eateries, block making, and gari processing that rely much on water and provide market.	-
13)	Welders, electricians and battery technicians who provide regular maintenance service to the scheme.	-
14)	Presence of trainable people. These are people who can be trained to serve on the board	-
15)	Presence of people who could and were trained to serve as technical operators to maintain the pipelines and metres.	
16)	TMA's willingness to allow the engage in PPP	-
17)	TMA's political power and mandate to assist the board in implementing and achieving its goals. The TMA is legally mandated to for example gazette decisions of the WSDB.	-
18)	The existence and functioning of a dual leadership system	-
19)	Presence of university and academic institutions that have the knowledge and links that can be exploited to support the scheme: Valley View University, Goodnews Theological College and Seminary. Others are primary schools and junior secondary schools in the area.	-