

Using internal incentive contracts to improve water utility performance: the case of Uganda's NWSC

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Received 26 April 2005; accepted in revised 29 March 2006

Abstract

The achievement of Millennium Development Goals (MDGs) by 2015 requires significant managerial innovation and creativity, especially in low-income countries where utility inefficiencies are still most prevalent. This paper describes approaches that have been used in Uganda's National Water and Sewerage Corporation (NWSC). We outline the potential for internal incentive contracts in delivering efficiency gains under public–public water management settings. No simple recipe for promoting efficiency exists. However, this paper highlights useful ingredients, including proper contract framework design, competition for managerial responsibility, effective business planning, performance monitoring and the use of managerial incentives. We conclude that these factors require careful consideration during the planning and implementation of incentive contracts.

Keywords: Contracts; Incentives; Performance; Uganda; Water utility

1. Introduction

The achievement of Millennium Development Goals (MDGs) by 2015 as agreed in Kyoto, Japan, poses a number of challenges. One of them is whether or not half of the people without water will be served by 2015. This question is more relevant in low-income countries, where the service coverage levels are in the range of 30–80% and have stagnated over time. This access problem is driven by two factors: first, the managerial inefficiency issue and second the huge investment requirements. It is now common knowledge that the first issue has a significant influence on the second because of poor resource

doi: 10.2166/wp.2007.010

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optimization practices. In many of those countries where service levels are inadequate, there is gross misuse of financial resources through over-expenditure; in addition, revenue generation practices are inadequate, as collections are low and service quality is poor. Such utilities lack strategic prioritization and optimal resource allocation. This has in turn resulted in a huge backlog of requisite actions to enhance service delivery and access in these countries. Over time, stakeholders, including governments and development partners, have taken a keen interest in ensuring that progress is made toward solving these problems. As a result, most countries have, in the last 10 years, embarked on a number of reform and restructuring activities to improve performance.

This article outlines a wide range of water sector utility management issues and performance improvement approaches that have been used in NWSC. We emphasize internal incentive contracting as a significant performance driver. The themes discussed include contract framework design, business planning and competition for managerial responsibility, gain (incentives) sharing plans and modes of performance monitoring. In order to give a better understanding of these themes, we first present the performance improvement trends that have resulted from NWSC initiatives.

2. Overview of NWSC overarching performance improvement approaches

Mugisha *et al.* (2004a) outline a number of performance enhancement programmes that have been initiated and implemented in NWSC since 1998. These include 100-Days Programme (February–May 1999) and the Service and Revenue Enhancement Programme (August 1999–August 2000). To consolidate and improve performance further, the NWSC headquarters later entered into Area Performance Contracts with its subsidiary utilities to increase managerial autonomy, introduce performance incentives and hold the subsidiary operators more accountable. These contracts with NWSC were one-year renewable contracts and were in effect for three consecutive years (2000–2003).

In addition, NWSC has promoted some private sector participation, mainly in the form of management contracts in the Kampala Water Supply Area. As the capital city of Uganda, Kampala accounts for about 70% of NWSC operations in terms of revenue, water production and infrastructure. Kampala's first management contract, called KRIP for Kampala Revenue Improvement Project, was for three years and ran from 1997 to 2001, including six months of preparatory transition, under JBG Gaulf, a German consulting firm based in Uganda. The second management contract was for two years (February 2002–February 2004) and was under ONDEO Services Uganda Limited (OSUL), a French water firm registered in Uganda (Mugisha *et al.*, 2004a).

According to Mugisha *et al.* (2004a), during the implementation of the above internal reforms, a “stretch out” programme was introduced after it was realized that there were still some operational constraints that required improvements if contract objectives were to be achieved. The programme was designed to encourage:

- *Simplification*: Reduction of bureaucracy
- *Motivation*: Increase in speed of work with clarity of expectations
- *Participation*: Increased worker involvement and self-confidence
- *Transformation*: Removal of organisational boundaries
- *Prioritization*: Setting appropriate performance targets and rewarding progress.

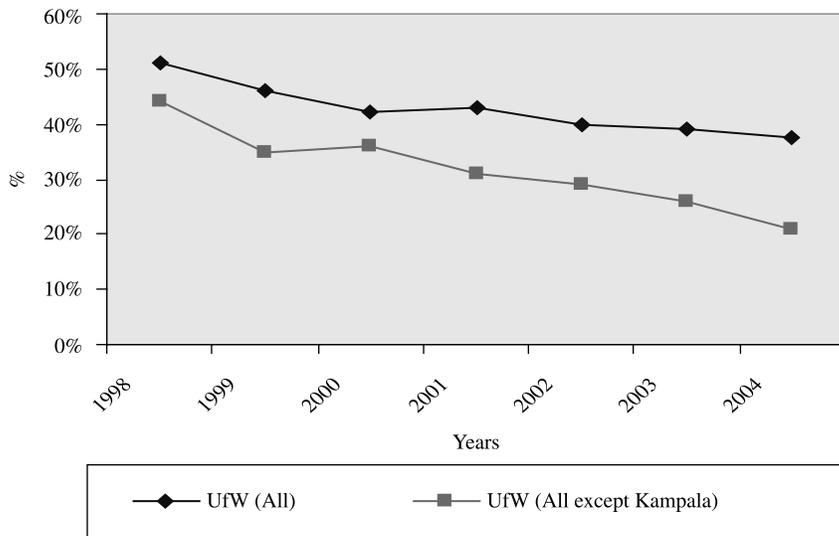


Fig. 1. Unaccounted for water (UFW) reduction trends in NWSC since 1998.

Since January 2004, NWSC has been implementing internally delegated area management contracts (IDAMCs) as part of its Corporate Plan (2003–06). The IDAMC currently covers all NWSC operating utilities, including Kampala. According to Mugisha *et al.* (2004a), the implementation of initiatives to improve performance has resulted in a turnaround in the NWSC from June 1998 to June 2003. We present detailed performance trends¹ of key operational indicators in the following sections.

Figure 1 shows that unaccounted for water (UFW) in NWSC has consistently dropped at a rate of 2–3% points per annum. Overall, UFW has dropped from about 50% in 1998 to about 37% in 2004. When the Kampala area is excluded, there has been a reduction from about 44% in 1998 to about 21% in 2004.

In addition, NWSC registered significant and consistent improvements in the revenue and operating profit, as shown in Figure 2. The graphs clearly show that revenues (annual billings) have almost doubled and operating profit (revenues less operating expenditures before depreciation) is up from a near “loss” situation in 1998.

The status of customer connections (see Figure 3) in 2004 is about twice the number in 1998. The dramatic growth in total connections is mainly attributable to the increased rate of new connections, from about 3,000 per annum in 1998 to more than 10,000 per annum in 2003. This rapid growth is an indicator of increased infrastructure investments and marketing efforts. Because of this performance, water service coverage has increased from about 48% in 1998 to about 65% in 2004. Figure 3 also shows that meter coverage and active connections have also increased significantly.

In low-income water utilities, staff productivity is a common problematic area. In NWSC, staff productivity has shown consistent improvement trends, as shown in Figure 4. In particular, staff per 1,000 connections has improved from about 36 in 1998 to about 10 in 2004. This improvement is attributed to the massive staff reduction exercise and the increase in number of connections, shown in Figure 3. Staff costs

¹ The trends are obtained through detailed analyses of NWSC Audited Books of Accounts (1998–2004).

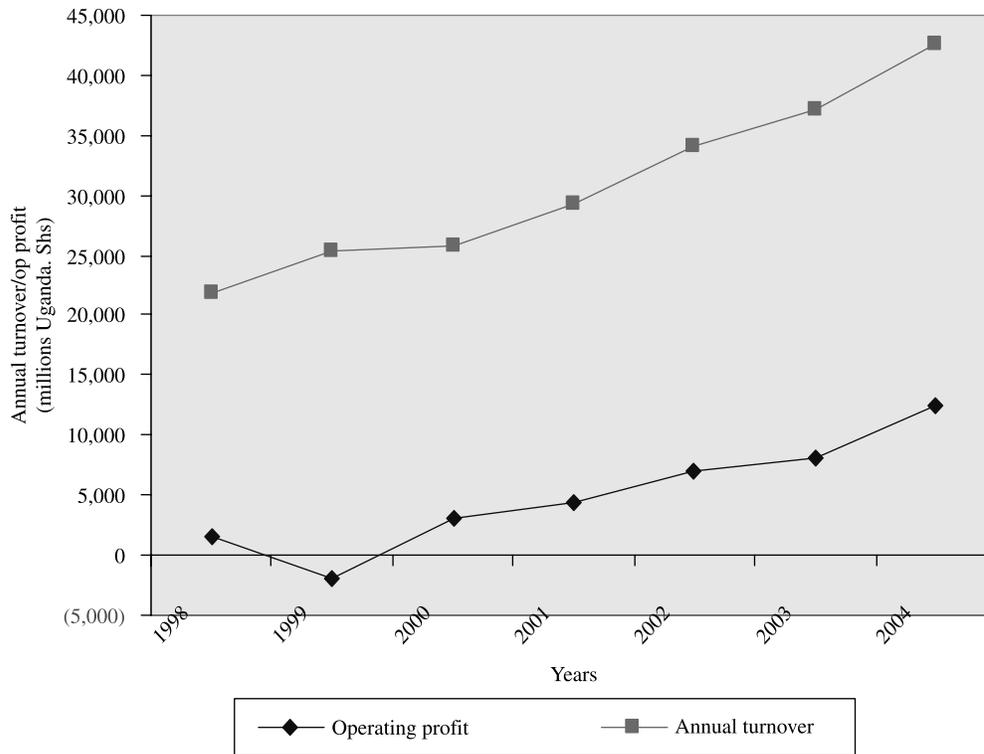


Fig. 2. Revenue and operating profit trends in NWSC since 1998.

as a percentage of total operating costs, which is a good proxy of cost containment, has improved from about 45% in 1998 to about 27% in 2003. In 2004, [Figure 4](#) shows a downward trend to 34% (about 7 percentage points) owing to increase in payment of incentives to staff. This is a justifiable trend, bearing in mind that incentives have been at the centre of performance turnaround in NWSC.

The overarching performance drivers in NWSC relate to increased managerial autonomy through decentralization of decision making to business units operating in its towns. There has also been a deliberate effort to separate the functions of day-to-day operations from performance monitoring/regulation to enhance accountability, creativity and initiative taking at the operational level. Another important consideration has been increased commercial and customer orientation through activities aimed at increased customer satisfaction in a cost-effective manner. In short, the approach to performance improvement in NWSC has been the utilization of private-sector-like management principles in a public–public setting. There have been continuous attempts to change organisational behaviour from one characterized by laziness, sluggishness and an “I don’t care” attitude to that of speed, commitment, effort and performance orientation.

One of the management options that has been used in NWSC to enhance the above facets is internal incentive contracting. The benefits of this approach on managerial performance have been outlined by a number of researchers. For example, a study of 80 Chinese rural enterprises by [Chun et al. \(2003\)](#) found that introduction of managerial incentives through incentive contracts had positive but not statistically

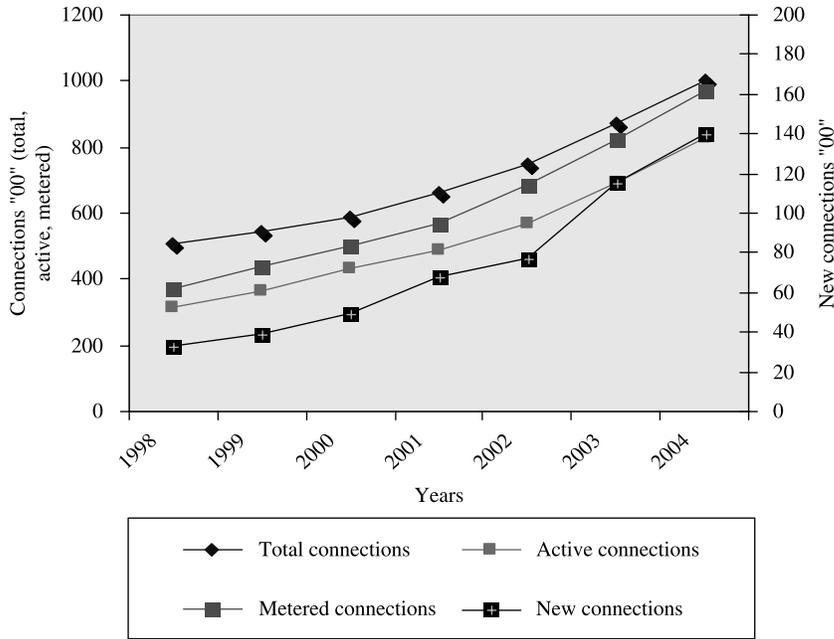


Fig. 3. Connections growth trends in NWSC since 1998.

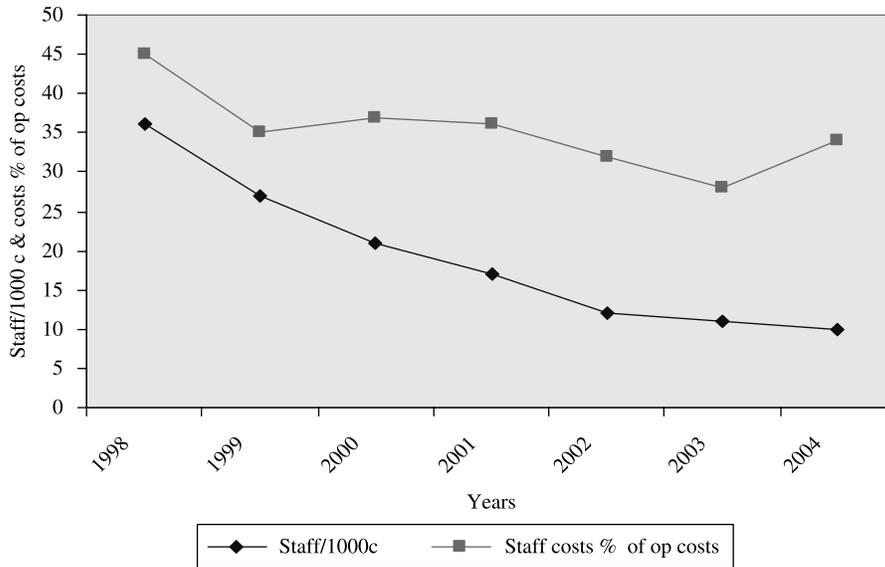


Fig. 4. Staff productivity trends and cost efficiency trends in NWSC since 1998.

significant effects on the enterprises' performance. More evidence of the positive role of managerial incentives is discussed by Kosnik & Bettenhausen (1992), who conclude that managerial compensation through fixed salaries only promotes managerial opportunism, whereas financial incentives (equity share) promote managerial compliance with the principal's interests.

In NWSC, this management approach involves the head office (principal) on one side and the operating unit (agent) on the other. The two discuss and agree on a set of performance standards that help to regulate their mutual obligations. In the following sections, we discuss the key components of incentive contracts, from the design stage through to implementation.

3. Contract framework design

All the NWSC utilities, apart from Kampala, have gone through two sets of incentive contracts (Mugisha *et al.*, 2004a). The corporation started with the area performance contracts (APCs) from 2000 to 2003. The APCs were then upgraded into more complex internally delegated area management contracts (IDAMCs) from January 2004 up to date. This refinement addressed three issues: autonomy of lead utility managers, better incentive design and clearer definition of roles and responsibilities for each party. The approach started with simple forms of incentive contracts and moved to slightly more complex forms. This sequence helped to enhance the change in management process. It was relatively easy to obtain buy-in from operating staff: internal contract managerial capacity developed gradually and the change champions gained more experience to manage more complex contractual processes.

In all contract types, preparatory activity is required to design the contract framework, which defines the operating environment. This framework lists the duration of the contract, the obligation of each party, termination conditions and arbitration terms, among others. In NWSC, this framework is initially drafted by a selected multi-disciplinary team. Then the development team presents its draft to a wider group of staff, with adequate representation from both the principal (head office) and the agents (operating units). Process matters: "Believing is seeing". The goal of involving many stakeholders is to build consensus, enhance acceptability of changes/proposals and promote ownership and convergence in understanding organisational objectives. This activity has many challenges, which the change champions must anticipate and be ready to face. In NWSC for example, many staff have a tendency to stick to the tradition, rules and procedures. The NWSC experience has shown that employees most often want to retain the status quo. In addition, if the changes have an impact on top managers' roles and responsibilities, they will try to resist them, especially if such changes affect their traditional hierarchical powers. In all these cases, the role of a strong and determined top leadership is required to make sure that the discussions and agreements do not detract from the core strategic objectives.

The experience in NWSC shows that the pace set by the top executive can have a determining influence on acceptance of strategic changes. The guiding statements that have most often been used in NWSC include the following: "The only constant factor we should consider is change", "defy/break any procedures and traditions", "defy any so-called 'big boss' in this corporation and decide on your own but be accountable for whatever you do", and the like. The vision has been articulated at the highest levels of the organisation and communicated throughout NWSC. When such statements are made by the chief executive officer (CEO) at the opening stage of the above strategic discussions, the buy-in process is significantly enhanced.

4. Competition for managerial responsibility during business planning

Competition for the market is a common prerequisite for efficient delivery when dealing with monopoly business settings like water and sewerage. The importance of incorporating competition prior to securing a suitable operating agent derives from the need to select the best efficiency driver. Webb & Ebrhardt (1998) advise that since there is limited scope for introducing competition *in* the water market, there is pressing need to ensure effective competition *for* the market. In this case, competition is restricted to market entry because it is very costly to introduce in the market. Competition for water operations management most often involves a private service provider as one of the players. In a public–public setting, competition for managerial responsibility at market entry has not been a common activity in most water utilities. NWSC is at the forefront of a few utilities that have attempted to incorporate competition into the selection of management teams for local utilities.

Competition for managerial responsibility in NWSC started with the introduction of IDAMCs in January 2004. In this case, all staff were invited to compete for the management of NWSC's subsidiary utilities. This approach was adopted to send a clear message to the sitting lead managers that they did not have a monopoly on running their current business units. The process has helped to deliver performance targets, comprehensive and logical business plan strategies and cost containment measures (reflecting competition-like pressures). Furthermore, aside from the winning bidder, the unsuccessful proposals often have many useful additional performance improvement strategies that help to enhance the winners' business plans. In NWSC, many managers normally participate in this competition exercise by preparing individual business plans and expressions of interest. Consequently, this exercise has served as a good platform for building the capacity and capability of a larger number of managers in business plan preparation. Because the competing managers involve the lower cadre staff in problem analysis and strategy formulation, this approach also helps to enhance commercial and customer orientation throughout the organisation.

The success of the IDAMC in NWSC towns has been partly attributed to the above competition at the business plan preparation stage. Currently, this strategy has been applied at the initial stage of the newly signed zonal performance contracts (ZPCs) in the Kampala water service area (KWSA); the stronger incentives are expected to have similar positive performance effects. However, the key change champions involved in this process must be aware of certain challenges: nobody wants to lose, yet any race can be won only by one person/party ultimately. Questions relating to fairness, transparency, credibility and legitimacy of the evaluation process must, therefore, be anticipated and addressed *ex ante*, through well designed and agreed criteria. Information sharing is essential so that the programme attributes are clearly communicated to staff at all levels. This approach, in turn, helps avert any trade union problems that can easily hurt the process.

Of course, incumbent managers have an informational advantage over competing managerial teams. They are familiar with local topology, system operating characteristics, customer payment patterns and opportunities for cost containment. Nevertheless, the existence of rivals places pressures on incumbents to be realistic in their business plans. Furthermore, talented rivals are in a position to prepare highly competitive offers.

5. Performance monitoring/regulation

5.1. General approach

The command-and-control approach has, up to the recent past, been a common phenomenon in the regulation/monitoring of water supply and sewerage (WSS) operations. The approach has since been resented by many WSS utility managers in most countries because of the perception that micro-management weakens incentives; furthermore, there is evidence that it does retard performance. The other name for this approach is “interference” in the agent’s operational activities. The opponents of this approach believe that the agent is best informed about the type and mix of inputs and technologies that enhance operational performance at the “shop floor” level. As such, they argue that the principal’s role should be restricted to the creation of an enabling environment for the agent to use its informational superiority in an optimal manner. The most common path to such operating environment is contracting out, clearly separating operations (agent’s activity) from regulation/monitoring (principal’s activity). In such arrangements, smart incentives have been at the centre of the principal–agent relationship.

Mugisha *et al.* (2004b) outline a number of practical performance monitoring lessons that ought to inform prospective performance drivers in low-income countries. They point out that arms-length monitoring, *per se*, may not necessarily achieve desired performance in such WSS settings. This is because the assumption of full and superior knowledge on the side of the agent is far from reality in such cases. At the same time, it is not true that the principal is entirely subterranean in respect to practical improvement ideas. Consequently, this scenario is a good setting for meaningful partnering and interaction between the principal and agent. Armstrong (2000) suggests that performance monitoring should emphasize a supportive approach to the contractor rather than a directive one. He recommends that performance monitoring be seen as a joint process that requires both the principal and the agent to identify, in discussion with each other, what support the operating agent needs to work effectively. In fact, Sansom *et al.* (2003) argue that, through experience, successful contracts are those that are implemented on the basis of mutual trust because, although detailed specification and monitoring are necessary, it is difficult to make such contracts entirely comprehensive.

While executing the regulatory/monitoring function in low-income WSS utilities, leaders may be tempted blindly to adopt the non-interference strategy without properly evaluating/assessing the development level of the agent. The non-interference approach is very fruitful if the agent is highly competent, capable and committed in respect to fulfilment of corporate performance objectives. The role of the principal can, in that case, be restricted to strategic policy formulation and incentive design/structuring and regulation. However, if the agent’s qualities have significant gaps, a blanket non-interference approach can be quite counterproductive. In this case, a principal who faces the challenge of performance accountability to the appointing authority may wish to partner with the agent to assist in narrowing the gaps. In these circumstances, the role of targeted interaction and coordination (TIC) between the principal and agent becomes extremely desirable. Although this approach can be perceived as verging on interference in agents’ activities, the distinction that this approach makes from the traditional command-and-control is that the former enhances performance in real terms while the latter has a negative impact on performance outputs. Citizens want performance improvement: any intervention that strengthens the path to this destination warrants attention.

Unfortunately, the opponents of TIC have an egoistic orientation, not wanting improvement ideas from other parties. Such managers may think that TIC will have a negative impact on their future efforts

to extend their managerial mandate beyond the stipulated period. In this case, TIC is perceived as an intervention reacting to system failure on the part of the agent; the agent seems to be the “identified problem”, unable to deliver high performance. The most unfortunate part is that when such people fail in their endeavours, they remain locked-up in an undesirable performance situation, to the chagrin of customers. They can, of course, argue defensively that they resented TIC because it did not follow proper change management principles. Sometimes they may say that they have a prior agreed mandate which they are implementing, irrespective of whether or not the customers (the intended beneficiaries) are benefiting. Unfortunately, this orientation misses gains related to information flows between the agents, which are necessary to enhance coordination and cannot be obtained without active involvement of the principal. There is a need to put in place incentives and mechanisms for efficient production, information sharing and active coordination between the agents (Dequiedta & Martimort, 2004).

Most of the NWSC operational unit managers and staff do appreciate the benefits of a changed managerial orientation and have lived with the notion of TIC. They have tasted the fruits of the approach, especially under the stretch out programme, which revitalized the APC performance situation in 2002/03. Kampala Water has begun to experience the same benefit. Thus, improved performance involves revising the principal–agent relationship. The principal/regulator should not just “sit back and watch” the agent but rather should be a supportive partner in delivering good performance.

5.2. Enabling features of NWSC contracts: practice and lessons learned

Generally, the monitoring of NWSC operations performance/management contracts has been carried out through a number of contract design elements, including:

1. *Purposive-based performance targets*: The practice has been to set and emphasize performance targets in areas that specifically enhance financial viability and operating efficiency. The selected targets are also easy to measure without creating conflict between the regulator/monitor and the operators during the performance evaluation exercise.
2. *Performance targets whose effects are easily informed by regular customer satisfaction surveys*: Most targets in the contracts are such that the operator’s efforts toward achieving them can be verified through a service effectiveness assessment conducted via regular customer perception surveys.
3. *Carefully planned performance evaluation and feedback to operators*: The practice has been to monitor process performance indicators as proxies for ultimate output performance indicators. This monitoring is carried out at relatively shorter time intervals, giving timely feedback to operators to pre-empt inadequate performance. An example of a proxy process performance indicator is proportion of water leaks responded to out of the number reported. This measure is monitored on a monthly basis as a proxy for the quarterly unaccounted-for water target.
4. *Incentive mechanisms that rationally apportion operating risks to both parties*: The practice has been to strike an acceptable balance between what the operators, through experience, view as highly effort-intensive targets and those requiring minimum effort to achieve. The guiding criteria for the balance are: (a) fairness and acceptability, (b) a net added financial benefit to NWSC after an incentive has been earned and paid, (c) a simple incentive structure easily marketable to the operator’s lower level staff who will implement the contracted business plans, (d) variability of

incentives earnable must correlate well with variability in the operator's unobserved performance efforts.

5. *Adequate provision in contracts for possibilities of an integrated monitoring system as part of the employer's obligations (regulator is part and parcel of the employer)*: The emphasis has been to structure the monitoring/regulatory framework so as to achieve knowledge synergies from differently skilled staff. The monitoring structure has, throughout the contracts, been built around the core performance areas relating to technical operations, finance and accounts and administration and customer care.
6. *Tailor-made performance incentives as performance drivers*: Performance incentives incorporated in all contracts were arrived at after prior detailed inquiries to find out what motivates staff most. The cash amount of the incentives is dependent on the number of optimum staff in each town and was/is generally dictated by the town's internal cash generation capacity. It also depends on the performance expectations and ambitions for each town. The orientation was not how much the key operator staff "pocket" but how much all staff who actively participate in operations get. The sharing rules were/are very explicitly defined in the contracts before they are signed.

5.3. Performance monitoring in NWSC: theory versus practice

The foundations for improving WSS performance have been established in Uganda. In general, the incentive-based monitoring/regulation approach utilized by NWSC is consistent with the ten guidelines (in italics below) identified by Sappington (1994) and also outlined in Mugisha *et al.* (2004a), for designing incentive regulation plans:

1. *Use incentive regulation better to employ the firm's superior information*. NWSC, which is effectively the "regulator" of a set of utilities, uses performance/management contracts to promote cost containment, service quality and network expansion. The emphasis on the use of incentives rather than command and control is a clear demonstration that the NWSC monitors appreciate the unavoidable information asymmetry problems that exist in respect of the monitor–monitored interface. What the monitors want from the operators is increased accountability and guarantee of delivery of agreed operating margins and customer satisfaction.
2. *Prioritize regulatory goals and design incentive regulation to achieve stated goals*. The weights placed on different objectives (like reductions in unaccounted-for water, working ratio, reduction of debts and increased connections) are specified in the incentive fee component of managerial compensation. The NWSC incentive system emphasizes meaningful interaction between the monitor and the operators to strengthen managerial incentives relating to reduced bureaucracy, speedy flow of logistical requirements and enhanced motivation to work.
3. *Link the firm's compensation to sensitive measures of its unobserved activities*. Achieving minimum performance targets determines the performance fee. However, NWSC is still monitoring inputs such as water leakage control as a proxy for managerial effort toward reduction of unaccounted-for water. The compensation directly relating to cash operating margin improvement, designed through the incentive fee, is also an indirect measure of the operating utility's efforts toward cost optimisation and containment. NWSC also applies non-monetary incentives like "one-minute

praise” for operators who demonstrate significant achievements in public image enhancement, reduction in customer complaints, process-oriented innovations to improve performance, etc.

4. *Avoid basing the firm’s compensation on performance measures with excessive variability.* The three components of the management fee are designed to exclude volatile elements. NWSC tries to minimize basing compensation on hard-to-authenticate performance indicators like response time to customer complaints and water leaks, customer satisfaction, service coverage, etc. The performance indicators used for compensation can easily be audited periodically and verified without a lot of controversy on either side.
5. *Limit the firm’s financial responsibility for factors beyond its control.* The base fee passes through uncontrollable costs. Of course, distinguishing between controllable and uncontrollable requires a deep understanding of production processes and input markets, so NWSC needs to re-visit the division periodically. Revisions are currently being addressed through quarterly reviews and negotiations. The procedure for setting performance standards partly employs historical data, which takes care of exogenous operating conditions. Target setting without due consideration for utility-specific environmental factors causes resentment and resignation.
6. *Adopt broad-based performance measures where possible, unless their variability is excessive.* The incentives incorporated in the management fee reflect a few key objectives. All the indicators used in the IDAMC incentive structures are derivatives of a number of primary performance indicators. For example, working ratio is a derivative of income and expenditure. The idea is to use a few easy-to-monitor performance indicators that significantly radiate to a wide performance area spectrum.
7. *Choose exogenous performance benchmarks.* This criterion is yet to be fully implemented. Ideally, the managerial rewards should reflect the performance of specific utilities relative to a benchmarking group. This approach would require a more comprehensive analysis of costs so that unique conditions facing each utility are accounted for and this is a critical consideration. Currently, the incentive fee is for improved performance over time. NWSC has developed a technical efficiency model that allows continuous metrics benchmarking of efficiency scores based on carefully selected input and output parameters.
8. *Allow the firm to choose between regulatory options, while recognizing the interdependencies between the regulatory options that are offered to the firm.* At present, there are discussions between local managers and NWSC; however, NWSC still utilizes a one-size-fits-all approach to incentives. Still, both the performance fee and the incentive fee allow managers to focus on targets that can be achieved in the most cost effective and timely manner. The plan is to tailor the incentive structure to specific utility situations in future. This will address the actual realities and disparities in the performance of different NWSC utilities.
9. *Promise only what can be delivered and deliver whatever is promised.* NWSC adheres to the explicit contractual reward system, though the stretch-out system reflects a more flexible approach to meeting targets. Incentives earned are paid promptly by the 25th of every over month. At the same time, portions of management fee lost because of performance gaps are foregone if no rational explanation is offered by the operator.
10. *Plan for the rare, unforeseen event, but minimize after-the-fact adjustments to the announced regulatory policy.* Contingency planning is one element of NWSC procedures. One advantage of the present system is that litigation is not an issue—but that does not mean that dispute resolution can be totally ignored since local managers need to be convinced of the legitimacy of

the incentive formula and fairness in the way reported outcomes are utilized for rewarding high performance.

6. Role of managerial incentives

Managerial incentives can be designed to be very effective under public–private partnership contracts. These contracts clearly separate the principal’s role from the agent’s activities. However, even under public–public settings we can introduce internal contracting arrangements that incorporate a well-structured incentive design and subsequently improve utility performance. This fact has been alluded to by a number of studies addressing issues of efficiency and governance. Early research studies on relative technical efficiency between public and private companies have found no superior efficiency advantages (Bhattacharyya *et al.*, 1994 and Lynk, 1993). Renzetti & Dupont (2004) report on a number of studies in the United States, United Kingdom and France that found no compelling evidence that private utilities have outperformed public utilities or that privatising water utilities leads to unambiguous improvements. The most recent empirical study by Wallsten & Kosec (2005) supports earlier studies; there is no unequivocal choice as to what ownership arrangements work best in the water sector.

Coming back to incentive design, one factor which is normally overlooked is targeting – who should get the incentives on the side of the agent? In practice, especially under public–private partnership contracts, the principal/regulator is not concerned with who gets the incentives. The NWSC experience shows that this can be a significant contract design omission. This is because employees directly delivering services can easily frustrate implementation of improved procedures. The need to direct incentives to company employees is also emphasized by Groves *et al.* (1994) in their study of state-owned enterprises in China. They found that when firms were allowed to retain more of their profits, managers strengthened workers’ incentives and productivity increased with increases in bonus payments.

What has NWSC done to address the above problem? Management has made deliberate efforts to ensure fairness in the incentive sharing plans. During the bidding process, the key partners are normally required to suggest an equitable incentive sharing arrangement in the human resource plan, which is part of the wider business plan. The partners, who carry the biggest operating risks, are given a certain commensurate share of the incentives; the division is discussed with the rest of the subordinate staff before the contract document is finalized. The design is such that the other incentive share is distributed among the rest of the staff according to their basic pay levels. The critical consideration in the design is that the net incentive payment given to individual staff must be substantial enough to drive the desired performance. In NWSC for example, each member of staff earns about twice the basic pay if the parent contract targets are met. When the targets are exceeded, there is a provision for earning extra incentives, although this is payable after one year to ensure sustainability of high performance.

Mugisha *et al.* (2004a) give an example of the incentive arrangement under the IDAMCs, which elaborates on the design above. Accordingly, this incentive mechanism relates to cash operating margin (COM), unaccounted-for water (UFW), working ratio (WR), days receivable ratio (DRR) and connection efficiency (CE) as follows (Mugisha *et al.*, 2004a):

management fee = base (fixed) fee + performance fee + incentive fee; where:

- base fee = all uncontrollable costs² + 75% (key partners' pay³ + controllable costs).
- performance fee = 25% (key partners' pay + controllable costs) × (fraction of achieved weighted targets)
- incentive fee = $x\% \times \text{COM} (m \text{UFW}_a + n \text{WR}_a + p \text{DRR}_a + q \text{CE}_a)$, where $x\%$ is the agreed percentage of the improvement in COM to be retained by the operator as a bonus; m , n , p , q are weighting factors attached to the performance indicators and subscript "a" denotes incremental achievement relative to set targets (standards).

According to Mugisha *et al.* (2004a), 'the performance fee gives appropriate weight to each target, depending on the importance attached to the corresponding performance area—in a pass/fail framework. The incentive fee does reward movements toward key targets. Apart from incentives, the area performance contracts had a disincentive mechanism applicable to any area showing persistent failure in achieving agreed performance levels (three consecutive months). The penalty system under IDAMCs involves withholding payment for key partners and part of the controllable costs if some key targets are not met as shown in the management fee formula above'.

Mugisha *et al.* (2004b) provide further analysis of the above IDAMC fee structure. The design shows that ... 'the best performing operating utilities get a maximum performance fee compensation of 5% of total operating costs, on average. In addition, the performance fee guards against performance back-tracking and is, therefore, based on weighted minimum performance standards, which were based on average performance of the last six months prior to signing the IDAMCs. In addition to the latter performance fee compensation, the best performing utilities get an incentive fee compensation of about 25% of total operating costs (including the incentive fee itself). This means the total compensation (performance and incentive fees) is 30% of operating costs. The rest of the operating costs (base fee) are passed through and incentives to reduce them are implicitly embedded in the sharing of the cash operating margin (cash collection minus operating costs). The incentive fee aims to reward the utilities to reduce operating costs, maximize revenue collection, reduce unaccounted-for water, reduce accounts receivables, reduce the number of disconnected accounts and maximize billed income. The incentive fee compensation is a share of the cash operating margin realized, which ranges from 30% for large utilities to 50% for small utilities in favour of the utility concerned'.

Therefore, NWSC's approach is different from the conventional public–private contracts where a significant proportion of incentives go to the shareholders, leaving the employees just to earn their salary. This not only encourages resentment but also leads to lack of commitment to contractual performance objectives. The power of targeted managerial incentives has manifested itself in most of

² Uncontrollable costs are operating costs that the operator is unable to manipulate for savings in the short to medium term, with the incentives provided, without causing flaws in the operational and maintenance systems. These include power and chemical costs, routine infrastructure maintenance costs, vehicle maintenance costs, salary for lower-level staff, etc. In contrast, controllable costs (e.g. telephone, travel, staff allowances, vehicle fuel, etc.) can be a source of savings without threat to the operational and maintenance systems.

³ Key partners are those key staff who have constituted themselves into a partnership (quasi-limited company), with clear terms of engagement – the operator. Key partners' pay is the net take home of these key staff.

NWSC internal contracts, where targets that were initially perceived as non-achievable have been exceeded during implementation.

7. Concluding remarks

We have outlined the potential for internal incentive contracts in delivering efficiency gains under public–public water management settings. The study highlighted a number of useful ingredients, including proper contract framework design, competition for managerial responsibility, effective business planning, performance monitoring through an interactive activity and the role of managerial incentives. We have pointed out that these dimensions need adequate consideration during the planning and implementation of incentive contracts. Water policy needs to encompass sector governance and managerial incentives as well as hydrology and resource management issues if Millennium Development Goals are to be reached.

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