Connections
Transport & ICT

Private Participation in Urban Rail

A Resurgence of Public-Private Partnerships

Daniel Pulido and Fabio Hirschhorn

Cities in the developing world are relying more on public-private partnerships (PPPs) to carry out the most complex and demanding of their public works initiatives—the development of new urban heavy rail, or metros, usually involving underground lines. Most of the world's metro systems are operated—and were funded and built—by public agencies. But developing country governments are shying away from the high cost and complexity of such systems and are acquiring more experience partnering with the private sector on infrastructure projects. Hence, the PPP approach, tried for metros with mixed results in the 1990s, has become more attractive. In the past five years, 2010-2014, five cities in Latin America and developing Asia have initiated seven new urban heavy rail lines using PPPs. In four of these projects, the PPPs are fully bundled, that is, they encompass design, financing, construction, and operations. It is too early to judge the overall performance of these seven projects, but some recommendations can be drawn from them as well as from earlier urban rail PPPs. The central lessons are the critical importance of a robust planning and management capacity in the public sector partner and the value of strong efficiency incentives for the private sector partners.

283 kilometers

The combined length of new urban heavy rail PPP projects implemented in developing countries in the past five years

The Nature of Infrastructure PPPs

The public sector's goal in creating PPPs is to obtain expertise, efficiency, and capital. Those benefits do not come cheaply. Managing contracts cannot be delegated, and it is especially difficult on megaprojects such as urban heavy rail. Experience shows that, regardless of the scope of the PPP chosen, it requires a highly capable public sector with a robust institutional framework and a strong management team capable of evaluating options, issues, bids, and contractor performance.

Assessing Earlier Experience

Urban heavy rail systems are highly risky projects, often costing more, starting later, and attracting fewer riders than planned. The risks of underground construction were usually seen as the most threatening; so even when PPPs were used for post-construction operations, building the infrastructure was usually taken on by the public sector. Until 2010, only one new completely underground rail project in the developing world had been a fully bundled PPP (phase 2 of Line 4 in Shenzhen, China).

Concessions to operate existing urban rail lines can deliver good performance and financial sustain-

ability. However, the PPPs of the 1990–2010 period for new urban rail have a mixed record. A couple of them have been successful, but most have fallen short of expectations.

Notably, in the 1990s, Bangkok, Kuala Lumpur, and Manila implemented six PPPs for new urban rail projects. The Manila project was generally successful, but two projects in Kuala Lumpur went bankrupt and had to be bailed out by the government; and the projects in Bangkok faced delays and could not be carried forward as originally intended, generally because of inadequate public sector planning and poor communication with the private sector. A similar experience befell the more recent PPP for the new Delhi Airport Metro Express Line, which was ultimately taken over by the government.

The New Wave of PPP Projects

The developing world's use of PPPs for new metro systems is on the rise. In the past five years, PPPs totaling $30 billion have been established to install 283 kilometers of rail in five cities—São Paulo; Beijing and Hangzhou; Hyderabad; and Lima. The total rail length is nearly triple that of such projects in the preceding five years, and the average length per project, 40 kilometers, is nearly double. Some of these projects are riskier, too, involving extensive underground construction.

The PPPs in São Paulo (for two lines), Lima, and Hyderabad are fully bundled, whereas in China the job of developing the infrastructure has primarily remained with the public sector. In every case, however, the public sector has partly or entirely assumed some risks, including those related to geological hazards and lower than forecasted ridership. The cost and risks of property acquisition remain mainly with the public sector.

Although the projects include large private investments, especially in rolling stock, government has still had to make initial investments to ensure the projects' financial viability. The São Paulo projects required a change in the federal PPP law to accommodate a public investment in the construction phase.

Their complexity and risks limit the ability of such PPPs to raise long-term commercial financing. The PPPs in Latin America were able to mobilize private financing ranging from 30% to 50% of capital expenditures (excluding property acquisition), but only with the public sector providing or guaranteeing the financing on the balance.

Lessons from Recent Experience

The longer-term performance of the recent metro PPPs remains to be seen, but the partnership arrangements illustrate three critical needs in such undertakings: (1) to work hard at optimizing the risk-reward balance and making projects sufficiently attractive for the private sector, (2) to minimize the fiscal risk to government by giving concessionaires strong incentives to maximize revenues, and (3) a strong public sector capacity to manage contracts.

First, carrying out all phases of a new metro project involves many specialized firms, so assembling a bid is a formidable task. Each of the fully bundled projects in Latin America received only one bid, and a perception exists that the public sector could have done a better job of addressing the concerns of potential bidders worried about the considerable risks in such projects. The public sector can best get a feel for the market and improve its chances of increasing competition by maintaining a dialogue with all potential firms during the planning and bidding process.

Second, productivity incentives are a good way to attract bidders and eventually promote a more sustainable rail service. They might include sharing revenues from ancillary commercial activities and from ridership above a certain threshold. Such deals are attractive to the private sector and help limit the long-term fiscal risks to government.

Finally, strong management capacity to handle negotiations—as well as renegotiations, which are almost inevitable in these highly complex endeavors—is fundamental to ensure that the benefits of PPPs are realized.

For more information on this topic:
A Tale of Three Cities
http://www.citiesandclimatechange.org/document/?idItem=154&PHPSESSID=6f746c25e0cd6d2f25cef0f63a64215e

Private Sector Participation in Light Rail-Light Metro Transit
http://hdl.handle.net/10986/2416

Connections is a weekly series of knowledge notes from the World Bank Group's Transport & Information and Communication Technology (ICT) Global Practice. Covering projects, experiences, and front-line developments, the series is produced by Nancy Vandycke, Shokraneh Minovi, and Adam Diehl and edited by Gregg Forte.

The notes are available at http://www.worldbank.org/transport/connections