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Privatizing water

The Jakarta concession and the limits of contract

Fresh water is a much-contested resource. Farmers, households and industry make competing demands on available water resources, using these variously as transport medium, source of drinking water and manufacturing process water, industrial coolant, recreational facility, pollution sink, and key resource for agriculture and fish farming. It is largely left to governments to work out acceptable solutions to the knotty problem of water management. The 1990s saw governments worldwide experimenting with market-mimicking devices for water management. One interesting set of experiments was the hand-over of drinking water supply management to private, for-profit operators. Privatization revolutionized the urban water supply industry, hitherto a staid government monopoly.

This article analyses one privatization experiment – the water supply concession granted to two private firms in Jakarta, Indonesia. The Jakarta privatization's launch in 1998 was marred by a host of problems and the concession contract failed within a year.

I analyse the inauspicious start of the Jakarta concession from the contrasting perspectives of 1990s' privatization theory and contract theory. First I provide an overview of water management issues in Jakarta. The next three sections discuss the Jakarta water supply industry, the politics of water privatization, and the evolution of water privatization in Indonesia up to the signing of the Jakarta concession contract. At this point I turn to the academic literature, juxtaposing privatization theory and contract theory. Contract theory spells out five conditions for successful privatization by contract: good governance, genuine competition among contract bidders, manageable risk, a complete specification of services to be rendered, and a realistic possibility of the contract being terminated. I argue that the concession contract fell short on each of these criteria. Key findings are summarized in a final section.

Water management issues in Jakarta

Jakarta is the political, economic and demographic centre of the Indonesian republic. With 2.7 million inhabitants in 1960, Jakarta was the 29th largest city in the world. In 2000, 11 million persons lived in Jakarta, which by that time had climbed to the 12th rank. By 2015 the city's population is projected to exceed 17 million (United Nations 2004). Like other metropolises in developing countries, Jakarta experiences many problems in the management of its water resources, despite the abundance of freshwater sources. A monsoon climate ensures an adequate replenishment of water stocks. Rainwater is stored in both surface water bodies and aquifers.

These resources notwithstanding, the Indonesian capital experiences water scarcity. This problem stems from inadequate management of both surface water and groundwater. The government struggles to manage private exploitation of groundwater resources. For the past four decades firms and households have extracted groundwater at higher than sustainable rates. A regulatory permit-and-quota system is in place, but enforcement thereof is piecemeal (Braadbaart and Braadbaart 1997). Consequently groundwater levels drop, driving up pumping costs for exploiters. Over-extraction also spoils groundwater stocks because it causes infiltration of brackish water into freshwater aquifers. Moreover, over-pumping leads to land subsidence (the northern areas of the city have experienced drops of 3-6 cm per year) which causes damage to infrastructure and increases the risk of tidal floods (Foster, Lawrence and Morris 1998:47).

The management of surface water resources is better organized. Up to 1990 Jakarta's manufacturing firms regarded rivers and canals as a convenient sink for industrial wastes. However, these freshwater bodies also functioned as sources of water for drinking and other uses. Over the past decade the Indonesian government has made important progress in cleaning up its rivers (Braadbaart 1995; Rock 2002). But still the effluent of 900,000 household septic tanks is thought to be discharged into Jakarta's surface water (Foster, Lawrence and Morris 1998:14).

Further, Indonesia lacks a structure for water resources management. This creates co-ordination problems at the water basin level. For example, Lake Jatiluhur constitutes a primary source of water for Jakarta. Jatiluhur water is used for downstream irrigation, for the flushing of canals, and, last but certainly not least, as a source of raw water for the Jakarta drinking water industry. An autonomous authority manages the Jatiluhur reservoir. Jakarta depends on this authority, over which it has no formal say, for an adequate supply of raw water to its largest water purification plant at Buaran. The Buaran plant is at the mercy of the Jatiluhur authority when it comes to the quality and quantity of raw water, yet a formal structure for the co-ordination of the authority's activities with those of downstream users in Jakarta does not exist.

The drinking water supply and the politics of water privatization

Drinking water provision is a long-term cause of concern in Jakarta (on the problem of drinking water, see also Lucas, this volume). In the 1990s only 40 per cent of the population was supplied by PAM Jaya (Perusahaan Air Minum Jaya), the government-owned water utility. The remainder of the population relied on privately owned shallow wells or on private water vendors. This low coverage rate was difficult to square with PAM Jaya's water management record. Leaking water pipes, water pilfering and administrative errors led to losses in excess of 50 per cent of the purified water that PAM Jaya pumped into its networks.

PAM Jaya problems were typical of Indonesia's state-owned water utilities: local government interference in price setting and staffing led to systemic financial problems; capital injections were used for network expansion but not for rehabilitating or upgrading existing systems. The result was poor service, dissatisfied customers, and inadequate cost recovery. As an industry analyst asserted:

The [water companies'] efficiency is typically low [...] Their revenues are limited because of [...] low tariff levels and tariff structures distorting consumption. Strict financial discipline is not enforced [...] As a result, the financial health of most [Indonesian water utilities] [...] is questionable. Finally, most local governments expect revenues from their [water utilities] and extract dividends even if the level of service justifies that any profits be invested to improve and expand the service. *In fairness, [water utilities] cannot really be held accountable for their operating efficiency, because they usually do not have the autonomy needed to make relevant decisions.* (Locussol 1997:56-7, 64.)

It was in these circumstances that the Indonesian government caught on to the idea of involving private firms in water supply management. It was thought that private providers would furnish much-needed capital for investments in new infrastructure and the rehabilitation of existing systems, improve labour and capital productivity in water enterprises, and increase the quality of services. The privatization solution was particularly attractive to Indonesian policy makers as it seemed to provide an answer to two delicate issues. First, improving utility productivity entailed laying off unionized workers in over-staffed utilities in significant numbers. Second, improving the financial health of utilities required increasing water charges, a measure opposed by the local governments that set water tariffs in Indonesia. Policy makers hoped that, by delegating these tasks to private firms, they would limit the unavoidable fall-out from these measures.

That said, the drinking water industry is no ideal candidate for privatization. The industry is characterized by a number of features that militate

against outright divestiture, that is, the transfer of property rights to private corporations or individuals. A network of pipes is the most cost-effective way of distributing drinking water in an urban environment. The network solution creates a natural monopoly however – piped networks being costly to construct, it makes no sense to construct two or more parallel water networks. This is why urban households are captive customers of their water utility. Disgruntled customers can only revert to high-priced bottled water, or vote with their feet and move to another utility's service area (Braadbaart 2002; Haarmeyer and Mody 1997; National Research Council 2002).

These realities stymie competition, an important rationale for privatization. Water privatization involves the transfer of monopoly rights from government-owned utilities to private firms. This raises difficult questions: why hand over so much market power to a for-profit enterprise? Can the idea be tolerated that a company makes profits out of an essential good such as water? Or, as the water industry puts it, is water an economic good or a social good?

In the 1990s, Public Private Partnerships (PPPs) were conceived as a defensible solution to this problem. PPPs comprise contracts that transfer limited powers and responsibilities in water provision to private providers for a limited period of time. PPPs range from simple management contracts, where private providers provide management expertise on a fixed-fee, no-risk basis for one or two years, to complicated concession contracts that devolve operations and investment tasks and the associated commercial and technical risks to a private firm for 20 to 40 years (Braadbaart 2005; Kerf et al. 1995).

The idea was that water PPPs would entail competition for contracts, that is, competition for the market rather than in the market. Also, by writing elaborate penalty and reward systems into the contract, PPP supporters expected that such arrangements would mimic efficiency-driven rivalry in the marketplace. Finally, PPPs involved the granting of temporary usufructory rights to private firms rather than permanent divestiture. In this manner the politically sensitive issue of selling off the country's precious water resources could be avoided.

The emergence of water PPPs in Indonesia

The Indonesian government embraced water privatization PPP-style through various ministerial regulations and instructions and a 1994 presidential decree. Water utilities responded by starting exploratory discussions with private consortia, signing memoranda of understanding and commissioning feasibility studies. Private company interests converged on the plums of the water business – service areas offering a combination of low risk, high growth potential, and profitability. Plums included metropolitan areas with their high population densities, rapid growth, and a sizeable customer segment with, as water industry specialists put it, a 'high willingness and ability to pay' for

water services, that is, middle- and upper-class households, large industrial corporations, and tourist resorts.¹

The first water PPP became operational in Badung District, Denpasar, Bali in 1993. A twenty-year concession contract was granted to a consortium in which the local water enterprise held a 45 per cent interest, three private firms making up the balance. This aimed to serve the tourist areas Nusa Dua and Kuta. The next public-private partnerships concerned Indonesia's most coveted service area, Jakarta and environs, with the Serang Build-Operate-Transfer² contract becoming operational in 1995, the Tangerang management contract in 1996, and the Jakarta concession, the jewel in the crown, following in 1997. It is on the Jakarta concession that the remainder of this article focusses.

The Jakarta water concession: contract negotiations and contract closure

The story of the Jakarta water concession contract began on June 12, 1995 with then president Soeharto instructing the minister of Public Works to arrange for a PPP for the Jakarta Special Territory. The presidential instruction stipulates that PAM Jaya, the government enterprise then serving Jakarta, was to contract out the management of the water system to two private firms. The instruction identified these firms as Kekarpol Airindo, which was to contract for East Jakarta, and Garuda Dipta Semesta, which was to take over West Jakarta. On the board of Garuda Dipta Semesta sat a powerful figure, the president's eldest son Sigit Hardjojudanto. Kekarpol Airindo was no lightweight either, being a subsidiary of the Salim Group. In all likelihood it was Sigit who hatched the idea of privatizing Jakarta's water and then convinced his father to push ahead with it. The Salim Group's involvement was a different story. The company was dragged into the concession against its will. It foresaw all manner of problems in the drinking water business, but a presidential request is not lightly refused.³

For the World Bank this development was a disappointment. From mid-1994 the Bank had been exploring opportunities for a Jakarta water PPP. A team of consultants had undertaken a pre-feasibility study and plans were made for a follow-up. This never materialized: '[a]s the government decided to negotiate cooperation agreements [...] on a non-competitive basis, the Bank dropped its plans for a follow-up project' (World Bank 1999:177). Subsequent

¹ On this, see Braadbaart and Blokland 1997.

² Build-Operate-Transfer (BOT) contracts are akin to the concession contract discussed below but concern Greenfield projects. They often involve the construction of treatment plant by the private party and its operation for a specified number of years. The private party is compensated by the water/waste-water charges it collects with the contract stipulating a minimum quantity of water or waste-water to be procured or delivered by the water utility. For details, see UNIDO 1996.

³ Author interviews Jakarta 1998.

Map 1. The two concession areas

developments confirmed the Bank's misgivings about the contract. A Bank PPP specialist had the following to say on an early draft of the contract:

In summary, the key elements are missing from this draft concession contract. The proposed regulatory arrangement is not acceptable. [...] I would strongly recommend that [the Government of Indonesia] be assisted by qualified and experienced financial, technical and legal advisors in the negotiations with the operators. [...] Negotiations should probably be led on the Indonesian side by the Minister/Ministry, rather than by [PAM Jaya]. Furthermore, all material changes to the agreements (amendments) should at a minimum be approved by the minister. I don't know PDAM⁴ but am not comfortable with the wide powers this body would have under the proposed scheme.⁵

By this time Garuda and Kekarpola had been negotiating with the government for some months. The government team was led by the Jakarta local government but also featured the management of PAM Jaya. Negotiations were proceeding far from smoothly. PAM Jaya management had mixed feelings about the negotiated concession. The Jakarta local government, unfamiliar with this novel form of PPP, was equally ill at ease. On the opposite side of the negotiation table sat Garuda and Kekarpola. Both had meanwhile joined with reputable international water operators. Garuda had teamed up with Thames Water International of Britain and Kekarpola appeared with Lyonnaise des Eaux of France at its side.

Negotiations dragged on for almost two years. Then Garuda's patience ran out. In April 1997, Garuda took the concession issue over the heads of the negotiating team to the governor of Jakarta. In an official letter Garuda expressed its unhappiness with the negotiation process, implying that the government team was dragging its feet. In subtle prose it urged the governor to take action:

[...] we feel that technically speaking there is no fundamental problem that still remains to be solved by the Negotiating Team and the private party. [...] Mindful that the negotiation process has been ongoing for almost two years, we kindly request [you] to provide directions so that the ideal of quality water services for the citizens of Jakarta through private participation may be realized shortly.⁶

The letter, bearing the signatures of both Garuda's managing director and Sigit Hardjojudanto, created a dilemma for the governor, for on the same date he received from his negotiating team a report listing a number of unresolved issues. These included the private party's insistence on using imported pipes,

⁴ PDAM (Perusahaan Daerah Air Minum) is a generic term for the state enterprises responsible for water supply in Indonesia.

⁵ World Bank Office Memorandum, 12-12-1995, p. 7.

⁶ Letter to the Governor, 14-4-1997.

which the government team considered expensive and unnecessary. The team also disagreed with the private party's projection of expenditures, arguing these were inflated by an unwarranted deployment of expensive ex-patriot staff and overseas training for PAM Jaya staff.⁷

Sigit subsequently took the issue directly to President Soeharto, who duly intervened. On presidential instruction the Minister of Public Works travelled to London in May to discuss the concession with Thames Water. He then formed a co-ordinating team led by Public Works and comprising the Jakarta administration, the provincial government of West Java, PAM Jaya, and the two private firms. The president also instructed one of his personal assistants to keep a close watch on the proceedings. A memorandum from this assistant to the president written in late May recapitulates the story of the negotiations, and concludes: '[t]he problem: a. PAM Jaya is inclined to postpone the execution of the cooperation; b. PAM Jaya still disputes all agreements that have been reached between the Negotiating Team and the two Private Partners'.⁸

The president next set a deadline for the signing of the contract. Between May 29 and June 4 the negotiating team finalized the concession contract in a marathon meeting. The draft contract was finalized one day later and the contract signed, with PAM Jaya still protesting, on 7 June 1997. The private operators started operations in February 1998. Table 1 provides details on the contract and the two concessionaires.

Table 1. The Jakarta water concession: basic facts

Contract type: concession		
Contract duration: 25 years		
Contract period: 1998-2023		
	Eastern zone	Western zone
Concessionaires	Kekarpola Airindo, since mid-1998 Thames PAM Jaya	Garuda Dipta Semesta, since mid-1998 PAM Lyonnaise Jaya
Major shareholder	Thames Water Plc, UK	Lyonnaise des Eaux, France
Approximate workforce 1998	1,500	1,600
Water produced 1998	183 million m ³	202 million m ³
Approximate number of customers served	2 million	2.15 million

Sources: Evaluasi Kerjasama n.d.; author interviews Jakarta October 2000

⁷ Report on plenary meeting, 14-4-1997.

⁸ Memo Sesdalobang, 27-5-1997, p. 2.

Theories of privatization and the limits of contract

At this point it is useful to step back from the arena of Jakarta water politics and assess the arguments for privatization. The literature of the 1990s advanced two principal arguments for privatization—the fiscal argument that privatization would relieve government of the burden of investment financing, and the efficiency argument that financial and operational performance would improve under private ownership.

The efficiency argument merits closer inspection. Economic theorists attribute the efficiency gains to various factors. Private management is held to be inherently more efficient than public management. Privatization is believed to unleash efficiency-enhancing competition. And privatization allegedly creates useful Chinese walls between politics and business.⁹

Much of the economic reasoning in favour of privatization rests on new public choice theories of government behaviour (Mueller 1989, 1997). This has fed into empirical work on the operating problems of state-owned enterprises. Economists observe that state-owned firms operate in environments replete with market and contract failures. They are insulated from markets for property rights (stock markets) because taxpayers, the virtual owners of these firms, cannot sell their stakes and so signal their dissatisfaction with management. State-owned enterprises are also insulated from capital markets—they face ‘soft’ rather than hard budgetary constraints (Braadbaart 2005). Finally, governments are often lax in enforcing contractual penalty and reward systems vis-à-vis state-owned enterprises (Claessens and Djankov 1998; Shirley and Xu 1998; World Bank 1995). This body of work argues that markets do a better job of allocating resources than government. Markets are seen to exert a disciplining force on the managers of private firms. Capital markets punish under-performing firms by denying them loans or lowering the value of their shares. Markets penalize firms that violate contractual promises.

Contracts are a vital element in this train of thought. Contracts are essential because they make up for defects in the market system. Ideally, markets offer instant equilibration of demand and supply: the market of economic theory is a spot market. Real-life markets differ in a number of respects from this ideal of frictionless, instantaneous, and anonymous transacting. The temporal dimension of exchange is one important qualifier. Firms frequently engage in exchanges that last several months or even years. This happens in the construction industry, where it may take several years to construct a new building. The phenomenon also occurs when one firm becomes a repeat customer of another firm. For example, Toyota will buy batches of parts to be fitted onto one of its passenger car models from one and the same automotive supplier

⁹ Galal et al. 1994; Sheshinski and Lopez-Calva 1999; Shirley and Walsh 2000; Vickers and Yarrow 1988.

for the duration of the model's production run. It is when exchanges stretch over time in this manner that we call them contracts rather than transactions.¹⁰ Contracts constitute a special type of exchange because they 'promise future performance, typically because one party makes an investment, the profitability of which depends on the other party's future behavior' (Alchian and Woodward 1988:66).

Privatization theorists assumed that contracts would make good substitutes for spot-market exchange. Contract theory is less equivocal on this point. Contract theorists posit that the contract instrument can only function where government upholds the rule of contract law, where economic actors have a minimum level of trust in the functioning of the courts, and where certain norms of conduct prevail in the business community (Granovetter 1992). Apart from this macro-level supply of good governance, the efficacy of the contract instrument also depends on a number of micro-level conditions. The contract mechanism can only make up for market defects when the contract can be auctioned among competing firms, when uncertainty is convertible to risk, when the contracted service can be accurately specified, and when the first party can terminate the contract without suffering major repercussions. Let us take a closer look at this foursome.

First, competition for contracts means uncertainty for both auctioneers (first parties) and bidding firms (second parties). First parties must go through the exercise of organizing the auction and hope for good results: will the winner of the competition be as good in practice as he claims to be on paper? Bidding firms must likewise invest time and effort (in tender document preparation and the like) but are unsure whether they will win the contest. Since organizations share a universal dislike of uncertainty, both first and second parties have reasons to avoid competition. This is why first parties often favour sole sourcing (inviting a single reputable firm to prepare a price offer) and relational contracting (a long-term contractual relationship with a single trusted firm) over competitive tendering.¹¹ This is also why bidding firms behave opportunistically in competitions for contracts: they bend and break the rules of the game wherever they think they can get away with it. Much to the chagrin of economists, these circumstances distort competition in the real-life marketplace for contracts.

Second, contracts, stretching as they do over time, entail risk. A contract closed at time t^0 in state of the world X is terminated at t^1 with the world having shifted to state Y . Between t^0 and t^1 buyer preferences, interest and exchange rates, and many other variables undergo change. These changes may be disadvantageous to contracting parties. No wonder that risk alloca-

¹⁰ Braadbaart 1994; Macauley 1977; Richardson 1972; Scott 1987; Williamson 1985.

¹¹ On this, see Braadbaart 1994; Bradach and Eccles 1989; Goldberg 1976; Hennart 1993; Kelman 1990; Macauley 1977.

tion is so sensitive a topic in contract negotiations (Lindfield 1998; World Bank 1997). The longer the contract period the more pronounced these problems become. The contract mechanism breaks down when the surrounding environment is so volatile that these shifts are not predictable. Crystal ball gazing will not do when it comes to making promises for future performance with significant financial implications.

Third, the contract instrument reaches its limit when the first party has difficulties defining the specifications of the service they want the second party to deliver. Governments choose to perform many tasks in-house rather than contracting them out for this reason. When task outcome is difficult to link to activities, as in police work or basic research, outsourcing is a problem (Donahue 1989). Contracting parties can address these problems by engaging in relational contracts involving a measure of trust. But trust is not for sale.

Finally, the contract instrument fails when a first party cannot, for whatever reason, terminate the contract and switch to an alternative second party. This happens quite frequently. Private firms that have invested deeply in a joint venture will think twice before terminating the relationship. Governments refrain from contract termination when this is likely to produce serious repercussions in the public domain, for example when termination will drive a state enterprise into receivership.

To recapitulate, 1990s' privatization theories tended to assume that all markets functioned as spot markets and that contracts would provide a cure if they did not. The contract literature tells a different story: it posits that contracts have a limited ability to fix market failures. In order to function at all, the contract instrument requires an enabling environment of strong and clean government, an independent and effective judicial system, and respect for property rights. Even with these conditions satisfied, it is difficult to create and sustain truly competitive markets for contracts. Competition is weakened by the fact that first and second parties often find it convenient to avoid competition. Moreover, the contract instrument can only function when uncertainty is manageable, when the services required are accurately specifiable, and when first parties can afford to terminate. In practice, these boundary conditions are difficult to satisfy.

The Jakarta concession: governance problems and the absence of competition

In the piped water industry there is no head-on competition. Economic theory proposes competition for contracts as a surrogate. The theoretical solution is that the government organizes an auction, with invited private firms bidding for a concession, that is, the sole right to provide drinking water services in a certain area. In the case of a concession contract, pre-qualification mechanisms and a comparison of technical proposals provide quality safeguards. The bid-

der's financial proposal, that is, the water charge it bids for the right to provide water services, constitutes the price competition element. Private firms thus bid for a contract that grants them monopoly power for a limited period of time. The firm offering the best combination of price and quality wins the contract.

The existence of a long tradition of public tendering in infrastructure might lead one to conclude that this theoretical solution is practicable. But in practice infrastructure tenders feature endemic anti-competitive behaviour. Private bidders collude in price rings; bidders bribe tender committee members; bidders influence the setting of pre-qualification thresholds so as to keep competitors out of the contest; bidders underbid the competition on price to capture the market and subsequently bombard the first party with claims; bidders do not deliver promised quality; and bidders avoid competition by convincing the first party to negotiate an agreement.¹²

The Jakarta water concession offers a classic example. Its design and awarding was beset with governance problems. Under the New Order regime of President Soeharto corruption in the awarding of infrastructure projects was institutionalized (Braadbaart 1996). Connections with key persons in the presidential palace were a *sine qua non* for the winning of major government contracts (Schwartz 1999). The design of the Jakarta water concession started after the president designated two private firms as second parties. In the absence of competition, the Jakarta concession did not produce the cost savings predicted by privatization theory. The tariff at the starting date of the concession was that prevailing in the pre-concession period, amounting to about US\$0.60 per m³. This tariff was quite generous, so much at least can be deduced from Table 2, which gives PAM Jaya audited accounts for 1995 to 1997. The combination of moderate operating ratios, high water losses, low labour productivity, and the fact that PAM Jaya's performance was impeded by government regulations suggest that opportunities for efficiency gains existed. However, as the contract was negotiated rather than auctioned competitively, these efficiency gains stood to be reaped by the private providers rather than passed on to water users in the form of lower water charges.

The Jakarta concession: risk and uncertainty

A contract constitutes a formal promise about future performance. But how can a for-profit firm commit itself to future performance if that future is unknown? It will only do so if it estimates the degree of uncertainty to be manageable and the reward sufficient to justify taking the risk. It is not surprising, then, that the allocation of risk and uncertainty among first and second parties is a key issue in contract negotiations (Kerf et al. 1995). The Jakarta

¹² See Braadbaart 1996; Klitgaard 1988; New York State Organized Crime Task Force 1988; Van Waarden and Unger 1992.

Table 2. Audited accounts PAM Jaya, 1995-1997

	1995	1996	1997
	Rp. billion	Rp. billion	Rp. billion
Operating income	267	296.3	347.9
Operating expenses	132.7	167	191.4
Gross operating profit	134.3	129.3	156.5
General and administrative expenses	113.3	139.6	151
Net operating profit	21	-10.3	5.5
Other income	21.1	3.3	8.1
Other cost	0.3	0.4	2
Accounting adjustment		12.4	
Profit/loss before PPh Badan	41.8	5	11.6
PPh Badan	13.9	2.7	0.4
Profit/loss after PPh Badan	27.9	2.3	11.2
Operating ratio ¹	85.8%	79.0%	87.4%

¹ Calculated as the ratio of operating expenses (minus the item 'cost of loans outstanding') to operating revenues

Source: Audited accounts PAM Jaya, various years.

concession contract documents discuss a large number of risks and uncertainties: that projected water sales and tariffs will not rise according to financial projections; that the private operators will not obtain sufficient supplies of raw water; that local government levies will decrease water revenues, and so on. The contract shifts much of the risk involved to the Jakarta government. It does so by making the private operators' commitments invalid should any of these contingencies arise.

For example, the contract contains elaborate financial projections of internal rates of return over the contract period. Underlying the projections are assumptions about water sales and tariff increases. These are tied to the single most important financial element, the indexation formula for the water charge: '[t]he Water Charge will be adjusted on a semi-annual basis in order to reflect local inflationary pressures on the JVC's¹³ cost base and the impact of fluctua-

¹³ Joint Venture Company, that is, the second party to the contract.

tions on rupiah-dollar exchange rates on the cost of international loan repayments' (Cooperation Agreement Schedules 1997:IV-9). This formula, which specifies how tariffs are to increase over the life of the contract, is

$$C_n = (C_o \times \{F_n \times G_n + H_n \times O_n\}) + K\$n + K_{in}$$

where

C_n	Water Charge to be paid during semester n
C_o	Water Charge in force at the time of signing the Contract Agreement
F_n	Capital expenses for semester n
G_n	Capital expenditures multiplier (the national cost of construction index)
H_n	Operational expenses
O_n	Operational expenses multiplier (includes power cost and national chemicals and metal products indices)
$K\$n$	Compensation for exchange rate fluctuation
K_{in}	Compensation for interest rate variation

The contract documents provide detailed specifications for each of these parameters. Of particular interest is $K\$n$. This formula hedged the private providers against rupiah-dollar currency fluctuations. Likewise, in the original contract document the private operators assumed the sizeable dollar-denominated debt burden of PAM Jaya, but they did so under the condition that they would not be exposed to currency fluctuations. This put the risk of macro-economic shocks on the shoulders of the government. Unfortunately, such a shock occurred almost immediately after the signing of the concession contract. The two private operators Kekarpola and Garuda assumed operations in February 1998, several months into what was by then known as the East Asian financial crisis. They faced an emergency situation. Prices of imported parts and materials were soaring as the rupiah nosedived against the US dollar. The Jakarta government was unwilling to increase the water tariff for fear of protests. PAM Jaya slid into a financial void and went into survival mode, cutting back on operational expenditures and deferring loan repayment schedules.

The financial projections set out in the contract document were invalid from day one. Table 3 illustrates what happened – in dollar terms, receipts plummeted in 1998. According to the contract the Jakarta government would have had to compensate the private providers for the weakening of the rupiah against the dollar. As a retrospective analysis asserts, 'with the 6-monthly tariff indexation system, the gap between local purchasing power and the tariff required for compensating the private parties is ever-increasing. [...] The risk of not achieving this tariff is solely borne by PAM Jaya/the Jakarta govern-

ment' (Peninjauan Kembali 1998:1). The Jakarta government was unable to meet these obligations however: it did not dare to increase the water tariff nor did it have the financial reserves to compensate the private operators for their rupiah-dollar conversion losses. Recognizing that this contractual clause was unenforceable – it would have driven the Jakarta government into receivership – the parties reverted to a negotiated form of contracting. This amounted to an acknowledgement that the contract had failed.

Table 3 Operating revenues, Jakarta water concession, 1995-2000

Year	Operating revenues		Average spot market Rp./US\$ exchange rate
	In nominal Rp. billion	In US\$ million	
1995	267	\$ 117.5	2,272
1996	296	\$ 127.3	2,328
1997	348	\$ 120.4	2,890
1998	219	\$ 21.5	10,233
1999		Data not available	
2000 (Jan-Aug)	277	\$33.1	8,385

Sources: PAM Jaya accounts, various years; Rp/US\$ conversion rates obtained from World Bank Indonesia office web site

The Jakarta concession: service specification problems

An important prerequisite for the functioning of contracts is that the services to be rendered by the second party can be fully specified. From the second party's point of view, an open-ended contract that specifies services vaguely amounts to a license to print money. Whereas privatization debates in the 1990s made occasional reference to the specification problem, it was not accorded a central role. In the real world, however, the specification problem is a very important cause of contract failure (Donahue 1989; Kelman 1990).

The Jakarta contract entailed a number of specification problems. The original contract defined interim and end-of-contract technical targets that the private operators were to meet. A penalty and reward system was attached to these targets to ensure that the operators did their utmost to achieve them. Technical targets in the Jakarta contract pertained to volume of water billed, potable water production capacity, water losses, service coverage ratios and numbers of connections, quality of purified water, and service quality. At first blush these targets appear rather straightforward. Some of them raise questions however.

First, the percentage of non-revenue water (water loss) was to decrease from 53 per cent at contract signing, to 35 per cent after five years, and then

Chart 1. Service coverage PLJ and TPJ, 1998-2000

to 20 per cent after 20 years. This projection assumed that actual water loss in 1997 amounted to 53 per cent. This number was questionable however. Existing documentation on the accuracy of installed water meters was incomplete. Water volume records therefore provided inaccurate information on water loss. Further the state of the network of water-carrying pipes was not known exactly, these assets being buried and therefore invisible. Leakage from pipes is an important source of water loss and fixing leaks often costly. Lacking good estimates of grid quality, no one knew how much rehabilitation and replacement would be required to achieve the contractual water loss target. So the private operators could not accurately project the outlays required for meeting the water loss target.

Second, service coverage was to increase to 100 per cent by the end of the contract. In other words, the private operators were to provide service to all inhabitants within 25 years. The problem in this case was that no one knew how many inhabitants Jakarta had. Government calculations of population size, subject to periodical revision, were known to be inaccurate. Chart 1 illustrates this point. It shows how such a revision early 2000 created a sudden drop in the service coverage indicator.

To complicate matters, in the contract documents all technical targets but the target volume of water billed and purified water quality were preceded by the adjective 'indicative'.¹⁴ This is a crucial qualifier. It meant that the concessionaires were only under a moral obligation to achieve targets. How could this have happened? Recall that the contract was prematurely closed by presidential order. Under time pressure, the Jakarta government and the private providers were unable to finalize their negotiations. They settled the issue by establishing provisional technical targets. By doing so, they invalidated the penalty and reward structure that was supposed to bring the incentives of private providers in line with those of the government.

The Jakarta concession: the impossibility of contract termination

In February 1998, the two private operators commenced operations. During the dramatic political events of May 1998, British and French staff fled the country. Upon their return they found that PAM Jaya had resumed control of operations. PAM Jaya management refused to hand back the reins to Lyonnaise and Thames, claiming that the contract was invalid because it violated public tendering rules. The French, British and Japanese embassies were involved in the ensuing negotiations, the end result of which was that Lyon-

¹⁴ Cooperation Agreement Schedules 1997:8.2.1. The contract set the penalty for water volume billed and water quality targets as follows. For the first two non-compliance events detected annually, a warning would be issued. Thereafter the concessionaires were to pay a Rp 5 million per additional 'event', about US\$2,000 at pre-crisis exchange rates (Main Contract 1997:118).

Chart 2. Collection of water charges, PLJ and TPJ, Jan. 1998-Aug. 2000

naise and Thames bought out their local counterparts and resumed operations. This did not end the private operators' problems, however. They now faced labour problems and became embroiled in protracted contract re-negotiations. The Jakarta contract dealt awkwardly with the issue of labour redeployment. PAM Jaya was overstaffed (McIntosh and Yniguez 1997). The water PPP constituted an opportunity to tackle this problem. Many of water PPPs in the 1990s involved downsizing. At the launch of a PPP utility employees would be offered the choice of retirement and a golden handshake or joining the private operator. If they threw in their lot with the private operator, workers forfeited their right to government protection (Braadbaart 2005). The Jakarta government decided not to go this route. When the concession contract came into force, all PAM Jaya workers, except a small minority retained by PAM Jaya itself, were seconded to the two private operators. This created much uncertainty among seconded PAM Jaya staff. Throughout 1999 workers belonging to a labour union, Serikat Pekerja PAM Jaya, staged demonstrations. The union was strongly opposed to the concession and claimed that the contract awarding was tarnished by collusion and that the privatization of water services violated basic laws and Jakarta regulations. Furthermore, the union alleged that some workers had sustained income losses after their secondment (Indonesia Corruption Watch 1999; Schwartz 2000).

Anti-privatization sentiment radicalized when militant workers refused to collect water charges, temporarily occupied a works office, destroyed business property, and in one instance welded shut doors at a purification works. As a result of this turmoil, the managing director of PAM Jaya, believed to be involved in the opposition, resigned in May 1999. These developments unfolded amidst an atmosphere of violent political unrest in Jakarta. That this was not good for the water business can be read from Chart 2, which shows monthly collections by the two private operators over 1998 and part of 2000. Data for 1999 are unavailable. They may not even exist. Whichever the case, collections petered out completely by the end of 1998.

By mid-2000, the private operators had the labour unrest problem more or less under control. Some months earlier the operators and the Jakarta government had announced the completion of a revised concession contract. Contract re-negotiation talks, ongoing since June 1998, produced the basic elements of a new contract by March 2000. Salient features of this new structure were: an adjusted water charge indexation formula, based on the principle that private operators could not charge a rate to the Jakarta government in excess of the prevailing water tariff; enhanced monitoring and control functions for PAM Jaya, and a partial shift of the risk burden towards the private operators. Finally, the private operators stated that they agreed to accept all PAM Jaya seconded staff on a permanent basis.¹⁵ While this solved some of the most fundamental issues

¹⁵ Global Water Report, 14-4-2000.

in the PPP, negotiations continued after this announcement.

By this time the first and second parties were structurally redesigning the contract. One might surmise that the Jakarta government would be better off terminating the contract. But termination was no option. The Jakarta government was unable to terminate because the national government would not allow it to do so. Termination might provoke extensive media coverage and have repercussions on Indonesia's already tarnished image in the international investor community. Perhaps not even the national government could terminate the contract. One can imagine a scenario where the French and British governments would have thwarted such a decision by mobilizing the support of the International Monetary Fund.

Conclusions

In 1997 the Indonesian government launched an experiment in the privatization of water services in Jakarta. The concession contract was expected to solve the drinking water utility's investment and operational problems. The Jakarta concession however violated many principles of contract design. The contract was negotiated rather than competitively tendered. The contract did not deal adequately with risk and uncertainty, nor did it spell out services unambiguously – in short the contract documents signed in 1997 were essentially unfinished. It did not help that the concession was launched in the worst possible circumstances. When the private operators assumed control, Indonesia found itself in a deep economic crisis. A sharp downturn of macro-economic indicators destroyed the 25-year financial projections laid out in the contract. This was more than the contractual framework could handle. The contract failed within six months, with first and second parties reverting to open-ended negotiating.

The ill-fated launch of the Jakarta concession sits uneasily with economic thinking on the comparative performance of government and market production. Economists argue that markets can, barring exceptions such as military defence or policing, outperform governments. Ultimately, this theorizing rests on a conviction that real-world markets can be made to behave more or less as the virtual and virtuous markets of micro-economic theory. Contracts are an often overlooked but crucial element in this argument. When spot markets fail, as they frequently do, privatization theorists assume that contracts will repair the damage. To be sure, contracts are versatile devices. But, as the Jakarta contract illustrates, they are no panacea for market failure. Launching an ambitious PPP for a monopolistic industry in a high-risk country environment was asking for trouble. The key lesson from the Jakarta concession is that a realistic appreciation of what contracts can and cannot do should be an essential part of guidelines for the design of public-private partnerships.

Bibliography

Unpublished materials (sources: World Bank and PAM Jaya archives, world wide web)

Audited Accounts PAM Jaya

various years *Audited accounts*. Jakarta: PAM Jaya/BPKP.

Cooperation Agreement Schedules

1997 *Cooperation agreement concerning clean water supply and service improvement for the eastern part of Jakarta; Schedules*. Jakarta: PAM Jaya.

Evaluasi Kegiatan

various years *Laporan evaluasi kegiatan mitra swasta PAM JAYA*. [Unpublished internal report, Jakarta.]

Indonesia Corruption Watch

1999 *Kasus PAM JAYA*. <http://www.icw.or.id/latestnews/pam.html> [web site accessed June 2001.]

Letter to the Governor

1997 *Perihal: Proyek air minum Jakarta*. [Letter, Jakarta, 14 April 1997.]

Main Contract

1997 *Cooperation agreement concerning clean water supply and service improvement for the western/eastern part of Jakarta; Main contract*. Jakarta: PAM Jaya.

Memo Sesdalopbang

1997 *Rencana kerjasama PAM JAYA dengan pihak swasta*. [Memo, Jakarta, 27 May 1997.]

Peninjauan Kembali

1998 *Peninjauan kembali / renegotiasi perjanjian kerjasama*. Jakarta: PAM Jaya.

Report on Plenary Meeting

1997 *Laporan hasil plenary meeting*. [Memo, Jakarta, 14 April 1997.]

World Bank

1999 *Internal memorandum*. Washington: World Bank.

World Bank Office Memorandum

1995 *Indonesia – Draft concession contract for water supply in Jakarta*, 12 December 1995. Washington: World Bank.

Published sources

Alchian, Armen and Susan Woodward

1988 'Reflections on the theory of the firm', *Journal of Institutional and Theoretical Economics* 143:110-36.

Braadbaart, Okke

1994 'Business contracts in Javanese vegetable marketing', *Human Organization* 53-2:143-9.

1995 'Regulatory strategies and rational polluters; Industrial waste-water control in Indonesia, 1982-1992', *Third World Planning Review* 17-4:439-58.

- 1996 'Corruption in Indonesian public tendering', in: Heleen E. Bakker and Nico G. Schulte Nordholt, *Corruption and legitimacy*, pp. 95-118. Amsterdam: SISWO.
- 2002 'Private versus public provision of water services; Does ownership matter for utility efficiency?', *Aqua, Journal of Water Research and Technology* 51:375-88.
- Braadbaart, Okke and Maarten Blokland
1997 *Public water PLCs for low-income countries*. Delft: IHE.
- Braadbaart, Okke, Maarten Blokland and Klaas Schwartz
1999 'Introduction', in: Maarten Blokland, Okke Braadbaart and Klaas Schwartz (eds), *Private business, public owners; Government shareholdings in water enterprises*. The Hague: VROM.
- Braadbaart, Okke and Frederick Braadbaart
1997 'Policing the urban pumping race; Industrial groundwater overexploitation in Indonesia', *World Development* 25-2:199-210.
- Bradach, Jeffrey L. and Robert G. Eccles
1989 'Price, authority, and trust; From ideal types to plural forms', *Annual Review of Sociology* 15:97-118.
- Claessens, Stijn and Simeon Djankov
1998 *Politicians and firms in seven Central and Eastern European countries*. Washington: World Bank.
- Donahue, John
1989 *The privatization decision; Public ends, private means*. New York: Basic Books.
- Foster, Stephen, Adrian Lawrence and Brian Morris
1998 *Groundwater in urban development; Assessing management needs and formulating policy strategies*. Washington: World Bank. [World Bank Technical Paper 390.]
- Galal, Ahmed, Leroy Jones, Pankaj Tandon and Ingo Vogelsang
1994 *Welfare consequences of selling public enterprises; An empirical analysis*. New York: Oxford University Press.
- Goldberg, Victor P.
1976 'Regulation and administered contracts', *The Bell Journal of Economics* 7:426-48.
- Granovetter, Mark
1992 'Economic action and social structure; The problem of embeddedness', in: Mark Granovetter and Richard Swedberg (eds), *The sociology of economic life*, pp. 53-81. Boulder: Westview Press.
- Haarmeyer, David and Ashoka Mody
1997 *Worldwide water privatization*. London: Financial Times Energy.
- Hennart, Jean-François
1993 'Explaining the swollen middle; Why most transactions are a mix of "market" and "hierarchy"', *Organization Science* 4-4:529-47.
- Jakarta tariff
2000 'Jakarta tariff deal revealed', *Global Water Report* 7-8.

- Kelman, Steven
1990 *Procurement and public management; The fear of discretion and the quality of government performance*. Washington: AEI Press.
- Kerf, Michael, R. David Gray, Timothy Irwin, Celine Levesque and Robert R. Taylor
1995 *Concessions; A guide to the design and implementation of concession arrangements for infrastructure services*. Washington: World Bank.
- Klitgaard, Robert
1988 *Controlling corruption*. Berkeley, Calif.: University of California Press.
- Lindfield, Mike
1998 *Institutions, incentives and risk; Preparing markets for private financing of urban infrastructure*. Brisbane: Queensland University of Technology.
- Locussol, Alain
1997 *Indonesia urban water supply sector policy framework; Main report*. Washington: World Bank.
- Macauley, Stuart
1977 'Elegant models, empirical pictures, and the complexities of contract', *Law and Society* 11:507-28.
- Mueller, Dennis C.
1989 *Public choice II*. Revised edition. Cambridge: Cambridge University Press. [First edition 1979.]
1997 *Perspectives on public choice; A handbook*. Cambridge: Cambridge University Press.
- National Research Council
2002 *Privatization of water services in the United States; An assessment of issues and experience*. Washington: National Academy Press.
- New York State Organized Crime Task Force
1988 *Corruption and racketeering in the New York City construction industry*. Ithaca, N.Y.: ILR Press.
- Richardson, G.B.
1972 'The organisation of industry', *Economic Journal* 82:883-96.
- Rock, Michael
2002 *Pollution control in East Asia; Lessons from newly industrializing economies*. Washington: Resources for the Future.
- Schwartz, Adam
1999 *A nation in waiting; Indonesia's search for stability*. St. Leonards: Allen and Unwin.
- Scott, W. Richard
1987 *Organizations; Rational, natural and open systems*. Englewood Cliffs: Prentice-Hall.
- Sheshinski, Eytan and Luis Felipe Lopez-Calva
1999 *Privatization and its benefits; Theory and evidence*. Cambridge, Mass.: Harvard Institute for International Development. [Development Discussion Paper 698.]
- Shirley, Mary M. and Patrick Walsh
2000 *Public versus private ownership; The current state of the debate*. Washington: World Bank.

Shirley, Mary M. and Lixin Colin Xu

- 1998 'Information, incentives and commitment; An empirical analysis of contracts between government and state enterprises', *Journal of Law, Economics and Organization* 14-2:358-78.

UNIDO

- 1996 *Guidelines for infrastructure development through build-operate-transfer (BOT) projects*. Vienna: UNIDO.

United Nations

- 2004 *World urbanization prospects; The 2003 revision*. New York: United Nations.

Vickers, John and George Yarrow

- 1988 *Privatization; An economic analysis*. Cambridge, Mass.: MIT Press.

Waarden, Frans van and B. Unger

- 1992 'Marktfalen, kartellering en economische efficiëntie', *Economisch-Statistische Berichten* 77:916-20.

Williamson, Oliver

- 1985 *The economic institutions of capitalism*. New York: Free Press.

World Bank

- 1995 *Bureaucrats in business; The economics and politics of government ownership*. Washington: World Bank.
- 1997 *The private sector in infrastructure; Strategy, regulation, and risk*. Washington: World Bank.