

Sustaining Public-Private Partnerships

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I. Introduction¹

There is considerable interest these days in developing public-private partnerships to address a wide range of contemporary concerns. There are now annual conferences bringing private corporations and government agencies together to explore opportunities and discuss best practices. The World Bank and the United Nations both provide resources for setting up such partnerships, and major consultancies such as Goldman-Sachs have embraced and supported this approach to addressing various challenges.

This is not a new mechanism. In fact, according to Thomas Piketty, after the Great Depression, when confidence in the private sector was low, public-private partnerships were widely used as a way of restoring this confidence. Today the motivation may be rather different. Since the 1970s, there has been a decline in public spending in research, education and infrastructure in the US and abroad. At the same time, private capital has grown steadily. As infrastructure ages and new challenges such as climate change gain traction, there appears to be a growing need for significant public investment. In this context, public-private partnerships are being evaluated and implemented as a way of bringing private capital and skills into the provision of public goods and services.

The recent enthusiasm about public-private partnerships is growing at a time when large corporations, conservation groups and government agencies also have been promoting partnerships to transition the world towards a green economy. This may well be a powerfully reinforcing conversation, setting the stage for broad acceptance of the public-private co-design of solutions to 21st century challenges. At the same time, however,

¹ We thank Thomas Christiansen for his research assistance and contributions to this project.

there is also growing concern about the deepening of economic inequality—both income and wealth—that analysts such as Piketty have identified as a global trend since the 1970s, and perhaps may be the tendency of any market-based economy. So the current interest in public-private partnerships raises some important questions: Are they sustainable over time? Do the benefits tend to trend toward the private partner and hence risk deepening inequality in our system? What are their political implications, especially for their capacity to influence political outcomes? What criteria might help us identify the most promising opportunities, and what needs to be built into these partnerships to encourage them to be enduring and fair? In this paper we focus largely on the question of sustainability, which of course is related to all of these other important questions.

The sustainability of public-private partnerships is driven by a trade-off for each partner between the price and the quality or quantity of the good provided. This trade-off varies over time based on the impact of the diminishing rates of return in terms of the price and the quality or quantity of the goods and services provided, and the relative importance of price versus quality or quantity to each partner. These differences create four ideal types. (1) One in which the quality, quantity and price of the goods or services provided can increase. We argue that these PPPs will likely succeed or be renationalized for profit. (2) A second in which limits on quality or quantity improvements constrain prices. We argue that these are prone to failure to the detriment of the private sector partner and non-elite consumers. (3) A third with quality or quantity minimums and price maximums. We argue that these PPPs will likely be to the detriment of the government, which will probably attempt to procure subsidies, furnish side payments, or else renationalize the PPP in order to provide the goods or services. (4) A fourth with quality or quantity maximums

and rising real prices. These types of PPPs often fail to the detriment of those who value the good or service but succeed in providing ongoing benefits to the private-public partners, generally through corrupt rent extraction.

II. The Motivations for Public-Private Partnerships

Private sector actors enter into public-private partnerships for a variety of reasons including gaining access to new resources (as in public lands) and new consumers (perhaps on monopolistic terms), reducing the project's risk (to the extent that they can shift some of the uncertainty associated with future revenue onto the government),² or other positive externalities that are not part of the formal contracting arrangement (reputational gains, easier access to future government contracts, reduced regulatory or bureaucratic burdens, etc.). Governments, in turn, enter into public-private partnerships to better provide goods or services that their constituents demand. The public-private partnership may facilitate the provision of the desired goods and services, or it may generate revenues that enable the government to provide other benefits to its constituents.³ In addition to overcoming budget constraints, deteriorating infrastructure, rising costs and other cost/benefit motivations,⁴ governments may be seeking access to

² Vinogradov, D., Shadrina, E., & Kokareva, L. (2014). Public Procurement Mechanisms for Public-Private Partnerships. *Journal of Public Procurement*, 14(4), 538-566.

³ Chi, K. S., Arnold, K. A., & Perkins, H. M. (2003). Privatization in State Government: Trends and Issues. *Spectrum*, 76(4), 12-21; Keon S. Chi. (1998). Privatization in State Government. *Public Administration Review*, 58(4), 374-375.

⁴ Hance, J. (2003). Optimistic About Public-Private Partnerships: From the Bank's Perspective. *Public Management*, 85(8), 5-11.

expertise or privileged information from the private partner.⁵ They may pursue⁶ or avoid⁷ PPPs out of a tactical desire for short-term gains associated with pleasing a particular constituency. Government officials may also promote public-private partnerships for ideological reasons and other positive externalities that are not part of the formal contracting arrangement (as an indicator of party identification or loyalty, symbol of their trust in the market or preference for business over government, rewards from financial markets, or reputational gains regarding the provision of particular goods or services).⁸

There is a general consensus in the field that PPPs are difficult to sustain, but no consensus on why this is the case or how these difficulties vary across different types of PPPs. Scholars argue that PPPs are difficult to sustain and renegotiate because of information and power asymmetries that favor either the government⁹ or the firm;¹⁰

⁵ Feigenbaum, H. B., & Henig, J. R. (1997). Privatization and Political Theory. *Journal of International Affairs*, 50(2), 338-355.

⁶ Denisova, I., Eller, M., Frye, T., & Zhuravskaya, E. (2009). Who Wants to Revise Privatization? The Complementarity of Market Skills and Institutions. *The American Political Science Review*, 103(2), 284-304; Feigenbaum, H. B., & Henig, J. R. (1997). Privatization and Political Theory. *Journal of International Affairs*, 50(2), 338-355; Pint, E. M. (1990). Nationalization and Privatization: A Rational-Choice Perspective on Efficiency. *Journal of Public Policy*, 10(3), 267-298.

⁷ Hemming, E., & Unnithan, N. P. (1996). Determinants of Privatization Levels in Developing Countries. *Social Science Quarterly*, 77(2), 434-444; Nellis, J. (2007). Privatization: A Summary Assessment. *The SAIS Review of International Affairs*, 27(2), 3-7, 10-29.

⁸ Arin, K. P., & Ulubaşoğlu, M. A. (2009). Leviathan Resists: The Endogenous Relationship Between Privatization and Firm Performance. *Public Choice*, 140(1/2), 185-204; Geddes, R. R., & Wagner, B. L. (2013). Why Do U.S. States Adopt Public-Private Partnership Enabling Legislation? *Journal of Urban Economics*, 78, 30-41; Henig, J. R. (1989). Privatization in the United States: Theory and Practice. *Political Science Quarterly*, 104(4), 649-670; Hira, A., & Pineau, P. (2010). Turning Privatization Upside Down: Petrobras as an Example of Successful State Capitalism. *Canadian Journal of Latin American & Caribbean Studies*, 35(69), 231-258, 288-289; Hodge, Graeme and Carsten Greve. (2007). Public-Private Partnerships: An International Performance Review. *Public Administration Review*, 67(3), 545-558; Twombly, E. C. (2003). Public-Private Policy Partnerships / Privatization and Public-Private Partnerships. *Nonprofit and Voluntary Sector Quarterly*, 32(3), 477-481.

⁹ Vernon, R. *Storm over Multinationals* (Cambridge: Harvard University Press, 1977).

because either firms are focused on short-term profits rather than long-term gains,¹¹ or because governments are focused on short-term political or financial gains and willing to pass long-term costs onto their successors.¹² Some scholars argue that PPPs provide efficiency gains, while others argue that such gains are ephemeral because of political considerations¹³ or because of the monopolistic behavior of private sector partners in the absence of strong regulation,¹⁴ accountability,¹⁵ transparency, and risk sharing.¹⁶ Time affects many of these variables and is generally conceptualized in terms of the difficulties of making accurate forecasts and potential asymmetries in information among the partners involving risk and uncertainty.¹⁷ Governments are presumed to have a perverse incentive to maximize the current value of PPPs on their books, discounting and creating

¹⁰Hodge, Graeme (2006, Summer; 2014/12). Public-Private Partnerships and Legitimacy. 29, 318-327; Lonsdale, C. (2005). Contractual Uncertainty, Power and Public Contracting. *Journal of Public Policy*, 25(2), 219-240.

¹¹ Koppenjan, J. F. M., & Enserink, B. (2009). Public-Private Partnerships in Urban Infrastructures: Reconciling Private Sector Participation and Sustainability. *Public Administration Review*, 69(2), 284-296; Lohmann, C., & Rötzel, P. G. (2014). Opportunistic Behavior in Renegotiations Between Public-Private Partnerships and Government Institutions: Data on Public-Private Partnerships of the German Armed Forces. *International Public Management Journal*, 17(3), 387-410.

¹² Pint, E. M. (1990). Nationalization and Privatization: A Rational-Choice Perspective on Efficiency. *Journal of Public Policy*, 10(3), 267-298.

¹³ Diggs, S. N., & Roman, A. V. (2012). Understanding and Tracing Accountability in the Public Procurement Process: Interpretations, Performance Measurements, and the Possibility of Developing Public-Private Partnerships. *Public Performance & Management Review*, 36(2), 290-315.

¹⁴ Bortolotti, B., & Perotti, E. (2007). From Government to Regulatory Governance: Privatization and the Residual Role of the State. *The World Bank Research Observer*, 22(1), 53-66.

¹⁵ Berg, A., & Berg, E. (1997). Methods of Privatization. *Journal of International Affairs*, 50(2), 357-390; Morgan, D. R., & England, R. E. (1988). The Two Faces of Privatization. *Public Administration Review*, 48(6), 979-987.

¹⁶ Bloomfield, P. (2006). The Challenging Business of Long-term Public-Private Partnerships: Reflections on Local Experience. *Public Administration Review*, 66(3), 400-411.

¹⁷ Iossa, E., & Martimort, D. (2012). Risk Allocation and the Costs and Benefits of Public-Private Partnerships. *The Rand Journal of Economics*, 43(3), 442-474; Chi, Keon S. (1998). Privatization in State Government. *Public Administration Review*, 58(4), 374-375.

unnecessary risk for the future when the current policymakers are no longer in office.¹⁸ Similarly, firms are expected to have an incentive to hide information about future costs and maximize current over future returns.¹⁹

While these approaches are useful, we argue that they fail to account for a predictable variation in the successes and failures of different types of PPPs over time. These variations account for much of the indeterminacy in the literature regarding the motivations and effectiveness of PPPs. They also highlight when many of the factors highlighted in the literature will be more or less relevant. We seek to fill this gap by focusing on the nature of the good or service being provided by the PPP and how variation in the value of those goods and services and the price consumers are willing to pay for them change over time for political actors, private sector actors, and their constituents/consumers.

We argue that the sustainability of public-private partnerships is driven by a trade-off for each partner between the price and the quality or quantity of the good provided. This trade-off varies over time based on the impact of the diminishing rates of return in terms of the price and the quality or quantity of the goods and services provided, and the relative importance of price versus quality or quantity to each partner. The price that the private sector actor is able to negotiate or charge is assumed to be positively associated with the value that the public-at-large (defined as consumers by the private sector and

¹⁸ Helm, D., & Tindall, T. (2009). The Evolution of Infrastructure and Utility Ownership and its Implications. *Oxford Review of Economic Policy*, 25(3, Infrastructure, Utilities, and Regulation), 411-434; Montagnes, B. P. & Bektemirov, B. (2014) Incentives to Privatize. Working Paper.

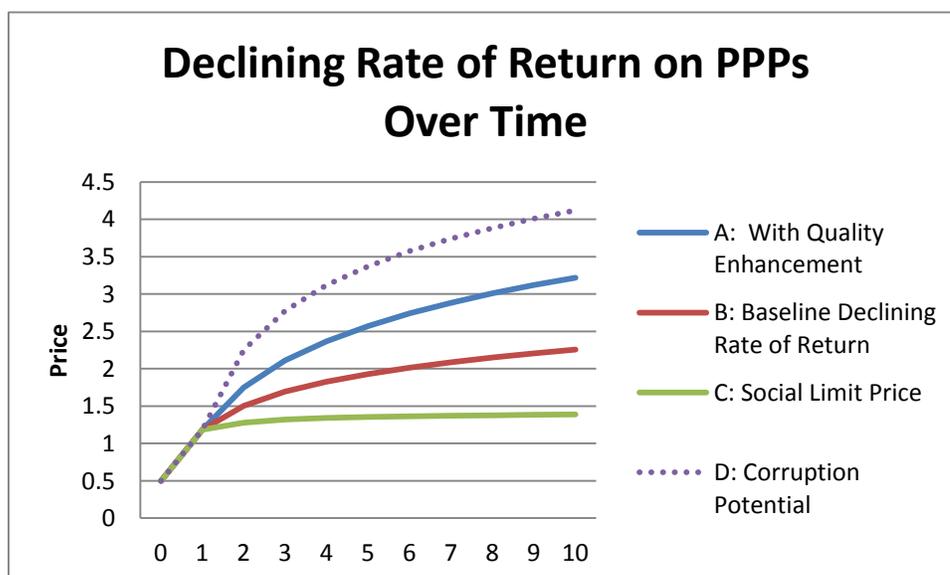
¹⁹ Judith Grant Long, *Public/Private Partnerships for Major League Sports Facilities*. New York: Routledge, 2013. See also Propheter, G. (2013). Evaluating the Public Costs of Public-Private Partnerships: The Case of Professional Sports Facilities. *Public Administration Review*, 73(3), 523-527.

constituents by the public sector) place on the goods and services it provides. Customers are expected to tolerate paying higher prices for greater quality or quantity of goods and services. While many question whether there are long-term efficiency gains from privatization²⁰, the higher prices combined with a presumed increase in efficiency in provision in the short run suggest that public-private partnerships will likely generate large gains for all parties in an initial time period. Over time, however, public-private partnerships are likely to experience diminishing rates of return both in terms of the provision of goods and services and in the price consumers are willing to pay. This is reflected in the Baseline Diminishing Rate of Return curve in Figure 1. The private sector actor will attempt to increase or at least sustain the return over time by increasing the price, decreasing costs, securing side payments from the government or other means. The government, in turn, must provide at least the minimal level of quality and quantity of the goods and services demanded by its constituents. It must also do so at a socially acceptable price.

The diminishing rates of return in terms of the price and the quality or quantity of the goods and services provided by the public-private partnership, combined with the sensitivity of each partner to the price versus quality or quantity over time, are reflected in four ideal types of PPPs: (1) One in which the quality, quantity and price of the goods or

²⁰ Barnekov, T. K., & Raffel, J. A. (1990). Public Management of Privatization. *Public Productivity & Management Review*, 14(2), 135-152; Chi, K. S., Arnold, K. A., & Perkins, H. M. (2003). Privatization in State Government: Trends and Issues. *Spectrum*, 76(4), 12-21; George, K., & Manna, M. (1996). Mixed Duopoly, Inefficiency, and Public Ownership. *Review of Industrial Organization*, 11(6), 853-860. Hoppe, E. I., & Schmitz, P. W. (2013). Public-Private Partnerships Versus Traditional Procurement: Innovation, Incentives, and Information Gathering. *RAND Journal of Economics*, 44(1), 56-74; Iossa, E., & Martimort, D. (2012). Risk Allocation and the Costs and Benefits of Public-Private Partnerships. *The Rand Journal of Economics*, 43(3), 442-474; Neufville, J. I. D., & Barton, S. E. (1987). Myths and the Definition of Policy Problems: An Exploration of Home Ownership and Public-Private Partnerships. *Policy Sciences*, 20(3), 181-206.

services provided can increase. (2) A second in which limits on quality or quantity improvements constrain prices. (3) A third with quality or quantity minimums and price maximums. (4) A fourth with quality or quantity maximums and rising real prices.



Type A: Quality and Price can Increase

Ideally, a public-private partnership will be able to continue to improve the quality or quantity of services provided. As a consequence, it can also continue to increase the price charged for its goods and services. In Figure 2, this is reflected in a shift from the Baseline Declining Rate of Return indicated by Line B to the augmented rate of return indicated by Line A. Line A is greater in magnitude and maintains a positive slope over time. People in Group A have an opportunity to continually shift the curve up by increasing the quantity or quality and price over time.

The management of wireless spectra and cable telecommunication services are examples of this type of public-private partnership. To the extent that the cable company can continue to increase quality or quantity of services that the public is willing to buy, the partnership will generate surplus revenue. That surplus revenue and capacity, in turn, will help the government to satisfy its need to maintain a minimal level of service to its constituents. While the service minimum may increase over time – e.g., from providing rural access to the telephone service, to internet access, to providing 3G then 4G broadband as technology improves – the private sector partner will benefit to the extent that the public is willing to pay for the new products and services it provides.

Public-Private Partnerships in Telecom have been a relatively long-lasting phenomenon, with PPPs operating in Latin American, Indian, and Lebanese Telecom since the 1980s.²¹ These projects met with mixed results, with several Telecom PPP contracts being canceled within 15 years. That said, however, these contracts were generally not canceled because of disputes over the price or the quality of the service provided, but rather because of an inability of the private sector partner to “attract sufficient customers or because the government decided to change the market structure” in ways that made the agreement unprofitable.²² More recently, municipal and national governments have begun experimenting with PPPs in broadband access, especially in rural communities. Although

²¹ The World Bank. “Infrastructure Projects: A Review of Canceled Projects.” Online Resource. January, 2003. Retrieved from <https://openknowledge.worldbank.com/bitstream/handle/10986/11329/351010PAPER0REV0Infrastructure0VP252.pdf?sequence=1>

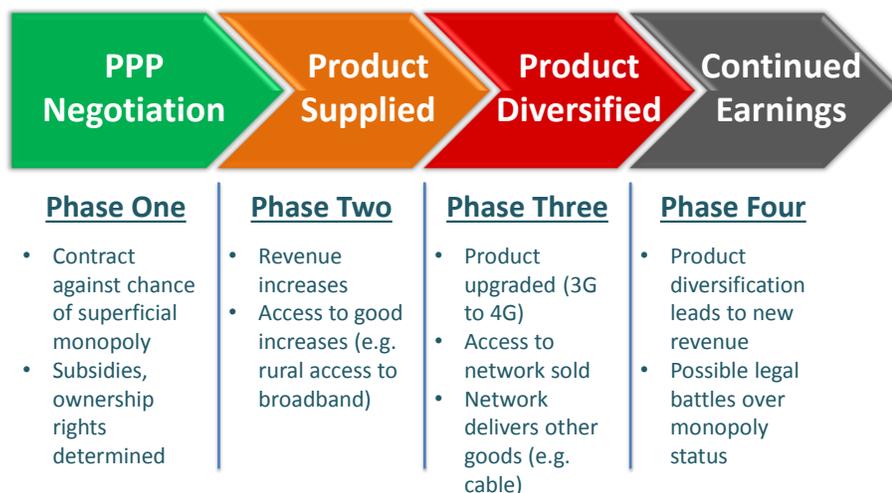
²² The World Bank. “Infrastructure Projects: A Review of Canceled Projects.” Online Resource. January, 2003.

many of these programs began relatively recently, and their outcomes are far from certain, early trends seem to fit with the model's predictions.

Broadband provision (including the installation and maintenance of copper/fiber-optic networks) offers the private sector an opportunity to gain cash flow rights over a highly diversifiable product comparable to the above cable television example. The broadband network can be used for high-speed Internet provision, licensed out to other Internet providers, or used for other products entirely. Furthermore, with some re-investment, these networks can be upgraded or expanded to provide better and broader coverage, thereby representing a product that does not suffer from rapid diminishing rates of return.

Private sector partners are likely to engage in a variety of efforts to build their consumer base and/or increase the price of the services they provide. The constant barrage of Verizon FiOS ads enticing consumers to buy upgrades for faster broadband access or more television channels reflects this phenomenon. The public side of this relationship involves ongoing legislative battles over competitors' use of cables, the electromagnetic spectrum, and other telecommunication infrastructure. The likelihood of reaching mutually beneficial outcomes is high as long as the private sector remains profitable and the government provides a minimally acceptable level of service to its less fortunate constituents.

Timeline: Broadband Internet



As early as 2004, over 200 US municipalities had already begun providing limited wireless or wired broadband network access to the wider community, with 35% engaging through Public Private Partnerships.²³ Of particular note, two New Hampshire state-level offices²⁴ with missions to stimulate business growth have partnered with private broadband service providers and municipal governments to provide broadband Internet access to New Hampshire's rural areas. This project has sought federal grants/subsidies for funding, and also plans to use a "variety of debt instruments" to help local municipalities

²³ Gillett, Sharon E. "Municipal Wireless Broadband: Hype or Harbinger." *S. Cal. L. Rev.* 79 (2005): 561.

²⁴ The New Hampshire Community Development Finance Authority and the Business Finance Authority

fund the remaining start-up costs allocated to the public sector.²⁵ The private sector, meanwhile, will receive many of the user benefits for this project, titled FastRoads NH.²⁶

Similar PPP structures have been undertaken worldwide to provide broadband Internet access. Canada, Sweden, and the Netherlands have all used similar PPP structures. In Sweden, for example, municipality funds provide broadband infrastructure, with a preference for partnering with the private sector for provision and maintenance. Many of these programs utilize customer pre-commitment fees to mitigate the risk of underuse and to insure that the private sector recoups its investment.²⁷

Taken together, these programs suggest that municipal governments are successfully using PPPs to achieve their stated social goals: to increase their constituents' access to services they desire while creating business investment opportunities by encouraging competition and subsidizing the provision of broadband internet access in underserved and low density communities that would otherwise appear too risky to private providers. Meanwhile, the private sector has benefitted from this reduction in risk, as well as the user rights to a good that can be easily diversified as well as easily improved through reinvestment.

Finally, PPPs in broadband also provide insights into how PPPs could potentially create artificial monopolies for provisioning public goods that do not easily lend

²⁵ The World Bank. "Public-Private Partnership in Infrastructure Resource Center." Online Resource. Retrieved from <http://ppp.worldbank.org/public-private-partnership/sector/telecom/telecom-laws/case-studies-telecommunications>

²⁶ Sic.

²⁷ Benkler, Yochai, et al. "Next Generation Connectivity. A Review of Broadband Internet Transitions and Policy From Around the World." (2010).

themselves to market competition. Because the first company to partner in installing high-speed Internet cables would greatly benefit from first-mover advantage, and because installing an additional line would be redundant and economically inefficient, considerable market power could be granted to the firm that wins the initial contract. Because competition—not privatization per se—leads to gains in economic efficiency, governments might do better to maintain a regulatory system that maintains competition to some degree.²⁸ For this reason, then, the contracts for these programs often mandate that companies provide access to their cable network to competitors.²⁹ Although it is too early to tell, the monopolistic characteristics of PPPs that provide access to high-speed Internet may render them an economically inefficient arrangement in the long-term, especially if the private firm relies on monopoly rents to maintain a positive return on capital. On the other hand, the recent entry of Google into wireless telecommunications suggests that competition in this arena is vibrant and will likely continue.³⁰

Type B: Quality Limits Lead to Price Limits

Many public-private partnerships involve the provision of goods and services that were under-provided or poorly provided by the government. In the short term, the quality or quantity of services improves, as does the price consumers are willing to pay. In many

²⁸ Bloomfield, P. (2006). The Challenging Business of Long-term Public-Private Partnerships: Reflections on Local Experience. *Public Administration Review*, 66(3), 400-411. Martin and Parker. Morgan and England

²⁹ Benkler, Yochai.

³⁰ Brian Fung, "Google is serious about taking on telecom. Here's why it'll win," *Washington Post* (February 6, 2015). On line: <http://www.washingtonpost.com/blogs/the-switch/wp/2015/02/06/google-is-serious-about-taking-on-telecom-heres-why-itll-win/>.

circumstances, however, there is a limit to which the quality or quantity of some services can be improved. As that limit is approached, the decline in new services offered is likely to be matched by a decline in the rate of price increases that consumers are likely to tolerate. This creates a declining rate of return similar to that indicated by Line B in Figure 1. For this type of PPP, quality or quantity limits lead to price limits over time.

The recent use of public-private partnerships to build toll roads provides an illustrative example. Despite a general animosity towards paying tolls for “free” services like roads,³¹ consumers may be willing to pay for lower traffic congestion. High Occupancy Toll (HOT) lanes allow drivers to pay for access to traffic lanes otherwise reserved for those who carpool.³² To the extent that the toll roads or toll lanes continue to offer less congestion than the freeway, it will likely be able to continue to generate revenue for both the private sector actor and the government. Its ability to continue to improve the quality or quantity is, however, far more limited than a telecommunications or broadband company. Some innovations – electronic EZpass toll lanes and time-varying pricing – can be added to improve the quality of people’s driving experiences, but the ability to continue to innovate with new features that drivers will be willing to pay for is likely to decrease dramatically over time. Other types of “toll goods” – like private beaches or golf courses – face similar challenges to the extent that there is an upper limit on the quality or quantity of the services that can be provided. The inability to offer added quality or service over time suggests that there will also be a limit consumers’ tolerance for price increases.

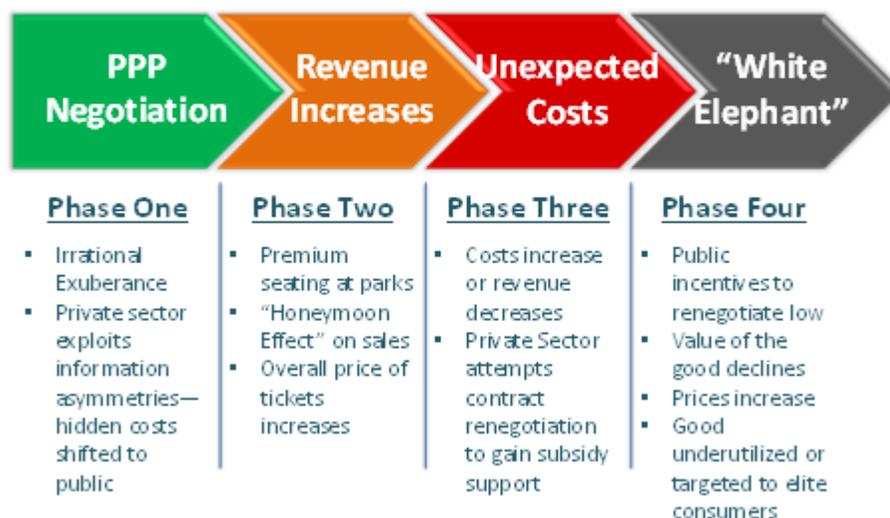
³¹ Khankarli, G. A. (2009). *The Politics of Public-Private Partnerships: The Case for Toll Roads* (Ph.D.). Available from ProQuest Dissertations & Theses Full Text: Social Sciences.

³²For an assessment of HOT lanes on I95 in Virginia, see: <http://www.vamegaprojects.com/about-megaprojects/i-95-hov-hot-lanes/>

The biggest challenge to public-private partnerships in this circumstance is to determine the price and revenue point at which the partnership is sustainable. Private sector partners often over-estimate the price that consumers will be willing to pay for new services and under-estimate the degree to which consumers' baselines of expectations will shift to expect a minimal level of higher quality. As a consequence, they are prone to what Alan Greenspan called "irrational exuberance," to the extent that they expect high initial revenues to continue. Governments, in turn, may prioritize the short-term benefit of revenue and service enhancements acquired while they are in office, and discount the longer-term risks that will accrue to their successors. To the extent that the net benefit to the government was extracted in the first phase of the project, governments are less likely to subsidize these projects to keep them going once they are no longer economically viable. Thus, private sector partners will be at a disadvantage when renegotiating contracts. As a consequence, both public and private actors have a tendency to overbuild and overprice this type of good. As a result of overpricing, fewer consumers will take advantage of the resources offered. This could produce underutilized projects, a.k.a. white elephants. On the other hand, private sector partners may be able to exploit the resulting inequality in usage or access to their benefit. Some new sports stadiums, for example, are able to generate additional revenues and maintain this increase in revenue over relatively long periods of time, and even over the entire life span of the baseball stadium.³³

³³ Marc Poitras, and Lawrence Hadley. (2006). Do New Major League Ballparks Pay For Themselves? *The Journal of Business*, 79(5), 2275-2299.

Timeline: Sports Stadiums



Stadiums, like toll roads, involve large initial capital costs followed by years of comparably much lower maintenance costs. Also like toll roads, they cannot easily add new services that substantially increase revenues over time. One cannot, for example, easily add an additional traffic lane to a toll road or 1,000 seats to a stadium to expand maximum customer base. To the extent that the stadiums can increase revenues from existing consumers – by selling high priced food and beverages, offering premium or elite clubs and seating, or securing other extra-contract revenues – they can continue to be profitable. Furthermore, to the extent that they can negotiate terms that shift unanticipated costs to the government, they can reduce the risks that politicians decrease their willingness to support the project over time.

First, new stadiums tend to capture more revenues through increased product differentiation, which results in a significant boost in revenue from the previous status quo.

These new products include more levels of tiered-pricing for seats (e.g. more corporate suites) that allow baseball stadiums to better capture demand for premium seating.³⁴ Second, teams can increase ticket prices for all seats for a new stadium simply because the value of a new stadium exceeds the value of an old stadium. New stadiums also tend to attract higher attendance rates, especially initially (the so-called “honeymoon effect”) because of the initial excitement that surrounds the opening of a new stadium.³⁵ Elite pricing is potentially lucrative, but risky. Recent studies suggest that raising toll rates increases revenue while lowering toll rates will increase traffic volumes at the expense of toll revenues.³⁶ On the other hand, anecdotal evidence of the low utilization of HOT traffic lanes around Washington, DC, and toll roads between Irvine and San Diego, CA, suggest that there are limits on what people are willing to pay even in regions with very high levels of traffic congestion.³⁷ Empty club seats at the Nationals Park in Washington, DC, suggest that they, too, can be overpriced – especially if the team is doing poorly.³⁸

Second, private partners in PPPs involved in the construction of toll roads and sports stadiums run the risk of obsolescence bargaining as a result of having born large fixed costs from which they cannot easily walk away. Meanwhile, the politicians will face new issues or have new priorities over time (or indeed have come to office after the

³⁴ Marc Poitras, and Lawrence Hadley. (2006). Do New Major League Ballparks Pay For Themselves? *The Journal of Business*, 79(5), 2275-2299.

³⁵ Marc Poitras, and Lawrence Hadley. (2006). Do New Major League Ballparks Pay For Themselves? *The Journal of Business*, 79(5), 2275-2299.

³⁶ Curtis Beaty, Mark Burris, and Tina Geiselbrecht, “Executive Report: Toll Roads, Toll Rates and Driver Behavior,” Texas Department of Transportation , FHWA/TX-13/0-6737-1, (December 2012). On line: <http://d2dtl5nnlpfr0r.cloudfront.net/tti.tamu.edu/documents/0-6737-1.pdf>.

³⁷ For a list of the most expensive toll roads in the United States, see: <http://www.vdriveusa.com/resources/most-expensive-toll-roads-in-the-us.php>

³⁸ Marc Poitras, & Lawrence Hadley. (2006). Do New Major League Ballparks Pay for Themselves? *The Journal of Business*, 79(5), 2275-2299.

original agreement was made) and not be willing to maintain earlier commitments to the project. The large sunk costs and “time-inconsistency problems” suggest that private sector actors will be at a disadvantage over time to the extent that political officials (or their constituents) consider the services provided to be a luxury good rather than something that needs to be maintained for their constituents. To the extent that the toll road or a stadium is a luxury good, the public sector partner can more easily walk away.

Third, sports stadium PPPs suggest that private sector actors may be able to exploit information advantages when contracting with public sector actors to their advantage. Sports stadiums perennially run in over cost and frequently involve unanticipated, not contracted, hidden or other costs that may be transferred to the public sector.³⁹ PPP contracts for sports stadiums have become more complex over time, possibly obfuscating potential future costs.⁴⁰ Finally, because the private sector has more information regarding the cost/benefits of building a sports stadium, it frequently uses information asymmetries to shift costs to the public during bargaining.⁴¹ For these reasons, sports stadiums often promise more than they deliver, especially after the honeymoon period is over, costing the public much more than anticipated. This suggests that the private sector partner may recognize that it will lose bargaining power over time and therefore attempts to hedge against its future relative weakness in bargaining power by cashing in on present information asymmetries.

³⁹ Judith Grant Long, *Public/Private Partnerships for Major League Sports Facilities*. New York: Routledge, 2013. See also Propheter, G. (2013). Evaluating the Public Costs of Public-Private Partnerships: The Case of Professional Sports Facilities. *Public Administration Review*, 73(3), 523-527.

⁴⁰ Propheter, G. (2013). Evaluating the Public Costs of Public-Private Partnerships: The Case of Professional Sports Facilities. *Public Administration Review*, 73(3), 523-527.

⁴¹ Propheter, G. (2013). Evaluating the Public Costs of Public-Private Partnerships: The Case of Professional Sports Facilities. *Public Administration Review*, 73(3), 523-527.

Type C: Quality Minimums and Price Maximums

A third class of public-private partnerships involves the allocation of goods and services for which there are socially determined minimums in quality and/or quantity and a socially determined maximum price. If the price maximum is greater than or equal to the baseline declining rate of return (Line B), then the issues in this situation will match those noted in Part B. The price maximum may, however, be lower than the baseline rate of return. As reflected in Line C, in this case the price will increase to that socially determined cap. For this type of PPP, quality minimums and price maximums constrain profitability.

The classic example of this type of good is a public utility. The privatization or partial privatization of public water and electric services utilities, for example, often results in significant initial improvement in quality that many consumers are willing to pay for. There are, however, upper limits to the socially and politically acceptable price for these and other services. This price may vary as a function of a variety of social, political and economic circumstances, but it remains limited. There are also socially and politically acceptable minima in terms of the quality and quantity of service provided.

Since a minimal quantity and quality of goods are politically necessary, governments will be at a disadvantage when renegotiating contracts when the return on investment for the private partner decreases. In this situation, governments are likely to subsidize consumers and companies in order to make up the difference between the price consumers are willing to bear and the returns needed to maintain the partnership. The cost of the subsidy is likely to be the difference between Line C and Line A. If the subsidy is less than this amount, the quality of service is likely to deteriorate as private sector actors try to

maintain their revenue. If the quality or quantity of services declines below a socially acceptable level, governments are likely to nationalize or renationalize the service.

Timeline: Utilities



Latin America provides multiple examples of utility privatizations and PPPs of this type that failed after a few years. The privatization of water utilities in Bolivia provides one such example. Water quality increased with privatization, as did the price. Despite imposing price caps from the beginning, both the private sector and government underestimated the likelihood of popular backlashes to price increases. The popular protests eventually forced the renationalization of water supplies.⁴²

Scholars analyzing the Bolivian case argued that, “facing an inelastic demand, private suppliers have higher incentives than a public monopoly to undersupply, increase

⁴² Hailu, D., Osorio, R. G., & Tsukada, R. (2012). Privatization and Renationalization: What Went Wrong in Bolivia's Water Sector? *World Development*, 40(12), 2564.

prices, underinvest, and provide low quality services.”⁴³ Increases in access to water led to price increases. The price of utilities controlled by PPPs also increased across the board after one year. This suggests that the private partners were likely already facing diminished rates of return.⁴⁴

As profits diminished, these utilities tended to underinvest in infrastructure. Analysts noted, for example, that PPP efforts to meet the “minimum acceptable water expansion schedule” focused on minimizing the cost of expansion rather than increasing coverage based in ways that promoted societal benefits.⁴⁵ In particular, expansion was met with complaints about low water pressure and the low quality of service. In addition, the private utilities tended to try to reduce costs further by reducing their efforts to minimize costly externalities such as damage to Lake Titicaca. Even the rigid contracting and stringent enforcement observed in Bolivia did not guarantee the quality of services, nor did it insure that companies reach their coverage expansion quotas.⁴⁶ The failure of private companies to fulfill their contractual obligation to provide sufficient coverage to poor areas provided the principal justification for renationalization of the utilities.⁴⁷

Similar events in Argentina provide further support for the hypothesis. In Argentina, Aguas Argentinas in 1992 acquired a concession contract for user rights to Buenos Aires’

⁴³ Hailu, D., Osorio, R. G., & Tsukada, R. (2012). Privatization and Renationalization: What Went Wrong in Bolivia's Water Sector? *World Development*, 40(12), 2564

⁴⁴ Hailu, D., Osorio, R. G., & Tsukada, R. (2012). Privatization and Renationalization: What Went Wrong in Bolivia's Water Sector? *World Development*, 40(12), 2564

⁴⁵ Hailu, D., Osorio, R. G., & Tsukada, R. (2012). Privatization and Renationalization: What Went Wrong in Bolivia's Water Sector? *World Development*, 40(12), 2564

⁴⁶ Hailu, D., Osorio, R. G., & Tsukada, R. (2012). Privatization and Renationalization: What Went Wrong in Bolivia's Water Sector? *World Development*, 40(12), 2564

⁴⁷ Hailu, D., Osorio, R. G., & Tsukada, R. (2012). Privatization and Renationalization: What Went Wrong in Bolivia's Water Sector? *World Development*, 40(12), 2564

water utilities system, with the government maintaining ownership rights. The concession contract stipulated price ceilings and established parameters for increasing the quality of service. Following the establishment of the PPP, however, prices rose dramatically until profit margins were significantly higher than for utility companies in the US or Europe (20% versus 6-7%). Despite these price increases, a comparable increase in quality of services was not observed.⁴⁸ These price increases without a comparable increase in the quality of water utility services occurred because of the permissive regulatory atmosphere for utilities in Argentina. The regulatory agency charged with overseeing the privatized water utilities—including approving any proposed price increases—was staffed by political appointees rather than people with backgrounds in water provision. As such, the regulatory agency lacked the technical know-how to rigorously evaluate the value of the good being provided, nor could it respond to the growing public demand for reform that ultimately led to renationalization.⁴⁹ Likewise, Aguas Argentinas intentionally missed contract-specified quotas to expand utilities coverage to impoverished areas because of the low profit margins they would reap in those regions. Although breach of contract should have occurred during the re-negotiation in 1997, no such thing took place, again suggesting that in re-negotiations the private sector had gained comparably more bargaining power over time.⁵⁰ Following considerable financial losses due to the Argentine currency

⁴⁸ Baer, W., & Montes-Rojas, G. (2008). From Privatization to Re-Nationalization: What Went Wrong with Privatizations in Argentina? *Oxford Development Studies*, 36(3), 323-337. See also Marin, Philippe. *Public-Private Partnerships for Urban Water Utilities: A Review of Experiences in Developing Countries*. Vol. 8. World Bank Publications, 2009.

⁴⁹ Baer, W., & Montes-Rojas, G. (2008). From Privatization to Re-Nationalization: What Went Wrong with Privatizations in Argentina? *Oxford Development Studies*, 36(3), 323-337.

⁵⁰ Catenazzi, A. (2001) Privatizacion Y Universalidad. La Posprivatizacion de Obras Sanitarias de la Nacion, *Enoikos*, 7, pp. 59-65.

devaluation of 2001-2002 (95% of Aguas Argentinas' debt was denominated in dollars), increasing financial troubles meant that the public tolerance for paying "high" utility rates fell further. To reduce these effects, the government of Argentina imposed price caps and price freezes on utility rates and increased its subsidies to consumers and some utility companies. This pressure, combined with repeated contractual violations, led to Aguas Argentinas' renationalization in 2006.⁵¹ This example again demonstrates a utility that failed due to a contract that expected the private partner to provide services at a cost exceeding the socially acceptable maximum price. As with Bolivia, this cost increase ultimately led to renationalization. These examples, then, both demonstrate that over time utilities will suffer from an increased cost structure that prices cannot rise to match or to beat.

Type D: Quality Maximums with Rising Real Price Possibilities

Public-private partnerships are often used as a means to finance and manage environmental goods. Examples include the preservation of wetlands and the disposal of waste or other pollutants. While many of these programs are initially successful, they are prone to corruption and are the least likely to be effective. These dire tendencies are driven by a trade-off between price and quality. In a perverse way, the price that consumers are willing to pay for these goods produced by the public-private partnership increases when the public-private partnership fails. For example, as the size of

⁵¹ Baer, W., & Montes-Rojas, G. (2008). From Privatization to Re-Nationalization: What Went Wrong with Privatizations in Argentina? *Oxford Development Studies*, 36(3), 323-337. See also Marin, Philippe. *Public-Private Partnerships for Urban Water Utilities: A Review of Experiences in Developing Countries*. Vol. 8. World Bank Publications, 2009.

undeveloped wetlands decreases, the price consumers and political constituents are willing to pay to preserve what is left of these wetlands actually increases. Similarly, the more polluted a river becomes the more consumers and constituents will be willing to pay to clean it. Since both the price that the private sector can charge as well as the benefits of political mobilization rise with failure, both the private and public partners in the public-private partnership have a perverse incentive to underprovide the promised services.

Consequently, even though social tolerance of failure may be limited and there may be a limit on the nominal price consumers are willing to pay, corruption is likely because it perpetuates the need for the services while increasing the economic and political benefits of small improvements in quality or quantity. Consequently, as reflected in Line D in Figure 1, if the costs of corruption and good degradation are included, the real price paid is likely to be much higher than the nominal price of pollution cleanup or wetlands preservation.

Efforts to monitor and reduce water pollution on the Ganges River from India's tannery industry demonstrate how the deleterious incentives created by the presence of existence benefits can incentivize bad behavior from PPPs. The tanning process, which transforms raw animal hides into finished leather, releases a variety of water, air, and solid waste pollutants. In India, most regulation has focused on water pollution since the 1986 implementation of the Ganga Action Plan (GAP), which has attempted to ameliorate the serious health and environmental problems associated with extreme pollution in the

Ganges River.⁵² The tanning industry specifically releases sulfides, chromium, and suspended solids dangerous to health.⁵³

Timeline: Tannery Clean-up



The Indian government has attempted to reduce pollution from the tannery industry through the creation of Common Effluent Treatment Plants (CETPs), or public-private treatment facilities funded by both the city and the private sector and operated by the municipal government or the private sector.⁵⁴ Tannery facilities that pay into a CETP

⁵² Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828.

⁵³ Gupta, Rocky, Gupta, Shivam, and Tamra, Ronak. "Challenges Faced by Leather Industry in Kanpur." Indian Institute of Technology Kanpur Thesis, 2007.

⁵⁴ Gupta, Rocky, Gupta, Shivam, and Tamra, Ronak. "Challenges Faced by Leather Industry in Kanpur." Indian Institute of Technology Kanpur Thesis, 2007.

must first treat their own water waste on site in a primary treatment facility (PTP) that scrubs their water waste of the heaviest chemicals.⁵⁵

The city of Kanpur, along the Ganges River in Uttar Pradesh (Northern India), possesses two major centers for tannery production: Jajmau and Unmao, which differ in important aspects. The tannery industry in Jajmau is older and larger, with over 300 firms compared to 21 in Unmao in 2000.⁵⁶ Second, Jajmau's CETP was constructed as a joint public-private-NGO venture, receiving partial funding from the Indo-Dutch development program, and is run as a public-private partnership with the municipal government providing regulatory oversight.⁵⁷ Operation and management costs are evenly split between a consortium of participating firms and the Kanpur Municipal Authority.⁵⁸ The CETP in Unmao, in contrast, was completely funded by the private sector and is still operated as a private company, albeit with municipal government oversight.⁵⁹ Because the Unmao facilities are not structured as PPPs, they will receive no further attention in this paper, although it should be noted that this CETP in Unmao has been relatively more successful at monitoring the waste flows from participant tanneries and at punishing defection.⁶⁰

⁵⁵ Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828.

⁵⁶ Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828.

⁵⁷ Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828.

⁵⁸ Gupta, Rocky, Gupta, Shivam, and Tamra, Ronak. "Challenges Faced by Leather Industry in Kanpur." Indian Institute of Technology Kanpur Thesis, 2007.

⁵⁹ Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828.

⁶⁰ This is doubtless partially due to its structure as a private company, and partly due to the fact that there are far fewer firms to monitor in Unmao (21) than in Jajmau (300+). Please see

The CETPs in both cities perennially fail to reduce water pollution to legal levels and regulators largely fail to enforce compliance.⁶¹ Corruption has been identified as the primary reason for these regulatory lapses—corruption is so bad that even firms that do comply have to also pay bribes to the regulatory authority, in effect paying twice as much as non-complying firms.⁶² In addition, the literature also identifies the high cost of adopting clean technology, the lack of a market for “green” leather, and misinformation about the importance of these regulations.⁶³

The incentives facing public and private partners in the PPPs help to explain the pervasiveness of corruption and the continuation of poor quality. The private sector sees these regulations as an unfair and unreasonable cost with little economic upside.⁶⁴ On the other hand, the fact that the river pollution creates an existence benefit for both the government as well as for international donors suggests that they will continue to contribute to the cleanup even if cleanup efforts fail. As time progresses and the value to the public of cleaning up the river increases, the ability for individual government agents to also extract rents from the private sector also increases, and corruption consequently becomes more severe. Indeed, empirical evidence indicates that the public portion of CETP

Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828.

⁶¹ Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828.

⁶² Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828

⁶³ Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828

⁶⁴ Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828

operating costs have increased over time, as in Jajmau, where the city portion increased from 0% to 50% from 2000 to 2007.⁶⁵

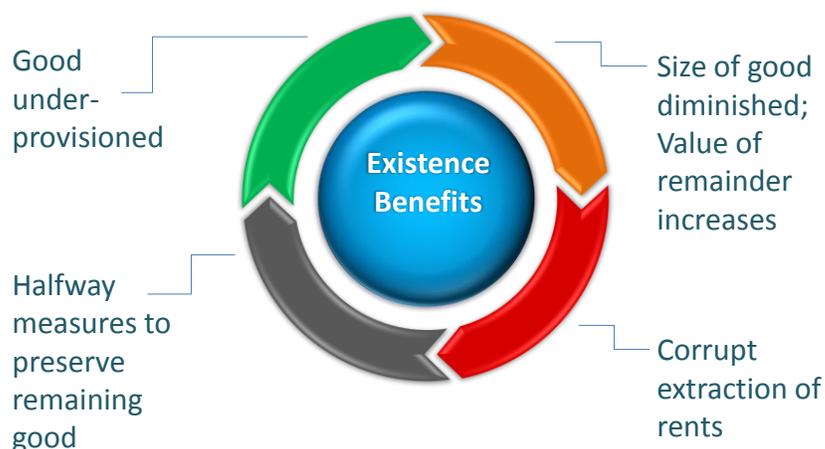
Ironically, local officials also lack an incentive to make anything but merely incremental progress in cleaning the river. With incremental progress, additional aid and investment is likely to be forthcoming. When it does, political leaders will be rewarded to the benefits it brings in the short-term. In this way they are able to gain the benefits of short-term cleanup while not bearing any social cost for the long-term consequences of continued pollution. Surveys have demonstrated that the public along the river does not understand the importance of providing these cleanup services and as a result undervalue the long-term health benefits that adequate enforcement would provide.⁶⁶ Indeed, because tannery workers make up a considerable and concentrated portion of the electorate in these regions—combined with misperceptions about the cost of regulation—government officials may face an electoral incentive to not crack down on pollution.⁶⁷

⁶⁵ Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828. See Scholden, Ane (2000); Gupta, Rocky, Gupta, Shivam, and Tamra, Ronak. "Challenges Faced by Leather Industry in Kanpur. Indian Institute of Technology Kanpur Thesis, 2007.

⁶⁶ Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828. See Scholden, Ane (2000); Gupta, Rocky, Gupta, Shivam, and Tamra, Ronak. "Challenges Faced by Leather Industry in Kanpur. Indian Institute of Technology Kanpur Thesis, 2007.

⁶⁷ Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828. See Scholden, Ane (2000); Gupta, Rocky, Gupta, Shivam, and Tamra, Ronak. "Challenges Faced by Leather Industry in Kanpur. Indian Institute of Technology Kanpur Thesis, 2007.

Timeline: Tannery Clean-up



The public sector has incentives to under provide clean water in order to maintain rents from both public coffers and bribes from the private sector. For example, the Kanpur Municipal Authority has repeatedly failed to fund its half of the CETP PPP in Jajmau, and it chronically works at under capacity despite the need for near-constant filtration because it is underfunded.⁶⁸ Likewise, government officials tasked with operating the CETP in Jajmau themselves have been known to evade regulation from other government officials in different agencies.⁶⁹ As time goes on, corruption at home and the prospect of future donor assistance from abroad provide a motivation for corruption to continue. Although there is

⁶⁸ Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828. See Scholden, Ane (2000); Gupta, Rocky, Gupta, Shivam, and Tamra, Ronak. "Challenges Faced by Leather Industry in Kanpur. Indian Institute of Technology Kanpur Thesis, 2007.

⁶⁹ Schjolden, Ane. *Leather Tanning in India: Environmental Regulations and Firms' Compliance*. F.I.L Working Papers #21, 2000. ISBN 0804-5828

no way to systematically compare the cost of bribery over time, anecdotal evidence indicates that bribery along the Ganges has become more severe.⁷⁰

III. Conclusion

Public-private partnerships provide great opportunities for managing particular types of issues. In situations where the quality, quantity and price of the good or services being provided continue to increase over time, they are likely to be highly effective. While it is important that agreements be structured in ways that maintain competition and protect firms from renationalization for profit, such agreements are generally sustainable and beneficial for all parties.

This success cannot, however, be generalized to all types of PPPs. When improvements in the quality or quantity of a good or service are limited, then private sector partners run the risk of obsolescence bargaining and are prone to generating over-priced and elite-focused consumer products. When minimal levels of a good or service must be provided and prices are constrained, then the government runs the risk of private sector partners underproviding the quality or quantity, in turn leaving the government stuck with providing side payments, subsidization or renationalization. Worst of all, perhaps, is the situation of environmental goods and other services that are valued for their existence benefits. In such circumstances, both the private and public partners have an incentive to underprovide the resource because their constituents or customers will continue to pay for

⁷⁰ Gupta, Rocky, Gupta, Shivam, and Tamra, Ronak. "Challenges Faced by Leather Industry in Kanpur. Indian Institute of Technology Kanpur Thesis, 2007.

the good or service over time. Indeed, these constituents will pay more over time if the good or service is underprovided.

Caveat Emptor: The benefits and risks of public private partnerships will shift among the private sector partner, the public sector partner, and the public at large depending on changes in price and value over time. Public private partnerships work best for services that are commercially viable. They work less well when providing social or environmental goods. When existence benefits are at stake, PPPs are at their worst. In such circumstances, PPPs will likely continue to provide benefits their public and private partners while underserving the public at large.