

TCE COMMENTARY ON DOMESTIC WATER & SANITATION PPP SECTOR IN METRO MANILA & SURROUNDING PROVINCES

by Neil Boyle
August 7, 2014

BACKGROUND

The following comments are the first of a two part *task* that was assigned at the end of my presentation to the Economist Chapter of the 1818 Society on June 18, 2014. Both tasks resulted from a general consensus that TCE has more to offer but that further clarification was required. The two assignments were to:

1. comment on a World Bank case study from the perspective of transaction cost economics (TCE); the case study is titled, "Expanded Small Water Utilities Improvement and Financing Technical Assistance Phase 2 (ESWIF2)"; and
2. write a 2 or 3 page brief on TCE that takes greater account of World Bank project parlance and the content of one of the handouts at the presentation.

This is the first of the two assignments. A retiree participant at the presentation was kind enough to lend me his recently completed consultancy report (named above) for a World Bank assignment in the Philippines,

THE STUDY PERIOD AND AREA

In the mid 1990s two complimentary events occurred: Metro Manila was undergoing a serious electricity and water crises, and General Fidel Ramos was elected president of the Republic. Out of these events came structural reforms in both sectors that permitted greater access by the private sector to invest. Work started with the creation of a new water authority for the underserved but rapidly expanding eastern part of Manila. With the assistance of the World Bank, the older water authority serving western Manila was also restructured with private sector involvement. Competition and benchmarking between the two led to improved performance that eventually found its way to some of the smaller nearby utilities. Starting in 2002 – 2004, Local Government Units (LGUs) started experimenting with public private partnerships (PPPs) mainly as a way to mobilize private sector finance and technical and managerial knowhow.

The study area is Greater Manila including adjacent provincial baranguys. Eight case studies are involved as shown on Table 4: the two large metro sized PPPs in the center; and 6 PPPs in peripheral provincial baranguys. Sizes ranged from over one million connections in the Maynilad Water Services Inc. (MWSI) of west Manila to 750 connections in the Baranguy Quezon in the province of Palawan. Eight PPP models are represented in the studies ranging from 2 concession agreements, 2 joint venture concession agreements, 1 lease/affermage contract, 1 DBLA design build lease affermage contract, 1 water users association/management/O&M contract, and 1 BOT/water district for bulk water. Technology ranged wide over its spectrum, but was mainly appropriate to the economy it served. Technology ranged from full bulk water supply and treatment and sewage treatment facilities that serve over a million inhabitants, to deep wells that tapped safe water with **chloro..... filtration**, to septic tank disposal of waste waters that served populations of about _____. Availability of water supply in all cases was pressurized 24/7 and volumetrically priced.

TABLE 4. CASE STUDIES

Area	Public Sector Sponsor	Private Partner	PPP Arrangement a/	Mode of Procurement b/	Legal Basis	Estimated no. of connections c/
<i>Metro Manila</i>	Manila Waterworks and Sewerage System (MWSS)	Manila Water Company (MWCI) and Maynilad Water Services Inc. (MWSI)	Concession	Solicited	The National Water Crisis Act of 1995 (Republic Act no. 8041)	MWCI – 896,148 MWSI – 1,129,497
<i>Laguna</i>	Provincial government	Laguna Water Corporation	Concession (under a Joint Venture Agreement)	Unsolicited	1991 Local Government Code (Republic Act no. 7160)	61,448
<i>Boracay, Aklan</i>	Tourism Infrastructure and Enterprise Zone Authority (TIEZA) - formerly Philippine Tourism Authority	Boracay Island Water Company (BIWC)	Concession (under a Joint Venture Agreement)	Unsolicited and subjected to Swiss challenge	The Tourism Act of 2009 (Republic Act no. 9593) and the NEDA Guidelines on Joint Venture for Government Owned and Controlled Corporations	5,531
<i>Malasiqui, Pangasinan</i>	Municipal government	Inpart Waterworks and Development	Concession	Unsolicited	1991 Local Government Code	2,419
<i>Tabuk city, Kalinga</i>	City government	Calapan Waterworks Corporation	Lease/Affermage	Solicited	1991 Local Government Code	3,218
<i>Sta. Cruz, Davao del Sur</i>	Municipal government	Sig Construction	Design-Build-Lease/Affermage	Solicited	1991 Local Government Code	3,324
<i>Quezon (Bgy. Alfonso XIII), Palawan</i>	Provincial government	Alfonso XII Water Users' Association	Management/Operation and Maintenance	Unsolicited	1991 Local Government Code	731
<i>Norzagaray, Bulacan</i>	Water district	Phil Hydro/ Maynilad	Build-Operate-Transfer for Bulk water supply	Solicited	The Government Procurement Reform Act of 2003 (Republic Act no. 9184) and Presidential Decree no. 198	Norzagaray WD – 13,000

SOURCE: World Bank Report titled: "ESWIF2", page 23

PPP OPERATOR PERFORMANCE

Pointing to only a few indicators, by most international standards, the 8 cases performed admirably. See Table 5

Hours of water supply were 24/7 to metered and pressurized house connections. Some of these house connections were grouped whereby one physical connection served more than one consumer, some up to 20 households. The quality of potable water was met or exceeded Philippine water standards for human consumption. Average pressure was 37 psi, the high average probably due to a combination of reasonably proficient O&M practices and natural (elevated abs) hydrostatic heads. As a result, there was no evidence of positive back-pressures to ingest waste water into the water supply network. Non revenue water averaged 21 percent and ranged from a low of 11 percent to 39 percent.

TABLE 5. WATER UTILITY OPERATORS' PERFORMANCE

	Metro Manila		Laguna	Boracay	Malasiqui	Tabuk	Sta. Cruz	Quezon (Brgy. Alfonso XIII)	Norzagaray (bulk water supply)
	MWCI	MWSI	Laguna Water	BIWC	IWADCO	Tabuk Water	Sig Construction	AWUA	Philhydro Maynilad
Hours of water service a day	24/7	24/7	24/7	24/7	24/7	24/7	24/7	24/7	24/7
Water availability, lpcd	At least 150	At least 150	120	At least 150	100	100	118	100	-
Water service coverage, %	99	96	41	100	30	38	35	50	-
Water pressure, psi	20	At least 7	11	36	3 to 14	5 to 60	40 to 80	25 to 30	35 to 40
Drinking water quality according to PNSDW	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection efficiency, %	97	99	96	96	95	97	95	90	-
Operating ratio, %	1	43	50	Not available	Not available	Not available	87	62	-
Non revenue water, %	11	39	19	13	25	31	15	11	-
Staff per 1,000 connections	1.4	2	1.1	4.4	3.3	8	3.6	13.7	-
Average tariff, ₱ per cu.m.	35	35	20	90 including waste-water	16.80	37	22	16	11.90 (bulk water rate)

SOURCE: World Bank Report titled "ESWIF2", page 29

Operating ratios (operating costs divided by operating revenues) ranged from a high of 1.00 surprisingly located in the center in east metro Manila (MWCI) probably due to its expansion of poverty oriented water supply projects in its portfolio to a low of 43 in the eastern half of the metropolitan area (MWSI). The average was 49 among the 5 operators who reported ratios.

In summary, on average these 8 utilities were able to supply potable water directly to constituents' residences an average of 100 – 150 litres per capita per day 24/7, remove the water via sanitation facilities to prevent water-borne diseases, and do this routinely for several years.

TCE COMMENTARY ON THE MANILA PPP WSS SECTOR

This section looks at the 8 case studies from the perspective of TCE. Because of space constraints, only a few explanatory comments that add value to the conclusions are reported. Analysis is conducted solely on the basis of the information contained in the case studies without benefit of primary source information such as the actual contracts that formalized the transactions, nor by field visits and first hand information from primary informants. Analysis is comparative between the institutional behaviours gleaned from the studies and those from the TCE analytical framework. All TCE conclusions may be viewed as refutable hypotheses although they have been empirically researched and tested in the economic literature.

Overall Conclusions - The overall conclusion is that each of the 8 case studies functioned in accordance with or close to international standards. See Table 5 for performance data on each study. Three TCE reasons are posited to explain these results: 1) alignment; 2) credible commitment; and 3) stimuli to keep key players from falling off of the contract curve.

Per TCE, the Givens are as Follows: Main concern is with the efficiency of running the system, i.e., with transactions and economic organization rather than composites of goods and services. We are more concerned with tracing out the ramifications of bounded rationality. Greater respect is required for organizational (as against technological) features and for efficiency (as opposed to monopoly) purposes. (Williamson, 2005)

Contracts are defined as a triple of price (p) of the transaction, the asset specificity (k) of the exchange asset, and the specialized safeguard (s) that protects the transaction against predation, along with quantity, quality, and duration. The three components are interactive and are negotiated simultaneously. When the components are in equilibrium, the contract is said to be stable. All cases are regulated by contract; and contract and transaction are used interchangeably.

Key players are defined as the two primary parties to the main PPP transactions between the LGUs and the private operators, as well as consumers as a special third party. The two primary parties are asymmetrically farsighted meaning that ex-ante (before signing an awarded contract) they perceive what is expected to occur during implementation ex-post and they use that information to shape decisions ex-ante; this is especially relevant to private operators; technology choice is an example. Because contracts of this kind are asymmetrical in terms of capacities and information, farsighted players are taken into consideration in analysis and contract design.

All 8 contracts are complex meaning they are unavoidably incomplete by reason of bounded rationality; non-trivial specialized assets are involved in each transaction and this specialization requires the cooperation of autonomous partners to protect each other's assets from exposures and predation. Hence, the two autonomous principals are bilaterally dependent and thus prone to obfuscation and confusion, i.e., opportunism especially in small number exchanges. Under these circumstances, players promote continuity of the project; termination is anathema to both parties because assets are non-redeployable (i.e., sunk and anchored to the ground and not available for other uses or by other users without loss of productive value). Specialized assets have little value outside of the transaction for which they were intended.

Inferred evidence points to the defacto horizontal nature of the PPP partnerships. This means the autonomous partners abided by the norm of mutual consent typically found among equal partners. In some instances, partners might have made decisions through a sequential hierarchy of authority to promote coordination and avoid obfuscation and confusion, i.e., through a project management unit or project company of some sort.

Alignment - *The interfaces of the primary contracted transactions between LGUs and private operators could only have functioned harmoniously because each primary interface was properly aligned.* (Alignment is a technical term of TCE theory.) Here, the term is explained.

In all, transactions and their contracts were governed by the strong incentive intensities of an autonomous procured market contractual (i.e., a hybrid governance structure) regime and by supportive contract provisions of specialized safeguards that economized on contract hazards and transaction costs and militated against opportunism. There is no direct evidence of this specific kind of contract provisioning happening, but inference is strong that opportunism between the key transaction players was practically absent, and thus constrained. Contract provisioning is one way to constrain opportunism, but there are other ways, such as credibly committed agreements and special "stimuli" among contract parties, which are discussed subsequently. This does not imply that opportunism did not exist among and between other players within the supply chain of the economic organization of each primary transaction. Another dynamic existed among the supportive transactions between Government departments and the main transaction. In these other transactions, delays and obfuscation were routinely evident. But by and large, the main transactions functioned as planned as evidenced by their performance.

Moreover, most operators were private firms (i.e., corporations, joint ventures) that preferred the hybrid mode of governance (aka, long-term contract) under the prevailing low-cost circumstances to the alternative high cost solutions of vertical integration. We know from TCE that the complex nature of the contracts as explained above in the "givens" section create conditions for opportunism. However, within the primary transactions opportunism was not manifest probably because the quality of aligned incentives among key players was superior. For example, transaction interfaces appeared to be sufficiently harmonious among partners that the twin assumptions of human behaviour, bounded rationality and guileful opportunism were effectively silenced, at least, with regard to the main transactions.

Key players included consumers. Consumer involvement as third-party activists likely acted to keep the main transaction in-line meaning key players (LGUs and private operators) were kept from falling off of the contract curve. TCE tells us that appropriate stimuli keeps agent's incentives from deterioration and therefore maintained on the contract curve. These consumer groups could have provided the "stimuli" so that key player's initial incentives did not deteriorate, as they are prone to in the absence of appropriate stimuli.

Haggling and strategic bargaining over economic gains was not mentioned in any of the cases and is assumed to have been absent because ownership shares in joint ventures and Filipino owned corporations are predetermined.

The absence of motivation explains why the above strategic bargaining was not observed. And it is reasonable to assume that the absence of motivation comes from the following. The local uncertainty experienced by key players was sufficiently constrained by the repetitive successes of project implementation. Repeated successes can constrain the bounded rationality of the agents involved by overcoming their limited cognitive capacities in the face of complexity (this is the definition of bounded rationality) and enhanced their confidence. Successful implementation can prove hard to beat as a positive incentive and in similar circumstances can create their own hurdle to change.

Financial and social issues related to consumer tariff affordability were minimal due to the soft sources and terms of project financing. Tariffs were aligned with consumer affordability and willingness to pay. And because of positive returns to the private operators, tariffs were aligned with the production technology and the cost of production of the utility. Availability of soft funds is particularly relevant to the smaller PPP utilities in the periphery outside of the center Metro Manila. The numerous contractual constraints generally found in commercial debt and loan agreements were likely absent in each of the smaller PPP cases at the Barangay level where vulnerability to handle debt financing mattered the most. The same absence can be attributed to the pre-emptive security of commercial debt financing where bankers can rule over owners in cases of near-default when the stakes are highest. With soft availability of funds, debt financing acts like equity financing without the rate-of-return obligation; equity comes with few, if any constraints because its gains are residual.

The various corporate PPP structures provided benefits – Joint ventures removed the incidence of haggling over anticipated gains as shares were predetermined; water-user associations are low-cost vehicles that costlessly spread reputation effects that can keep agents in-line; DBOs, BOTs, and management/O&M contracts are all hybrid governance structures (aka long-term contracts) where the legal rules regime gives way to contract-as-framework and private ordering when long-term contracting and dependency sets in. Parties thus have an interest in promoting continuity in the face of unforeseen disturbances (because they have jointly built a way to create wealth) and hence move to a more cooperative and adaptive contracting form. Not ultimately elastic, hybrid governance structures ultimate appeal to the letter of the contract is to the courts. In sum, the incentives of economic agents across the main contractual interfaces of the primary transactions lined up.

Credible Commitment - *The interfaces of the primary contracted transactions between LGUs and private operators could only have functioned harmoniously because each primary interface was credibly committed.*

Typically in TCE parlance, credible commitment is achieved by trading-off degrees of transaction price (p) and technological specialization (k) for specialized safeguards (s) that are designed to achieve the NPV of financial revenues of both contract parties. Enforcement is accomplished by negotiating price and asset specificity together against the safeguards of counterparty's agreement to minimize total costs, which is the sum of production and transaction costs. The buy-in for credible commitment is joint profit maximization; both parties share in the revenues created by credibly committed negotiations.

Hence, safeguards are not gratuitous and are valued equivalent to the corresponding incremental value of the NPV of project revenues. Safeguards are breached usually by one party defaulting on a promise to prevent a contract hazard/ transaction cost or production cost from happening or increasing. When this occurs, the aggravating party loses her share of the incremental NPV gain plus any penalty that might

accompany the safeguard in the negotiated agreement. Under such an agreement, parties and the transaction are said to be credibly committed. **REMOVE "INCREMENTAL" FROM TEXT.**

Looking more broadly at this form of credible commitment, it is evident that an agreement is credibly committed when it is too costly to renege on a promise. Taking this insight and applying it to the 8 case studies, it is plausible that credible commitment can be achieved by other means. Several other means are posited for consideration:

- 1) project successes make it too costly to renege on a promise, particularly when both parties costlessly gain from predetermined shares, and the exit strategy is robust as in capitalizing the project company's income stream on the stock exchange in Manila;
- 2) government oversight and the cost of losing a perquisite might be too costly to renege on a promise; and
- 3) the cost of inciting disfavour from activist consumer groups may deter renegeing on a promise.

Stimuli – *The interfaces of the primary contracted transactions between LGUs and private operators could only have functioned harmoniously because each primary interface benefited from special "stimuli".*

There is no significant evidence of large gaps in performance throughout implementation in any of the projects. This is likely to mean that agents did not fall off of the contract curve. The question is what kept incentive intensities high enough to keep these agents motivated. Some reference has already been made to the role played by consumer groups in keeping the transaction in line. To have done so, is tantamount to providing the necessary stimuli to keep agents motivated. Here is why.

Incentives are known to deteriorate unless there are specially focussed stimuli to maintain incentive intensity. This is why it is easy during contract award to keep agents focussed and on track soon thereafter. After this initial period, incentives deteriorate and agents fall off of the contract curve. This is synonymous with opportunism. Rectifying this situation is infrequent because of the manner in which projects are monitored and/or supervised. Generally, monitoring is an administrative check list task that sometimes is mindlessly administered.

What is needed is "smart monitoring". Smart monitoring involves focus on what it takes namely incentives to get the executing agent interested in the project again after they have fallen and the role and tasks that will take the project to its next interim target or milestone. This requires smart monitors—persons knowledgeable about the sector, who can debate constructively, and help the agents, develop an action plan for the next tranche of implementation.

This vignette of analysis points to some other form of stimuli than the activist consumer groups. Activists consumer groups are given to coercion as their main means of stimulation. Two other sources are hypothesized:

- 1) The contract may have provided sufficient stimuli given the involvement of numerous supporting agencies in the action: DENR; DILG; LGUS; NWRB; and BESP.
- 2) The private operator may have provided the right kind of stimuli to the executing agents involved; it certainly was in their interest to do so.

General Conclusion & Recommendation – The model presented by these 8 case studies, in particular the 6 smaller cases serving low income neighbourhoods is interesting and worthy of support. Attaining the grand triple of alignment, credible commitment, and appropriate stimuli, simultaneously might be a less costly model to pursue for poverty alleviation projects in the WSS sector than a model based on harder financial terms and conditions.

Three questions must be answered. **First**, what is the long term impact on the fiscal budgets of local and federal governments to sustain the program? **Second**, how fast can the principal parties adapt their way to a less subsidized level of operations? And **third**, related to the second question is how fast is the local economy growing and how fast is this growth translated into rising incomes for the low income. A comparison of the second and third questions is recommended.