

WATER SUPPLY AND SANITATION PROVISION WITH PRIVATE SECTOR PARTICIPATION: A CASE STUDY OF TRINIDAD

VIRJEE Kameel¹, GASKIN Susan²

¹ kameel.virjee@mail.mcgill.ca PhD. Candidate Department of Civil Engineering and Applied Mechanics McGill University 817 Sherbrooke St W Montreal QC H3A 2K6

² Assistant Professor Department of Civil Engineering and Applied Mechanics McGill University 817 Sherbrooke St W Montreal QC H3A 2K6

1 INTRODUCTION.

The supply of water and sewerage services in developing countries often lacks the service levels that are seen in similar utilities in developed countries. Trinidad is one such example where historically the water supply and sewerage facilities servicing domestic, agricultural and industrial water needs have been less than ideal.

The twin island nation in the eastern Caribbean has a population of 1.3 million and due to significant oil deposits the country is considered a middle income one (World Bank, 1994). Through an act of parliament in 1965, the Water and Sewerage Authority (WASA) was established as an autonomous statutory body to provide the country's water and sewerage needs. A board of commissioners, appointed by and reporting to the government, oversees the operations of the utility.

The policies which have guided the supply of water to the islands' inhabitants have varied through time (Mycoo, 1996). During the 1960s WASA was expected to increase piped water supplies to the population of Trinidad and Tobago and ensure that the quality and reliability of the supply were adequate. Water rates were set by the Public Utilities Commission, which, using a rate of return price setting mechanism, allowed for a 7 to 8.5% surplus generation at the utility. Into the 1970s, the policy of guiding water provision in the country shifted to stress universal coverage but with income redistribution through subsidization of water services as well. So, during this period real water rates fell, as they were not adjusted with inflation. Over these decades the finance of the deficit caused by significant capital expansion in line with universal coverage objectives was met through direct transfers from the government exchequer. This was possible largely as a result of the significant windfalls realized during the 1970s international oil crisis.

With the fall in oil prices, which occurred in the 1980s, the ability of the central government to use direct transfers to finance operating deficits at WASA was reduced. It was, therefore, necessary to redefine the operating principles of the utility and seek financial sustainability at the utility.

Persistent low revenue and inflated costs had led to a utility where sustainability was a remote possibility. Revenues were low for two reasons. As water rates did not increase with inflation over time, the potential revenue base available to the utility shrank through time. As well, the guaranteed transfers from central government had reduced efficiency in the utility, resulting in low billing collection efficiencies. Political patronage has historically interfered with the labour policies of the utility and so operating costs were inefficiently high due to a bloated labour force

which amounted to 60% of the operating costs of the utility in the early 1990s. Shrinking government transfers also had the effect of reducing the ability of the utility to maintain its infrastructure, with the ultimate result of a severely degraded distribution network, with estimated losses ranging from 30% to 80% of total water abstracted, in the early 1990s (JICA, 1991).

The decreasing levels of service, resultant from a degraded network and insufficient capital expansion to meet growing demands, led to the seeking of innovative changes to the utility. It was with this objective that the 'dream team' was appointed to manage the utility in the early 1990s. This group originated from local private sector management and the introduction of such management expertise was expected to rationalize the excess of the previous, supply side management. Despite efforts to enhance the operational efficiency of the utility, most significantly through the introduction of a voluntary separation program, the efforts of this team failed to increase the level of service provided by the utility. This is due to the fact that management inefficiencies explained only a portion of the total utility failings. Capital investment was required to upgrade the distribution network and expand production facilities. For this reason private sector participation (PSP) was sought.

This paper discusses that private sector participation, and follows the sustainability of initial improvements, introduced through a management contract and through the period following that contract. The paper then concludes with lessons learned from the recent experience of WASA with private sector participation in various aspects and to different degrees of its business.

2 THE MANAGEMENT CONTRACT

Owing to the difficulty in rationalizing the operations of the utility as outlined above, the government of Trinidad and Tobago embarked upon an innovative privatization process in 1994. The move towards involving the private sector was also encouraged by international donor agencies, through conditionalities in loans. Various PSP models were available to the government, engaging the private sector to different levels of involvement and, correspondingly, transferring various levels of risk to the private sector. The model considered in the case of WASA was long term concession. This was due to the fact that significant investment in capital works was required as well as an overhaul in the management of the utility. By employing a concession arrangement the private partner would be responsible for investment in capital works so allowing for the much needed investment in network rehabilitation and expansion of production facilities. As well the wide scope of responsibilities in a concession arrangement would allow the private sector to introduce management expertise and so refine business practices at the utility. The difficulty with this model, however, was that it requires significant information to ensure workability. Information is required to ensure that adequate regulation can occur, given the universal requirement of water supplies and natural monopoly of any concession. As well, information about the utility and the system it owns and uses is required to ensure that the negotiated contract between the public and private sectors is appropriate. In the absence of good system information it would be anticipated that a risk premium would be added to the negotiated contract costs, either through increased negotiated tariffs or through increased flexibility in the review of tariffs after the start of the concession. In the case of WASA, such system information was lacking and so a concession arrangement arising out of the lack of data would be rather inefficient and potentially result in a higher cost and lower service level for users. In the case of Trinidad and Tobago another major obstacle preventing the immediate application of a concession agreement was that the law of Trinidad and Tobago did not allow for a transfer of ownership, such as is implied in a standard concession arrangement. Therefore, for a concession to be given to the private sector, time was required firstly, to refine the act governing the

operations of WASA and secondly, to develop sufficient information to allow for an efficient regulatory arrangement and concession agreement to be reached.

Due to the pressing need for reform in the sector, the government opted to engage in a two stage privatization process. As outlined above, the benefits of a concession were ultimately what were desired, so a two stage process was embarked upon. In the first, a private operator was to be engaged in a management contract, in what was called the interim operating agreement (IOA). This was to be followed by a concession, or a long term arrangement (LTA). The IOA would aid in developing system information, reducing the risk involved in the LTA, and begin management improvements. As well, the IOA would provide time to pursue legal changes to the WASA Act, which would allow for deeper private sector involvement.

The operator for the IOA was selected in a two-stage selection process. Interested parties were pre-qualified on the basis of their experience in the water sector and whether they had sufficient financial strength to enter into an LTA. Five firms were invited to submit detailed proposals for the second stage (Nankani, 1997). This proposal was composed of three main elements; a technical proposal, a financial proposal, and a supplementary proposal (Stiggers, 1999). The technical changes proposed were scored on a predetermined scale, where increased risk taken by the operator was scored higher. In this case, risk was considered to be related to the proportion of the total management fee which would be payable only upon delivery of payment performance indicators. Details of the numbers and qualifications of staff to be seconded to WASA under the proposal were also included in this document. The financial proposal was opened only if the technical proposal was deemed sufficient. It included details of a loan facility, composed of a maximum loan of TT\$450 million and an overdraft facility of TT\$ 30 million, to be arranged by the private bidder, where lower interest rates were considered as more beneficial, and so rated higher. Finally, the supplementary proposal included other strategies for service improvement which were proposed by the bidder. The winning bidder was a consortium composed of Severn Trent International and George Wimpy (Caribbean) Ltd. (ST/W).

A special purpose company was registered by ST/W, Trinidad and Tobago Water Services (TTWS). This company, together with the Government of the Republic of Trinidad and Tobago (GORTT) and the board of WASA, were signatories of a confidential contract document, signed in November of 1995.

The contract was composed of a main agreement with annexes covering details of the contract. Under the agreement, TTWS was to provide management staff to be seconded to the executive management team at WASA. As well, special purpose teams were to be employed from ST/W, to engage in specific tasks. TTWS, through another special purpose company was to arrange an operating loan for WASA, of TT\$450 million, to finance operating deficits during the IOA. The executive management team was to report to the WASA board which was appointed by the government. As part of the agreement, the GORTT was to assume all of the past debts of the utility as well as provide for capital finance for any capital works agreed upon during the contract.

The business plan submitted by ST/W as part of their tender documents was to form the basis for the operational requirements. TTWS was to increase the level of service, as measured by a proprietary indicator to be developed after the start of the contract. As well, the operator was to generate an operating surplus by the end of the IOA period. This projection was based primarily on increased revenue to be generated through improved billing collection and increased rates to be applied, under the PUC order 83, to customers who had more than 12 hours of water supply per day.

The operational requirements were to tie into the management fee through performance based pay. In attaining performance payment indicators, according to the schedule laid out in the business plan, the operator would receive 61% of the total management fee. The remainder was to be a guaranteed portion. These payment indicators were to be developed and passed by the WASA board after the start of the contract, and were to reflect the state of affairs at WASA both at the start of the contract as well as progression through the duration.

TTWS was to set up a dedicated procurement unit which would circumvent traditional tendering procedures required under the relevant government legislation. This dedicated procurement unit would allow for faster procurement, through the reduction of bureaucratic checks but leave the system more open to possible irregularities. As well, the procurement unit would have access to the greater buying power, and so lower prices, available to the ST/W group of companies, which would reduce the cost of inputs to WASA.

The main contract was signed by the government days before a national election in which they, the Peoples National Movement (PNM), were replaced by the United National Congress (UNC). As a major campaign promise of the UNC was the removal of Severn Trent, upon their gaining office the status of the contract signed by the PNM became tenuous. The significant penalties associated with the renegeing of the contract, and the poor indicator to multilateral banks and overseas investors made it impossible for the UNC to cancel the contract. Instead, they opted to renegotiate some of the elements, to be more in line with their government's objectives.

Essentially, the renegotiation stressed a customer service orientated organization, which would seek to expand service levels equitably, and protect vulnerable consumers through targeted subsidies. The circumvention of tender procedures, which was implied by the creation of the dedicated procurement unit, was constrained by increased control measures, in that proposed purchases through the TTWS procurement unit would be subject to WASA board approval. Another major change was an enhanced focus on increased capital investment, including the South Water Project and a meter installation project, to be financed by the World Bank.

3 PERFORMANCE OF THE PRIVATE OPERATOR

The private operator was to perform in two major areas; it was to move the utility closer to financial viability as well as increase the level of service given to the utility customers. Further, the renegotiated contract emphasized the latter goal through the development of a 'water for all by 2000' program under the UNC.

In order to assess the performance of the private operator under the IOA numerous of indicators can be considered. Yepes and Dianderas (1996) discuss a number of such indicators and international performance benchmarks. Such indicators will provide insight into the performance of a utility and enable a comparison with international norms. This having been said, it is critical to consider other relevant indicators which highlight a specific areas of interest in the performance of the utility.

With regard to operational performance changes under the IOA did occur. As such changes were highly dependent upon finance to be raised by government, it is unfair to suggest that changes under the IOA are attributable solely to efforts by the private operator. Equally a lack of change could easily be a result of factors outside the private operator's control. The operational performance changed most significantly with regard to the level of management systems in place. Leakage management and mapping activities were initiated, with views for long term performance gains. Pilot studies, such as metering flow in closed districts of the network, were

begun which aimed at increasing the level of system knowledge. The lack of reliability in serving customers was a major concern prior to the IOA, and a major justification for the engagement of an international operator. The difficulty presented in the process, however, was the measurement of changes in the reliability of service. The contract originally signed with ST/W specified a performance indicator, to be tied to the performance pay portion of the management fee, based on measured flows in the network called the P-Factor. Due to, however, the lack of system information collection infrastructure, the detailed P-factor was impractical. Instead, the full service equivalent (FSE) was developed. This used the schedule of water rationing by WASA as a proxy for water in the pipes and was used for contractual performance change measurement. As system information was uncertain, it was impossible to use actual measured flows to ascertain the amount of water in the pipes, as required by the P-factor, so instead, the planned availability of water, as indicated by the schedule, was used. The difficulty with such a measure is the fact that unaccounted for water was very significant and so it would be expected that the planned availability and actual availability of water would not be equivalent. The development of such a reliability indicator is of interest here. This indicator was developed by TTWS as part of their contractual obligations. The contract then specified that a specific change in the FSE through time was required. A conflict of interest, therefore, existed. Compounded upon this conflict, was the possible constraint of increased risk faced by the operator given uncertainty surrounding external finance. Changes to the FSE, were mostly to be realised through capital works projects, which in turn were contingent upon external finance, and in particular, a World Bank loan.

During the IOA, plant downtime of critical items, which can be taken as a proxy of unscheduled interruptions in supply, was reduced from 50 days to 4 days per year. The water abstracted was increased by 30%, to 176 million gallons per day (Severn Trent, 2002), financed through debt incurred by the government in its north and south water projects.

Financially the utility improved somewhat, through the efforts during the IOA. Costs were cut significantly, through the use of another voluntary separation program (VSEP). The VSEP resulted in a reduction of over 30 % in the labour force to leave 8 staff per 1000 connections (due to a concomitant increase in the number of connections), as compared to 15 prior to the IOA.

As well, the revenues generated by the utility were increased over the period. This increased revenue was derived, primarily, from increased billings and billing collections. The increased billing arose from the addition of 50000 customers to WASA's database, through the efforts of a customer cadastre survey. It had been anticipated that revenues should increase further as a result of increased water reliability, and the resultant tariff increased implied in PUC order no. 83. This did not happen due to the lack of change in service level, which in turn was due to lower levels of capital investment to upgrade the network, which only came online towards the end of the IOA period.

So, under the IOA some positive changes were made. The operations of the utility were improved through the introduction of improved management systems. These systems would in the long term reduce costs and optimize maintenance activities. Further, changes in the water abstracted and leak reduction programs increased the reliability of supply, albeit only slightly. The finance of the utility was improved, through increased revenue generation and decreased costs. This resulted in a small surplus at the end of the IOA, as was required for one of the performance payment indicators. It should be noted that the reduced costs were as a result of a one time streamlining of the labour force and that increased revenues were as a result of a singular expansion in billing efficiency. As such neither the cost or revenue changes under the IOA had much scope for further improvements. The IOA did not perform up to all expectations, with the primary constraint being the tardiness and lower levels of finance for capital works

which would have resulted in improved reliability of service. Another major constraint was the poorly designed contract. As the contract did not specify the indicators to be used for performance payment portions of the management fee, rather leaving it to the operator to develop the indicators, the integrity of the performance evaluation process was questionable. In addition, numerous delays were introduced due to this requirement.

During the IOA, a new regulatory body was created, the Regulated Industries Commission (RIC), whose mandate it was to regulate utilities in Trinidad and Tobago, under private sector management. Information realised from the improved management systems at WASA was to facilitate this activity, though the pilot scale improvements were not sufficient to monitor performance of the utility at the end of the IOA.

It should be noted however, that the major purpose of the IOA was to facilitate the entry into an LTA through increased system knowledge and management streamlining. As the contract with ST/W gave preferential treatment to the consortium for the negotiation of the LTA, and made the entry into the negotiation contingent upon performance that essentially was to be specified by the operator through the development of proprietary performance pay indicators, TTWS sought to change operational policies such that they would be ready for an LTA. The IOA, then did not, and was not really designed to, improve the utility to be run on a stand alone basis. Changes made were to facilitate a long term plan that was embodied in the LTA. As such, the performance under the IOA, and its judgement is difficult.

4 THE UTILITY PERFORMANCE AFTER THE IOA

The period immediately following the IOA saw the institution of new management, with the advertised intention of filling a transitory position, while the LTA was negotiated. The contract required that negotiations towards an LTA be entered into should the private operator meet performance standards during the IOA and so the government was obliged to negotiate with the ST/W consortium. Given the anti-privatization policy of the UNC government and the poor relationship with the inherited private operator the mandatory negotiations were stillborn. The offer by ST/W was to be included in any further tender process for a long term PSP arrangement, but the favour due to ST/W as a result of the successful completion of the IOA contract was not given. The UNC government moved towards the tendering of a water concession by engaging a private consultant to act as a transaction advisor. With the re-election of the PNM, however, the avenue of greater PSP was effectively closed and a new executive management team and board of directors were engaged.

The post-IOA period can then be broken into two sub-periods. The time immediately following the IOA was characterized by a UNC government and their policy of 'water for all by 2000', with a long term private sector solution as required. After this, from 2002 until the present, a PNM government attempting to distance themselves from UNC policies characterizes the approach to water provision in the country. Under the PNM government, the potential of an LTA was removed and management of the utility reverted to managers having spent most of their careers inside the organization. Of note is the fact that the initial movement towards PSP was made by the PNM government with the idea becoming politically unacceptable only after the management contract with ST/W was managed by the UNC.

Immediately following the IOA, local managers replaced the outgoing ST/W staff. The government transferred the debt it had assumed for the purpose of the IOA/LTA process back to the utility making WASA again responsible for the considerable debt accrued through its history. The debt burden was significantly larger than at the outset of the IOA given the TT\$450 million

operating loan, arranged by ST/W as part of their contract, and the loans taken for both the South and North Water Projects, totalling over TT\$1 billion.

The local management continued to attempt to increase billings. Revenues from water rates, however, remained approximately constant at TT\$350 million. Costs, in the post-IOA period, however rose and were over TT\$550 million by 2002. The operating ratio, then, had increased from below one at the end of the ST/W contract to 1.44 by 2002. This increased cost is primarily a result of increasing labour costs introduced by new management teams in the post IOA period.

As well, during this period of time WASA engaged a private operator in a build-operate-transfer (BOT) desalination plant. This plant was to provide water to a rapidly growing industrial estate, Point Lisas Industrial Estate, in the southern part of the country which would be underserved by the intermittent supply that WASA could otherwise offer. To facilitate financing the plant, government authorized a rate increase of TT\$ 4, to TT\$ 7.50 per cubic meter, to consumers in the Point Lisas Industrial estate. This increased rate was applicable prior to the new plant becoming operational so as to allow for increased revenue to the utility. The decision to utilize desalination technology to expand the supply of water to the area was based on the speed with which increases could happen. Other options included increased surface storage, which would have taken considerably longer to come online resulting in an increased water deficit to industry. Of note, is the significant markup associated with the contract. WASA was to sell the water to industry at a TT\$ 3 markup due to the increased reliability and quality of the water and so realize a significant windfall that could be used to subsidize other water users. At present, the desalination plant feeds into the domestic supply network during the dry season as demand is below the capacity of the plant. This BOT arrangement has drawn significant criticism due to the high cost of water extraction given the significant water availability in Trinidad. At present, WASA claims that the desalination contract is a significant reason for its financial distress, as it the cost to the utility accounts for almost half of its monthly revenue.

The most recent management team has been appointed from within WASA, with extensive experience within the organization. And despite significant capital investment, in the form of the continuation of the North and South Water projects, in the four years following the IOA, much work remains to be done as water service continues to be poor in many areas of the country, with leakages still estimated at almost 50% (WASA, 2002).

In 2002 WASA's operating deficit was almost TT\$450 million, as compared to the breakeven level at the end of the IOA. Some of this is due to the responsibility for debt service, which had been removed through the government's assumption of WASA's past debts during the IOA. At present the debts of the utility amount to about TT\$ 2.5 billion resulting in debt service payments of TT\$150 million or 40% of total annual revenue.

In summary then, significant investment in capital works occurred in the post IOA period, and the cost of this and previously accumulated debt led to a degradation of the operating ratio of the utility. Service levels changed slightly over the period, owing to the increased capital works but remain considerably erratic due to seasonal water availability. The constraints, which curtailed the effectiveness of the IOA, remain in place. Namely, the lack of the ability to pay for finance for capital works continues to be an inhibitor to service level increases.

5 CONCLUSIONS

The examination of the Trinidad and Tobago case study provides interesting lessons with regard to the private sector involvement in the provision of water services. The water authority of

Trinidad and Tobago, WASA, has historically been constrained in providing adequate service to its customers by an overdependence on direct government transfers, due to tariffs set below cost recovery levels, to meet its operating expenses. As well, political interference has traditionally led to an underperforming management team. In order to remedy these two deficiencies WASA moved towards private sector involvement in the management of its operations. The IOA, which was essentially a management contract, resulted in some positive changes, though the persistent constraint of capital works finance and below cost recovery level tariffs reduced the effectiveness of the contract. As well, the poor contract design led to inefficiencies in the operations of TTWS. Changes made under the IOA, namely the installation of improved management systems leading towards improved system information and financial management, have remained in place, after the IOA. Operating expenses however have continued to increase. The constraints preventing increased service levels to customers persist. Finance remains difficult to raise, and revenue remains low, given tariffs set below cost recovery levels. The increased operating costs in the post- IOA period are indicative of insufficient cost controls in the management structure.

In examining the role of the private sector in WASA it becomes apparent that the major benefit would be the ability to engage foreign financial resources to allow for system upgrades. As well, systems to monitor service levels could be introduced. Most likely, in the medium term, private sector involvement will be limited to special purpose projects, such as the BOT desalination plant recently constructed. This form of PSP has the benefit of engaging private finance.

It is of critical importance that any private sector involvement in the water sector be based upon clear contracts with measurable performance targets established a priori to the start of the contract. In the case of WASA, the lack of definition in the contract documents, and the expectation that ST/W would develop the relevant indicators, and then be governed by them, resulted in a conflict of interest where the operator had little incentive to develop a sufficiently rigorous service level performance indicator.

As well, the regression of the utility, in terms of financial performance in the post IOA period is also of note. The increase in the operating ratio is in part due to rising costs associated with increased personnel costs. Assuming that the ST/W contract rationalized the staff levels, which were prior to the IOA bloated, the rising costs associated with increased staff costs after the IOA are indicative of increased political appointments. That is, any autonomy, and efficiencies, which resulted, realised under the IOA have been eroded in the reversion to a fully public utility.

The sustainability of the utility is based on its ability to recoup the costs associated with the supply of service. For the utility to do so, a TT\$ 200 million, excluding debt service, needs to be recouped from tariff increases, assuming that the costs are at an efficient level. Such a rate increase would not be feasible unless service levels increased, and so to recoup costs, capital investment must be made. Given the financial constraints on government, continued general deficit financing of WASA seems an unlikely possibility. As such, alternative finance routes, such as through increased private sector participation, seem to offer an alternative route to allow for capital works required for service level changes at WASA. The prohibitive debt service,

amounting to half of the utility's revenue, makes it very unlikely that any operator, whether private or public, will attain financial sustainability. As such, financial sustainability is further predicated upon the removal of this debt, as had been assumed in the IOA, where the government was to assume the accumulated debt of the utility.

6 REFERENCES

Japanese International Cooperation Agency (JICA), The Study on the Improvement of Water Supply Supervisory System in Trinidad and Tobago, Final Report, for Government of the Republic of Trinidad and Tobago, 1991

Mycoo, M, Water Provision Improvements: A Case Study of Trinidad, PhD. Thesis, School of Urban Planning, McGill University, 1996

Nankani, H., Testing the waters- A phased approach to a water concession in Trinidad and Tobago, Note No. 103, Viewpoint, World Bank, Washington, D.C., 1997

Severn Trent, Water and Sewerage Authority, IOA improvements 1996-1999, received 2002, internal document.

Stiggers, D., Private participation in water and wastewater services in Trinidad and Tobago, in in Can Privatization Deliver? Infrastructure for Latin America, Basanes, F., Uribe, E., Willig, R. (eds.), Johns Hopkins University Press for IDB publications Section, Inter-American Development Bank, Washington, D.C., 1999

Water and Sewerage Authority (WASA), State of the Utility, Status Report, 2002

World Bank, World Development Report, Infrastructure for Development, Oxford University Press, Oxford, U.K., 1994

Yepes, G. and Dianderas, A., Indicators: Water and Wastewater Utilities, 2nd edition, World Bank, Washington, D.C., 1996