

Chapter 3

Encouraging Public-Private Partnerships in the Utilities Sector: The Role of Development Assistance*

Adequate physical infrastructure is a key element of a sound investment climate and development agencies can help countries mobilise private investment through ODA spent on relevant infrastructure. However, the developing world needs far more financing for infrastructure than can be provided through ODA and domestic public finances alone. Given the shortage of public funds in most developing countries, the obvious solution is to invite greater private sector participation, but this too is problematic since investing in infrastructure projects in many parts of the world is not financially viable from a private sector perspective. One solution is to expand the use of public-private partnerships (PPP) in utilities, relying on ODA to enhance the quality of projects, reduce risks and raise profitability.

The present article reviews recent experiences with private participation in infrastructure in developing countries, enumerates some of the obstacles that have been encountered and proposes ways in which development agencies may overcome the obstacles to maximise the benefits of PPPs for development.

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The forms public-private partnerships (PPP) in developing countries have taken are legion, ranging from the construction of physical infrastructure, to public administration, to the provision of health and social services. (A frequently quoted example of the latter is foreign-owned companies' partnership with the South African government to provide treatment of HIV/AIDS.) The focus of this article, however, is on physical infrastructure. PPPs have provided a principal vehicle for foreign direct investment (FDI) into public utilities and infrastructure in developing countries, with OECD-based multinational enterprises participating in most of the largest PPPs in this area.

Adequate physical infrastructure is a key element of a sound investment climate and development agencies can help countries mobilise private investment through ODA spent on relevant infrastructure. However, the developing world needs far more financing for infrastructure than can be provided through ODA and domestic public finances alone. The cost of maintaining existing infrastructure and undertaking necessary extensions of its coverage is estimated at 7% of developing country GDP, equivalent to about 600 billion US dollars (USD) per year. Public spending on infrastructure in developing countries is presently around 3%. Also, bilateral ODA for infrastructure has dropped from USD 15 billion in 1996 to USD 8 billion in 2002, and international financial institutions' lending for infrastructure has dropped precipitously.

Given the shortage of public funds in most developing countries, the obvious solution is to invite greater private sector participation, but this too is problematic since investing in infrastructure projects in many parts of the world is not financially viable from a private sector perspective. One solution is to expand the use of PPPs in utilities, relying on ODA to enhance the quality of projects, reduce risks and raise profitability. The economic rationale for doing so, in effect subsidising private enterprises, rests on the presumption of market imperfections:

- One category of imperfections relates to the fact that many developing countries lack the administrative and regulatory capacities to provide an adequate environment for PPPs. Insofar as this relates to public governance in general, the ODA-based remedies are essentially the same as the ones applied the context of the overall investment climate and development agencies' private sector development programmes. Conversely, if the problem

is a lack of specific knowledge on how to conduct PPPs a much more targeted approach to address the market imperfection is feasible.

- A second market imperfection is political and other non-commercial risk in developing countries. This should not be confused with the quantifiable likelihood of defaults or failure of a number of projects, against which large and internationally diverse investors can provision on their own. Risk, in the sense of truly unforeseeable events, is in practice closely related with country's administrative and regulatory capacities. The chance of political or social "events" throwing a long-term contractual relationship into jeopardy is far greater where public governance is weak and the rule of law not firmly entrenched. Risk mitigation measures may therefore often be a second-best to addressing other market failures, or a "quick fix" while waiting for these failures to be addressed.
- Even where the host country's regulatory environment is adequate, and residual risk has been dealt with, many projects will nevertheless have a positive social rate of return, and a negative private one. This gap can be bridged by a public subsidy such as ODA, for instance through targeted subsidies to the service providers or by subsidising consumption during a transitory period to full cost recovery pricing.

Over the past two decades governments in developing countries (and several developed countries as well) have embarked on radical structural reforms, encompassing restructuring and privatisation of infrastructure sectors and a new approach to regulation. One prong of this new strategy involves public-private partnerships to provide infrastructure. PPPs were responsible for USD 786 billion in infrastructure investments between 1990 and 2003. Some of this money obviously came from the public purse, but the private sector nevertheless contributed significantly to infrastructure development over the period – far in excess of what governments could have financed on their own – and assumed several of the risks (*e.g.* commercial and currency risk) that would otherwise have befallen the public sector.

This article considers the role of the private sector and the donor community in helping to overcome shortfalls in both the quality and quantity of infrastructure in developing countries. While PPP is in principle a somewhat less encompassing concept than private participation in infrastructure (for instance, private investors can invest on fully commercial terms), the two concepts are in practice used interchangeably in the remainder of the article. So are the words "public utilities" and "infrastructure". Section 1 provides an overview of the most common forms of PPP. Section 2 reviews recent geographic and sectoral trends in private participation in infrastructure.

1. The most common forms of PPP in utilities

In public-private partnerships, the public and private sectors join forces to design, finance, build, manage or maintain infrastructure projects. Such partnerships can take many forms, depending upon the exact allocation of risks and responsibilities. These include:

- **Service contracts.** The private sector provides a bundle of specific services to a public utility, but the public sector retains overall operational responsibility. Service contracts can in practice take many forms, but two of the most common ones are:
 - ❖ **Management support.** The private operator supplies the public authority with human and technical resources for a fee. It provides technical know-how on all operational and financial aspects of project management remaining within the jurisdiction of the public authority.
 - ❖ **Operation and management (O&M).** The private operator is in charge of daily maintenance of the facilities. The private operator is paid for its services by the public authority according to specific and qualified performance criteria. Unlike management support, the private operator may in some cases take on the responsibility for operating the facilities.
- **Delegated management contracts.** In this type of contracts the public sector retains overall ownership of the assets, but delegates the responsibility for their operation to a private operator for a definite (often long) period of time. Two of most commonly seen models are:
 - ❖ **Affermage or lease agreement.** The private operator manages the services for a period (often five to fifteen years) and is responsible for maintaining and renewing the facilities according to the terms of the contract. In this capacity, it takes charge of all personnel and existing assets but is not responsible for financing new facilities. The public authority remains responsible for all new investment and compliance to existing norms. The private operator invoices the end-users directly.
 - ❖ **Concession.** The public authorities fully entrust the private operator with management of the services and all necessary investment for a period of 20 years or more. The private operator invoices the end-users directly, the public authorities retaining strict control over service terms as well as all key decisions related to applicable rates and targets.
- **Construction support.** In the most wide-ranging form of PPP contracts the private operator is involved in the design and construction phases of new infrastructure and carries at least some of the risks associated therewith. Some of the main forms of construction support have been:
 - ❖ **Build Design Operate (BDO).** The public authorities entrust the private operator for a fixed period of time with design, construction and operation

of new facilities which remain the property of the public authorities. The private operator assumes the risks linked to design and management of the facility. It is paid a fee by the public authorities and commits to an overall cost for the facility's construction and operation.

- ❖ *BOT (Build Operate Transfer)*. The private operator designs, finances and builds infrastructure. While formal ownership of the assets is assigned to the government, the private sector operates the project long enough to service any debt incurred and to earn a suitable return.
- ❖ *BOO (Build Own Operate)*: In contrast to the BOT case, the private investor retains ownership and control of the project.

Table 3.1 illustrates, based on the assessments of Gruber (2003), how the main forms of PPP differ in terms of the allocation of ownership, investment and commercial risk between the private and public sector. The table is interesting for a couple of reasons. First, the two main considerations for countries seeking private participation in their infrastructure mentioned above (efficiency; funding) can only be realised jointly where at least part of the investment is private. Where it remains public, only efficiency gains can be hoped for. Second, in the case of failing or distressed PPPs it is frequently a matter of concern whether the commercial risk rests with the public or the private sector.

Table 3.1. **Characteristics of alternative forms of PPP**

	Operation and maintenance	Ownership	Investment	Commercial risk	Duration (years)
Management support	Public and private	Public	Public	Public	1-2
O&M	Private	Public	Public	Public	3-5
Leasing	Private	Public	Public	Semi-private	8-15
Concession	Private	Public	Private	Private	20-30
BDO	Private	Public	Public	Private	20-30
BOT/BOO	Private	Public/private	Private	Private	20-30

Source: Gruber (2003) and OECD Secretariat.

The following sections mostly focus on kinds of PPPs that involve an element of private investment or, at least, commercial control over assets. Given that the host authorities are willing to accept private investment – in practice often foreign direct investment – in their utilities sector, the hoped-for benefits can in principle be achieved regardless of the entry mode of the private operator. That said, the main modes of entry for private participation in infrastructure have been:

- *Joint ventures*. The public and private sectors jointly finance, own and operate a project to provide infrastructure. Risks and responsibilities are

shared according to the division of ownership between the investors and depending on any contractual agreements between or among partners.

- *Greenfield projects.* These involve new projects usually built and operated by the private sector which takes on the commercial risk. Political and exchange rate risk can sometimes be shared with the public sector. Such projects can take many forms, but the most common are BOT and BOO. Others include Build-Own-Operate-Transfer (BOOT), Design-Build-Finance-Operate (DBFO) and Build-Lease-Transfer (BLT).
- *Divestiture or asset sale.* State assets are privatised either through public offerings of shares or through the direct sale of the assets themselves. The State retains responsibilities as regulator and sometimes customer and might subsidise certain activities which are socially desirable but unprofitable for a private company to undertake (such as the provision of services to the poorest segments of society or to remote regions). Forms of private participation where the State entirely dissociates itself from a utility cannot be properly described as PPPs.

2. Recent trends in PPPs in developing countries

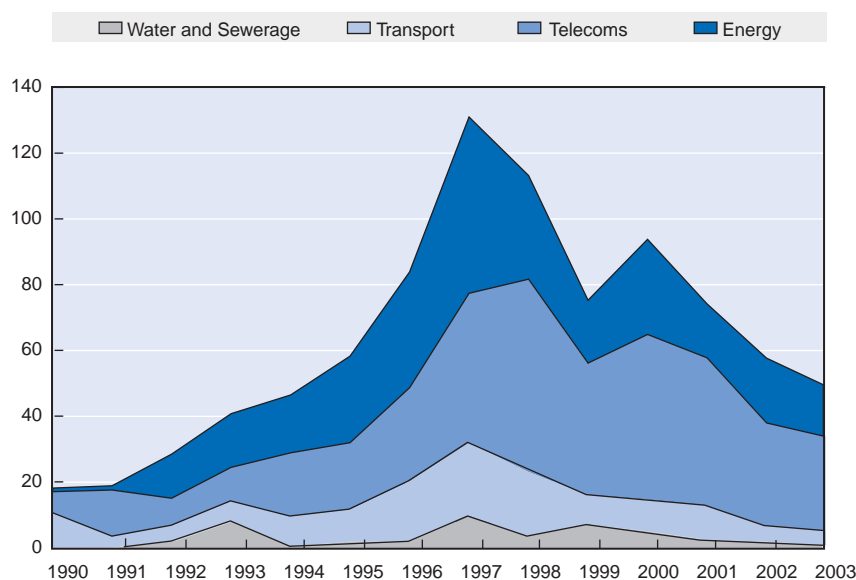
Almost all developing countries have undertaken public-private partnerships in infrastructure since 1990. Some countries and sectors, as well as some forms of PPP, have been much more prominent than others, but this should not disguise the quasi-universal nature of the phenomenon. Differences across regions and sectors have nevertheless been significant and provide valuable policy lessons from the PPP experience. The present article focuses on the utilities sector (telecommunications, energy, transport and water and sewerage) and on all developing and transition countries. Much of the data comes from the World Bank's Private Participation in Infrastructure (PPI) Project database. Note that it includes complete privatisations with little or no element of PPP.

Investment in infrastructure projects with private participation in developing countries took off in the early 1990s, growing from USD 18 billion in 1990 to peak at USD 131 billion in 1997 (Figure 3.1). Faced with the growing perception that existing infrastructure was both insufficient and inefficient, developing countries began to open up the sector to foreign participation beginning in the early 1990s. In some cases, public assets were sold off outright while in others private firms were allowed to participate through greenfield projects and concessions.

This upward trend eventually proved unsustainable, both because privatisations are by their nature a one-time occurrence – except for subsequent investment in expansion and upgrading – and because the earnings projections on which many projects were based proved unfounded. Private investors,

Figure 3.1. **Investments in PPPs, total and by sector 1990-2003**

USD billion



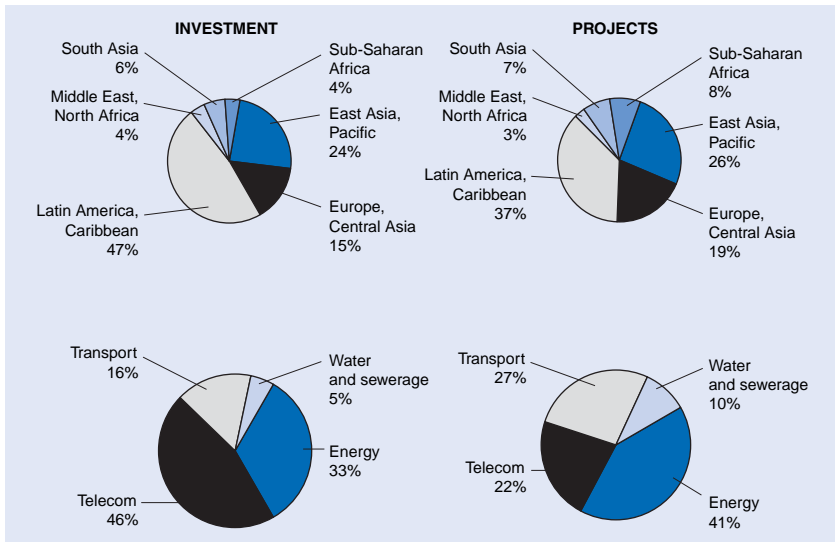
Source: World Bank PPI database.

notably in telecommunications and energy, also began to experience financial difficulties at home which dampened enthusiasm for investing in high risk developing countries.

Infrastructure projects involving PPPs are now back to the level of a decade earlier, before the real takeoff. Just as the growth of PPPs was universal, so too has been the decline: all regions and sectors have been affected. Investments continued to fall in all sectors in 2003 and in almost all developing regions with the exception of the Middle East and North Africa. As discussed below, the prospects for a revival of flows back to the levels of the mid-1990s are, at least in the short to medium-term, not compelling. The Asian crisis increased international investors cautiousness and raised competition among developing countries to attract foreign investments.

Between 1990 and 2003, there were over 2750 projects with private participation in infrastructure in developing countries, with total public and private investment in these projects amounting to USD 786 billion.¹ Figure 3.2 compares the regional and sectoral distribution of PPPs by amounts invested and by the number of projects. As a general rule, the number of projects tends to be relatively more evenly distributed across sectors and regions, reflecting the fact that invested amounts are influenced by a few very large investments

Figure 3.2. **Distribution of PPPs by sector and by region, 1990-2003 (%)**



Source: World Bank PPI database.

notably in Brazilian telecoms. For this reason, Latin America represents 47% of investment but only 37% of projects. Similarly, telecommunications is first in terms of investment but only third when ranked by project numbers.

2.1. Sectors

In telecommunications, technological innovations – in particular the advent of cellular networks – have allowed for new entrants thus dramatically transforming the competitive structure in national markets. Traditional public telephone companies have been privatised in Latin America and parts of Europe and Central Asia but much less in other regions. Overall, divestitures of government assets have in the past been slightly more important than greenfield projects, and much of the recent decline in investment can be explained by the completion of privatisation programmes in Latin America. Investment in expansion within this sector has held up better, averaging USD 19 billion in each of the past five years. The GrameenPhone company in Bangladesh is an example of a PPP which offers mobile phone services and has sidestepped many of the constraints imposed by existing transmission networks (Box 3.1).

The energy sector has seen the largest number of projects over the period since 1990, and the second-highest amounts of investment. Electricity figured prominently. Once again, Latin American countries have been more prone to privatise state assets while Asian countries have mostly invited greenfield ventures in the form of independent power producers (IPPs) to satisfy their

Box 3.1. **GrameenPhone – Providing mobile phone services in Bangladesh***

The much-publicised example of GrameenPhone's provision of mobile telephone services in rural areas in Bangladesh provides a perfect example of the potential synergies which exist among local enterprises, foreign investors and international donors. It also demonstrates a cost-effective strategy for providing infrastructure services to the poor.

Fixed-line services are provided by the state-owned, and inefficient, Bangladesh Telegraph and Telephone Board (BTTB). Bangladesh has one of the lowest telephone penetration rates in the world, and customers must wait from 5 to 10 years for an installation. While local calls are in effect subsidised, long-distance and international calls are expensive. Private competition exists only from mobile operators which, with no interconnection capacity to the main fixed network, offer mostly mobile-to-mobile services in the urban areas. Foreign telecom companies have stayed away from the market for the "usual" reason: high administrative costs in terms of handsets sales, bill collection and maintenance were estimated to exceed any potential returns from entering the market.

In 1997, a joint-venture named GrameenPhone was formed between a Norwegian operator (Telenor MC), a local micro finance company (Grameen Bank) and other investors. Grameen Bank set up an independent non-profit organisation to hold shares in GrameenPhone and thus had no direct ownership stake, but its participation was nevertheless essential to the success of the venture. Telenor provided hardware, technology and management expertise, and Grameen Bank offered its extensive local network, understanding of the economic requirements of the rural population, and a local partner to negotiate effectively with the government. Bilateral and multilateral aid contributed to the installation of 700 base stations. GrameenPhone was the largest private investor in Bangladesh in 2002 and the second largest corporate taxpayer.

Up to this point, the story may be interesting but not unusual. What makes the venture special is the Village Phone Programme which was created by GrameenPhone. Under the Programme, a female shopkeeper or equivalent in each village within reach of a base station borrows money from Grameen Bank to purchase a telephone and then repays the loan by selling mobile phone services to the local population. This strategy fulfils two important development goals: empowering women and providing infrastructure services to the poor. There are now 45 000 "Village Phone Ladies" in 39 000 villages throughout Bangladesh. The Programme is profitable for GrameenPhone, even if it offers phone connections to the Phone Ladies at a 50% discount.

Box 3.1. **GrameenPhone – Providing mobile phone services in Bangladesh*** (cont.)

The Programme is also instructive for its synergies between donors and investors. In addition to the ODA provided for expanding the base station network, donors shared initial business risks with private investors by providing financial guarantees and advice. They also supported the social-responsibility dimension by ensuring that the company included access to the poor in its business plan and by providing socio-economic impact assessments.

* This section draws on OECD (2004).

growing energy demands. In electricity, 70% of all investment has gone into generation alone, with another 13% going into integrated utilities or some combination of generation and transmission or distribution. Private participation in transmission and distribution has come about almost exclusively through privatisation.

The transport sector represents only 16% of total investment but 27% of projects. One half of this investment has gone into toll roads, with the rest in railways, seaports and airports. Unlike in telecommunications and energy, concessions are by far the most important form of PPP in this sector, owing partly to the political sensitivity of transferring public assets to the private sector. In the 1990s, three quarters of toll road concessions involved expansion or rehabilitation of existing roads rather than the construction of new networks. Divestitures have been rare and have mostly occurred in China where minority stakes were sold in several state-owned toll road companies in order to finance future road construction.²

In the water and sewerage sector, the relative scarcity of projects stems from both host government reticence and a lack of investor interest. Fears of a political backlash against private ownership and the relatively greater role played by sub-national governments have dampened enthusiasm for PPPs. The top eight projects account for one half of all investment and the top two (Aguas Argentinas, Manila Water and Wastewater) represented almost one third of total investment. As in the transport sector, concessions are the most popular form of PPP, accounting for over two thirds of total investment.

2.2. **Regions and countries**

The prominent role of Latin America as a host to PPPs reflects the greater degree of liberalisation undertaken in that region relative to the rest of the world combined with the size and wealth of the regional market. Private

investment in existing government assets represented one third of all investments in Latin America but only one fifth in East Asia. Privatisation was also an important component of PPPs in Europe and Central Asia. Where state assets were sold off in East Asia, they tended to be in the telecommunications sector. In energy, 88% of investment in PPPs in East Asia went towards greenfield investments in the form of IPPs.

Almost all developing countries have witnessed some form of private investment in infrastructure since 1990, but private investors in infrastructure have tended to favour the same countries chosen by investors more generally: relatively large, wealthy or fast-growing markets. Table 3.2 shows the top 25 destinations for investment in PPPs in infrastructure in developing and transition economies. Together these countries account for almost 90% of total PPP investment in the developing world. The 64 countries at the bottom of the list account for only one per cent of total investment in PPPs in developing and transition economies since 1990 or USD 8.2 billion.

Table 3.2. **Top 25 countries for PPPs, 1990-2003**

	USD million	%
Brazil	157 098	19.7
Argentina	72 858	9.1
China	61 170	7.7
Mexico	59 753	7.5
Malaysia	36 695	4.6
India	33 108	4.2
Philippines	31 017	3.9
Indonesia	29 210	3.7
Thailand	23 662	3.0
Chile	22 003	2.8
Poland	18 025	2.3
Turkey	17 719	2.2
Hungary	17 415	2.2
Czech Republic	16 388	2.1
South Africa	15 959	2.0
Russia	14 784	1.9
Colombia	13 779	1.7
Peru	13 762	1.7
Morocco	12 812	1.6
Venezuela	11 858	1.5
Pakistan	7 487	0.9
Slovak Republic	5 837	0.7
Egypt	5 689	0.7
Romania	5 321	0.7
Bolivia	4 848	0.6
Total Top 25	708 257	88.9

2.3. PPPs by type

Table 3.3 shows the prevalence of each type of PPP across sectors and regions. Most concessions contracts were seen in the transport sector and most divestitures in telecoms. Greenfield projects were fairly evenly divided between energy and telecoms, as were management and lease contracts between telecoms and transport. The largest share of both concessions and divestitures has arisen in Latin America, while greenfield investments are much more evenly distributed. Almost one half of the management and lease contracts (measured by amounts) have been in Sub-Saharan Africa.

Unsurprisingly, measured in terms of contract values divestitures and greenfield projects, which involve actual investment, have taken the lion's share of PPPs (86% of totals). The latter tend to be most prevalent in the energy sector, divestitures in telecoms, and concessions in both transport and water and

Table 3.3. **PPPs by type and by sector and region**
USD million; per cent

	Total	Concession	Divestiture	Greenfield project	Management and lease contract
Type of PPP by sector and region					
Total	785 758	112 653	319 732	352 489	884
Energy		10%	34%	40%	2%
Telecom		5%	62%	45%	44%
Transport		62%	2%	13%	40%
Water		24%	2%	2%	15%
East Asia and Pacific		27%	12%	33%	0.2%
Europe and Central Asia		5%	18%	15%	8%
Latin America		57%	62%	31%	43%
Middle East, North Africa		7%	3%	4%	2%
South Asia		1%	1%	11%	0.0%
Sub-Saharan Africa		3%	3%	5%	48%
Sector and region by type of PPP					
Total	785 758	14%	41%	45%	0.1%
Energy	260 224	4%	42%	54%	0.0%
Telecom	362 194	1%	54%	44%	0.1%
Transport	123 553	57%	6%	37%	0.3%
Water	39 787	67%	15%	18%	0.3%
East Asia and Pacific	186 729	16%	21%	63%	0.0%
Europe and Central Asia	118 580	5%	49%	46%	0.1%
Latin America	373 592	17%	53%	29%	0.1%
Middle East, North Africa	30 958	25%	28%	47%	0.1%
South Asia	45 026	2%	8%	90%	0.0%
Sub-Saharan Africa	30 879	12%	34%	53%	1.4%

Source: World Bank PPI database.

sewerage. In regions policy makers appear to have a preference for greenfield projects, which allow new infrastructure to be built without necessarily having to embark on major structural reforms. Only in Latin America and transition economies were divestitures more prevalent, again reflecting major privatisation programmes in many countries in these regions. The greater prevalence of greenfield projects in Asia and of divestitures in Latin America has led some observers to suggest that private investment has tended to supplement public expenditure in Asia and supplant it in Latin America.

2.4. Home countries and corporate participants

The market for private participation in infrastructure is highly concentrated and dominated by large multinational enterprises. First, owing partly to uncertainties arising from the legacy of public ownership of infrastructure, and partly to the capital-intensity of the sector, the number of investors willing to undertake projects in several countries at once is limited. Second, on the corporate side there are relatively few players, and these are domiciled in even fewer home countries. Table 3.4 shows that the top five home countries typically comprise the majority of total private investment in PPPs, ranging from three quarters in water and sewerage to one half in telecommunications. Sometimes these private investors are actually quasi-public monopolies at home.

Not surprisingly, companies domiciled in countries with close cultural or linguistic links – or in geographic proximity to – a particular developing country are more likely to invest there. French, Spanish and Portuguese firms, for example, have tended to invest in the utilities sectors of former colonies, German firms in Central Europe and Japanese and Korean firms in the rest of Asia. American firms have a greater geographic coverage, although they (too) have a bias toward the regional Latin American market. In addition to this proximity bias, private participation in utilities projects also reflects home country infrastructure “culture”. As an example a survey by FIAS (Attracting Foreign Direct Investment into Infrastructure) shows that US companies

Table 3.4. Share of firms from top five home countries in total PPP investment, by sector

Sector	Concentration (%)
Water and sewerage	74
Transport	68
Natural gas transmission	58
Electricity	52
Telecommunication	50

Source: World Bank (2003), various pages.

account for 45% of FDI inflow in the electricity sector, while French investors account for nearly 50% of FDI in transport and water sectors. On another hand, infrastructure providers located in developing countries are sometimes also active within their region. Chilean companies, for example, have been able to capitalise on their early national experiences with privatisation to participate in other privatisations within Latin America. In spite of this pronounced regional bias, East Asia is the only region where eight of the top ten sponsors of PPPs were regional companies.

The average project size varies greatly across sectors, from USD 152 million in water and sewerage to USD 604 million in telecommunications. There is a tendency for larger investment size to imply a greater tendency for projects to be dominated by multinational players. In telecommunications, the top 20 investors account for over 60% of total investment and in the energy sector almost 40% (Table 3.5). Together they represent only one per cent of private investors, but 30% of total investment. In other words, infrastructure projects are dominated by a small group of large firms. As also seen from Table 3.5, the overwhelming majority of these companies are multinationals, domiciled in

Table 3.5. **Top 20 private sponsors of PPPs in developing countries**
USD million; %

Company	Country of origin	Sector	Investment (USD million)	Share of total PPPs (%)
Telefonica SA	<i>Spain</i>	<i>Telecoms</i>	44 332	3.7
Carso Group	<i>Mexico</i>	<i>Telecoms</i>	34 394	2.8
Telecom Italia	<i>Italy</i>	<i>Telecoms</i>	33 774	2.8
Suez	<i>France</i>	<i>Multi-sectoral</i>	32 973	2.7
America Movil	<i>Mexico</i>	<i>Telecoms</i>	19 292	1.6
AES Corporation	<i>US</i>	<i>Energy</i>	19 272	1.6
Deutsche Telecom	<i>Germany</i>	<i>Telecoms</i>	17 449	1.4
France Telecom	<i>France</i>	<i>Telecoms</i>	16 928	1.4
Portugal Telecom	<i>Portugal</i>	<i>Telecoms</i>	16 578	1.4
Construtora Andrade Gutierrez	<i>Brazil</i>	<i>Multi-sectoral</i>	15 025	1.2
Electricité de France	<i>France</i>	<i>Energy</i>	14 576	1.2
Inepar	<i>Brazil</i>	<i>Multi-sectoral</i>	12 767	1.1
Endesa	<i>Spain</i>	<i>Energy</i>	12 266	1.0
Enron	<i>US</i>	<i>Energy</i>	11 689	1.0
Telecom Malaysia	<i>Malaysia</i>	<i>Telecoms</i>	11 327	0.9
SBC Communications	<i>US</i>	<i>Telecoms</i>	11 022	0.9
Verizon	<i>US</i>	<i>Telecoms</i>	10 723	0.9
TeliaSonera	<i>Sweden</i>	<i>Telecoms</i>	10 644	0.9
RWE	<i>Germany</i>	<i>Water</i>	10 602	0.9
Banco Opportunity	<i>Brazil</i>	<i>Telecoms</i>	9 187	0.8
Total – Top 20			364 820	30.2

Source: World Bank PPI database.

OECD countries. PPPs have been an important vehicle for these companies' investment and participation in developing countries' utilities and infrastructure sectors.

This also implies that, for example, a government negotiating the terms of private participation is not necessarily faced with an "atomistic" group of suppliers, and may in practice be dealing with one corporate entity with a market power comparable to its own. This fact needs to be kept in mind when surveying (below) the experiences so far with PPPs in developing countries.

3. The experience with PPPs

The ultimate success of ODA-backed public-private partnerships for development will be determined by their impact on sustainable development relative to their cost to the public purse. However, such partnerships cannot go ahead unless they yield a positive rate of return over their duration from the individual perspective of all participants. A number of PPPs in developing countries unravelled in the last five years in the face of public protests, investor withdrawal or government dissatisfaction. It is not clear whether these projects were well conceived from a developmental viewpoint, but they obviously failed to satisfy the success criteria of their individual participants.

Among the potential benefits of PPPs mentioned in the introduction, both efficiency gains and additional funding should be directly felt by consumers (at least if the latter is used to making services more widely available), who weigh these benefits against possibly higher prices and connectivity fees. A special problem arises from the fact that consumers are a heterogeneous group – for instance when a PPP leads to a broader coverage of services, coupled with higher tariffs charged on the existing consumers. The success criterion of private investors or contractors is relatively straightforward. They look for their participation to show positive rates of return – or, as it is often expressed, to "generate a sufficient cash flow" – within a given period following their entry, while safeguarding their initial investment.

The public sector is arguably the one that is confronted with the most complex set of success criteria. On the one hand, it has interests that conform with those of the consumers insofar as it is also in the interest of the public sector that the availability of utilities services is boosted and that they are provide more efficiently. On the other hand, it has to contrast this not only with the cost to the public purse but also to the affordability of services more generally; to the distributional aspects of tariff changes; and to the possible social costs associated with efficiency gains. In weak governance zones extra "costs" may include a loss of opportunity to use utilities as a source of patronage.

3.1. Efficiency gains

State-owned enterprises (SOE) in the infrastructure sector often suffer from overstaffing, waste owing to insufficient attention to cost-recovery pricing and tariff collection, and a tendency to view the government, rather than consumers, as their real client. As a result, many people who live in areas that are in principle covered by utilities have in practice no access to services, have to wait years to be connected or face erratic and unpredictable provisioning. A high share of supplies, for instance in the water sector, is also lost through poor infrastructure quality.

By reducing employment levels, moving to sustainable pricing policies and driving a wedge into political patronage, private investors have often dramatically improved efficiency. A World Bank study concludes that “[p]rivate sector in infrastructure improves efficiency and, often, quality of service. The most detailed studies of private participation have shown substantial welfare gains, and measurable impacts on important social indicators such as child mortality.”³ The fiscal gains to the host government can also be significant, not only from the one-time sale of state assets and the reduced public outlays for infrastructure but also from the tax revenues as the private firm starts to make profits. This compares with a situation prior to privatisation where losses amounted to as much as five to six per cent of GDP.⁴

The extent of efficiency gains also depends strongly on the competitive structure of the market. A private monopoly can, for instance, be just as sclerotic as a public one, and a public provider can also be made subject to market tests. That said, attempts by governments to impose private sector discipline on public sector firms – whether by “contractualising” the relationship between the government and the public entity or by allowing minority stakes for private investors – have resulted most often in backsliding and failure.⁵ For example, performance contracts were attempted in some countries including Senegal, but the government routinely defaulted on its financing obligations and supervision was poorly carried out.⁶ The largely successful Senegalese experiences with private participation in the water sector are reviewed in Box 3.2.

Evidence of improvements in the quality or productivity in infrastructure provision as a result of private participation is abundant. Some of it reflects the benefits of privatisation – itself a proxy for more fundamental structural and regulatory reforms – rather than PPPs *per se*, but some examples are nevertheless instructive. Within the transport sectors of developing countries, privatisations and, more importantly, concessions, have induced private firms to participate in 76 rail projects worth USD 29 billion between 1990 and 2001. These projects achieved significant efficiency gains in several areas. In all but one case (in Africa) railway output per employee at least doubled, and in many

Box 3.2. Private participation in the water sector in Senegal

A decade of experience with public-private partnerships based on an innovative contract and with financial and technical assistance from international donors shows how PPPs can be used both to improve services and to expand coverage of infrastructure in a low-income country. The Senegal experience also highlights the importance of a government with the political will and commitment to carry out reforms and to address the issue of accessibility of infrastructure services by the poor.

In the early 1990s, prior to reforms, little more than one half of Senegal's urban population had access to a safe supply of piped water. Another 42% were dependent on public fountains and the rest on vendors. In rural areas, only 65% of the population had access to any form of safe and reliable water. Drinking water quality in the cities was poor and supply erratic. Poor collection rates and mounting debt meant that the public operator – though relatively efficient by African standards – had barely enough resources for operations and maintenance, with little left over for future investments.

Since reforms in 1995, the amount of water supplied has increased by 20% and the number of connections by 35%. Consumers have also seen a more rapid response to complaints, longer hours of service and better quality water. From the point of view of the government and the investor, water losses have been reduced and bill collection has improved. The private operator, a French company, lost money in each of the first two years but has since turned a profit. It is the first water company in Africa to be awarded the ISO 9001: 2000 certification signifying that it meets a set of international quality management standards. The State holding company which owns the assets and undertakes investment is well on its way to achieving financial equilibrium and has been successful in borrowing in private capital markets.

The choice of contract for the water sector was the result of a year-long “process of planning and design in order to put in place an innovative arrangement of contracts, incentives and institutions”.¹ Aided by international donors, this process helped to develop institutional expertise within the government and to build a consensus for private participation. To avoid the kind of political backlash seen in other countries, the government retained ownership of the assets through a State holding company, as well as decision-making powers in setting tariffs. The type of contract chosen was of the affermage or hybrid lease kind under which the private operator is paid a fee for the quantity of water produced and sold. The operator collects the revenue from users and forwards it to the holding company after deducting its fee, unlike a concession where the operator would retain the full amount of the tariff. Commercial risks are lower under the affermage contract because the fee is independent of actual tariff levels. The fee structure also includes an incentive to reduce leakages and increase the rate of tariff collection.

Box 3.2. Private participation in the water sector in Senegal (cont.)

One advantage of this form of contract is that, in theory, it does not require a sophisticated regulatory framework since all necessary provisions are built into the contract. In practice, it is not so simple and requires cooperation and flexibility on the part of all parties. For example, when it was discovered that initial asset valuations and cost estimates proved erroneous, early renegotiations restored the financial health of the operator.

An important goal of the reform process was to increase accessibility for the poor through targeted subsidies. These included subsidised connections, the construction of public fountains in areas where connections were not yet available and subsidised tariffs at low levels of consumption. Under this latter system, tariffs increase with the quantity of water consumed, with all households receiving a lower tariff on the first ten cubic metres of water. Heavy users and business and government clients in effect subsidise low volume users. Such targeting is not necessarily effective, since “household water consumption is a notoriously poor proxy for poverty status”.² Not only are the very poorest still dependent on the relatively expensive public fountains, but they might also share a connection with other poor families, thus pushing up their average tariff. But since all targeting methods have certain drawbacks, this method at least has the advantage of simplicity and transparency.

1. Brocklehurst and Janssens (2004), p. 5.
2. Brocklehurst and Janssens (2004), p. 42.

it grew by 200-300%. User prices are also now significantly lower in many cases: in Latin America, rates dropped by between 8 and 54%.⁷

These efficiency gains are important but do not necessarily imply that the private firm is satisfied with the profitability of the project or the government and local consumers with the quantity, quality and societal costs of service provision. To assess this, it is useful to review the record of PPPs in more detail.

3.2. Failed or otherwise disappointing PPPs

Between 1990 and 2003, 91 projects worth USD 27 billion were cancelled, representing only three per cent of total PPPs and of total investment – a relatively small share given the crises to which many prominent developing countries have been subjected since the mid-1990s. A more complete picture can be obtained by including projects which are distressed in the sense that at least one partner has requested termination or the project has been submitted to international arbitration. Cancelled and distressed projects amount to five

per cent of projects and nine per cent of investment. The discrepancy between these two shares suggests that larger projects have a greater likelihood of encountering difficulties.

The greatest number of troubled projects has been in the energy sector, followed by toll roads and telecommunications (Table 3.6). As a share of total investment in each sector, water and sewerage has had the least favourable experience with over one third of investment in cancelled or distressed projects. In contrast, the telecommunications sector has one of the highest success rates in terms of investment in on-going projects.

By number of projects there is little difference in the failure rates, ranging from four per cent for management and lease contracts to seven per cent for concessions. Measured by investment value, however, concessions are three times more likely to fail than greenfield projects and twice as likely as divestitures. While this might suggest that concessions are inherently more risky, it seems more likely that they are preferred in those sectors with the greatest political sensitivity since they allow the host government to retain ownership of infrastructure assets. The greater failure rate is thus more an indication of the sectors in which concessions are used than the legal form of the project itself. Most failed projects have tended to be terminated relatively early in their life, on average four and a half years after financial closure.

Table 3.6. **Cancelled or distressed projects by sector and by type, 1990-2003**

Sector	Cancelled or distressed projects		Share of total	
	Number	Committed investment (2003 USD billion)	By number	By investment value
Energy	59	29.8	5.3%	11.4%
Natural gas	8	7.1	4.3%	16.7%
Electricity	51	22.7	5.5%	10.4%
Telecommunications	21	13.4	3.5%	3.7%
Transport	47	14.9	6.4%	12.0%
Airports	3	0.7	3.4%	5.9%
Ports	3	0.2	1.4%	0.1%
Rail	4	2.0	4.9%	7.4%
Toll roads	37	11.9	10.3%	18.9%
Water and sewerage	15	14.3	5.7%	35.9%
Total	142	72.3	5.2%	9.2%
Concession	37	21.3	6.5%	18.9%
Divestiture	36	28.4	5.8%	8.9%
Greenfield project	63	22.0	4.5%	6.3%
Management or lease contract	5	0.7	4.4%	0.0%

Source: World Bank PPI database.

It is more common for a project to be renegotiated than to be cancelled outright. Renegotiations of contracts are commonplace in business, so from a corporate perspective having to renegotiate a set contract can be construed as a commercial risk. However, when the opposite contractual party is the regulatory authority, distinctions between the political and commercial spheres can get blurred. In fact, the government has in the past been far more likely than private firms to initiate renegotiations. Among the factors that influence the likelihood of renegotiations are the opacity of the original tendering process, the lack of expertise in the public sector leading to the terms of individual contracts being belatedly understood and the absence of independent regulators.

Excluding telecommunications, over 40% of concessions in Latin America between 1989 and 2000 were renegotiated, including over 70% of those in the water sector.⁸ In the region's water and transport sectors, 58% of renegotiations were initiated by the government, compared with only one third by private investors. It can of course be argued that contracts lasting 15 to 30 years are perhaps bound to encounter changing and unforeseen circumstances, but 60% of all renegotiations took place within the first three years of the concession.⁹

Finally, over time the value of investments which are either cancelled or subject to termination proceedings or international arbitration in any given year has dropped precipitously from a peak of USD 13 billion in 1997 to only USD 500 million in 2003. This trend suggests that the financial crises of the late 1990s may have run their course in terms of deleterious effect on project profitability.

3.2.1. Competition and the awarding of contracts

A frequently heard complaint about the early phases of PPP projects is that host country authorities lack the administrative capacity to deal properly with the process of evaluating and awarding contracts. Civil servants may have a good technical understanding of their sector, but little knowledge of complex financial transactions such as those involved in BOT projects. At any given point, there are a significantly larger number of projects under negotiation than those beginning operations, and many potential projects, complete with Memoranda of Understanding, are abandoned after lengthy negotiations. According to one estimate of 860 potential greenfield investments, only 98 (11%) were concluded.

Even when projects reach the stage of negotiations, potential investors often encounter delays. Since the development phase of private infrastructure projects absorbs between two and five per cent of total projects costs, these delays can be costly for both parties.¹⁰ In the assessment of a recent study, "... completing better preparation of transactions before inviting investors to

participate can help reduce processing delays and the related opportunity costs for investors.”¹¹

The lack of administrative capacity, taken together with the sectoral and regional concentration of utilities companies mentioned earlier, creates a risk that bidding may not always be fully competitive. A World Bank study on the transport sector estimates that the typical number of bidders for a concession or greenfield project in the transport sector is two to three.¹² While competition can be fierce even between two bidders, it seems unlikely to be sufficient in many cases – especially given the diminishing interest of these firms in developing countries. At the very least, such competition is considerably improved by the presence of foreign bidders.

Another area where bidding might not be fully competitive concerns the construction phase of the project. It is estimated that six companies control 50% of this market and sixteen share 90% of construction projects.¹³ But since private companies often construct infrastructure for the public sector as well, this potential problem is not the result of private participation *per se*.

3.2.2. Failing demand and consumer dissatisfaction

Purely commercial failures involving investors critically misjudging the market or underestimating their production costs have been relatively rare. Examples include some large-scale projects in transport and telecommunications, where demand forecasts turned out to be unfounded. For example, several projects involving toll roads in Mexico were cancelled after the actual use turned out to be only one half of the predicted volumes. While such risk rests properly with the private participants, they nevertheless point to a need for improved data collection, not only on the actual demand for the specific service and shape of the network, but as well on the position of potential competitors.

Once the firm has invested, the primary concern is cash flow: generating revenue, enforcing collection and setting tariffs at cost-recovery levels. Investors wish to be free to realise profits without government interference, but if they encounter difficulties in collecting revenue or public hostility to raising tariffs, they expect the government to be responsive to their needs. It is in the face of such difficulties that the extent of government commitment to private participation in infrastructure becomes critical. Private operators can neither adequately enforce collection nor raise tariffs abruptly such as during a currency crisis without the support of the government.

The emphasis on cash flow suggests that renegotiations and cancellations are not just, or even mainly, a regulatory problem. Investors have been known to put up with numerous frustrations in their dealings with host governments as long as the project earns a satisfactory return. Many conflicts

between private and public partners arise because a macro shock, such as a massive devaluation, means that the project is no longer profitable or – in cases where the investor has a guaranteed return indexed to the exchange rate – no longer affordable for the government.

In sectors where services had historically been subsidised and/or the collection of tariffs tax (*e.g.* in electricity or water) private investors have confronted opposition to price increases and have faced difficulties in tariff collection. As regards the price levels, the largest water concessions in developing countries, in Buenos Aires and Manila, ran into difficulties when major devaluations triggered tariff increases which were politically infeasible to implement.¹⁴ In Cochabamba, Bolivia, tariff increases of 35% set off widespread popular unrest which resulted ultimately in the cancellation of the project.

3.2.3. *Non-compliance with contractual terms*

The issue of public resistance cannot, in practice be separated from that of compliance with contractual terms. Consider the example of Argentina, one of the most popular destinations for investors in the 1990s. A water concession to the French company Suez “worked well until the steep fall of the peso in early 2002. Suez then pulled out and went to arbitration after the authorities did not agree to higher charges to offset the devaluation.”¹⁵ Largely as a result of the devaluation of the peso, there were 28 proceedings against Argentina under the International Convention for Settlement of Investment Disputes (ICSID) as of early 2004.¹⁶ Ill-feelings tend to linger for years after the devaluation. Out of ten foreign investors in the power sector in Argentina in 2002 surveyed by the World Bank, nine were very dissatisfied with their investment experiences and only one was satisfied. This compares with neighbouring Chile where five out of eight respondents were very satisfied with their experience and only one very dissatisfied.¹⁷ Possible solutions to the serious problem of exchange rate risk are provided later.

Similar problems have been encountered where the public sector acts as the main direct purchaser of utilities services. One example is power purchase agreements, with the government agreeing to purchase electricity at specified tariffs usually indexed to the exchange rate. These contingent liabilities for the government have in several cases proven to be unsustainable in the face of macroeconomic shocks, which helps explain why contracts are often renegotiated in the wake of a financial crisis. Moreover, in many countries the continuing state control over transmission and distribution has meant that the full benefits of private participation in this sector have not been realised, notably with respect to efficiency in downstream activities and to expanding coverage to poorer areas.

Host governments have equally complained of “frequent conflicts with operators in complying with contract clauses... abandonment of the concession by the operator or the taking over of the concession by the government as a result of claimed bankruptcy of the operator, discontent with price levels and services, poor attention to users and, particularly, the perceived high incidence of renegotiation of contracts shortly after the award of the concession, often in detriment of consumer welfare.”¹⁸ These problems are not unfamiliar in OECD countries either. Infrastructure providers, especially where greenfield investment is concerned, have been known to understate the expected costs in order to win contracts and subsequently claim “special circumstances” to demand an adjustment of contractual terms. Many governments provision against such practices, or build safety mechanisms into contracts, but developing country authorities may face financial and other difficulties in emulating such practices.

3.2.4. *Summing up*

It appears that the large number of PPPs that have left the contractual parties dissatisfied indicates that either developing country authorities, or investors (or both) may have had too high expectations to what could be achieved. Conceivably, some contracts have been granted under circumstances (e.g. subject to corrupt practices or contingent upon political links between home and host governments) that made them susceptible to changes in the political environment. But the large majority of *bona fide* PPPs have also suffered from inflated or unrealistic expectations.

Many governments in developing countries have seen private investors simply as a source of financing to be used to supplement dwindling public funds. In doing so they have failed to recognise the minimum expectations, including to the legal and regulatory systems, that companies have to the business environment and without which they are unlikely to maintain their commitment. Conversely, utilities companies may have relied overly on contracts and failed to realise that developing country authorities lack the capacity to underwrite large risks – including the consequences of macroeconomic shocks and public upheavals – that they have come to take for granted in their home countries.

The best that developing country authorities, acting on their own, can do to enhance the chances of successful PPPs is developing a better knowledge of the obstacles, take steps to address these and prepare better all levels of the public administration before embarking upon such partnerships. Based on a study by Sader (2000) and the Camdessus Report, which focused on the experience with partnerships in the water sector, the main obstacles within

developing countries would seem to include (their relative importance has been the subject of recent empirical research – Box 3.3):

- *Conflicting aims.* Often one objective (that is, one PPP project) has been expected to serve several policy objectives, from financial, to macroeconomic, to social, to environmental. Protests by local communities and non-governmental organisations against individual projects have rebounded on investors rather than the initiating authorities.
- *Award procedures.* The award procedures often lack transparency and are not based on objective evaluation criteria. Corruption has been a problem – in general, and in the specific context of awards. Also, some projects have been compromised by official preference for local participation, preferred sub-contractors or suppliers and the employment of weakly qualified local staff.
- *Regulatory frameworks.* A weak legal environment necessarily leads to concerns for non-state underwriters of long-term contracts. Existing legislation in many countries was designed to define public sector responsibility in infrastructure and is inadequate in a situation of private participation. In addition, human capital such as relevant regulatory expertise is in short supply in many countries without much experience in privately operated utilities.
- *Public governance.* Many private investors have had to contend with conflicting public authorities, for instance central *versus* sub-national governments, or regulatory bodies *versus* ministries. In addition, non-existent or inexperienced regulators created avoidable uncertainty about price and tariff setting.
- *Existing service providers.* Where incumbent service providers, often state owned, remain in the market they are often the subject of preferential treatment. This goes hand in hand with a tendency, in many countries, to invite private participation in the absence of a commitment to overall sectoral liberalisation.
- *Political commitment.* In countries where the rule of law is not firmly entrenched governments have reneged on contracts signed by previous administrations. There also have been several cases of governments reneging on contractually agreed terms (*e.g.* the right to levy cost-recovering tariffs) in the face of public dissatisfaction.

4. The use of ODA to ensure the commercial viability of PPPs

The thinking on ODA has evolved in line with more general economic policymaking. Throughout much of the post-World War period and up to the late 1980s, development assistance for infrastructure tended to focus on “bricks and mortar” such as dams, pipelines and electricity grids. While ODA helped to provide these inputs, output in terms of infrastructure services was left in the hands of the public sector in the country concerned. Insufficient attention was

Box 3.3. Factors influencing failure rates of PPPs according to recent research

In an effort to understand which contract structures and country characteristics make renegotiations more likely, Guasch *et al.* (2002) perform an econometric analysis of the various factors associated with *firm-led* renegotiations in Latin America since 1989. Their findings have implications for the potential role of development assistance in facilitating successful PPPs. Renegotiations are more likely in countries without a regulator at the time the contract was signed and also with poor institutional quality and a high incidence of corruption. A specialised and experienced regulator is more likely to avoid obvious mistakes in contract design and signals a greater commitment on the part of the host government to the project.

Contracts with price caps – 75% of all concessions in Latin America – are more likely to be renegotiated, as are those financed exclusively by the private sector. Significantly, the existence of a minimum income guarantee fails to reduce the likelihood that the private investor will later seek to renegotiate the contract. Contracts for which there were several prospective bidders tend to face fewer renegotiations, suggesting that the benefits of greater due diligence exceed the risk of overbidding in these cases. Lastly, both political and economic cycles increase the risk of renegotiation.* Elections bring with them the greater risk that policies will be changed, and macroeconomic shocks curtail demand and often lead to depreciations which reduce profits when expressed in the home country currency.

* Quoted in Estache and Serebrisky (2004), p. 13.

paid – by either the donor or the public entity – to efficiency considerations, to access for the poor and to the environment. The result was often “white elephant” projects with adverse social and environmental consequences and a general dissatisfaction with the record of development assistance.

It is now widely recognised that the public sector has often been a poor provider of infrastructure services in terms of both efficiency and access. The trend towards privatisation and to greater private participation in infrastructure has led to a radical rethinking of the most effective use of ODA. Donors have shifted away from providing financing for public-sector firms and for major stand alone projects towards facilitating private participation in infrastructure and ensuring that social and environmental goals are not neglected. The result is an ODA strategy that focuses on outputs – i.e. what infrastructure investment is designed to achieve – rather than inputs.

Creating an environment in which PPPs can prosper and where greater attention is paid to the coverage and efficiency of infrastructure are the

central pillars of this new ODA. Private participation in infrastructure requires a new set of tools for host governments in the form of autonomous regulatory agencies – an area where these countries lack institutional experience. Many of the poorest developing countries lack the capacity to create viable regulatory bodies or even sometimes simply to monitor whether investors are fulfilling their contractual obligations.

As a result, development assistance has moved towards technical assistance, capacity building and the role of “honest broker” between the public and private sectors. Financing of infrastructure projects is no longer the priority, but it has not disappeared completely, particularly in least developed countries. Where donors do provide funding, however, it is now intended to complement private financing either by supporting those projects for which no private investor has come forward or by helping to absorb some of the potential risks faced by the private investor, thus increasing the overall level of private investment.

4.1. Strengthening institutional capacity

4.1.1. Technical assistance and capacity building

The renewed potential for infrastructure development offered by PPPs has spawned myriad initiatives by multilateral and bilateral donors to encourage and enhance private participation through technical assistance and capacity building. Prominent among these endeavours is the multi-donor Public-Private Infrastructure Advisory Facility (PPIAF) described in Box 3.4. Other multi-donor initiatives include the Energy Sector and Management Advisory Programme and the Water and Sanitation Programme which provide technical assistance for poverty alleviation and economic development.¹⁹

In parallel, the World Bank approved in 2003 a new Infrastructure Action Plan which in part will help to strengthen the overall knowledge base as well as country analytic work. As part of the plan, an infrastructure assessment termed “Recent Economic Developments in Infrastructure” will analyse infrastructure performance and needs in developing countries. The World Bank Group has also created the Infrastructure Economics and Finance Department to strengthen the understanding of the practical implications of analytical infrastructure economics and to develop instruments and approaches for infrastructure finance. Within the Department, a dedicated infrastructure advisory group will provide advice and support in the efficient design and development of PPP schemes.

The cost of technical assistance can be substantial: World Bank technical assistance to reform the power sectors in Orissa and the Ukraine, for example, cost USD 50 and USD 100 million respectively.²⁰ Furthermore, “advice is often more acceptable and credible when linked to resource transfer”.²¹ Multilateral

Box 3.4. **The Public-Private Infrastructure Advisory Facility**

The Public-Private Infrastructure Advisory Facility (PPIAF) was launched in July 1999 as a multi-donor technical assistance facility aimed at helping developing countries improve their infrastructure through private sector involvement. Its mission is to channel technical assistance and to identify, disseminate and promote best practices on matters relating to PPPs in developing countries. The PPIAF was developed jointly by the UK and Japanese governments in collaboration with the World Bank. It is now supported by eleven donor governments and three multilateral organisations. PPIAF assistance can facilitate private involvement in the financing, ownership, operation, rehabilitation, maintenance, or management of eligible infrastructure services. To ensure that assistance is demand driven, PPIAF requires recipients of country-specific assistance to provide some co-financing or other credible evidence of commitment to the project.

The PPIAF can finance global and country-specific advisory activities in the following areas:

- *Regulatory and Institutional Reform*: providing guidance in developing detailed strategies for involving the private sector, restructuring industries to facilitate competition, and designing and establishing legal, regulatory and institutional frameworks.
- *Infrastructure Development Strategies*: Country Framework Reports provide comprehensive reviews of a country's general environment for PPPs, including recommendations and an action plan to help guide governments in putting in place the laws, policies and institutions needed to attract private investment. While the final published CFR is important, experience shows that the participatory process of preparing the report also yields benefits.
- *Consensus Building*: To promote understanding, cooperation and commitment from a range of stakeholders – consumers, service providers, government officials, politicians, trade unions, non-governmental organisations and domestic and foreign investors – the PPIAF holds workshops, seminars, study tours and public awareness campaigns.
- *Capacity Building*: The PPIAF assesses needs and provides detailed recommendations, sponsors workshops and seminars on sector-specific themes and underwrites initial investments in regional capacity-building programmes.
- *Pioneering Transactions*: supporting pioneer projects and transactions is part of the PPIAF mandate but accounted for only two per cent of approved activities through FY2003.

Box 3.4. **The Public-Private Infrastructure Advisory Facility** (cont.)

- *Emerging Best Practices:* To identify and disseminate best practice, PPIAF supports case studies, model documents, empirical analysis and regional and international conferences.

By the end of March 2004, PPIAF had provided grants of more than USD 70 million for 310 activities in 88 countries. It supported the drafting of 32 sets of laws and regulations, the execution of 45 transactions, the formulation of 14 sector reform strategies, the establishment or strengthening of 28 institutions, and the training of more than 1 500 regulators and officials. It also supported 80 international workshops with over 9 000 participants, along with the preparation of numerous toolkits and case studies to assist in the dissemination of emerging lessons of experience.

Source: www.ppiaf.org/ and World Bank (2004), p. 193.

donors could, for example, help to finance the salary of an on-site specialist to advise the host government on every aspect of the project implementation process. Having a specialist on-site rather than hiring external consultants on a project-by-project basis helps to promote knowledge spillovers within the regulatory agency.

Some initiatives have focussed specifically on the more than 200 regulatory agencies which have been established since the early 1990s in 130 countries. The World Bank created the International Forum of Utility Regulation (IFUR) in 1996 to serve as an umbrella structure for learning and networking initiatives. It offers two-week training courses aimed at building capacity within regulatory agencies and also within the research centres, universities and private sector firms that work with such agencies. Since 1997, more than 1 000 regulators from 115 countries have attended.²² This approach has since spawned regionally-focussed training programmes, like the South Asia Forum for Infrastructure Regulation (SAFIR) in 1999 which received financial support from the PPIAF. An African forum was established in 2000 and an East Asian one in 2003. A complementary programme also exists for transport regulators.

Through these training programmes, the IFUR also helps to build networks of utility regulators to facilitate ongoing information sharing and mutual support. "A key policy recommendation is to retrain government staff. This does not necessarily mean rich countries providing more technical assistance or technical cooperation – it means them paying for transfers of skills and exchanges of experience among poor countries."²³

4.1.2. Contracting out regulatory functions²⁴

Given the steep learning curve for many new regulatory bodies and the resulting information asymmetry between the investor and the regulator, a cost-effective option in the short term is sometimes to contract out certain regulatory functions. Contracting out can add credibility to the regulatory process, strengthen the hand of the regulator in dealing with a more experienced operator and reassure investors that important decisions are made or at least influenced by competent and independent parties. In some cases, such as in a water and electricity concession in Gabon, independent, non-binding advice is paid for out of the concessionaire's revenue, but it could also be financed partly through donor assistance.

A recent survey of 51 regulatory agencies worldwide found that three quarters contract out certain tasks to external parties, particularly tariff reviews, compliance monitoring and dispute settlement. In only 15% of cases were external opinions binding on the regulator. Respondents to the survey highlighted the importance of contracting out in improving competence (92%), building trust with key stakeholders (71%) and ensuring independence (62%).²⁵

To lend credibility in cases where the investor doubts the autonomy and independence of the regulator from political interference, dispute settlement can be contracted out to international bodies like the International Centre for the Settlement of Investment Disputes. In some cases, several countries can share a regulatory body, such as the Eastern Caribbean Telecommunications Authority which serves the Eastern Caribbean States.

To address the problems of weak governance in the water sector in developing countries, the Swiss government has proposed Policy Principles and Implementation Guidelines to build trust among partners and to guide the "design and implementation of transparent, effective, efficient and equitable projects in water supply and sanitation services".²⁶ Rather than a one-size-fits-all solution for water contracts, the Principles stress ten key factors for successful water and sanitation projects.

4.2. Mitigating private risk through donor assistance

While many infrastructure sectors are no longer considered to be natural monopolies, it is still the case that prices are often the outcome of contractual negotiations rather than of supply and demand. In addition, infrastructure services usually involve substantial initial investments in hardware which are only recouped slowly over a long period. For these reasons, private participation in infrastructure projects is often considered to involve significant risks for the investor, as well as for the host government, which explains in large part why private investors have not been more forthcoming

since the financial crises in Asia and Latin America and why renegotiations are so common.

These risks are described in Box 3.5. They are apportioned to each party as established in the contract, and which risks an investor is most likely to face will depend on the outcome of negotiations. In some cases, a risk which is mitigated in one area will reappear in a different form elsewhere. For example, a currency risk that is assumed by the host government quickly translates into political risk in the event of a major devaluation if the government can no longer honour its commitments. Distinguishing among risks is nevertheless useful because it allows for aid to target more directly the specific factors which influence each risk.

At a conference on private sector participation in the water sector in developing countries, participants from the private sector “demand[ed] that donors and international financial institutions take over all risks not directly related to operations, including currency risk, regulatory risk, payment risk, sub-sovereign risk and affordability risk”.²⁷ Donors cannot afford to assume all risks for the private sector, and to do so would remove some of the reasons for promoting private participation in the first place. But given the pressing need to finance infrastructure projects to meet the Millennium Development Goals and the potential resources which the private sector could bring to bear in this area, there are many ways in which donors could help to alleviate various risks facing investors.

Where projects are undertaken without sufficient preparation on both sides, the risk of renegotiation at a later date is higher. Donors can help in the preparation of projects by financing pre-feasibility studies, as well as detailed legal, financial and technical feasibility studies. In the Philippines, in spite of considerable experience with BOTs in the energy sector, the agencies responsible for the transport and water sectors lacked the expertise and financial resources to conduct feasibility studies. As a result, funding for these studies had to be solicited on a case-by-case basis from multilateral or bilateral donors.²⁸

To reduce the risk of a popular backlash, other than through subsidising consumption by the poor, donors can help finance environmental impact assessments or, for example, provide loans for severance payments in cases where the private investor takes over a bloated public-sector enterprise. In Argentina, for example, World Bank loans helped to finance severance payments in the rail sector, allowing the investor to reduce the workforce by 80%.²⁹ Multilateral donors can also help to ensure that negotiations provide for the greatest possible transparency, as this will help to minimise legal challenges and public opposition at a later date.

Box 3.5. Risks faced by private investors in developing countries

Design and construction risk: Given the size of many infrastructure projects, cost overruns and delays are common, especially if there are subsequent modifications to the design as a result of political or environmental concerns. The private sector typically bears this risk, even when the project will ultimately be run by a public entity.

Operating risk: When the private firm takes over the assets of a previous provider, usually the public sector, the quality of such assets is never completely known in advance. In the water sector, for example, most assets are underground. This risk can be reduced if the private operator initially enters the market through an operations and maintenance contract with the public sector provider.

Commercial risk: As with any investment, demand might not prove sufficiently robust at price levels necessary to ensure long-run profitability or might be subject to a macroeconomic shock. This risk is greatest in those areas where there has not previously been an infrastructure provider and hence potential demand is unknown or where tariffs were formerly subsidised and collection poor. In some contractual arrangements, the government accepts responsibility for tariff collection or agrees to buy the infrastructure service from the PPP at a fixed price. While this reduces the risk for the investor, it opens the way for almost certain renegotiations if a crisis means that the government can no longer afford its financial obligations.

Regulatory risk: Very few developing countries have a well-established and autonomous regulatory agency to deal with infrastructure. With no track record, such agencies might not apply regulations in a consistent pattern, especially if those laws and regulations are themselves untested.

Political risks: The support of the national government is often cited as a crucial factor in the success of a project. If this support wanes in the face of popular discontent at the cost of private provision or if a new regime disavows certain policies of its predecessor, the private operator might find that contractual obligations of the government are no longer being honoured. Political risks might also involve litigation or bureaucratic barriers.

Currency risk: Perhaps the greatest risk to the profitability of a project involves the risk of devaluation. Infrastructure projects in developing countries are often financed in part through international lending. These debt repayments, together with payments of dividends, must be made in foreign currencies while profits usually accrue in the local currency. As a result, any sudden devaluation can completely modify the profitability of a project. This was the case for many PPPs in the 1990s, notably in Latin America and Southeast Asia, and helps to explain the diminished enthusiasm for such projects on the part of the international investment community.

Multilateral involvement in PPPs can also reassure private investors that they will have support should the government change its infrastructure policies. "Because of the increased risk perception in international financial markets following the ... currency crisis [in Asia], such support mechanisms will probably play an even more important role in the near future."³⁰ Implicit guarantees may not be enough to rescue all projects, however, as the World Bank participation in IPPs in Pakistan demonstrates. Nevertheless, some projects are unlikely to have gone ahead without the presence of multilateral donors.³¹ In a World Bank evaluation of lending for a power project in Mauritius, for example, it was argued that "although the Bank's contribution solely in financing terms was small and its involvement by completion minimal, its advisory and 'honest broker' role was critical in facilitating the launch and implementation of the [project]".³²

Some political risks can be insured against, such as through the Multilateral Investment Guarantee Agency or MIGA. MIGA insurance covers currency transfer restriction and inconvertibility but not depreciation, expropriation, war and civil disturbance and breach of contract in the event of non-payment of a settlement on the part of the government or malfunctioning of the dispute resolution. The multilateral nature of MIGA gives it leverage in trying to resolve dispute between the public and private partners. MIGA guarantees are limited to USD 50 million per project and USD 225 million per country. Bilateral agencies, like the US Overseas Private Investment Corporation (OPIC), can also provide coverage.

MIGA has issued 119 guarantees for infrastructure projects worth over USD 2 billion. Between 1990 and 2001 MIGA issued 72 guarantees for investments in 39 electric power projects in 25 countries, mostly in Latin America and to a lesser extent in East Asia. Eight of these projects were subsequently evaluated by the World Bank and most were found to be dependent on political risk insurance.³³ This insurance is more in demand when investors are entering a new market or developing a new business model – such as independent power producers. To date, only six guarantees have been agreed in the water sector worth USD 225 million. MIGA recently agreed for the first time to guarantee a performance bond posted by a Dutch water company investing in Ecuador. The bond specifies that the investor will fulfil certain obligations covering water quality and coverage, and the MIGA coverage protects against the wrongful call of the bond by the government.³⁴

Export credit agencies can also provide political cover through guarantees on part of the debt. Their principal role is to provide financing and insurance for home country equipment exports, but they have also supported BOT projects in electricity in China, for example, and provided 75% of the lending for a BOT project in Turkey.³⁵

PPIAF financed a feasibility study for a new facility to assist in financing private infrastructure in Africa by allowing lenders to pool and partially mitigate risks by subordinating donor funds to commercial funding. Subsequently in early 2002, the Emerging Africa Infrastructure Fund was launched to provide long-term debt finance to commercially viable private sector infrastructure projects in 44 sub-Saharan African countries. Most of the funding was provided by bilateral development agencies, particularly DFID of the United Kingdom.

Risks can also be lowered through risk guarantee instruments which reassure investors and host governments that the terms of the contract will be honoured, including the adjustment of tariffs. Partial credit guarantees cover risks of non-payment of parts of the loan financing. For a power project in the Cote d'Ivoire, an IDA partial risk guarantee of USD 30 million was used for the first time to increase the amount and maturity of private financing for the project.³⁶ In a World Bank survey of energy investors, "availability of credit enhancement or guarantees from the government or from a multilateral agency" was the second most important consideration when investing in a developing country.³⁷

4.2.1. Currency risk

One of the greatest risks to any foreign investor is that of rapid currency depreciation. With revenues mostly in the weak local currency, and debt and equity payments in hard currencies, a massive devaluation of the local currency can undermine profitability and severely strain even the best crafted project. In some cases, currency risks may be borne by the host government if it agrees to purchase infrastructure services from the private investor at a currency-adjusted price or by local consumers if tariffs for infrastructure are indexed to the exchange rate. The nature of most financial crises is such, however, that the local government is obliged to pay these contingent liabilities at precisely the time when its resources are at a minimum. In these cases, the government is no longer able to honour its contractual obligations and a costly process of renegotiation ensues. In cases where consumers must bear the burden, a popular backlash against the investor is a common occurrence.

Given the long-term nature of infrastructure contracts, a large depreciation of the local currency is almost certain. "Over the past 25 years developing country currencies lost 72% of their value relative to the US dollar on average – about a fifth lost more than 99% of their value."³⁸ With relatively higher inflation in developing countries, a gradual depreciation over time is to be expected. But in many developing countries, currency swings are sudden and abrupt: Indonesia's currency lost 80% against the dollar in only one year during the Asian financial crisis.

If indexing tariffs to the exchange rate is not a realistic option, a foreign investor can do very little to hedge against currency fluctuations. In developing countries, hedging is restricted to very few currencies and only for limited periods. In some larger developing countries or those – like in East Asia – with high savings rates, debt finance is sometimes available locally, thus avoiding exchange risk but most developing countries do not have deep enough capital markets to permit such large expenditures. The disadvantage with local financing is higher initial borrowing costs owing to higher nominal interest rates. While this might discourage both public and private partners in PPPs, the “benefits may be longer-lived and more robust investments that can weather the vagaries of emerging markets”.³⁹

Multilateral and bilateral donors can assist in mitigating currency risks. For a power project in Brazil, for example, the US Overseas Private Investment Corporation (OPIC) offered a liquidity facility on which the investor could draw if exchange rate depreciation meant that the project had insufficient liquidity in order to service its debt. Under this agreement, the private investor was to sell power at prices indexed to local inflation, with no possible adjustment for exchange rate changes. The OPIC loan would be repaid once inflation had risen sufficiently to offset the currency depreciation.⁴⁰

One proposal put forward by the World Panel on Financing Water Infrastructure is for a Devaluation Liquidity Backstopping Facility which would assume some of the foreign currency obligations (such as debt servicing) of the investor in the event of a major devaluation. Any payments by the Facility would be treated as long-term loans to the government (*i.e.* sovereign debt) to be repaid through a gradual surcharge on water tariffs over time. In essence, the facility represents a method of rescheduling foreign debt service “over a time period that is politically and socially feasible”.⁴¹ It would be provided by a multilateral financial institution or an export credit agency which would guarantee the foreign loans and finance the additional debt service. The Facility would not intervene below a threshold “affordable exchange rate”. It would cushion the project against sudden shocks in a sector in which tariff can only be adjusted gradually if a political backlash is to be avoided.

4.3. Output-based aid

Private firms have not always found it profitable to supply services to poorer or more remote communities since distances and low population density, together with limited spending power and a poor record of payment, make it difficult to recuperate the cost of the investment. Even in areas where infrastructure already exists, PPPs have had difficulties setting a tariff which is both affordable to the consumer and profitable for the investor. Donors can help through targeted subsidies which encourage foreign or local investors or

community-based schemes to fill the gap or which subsidise consumption during a transition period to full cost recovery pricing. This approach has come to be known as output-based aid.

Output-based aid derives its name from its emphasis on outputs rather than inputs. Its aim is to improve delivery of infrastructure services through carefully targeted subsidy payments in cases where there are positive externalities from public participation, such as when the investor will not have a sufficient incentive to provide services to the poorest consumers. The investor in this case will usually be a private firm although not-for-profit operators, nongovernmental organisations and small-scale local suppliers could also provide some services. This aid can come in many varieties, depending on the nature of the service and the rationale for public funding. Examples include:

- To expand access to network services, disbursements may be tied to the number of new connections made.
- To bring retail prices in line with costs, declining transition subsidies may help ease tariffs towards cost recovery levels.
- To enhance competition and performance between service providers, voucher-type arrangements may allow consumers a choice of provider.
- To improve the affordability of ongoing consumption for an under-served group, funding may be tied to services delivered to eligible beneficiaries.⁴²

The effectiveness of output-based aid depends largely on the clarity of its design. What is the desired output? What should the form, level and structure of subsidy be? Mis-specified or incomplete indicators can lead to counterproductive or biased behaviour by service providers.⁴³ To improve the design and implementation in this area, the Global Partnership of Output-Based Aid was created in early 2003 as a multi-donor trust fund administered by the World Bank. The GPOBA finances pilot demonstration projects and documents recent output-based approaches for supporting the sustainable delivery of basic services, including the targeting of eligible beneficiaries, definition of performance requirements, the determination of payment structures and the design of monitoring arrangements.⁴⁴

Output-based aid is now pursued at both the bilateral and multilateral level. The Swiss government, for example, has developed a grant-based financing instrument for PPPs. The aim is to promote cost-recovery pricing in order to avoid over-consumption and waste while supporting those least able to pay the full price. As at the multilateral level, the Swiss approach recognises that the biggest constraint for the poor is the cost of connection rather than of infrastructure services. To this end, a pilot project in El Alto allows poor people wanting to connect to the electricity or water grid to obtain an interest-free loan from a Swiss financed fund with a long period for repayment.⁴⁵

Many governments have applied the techniques of output-based aid either to expand coverage or to reduce the possibility of a backlash against private provision of infrastructure. Following privatisation in Chile, the government subsidised telephone services to rural regions.⁴⁶ Severance payments to employees in the rail sector in Argentina were provided by multilateral donors.

5. Summary and experiences so far

PPPs have provided a principal vehicle for FDI into public utilities and infrastructure in developing countries, with OECD-based multinational enterprises participating in most of the largest PPPs in this area. Almost all developing countries have engaged in public-private partnerships in infrastructure since 1990 – albeit a number of them have relied on forms of PPP that allows a transfer of private expertise without actually mobilising funds for investment (*e.g.* service agreements and leasing contracts). The actual investment in infrastructure projects with private participation in developing countries took off in the early 1990s, growing from USD18 billion in 1990 to a peak of USD131 billion in 1997.

But private participation in infrastructure has declined since 1997. While this is partly due to a corporate retrenchment following financial crises in the second half of the 1990s, it also reflects a more widespread disappointment on the part of investors and public authorities. A large number of existing projects have either been terminated, are classified as “distressed” or their terms have had to be renegotiated under duress.

The reasons that PPPs have sometimes performed below expectations vary from case to case. However, one commonly heard complaint from host governments is that investors have reneged on their contractual obligations, especially regarding the coverage of services. One commonly heard complaint from enterprises is that public authorities have failed to provide an environment in which they can provide their services according to sound commercial principles. The latter problem often manifests itself as a lack of willingness by public authorities to accept the social and political cost of private operators’ measures to boost productivity and set tariffs at market levels. Also, PPP contracts have often been poorly written, weakly enforced (often against the background of generally weak legal frameworks in the host country) and awarded and implemented in an un-transparent, or even corrupt, manner. In consequence, private investors have often had to shoulder not only the commercial risk of utilities projects, but for example also political risks (*e.g.* resistance from the public and incumbent operators) that would most commonly have been borne by host country authorities.

Three channels have been identified through which ODA can enhance the environment for PPPs and contribute to their more socially and commercially satisfactory outcome:

- *Technical assistance and capacity building.* ODA can be used to fund a host of educational and experience-exchange programmes to build authorities' capacity to deal with PPPs. Several initiatives by bilateral and multilateral agencies are underway, including the Public-Private Infrastructure Advisory Facility, the Energy Sector and Management Advisory Programme and the Water and Sanitation Programme. An alternative to building capacities in-house is to support the outsourcing of regulatory functions to outside specialists. A recent survey indicates that as many as three fourths of national regulators contract out certain tasks to external parties.
- *Risk mitigation.* Most foreign investors already have access to market-based insurance against risks such as "regulatory takings" through home country export credit agencies and multinational bodies such as MIGA. However, risks go well beyond this and they are in some cases so high that PPPs are unlikely to take place in the absence of subsidised risk mitigation. A kind of risk that has attracted particular attention in the aftermath of the financial crises of the 1990s is currency risk. Some contracts are written to allow investors to collect tariffs or fees in international currency, but in the event of a currency crisis they are often rendered unenforceable. A case can be made for development agencies providing extra risk coverage, benefiting *inter alia* from the fact that they (unlike more market-based insurance schemes) partner directly with the host country authorities.
- *Output-based aid.* Even if host country regulatory capacities and risks can be dealt with satisfactorily, a number of infrastructure projects will have a positive social and negative private rate of return. This gap can be bridged by ODA, for instance through targeted subsidies to the service providers or by subsidising consumption during a transitory period to full cost recovery pricing. Such "output-based aid" can be highly effective in meeting specific targets – contingent upon the clarity of objectives and project design. To improve the design and implementation in this area, the Global Partnership of Output-Based Aid, a multi-donor fund, was created in 2003. Several national development agencies provide grant-based instruments to promote cost-recovery pricing while supporting those least able to pay the full price.

Summing up, official development assistance can play a vital role in ensuring that host countries have the institutional capacities to benefit fully from PPPs, in mitigating risks for investors and in creating the appropriate incentives for all parties to enable investment in infrastructure to address the critical issues of poverty alleviation and sustainable development. Improving

regulation in host countries will, in turn, reassure the local population that the government is not “giving away” too much to the private investor. ODA can also help to achieve a balance between private profitability and public acceptance, sometimes through targeted subsidies, sometimes by assuming part of the risk for the investor or through the creation of a devaluation facility to insure against rapid depreciations in the local currency. The examples of successful projects described in this document suggest that ODA can play a powerful role in capacity and confidence building, in support of private participation in public utilities and infrastructure.

Notes

1. All dollar amounts in this section are expressed in 2002 dollars.
2. Silva (2000), p. 2.
3. Clive (2003) quoted in Perset (2004), p. 21.
4. Kikeri and Nellis (2002), p. 1.
5. See Kikeri and Nellis (2002) for a discussion of these options.
6. Brocklehurst and Janssens (2004), p. 2.
7. World Bank (2004b), p. 201-202.
8. Guasch *et al.* (2002), p. 5.
9. It should also be noted that, since almost all concessions are still ongoing, the share of contracts renegotiated at least once will almost certainly grow over time.
10. Sader (2000), p. 28.
11. Lamech and Saeed (2003), p. 4.
12. Estache and Serebrisky (2004), p. 24.
13. Estache and Serebrisky (2004), p. 24.
14. Izaguirre (2004), p. 3.
15. UNCTAD (2004), p. 63.
16. UNCTAD (2004), p. 194.
17. Lamech and Saeed (2003), p. 7.
18. Guasch *et al.* (2002), p. 5.
19. See World Bank (2004a), p. 216 for a brief description of these programmes.
20. Manibog *et al.* (2003), p. 43.
21. Goldin *et al.* (2002), p. xvii.
22. World Bank (2004a), p. 75.
23. UNDP (2003), p. 118.
24. For a more complete discussion of contracting out, see Bertollini (2004).
25. Bertollini (2004), p. 3.

26. Rothenberger et al. (2004), p. 4.
27. OECD/World Bank (2003), p. 4.
28. Sader (2000), p. 68.
29. Sader (2000), p. 64.
30. Sader (2000), p. 95.
31. Sader (2000), p. 95.
32. Manibog et al. (2003), p. 47.
33. Manibog et al. (2003), p. 27.
34. "MIGA and Water", *www.miga.org*.
35. Sader (2000), p. 44.
36. Manibog et al. (2003), p. 34.
37. Jointly with "consumer payment discipline and enforcement" and behind "legal framework defining the rights and obligations of private investors". Lamech and Saeed (2003), p. 9.
38. Gray and Irwin (2003a), p. 1.
39. Gray and Irwin (2003b), p. 4.
40. Gray and Irwin (2003b), p. 4.
41. Camdessus (2003), p. 41.
42. *www.gpoba.org*.
43. Brook and Petri (2003), p. 7.
44. *www.gpoba.org*.
45. Seco note.
46. Kikeri and Nellis (2002), p. 19.

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