



## **Public-Private Investment Partnerships in Health Systems Strengthening**

Wilton Park  
April 9-11, 2008

### **BACKGROUND PAPERS**

#### *OVERVIEWS*

1. Global Trends in Health Care Public-Private Partnerships  
Author: Matthias Loening
2. **What Can We Learn from Public-Private Partnerships in Infrastructure?**  
Author: **Aarthi Belani**
3. Options to Structure and Fund PPPs in Developing Countries  
Author: Paul da Rita, Katrina Green and Clare Ashbee
4. Privatization in the Public Interest: Key Success Factors in Purchasing Health Services from the Private Sector  
Author: Abby L. Bloom

#### *CASE STUDIES*

5. PPIP in the Reforming NHS in England: A Critical Review  
Author: Andrea Longhi
6. The Turks and Caicos Islands: A Public Private Investment Partnership for an Integrated Health System  
Author: Neelam Sekhri Feachem, Sian Betts and Heather McNabb
7. Reverse Alchemy - Turning Gold into Health Care in Papua New Guinea  
Author: Jane Thomason, Mathew Hancock, Lisa Richie and Geoff Scahill

**The following paper has been prepared as background for conference attendees. Any public use, dissemination, distribution, publication, or reproduction of these papers and any of their content, tables, or annexes (if any) is strictly prohibited.**

**For more information please contact: Heather Kinlaw, Global Health Group, UCSF at [kinlawh@globalhealth.ucsf.edu](mailto:kinlawh@globalhealth.ucsf.edu) or tel: +1-415-597-9247.**

## What Can We Learn from Public-Private Partnerships in Infrastructure?

### 1. Introduction

Increasing a country's quality and stock of infrastructure is correlated with increasing growth<sup>1</sup> and decreasing inequality. Building more and better infrastructure is an important goal of many economies with limited public revenues, and therefore governments seek access to private capital.

Private investment in public infrastructure can release government revenues to be re-oriented to projects less attractive to private finance, such as vaccination programs. So, “[w]hile in many cases public sector borrowing costs will be lower, other factors should be considered, including the opportunity cost of public funds and foreign exchange and the efficiency and expertise the private sector might bring to the project.”<sup>2</sup>

Technological change has also facilitated growth in private participation in public infrastructure projects by making economies of scale less important. Especially in telecommunications and power generation, smaller entrants can now compete in previously monopolized markets for infrastructure and related services.

Because they are exposed to competitive forces, private sector partners in infrastructure and related services can introduce innovation and improve quality.<sup>3</sup> Project finance may present greater spurs to evaluate projects carefully and assess risk. Projects are submitted to meticulous technical and economic review and sensitivity analyses, improving the quality, efficiency, risk profile, and risk allocation of the project. For instance, a demand study on a toll road might reveal a rationale for delaying construction of new access roads until certain traffic levels are reached. Lenders, their lawyers, and technical experts are all engaged to conduct due diligence on the project, and to continue to supervise, monitor, and, in some cases, provide technical assistance to the contractors as long as any project financing remains outstanding.<sup>4</sup> The best technical assistance you can receive is from someone with a financial stake in your project.

#### (a) *Overview and Definition of Project Finance*

This paper focuses specifically on project finance and the lessons that can be derived from international experience with project finance: how to harness the private sector, how to structure financing, and how to mitigate risk. I begin with some case examples, then provide a typology of the spectrum of public-private partnership (PPP) models from least to greatest private sector involvement, and conclude with a rundown of common risks associated with PPPs.

Project finance is characterized by:

- 1) the private financing of
- 2) a long-lived high capital expenditure asset (most typically heavy infrastructure such as sanitation, water treatment and supply, transportation, telecommunications, and power generation and distribution),
- 3) utilizing a special purpose entity so that there is no recourse to the public sector or to any equity sponsors – project assets secure debt, and project cash flows service that debt.<sup>5</sup>

(b) *Breadth and Distribution of Projects*

To give a sense of the breadth and distribution of projects, private international participation in infrastructure from 1983-2004 is broken down by urban and total infrastructure investment and region in the table below.<sup>6</sup> The high popularity of Latin America and East Asia for private sector infrastructure investors is notable.

\$ Million nominal	East Asia and the Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa	Total
<b>All PPI</b>	157,867	77,503	273,678	22,474	37,943	28,469	597,934
<b>% of Total by Region</b>	26%	13%	46%	4%	6%	5%	100%
<b>Urban</b>	26,493	2,796	24,581	5,373	423	1,600	61,266
<b>Urban as a % of Region Total</b>	17%	4%	9%	24%	1%	6%	10%

2. **Case Examples**

Later in this paper, I will discuss the ways that private enterprises can be involved in public infrastructure projects, different financing mechanisms, and risk mitigation strategies in general, conceptual terms. To provide concrete illustrations of many of these issues, I am including four case examples up front of diverse ways private contractors have financed and built toll roads, hydroelectric facilities, and, to depart from an exclusive focus on heavy infrastructure, university housing and even pro-poor health insurance schemes.

(a) *The Highway of the Sun: Chilean Toll Road Autopista del Sol*

In the early 1990s, with the goal of increasing investment in infrastructure, Chile legislated a concession scheme under which private firms would, for a set period, finance, build, and operate roads, bridges, tunnels, and airports, recovering investment by collecting user charges.<sup>7</sup> In 1995, the Ministry of Public Works of Chile (MOP) awarded Infraestructura Dos Mil S.A. (I2000), part of one of Spain's largest construction groups, a 23 years and eight months-long concession through May 2019 to finance, build, and operate the 132.3-kilometer Autopista del Sol or "highway of the sun." Autopista del Sol is a toll road constructed to provide new access from the capital city of Santiago to the Port of San Antonio, Chile's busiest container terminal.

Autopista del Sol (also known as Route 78) covers the metropolitan region and the V Region of Valparaiso, servicing the provinces of Santiago, Talagante, Melipilla, and San Antonio and servicing commercial traffic between Santiago and the port as well as tourist traffic heading for the coastal areas during the holiday season. The toll road has reduced travel time between the capital and the port of San Antonio by 50%. It is

estimated that 51,410 vehicles travel on Autopista del Sol each day.

When I2000 was awarded the concession, it created the special purpose entity Sociedad Concesionaria Autopista del Sol S.A. (ASSA), headquartered in Santiago, Chile. ASSA issued multiple series of bonds to finance different phases of the construction of Autopista del Sol. Most recently, ASSA issued its third series of bonds (senior secured 4% Series C bonds due 2018) on June 28, 2006, in the domestic Chilean market, and Moody's Investors Service assigned them a triple-A rating based solely upon the guaranty of principal and interest imparted by a financial guaranty insurance policy provided by Financial Security Assurance Inc. (FSA). Attaining such a high, investment-grade rating reduces the cost of financing, as lower risk debt demands a lower price in terms of interest payments.

If the issuer of an insured bond cannot make any scheduled principal or interest payment, FSA makes the scheduled payment on time and in full. For security, FSA has recourse to the assets and receivables of the issuer – in this case, toll revenues, pledged contracts, etc.

Based in New York, FSA is primarily engaged in providing financial guaranty insurance on public finance and asset-backed obligations in domestic and international markets, such as municipal bonds and loans, infrastructure financings including PPP financings, utility bonds, and debt of government-sponsored enterprises. Like many monoline insurers', FSA's public finance transactions tend to have government support or finance projects with essential public purposes.

Proceeds of the Series C bonds will fund expansion and improvements expected to ease traffic congestion near the port and to facilitate higher revenue-generating commercial truck access to the road. As agreed with the MOP, revenues from incremental toll increases will cover the debt financing costs.

Autopista del Sol provides a classic example of a build-finance-operate toll road concession.

(b) *La Yesca Hydroelectric Facility*

The US\$990 million La Yesca dam and hydropower plant on the Santiago River in Hostotipaquillo in western Mexico provides a good example of how financing can be structured to segregate risk to access lower-cost funds.

A 205.5-meter dam with a 750-megawatt underground powerhouse, La Yesca is, by capacity, the second-largest hydroelectric project on the Santiago River, which has 27 hydroelectric projects that generate 4,300 megawatts. The Mexican state-owned electric utility, Comisión Federal de Electricidad (CFE) sponsored the project under Mexico's public works scheme.

Only when the asset is in service and generating revenues does the public sector's obligation kick in: the contractor gets paid for the construction costs in one lump-sum payment at completion. The construction phase is expected to last through 2011. To assure the contractor both that the government acknowledges the construction progress and of the amount of payment it can expect in the event of an early termination, CFE issues monthly certificates.

The financing package included a US\$80 million revolving credit facility to provide working capital, isolating to a small facility the performance and credit risk of the contractor, which between it and the CFE has the lower credit rating. The financing package also included a US\$910 million syndicated construction loan, the proceeds of each draw under which are used to repay the revolving credit line. The syndicated loan closed only after CFE had issued the first certificate, minimizing CFE non-repayment risk.<sup>8</sup>

(c) *University of New South Wales Student Housing Development*

Turning to the social sector of higher education, the University of New South Wales (UNSW) and Campus Living Villages student housing development provides a good example of public-private risk sharing.

The UNSW issued a request for proposals for new university housing procurement in October 2006 and received bids in January 2007. At the time, the UNSW was not sure that the private sector would bear the occupancy risk or that the partnership would result in affordable rents for students. In April 2007, the UNSW chose Campus Living Villages, which did a demand study, closed on a debt facility, and also raised equity capital through a fund in which institutional investors bought shares.

The student apartments will be ready in 2010 and start with a fixed base rent, with set times for market review of the rental rates. Campus Living Villages and its investors also receive commercial revenues from co-locating commercial renters, whose retail stores fulfill students' consumer demands.<sup>9</sup>

The private sector partner is responsible for financing, building, marketing, and operating the accommodations; the university and the private sector partner share responsibility for clearance and contamination.

(d) *Yeshasvini: "Wal-Martizing" Health Insurance*

Founded in 2001 by Dr. Devi Prasad Shetty, Narayana Hrudayalaya (NH) is a completely private heart hospital in Bangalore that aims to provide affordable cardiac care to the masses. Dr. Shetty is fond of saying that he wants to "Wal-Martize" health care: in 2004, NH performed 4,276 surgeries, and in that year the ratio of patients paying the full price to those who could not afford the full fee was about 60:40. By comparison, in 2004 NH performed 3,570 coronary artery bypass graft surgeries, and the Mayo Clinic performed 2,500 cardiac surgeries.<sup>10</sup>

When a dairy cooperative asked Dr. Shetty, who by then was something of a local celebrity, to endorse its product, he realized that the cooperative was the perfect clustered and organized group of low-income people with poor access to health care: thus was Yeshasvini Co-operative Farmers Health Care Scheme born.<sup>11</sup> The public-private health insurance scheme launched in 2002 for 1.7 million farmers and their families in Karnataka.

Regardless of medical history, a farmer belonging to one of various state cooperatives for 5 Indian Rupees (US\$0.11) per month was provided access to treatment at 150 hospitals in the state for any procedure costing up to 100,000 Indian Rupees

(US\$2,200). The government contributed 2.5 Indian Rupees for every farmer enrolled.<sup>12</sup> The Karnataka state government cooperative department secretary got the then-chief minister of Karnataka involved, and the Yeshasvini Trust was able to keep collection costs at a minimum by partnering with government post offices and collecting funds up front.<sup>13</sup>

In Karnataka, while hospital infrastructure had been high (over 15,000 beds), usage was low due to lack of affordability: average occupancy was at 35%. In the first year of Yeshasvini, 9,000 people underwent operations and 35,000 others received outpatient treatment. Most claims were for nonsurgical, low-cost treatments. By 2005, 2.5 million farmers had been enrolled; plans are underway for a scheme for teachers.<sup>14</sup>

Administering the scheme via existing labor organizations such as farmers' collectives and teachers' unions, and perceived trustworthy, ubiquitous institutions like the postal service, provides a source of administrative and marketing savings for Yeshasvini, which has accessed a large number of people without having to set up separate administrative and marketing channels. Yeshasvini is also more efficient than a government scheme, in part because NH claims that it has conquered the problem of corruption, which is endemic to all Indian state services,<sup>15</sup> and in part because Yeshasvini must keep costs low to break even.

### 3. **Private Sector Involvement in Infrastructure**

As seen in the foregoing examples, the private sector can be involved in financing, mobilizing finance for, designing, building, operating, and/or maintaining public and social infrastructure. As in the Yeshasvini example, the private sector can even be the instigator of infrastructure development. Finally, although I do not touch upon complete privatization, outright ownership of public and social infrastructure is another model, but involves no PPPs. (It is rather usually a government-run auction of public assets.)

Along the spectrum from least to greatest involvement of the private sector in infrastructure development, types of private involvement in infrastructure can be catalogued along these lines:

- governments may contract with private service providers, exposing the private sector partner only to revenue risk, but not to financing risk;
- the public and private sectors can share responsibility and risk for financing and operations in a joint venture;
- most commonly, private entities are granted limited-term "concessions" to build, operate, and eventually transfer (BOT) the infrastructure asset; and
- the private entity can build, operate, and outright own the infrastructure asset in the case of complete privatization, transferring all risk to the private sector, as briefly mentioned above.<sup>16</sup>

We can classify the La Yesca dam example provided above as BOT and the Chilean toll road example as build-finance-operate (or, more specifically, build-finance-operate-maintain-transfer).

For another example, one of the first five true concession financings under Ontario's C\$30 billion ReNew Ontario social infrastructure initiative is a design-build-finance-maintain hospital. The 30-year concession for North Bay hospital pays C\$551 million over the term and was financed by a bond issue underwritten by Deutsche Bank, which closed in March 2007. The public sector determined the design, and the government will provide all clinical services and any service directly impacting patient care. The concessionaire organizes financing, builds the health center, and provides life-cycle maintenance.<sup>17</sup>

Where the private sector partner is responsible for financing or arranging for financing, the main categories of financing mechanisms utilized are bond issuances, loans, securitized debt, and equity securities.

(a) *Bond Financing*

As described in the Chilean toll road-financing example, financial guaranty insurance can reduce the medium- and long-term funding cost of public projects and services and open the door to, for instance, pension funds, which will make long-dated triple-A investments. Monoline insurers will back the bond issuances of an infrastructure builder/operator in exchange for security interests in everything from the project revenues, to the commercial contracts, to the project assets themselves. In this scenario, the infrastructure builder/operator issues bonds that, because they are insurance-backed, enjoy a higher rating (and can therefore offer lower interest payments). The infrastructure builder/operator uses the bond proceeds as capital and repays the bondholders using revenues from the project. If there is a default, the insurer repays the bondholders, and the insurer forecloses on its security interests.

In many jurisdictions, to raise funds for a specific capital project, states, cities, or other local government entities can issue bonds that are tax-advantaged. In the United States, municipal bondholders often do not pay income tax on the interest income from the bonds. Because of this tax exemption, investors will accept lower interest payments than they would on non-tax-advantaged bonds. A city that owns a seaport, for instance, and wishes to expand or refurbish it, might issue tax-advantaged development bonds to raise the capital and hire a private contractor to carry out the construction or retrofitting.

(b) *Loan Financing*

One of the most common forms of finance in PPPs in infrastructure is the commercial bank loan, as utilized in the La Yesca hydroelectric project. In the most simplistic model, the special purpose entity building/operating the infrastructure asset assumes a commercial bank loan secured by the project revenues. As described below, the public sector/government partner might add credit enhancements to lower the cost of funds.

(c) *Securitization*

The latest wave in financing is securitization. Assets, receivables or financial instruments are pooled as collateral to back liquid financial instruments. For instance, all of the toll revenues raised by a particular road could be arranged to be received by a

single corporate entity, the shares of which could be sold in a public securities exchange. In this way, investors in the road can recoup their investment with the proceeds of the initial public offering.

But as the subprime crisis currently letting the air out of the U.S. economy makes clear, the risk-dispersing nature of securitization can lead to slapdash project evaluation up front.

Structured innovations for project finance have included securitization of government or project receivables and collateralized debt obligations backed by infrastructure loans. There are two ways to securitize infrastructure loans. One, a special purpose entity can buy the infrastructure loan with funds raised by issuing debt or equity securities. Two, at project completion, a new loan may be issued to refinance the loans made at the outset.<sup>18</sup>

Another way to raise funds on the market for a public infrastructure asset is to issue tradable equity securities in the asset itself. The US\$6.1 billion Reliance Petroleum refinery in Jamnagar, India, was financed in part by commercial debt (a US\$2 billion syndicated commercial bank loan) and in part by equity capital. The equity capital structure in turn was in part funded by a public offering of 450 million shares and in part privately contributed; Reliance Industries owns more than 75% of the 4.5 billion shares. The publicly offered shares were oversubscribed by five times, indicating a healthy appetite in the Indian market for investing in infrastructure.<sup>19</sup>

#### 4. **Risks**

Project finance risks include construction and completion risk, start-up and operating risk, cost recovery and revenue risk, monetary risk (such as inflation, interest and foreign exchange rate risk), and political risk.

##### (a) *Construction and Completion Risk*

Project risks during the construction phase include delays, cost overruns, insolvency, and capacity (contractors' and suppliers' capacity). Delays can be caused by unavailability of materials, weather conditions, problems acquiring land and other assets, and structural or design problems encountered along the way, among other things. Delays themselves can drive cost overruns, since physical infrastructure can deteriorate and require maintenance. Almost anything that can cause a delay can also cause cost overruns. Materials scarcity, for instance, leads to price increases, and strikes can result in both delays and labor cost increases.

In the Chilean toll road example described earlier, we are currently dealing with the fact that the contractor encountered much rockier ground than was anticipated or designed for by the engineers, resulting in both delays and cost overruns, as a portion of the access road has to be redesigned.

##### (b) *Start-up and Operating Risk*

Start-up and operating risks include changes in regulations, laws, and technologies, which may adversely affect the project, as well as the revenue, monetary, and political risks described below. For example, some toll roads were built prior to the



advent of automatic toll collection and had to be retrofitted, which presented an unanticipated expense.

(c) *Cost Recovery and Revenue Risk*

Recovering cost, given the positive externalities associated with public infrastructure, is the central challenge in project finance, and the more effective cost recovery mechanisms, the greater the access to private capital there is for an infrastructure project. Even private operators who are not exposed to financing risk depend on steady revenue flow. The more positive externalities associated with the infrastructure, the more likely that it will be more efficient to subsidize the project with general tax revenues. Infrastructure that is inherently profitable is the most amenable to being built and operated as a private enterprise. Quasi-profitable infrastructure will require targeted subsidies to reach sustainable profitability. And government should remain the main investor in public goods that are inherently non-profitable.<sup>20</sup>

Usage and service charges are one cost recovery mechanism, usually established for excludable infrastructure. As the Yeshasvini example illustrates, there is a willingness to pay a feasible and appropriate amount even among people who make very little income to participate in health care. The NH team forecasted that only 8% of policyholders would require treatments and that the premiums collected would cover costs; evaluations later showed that Yeshasvini was used mainly for low-cost procedures that people would otherwise have done without,<sup>21</sup> the scheme in this manner tapped into an otherwise overlooked market.

Similarly, tolls are commonly set for roads and bridges, and charges are invoiced for garbage collection and disposal and other utilities. Toll systems for road infrastructure augment government budgets, thereby allowing new works to be commissioned earlier than raising tax revenues would allow. And in federal systems, user charges may liberate local governments from appropriations processes at the national level.<sup>22</sup> Tolls apply the user-payer principle, which can optimize usage and account for the external costs of transportation, such as air and noise pollution and traffic congestion. And tolls fund road maintenance,<sup>23</sup> on which governments otherwise have a tendency to under-spend.<sup>24</sup>

At the same time, the local public must find the usage or service charges acceptable and affordable for the project to succeed, and the asset must be utilized at a high enough capacity to remain serviceable. Infrastructure investments by nature are often long-term, exposing private investors to multiplied risks: the currently contracting government entity could agree to a series of future price increases, but then a new government could be elected and renege on the contract, which could be difficult to enforce, and even if the government stayed in power, governments respond to political pressure to keep utility rates low. Defining regulatory processes to set tariffs, situating them within independent commissions, and broadly publicizing the costs avoided by employing the user-payer principle can de-politicize tariff rate-setting.<sup>25</sup>

In Europe, social acceptability of toll systems is based on collection methods; the charges themselves (which tend to be two to three times higher for commercial heavy goods vehicles than private cars); marketing to users and whether social advantages

derived, such as decongestion, are communicated effectively; the presence of toll-free alternatives; and the contribution of general or motor vehicle taxation to highway systems.<sup>26</sup> For an American example, New Jersey Governor Jon Corzine and Pennsylvania Governor Ed Rendell were stonewalled in attempts to raise tolls and taxes in connection with improving existing roadways, but the public found a toll road intended to save commuters time more palatable when the free alternative was retained.<sup>27</sup>

Taxes of various kinds can also be imposed to recover infrastructure building, operating, and maintenance costs. The most common are airport taxes and seaport duties, but governments can also derive tax revenues associated with new infrastructure indirectly, e.g., from the increase in value in properties made more accessible or otherwise enhanced by the new asset or from taxing businesses that spring up around the new infrastructure. Undoubtedly the co-located retail businesses in the University of New South Wales student housing development will provide tax revenues for the collecting authority.

In the road infrastructure context, in a country in which general or motor vehicle taxation is high and the public does not accept toll charges, concession companies operating new roads can be compensated with tax revenues based on “traffic bands,” that is, on the basis of traffic levels. In the United Kingdom, there are four traffic bands and corresponding compensation levels for road concessionaires: 0-70 million vehicle kilometers, 9 pence per vehicle kilometer; 70-100 million vehicle kilometers, 6 pence per vehicle kilometer; 100-130 million vehicle kilometers, 3 pence per vehicle kilometer; and over 130 million vehicle kilometers, zero.<sup>28</sup>

Commercial revenues are another variety of cost recovery mechanism. A new industrial park, for instance, could be sold or leased, and development rights themselves can be sold or leased. Municipalities have a wide range of assets and often enjoy more latitude to manage them than to change tax rates, add new taxes, charge user fees, or borrow funds.<sup>29</sup> Leasing land to private developers on conditional terms has mobilized revenues in China in Shanghai, Shenzhen, Beijing, Chengdu, Hangzhou, and Guangdong Province that represent from 20% (in Hangzhou) to 80% (in Shenzhen) of local government revenues.<sup>30</sup> In Changsha, capital of Hunan Province, the municipality leased strips of land on both sides of an anticipated highway, financing half of the second phase of its construction. The private investor-lessee borrowed in the capital markets against the future anticipated value of the land circling the highway to develop the land.<sup>31</sup>

The danger of linking land sales and leasing to anything other than investment (for instance, using the revenues to finance operating budgets) is that the municipality runs through its assets and faces severe shortfalls later. To forestall such insolvency, in Ethiopia, 90% of proceeds from land leasing are required to be used for urban infrastructure investment.<sup>32</sup> Land providing the only source of collateral for borrowing also exposes municipalities to real estate price risk, and as we are seeing currently (and as Japan saw in the last decade), real estate hyperinflation can lead to dramatic plunges.

Using public subsidies or government guarantees to mitigate the cost recovery risk in a project may help to attract private investment and even the playing field, allowing more financially risk-averse local operators to compete, but may also attract public disapproval. It is generally politically less acceptable to subsidize an asset the

profit streams of which flow into private hands.<sup>33</sup> Additionally, if the private operator bears less risk, then its incentive to achieve efficiency gains is reduced.<sup>34</sup> Korea's Private Participation in Infrastructure (PPI) Act, enacted in 1995 and most recently amended in 2003, includes minimum revenue guarantees as an economic incentive for private participation in infrastructure; but the Korean government has received some public criticism for paying minimum revenue guarantees to certain weak PPI projects.<sup>35</sup>

On the other hand, introducing regulatory incentives to spur development in the right direction can be a win-win solution because it may cost governments nothing or even save governments from future expenditures, as in the case of non-carbon-emitting projects in Europe, such as solar generator-building, which receives an extra revenue stream from trading emissions on the European carbon trading platform.<sup>36</sup>

(d) *Monetary Risk*

In addition to revenue risk, infrastructure projects admit inflation risk; in particular, a large number of infrastructure projects were undertaken in Latin America, as we see from the table included above, during periods of galloping inflation. In the Chilean toll road example, the bonds issued were denominated in *unidades de fomento* or UF, a unit of account in Chile that is constantly adjusted to inflation. The UF is not legal tender – all payments are made in Chilean pesos – but it is used to insulate high value contracts, such as bank loans, other financing, purchases and investments, and the capitalization of companies from inflation risk.

Most infrastructure projects carry foreign exchange risk, since project revenues are usually denominated in local currency, but debt service is paid in foreign currency, as in the La Yesca hydroelectric project. Contract renegotiation can often be driven by exchange rate swings. Some project debt may be risky floating-rate debt and subject investors to interest rate risk.

Interest rate and currency swaps can be put into place to hedge against interest rate risk and foreign exchange risk. In an interest rate swap, each counterparty agrees to pay either a fixed or floating rate denominated in a particular currency to the other counterparty. A currency swap (or cross currency swap) is a foreign exchange agreement between two parties to exchange a given amount of one currency for another and to give back the original amounts swapped after a specified period of time.

(e) *Political Risk*

In addition to monetary risk, another risk in PPPs arises from overlapping authority across different levels of government and changes in elected government. A new, more populist administration can bring with it threats of expropriation of private investment in public infrastructure. The Overseas Private Investment Corporation (OPIC), a U.S. government agency created to mobilize U.S. private capital in emerging markets, even offers political risk insurance against expropriation and also political violence and inconvertibility.<sup>37</sup>

Brazil, for instance, has 26 state governments, the leftist tendencies of some of which are taken into account by overseas project investors, despite an otherwise attractive infrastructure investment outlook: 186 million people, urbanization, a stable, growing

economy, mineral deposits, sugar cane production for ethanol, wind farms, and a sovereign rating one level below investment grade.<sup>38</sup>

Local governments may be less able to make credible commitments, and private parties may find it difficult to enforce contracts against government entities. Government, or at least local investors and suppliers, having a stake in the project can provide a commitment mechanism. Providing for cross-defaults between loans made to private and public entities is a more extreme but sometimes effective way to align government and private concessionaires' interests.

Because it falls outside the scope of this piece, I do not take up the issue here of resolving disputes in PPPs but rather note that they raise countless issues, including choice of law and forum, choice of dispute resolution mechanism, possible multiparty litigation, claimants that may not be in privity of contract with one another, and, among other things, the question of remedies.

## 5. Conclusions

The basic debates in project finance have not changed much over the last 25 years, and they center around the questions of who should be in charge of the sector and who should pay for the services.<sup>39</sup> What is meant by “who should be in charge of the sector” is really “who should bear the risks” – the public or private actors? Ideally, each project must be optimized in terms of risk-sharing and revenue-sourcing to achieve the efficient, equitable provision of quality services, the twin goals inspiring any infrastructure project being growth and equality – what we currently understand to be the holistic definition of development.

---

<sup>1</sup> “[A] one percent increase in the stock of infrastructure is associated with a one percent increase in GDP across all countries.” “Infrastructure for Development,” World Development Report (Oxford University Press, 1994).

<sup>2</sup> A. Estache and J. Strong, The Rise, the Fall, and... the Emerging Recovery of Project Finance in Transport (World Bank Institute): 13. However, in some cases net negative spending on infrastructure can result when private funding, rather than providing an additional source of investment, substitutes for government expenditure. A. Estache and M. Fay, “Current Debates on Infrastructure Policy,” World Bank Policy Research Working Paper (November 2007): 21-26.

<sup>3</sup> S.K. Singh, “The Public and Private Sector Role in the Provision of Infrastructure Services,” Indian Journal of Transport Management 25, no. 3: 191-197.

<sup>4</sup> A. Estache and J. Strong, The Rise, the Fall...: 5.

<sup>5</sup> In project finance, governments might contribute credit enhancements to attract private investment, but it is the primary recourse to the project revenues themselves that truly characterizes project finance.

<sup>6</sup> P.C. Annez, “Urban Infrastructure Finance from Private Operators: What Have We Learned from Recent Experience?” World Bank Policy Research Working Paper 4045 (November 2006): 4-5. Note that this survey did not include solid waste management and disposal, which is a significant source of transactions, as is local private investment.

<sup>7</sup> A. Gómez Lobo and S. Hinojosa, “Broad Roads in a Thin Country: Infrastructure Concessions in Chile,” World Bank Policy Research Working Paper 2279 (January 2000).

<sup>8</sup> “La Yesca Challenges,” Project Finance International Yearbook (2008): 69-70.

- 
- <sup>9</sup> “University of New South Wales Turns to Private Sector,” Project Finance International Yearbook (2008): 94.
- <sup>10</sup> T. Khanna, V.K. Rangan, and M. Manocaran, “Narayana Hrudayalaya Heart Hospital: Cardiac Care for the Poor,” Harvard Business School Case Study 9-505-078 (April 25, 2006): 1, 19.
- <sup>11</sup> T. Khanna, V.K. Rangan, and M. Manocaran: 10.
- <sup>12</sup> By 2006, the amount paid by each individual cooperative farmer was 120 Indian Rupees per person per year with a 15 % rebate for families of five or more members, and 30 Indian Rupees per member per year was the government contribution. Yeshasvini Co-operative Farmers Health Care Scheme, 2006, <http://www.yeshasvini.org/html/contribution.htm>; <http://www.yeshasvini.org/html/working-pattern.htm> (accessed 31 March 2008).
- <sup>13</sup> T. Khanna, V.K. Rangan, and M. Manocaran: 10.
- <sup>14</sup> T. Khanna, V.K. Rangan, and M. Manocaran: 10-11.
- <sup>15</sup> T. Khanna, V.K. Rangan, and M. Manocaran: 4, 6.
- <sup>16</sup> Other less common variations include BOOT: build, own, operate, transfer, BLT: build, lease, transfer, BTO: build, transfer, operate, DBFO: design, build, finance, operate, and DCMF: design, construct, manage, finance. A. Estache and J. Strong, The Rise, the Fall...: 2. See also F. Bousquet and A. Fayard, “Road Infrastructure Concession Practice in Europe,” French Highway Directorate (September 2001) (updated from “Analysis of Highway Concessions in Europe,” 1999).
- <sup>17</sup> C. McGurik, “The New Style,” ProjectFinance (April 2007): 34-35.
- <sup>18</sup> J.P. Forrester, J.H.P. Kravitt and R.M. Rosenberg, “Securitization of Project Finance Loans and Other Private Sector Infrastructure Loans,” The Financier: ACMT 1, no.1 (February 1994): 7-9.
- <sup>19</sup> “The Phoenix Emerges,” Project Finance International Yearbook (2008): 38.
- <sup>20</sup> M. Su and Q. Zhao, “The Fiscal Framework and Urban Infrastructure Finance in China,” World Bank Policy Research Working Paper 4051 (November 2006): 45.
- <sup>21</sup> T. Khanna, V.K. Rangan, and M. Manocaran: 10.
- <sup>22</sup> “U.S. Tollroads Take a Detour,” Project Finance International Yearbook (2008): 40.
- <sup>23</sup> F. Bousquet and A. Fayard: 6-7.
- <sup>24</sup> A. Estache and M. Fay, “Current Debates...”: 11.
- <sup>25</sup> K.G. Butler, “Equity Investment in Private Power Projects: An Investor’s View,” International Infrastructure Projects (Toronto: American Conference Institute, June 8-9, 1995): 9-10.
- <sup>26</sup> F. Bousquet and A. Fayard: 10-12.
- <sup>27</sup> “U.S. Tollroads Take a Detour”: 38.
- <sup>28</sup> F. Bousquet and A. Fayard: 30.
- <sup>29</sup> G.E. Peterson, “Land Leasing and Land Sale as an Infrastructure-financing Option,” World Bank Policy Research Working Paper 4043 (November 2006): 2.
- <sup>30</sup> G.E. Peterson: 6.
- <sup>31</sup> G.E. Peterson: 7.
- <sup>32</sup> G.E. Peterson: 18-20.
- <sup>33</sup> J.A. Gómez-Ibañez, Regulating Infrastructure: Monopoly, Contracts, and Discretion (Cambridge: Harvard University Press, 2003).

---

<sup>34</sup> P.C. Annez: 21.

<sup>35</sup> “Back on Track,” ProjectFinance (September 2007): 76-78.

<sup>36</sup> Even the subsidizing of alternative energy infrastructure building has bred detractors. E. Janszen of Harper’s Magazine describes the American Energy Policy Act of 2005, which guaranteed loans for and subsidized alternative energy businesses, and argues that such legislation will drive the hyperinflation of such alternative energy infrastructure assets. E. Janszen, “The next bubble: Priming the markets for tomorrow’s big crash,” Harper’s Magazine (February 2008): 39-45.

<sup>37</sup> For more on this subject, see F.E. Jenney, “The Expanding Role of OPIC Finance and Insurance in Infrastructure Projects Worldwide,” International Infrastructure Projects (Toronto: American Conference Institute, June 8-9, 1995): V; and J.P. Hadley, “Use of Political Risk Insurance in Connection with Project Financings,” International Infrastructure Projects (Toronto: American Conference Institute, June 8-9, 1995): VIII.

<sup>38</sup> “A Prom Date with Brazil,” Project Finance International Yearbook (2008): 14-15.

<sup>39</sup> A. Estache and M. Fay, “Current Debates...”: 32.