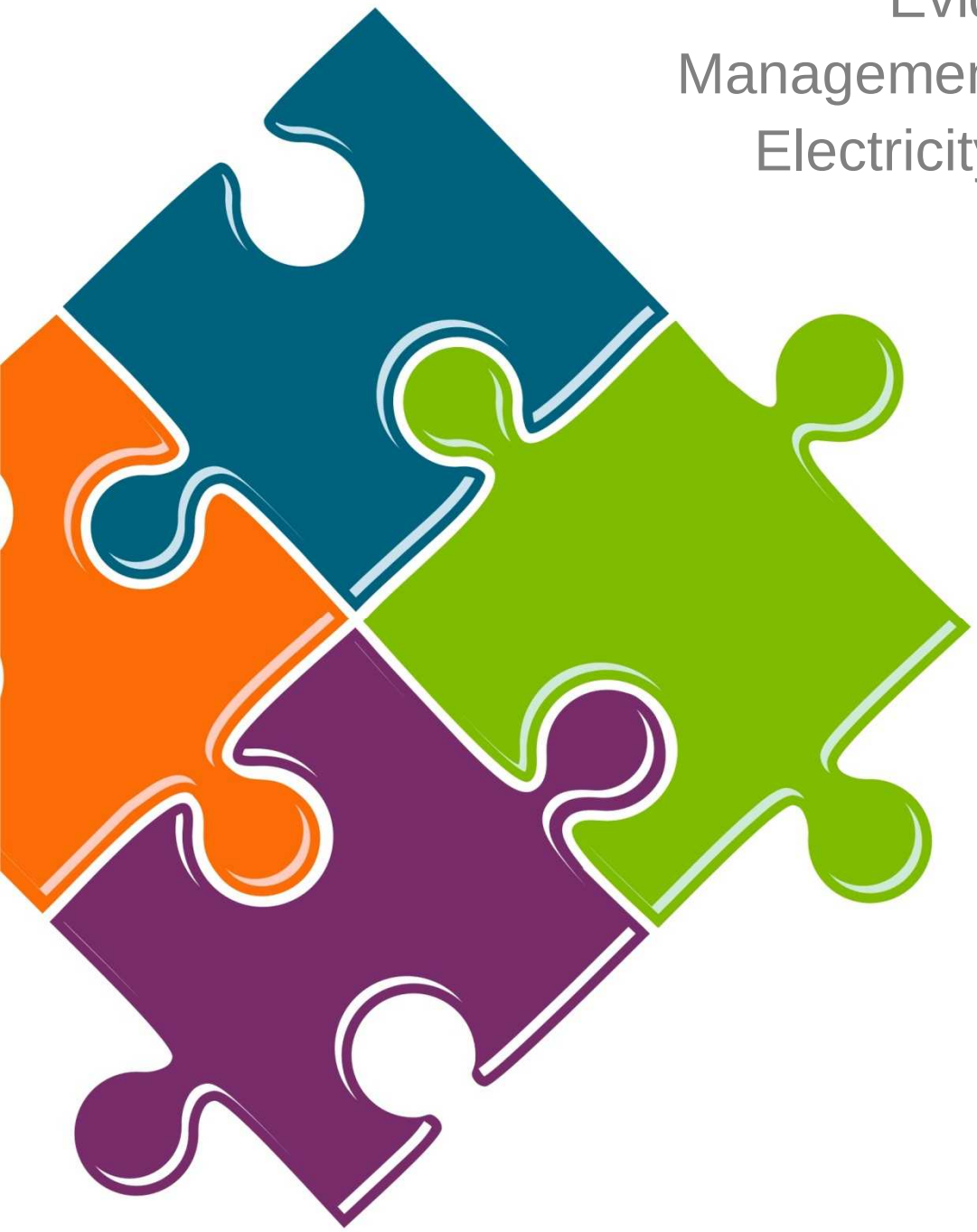
Evidence and Gaps in Evidence in use of Management Contracts for Electricity Distribution & Supply



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Report Summary

Following the example of developed countries, several Sub-Saharan Africa countries have attempted to implement electricity sector reforms over the past two decades. The main objective of these reforms has been to improve utility performance and increase the rate of electrification. The participation of the private sector in the operations of the power sector, including the distribution and supply, was seen as a crucial step for achieving the above objectives.

Due to the unwillingness of private investors to take large risks, usually associated with full privatisation, management contracts have often been perceived as an intermediate model, either to improve utility performance and management for continued operation under Government/parastatal ownership or in preparation for deeper privatisation options. However, the practical application of such contracts in Sub-Saharan Africa countries, according to the limited literature available, has generally been disappointing.

Their short duration, together with other factors, including contract designs that provided limited incentives, adverse external circumstances[1], expensive management fees that call for donor support and tensions between the expatriate firm and the utility's board of directors have been the main reasons behind the failure of management contractors to achieve sustained performance improvements.

There is limited evidence, one way or the other, whether management contracts achieve the objective of enhancing the capacity of utilities and improving performance on a sustained basis. Management contracts tend to be limited to relatively short periods (3-5 years) that may not be sufficient to turn around a utility. The fees charged by management contractors were found to be too high for governments to cover to extend contracts without donor support and there is limited evidence of the impact on sustained performance through extended contracts.

The relatively limited literature that considers the outcomes of management contracts in electricity in Sub-Saharan Africa, tends to focus on the performance against prescribed targets and asks the reasons why these have or have not been achieved (contract design, poor public communication, tensions between the contractors and the utility Boards, external factors beyond anyone's control, etc.). More work could be undertaken in this area, particularly to assess the performance of these contracts on a consistent basis and to identify the most important characteristics of a successful management contract. There is a larger evidence gap in relation to the fundamental question of whether management contracts achieve the goal of sustainably enhancing the capacity of the electricity utilities and whether it is either an effective alternative to more substantial private sector participation or is a precursor to fuller effective private sector participation. Evidence from other sectors may also be useful with regard to both the design of a successful management contract and to whether management contracts are fundamentally valuable in achieving the above objectives.

[1] General country economic performance, other power sector reform measures, international energy prices, etc.

SECTION 1

Introduction

1.1 What is a management contract?

Management contracts require a private entity to manage the operations of a range of activities of a government-owned power (distribution) company, without itself owning any assets in that company or accepting full commercial risks for tariff collections and asset condition. A management contract usually lasts for a relatively short period of time (two to five years). The private entity in return receives a fixed payment from the awarding authority (usually the government) and often, subject to achieving certain targets, receives a bonus payment. The private entity's compensation is not dependent upon the volume of power sold to customers (World Bank PPP IRC website).

1.2 Why are they used?

Over the past two decades, some Sub-Saharan Africa have attempted to follow the example of some developed countries regarding power sector reform. The reforms have included independent regulation, unbundling of power sector utilities into generation, transmission and distribution, higher competition and private sector participation across the power supply chain (KPMG 2014)

Power reforms are intended to:

a) improve efficiency by **creating competition in generation and supply** (the two parts of the supply chain where competition is theoretically possible)
b) **introduce private sector incentives in the monopoly parts of the supply chain (transmission and distribution)**
c) **lower the burden of investment financing from state-owned entities** by introducing private sector participation and,
d) potentially, to **raise revenues** from the sale of state-owned assets[2]

Unbundling of generation and supply from transmission and distribution is seen as necessary so that the incumbent utility cannot block competition. Supply competition (buying electricity from generators and selling to end-users) is generally the last element of the electricity supply chain where competition is introduced and it requires the introduction of very complex transfer and trading arrangements. Few developing countries seriously aspire to supply competition except as a long-term goal, and we are not aware of any that have actually introduced supply competition[3]. For this reason, supply is often kept together with distribution.

[2] We suspect that this is seldom a major consideration in developing countries, and even if it is, it is seldom very successful.

[3] There was a fashion for power sector reforms over the past 20 years introduced by international donors with legacies today. Rwanda and Lesotho, for example, in theory have supply competition in their laws though no serious prospect of introducing it. Nigeria could be the closest Sub-Saharan African country to introducing bilateral contracting but it is still currently operating a single buyer model without any form of supply competition.

In developed countries the introduction of competition has arguably led to greater efficiency and lower prices (Pollitt 2007). However, several studies support the idea that the small size of most Sub-Saharan African (SSA) countries does not support the efficient operation of multiple generators and is therefore ineffective in encouraging competition and improving efficiency (see for example Besant-Jones (2006)). Competition might be possible within the multi-country power pools, as happens within the European Union, but these power pools are at a very early stage of development in SSA[4].

In SSA, electricity has long been reserved for parastatal monopolies and has not attracted private investment. The large size of required investments, the small markets, the political nature of infrastructure prices, the lack of strong institutional capacity and the fluctuations in local currency usually deter investors (Eberhard 2007 and World Bank 1996). Such challenges make investors unwilling to invest capital in power utilities. This undermines one of the objectives of reforms – to attract private sector investment and relieve the burden of investment financing from state-owned entities.

In the absence of competition in generation and private investment, the third benefit of reform, the introduction of private sector practices, can be achieved in theory through ***management contracts.*** These can be used as an alternative to privatisation or they may be a step toward privatisation. With a management contract, the Government signs a contract with a private company so that the latter assumes responsibility for managing some or all of the functions of the utility. By doing so, it hopes that the improved utility performance achieved through management contracts would also help make the utility more creditworthy as an off-taker for private power generation investors.

In SSA, management contracts have been suggested by various institutions in the past as a necessary step in lieu of full privatisation. Proponents of managing contracts often argue that a company needs to be an operator before investing capital in that company at a later stage (Bakovic et al 2003). This is because a management contractor may help to improve information about the enterprise before full privatisation options are discussed. By improving the performance of the company, this may raise the sale value at privatisation or could attract more interest from private companies.

[4] These include the Southern African Power Pool (SAPP), the West African Power Pool (WAPP), the East African Power Pool (EAPP), etc. SAPP has been operating for many years and is the most advanced of these pools but even here trade takes place primarily between utilities.

SECTION 2

Experience of management contracts in the electricity sector in Africa

According to *Africa's Infrastructure: A Time for Transformation* (World Bank 2010), as of 2010 there had been 17 management contracts for electricity distribution, which had been realised, in 15 SSA countries. Of those, four were cancelled before the original expiry of the contract and at least five were not renewed after the initial term (World Bank's Private Participation in Infrastructure (PPI) Database, 2007 and World Bank 2008). The countries that introduced such contracts include: Chad, Gambia, Gabon, Ghana, Guinea- Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Namibia, Rwanda, Sao Tome, Tanzania, and Togo and are shown in Figure 1 below.

Figure 1 Electricity management contracts in Africa (source: report authors)

Over the same period, concessions for distribution utilities were awarded in Cameroon, Comoros, Cote d' Ivoire, Gabon, Guinea, Mali, Mozambique, Nigeria, Sao Tome, Senegal, South Africa, Togo and Uganda. Five of these were also cancelled prematurely.

Since 2010 there have been more management contracts including Liberia (Manitoba Hydro International, January 2013) and Guinea (Veolia Africa-Seureca consortium, June 2015) but these are still ongoing and reviews of the performance of these contracts have not yet been undertaken.

Despite the large amount of experience with management contracts, the literature discussing the successes and failures of these contracts is relatively sparse.

2.1 Nature of firms who undertake management contracts

Our experience is that there are relatively few firms that are interested in undertaking management contracts in SSA and the same firms appear as management contractors in different countries. We are aware that Manitoba Hydro, as well as the Liberia Electricity

Corporation, is currently contracted to manage the Transmission Company of Nigeria and in 2006 it was contracted to manage the Kenya Power and Light Company in Kenya. NETGroup was involved in contracts in Tanzania beginning in 2002 and we understand that it was also contracted to manage the Lesotho Electricity Company at about the same time.

The following firms have, amongst others, won one or more management contracts in SSA:

- ***Manitoba Hydro***; it won a two-year contract to manage the state owned electricity distribution company of Kenya, KPLC, in 2006. Manitoba Hydro is based in Canada, where it serves around half a million electricity customers and approximately 250,000 natural gas customers. It is currently managing the Transmission Company of Nigeria and the Liberia Electricity Corporation (and potentially other companies elsewhere in SSA).
- ***NETGroup***; NETGroup Solutions won a contract to manage the state-owned electric utility in Tanzania, TANESCO, in 2002. NETGroup was a South African based transmission and distribution solutions provider, also active in the electricity consulting industry. NETGroup was merged with the global consulting, engineering and management firm, Aurecon.
- ***Lahmeyer***; a large German engineering firm that is now owned by GDF Suez. It was responsible for at least one power company management contract in Madagascar in 2005.

SECTION 3

Review of the literature assessing management contracts

The literature on electricity management contracts in SSA is very limited and generally focused on single case studies. We have not limited the review to only distribution and supply or to the past ten years. To obtain a reasonable number of studies to review, we have relied on references to management contracts dating back in some cases to the 1990s. This partly reflects the limited number of management contracts and also the lack of publications around those contracts.

3.1 What basis does the literature use to assess /measure management Contracts

There is no commonly adopted systematic framework for assessing/measuring the performance of management contractors.

Most studies that measure the performance of management contracts in SSA have focused on short-term performance indicators rather than the legacy of the contracts in terms of enhanced managerial and technical capacity of the utility and/or the enhanced potential for privatisation. These indicators include company revenues, new connections, technical and non-technical losses, customer relations and network reliability. These levels are normally compared to those prior to the start of the management contract.

The review of the management contract for the vertically integrated electricity company (TANESCO) in Tanzania noted that the outcomes of management contracts depend on contract design, the performance of the contractor, and wider sector conditions (outside the control of the contractor).

In a few studies, given that management contracts are often regarded as the entry point for electricity sector reform with the ultimate goal of full privatisation, their performance is also measured in terms of their impact on easing deeper forms of private sector participation in the electricity sector.

We understand that the research questions most relevant to DFID are:

- Are management contracts fundamentally useful at encouraging efficiency of electricity companies in general, and electricity distribution and supply companies in particular?
- How can management contracts be better designed and implemented to ensure that they at least achieve the anticipated outputs?

The studies reviewed are generally more useful to answer the second question and less the first.

3.2 What does the literature say about the success or not of the management contracts?

In the following sub-sections, after reviewing the experience of Tanzania, Kenya, Namibia, Mali and Madagascar in implementing management contracts in the electricity sector, we analyse the factors that affected the performance of the contractor.

3.2.1 Positive factors

Autonomy

In Namibia (Case study 1), the private firm, Northern Electricity (NE) signed a management contract in 1996 to operate the electricity distribution system in the north of the country. During the contract period NE implemented significant changes in the tariff system that had a significant impact on the sector's improvement.

In order to increase the rate of electrification, NE initially applied for a loan from the Development Bank of Southern Africa (DBSA), but was unsuccessful due to lack of collateral (Case study 1, para 4-6). After the government refused to provide the necessary guarantees, NE decided to enforce a rural electrification levy of N$ 0.015/kWh (US$ 0.001/kWh) in order to collect enough revenues to allow the company to make the required investments that would increase the rate of connections. In the case of Namibia, the autonomy given to the expatriate firm to implement tariff changes was crucial for its success in increasing the rate of new connections.

Case Studies 1 Namibia –management contracts in electricity distribution

(1) In 1996, a private firm, Northern Electricity (NE), signed a six years management contract with the Namibian utility to operate the distribution infrastructure in the north of the country. NE did not own any assets, but had overall responsibility for all operating expenses and revenues related to the distribution system.

(2) Soon after NE started its operations, it made significant improvements in the customer registration, documentation of billing and protecting from theft. As a result, collection rates increased from less that 50% to 99%.

(3) They also achieved significant improvements in power system reliability, which resulted in fewer power outages. With government's assistance, NE funded major network upgrades and prepared a 5-year network development plant aimed at strengthening electricity supply. A preventative maintenance programme was also implemented to improve the reliability of the system.

(4) Regarding electrification, NE had limited responsibilities as part of its management contract with NamPower, including facilitating the rural electrification programme implemented by the Government. In order to satisfy the demand for electrification, NE applied for loan funding from the Development Bank of Southern Africa (DBSA). However, their application was rejected on the basis of lack of collateral.

(5) Instead of abandoning its efforts, NE came up with an innovative way for increasing the rate of electrification. It implemented a levy, equal to N$ 0.015/kWh, which together with company revenues amounting to N$14 million, managed to achieve a higher connection rate.

(6) NE also established a Community Development Fund, funded by a levy equal to N$

0.011/kWh, for each local authority, which assisted the local communities into achieving various developmental goals.

(7) Despite NE's success in reducing non-technical distribution losses, improving power system reliability and achieving a higher connection rate, the government decided not to extend NE's contract. This decision was related to pressures from NamPower, who had aspirations of extending its influence over the distribution network, which after NE's involvement seemed to be a profitable business.

(8) Even though the management contract was not extended, important developments in the electricity distribution sector took place as a result of NE's success:

- Reho Electricity, a joint venture company between the Rehoboth Town Council and Northern Electricity, formed a joined venture, Reho Electricity, which in started managing the local electricity distribution system in the town of Rehoboth;
- Southern Electricity Company (Selco), a private South Africa owned firm, signed a management contracts in 2000 with the Town Councils of Keetmanshoop and Karasburg to operate their local electricity reticulation systems;
- Northern Regional Electricity Distributor (NORED), established in 2001 by NamPower and northern Local Authorities formed a joint venture, RED – NORED, which took over from NE in March 2002

(9) The management contract had also had a positive impact on the restructuring of the distribution segment. The new structure, adopted in 2000 divided the electricity utility into four regulated services; generation, transmission, distribution and a single buyer.

(10) Another significant change was the establishment of the Electricity Control Board (ECB) in 2000. ECB has since assisted in making the distribution of electricity more efficient and changing the tariff structure to make it more cost-reflective.

Source: BoKIR 2002, Public Services International Research Unit (PSIRU) 2007

Government support

In Tanzania, NETGroup signed a management contract with TANESCO in 2002, with the purpose of improving the utility's finances (Case study 2). Within the initial term of the contract, until 2004, the contractor achieved an increase in revenues from US$ 10 million per month in 2001 to US$ 16 million per month by mid-2004 (Case study 2, para 7). The increase in revenues was a result of:

- *growing electricity sales*; sales grew by 28% during the period 2001 and 2006
- *higher tariffs*; average price of electricity increased by 28% between 2001 and 2006 (in TSh terms).
- *improving collections levels*; collections rates increased during the first year of the contract from 69% in 2001 to 95% in 2002

In order to achieve an increase in collection levels, NETGroup had to disconnect electricity supply to public institutions, including the national police, which owed large sums of money to TANESCO, forcing them to settle their debts. Government supported these measures.

This enforcement, together with the unpopular measure of tariff increases, would not have been implemented without the Government's support.

Case Studies 2 Tanzania –management contracts

(1) Tanzania's management contract was originally designed as a means to improve TANESCO's financial performance and as an intermediate step to full privatization of the national electric utility.

(2) In 2002, the Government of Tanzania entered into a two year management contract for the national utility, Tanzania Electricity Supply Company Limited (TANESCO), with NETGroup Solutions of South Africa. The contract was extended for an additional two and a half years in 2004.

(3) In Phase I the contract's incentives were mainly (99%) focused on increasing revenues. During the second phase, the performance targets were extended to include technical turn-around. This aimed at mobilising the cash gains achieved in the first phase into new, utility-financed investments in technical performance, network reliability, electrification rates and electricity trade in the region. The reason for the extension of the contract was a shift in policy; privatisation was not a likely outcome and the contract was used as an instrument to achieve general technical improvements that would contribute to improving the sector's performance.

(4) The contract was financed from utility revenues and via a grant from the Swedish International Development Cooperation Agency (Sida). The contract included fixed fees plus success fees related to performance incentive metrics, and the total contract payments are estimated between US$18 to 19 million.

(5) During phase I of the contract, TANESCO's revenues increased from US$ 10-12 million per month in 2001 to US$ 16 million per month by mid-2004. Revenues increased further to US$ 22 to 24 million per month in 2005-06. In total, NET Group success fees totalled US$8-10 million, equivalent to approximately 4% of net increases in revenues achieved during the management contract.

(6) Increases in revenues resulted from multiple factors, including growing electricity sales (37% growth between 2001-2006), increasing tariffs (grew by 28% between 2001 and 2006), and improving collections levels (from 69% in 2001 to 95% in 2006). A major contributor to the increase in collection rates was TANESCO decision to carry out high profile service cut-offs of public institutions, who were the largest debtors.

(7) Despite increases in revenues, the contractors performed poorly in terms of other metrics. More specifically, the contractors failed to achieve sustained reductions in power losses; power losses, in 2006, were still higher than the levels achieved in the period 1992-1997. Also, contractors failed to meet the performance benchmark for quality of supply in the third quarter of phase I, as well as in phase II, while power shortages were very often due to lack of sufficient maintenance of the network. Lastly, non-technical losses during the management contract duration were high, as a result of the expatriate firm's reluctance to make any service application upgrades given that an improvement in non-technical losses would not translate into higher fees (non-technical losses were not included in the performance targets). Due to the contractor's poor performance, except for revenues, the Government's decided not to renew the contract after 2006.

Source: Ghanadan et el 2007

Performance based remuneration

Studies examining the performance of electricity management contracts in SSA agree that performance based compensation of the contractor is more effective that fixed payment contracts.

For instance, in Tanzania, the management contract between NETGroup Solutions and TANESCO, included success fees, on top of fixed fees, related to performance incentive metrics. In phase I, when the revenue incentive made up 99% of success fees, the contractor managed to increase revenues from US$ 10 million a month, prior to the contract, to US$ 16 million per month by the end of phase I of the contract (Case study 2, para 3-6).

Capacity building

Capacity building is generally intended to be one of the key benefits of management contracts. The transfer of knowledge from an international consulting firm to the utility employees should have a long lasting positive impact on the performance of the utility after the expiry of the contract.

In the case of Tanzania, this was a positive outcome of the management contract. The contractors professionalised several utility operations to regional offices. There was also some training of senior TANESCO staff and senior employees.

3.2.2 Limiting factors

The majority of management contracts in the electricity sector in SSA were initiated by donors, who saw the contracts as paving the way for more expensive long-term sector reforms that will allow radical institutional changes to be enacted. On the other hand, many SSA governments have perceived these contracts as a costly way to secure donor funding (World Bank 2010).

The main shortcoming of management contracts is their relatively short lifespan. The short time horizon of such contracts does not allow efficiency gains to be realised and for broader institutional and regulatory changes to be implemented.

In the following sub-sections, we analyse several limiting factors that have posed an obstacle to the success of electricity management contracts in SSA.

Contract incentives

Contract incentives were a major factor that undermined the success of the management contract with TANESCO in Tanzania. As shown in Table 1, during the initial contract period the main performance target, which the NET Group had to achieve in order to secure its fees, was higher revenues (making up 99% of success fees).

The management contract had incentivised the increase in revenues at the expense of other goals including power losses, quality of supply, power shortages and high non-technical losses:

- *Power losses*; No sustained reductions in power losses were achieved during the management contract; Losses initially fell from 28% in 2001 to 21% in 2002 but then increased to 26% in 2003-2005 and fell again to 22% in 2006, still higher than the levels achieved in the period 1992-1997.Contractors paid a small penalty in phase I for not achieving the agreed power loss reduction, while in phase II power losses

were not included in the performance elements and therefore contractors were not penalised.

- *Quality of supply;* The contractors failed to meet the performance benchmark for quality of supply in the third quarter of phase I, but the quality of supply benchmark was not included in the extension of the contract, therefore providing no incentive to contractors to achieve high quality of supply.
- *Power shortages*; Under-emphasizing customer service quality in the terms of the contract had a negative impact on power shortages. During the period of the management contract, the utility was accused of buying poor equipment, which caused consecutive failures and contributed to power shortages
- *High non-technical losses*; Non-technical losses during the management contract duration were high. Customer records were poorly maintained and procedures were poorly enforced. The expatriate firm was reluctant to make any service application upgrades given that an improvement in non-technical losses would not improve its finances.

For those metrics that were incentivised through success fees, NETGroup performed well, while in those that were not linked to any reward, NETGroup performed poorly.

Period	Dates	Objectives	Performance elements	Award to contractor
Phase I; initial contract	May 2002-July 2004	Increasing revenues	Revenue & costs Power Losses Quality of Supply	US$ 10.7 million
Phase II; extension	Aug 2004- Dec 2006	Improve technical performance	Utility profits System Reliability Electrification	US$ 7-8 million

Table 1 Terms of electricity management contact in Tanzania

Source: Ghanadan et al 2007

Unfavourable circumstances

In Tanzania, prior to the extension of the management contract in 2004, contract parties were ambitious about improving network reliability and expanding electrification, partly due to the large cash reserves achieved in December 2004. However, a number of exogenous factors had contributed to making TANESCO incapable of financing network improvements. These factors included:

- *Increase in generation costs*; With IPTL and Songas coming online during the first term of the contract, the costs of generation increased sharply. TANESCO had to pay large capacity payments for these projects. Also, due to the poor hydrology causing acute hydro shortages, during the contract extension period the utility had to increase its reliance on IPPs from 30% of generation to nearly 60% between 2002 and 2006. It is striking that IPP charges to TANESCO averaged 68% of utility revenues.
- *Under-estimating IPP Costs;* the tariff revisions that took place during the management contract were based on lower reliance on IPP generation assumptions and therefore were far from cost-reflective. Since the tariffs were not re-adjusted to reflect the higher costs of generation and the drought conditions, revenue from sales was insufficient to recover costs.
- *Delays in debt restructuring**;*** large debts had been accumulated on TANESCO's balance sheets due to failure from the government and donors to pass on concessionary interest rates for the financing of new investments. The government had confirmed that the restructuring of debt would occur soon after the agreement for the extension of the management contract, but it was delayed until 2006. Meanwhile,

TANESCO was not able to receive commercial bank loans, nor donor financing for pre-agreed electrification projects.

In Mali (Case study 3), a year after the start of operations of the management contractor (French-Canadian consortium) of EDM, in 1996, there was a sudden increase in power demand coinciding with a severe drought that heavily reduced Sélingué's output, which led to many months of serious outages. The management contractor had not foreseen these adverse circumstances and could do very little to improve the situation. These events had a negative impact of the contractor's reputation.

Case Studies 3 Mali –management contracts in electricity

Electricity sector reform in 1993 was a precondition for the government of Mali to receive financing from donors for a power generation project. At the time a management contract was seen as the most feasible options for introducing private participation in the electricity utility, EDM.

In 1995 a French-Canadian consortium led by Saur won the competitive tender to operate EDM for four years. According to the contact, the expatriate firm during the first two years would be compensated on fixed rates basis, while at the end of the two years; a technical review would assess the performance of the firm and set targets for the following two years. Apart from fixed payment, compensation in the last two years would include plus or minus 15% depending on the consortium's performance in terms of bill collections, technical losses among others.

During the first two years the consortium was credited with several performance improvements, such as customer relations, training and well- targeted investments. However, they did not perform well in terms of security of supply and strengthening the accounting system of the utility.

After the second year, the relationships between the consortium and the Malian board of directors deteriorated. Especially during the third year, when several unforeseen circumstances have led to serious blackouts, the board of directors heavily criticised the consortium's management for setting the wrong priorities. During the fourth year of the management contract, the board of directors eventually cancelled the contract.
The cancellation of the management contract led donors to push the government to adopt a private concessionaire model in the electricity sector, which would control both the board and would be in charge of operations. With the help of technical assistance provided by donors, the Malian government designed a 20-year concession agreement.

Source: Harvard University 2005

Costly contract

Several donors have considered the implementation of management contracts for electricity distribution and supply in Africa as a necessary step prior to full privatisation of the electricity utilities and have often included them in the conditionalities for providing assistance to African governments. In the case of Kenya (Case study 4), the performance of the management contractor, Manitoba Hydro, between 2006 and 2008 was generally positive. However, the Government's decision not to extend Manitoba Hydro's contract with KPLC, was heavily influenced by the fact that KPLC would have to shoulder the cost of the contract extension without any financial support from donors.

Case Studies 4 Kenya –electricity management contracts

In 1997, the state-owned utility, Kenya Power and Lighting Company (KPLC), was split into two segments, the Kenya Power Company (KenGen) for power generation, while KPLC retained the transmission and distribution functions.

As part of World Bank's programme to upgrade Kenya's electricity distribution network, the KPLC management contract was part of the conditionalities imposed in order to release the $152 million financial assistance package.

Manitoba Hydro won a two-year management contract in a competitive tender and began operations in July 2006. The management contract led to several gains on the distribution side including:

- Increase in new customer connections from 67,000 to 120,000 in th first year, followed by an increase to 150,000 connections in the second year
- A reduction in system losses from 19.6% to 17.6% during the first year

Despite the noticeable improvements realised over the duration of the management contract the Government of Kenya decided not to renew the management contract. The reason for this decision was two-fold:

- The management contract was too expensive for the utility. Apart from the fixed contract fees, the contract included a performance based bonus (US$ 450,000). The government was also unsure whether the (rather optimistic) performance targets agreed as part of the contract (300,000 new connections, reduction of system losses by 14.5% and reduction of monthly outages from 11,000 to 3,000, among others) were achieved. Therefore, the Government was unwilling to give the agreed bonus to Manitoba Hydro.
- KPLC had been on an upward growth path even before the signing of the management contract having reported a 40% growth in profits by mid-2006 due to a 20% increase in sales

Source: Public Services International Research Unit (PSIRU), 2007 and PPIAF, 2013

Relationships between the utility's board and the management contractor

The expatriate companies were often seen as a threat by the utility employees. This is because the latter were afraid of losing their jobs and also because they often had conflicted interests.

In the case of Tanzania (Case study 2), during the management contract only the NETGroup onsite managing director was allowed to interact with TANESCO's board of directors, which created tensions. The original NETGroup managing director resigned during the second half of the extension period, in 2005, adding further tension to the already fragile governance structure.

In Mali (Case study 1), tensions between the expatriate firm and EDM's board of directors were created due to different perceptions of priorities. The board of directors heavily criticised the budget produced by the consortium led by Saur, often bringing up issues related to senior staff perks. These tensions eventually led to the cancelling of the contract, a year before its expiration date.

Issues unrelated with the management contract

In Madagascar, despite the success of the management contractor, Lahmeyer, in improving revenue collection, system reliability and lowering costs of operations, their contract was not extended because of allegations of corruption against the firm on unrelated work in another country. Even though the incident of corruption was not associated with the management contract, the contractor was not allowed to continue the management of the state-owned power utility, JIRAMA.

Case Studies 5 Madagascar –management contracts in electricity

A German company, Lahmeyer, won a two-years management contact to manage the operations of the state owned power utility JIRAMA in 2005. The performance of JIRAMA prior to the management contract was very poor and declining. The management contract fees were financed by IDA.

The short-term objective of the management contract was to increase JIRAMA's performance so that it can provide satisfactory services to electricity consumers. The ultimate goal was to prepare the utility for entering into a long-term public-private partnership agreement.

The expatriate firm implemented two tariff increases, increasing the electricity tariff by 75% the year when it took over the operations and a further 10% increase in 2006. During the two year contact, several indicators were improved, such as the dispatching of generation plans, revenue collection and cost control measures and resulting in lower financial losses compared to previous years.

The management contract was not extended after its expiry date in March 2007, because, the management contractor, Lahmeyer, was blacklisted by the World Bank for a corruption scandal in a completely unrelated project elsewhere in Africa-the Lesotho Highland Water Project.

Source: World Bank 2006, project appraisal and Swisspeace 2007

Other factors

Other factors, cited in the literature that led to a cancellation of an electricity management contract, include:

- Change of policy away from privatisation
- Shifting donor priorities
- Change of Government

3.3 Conclusions – are management contracts successful?

Though the literature is less useful at answering the first research question, it provides some answers to the second: *How can management contracts be better designed and implemented to ensure that they at least achieve the anticipated outputs*?

The reasons cited in the literature for the failure of management contracts to deliver the expected outcomes are related to wrong contract incentives, exogenous factors, poor performance of the contractor and tensions between the latter and the utility's board of directors.

Even in those cases where the experience of electricity management contracts has been generally positive (e.g., Kenya and Madagascar, Table 2), the model did not prove sustainable because there appears not to have been sufficient time to turn around the utility. The management fees were more costly than the government or utility was willing to pay, and the donors were unwilling to extend their support. Full or partial donor funding was essential in all cases to cover the cost of contractors.

According to the literature, there are mainly two positive outcomes stemming out of management contracts:

- a potential to improve conditions for investment and
- preparation for power restructuring

Even though management contractors may improve conditions for investment by making the utility more efficient and profitable, they do not guarantee investment outcomes, as these continue to fall under government's responsibility (Ghanard et al 2007). In the case of Tanzania, the government and donors had ambitious expectations about the contractor's ability to increase revenues sufficiently to enable the utility to fund network investment (retained earnings and borrowing) and had no other back up plan. Eventually revenues were insufficient to fund basic investments for the maintenance of distribution assets leading to poor technical quality of the network (Ghanard et al 2007).

There is little evidence, one way or another of whether management contracts leave a legacy of a long-term sustained improvement in the overall performance of utilities. But in several cases they have paved the way for power restructuring, as in the case of Namibia and Mali. In Namibia (Case study 1), the initial success of NE attracted the attention of various investors and resulted in a number of other management contracts, in the town of Rehoboth, Keetmanshoop and Karasburg. The management contract in Namibia preceded the unbundling of the power utility into generation, transmission and distribution. In Mali, the management contract cancellation by the government led to the adoption of a 20-year private concession in the electricity sector. As part of the concession, EDM had to increase the number of connections from 80,000 to 143,000 within the first five years of operations. The Mali contract also specified a tariff adjustment formula for the first ten years (see Mali Case study 3).

However, the informational enhancement brought by management contacts prior to fuller private participation does not come at zero risk. Management contractors gain a privileged position in the case of a concession or divestiture, since they have insider information about the financial and technical situation of the utility. The information asymmetry poses an obstacle to other potential bidders from participating in the competitive tender (World Bank 1996).

Country	Utility	Start of contract	Termination	Contractor	Results
Tanzania	Tanesco	2002	2006	Net Group	Mixed
Kenya	KPLC	2006	2008	Manitoba Hydro	Generally positive, but expensive
Namibia	NamPower	1996	2002		Mixed
Madagascar	Jirama	2005	2007	Lahmeyer	Generally positive, but expensive
Mali	EDM	1995	1998	French-Canadian consortium led by Saur	Relatively unsuccessful

Table 2 Management contract for electricity experience

The literature reviewing experience so far from Sub-Saharan African countries suggests that there are several key elements required for successful management contracting in the electricity sector:

- The contractor must be given sufficient **autonomy** by the government to implement necessary reforms, including decision that relate to tariff structure and number of staff
- The contract has to be designed carefully to provide the right **incentives** to contractors, through performance targets that induce successful outcomes. It is also essential to include penalties for failure to meet agreed targets
- **Capacity building** is essential to help the utility to make efficiency improvements even after the management contract expiry
- The management structure should **balance, often conflicting, stakeholder interests**, ensuring that all stakeholders have something to gain. Also, realistic expectations should be created about the prospects of management contracts and be communicated to all stakeholder
- An independent **regulator** that monitors the progress of the management contractor to ensure that contractor's actions fit into the broader sector policy and are cost-effective
- **Remuneration** of management contractors should be performance based to provide an incentive to the private operators to achieve the agreed targets

SECTION 4

What are the evidence gaps?

The literature on assessing the performance of management contracts is rather limited and generally focuses on single cases. There is clear absence of cross-country studies that examine the performance of management contracts in SSA (or more generally). The research that is available tends to relate to management contracts begun in the 1990s or 2000s. The studies do not address the first research question we posed in Section 3:

> Are management contracts fundamentally useful at encouraging the efficiency of electricity companies in general, and electricity distribution and supply companies in particular?

The studies are more useful in helping answer the second research question posed:

> How can management contracts be better designed and implemented to ensure that they at least achieve the anticipated outputs?

In most cases, the studies that have been conducted have compared the performance of the management contractors against the agreed objectives, irrespective of whether these objectives/targets were reasonable or appropriate. In those cases where the initial objectives were too ambitious, the results from such studies could be misleading. Also several studies measure short term metrics to evaluate the performance of the contractor, often ignoring possible structural changes/improvement within the utility, which would only become apparent several years after the expiry of the contract.

Evidence from management contracts in sectors other than electricity (i.e., water and sewerage) could be relevant to the electricity sector and electricity distribution specifically. Many of the problems and lessons identified in other sectors will be useful for the electricity (distribution) sector.

SECTION 5

Conclusion

The literature discussing management contracts in electricity (whether electricity distribution and supply or electricity in general), particularly in SSA, is very limited and often very dated. Though the number of management contracts in electricity in SSA may be relatively small, own experience suggests that there are a number that have not been investigated that could provide useful evidence to help answer the research question: ***Are management contracts fundamentally useful at encouraging the efficiency of electricity companies in general, and electricity distribution and supply companies in particular?*** Additionally, while studies have been undertaken on individual management contracts, we have not found any attempts to assess management contracts on a systematic comparative basis. These are potential directions for research to fill the evidence gaps.

Annex 1 Annotated Bibliography

Note, scoring is provided to reflect the authors' opinion of the relevance of each reference to this particular report, 3 being most relevant, 1 being of less relevance).

Bakovic, T, Tenenbaum, W and Woolf, F, 2003, Regulation by Contract: A New Way to Privatise Electricity Distribution?, available at:
http://www.naruc.org/international/documents/day2-wbp7.pdf

This paper examines whether regulation by contract could provide a better regulatory system for developing countries that aim to privatise their distribution system. It includes a discussion of the characteristics of regulation by contract and discusses their application in several countries. It also examines in more detail the regulatory experiences of distribution entities in Latin America and India. The paper concludes with a discussion of lessons learned.
Score: 3

Besant-Jones, J. E, 2006, Reforming Power Markets in Developing Countries: What Have We Learned?, Energy and Mining Sector Board Discussion Paper 19, World Bank, Washington, DC., available at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2007/03/07/000310607_20070307122641/Rendered/PDF/380170REPLACEMENT0Energy19.pdf

The paper focuses on power reforms in developing countries and draws from about 240 sources, including case studies about power market reforms in almost 30 developing countries. According to the paper, the reforms which, were initiated due to the poor performance of state-owned utilities, have generally been tentative and incomplete. The paper also supports the idea that small markets do not encourage competition.
Score: 1

Body of Knowledge on Infrastructure Regulation (BoKIR) 2002, Northern Electricity Distribution Service in Northern Namibia, A Case Study in the Private Provision of Rural
Infrastructure, available at: http://regulationbodyofknowledge.org/wp-content/uploads/2013/03/EconOneResearchInc_Northern_Electricity_Distribution.pdf

This paper provides a critical assessment of the management contract's performance between Northern Electricity's power distribution business in northern Namibia and the Namibian government, between 1996 and 2002. The paper relies on literature, as well as primary sources, including interviews.
Score: 3

Eberhard, A. (2007), The political economy of power sector reform in South Africa. In Victor, D. G. (ed.). The political economy of power sector reform: The experiences of five major developing countries. Cambridge: Cambridge University Press. Available at: http://www.gsb.uct.ac.za/files/StanfordCUPBookChapterp215-253_6.pdf

The paper analyses the experience of power sector reform in South Africa. It discusses the process of the reform, the obstacles and how they were overcame.
Score: 1

Ghanadan, R. and Eberhard, A, 2007, Electricity Utility Management Contracts in Africa: Lessons and Experience from the TANESCO-NETGroup Solutions

Management Contract in Tanzania, available at:
http://www.gsb.uct.ac.za/files/TanzaniaManagementContract.pdf

This paper analyses the experience of management contract in the electricity sector of Tanzania, between the expatriate company NETGroup and the government-owned utility, TANESCO. It provides an overview of the contract, the targets set and the performance of contractors against these targets.
Score: 3

Harvard University 2005, Case study: Energie du Mali, available at:
http://www.ub.edu/graap/EDM.pdf

This paper provides an overview of the power reform in Mali, including the experience of the management contract between 1995-1998.
Score: 2

KPMG, 2014, Sub-Saharan Africa Power Outlook,, available at:
http://www.kpmg.com/ZA/en/IssuesAndInsights/ArticlesPublications/General-Industries-Publications/Documents/2014%20Sub-Saharan%20Africa%20Power%20Outlook.pdf

The paper provides an overview of the Sub-Saharan Africa power sector as a whole, including a comparison of the economic growth, demand levels, capacity, share of renewable energies, population, regulatory reforms and key developments in each country.
Score: 1

Pollitt, M, 2007, Vertical Unbundling in the EU Electricity Sector, Intereconomics, available at:
http://www.researchgate.net/publication/24055950_Vertical_Unbundling_in_the_EU_Electricity_Sector

The paper discusses the pros and cons of ownership unbundling in the power sector of developed countries. It measures the welfare effects of unbundling and concludes that the largest expected positive effect of unbundling electricity distribution is associated with increasing competitiveness in the wholesale energy market.
Score: 1

PPFIAF, 2013, PPIAF Assistance in Kenya, available at:
http://www.ppiaf.org/sites/ppiaf.org/files/documents/PPIAF_Assistance_in_Kenya.pdf

The paper provides an overview of the two year management contract signed between the government of Kenya and Manitoba Hydro. The general conclusion of the paper is that the management contract led to gains on the distribution side, including higher connectivity rates, reduction in power losses and voltage fluctuations.
Score: 3

Public Services International Research Unit (PSIRU), 2007, Energy privatisation and reform in East Africa, available at: http://gala.gre.ac.uk/3581/1/PSIRU_9706_-_2006-11-E-Eafrica.pdf

This paper provides a review of the experiences with power sector reforms in three east African countries, namely, Kenya, Tanzania and Uganda. The review includes a discussion on the use of independent power producers (IPPs) and reforms in power distribution network, including management contracts.
Score: 3

Swisspeace 2007, Madagascar: Trends in Conflict and Cooperation, available at: http://www.swisspeace.ch/fileadmin/user_upload/Media/Projects/FAST/Africa/Madagaskar/FAST_Update_Mad_07_03.pdf
The article analyses the political and social trends in Madagascar
Score: 1

United Nations 2011, High-level Workshop on 'Public-Private Partnerships' implementation in the Energy Sector in Africa: Challenges, Best Practices and New Trends', available at:
http://www.uneca.org/sites/default/files/uploaded-documents/MPD/PPP-HLW2011/ppp_in_the_energy_sector-eca_background_paper.pdf

The paper analyses the role of the private sector in improving infrastructure service provision in Africa's power sector. It makes the distinction between public private partnerships (PPP) and private participation in infrastructure (PPI) models and compares their relative success and challenges associated with each project type.
Score: 2

World Bank PPP IRC website, available at: http://ppp.worldbank.org/public-private-partnership/agreements/management-and-operating-contracts

The website provides an overview of the characteristics of management contracts, their key features and illustrates several examples of countries that have implemented such contracts.
Score: 2

World Bank, 1996, Privatizing Africa's Infrastructure: Promise and Challenge, Volumes 23-337

This paper examines the prospects and challenges of infrastructure privatisation in Sub-Saharan Africa, with particular emphasis on power, telecommunications, water, rail, ports and airports. A number of private participation models are analysed including management contracts. Four challenges related to infrastructure privatisation are identified, namely, concerns over market size and affordability, lack of regulatory frameworks, dealing with non-commercial risks and mobilising local finance.
Score: 1

World Bank, 2006, Project Appraisal, The Republic of Madagascar, Power/ Water sectors recovery and restructuring project, available at:
http://documents.worldbank.org/curated/en/2006/06/6874187/madagascar-powerwater-sector-recovery-restructuring-apl-project

This is a project appraisal paper analysing the performance of the World Bank programme that aimed to improve the public utility service for electricity and water in urban areas of Madagascar through a management contract between a private operator and the state-owned utility- JIRAMA. The paper analyses a number of performance indicators and concludes that the management contract was generally successful.
Score: 3

World Bank, 2008, Underpowered: The State of the Power Sector in Sub-Saharan Africa, available at:
https://openknowledge.worldbank.org/bitstream/handle/10986/7833/482140ESW0P11110Power0Sector0Review.pdf?sequence=1

This study provides an overview of physical infrastructure in Africa and sets a benchmark for monitoring results regarding improvements in infrastructure achieved with donor support.

The paper compares a number of contractual ways through which the private sector can get involved in infrastructure investments, including management contracts. The paper compares the relative success of these contracts in Africa.
Score: 3

World Bank, 2010, Africa's Infrastructure: A Time for Transformation, available at: https://openknowledge.worldbank.org/handle/10986/2692

The paper provides an overview of private participation in infrastructure (PPI) in Africa in the ICT, power, telecommunications and water sectors. The experience from the PPI projects is then used to make recommendations regarding more efficient use of resources provided for infrastructure investments.
Score: 3