Tapping the Private Water Concession
May 2002
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The Lessons of Concession

The concept of "privatization" has strong connotations that prompt affiliation with one of two, seemingly opposed positions: one favoring profit-driven development and the other public, socially responsible resource management.[1] When water is the resource in question, necessity, scarcity, and historical availability fuel opinions about privatization.[2] Successful solutions to the challenge of managing water, however, defy polar arguments regarding privatization. This article presents a lesson from the recent water privatizations in Chile, where government switched its water privatization strategy from a public sale of stock in the major water regions of ESVAL[3] and EMOS (now called Aguas Andinas)[4] to a concession structure for the remaining regions including ESSAM and ESSAR.[5] Chile's experience with water privatizations teaches that attracting private capital is more important than the particular terminology or structure of privatization the government elects to use.

This article contends that using either the sale of stock or a concession structure achieves the critical release of the public water system from the public sector, exposing it to free market practices and resulting in improved services. By calling its most recent privatization efforts "concession", the liberal regime of President Lagos challenges critics on both sides of the free market versus state control stalemate by embracing, or at least accepting the inevitability of privatization under the mantle of socially responsible government.

Critical Need

The growing human population and increased industrialization are unquestionably depleting the earth's finite supply of water. Fresh water is increasingly scarce and expensive to collect, treat and deliver, and safely discharge after use. In fact, fresh water scarcity and wastewater management may become a larger issue than any global environmental catastrophe contemplated by the Kyoto protocol.[6] The World Bank estimates that by 2025 about 48 countries with populations in excess of 1.4 billion will experience water stress or scarcity, meaning nearly twenty percent of the earth's expected population will be living without sufficient water to use and consume.[7] Even more pressing than fresh water's imminent scarcity, today 600 million people in the developing world live without adequate sanitation or wastewater treatment, according to the same World Bank study.

In the United States, the recent energy crisis in California will pale in comparison to California's shortage of fresh water looming in the near future.[8] California's problems are less extreme than those of the developing world because California will spend whatever is required to sustain a habitable environment for a growing human and business population, supported by the resources of several economic engines.[9] The greater worry exists in the developing world where a lack of financial resources and a perception of political instability combine to prevent any complete strategy to finance and manage water resources.

Both the developed and developing world share the job of funding and operating sustainable water

and wastewater infrastructure. But this job has become increasingly impractical for government because of its conflicting priorities, politicized process, shrinking budgets and insufficient resources that prevent effective management and fail to inspire innovation. This raises the question of alternatives to the traditional government monopoly. Privatization and proper structuring of a private water concession present essential alternatives for water infrastructure development around the globe,[10] but unfortunately, privatization is easily misunderstood and in many cases, objectionable for the wrong reasons.[11] Some privatizations have been improperly structured, have not been adequately regulated, or have taken place under adverse financial market conditions. But the trend to privatization is strong, and the priority of governments and public agencies alike must be to educate and inform relevant constituencies about the potential benefits and true risks of privatization. This education begins with the enactment of effective regulation and laws to properly structure a concession and balance the needs of the public against the needs of private investors.[12]

The global water crisis requires concentrated public and private investment on both a national and local level.[13] This investment must be orchestrated in accordance with international standards and with commitment from the international community to rebuild and develop vital infrastructure.

What Is a Concession?

We think of a concession at the national park, as the private company that operates the restaurant and gift boutique, or a concession at the public ballpark for the seller of hot dogs and beer. In civil law, the word concession applies to two distinct forms of government action: (i) licenses granted by the government to other entities to provide public services, such as water collection or distribution, similar to telecommunications and energy transmission; and (ii) authorizations granted by the government to private parties to use and exploit assets that belong to the government, such as raw water in rivers and aquifers, similar to real estate and public networks. In common law, concession most commonly refers to transactions where both actions are present: government authorizing a private party to provide public services using assets that traditionally belong to government.

In a water system, a concession may encompass the original grant from a government to a special agency or municipality who acts as the government operator and manager of the entire public asset, creating the municipal water company by concession.[14] In the United States, a municipal water company can finance working capital and capital expenditures by issuing debt securities on the public markets, paying interest to private investors free from federal income tax. In addition, the US boasts a high level of municipal tax revenue based on the income and property taxes generated by a strong economic base. Thus, access to capital is hardly an issue for US municipal water systems. However, the arguments for greater efficiency and the opportunities to innovate continue to attract even US municipalities to the benefits of a private public partnership (PPP).[15] In any event, there are many reasons to consider this transfer and assignment of responsibility to a PPP outside of the public sector.

The asset or the water infrastructure system has three basic components: (i) fresh water collection, filtration and treatment, (ii) system-wide distribution, and (iii) wastewater collection, treatment and discharge.[16] In privatization, a concession may comprise all or any part of the public asset, transferred to the PPP by means of a stock sale, or the concession itself acting as a lease or temporary and conditional transfer. Most importantly, and to distinguish water privatization from

other public assets, the private water company or PPP will not have any rights to transfer or place any lien on the public asset.[17]

A concession privatization can be merely a service contract to a private company to provide metering and billing to the municipality.[18] Alternatively, a concession may comprise the entire water infrastructure, including rights to fresh water resources (a stream or aquifer) plus the right and obligation to bill and collect from customers directly. Because the concession can take many forms and there is no pre-established structure for this manner of privatization, governments have more flexibility in structuring a concession to balance the competing interests of public and private constituent interests, and recognizing the local tolerance for more or less private participation and control. A concession privatization might be compared to corporate outsourcing, a fundamental tenet of market capitalism, and an essential but flexible component of end-to-end logistics currently favored by global corporate managers.[19]

The intent here is to study how a properly structured water concession succeeds as a privatization, answering certain basic objections while achieving the demands of the four essential stakeholders in any water system: (i) existing and future customers; (ii) government and its agencies; (iii) other affected residents; and (iv) private participants who provide equity and debt. All of these stakeholders must be satisfied in order to create and implement water infrastructure projects with the assistance of a private entity or by means of a PPP.

Market Incentives and Government Regulation

Experts may differ on whether competition among water providers is really possible. On the one hand, water banking[20] and trading of water rights[21] have emerged in California. On the other hand, water is generally not susceptible to multiple forms of transportation, storage, trading, nor is it deliverable over extremely long distances. Government may even create competition for the existing public water system to compare its performance against private bidders who compete for control over part of the water infrastructure.[22] This form of imposed competition may precede a more comprehensive water system privatization.

Depending on the success of managed competition or other introduction to privatization, government may expand from the introduction to transfer the entire infrastructure to a private participant or PPP. The PPP is then entitled to charge for use, but becomes at risk of any failure to collect from private users. Of course such a comprehensive transfer must be restricted to limit private exploitation of monopoly power, since the ultimate free market remedy of stopping the water supply may not be tolerated as a matter of public policy. This conflict requires a careful balancing between two competing interests - delegating control (including at least some part of monopoly power) while making the government focus on careful regulation over the PPP. For example, a concession structure may provide for the PPP to be compensated by the government for widespread failures to collect, in exchange for the PPP's agreement not to exercise the extreme remedy of cutting off water supply. This example demonstrates that a balanced concession requires an allocation of risk to the party most capable of managing the risk, but also a predictable legal system and a strong independent regulator empowered to control the conduct of a PPP.

In the past decade, power projects, bridges and public transit systems, have been privatized around

the world on the model of the Private Finance Initiative (PFI) adopted by a conservative government in the United Kingdom during the early 1990s.[23] The UK was also first to privatize its municipal water system under the PFI, in part on the strength of the economic regulator for the water industry, the Office of Water Services (OFWAT). However, privatizing new infrastructure in the developing world is quite a different challenge as compared to privatizing a well-developed water system in the UK or in the US, where tariffs already reflect a more reasonable estimate of the cost of building and maintaining an existing and seemingly adequate water system. In addition, the developing country needs a counterpart of OFWAT or a local Public Utility Commission (PUC) with a history of relatively fair dealing and unchallenged authority to maintain public trust. Water privatizations in the developing world involve building public infrastructure where the full cost of usable, clean water has never been fully charged directly to private users.[24] Therefore an important detail of a government's transfer of any part of this water monopoly is to determine a balanced cost structure that adequately compensates the water company without overpowering the local consumer with an extreme, sudden and unjustifiable change to existing rates. Unfortunately, existing rates for water services before privatization may be artificially low, in part because of the limited services, and also because of government subsidies created by operating the water system in part with public funds.

In the UK, OFWAT greatly disappointed expectations of PPP constituents and lenders by severely limiting any tariff increases during the first round of adjustments after privatization. This may be seen as a success to the constituent of users and government, within a risk contractually accepted by the private participants. But this choice of keeping rates constant or lowering rates may not be possible in the developing world where the expense of significant capital improvements coincide with privatization and must be evident in the tariff increases charged during the first stages of PPP development. This places the PPP in the unpopular role of increasing tariffs and possibly the burden of collecting the increased tariffs (in addition to inheriting long-term accruals of non-payment) from customers, even if the increased rates and billing rights are clearly established in advance of privatization and carefully controlled by a regulator. This conflict has resulted in the failure of water privatizations in Bolivia and created major challenges in Argentina and Indonesia, for example.[25] In this case, privatization suffers because users have traditionally been insulated from recognizing any true cost of the total water system and the resources involved.

Comparison to Other Forms of Privatization

A concession structure is not really distinct from, but could actually include other common forms of privatization, like the build, operate, transfer (BOT), the share transfer or asset sale, or the operation and maintenance agreement (O&M). In each case, the government grants a concession to the PPP, or a concession supports the operation (or O&M) of the asset. In a share transfer, the private entity acquires a controlling percentage of shares in the PPP, with a grant of concession to the water system owned by the PPP, but the water system remains carefully controlled by the government shareholder of the PPP and its affiliate the regulator.

Basic Structure of a Stock Sale Privatization

In the O&M or service contract, the municipality or government continues to act as concessionaire or owner of the water system, but subcontracts to the PPP for a designated scope of services.

Basic Structure of a Service Contract (O&M) Privatization

The BOT usually involves a discrete project to be constructed and operated by a private enterprise for a designated period of time, which also involves a concession from the municipality or government for that particular part of the water system.[26] The BOT survives on a take-or-pay water purchase agreement executed by the government or municipality. It may even be argued that a concession is not privatization at all, but simply a right or grant of specific privileges by government over a public asset, but still controlled by government.

Basic Contract Structure of a BOT Privatization

The most challenging concession is of course a privatization that transfers a complete right to access, to own and tax or charge tariffs to customers on behalf of the public water rights and water infrastructure. This should distinguish the concession privatization from the BOT or O&M, but again this may be merely an issue of terminology, and part of crafting the proper concession. The hurdle in any comprehensive model of a private water company remains collection risk from local customers in local currency. Conversely, a BOT may avoid these risks entirely by allowing the private company to rely on a take-or-pay contract from the municipality, guarantied by the government and secured by a swap contract on the currency or one of many forms of political risk insurance offered by the Overseas Private Investment Corporation (OPIC) and other multi-lateral agencies (MLA).[27] A desalination plant may qualify as a unique form of BOT privatization, as the right to exploit sea water may not even constitute a public asset, alleviating any need for a concession. Finally, a narrow scope of concession offered to private participation may avoid the label of privatization all together, but in any case, the objective should be to provide benefits to constituent users by creating access to private capital, innovation and the efficiencies created by competitive market pressures. Recent examples of successful BOT projects include Sofia, Bulgaria, Chengdu, China and a well-known design-BOT desalination project in Tampa Bay, Florida, which originally achieved a rating of AA from Standard & Poor's but has recently faced a string of unexpected bankruptcies filed by the private party contractor.[28]

The Water Concession and Chile

Both ESVAL and EMOS utilize the form of a PPP created by a public sale of PPP stock in a privatization process. This structure was developed by the administration of former president Eduardo Frei. In March 2000, Ricardo Lagos Escobar, candidate of the center-left coalition, replaced President Frei but continued with the privatization of water systems for the remaining regions of Chile. As a liberal politician, President Lagos favored a concession structure for privatization in lieu of the stock sale used in ESVAL and EMOS.[29] Despite the unique features of these two distinct forms of privatizations, they are both created by special legislation and supported by a concession and a strong regulator. The concession is the direct and main contract in ESSAM and ESSAR, and the concession provides the PPP in ESVAL and EMOS with all of its legal rights to the public water infrastructure, which ultimately supports the shareholding of the PPP. In both structures, the law offers private enterprise the right to manage and profit from the concession (previously managed exclusively by government) by means of a qualified competitive bidding process, within the control of the regulator - the Superintendencia de Servicios Sanitarios (SISS).

ESVAL represents Region V the coastside resort area of Valparaiso and Viña del Mar located just west of the capital city of Santiago. ESVAL was acquired by a consortium of Anglian Water Services Ltd. and Endesa, S.A. for approximately $150 million. This was followed by a sale on substantially similar terms of EMOS for Santiago, acquired by a consortium of Aguas Barcelonas and Suez Lyonnais des Eaux for nearly $900 million. In each case, the government first established Corporación de Fomento de la Producción (CORFO), a special purpose government corporation created to hold and transfer the equity stock of EMOS and ESVAL. Through a carefully structured and elaborate bidding process organized by Sistema Administrador de Empresas del Estado (SAE), CORFO sold a simple majority of stock to a combination of one private bidder consortium and existing employees of the municipal water company together with a public offering of shares via the local Santiago Stock Exchange.

These transactions were substantially completed in 1999, creating in effect, a publicly traded stock company in the structure of a PPP, with an internationally qualified private investor or consortium acting as controlling shareholder and manager of the concession. By law, the government retains a minority stake of not less than 35% of the equity ownership, and continues to have special rights as a "golden" shareholder with veto power over any effort to convey assets of the company or to terminate the concession without government or public approval. This structure includes a tranche of shares held by waterworks employees and other minority shareholders all of whom are free to trade their shares on the local exchange. In effect, the sale of the managing and controlling stake to the private investor effects a permanent transfer of the concession, structured as a sale of stock, but severely limiting rights to transfer, lien or waste the treasured public asset. To date, these privatizations are viewed as highly successful, evidenced in the first part by the high prices bid (in excess of one billion US dollars in total) and paid to the government by the successful private investors. Equally important is the fact of the continuing high levels of service and improved access for residents and positive effects on neighboring communities, farms, tourists, business and life generally. The lingering concern exists because these stock transfers are permanent, albeit mitigated by the limited rights to the public asset and the control of SISS, a credible and independent regulator. This criticism is possibly one reason that Chile reverted to the concession structure for the remaining regions to be privatized after 2000, notwithstanding the strength of SISS or the success of ESVAL and EMOS.

The concession structure of a privatization in Chile is distinct because there is not the same perpetuity to the transfer, as in the stock sale of ESVAL and EMOS, although the time period of transfer (30 years) is significant. The critical issue is that SAE and CORFO have granted to the PPP sufficient rights and obligations to operate, manage and develop the system according to private control by the concession structure. In the 30 year concession for the region of ESSAM in Chile privatized in 2001, only one bid was received from Britain's Thames Water (approximately $171 million), and in ESSAR the government received no offers. In both of these concessions, however, the concessionaire is obligated to build new facilities, expand service and develop new resources as in EMOS and ESVAL. Metering, billing and collection are also part of all of these concessions. The one other distinction in ESSAM and ESSAR is that the government retains legal title to the water infrastructure during the term of the PPP concession. Given the restrictions on transfer and liens in EMOS and ESVAL, this seems to be a distinction without a difference. The principal structural difference remains that after the concession period, in ESSAM and ESSAR all rights revert back to

the government. In EMOS and ESVAL, the stock transfer is permanent.

Chile also has the advantage of a strong regulator - SISS, the national regulatory agency since 1990. SISS has proved capable of monitoring and controlling the PPP, including the privatized EMOS and ESVAL. This helps to retain public confidence in government stewardship of the concession and public assets in either case of the concession and stock transfer.[30] SISS not only protects the quality of service for existing and future customers, but also has power (upstream and downstream) to ensure that existing and future customers comply with discharge laws that protect the PPP downstream. Neighboring residents, industries and farms benefit from the PPP's compliance with regulations upstream; and these same neighboring residents, industries and farms must also comply with SISS regulations for the benefit of the other PPP and its customers downstream.

ROI and Secured Debt

In addition to a credible and independent regulator, an essential element of privatization is to grant sufficient legal rights to a private investor over a long enough period of time to permit a realistic expectation of return on investment (ROI). In water concessions, ROI should not be a short-term requirement because the nature of water and its traditionally low cost to the consumer means that ROI will need many years to materialize. Aggregate ROI must exist over the life of a concession to justify the investment of private capital. Capital, in the form of equity and debt, permits the new improved infrastructure that in turn justifies the higher rates that can be charged to customers. The new infrastructure brings the modern technologies, with increased efficiencies and improved services and greater access for customers, including those other affected residents and their governments. This ROI is of course the essence of free markets and theoretically, would optimize management and increase quality and availability of water service in this precious public resource and necessity of life. A strong regulator and proper structuring of a concession controls abuse of the inherent monopoly power, but may also create a procedure whereby the regulator can adjust a tariff or permit the tariff to be challenged because of changes in the fundamental assumptions as materially affecting ROI.

Finally, an often ignored challenge of any privatization is to ensure that secured lenders have adequate security in the concession, in ownership of the PPP or in its cash flow, as necessary to compensate for risk and justify the considerable investment of debt. Ordinarily, debt represents from 60-80% of the PPP investment, and therefore, the concession must be structured in a manner that permits lenders' security interest and respects the predictable rights of secured lenders. This means free alienability of the concession (or at least free alienability of the concession owner's shares) by the secured lenders upon foreclosure. This could also take the form of a pre-conceived foreclosure procedure for those shares in accordance with the concession transfer documents that provides (at a minimum) for step-in rights of secured lenders to cure defaults by the PPP under the concession, to avoid premature cancellation of the concession. In ESVAL and EMOS, secured lenders have a legal right and pre-approved process to replace a PPP equity investor with another suitable owner (acting as manager and operator) upon such investor's default under loan documents secured by a lien on the PPP shares. This process must comport with successor suitability requirements taken from the initial bidding prequalifications. But no such permitted lien exists in the ESSAM and ESSAR concession structure, although it is not clear why this failed to follow the arrangement allowed in ESVAL and

EMOS.

For unknown reasons, the permitted lien was omitted in ESSAM and ESSAR, even though the concession law from which this privatization was structured would have provided for such a permitted lien, for example in road privatizations. This omission may have contributed to the difficult bidding environment that resulted in only one bidder for ESSAM, although financial conditions and concession size are the more likely reasons for the lackluster interest shown by the international developer community. Basically, the permitted lien, foreclosure rights and some form of step-in rights to cure provide the fundamental tools of secured lending and should not be applied differently to concession structured privatizations.

The Ongoing Challenge

Unfortunately, water infrastructure is weakest in the places least capable of meeting the financial requirements and where strong regulators do not exist, lack credibility and independence, or they are newly created in unstable legal jurisdictions. Rather than avoiding privatization altogether and leaving the obligation to develop infrastructure with the least capable economies and their local water municipalities, these developing country governments should work with the World Bank and other multi-lateral agencies (MLA) or somehow begin the process. This beginning should consider the alternatives of accelerating development through use of a PPP and stronger regulation. That process involves legislation to clarify regulatory power and to provide sufficient legal rights for a PPP and its secured lenders, with the goal of working toward a legal and fair allocation of risk and reward, without sacrificing the public interest. This also requires public promotion and education, within a complex balancing of the interests of government and its residents, to ensure that private capital including debt and equity are recognized as acceptable alternatives to government control and permitted some reasonable expectation of ROI and security to justify their investment.

In the end, the choice is whether to trust government to make necessary investments and improvements or to join with private capital and empower a PPP to finance the enormous costs of developing assets required (or contemplated) for global dependence on water. This writer's conclusion and that of numerous academics, MLA and national governments, is that this task requires accessing the PPP in any fashion. Thus, if the concession structure works for any reason, and allows a government to develop efficiencies and improved water services as needed, it should be encouraged and employed. The sponsoring government must structure, market and regulate the process in such a way as to attract capital in both forms of equity and debt and achieve the desired results for all stakeholders.

1: See Lawrence W. Reed, *The Privatization Revolution*, adapted from remarks for The Future of American Business, A Shavano Institute for National Leadership Seminar, Indianapolis, Indiana, May 21, 1997 (www.privatization.org/Collection/PrivatizationProsAndCons/).

2: For example, a recent report in **The New Yorker** presents opposing ideological camps surrounding the issue of water privatization. *See* William Finnegan, *Leasing the Rain*, **The New Yorker**, April 8, 2002, 43. On the one hand, "opponents of privatization . . . believe that access to

clean water is a human right," and poor communities "may start refusing to accept deals that put a foreign corporation's hands on the neighborhood pump." *Id.* On the other hand, privatization advocates want "to bring market discipline and efficiency to bear on a crucial and frequently corrupt sector." *Id.* at 44. "Only private capital . . . can afford to expand water and sanitation networks sufficiently to reach the undeserved poor." *Id.*

3: The municipal Region V, the Empresa de Obras Sanitarias de Valparaíso S.A. (ESVAL) for the coastside resort area of Valparaiso and Viña located just west of the capital city of Santiago was acquired by a consortium of Anglian Water Services Ltd. of England and Endesa, S.A of Spain, for approximately $150 million.

4: The privatization of ESVAL was followed by a sale of shares in the Empresa Metropolitana de Obras Sanitarias S.A. (EMOS) for the capital city of Santiago (Region IV), on substantially similar terms those used in EMOS. EMOS was acquired by a consortium of Aguas Barcelonas (a water company controlled by Endesa S.A. of Spain and Suez Lyonnais des Eaux of France), for approximately $900 million. EMOS changed its name to Aguas Andinas earlier in 2002.

5: The concession structure for privatization has been roundly criticized in Chile and abroad as the government of President Lagos in 2001 tried to privatize the Empresa de Servicios Sanitarios De La Araucania S.A. (ESSAR) in Region IX, but failed to attract any bidders; although he successfully transferred the 30 year concession for the country's fourth largest water and wastewater company, Empresa de Servicios Sanitarios del Maule (ESSAM) to a sole bidder - Thames Water, the RWE Group's water division - for $171 million. The basic criticism asserts that ambiguities in the contract and the concession structure obligate the private company to develop, operate and manage the entire water system, without allowing any rights to the underlying asset and without any rights even to pledge its ownership in the concession. This prevents all forms of non-recourse project financing, and seemingly deterred international interest in the projects. However, this could have been easily resolved by allowing the private company to pledge its ownership interest in the concession (with all of its limitations and prohibitions against transferring or pledging the underlying water assets) for financing purposes, as permitted in both ESVAL and EMOS. Additionally, the privatizations of ESSAM and ESSAR represented much smaller regions and faced a vastly different financial market in 2001 as compared to the boom-times of 1998-99 that supported the sales of ESVAL and EMOS.

6: The Kyoto Protocol is a negotiated model developed by major industrialized nations in 1997. It aimed to reduce greenhouse gas emissions that contribute to global warming, but was rejected by the United States.

7: The World Bank Group, *Issue Briefs*, Updated September 2001.

8: San Francisco and San Mateo counties need to spend an estimated $4.5 billion to make improvements in their water supply, and according to Water Infrastructure Network, the water sector in the US requires new investment of $500 billion over the next 20 years, *The Business of Clean Water*, www.epa.gov/ow/liquidassets.

9: The challenge for California will be to organize the necessary political support for the considerable financial commitment required to repair and replace its deteriorating infrastructure, as

evidenced by the current fight in the California State Legislature regarding how to pay for $4.5 billion of improvements required to secure the water supply for 2.4 million residents of San Francisco and San Mateo counties. See *Uncertain water supply if San Francisco continues to delay on repairs to Hetch Hetchy system, another way must be found*, San Jose Mercury News, March 4, 2002.

10: Innovation, efficiency and access to international capital markets are the basic reasons why academics, the World Bank, the International Monetary Fund and other multi-lateral agencies support privatization for global infrastructure projects like water. *See*, Gleick, Wolff, Chalecki and Reyes, *The New Economy of Water, The Risks and Benefits of Globalization and Privatization of Fresh Water*, Pacific Institute, February 2002.

11: *See* Finnegan, *supra* at 3.

12: This process of education and legislation precedes by many years the actual implementation of these capital intensive projects. *See*, Gleick, Wolff, Chalecki and Reyes, supra at 11.

13: One might argue that the capital investment and orchestrated commitment contemplated by Kyoto, will be different for water because of the natural geographic limitations applicable to water. However, both efforts share similar features in the scale of investment required and in the imperative for global cooperation.

14: In addition, a concession may be government's recognition of a private water asset, as in the water distribution and delivery system constructed and operated by a private real estate developer. In Chile this was exemplified by the private water company Aguas Manquehue. In California, the San Jose Water Company is an example of a private water company created by real estate development and expansion of the municipal water system by these private developers.

15: Consider the Tampa Bay project, *infra* at 29; *see also* list of privatization efforts in the United States, Thompson, *Trends and Issues, infra* at 23.

16: Metering, billing and collecting create potentially a fourth part of the water infrastructure, but each of these operations functions to a large extent within the three broader system-categories.

17: This distinction reveals an important difference between water privatization and road or telecommunication privatizations for example. Because of the sensitive nature of water, actual legal title to any parts of the infrastructure are rarely transferred to a PPP and otherwise protected absolutely by the terms of a concession. But this should not prevent non-recourse financing because the private company's ownership interest in the PPP should be more freely transferable and subject to a permitted pledge for purposes of financing the investment. The permitted pledge is subject to certain minimum qualifications of creditworthiness and experience, often mirroring the same qualifications contained in the original bidding documents.

18: See list of domestic operation contracts entered into by municipal water companies in the United States, Thompson, *Trends and Issues, infra* at 23. In addition, this service agreement outsourcing is exemplified by Metering Technology Corp., a northern-California based company that makes

sophisticated electrical and water meters for PPPs, governments and municipal water companies around the world. Aqua International, a member of the Texas Pacific Group, invested approximately $15 million into MTC in early 2001.

19: *See*, Simon London, *Is Outsourcing the Key to Corporate Success?* Financial Times, April 18, 2002.

20: California's Department of Water Resources includes excellent reports on its water banking experiences on its California Water Information web site (http://wwwdwr.water.ca.gov/); See also "Water Banking to Manage Supply Variability," Kathleen A. Miller, pp. 185-210, in Advances in the Economics of Environmental Resources: Marginal Cost Rate Design and Wholesale Water Markets, edited by Darwin C. Hall. JAI Press Inc., Geeenwich, Connecticut and London, England, 1996; and Water Banks in the West, Lawrence J. MacDonnell, Charles W. Howe, Kathleen A. Miller, Teresa A. Rice and Sarah F. Bates, Natural Resources Law Center, University of Colorado School of Law, 1994.

21: *See* Nancy Vogel, *Water Exchanges Help State Through Dry Years*, Los Angeles Times, April 4, 2002.

22: Managed competition has been used in a number of jurisdictions, including Charlotte, North Carolina, Houston, Texas, Milwaukee, Wisconsin, San Diego, California, and Seattle, Washington. See Barton H. Thompson, Jr., Robert E. Paradise Professor of Natural Resources Law, Stanford Law School, *Trends and Issues in the Privatization of Municipal Water Supply*, 17th Annual Water Law Conference of the American Bar Association Section of Natural Resources, Energy, and Environmental Law, February 1999.

23: See *Local Government and the Private Finance Initiative*, Department of the Environment, Transport and the Regions, Published 11 September 1998 (http://www.local-regions.detr.gov.uk/pfi/).

24: In fact, this may also apply to developing needed improvements in the older systems of the US and the UK, where cooperative or unregulated use continues.

25: *See* Finnegan, *supra* at 3.

26: The exception is a desalination project structured as a BOT, in which case there may not be a concession at all since the rights to use raw sea water are not generally restricted.

27: *See* http://www.opic.gov/.

28: Tampa Bay has also experienced a string of bad luck with this ambitious $100 million DBOT project to build the largest desalination plant in the western hemisphere on the shores of Tampa Bay converting brackish water from the bay to produce 25-million gallons of freshwater per day. First, the prime contractor Stone & Webster filed for bankruptcy less than one year after succeeding with the winning bid in the much acclaimed municipal BOT. See *Financial woes might slow desal facility*, St. Petersburg Times, January 25, 2002. Recently, the energy company Covanta, hired to

replace Stone & Webster, has also filed for Chapter 11 bankruptcy protection, forcing the municipality to seek new ideas on how to complete the half-finished project.

29: As Agustín De La Fuente, the CEO of ESSAL controlled by Iberdrola from Spain, said in El Diario, Santiago March 2001, "there is no explanation (other than politics) for the change in policy adopted by the government, they clearly stated that the concession (compared to the sale of assets) reduces its price and increases the risk without increasing the return on the investment."

30: Unfortunately, the importance of a strong and independent regulator is not easily recognized or appreciated at the outset of a privatization. It is also not credible to simply create a regulator in the face of privatization.