

# **Best Practices on Contract Design in Public-Private Partnerships**

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## Table of contents

<b>1. Best Practices on Risk Allocation .....</b>	<b>3</b>
<b>1.1 Efficient risk allocation.....</b>	<b>3</b>
Case Study: YD2nd Tunnel in Shanghai (China) .....	5
Case Study: TransMilenio Bus Rapid Transit System in Bogota (Colombia) ( <i>Part I</i> )....	10
<b>1.2 Limits to risk transfer.....</b>	<b>12</b>
Case Study: The London Underground (UK) ( <i>Part I</i> ).....	12
<b>2. Best Practices on Payment mechanism .....</b>	<b>16</b>
Case Study: The London Underground (UK) ( <i>Part II</i> ) .....	16
<b>2.1 User charges .....</b>	<b>18</b>
Case Study: M1-M15 motorway (Hungary) .....	20
Case Study: TransMilenio Bus Rapid Transit System in Bogota (Colombia) ( <i>Part II</i> )....	21
Case Study: Southern Railway in Sydney (Australia).....	23
Case Study: Chiloe Bridge (Chile) .....	25
<b>2.2 Usage payment .....</b>	<b>26</b>
Case Study: Randstad Wijkertunnel (Netherlands) .....	27
Case Study: Beiras Litoral and Alta Shadow Toll Road (Portugal).....	27
Case Study: A55 Llandegai to Holyhead Trunk Road in Wales (UK) .....	28
<b>2.3 Availability payments .....</b>	<b>28</b>
Case Study: Dublin Bay Wastewater project (Ireland).....	31
<b>2.4 Quality performance payments .....</b>	<b>31</b>
Case Study: Moray Coast Wastewater project in Scotland (UK) .....	32
Case Study: The London Underground (UK) ( <i>Part III</i> ) .....	32
<b>2.5 Monitoring service availability and performance.....</b>	<b>34</b>
<b>2.6 Third-party and secondary revenues .....</b>	<b>35</b>
<b>2.7 Liquidated damages and performance bonds.....</b>	<b>35</b>
<b>2.8 Price variations .....</b>	<b>36</b>
<b>2.9 Governance issues .....</b>	<b>38</b>
<b>3. Best practices on Flexibility and Renegotiation.....</b>	<b>40</b>
<b>4. Best Practices on Contract Duration.....</b>	<b>44</b>
<b>4.1 Contract duration and investment .....</b>	<b>44</b>

<b>4.2 Contract duration and flexibility .....</b>	<b>45</b>
Case Study: The London Underground (UK) ( <i>Part IV</i> ) .....	46
<b>4.3 Contract duration, competition, and incentives .....</b>	<b>47</b>
<b>4.4 Contract duration in service unbundling.....</b>	<b>48</b>
<b>4.5 Endogenously determined contract duration .....</b>	<b>48</b>
<b>5. Best Practices on other Contractual Issues.....</b>	<b>50</b>
<b>5.1 Refinancing .....</b>	<b>50</b>
Case Study: The Fazakerley Prison (UK).....	51
Case Study: London Underground (UK) ( <i>Part V</i> ) .....	51
<b>5.2 Dispute resolution .....</b>	<b>52</b>
Case Study: London Underground (UK) ( <i>Part VI</i> ) .....	54
<b>5.3 Step-in rights.....</b>	<b>54</b>
Case Study: London Underground (UK) ( <i>Part VII</i> ).....	56
<b>5.4 Early Contract Termination.....</b>	<b>57</b>
Case Study: Balmoral High School (Northern Ireland).....	60
<b>6. Best Practices on Transparency and Confidentiality in PPP Contract Design.....</b>	<b>62</b>
References .....	65

## 1. Best Practices on Risk Allocation

One of the most important issues in designing a Public-Private Partnership (PPP) contract for infrastructure projects is the allocation of the project's risks between the public and private parties. As we have discussed in the companion paper, the risk allocation is a means to give appropriate incentives for the private partner to perform according to the contract terms, thus achieving value for money.

In what follows, we shall describe best practices in risk allocation, complementing the discussion with some relevant case studies.

### 1.1 Efficient risk allocation

We have seen in the companion paper that two main principles should guide the allocation of risk between the public and private partners:

- (i) given partners with similar risk-aversion, the risk should be allocated to the party that is responsible or has relatively more control over the risk factor, and
- (ii) given partners with similar responsibility or control over the risk factor, the risk should be allocated to the party that is more able to bear it, i.e. the less risk-averse party.

Taking into account that in general the public-sector party is less risk averse than the private-sector party because of its wider possibilities to diversify risk, the above two principles lead to the following **criteria for risk allocation**.

- (i) The public-sector party should bear risks that the private sector cannot control (or cannot control as well as the public-sector party) either in terms of likelihood of occurrence or in terms of impact.

- (ii) The private-sector party should bear risks that the private sector can control (or can control better than the public-sector party) both in terms of likelihood of occurrence and in terms of impact.
- (iii) The public-sector party and the private-sector party should share risks that the private sector can control in terms of impact but cannot control (or cannot control as well as the public-sector party) in terms of likelihood of occurrence.  
Risk sharing may also be appropriate when risk is difficult to forecast and transferring risk to the private-sector party may result in an excessive risk premium (i.e. high cost of capital).

In light of the above, we list below how specific risks should be allocated between the public and private parties **in the case of the DBFO model** where the private-sector party is responsible for all the stages of the project. However, specific considerations will need to be added on a case-by-case basis, and it is important to bear in mind that risks tend to change over the duration of the project.

#### *Statutory/Planning risk*

As a general rule, the public-sector party is best placed to manage the statutory process by virtue of its legislative basis, experience and resources. The private-sector party cannot control this type of risk as well as the public-sector party.

When the public-sector party carries out the statutory and planning processes in advance of the tender process, and thus fully bears the associated risk, the benefit is that there is certainty as regards to the conditions to be applied to the project.

However, this certainty involves the definition of project characteristics which tends to limit the flexibility afforded to bidders in developing innovative solutions. For this reason, when the public-sector party retains statutory risk, the key requirement is for the retention of maximum flexibility for design innovation by avoiding unnecessary project definition.

In some cases, however, specific considerations of the project may lead to suggest that statutory risk should be transferred to the private-sector party. In these cases, the key requirement is for the public-sector party to incorporate within the output specifications as much background information on the planning and environmental context of the project as

possible, in order to ensure the private-sector party can efficiently implement the necessary procedures.

### **Case Study: YD2nd Tunnel in Shanghai (China)**

In the PPP for the construction of the tunnel, the local authorities assumed the responsibility for land acquisition and compensation risk involved in the project, hence they did not transfer statutory risk to the private-sector party. This party would have faced great uncertainty if it had had to take care of land acquisition and compensation, coping with the political consequences typical of these operations.

A number of circumstances under which the public-sector party should bear the site risk have been identified by the Victorian State Government (Australia): (i) when the existing site owned by the public-sector party has defects or environmental liabilities; (ii) when the land asset is to be retained or acquired by the public-sector party at the end of the contract life; (iii) when the project involves an environmental impact appraisal, and thus site approvals are likely to be complex; and (iv) when the land asset is subject to ownership claims by indigenous people.

*Source: Bing et al. (2005)*

In many LAC countries, the public sector faces fiscal constraints and lacks expertise and technical capacity to manage the statutory/planning risk it should bear according to the efficient risk allocation. Hence, the public sector may fail to perform the tasks corresponding to it under such an allocation.

It may be argued that, if the public-sector party cannot effectively perform these tasks, it should transfer them to the private partner. But notice that such a transfer would expose the private sector to the statutory/planning risk it cannot control, i.e. the transfer will be inconsistent with the efficient risk allocation assumed in the first place. Therefore, the private partner is likely to raise the risk premium required, thus making the PPP project more expensive in terms of higher service charges, higher subventions required from the public sector, lower private-sector party transfers, etc.

As an alternative, the public-sector party could retain the statutory/planning risk but delegate the tasks to external consultants. However, three issues arise from this alternative. First, if the public sector lacks resources to perform these tasks, it may also lack resources to pay for the consultancy, unless 'contracting out' is significantly cheaper than do the tasks 'in-

house'. Second, failure to perform these tasks may also occur even when advisories and external consultants are appointed. Third, it should be noticed that environmental and social issues involved in statutory and site risks are politically sensitive problems; then, for instance, the public opinion may oppose to an environmental impact appraisal conducted by consultants whose interests may be (or perceived to be) aligned with the private partner in the project.

In any case, when external consultants are appointed, it is important to ensure that knowledge and expertise are transmitted to the public sector staff (otherwise, it will never learn), and that consultants are made accountable.

### ***Misspecification of output requirements risk***

In general, information acquisition and processing by the public-sector party are always needed at the outset in order to correctly specify the output requirements and thus reduce the risk of contract misspecification. To provide incentives for public administrations to invest time and effort in information acquisition, it is necessary that the public-sector party bears the risk of misspecification of output requirements.

However, transferring risk of output misspecification to the public sector may often not suffice to ensure adequate incentives for the public-sector party. This is because of the general difficulties in making public sector officials accountable for their actions, and also because of the lack of financial stake for the public-sector party.

In addition, PPP agreements are generally long-term contracts and, at the time when mistakes are discovered, the public sector bureaucrats in charge of the contract design may have moved job already.

Furthermore, in practice, mistakes at the contract drafting stage may arise simply because of lack of experience of public administrations on the writing of PPP contracts.

Because of these factors, as discussed in the companion paper, transferring the risk of contract misspecification to the public sector-party may not suffice to ensure minimal contract misspecifications. It is therefore advisable to employing standardized contracts, setting up a PPP agency that advises local administrations, and appointing external consultants for drafting output specifications provided they can be made accountable.

### ***Design, construction, time schedule, and operation risk***

Under the DBFO model, the private-sector party is responsible for designing, building, financing, and operating the facility used to provide public services. Design, construction, time schedule and operation risk should then be transferred to the private sector so as to provide the correct incentives.

Risk sharing may, however, become desirable in situations where the public-sector party has an informational advantage over the private-sector party, for example over the value of the assets. In many cases, the public-sector party hands over a range of assets which will be used by the private-sector party for the provision of the public service. This occurs, for example, with prison services, clinical services, and water assets such as pumps, water pipes, metering systems, etc. In these cases, the authority has better knowledge of the state of the underlying assets and may therefore be in a better position to evaluate (at least some of) the cost and risks associated with service provision. This is particularly relevant when the PPP contract involves renovation rather than construction of a facility for the provision of the public sector.

### ***Demand risk***

With financially free standing PPP projects, where users pay for the service (*concessions*), demand and thus revenue risk should generally lie entirely with the private sector because, being in charge of the operational stage, it can best control this risk.

Instead, with non-financially free standing PPP projects (*operation PFI*), such as hospitals, schools and prisons, where the private-sector party is paid unitary charges by the public-sector party, it is the public sector that should generally bear the demand risk. The public-sector party should retain demand risk since it is the party that is most able to control it, e.g. by allocating prison inmates to different prisons.

In many sectors demand is difficult to predict accurately and demand risk is high. This is often the case in projects involving construction of new infrastructure, like a road, bridge, or tunnel, where the expected revenues are calculated using forecasts of the future service demand. In these cases, a full transfer of demand risk to the private-sector party might raise the cost of capital substantially. To reduce the risk premium, it might be desirable to cap the level of risk that the private-sector party bears, introducing some sort of risk sharing.

### ***Risk of changes in public needs***

The public-sector party is often in a better position than the private-sector party to acquire information on the likelihood of changes in users' needs. Also, changes in public needs can be indirectly affected by changes in public sector policy (e.g., the demand for underground services is affected by public transportation policies regarding the availability and cost of bus services). For these reasons, the risk of changes in public needs should generally be borne by the public-sector party.

However, the optimal allocation of the risk of changes in public needs should also provide incentives for the private-sector party to make requested changes in the service provision at a reasonable cost so as to control the impact of risk. Whilst the private-sector party should be contractually obliged to provide the extra asset/service, changes in public needs can be very costly for the public sector because of the strong bargaining position of the private-sector party locked into the contract, and because of the lack of accessible alternatives and cost benchmarks. This may make it preferable to introduce some sort of risk-sharing agreement between the private and public partner.

Risk sharing can also help to provide incentives for the private-sector party to acquire information on the cost of changes and thus inform the decision as to whether those changes are indeed necessary. This is also important since the private partner is often in a better position to identify the best means to satisfy the needs of the public sector.

### ***Legislative/Regulatory risk***

Generally, the risk of changes in law should not lie with the private-sector party as it cannot control this type of risk. But in many cases, the public-sector party has little influence over national legislation and the private sector can minimize the impact of the change in law on the service provision. Because of this, there is an argument for risk to be shared between the two parties.

### ***Financial risk***

When the private-sector party undertakes investments and finances the capital expenditure, it bears financial risk. In many cases, the private partner pledges the income stream as collateral to borrow funds in capital markets to finance investments.

Exposure to interest and exchange rate fluctuations then results from using short-term, foreign-currency denominated debt to finance long-term, domestic currency income-generating assets. By transferring financial risk to the private partner, incentives are given to improve efficiency, e.g. discouraging purchases of imported goods produced by concessionaire-related firms.

Nonetheless, the private partner may mitigate the financial risk by e.g. contracting insurance. The public sector itself mitigates the private partner's currency exposure by indexing tariffs to exchange rates.

### ***Residual value risk***

When the facility is built by the private-sector party, it is likely that during the design and construction phase the private partner can undertake non-contractible actions affecting the quality of the assets.

For facilities like leisure centers and accommodations that have some value when used for private purposes, incentives are given for the private partner to undertake those actions to the extent that it retains ownership of the assets once the contract expires.

However, for most infrastructure facilities like roads, bridges, energy, and water plants that have limited alternative use outside the public sector and service continuation requires the facility to remain in public hands, the public-sector party should keep ownership of the assets when the contract expires.

To provide incentives for the private-sector party to look after the facility during the contract life and specially towards the end of the contract, it is then crucial to set out contract clauses providing for a final compensation payable to the private partner conditional on the state of the facility once the contract expires. In this regard, an independent third party can be called to verify the state of the assets in order to compute the compensation to be made.

### **Case Study: TransMilenio Bus Rapid Transit System in Bogota (Colombia) (Part I)**

The TransMilenio (TM) Bus Rapid Transit System was developed in 2000 to upgrade and operate the Bogotá bus transport system by a partnership between the public sector and a number of private companies.

Before the TM project, the bus transport service was provided by a few bus companies that owned the government-issued routes and rented them to private bus owners and by small private bus operators serving fixed routes. Since the operators' revenue depended on the number of passengers, there were often 'price wars' to attract passengers (Colombians referred to this phenomenon as 'war of the cents' because only minimal price reductions were feasible in bus fares). Outcomes from such a system were far from efficient: long delays, oversupply of seat capacity, and low quality of service.

The TM project planned to rationalize bus routes by building exclusive bus lanes in critical areas of Bogotá and using a system of feeder routes to complement the main lanes. A modern infrastructure was planned involving a network of enclosed bus stops, pedestrian bridges, terminals, and transfer stations. The overall bus route system was to be built over 15 years and would include 22 exclusive corridors covering around 400 km with a capacity to transport 5 million people daily.

#### *Contracts and partners*

A publicly owned company, TransMilenio SA, was set up to manage the project. The company developed the planning and contract drafting stages. It also conducted the tendering to select private partners that would build infrastructure and operate the main routes, the feeder routes, the ticketing system, and the payments system.

After launching the TM project, TransMilenio SA was responsible for administering the new bus transport system. The TM contracts entitled TransMilenio SA to undertake monitoring and verification activities in order to ensure quality performance and customer service. In this regard, a system of fines was implemented to penalize the private partners failing to comply with their contractual obligations, responsibilities and investment requirements.

A remarkable feature of the TM project was that the public sector established a partnership with several private partners simultaneously: not only the building and operation stages were developed by different private companies, but also different activities within the operation stage were assigned to different private companies.

Long-term concession contracts were used to set out the TM project coordinating the activities of the many partners involved, ensuring bankability, an adequate balance of risks and rewards, and minimum scope for conflict of interests.

In a sort of service unbundling, the private partners in charge of the operation activities were responsible for the provision of a specific service and had to meet certain investment requirements, e.g. transport companies operated the buses, a company was in charge of collecting fares, another company managed the distribution of collected revenue among the bus operators, etc.

### *Financing*

In the TM project, there was a clear distinction between activities to be financed by the public-sector party and those to be financed by the private partners. Public funding was required to invest in the transport infrastructure. The cost of the main construction works was estimated in USD 240 million for the period 1998-2002, and USD 480 million for 2002-2005. Most of the infrastructure cost was to be borne by the national and local governments. The contribution of the national government was around two-thirds of the infrastructure cost, partly financed with a loan granted by the World Bank. The Bogotá government was able to financially support the TM project thanks to its strong fiscal position and the autonomy granted to local authorities to fund the provision of public services. The city of Bogotá committed half of the revenues from a gasoline sales surcharge for financing the project.

On the other hand, the private partners provided financing for buses and ticket machines. Their invested funds were to be recouped by charging fares to final users, with no subsidies nor guarantees offered by the public sector to the private-sector parties.

### *Activities and risk allocation*

As was mentioned above, the TM project was a partnership between the public sector and many private partners that required complex contractual arrangements to coordinate the building and operation activities.

To build the infrastructure, the public-sector party contracted with private constructors selected on a competitive basis. Being responsible for financing the investment in infrastructure, the public-sector party retained the financial risk of the project. As the works were to be undertaken in different urban districts while the bus transport services were being provided, a coordination committee was formed to monitor the building and facilitate the bus transport service provision.

To conduct the operation activities, the public-sector party contracted with different partners and unbundled the operation of buses, the collection of revenues, and the distribution of revenues among the bus operators.

The existing bus companies awarded concessions through competitive bidding to operate the bus routes. The award criterion was based in a system of points in which bidders received points according to their experience, bus quality, and emission levels. Thus, TM encouraged the bus operators to provide an efficient, modern, and non-polluting vehicle fleet. The bus operators had to invest in new buses, so financial risk was transferred to them.

Two different private companies were selected by competitive bidding to collect fares and to distribute revenues among the bus operators. One company had responsibility for investing in ticket machines and managing the ticketing system. The other company, a financial service provider, had responsibility for managing the trust fund where fare revenues were deposited and the payments system to distribute the revenues.

*Sources: see TransMilenio (Part II)*

## 1.2 Limits to risk transfer

The public-sector party should keep in mind that certain residual risks cannot be transferred, e.g. the risk of political discontent if the public service provision deteriorates as the private partner underperforms (objectively or according to the public's perception).

Further, the public-sector party is the provider of last resort in all PPP projects associated with basic infrastructure (e.g. water and energy) and public goods (e.g. health, education, defense). In these cases, the public sector should be aware of the fact that it may need to assume the responsibilities given to the private partner by the contract in order to ensure service continuation if it is at risk.

We shall discuss in Section 2 how the use of contractual protections like performance bonds and liquidated damages can help in giving incentives to project completion to the private-sector party. Also, we shall discuss how revenue guarantees are a way to acknowledge that there may be no gain in (contractually) transferring too much risk to the private-sector party.

The following PPP case illustrates how an insufficient risk transfer may end up distorting the incentives for the private-sector party to perform, leading to a remarkable PPP failure.

### Case Study: The London Underground (UK) (*Part I*)

#### *The bidding process*

The PPP project to rehabilitate and upgrade the London tube was offered to private-sector companies (the so called Infracos) through different contracts involving different parts of the underground network. The responsibility for providing the transportation service to final users, instead, was retained by a public-sector company, the London Underground Ltd. (LUL).

In a first stage, contracts were tendered and the preferred bidders, the Tube Lines and Metronet consortiums (Infracos), were chosen in May 2001.

The PPP was highly criticized, by the Mayor of London among others, in terms of incompleteness of the contract and unclear value for money. Some argued a PPP contract

would not be the best way to upgrade the tube system and made a case for the LUL undertaking works by itself. Besides, despite PPP advocates arguing the contracts contained strong incentives to improve safety standards, some critics raised concerns about the effect on safety of the decentralized nature of the London tube PPP project.

The legal and political challenges to the PPP agreement led to large costs for the public sector arising from consultancy services and advisory fees, and to delays in the award of contracts. The uncertainty on contract negotiation and award delays even led bidders to threaten suing the government for the high bidding costs if the PPP contracts were dramatically modified.

In fact, according to the House of Commons' report (2005), the costs incurred by the winning bidders were eventually included in the service charge at the taxpayers' expense. As bidding costs reimbursement, Tube Lines received £134 million and Metronet £116 million. LUL even reimbursed the unsuccessful bidders for their bidding costs by £25 million. In addition, LUL paid £109 million in advisory fees. Still, the poor outcome for all parties of the PPP suggests serious flaws at the contract drafting stage.

The PPP contract for Tube Lines was completed in December 2002 and for Metronet in April 2003. Therefore, for at least 19 months the winning bidders were able to negotiate the contract terms. The Tube Lines consortium was awarded the concession for the Jubilee, Northern, and Piccadilly lines. Instead, the Metronet consortium was awarded one concession for the Bakerloo, Central, and Victoria lines, and another one for the District, Circle, Hammersmith & City, and East London lines. Thus, Metronet signed over two out of the three PPP contracts.

#### *The type of PPP contract*

The London tube PPP contract was more complex than a typical operation PFI deal. Further, in the London tube PPP there was not a construction phase followed by an operation phase since the contract involved a continuum of work to improve the assets over the contract life. That is, the PPP agreement was similar to a DBFO model with respect to the whole-life cost approach, but building and operation activities were not bundled: the concessionaries would upgrade the existing infrastructure while LUL continued to provide the transportation service.

#### *Risk allocation*

LUL kept the responsibility for delivering the transportation service and charging user fees, so that demand risk was borne by LUL.

The risk of cost overruns arising during the contract was shared between LUL and the Infracos. The amount of cost overruns to be borne by the Infracos was capped provided that the Infracos performed in an economic and efficient manner (and it is not easy to prove that a firm does not perform efficiently). The maximum amount of cost overruns to be borne by Metronet was £50 million for the first seven-and-a-half years of the contract; for Tube Line, the amount was £200 million.

The contracts imposed weak constraints on the Infracos' subcontracting arrangements, and

this led to incentive distortions in the Metronet case. In Metronet, the shareholders were also the suppliers of the consortium, so they were less concerned about cutting costs down as an increase in Metronet's costs translated into a higher revenue for the supplier companies, leaving shareholders financially unaffected. In fact, large cost overruns were eventually incurred, as it is discussed below.

It was expected that the private financing involved in the PPP contracts would give incentives for the Infracos to efficiently manage the project's risks. However, substantial risk was also borne by the public sector through a debt guarantee granted to the lenders entitling them to receive 95% of their invested funds in case of early contract termination. Moreover, despite the fact that the private financing was publicly guaranteed, the cost of capital turned out to be £450 million above the cost of capital that would have been observed had the project be financed by the government.

#### *Cost overruns*

One of the Infracos, Metronet, failed in controlling the costs resulting from the pledged works. It was estimated that the Metronet costs in the first seven-and-a-half-year period of the contract would be four times what had been expected initially when signing the contract. Such cost overruns led to an Arbiter intervention, and the Arbiter warned Metronet would have to pay £750 million in cost overruns unless significant improvements were made by the consortium. If Metronet were to pay for the cost overruns, the profits earned in the first years of the contract would vanish and heavy losses would arise.

Under this circumstance, Metronet sought to be compensated for the cost overruns arguing it had not signed a fixed-price contract and therefore it should not fully bear the unexpected costs of the project. In addition, the consortium blamed LUL exercising its 'specified rights' to request additional works for the cost overruns incurred. Metronet eventually proposed either to share costs with LUL or to have the scale of pledged works reduced.

In reaction, the consortium was highly criticized for not undertaking the pledged works in an economic and efficient manner, i.e. for not making cost-reducing efforts, thus having no reasonable argument to support its compensation claims. In this regard, a strong criticism arose out of the fact that Metronet implemented a supply chain arrangement whereby most of the pledged works were carried out by supplier companies linked to the consortium's shareholders. According to the critics, this arrangement may have played a role in explaining the Metronet cost overruns since the consortium's shareholders were making profits through the supplier companies and so they had weak incentives to control the Metronet costs. Hence, the supply chain arrangement lacked transparency and was vulnerable to outright corporate abuse. In support of this view, the critics pointed out that no cost overruns were incurred by the Tube Lines consortium, which had implemented an outsourcing arrangement based on competitive tendering and used to stand up to the additional work requirements of LUL.

In the Metronet case, the debate over who should have borne the cost overruns suggests the original PPP contract was poorly designed. In particular, the Metronet's setup by which the interests of shareholders and suppliers overlapped was an unsatisfactory arrangement from the point of view of providing incentives to cost-reducing efforts.

*Negotiations between LUL, Metronet, and its lenders*

LUL, Metronet, and its lenders have been recently involved in complex negotiations to determine the responsibility over the cost overruns incurred and the implications on the financing of the project. Cost overruns estimations made by Metronet exceed £1 billion, a figure much higher than the Arbiter's £750 million. On the basis of its own estimations, Metronet has demanded LUL for £992 million to cover the past and projected overspending during the first seven-and-a-half-year period of the contract. The Arbiter, however, has rejected such a demand and awarded Metronet only £121 million to cover overspending over the next year.

Metronet is also negotiating with its lenders who have blocked any injection of new financing. Lenders fear the consortium may walk away from the contract if it is obliged to bear the cost overruns incurred. This is because, since the shareholders are liable only for their initial investment (£350 million), they may prefer to let Metronet go bankrupt rather than to bear heavy losses.

Nevertheless, Metronet going bankrupt would be a big problem for the public sector as it guaranteed 95% of the £2 billion debt due to lenders. According to the financial agreements, Transport for London is liable for the debt guarantees if it cannot sell the contract to another company within one year after exercising step-in rights. If it can sell the contract, but the amount collected is less than the guarantees, it has to pay for the difference.

*Sources: see London Underground (Part VII).*

## 2. Best Practices on Payment mechanism

The contract design should exhibit a consistent link between output specifications, allocation of risks and incentives, and the payment mechanism. The payment mechanism should be based on a **pay-for-performance principle** and be consistent with both the incentives the public-sector party wants to give to the private partner and the allocation of risk it wants to obtain (along the lines discussed in Section 1).

The payment mechanism should be based on **verifiable outcomes** of the service standards related to the output specifications (i.e. not based on inputs and cost of materials). In particular, the desirable service standards should be translated into measurable output indicators that can be verified by third parties.

### Case Study: The London Underground (UK) (*Part II*)

The PPP contracts specified the improvements to be made by the Infracos on the tube assets. The output specifications required them to deliver substantial improvements in the physical conditions of trains, stations, tunnels, embankments, escalators, etc. It had been estimated that the private investment involved in the pledged works would have been three times the capital expenditure observed in the past.

Building, refurbishment, and maintenance works had to be undertaken meeting a precise time schedule agreed with the Infracos. The works schedule had strict deadlines; for instance, trains should be refurbished or replaced over 15 years, stations should be refurbished over the first seven-and-a-half years of the contract, etc.

Consistently with the PPP principle of letting the private partners choose how to accomplish the output specifications on the basis of their know-how and expertise, the contracts did not specify the way in which the pledged works should be undertaken.

To give flexibility to LUL, the contracts set out ‘specified rights’ allowing LUL to require the Infracos to carry out additional works in certain areas that could not be fully contracted upon in the original contract. These rights were exercised by LUL in many occasions; for instance, Tube Lines was required to deliver an extra trailer car for every train in the Jubilee line and to extend the Piccadilly line to Heathrow Airport Terminal 5; Metronet was required to increase the number of trailer cars in the Circle line and to install air conditioning equipments on the sub-surface lines.

*Sources: see London Underground (Part VII).*

Where quality aspects of the service provision are not readily verifiable, the public-sector party should try to find other means to obtain measures of performance to be used in the payment mechanism. In this regard, regular **customer satisfaction surveys** may help as a way of monitoring performance. For example, in the London Underground ambience and general conditions of the trains and stations were to be measured by customer surveys.

Payment deductions and rewards should depend on customers' feedback so as to give incentives for good service provision. Where possible, the customer satisfaction surveys should allow to compare the quality of the service under the contract with the quality of comparable services elsewhere.

It is not recommended, however, that the private-sector party carries out customer satisfaction surveys itself as this would facilitate manipulation of information and corruption. For example, when the service charge is paid by the public-sector party (i.e. final users assess the private partner's performance but do not pay the bonus), the private partner may try to 'bribe' final users to report a high satisfaction level that triggers a bonus payment (or avoids deductions).

Customer satisfaction surveys should not be carried out by the public-sector party either. Independent third parties are preferable. This is because a conflict of interest may arise when customer satisfaction surveys are used to monitor and to make payments conditional on their feedback. For example, when the service is charged to final users (i.e. final users both assess the private partner's performance and pay the bonus), the evaluator has incentives not to assess a good performance, thereby avoiding to pay the costly bonus. Anticipating this, the private-sector party may provide minimal levels of non-verifiable quality.

However, this problem can be partly overcome by linking customer satisfaction to *in-kind* rewards (e.g. contract renewals) instead of monetary bonuses, since it is in the interest of the public-sector party to renew the contract to a good and efficient private-sector partner.

The payment should be **conditional on service provision**. When the project involves a construction phase financed by the private sector, no payment should be made until the service is available. The contract should then specify a service commencement day, after

which the first payment should be made, possibly with deductions for delays or with bonuses for early commencement.

The public-sector party can further protect itself from delays in service commencement by imposing liquidated damages to the private-sector party provided that it is feasible to demonstrate the existence of economic damages due to delays (otherwise, liquidated damages might not be confirmed in court).

In concession contracts involving the construction of the facility, consumers do not pay until the service commences. An exception of this is when the private-sector party is building a facility extension and operating the already operating facility where users are being charged. In this case, the private-sector party may use the revenues from the operation to finance the construction of the new extension.

The most **appropriate type of payment mechanism** for a PPP project is determined to a large extent by the **allocation of demand risk** between the public and private partners (whose principles were discussed in Section 1). Each of the most used types of payment mechanism is associated with a different level of demand risk transfer. In particular,

- (i) demand risk is fully transferred to the private sector when payment to the private-sector party is mainly based on user charges;
- (ii) demand risk is shared between the private-sector party and the public-sector party when the payment mechanism is structured on usage payments; and
- (iii) demand risk is retained by the public-sector party when the payment mechanism is based on unitary payments, such as availability.

## 2.1 User charges

Under a **user charges payment mechanism**, the private-sector party collects revenues directly by charging fees on final users of the service. For example, in the transport sector user charges take the form of highway, bridge, or tunnel tolls.

In adopting user charges as payment mechanism, the public sector should of course take into account its legal and political viability. In this regard, the application of user charges must be in accordance with the current legislation affecting a given sector of economic activity, i.e. tariffs could be used as long as the legal framework allows the private sector to charge final users on the basis of actual usage.

Besides, the adoption of user charges should be consistent with the public sector policy on service tariffs, e.g. the public sector may be unwilling to charge certain groups of consumers, and so tariffs could not be used in this case. In addition, the public sector should consider the final users' willingness to pay and the 'polluter pays' principle (i.e. the tariff level determination should take externalities into account).

In particular, in setting the user charges, the public-sector party should follow three main criteria:

- (i) allocative efficiency;
- (ii) distributional considerations;
- (iii) bankability of the project;
- (iv) other factors.

(i) Allocative efficiency calls for a pricing rule that sets tariffs as close as possible to social marginal costs, including not only the private production costs facing the private-sector party but also any cost or benefit imposed on other activities, e.g. externalities like increased or decreased pollution.

(ii) To the extent that the public sector has distributional objectives, it may prefer pricing the service below marginal costs.

Further, differentiated tariffs can be set according to types of services, categories of consumers, etc. to reflect different marginal costs (example, heavy good vehicles should typically be charged higher tolls because of their higher social marginal costs). Also differentiated tariffs can help to implement a system of cross-subsidies taking distributional considerations into account (where some groups pay tariffs below costs and others pay tariffs above costs to compensate).

(iii) The tariff level should be such that the revenues collected by the private-sector party are sufficient to cover operation and investments costs, whilst allowing a commercial rate of return. In cases where the private-sector party makes large capital investments, the marginal-cost pricing (as specified in (i)) will not allow bankability (and so will not prices below marginal costs) and user charges may have to be increased. However, the option to raise user charges levels should be compared with other means of ensuring bankability, such as using revenue subventions, increasing contract duration, or lowering the cost of capital through debt guarantees.

(iv) Tariff setting should also cope with other factors such as collection risk, i.e. the risk that users of the service try to avoid paying the user charge. A low collection risk is necessary for an efficient use of user charges.

#### **Case Study: M1-M15 motorway (Hungary)**

The concession to design, finance, build, operate, and transfer a 43-km motorway implemented a user charges payment mechanism that fully transferred traffic (demand) risk to the concessionaire, without any support from the public sector other than the initial planning and site acquisition. The award criterion was the lowest tariff (toll) requested by the competing bidders. The concessionaire was entitled to set initial tariffs at the revenue-maximizing level, and to adjust them subsequently according to indexation provisions.

Although there was a parallel un-tolled road that remained unimproved, the economic rationale for the project was largely based on time savings to be realized by users (estimated at 20 minutes per full journey).

As many commercial vehicles kept using the alternative, un-tolled road, traffic volumes and total revenues were half of the originally forecasted values for the first year of the concession. This led to litigation on tolls, suspension of investments and loan disbursements, and a debt default by the private partner. Both the concession and debt obligations were taken over by the public-sector party.

This case highlights the difficulties in applying user charges and forecasting demand, especially when the project involves a greenfield investment, there are alternative free-available services, and no revenue subventions are offered to the private-sector party.

*Source: European Commission (2004)*

## **Case Study: TransMilenio Bus Rapid Transit System in Bogota (Colombia) (Part II)**

The TM project specified in detail the technical requirements for the buses: operators of main routes should have afforded modern buses, and operators of feeder routes could use standard buses. To reduce journey times, both regular and express bus services were to be provided with predetermined schedules and making information available for users through an electronic system. A pre-paid ticket with a unified fare scheme was to be implemented to simplify the service charging and revenue collection.

It was apparent that the TM project would dramatically change the workings of the bus transport system and damage the interests of the existing bus service providers. In this context, a number of measures were taken to attenuate resistance to and build support around the project. For instance, the bus companies, who had legal rights over the bus routes, were invited to participate as bus operators in the main routes. The small private bus operators would be allowed to serve in parallel routes, thus competing for passengers with the TM bus services. To cope with the users' reaction to the introduction of the new system, a 3-week free trial period was offered at that time.

### *Payment mechanism*

The payment system implemented in the TM project implied that the demand risk was jointly borne by the bus operators since all the revenues collected were distributed among them. However, the revenue distribution was based on the weekly route distance that each bus operator served regardless of the number of passengers transported. Since TransMilenio SA could penalize a bus operator failing to comply with its contractual obligations by reducing its assigned weekly route distance (and so increasing that assigned to the other operators), it turned out that the bus operator's performance affected its share in the revenue distribution (and implicitly the share of demand risk borne individually). In fact, TransMilenio SA was able to reduce up to 10% of the operator's income, thus imposing a significant monetary loss for quality service failure.

In determining the fare level, both the bankability and affordability of the TM project were taken into account. In the project planning, a fare level around 0.40 cents had been estimated as consistent with the project's bankability. In fact, one year before the new system was introduced, the fares charged by the existing bus service providers were increased from 0.30 to 0.40 cents. Hence, at the time the new system commenced, there was no price difference between the TM bus services and those provided by the small private bus operators. Since the TM bus services were much faster and of a higher quality, the small private bus operators found it hard to compete for passengers in the parallel routes they were allowed to serve.

After the initial fare was set, the contracts envisaged a mechanism to adjust the service charge periodically. Price variation provisions aimed at protecting the bus operators from unexpected changes in operation costs they could not control. Besides, it was established that the public-sector party must compensate the operating companies if it intervenes to reduce bus fares, thus preventing the public sector from manipulating the project's (and operator's) main source of funds with political objectives.

The implementation of a pre-paid ticket system played an important role in the TM project as

it allowed for separating the operation of buses and the management of revenues. Moreover, the ticketing and payments systems greatly contributed to improving safety and service quality by eliminating the ‘war of the cents’. In addition, the systems were instrumental to ensure transparency and to avoid conflicts of interests: while an independent company collected the fees (thus avoiding potential disputes among bus operators), another company managed the trust fund (thus increasing controls over the revenue collection).

#### *Outcomes*

By all accounts, the inherited bus transport system exhibited low service quality and high levels of congestion and pollution. But soon after the TM project was launched, significant improvements were achieved in terms of the efficiency, safety, and environmental impact of the system.

One year after the TM project was launched, an evaluation reported encouraging results: journey times were reduced 32%, implying an equivalent to a one hour/day saving for the average passenger; average speed in the main routes were much higher than before; pollution levels in Bogotá resulting from the bus transport system dropped; and the number of accident fatalities decreased.

In 2004, another report reviewed the performance of the project and reported further improvements in safety and traffic managements. It was a remarkable achievement that improvements were observed in such a short period of time. Thus, the TM was considered an overall successful PPP experience.

#### *Sources:*

*Fernholz and Morales Fernholz (2005)*  
*TransMilenio SA web page*

If the revenues expected at the desirable tariff level are not sufficient to ensure bankability, the public sector should consider the possibility of making transfers to the private-sector party in the form of **subventions** (instead of providing direct financial support, an increase in contract duration can also help, see Section 3). In practice, these subventions could take a number of forms, as discussed below.

**Capital expenditures contributions** (capex) could be provided by the public-sector party taking the form of: (i) capital grants; (ii) loans; (iii) equity. In order to avoid public sector exposure to construction risk and to reduce the conflict of interest resulting from having the public party on both sides of the relationship (in cases (ii) and (iii)), the construction phase should be funded by the private-sector party, and capex contributions should be injected only after project completion. Capital grants minimize conflicts of interest,

but the public-sector party should take into account that a capital grant is a sunk cost which is not refunded in the event of contract termination. Moreover, as long as senior debt will be repaid first in case of private-sector party default, the use of capex contributions may not be appropriate.

**Revenue support** can be offered to the private-sector party to improve overall cash flow. It can be structured in different ways. For example, it can depend on the number of users, thus being equivalent to user charges in terms of incentives and risk transfer. Alternatively, it could be set in such a way that payments decrease over time, thus giving incentives for the private-sector party to encourage usage; or that payments decrease as usage level increases, thus avoiding windfall earnings under unexpected increase in demand. Revenue support can also take the form of **revenue guarantees** payable only in years where revenues from user charges fall short of a specified level.

Revenue support implemented as a simple payment set at a level sufficient to cover debt service obligations should always be avoided, as it almost eliminates incentives to perform.

**Debt guarantees** could be provided by the public-sector party. This financial support to the private-sector party will not have effects on the fiscal budget as long as it is not called upon.

#### **Case Study: Southern Railway in Sydney (Australia)**

The New Southern Railway (NSR) project involved an underground line with 10-km, a two-track railway, and four stations. The Airport Link Company (ALC) was awarded a 30-year concession to design, build, operate, and finance the NSR. Around one quarter of the project budget was privately financed by debt and equity. The ownership of the land in which stations were built remained under the State Rail Authority (SRA), and the ALC had to pay a lease for using it.

In the pre-design stage of the project, the statutory risk (i.e. approval risk) was borne by the SRA as five local governments had to approve the line passing through their territory. The design risk of the tracks, tunnels, and station infrastructure was transferred to the ALC through a lump-sum payment. Construction risk was also transferred to the ALC since it received an inflation-adjusted, lump-sum payment in exchange for delivering the infrastructure on time and with the quality level agreed in the contract. The contract fully allocated operation risk to the concessionaire, making it responsible for the operation and maintenance costs associated with the infrastructure management. While most revenues

were collected in local currency, some of the major construction inputs were imported and paid in foreign currency, so the ALC bore exchange rate risk. By government subventions, the ALC shareholders were granted tax concessions to limit tax liability after debt servicing.

The contract set out a payment mechanism based on user fees, thus transferring demand risk to the concessionaire. In addition, the ALC was allowed to charge a station fee on the passenger tickets so as to recover its initial capital costs, and to earn secondary revenues from retail activities at the stations. Some important government guarantees were set in place: the SRA agreed to compensate the ALC if usage fell short of the expected level, and to purchase the four stations if usage was so low that the concessionaire defaulted on its loans. As the SRA expected usage to increase significantly over time due to population growth and urban development, it considered these guarantees to be a relatively low risk.

Eventually, a quite poor risk management led to a remarkable project failure. Usage level turned out to be only a quarter of the expected level, partly due to an excessive user charge (including the station fee) that could hardly compete against the prices offered by alternative transport means such as buses and taxis. These problems caused a default on the ALC debt just six months after the line started to operate. The government attempted to bail out the project by subsidizing fares to increase service demand (e.g. granting concession fares to groups and offering airline-train ticket packages). A large fiscal burden transpired from both subsidizing the final users and compensating the ALC through the SRA.

Despite the remarkable failure, the government chose not to resume control of the project and thus kept it in private hands. Up to the present, the concessionaire has been heavily compensated, the service demand is still far from the initially expected level, and fares are still uncompetitive.

*Source: Loosemore (2007)*

**Subventions** are useful to keep tariffs at desired level and to go ahead with an infrastructure project despite of failures to generate sufficient revenues. However, most types of subventions reduce the extent to which risk is transferred to the private-sector party (with the exception of subventions based on the number of users).

Furthermore, in practice, some subventions do not depend on the private sector's performance (e.g. a subvention constituted by a set payment), and as such they do not provide incentives to improve performance.

Finally, subventions increase the scope for corruption and facilitate undue payments.

For all these reasons, subventions should be limited as much as possible. When, however, their use is perceived as necessary, then subventions should: (i) not alter the risk

allocation in an inefficient way (e.g. by limiting the risk transfer when it is efficient to transfer demand risk), and (ii) be dependent on performance so as to provide incentives.

The performance criteria used to deliver the payments should be chosen in such a way to minimize the risk of undue payments being made (in exchange of bribes). So, for example, they should not be set on the basis of performance indicators that are not readily observable by third parties and for which monitoring is costly and requires specialized knowledge.

The public-sector party may be interested in **limiting private-sector profits** when revenues coming from user charges prove to be higher than expected and lead to excessive profits. Setting mechanisms to share these unexpected benefits seems reasonable when the public-sector party has provided a kind of subvention as we mention above. These provisions for limiting revenues could take a number of forms:

**Sharing surplus revenue** provisions specify the revenue threshold above which revenues are divided between the public and private sector parties. This provision is appropriate when the public-sector party has provided a minimum income guarantee.

**Capping revenues** from user charges (similar to the band system used in shadow tolls), the public-sector party could limit the private sector revenues, but it may distort the incentives for the private partner to stimulate service usage.

**Concession fees** may be required by the public-sector party according to service usage as a form of sharing revenues with the private-sector party. But if these fees are fixed payments, the private-sector party is likely to require higher user charges or longer contract duration.

### Case Study: Chiloe Bridge (Chile)

The concession contract combined the application of user charges (bridge tolls) with a minimum income guarantee (MIG) provided by the government. For each year of the concession, the concessionaire was entitled to receive the difference between the annual revenue and the MIG specified in the contract.

In order to avoid excessive profit-making by the private partner, the contract also included a profit-sharing mechanism: if annual revenues were higher than an upper income band, the private-sector party would pay 50% of the excess amount to the public-sector party.

The project was however cancelled in the construction phase because the costs exceeded the maximum level predetermined in the contract.

*Source: Ministerio de Obras Publicas de Chile (Tendering Document)*

## 2.2 Usage payment

Under a usage payment mechanism, it is the public-sector party that pays the private-sector party, not the final users of the service. Apart from cases when they allow to achieve the desired risk allocation, **usage payments** (e.g. shadow tolls in road projects) may be used when the public-sector party wishes to set user charges (real tolls) but traffic volumes are insufficient, or when real tolls may significantly distort traffic volumes.

For the payment structure to be applicable the contract should establish **definitions of service usage** that are easily measurable and observable, such as traffic volumes, water flows, etc. When structuring usage payments, the public sector should bear in mind that the type of structure employed affects the extent to which demand risk is transferred to the private-sector party and the incentives for the private-sector party to perform.

Usage payments can be structured in a system of bands that is designed so as to achieve the desired level of demand risk transferred to the private-sector party. For example, in road projects, the band system could be structured in such a way that the revenues associated with each band cover different components of the project's costs. Thus, the first band can be set as to cover fixed operation and maintenance costs and the senior debt service; the second band can cover variable operation and maintenance costs and the subordinated debt service; the third band can be used to pay dividends; and so on.

To cap the public sector's payments and demand risk exposure, as well as to limit the private sector's potential returns, the band structure should be set so as to ensure no revenues are received by the private partner when traffic volumes exceed a certain band.

### **Case Study: Randstad Wijkertunnel (Netherlands)**

In a tender to build the Randstad Wijkertunnel, the BOT contract partially transferred design and construction risk to the private partner. The payment mechanism relied on a shadow toll setting a minimum revenue but letting the maximum revenue uncapped. During the operation phase, the service demand was larger than expected, so the costs for the public sector rose dramatically.

This case illustrates how demand risk allocated to the public-sector party may increase its financial burden when usage payments are uncapped.

*Source: European Commission (2004)*

### **Case Study: Beiras Litoral and Alta Shadow Toll Road (Portugal)**

The concession contract required the private sector to widen and upgrade a 167-km road in the border between Portugal and Spain. Since no alternative un-tolled road was available for the heavy traffic using the road in concession, the government chose to implement a shadow toll regime making usage payments to the concessionaire.

Usage payments were based on a four-band system: the first band was intended to cover fixed costs and senior debt service; the second, variable costs and subordinated debt services; the third, dividends. Overall, there was little demand risk in the project because traffic volumes were already quite large; in addition, the usage payment mechanism implied risk-sharing between the contracting parties. Fixed availability payments were to be made mainly during the construction phase, introducing the shadow toll in the operation phase.

With this project, the public sector sought to enhance the availability of road infrastructure minimizing its financial contribution as hard constraints limited the public budget. But a number of factors eventually raised the fiscal burden associated with the project. Soon after the award, an environmental appraisal concluded that changes had to be made in the initial construction plan; since these changes would have led to large compensations to the private sector that the public sector was unwilling to pay, the construction works were delayed for years. In addition, the already high traffic volumes increased even more, thus raising the usage payments due to the private-sector party.

*Source: European Commission (2004)*

### **Case Study: A55 Llandegai to Holyhead Trunk Road in Wales (UK)**

In 1998, the 30-year PFI contract to design, build, finance, and operate the A55 Llandegai to Holyhead trunk road (the final link in the improvement of the route from Chester to Holyhead-linking Dublin and Ireland with Wales and England) was awarded by UK Highways A55 consortium.

The size of the project represented a big impact on the people living in the area. Public exhibitions and consultation with residents took place to keep people informed. The design of the new highway was sensitive to the environment, integrating the road into the landscape, thus reducing its visual impact.

Despite the complexity of the project design, the 22-mile dual carriageway final stage from Llandegai to Holyhead was successfully built six months earlier than the scheduled: it took 27 months to be built, including the design stage.

Once the construction phase ended, the consortium revenues were based on usage payments (e.g. shadow tolls), combined with availability payments and safety record of the road. A mechanism to cap the maximum amount of payment was also specified.

*Sources:*

*PPP Forum, June 2006*

*Private Finance Information Service*

Usage payments may also limit the risk transferred to and the incentives for the private-sector party, so it should be appropriate to combine them with other schemes, such as availability and performance payments in the form of deductions and bonuses, aiming at strengthening incentives provided to the private partner.

### **2.3 Availability payments**

By using only payments related to service availability, the public-sector party retains demand risk. For this reason availability payments alone do not provide incentives for the private-sector party to stimulate service usage and provide service quality. However, since service availability is largely under the private partner's control, availability payments do provide strong incentives to comply with availability targets. To reinforce these incentives, the private partner should receive no payment until the service flow actually starts, and subsequent payments should be contingent on meeting availability targets.

Availability payments are made by the public-sector party according to **definitions of service availability** specified in the contract. These definitions should be measurable and observable at a low monitoring cost, acting as targets the private partner must comply with. For example, in the transport sector, service availability typically involves road lanes access; in the water sector, it may reflect access to water services, the level of water flows, etc.

Also, availability definitions should be carefully described since a facility might be usable but at the same time be unavailable. For example, a school could be considered unavailable because the heating system does not work properly, even when classrooms can be used.

**Deductions** should be used to penalize failures to comply with availability, and where service failures occur, to encourage the private-sector party to promptly rectify them.

When using deductions, a scale to measure the **degree of service unavailability** should be specified in the contract, where possible. For example, in a road, a lane blocked due to traffic congestion may be considered a low degree of unavailability, while a road closed due to maintenance works may be a high degree of unavailability. However, it should be taken into account that measuring the degree of service availability is not straightforward, as for example it might be difficult to assess at any point in time whether there is congestion and why.

In some circumstances, **rectification periods** may be introduced, such that the deductions for low performance are lower if the private partner fixes the problem within the period, and higher if it doesn't. It is not advisable to set a rectification period within which the private-sector party can fix the problem without being subject to any monetary deduction, as this destroys incentives to respect contractual obligations.

The rectification period after which - if the problem is not fixed - deductions increase should depend on the nature of the project and the severity of the problem. If the private partner does not rectify the failure within that period, deductions are automatically applied. To strengthen incentives to undertake corrective actions as soon as possible, a long period of service unavailability should be penalized with deductions higher than a short period.

The **monetary value of deductions** should be determined taking into account the following trade off: if deductions are too low, the mechanism provides weak incentives for the private sector to comply with performance targets; but if deductions are too high, the mechanism may lead to excessive risk pricing (i.e. the private partner would seek for a risk premium as a compensation for the risk that events outside its control cause under-performance and thus trigger deductions). To balance these two forces, it is convenient to specify a ratchet mechanism in which, for any given failure, the corresponding deduction is increasing in the duration and frequency of the failure, much like done by rectification periods after which deductions increase. In addition, a recurrent service underperformance should be a factor entitling the public-sector party to claim an early contract termination by the private sector default.

When the exact level of performance desired by the public-sector party is not rigid, it can also be efficient to introduce **bonuses** for performance above the target level, of size comparable to the increased benefit for the public partner caused by the higher than the performance target. This ensures that, if the private partner finds an innovative process that delivers higher quality at relatively low cost, it is rewarded for finding and implementing the innovation in an efficient manner.

Since the use of availability payments also protects the private partner from demand risk, the incentives for it to provide service quality are minimal. Additional incentives should then be given by complementing availability payments with quality performance payments.

### **Case Study: Dublin Bay Wastewater project (Ireland)**

The PPP contract to design, build, and operate the wastewater treatment plant was part of the Water Services Investment Program launched by the Irish public sector. The primary goal of the Program was to improve the quality and efficiency of wastewater treatment by attracting the best technology and expertise available on the market.

The contract was awarded to an international consortium for 20 years for the operational phase.

The public sector retained asset ownership and provided no guarantee for the private-sector party since the overall investment was financed by the Irish public sector along with a grant by the EU Cohesion Fund.

The private-sector party bore the operation risk and was expected to cover maintenance and operation costs from the service charge paid by the public sector. Thus, it had incentives to undertake cost-reducing efforts in order to increase profits.

The public sector collected revenues charging commercial consumers only because the Irish law exempts domestic consumers from paying for water treatment. In determining the tariff level, the amount of un-treated discharges and the capital and operation costs were taken into account.

The use of modern technologies and a sophisticated combination of treatments turned the wastewater treatment plant in a unique facility of its type.

*Source: European Commission (2004)*

## **2.4 Quality performance payments**

Quality performance payments should complement other payment schemes so as to provide the private-sector party with incentives to meet the quality standards specified in the contract. The quality performance targets should be measurable and observable at a low cost to avoid any dispute or controversy. All quality indicators (including **user satisfaction surveys**) that can be used to assess compliance should be included in the payment unless the expected costs of monitoring an indicator exceed the expected efficiency gains.

A system of robust **deductions** for service underperformance and, eventually, of **bonuses** for performance above the target are crucial to ensure that the private-sector party

complies with quality performance targets. To also ensure a quick remedy of performance failures, the contract should envisage a **rectification period** after which, if the private partner does not rectify the failure, deductions are increased further. The **criteria** to set deductions and bonuses are the same as those discussed above for the case of availability payments.

### **Case Study: Moray Coast Wastewater project in Scotland (UK)**

In 2001, the Catchment consortium was awarded a 30-year contract to design, build, finance, and operate three sewage treatment plants, a sludge dryer, twenty pumping stations, two new long sea outfalls and a 47-km pipeline network.

In designing the project, environmental issues had to be considered because of the natural beauty and fauna of the Moray coast. Thus, the public-sector party (the North of Scotland Water Authority) retained the statutory/planning risk. Instead, construction and operation risks related to the variability of wastewater flows were borne by the private-sector party.

The payment for wastewater and sludge treatment received by the private partner was based on daily samples of treated effluent. No payment was to be made unless the private partner complies with the sampling regime and the wastewater treatment standards required.

The contract also envisaged an arrangement to share revenues and refinancing gains between the public and private parties.

Before being awarded with the Moray project, the Catchement consortium had been selected for two PFI projects, the Highland and the Tay wastewater projects. The previous contractual relationship between the consortium and the North of Scotland Water Authority certainly facilitated the contract drafting and the project operation. The Moray project was completed on schedule and satisfactory results were obtained in the first performance tests.

*Source: International Financial Services, London (2003-2004)*

### **Case Study: The London Underground (UK) (Part III)**

The payment mechanism specified in the PPP contract consisted in a basic infrastructure service charge (ISC) combined with bonuses and deductions. To the extent the Infracos met performance, availability, and ambience targets, they were entitled to bonuses that increased their revenue. On the other hand, failure to meet these targets triggered deductions that reduced their revenue.

The Infracos' performance in rehabilitating and upgrading the tube was to be measured by the journey time capability (JTC), i.e. the time needed for a train to complete a journey. To achieve the performance targets and reduce the JTC, the private partners had to improve

track, signaling, and trains. Availability was to be measured by the number of lost customer hours, with penalties varying with the severity of a failure, e.g. breakdowns, signaling and other failures were penalized more heavily at peak times. Ambience and general conditions of the trains and stations were to be measured by customer surveys.

As it was mentioned in Part I of this case, the PPP contract also included debt guarantees allowing lenders to recoup their investments in case the contract terms were substantially modified.

#### *Poor performance and penalties*

Soon after the contracts began, the Infracos were subject to criticism because of their poor performance. The criticism on safety issues became stronger when two derailments occurred in the tube lines assigned to each of the consortiums.

Moreover, the performance targets based on JTC were hardly attained as the rehabilitation works delayed significantly, suggesting the works schedule proposed by the companies were unrealistic. To defend themselves against the mounting criticism on their poor performance or overambitious bids, the Infracos argued that the assets they inherited were in physical conditions much worse than they had anticipated.

The Infracos' poor performance led LUL to apply penalties and to threaten to take over the contracts if the situation were to persist. In the first year of the contracts, the companies were fined £32 million by deductions for failing to meet some of the targets, and earned just £12 million in bonuses for achieving other targets.

Despite the large (net) deductions applied to the basic ISC, the consortiums made huge profits. According to the NAO report (2004a), the Infracos shareholders earned a rate of return around 20%, a third higher than the normal rate of return in private finance deals.

Therefore, the impact of payment deductions on profitability must have been small (at least relative to gains from keeping low the quality of supply). Indeed, several observers argued that the deductions were too small considering both the payments made to the Infracos to undertake the pledged works and the inconvenience suffered by final users due to service disruptions. The too low deductions for poor performance appear to have distorted the incentive scheme sufficiently to generate the widespread poor performance of the Infracos together with their high profitability.

*Sources: see London Underground (Part VII).*

## 2.5 Monitoring service availability and performance

An efficient monitoring system needs to be in place; otherwise the whole incentive structure underlying the *output specification* approach and the risk allocation will be compromised. Efforts should be made to specify targets that can be monitored effectively.

As a first monitoring stage, the private sector could design a quality management system to measure availability and performance in a systematic way. In a second stage, the public sector should review that system at regular intervals, but it should also undertake spot checks in a random way. In this regard, when there is little experience in measuring availability and performance of a particular service, it is advisable to set a **benchmarking** to compare the private sector's service provision with other providers of the same or similar service.

The public-sector party should put in place a monitoring system that provides incentives for the parties in charge to monitor; too often monitoring fails due to lack of incentives for public-officials to undertake monitoring activities and to levy penalties or impose deductions. In this respect, the public-sector party should consider the possibility to **delegate to an external organization** the task of monitoring the private-sector party. The payment to this organization should then be made dependent on the amount of performance failures verified and reported, thus creating residual claimancy and reducing the likelihood of collusion between the organization and the private-sector party.

Sometimes the only realistic option is **self-monitoring** by the private-sector party with random audit checks by the public-sector party. Self-monitoring comes with the additional benefit of reducing contract management costs for the public-sector party, but it requires sufficiently severe penalties for mis-reporting. In this regard, the penalties should have a fixed part and a variable part computed as a multiple of the deductions the private sector avoids by mis-reporting. Otherwise, the risk is that it might be convenient for the private-sector party to mis-report so as to avoid deductions. Therefore, self-monitoring is not advisable when sanctions for mis-reporting cannot be set that high.

Costs arising from monitoring activities should be borne by the party undertaking them, thus avoiding a possible conflict of interests. However, if the public-sector party incurs in large monitoring costs because of a systematic underperformance by the private-sector party, the latter should pay for the additional costs.

## **2.6 Third-party and secondary revenues**

Where possible and it does not interfere with the provision of the public service, the private-sector party should be allowed to collect secondary revenues from third parties by making available part of the facility to them. Examples of these are: (i) hiring out a determined space of school for private functions during the evening; (ii) allowing the development of restaurants and other road services on the land near a road in concession, and (iii) showing advertisements in train carriages.

When these secondary revenues are certain and can be incorporated in the bid price, it is likely the latter will be lower. On the contrary, if secondary revenues are not taken into account, it is recommended that both parties share them.

## **2.7 Liquidated damages and performance bonds**

Liquidated damages and performance bonds should be used besides deductions as further contractual protections for the public-sector party in case the private sector fails to meet the service commencement day or (for bonds only) it goes bankrupt leaving the project unfinished. Although these protections may lead the private partner to require higher tariffs and/or a longer construction period, there are typically significant gains in terms of incentives to invest and perform, especially when the public sector is in a weak bargaining position, once the contract has started, because of the need to ensure service continuation.

The amount of liquidated damages should be specified in the bidding documents so bidders can price the risk of incurring in such charges. To assess the economic value of liquidated damages, the public-sector party could ask bidders to price also a project without

liquidated damages; then, the difference in the bid price should reflect the risk premium attached by the private sector to the contract including liquidated damages.

To reinforce incentives to perform the contract should specify the circumstances under which the contract may be terminated on private sector default and performance bonds are payable (See Section 4 for issues related to early contract termination).

## 2.8 Price variations

The payment mechanism should always encourage the private partner to control the costs of the project, but it should not transfer to the private partner the risk of cost overruns resulting from events outside its control. In order to protect the private partner from such cost overruns, and thus to avoid excessive risk pricing, the contract should include provisions to vary the service charge (i.e. the tariffs paid by final users or the unitary payments made by the public sector) according to the evolution of certain costs. As long as price variation provisions keep the service charge in line with market prices, they also protect final users and the public sector from paying an amount in excess of what other potential service providers would charge.

Price variation provisions may take the form of **indexation clauses** and/or **value testing** procedures (i.e. market value and/or benchmarking). In some cases, it is convenient to combine different provisions to reduce risk pricing. For instance, a private partner may be more willing to bear the risk that the project's costs increase above the price index agreed in the contract if a subsequent value testing will correct the price of service so as to fully adjust the cost increase (i.e. any misalignment between the price of service and the actual costs is of a transitory character).

### *Inflation indexation*

The payment mechanism should include arrangements for changing the price of service to prevent the service charge from becoming insufficient to meet the project's

operation costs and financial obligations for reasons beyond the private-sector party's control. Inflation indexation is typically a low-cost device to implement price variations.

In using inflation indexation, two important issues should be taken into account. First, the contract should specify the **price index** to be applied. In choosing between a general price index or an industry-specific price index, the public-sector party should consider a trade off. On the one hand, a general index like the retail price index is available at low cost, but it leads to price adjustments that fail to track the relevant cost changes to the extent the general price variations do not mimic the changes in the private-sector party's non-controlled costs.

On the other hand, an industry-specific price index may properly reflect the relevant cost changes, but it is costly to elaborate and its variations could be heavily influenced by the private partner's own price when the market structure is concentrated.

Second, the contract should determine the **proportion of the tariff** or unitary payment to be indexed. In this regard, it is a good practice to apply indexation only to the proportion of the service charge that matches the proportion of variable costs in total costs. This provides the private sector with a proper hedge against non-controlled costs without distorting incentives. Accordingly, it is not advisable to over-index service charges, i.e. to index the whole price of service aiming at reducing the initial bid price of the private partner.

### ***Price reviews, market testing and benchmarking***

Along with mechanic indexation clauses, the contract may include value testing procedures, i.e. market value and/or benchmarking, since without a periodic testing the private sector may want to ensure itself against unexpected cost variations by increasing the bid price. Allowing the price of service to be reviewed according to market prices, value testing procedures limit the uncertainty faced by the private partner and give it an opportunity to raise prices when un-controlled costs increase. Besides, these procedures enable the public-sector party to benefit when market prices fall.

Even when market testing is included in the contract, the public sector should be able to undertake a **benchmarking procedure**. This is the case when, for example, the market testing procedure fails because of the lack of any bidder other than the incumbent. Similarly,

provisions for market testing should be included even when the most appropriate test is thought to be benchmarking. This is the case when, for example, there is no available information or the price adjustment was not agreed.

The contract should specify the **frequency** of value testing exercises. Generally, value testing is conducted every five or seven years, but in some cases it may be appropriate to undertake the first testing exercise after a longer period of time. The longer initial period aims to ensure bidders do not deliberately set a low initial price which they could raise in the first price review. On the other hand, the public sector may be exposed to an excessive risk premium if the initial period is too long.

Value testing may be not appropriate for all **types of service**. Market testing and benchmarking are primarily aimed at ‘soft services’, i.e. facility management services such as catering and cleaning, where there is no significant capital outlay involved in providing them. Accordingly, these procedures are not suitable for ‘hard services’, i.e. services where the private-sector party is responsible for the maintenance of the facility and incurs in capital costs, since the price of the current private partner is hardly comparable to the price offered by a bidder that has not incurred in such capital costs.

Moreover, value testing may not be appropriate when the provided services are specialized and only one or two companies supply them. In particular, for the potential benefits of market testing to be realized, there should be strong **competition** between service providers, and the public-sector party should keep the market active and competitive, e.g. by informing suppliers about future bidding opportunities. Value testing procedures can be a lengthy process and difficulties may arise in finding suitable benchmark data for a comparison purpose.

## 2.9 Governance issues

User charges are paid directly by users, and this ensures that **users are alerted** and have incentives to monitor whether the project indeed delivered value for money, automatically implying a higher level of accountability. Conversely, any direct payment from

the public-sector party to a private partner, be it in the form of usage and availability of payments or of other type of subsidies, is harder to monitor for the public, and therefore at higher risk of low accountability, particularly if part of the contract is protected by confidentiality requirements.

Therefore, from a governance perspective, user charges should be maximized, and direct transfers from the public sector avoided as far as possible. With this aim, if user charges appear insufficient to make the project economically viable in the current form, it is better to increase the duration of the contract, so that the private-sector party has a longer horizon to recover investment costs, rather than to add direct subsidies to user charges.

Another aspect of the payment mechanism that may be problematic from a governance perspective is its **complexity**. Very complex payment mechanisms are not only difficult to apply/manage, but also difficult to monitor by a third party, such as the public, the press, or an audit office. First, it is difficult to verify whether the contract is being implemented correctly; second, it is difficult to understand – in case it is found that it was not implemented correctly – whether this happened because of mistakes or deliberate mismanagement and favoritism. For this reason, too complex payment mechanisms should be avoided.

The need to limit contract complexity for the sake of governance accountability suggests to avoid mixed formula, with user charges supplemented by direct payment schemes. If user charges appear insufficient, it might better to increase the duration of the contract than to add direct transfers from the public sector to user charges.

### 3. Best practices on Flexibility and Renegotiation

Contract design should build flexibility into the contract so as to limit as far as possible the need for contractual changes.

Flexibility/change needs are often classified as being anticipated or not at the contracting stage. **Anticipated changes** include, for example, potential changes in quantity/capacity of the output specified in the contract, for example, caused by an unexpected demand increase. In a road project, the amount of street lights required may change over the years with unanticipated changes in urban development of some areas.

At the contract drafting stage, a substantial investment in contract design should be undertaken to anticipate the possible changes that may be required with reasonable likelihood, and to **describe and regulate** all these changes in the original contract. This will create built-in contractual flexibility while reducing as far as possible the need for contract changes/renegotiation.

If the anticipated changes involve mainly changes in the amount of output, they can easily be pre-specified in the original contract and become integral part of the bids in the initial competitive selection process. Similarly, any other anticipated change that can be foreseen in its precise form, should be pre-specified as conditional output in the initial contract and be part of the initial bid, so that the potential changes are efficiently priced at the competitive stage (in the street light example, a unit price for additional lamp or kilometer of road enlightened could be in the contract). The weight to assign in the selection process to the terms relative to anticipated potential changes should then be proportional to the likelihood and the value of these changes.

In the some (rare) cases the need of potential change is anticipated but such that the exact form of the change is not clear, so that it is not possible to pre-specify the change in the original contract to have it priced at the competitive stage. If these anticipated changes are small in size and need to be operated swiftly, provisions could be inserted in the contract establishing that the private-sector party will have to implement the changes required by the

public-sector party, within certain limits, and that compensation for the extra costs will be paid. Consideration should be given to the possibility to specify in the contract that the compensation will be on a **cost reimbursement** basis, with a contractual obligation to ensure value for money for the public sector. Compensation will also allow for a mark up on the costs that should *not* be subject of bidding in the contracting stage as competition on mark ups of cost-plus contracts tends to have counterproductive effects. The profit **mark up** on changes operated under cost-reimbursement compensation will be chosen *ex ante*, according to standards of profitability in the sector and with the advice of external experts, and will be pre-determined by the contract, hence remaining fixed whoever wins the competitive phase.

The obligation of ensuring value for money for the public sector must be backed by **benchmarking** on both the definition of the mark up and on the following cost assessment that the private-sector party provides after a change is required, before approval of the changes, to ensure that mark up and projected costs are at market level. In this cases a **third party** – like a panel of expert – should also be involved in the process of approval of the cost of changes before implementation, to prevent abuses of the flexibility created by cost-reimbursement scheme.

More flexibility may still be needed along the development of the project than what is achievable through anticipated change clauses, so that a limited number of exceptional contractual changes should be admitted. Contract design can limit the possibly large negative effects of post-award contractual changes aimed at facing **unanticipated change needs** - discussed in the accompanying paper - by inserting contractual clauses that limit and structure contract renegotiation.

In particular, to ensure maximal transparency, the contract should define a detailed **change protocol**, that should precisely structure the process through which any proposed change is requested, assessed and, if eventually approved, implemented.

Small changes, e.g. linked to adaptation to particular user needs, should not require changes in payments but be covered by the provision of original contract and they may follow a faster procedure. For large changes that require pricing, transparency and value for money for the public sector become essential.

**Transparency** of the contract change process must be guaranteed by contractual clauses requiring full and proactive disclosure of all acts at all stages of the change protocol.

Transparency and accountability of changes should be further stimulated by involving an **independent third party**, an arbitrator or, better, panel of technical experts, as supervisor of changes and responsible for the governance aspects of changes. Their approval could be asked also in terms of real needs for the changes and appropriateness of the decided changes and their pricing. In case of changes required by the private-sector party and implying revision of prices, the change protocol should require the third party and the public sector to ascertain and publicly explain that the shock motivating the request for change was not an event part of reasonable business risk that a competent private partner would have anticipated and priced in the initial bid. (The cost of forecasting/bidding mistakes should be born by who makes them as far as possible).

In particular, as suggested in the Section 4 of these best practices for other contractual issues, the motivation behind the initial choice of mark up, and that behind the decision to ask for a change and the decision to approve the binding cost assessment presented by the private partner for the change (including the benchmarking exercise and the opinion of the third party) should be made public, posting them uncensored on the homepage of the PPP, within a pre-specified and short term after the approval.

**Value for money** of approved changes in prices should be ensured by contractual clauses requiring any such price change to be subject to a market value test, in terms of benchmarking or full market testing (new competitive tendering).

The contract should also establish a **freeze period**, the longer the larger the relative weight of the construction phase in the PPP, and possibly longer for demands for contract changes coming from private partners. The rigidity induced by such contractual clauses will deter opportunistic renegotiation, which typically expects revisions of terms much earlier, stimulate investment in in-built contract flexibility, while leaving open the possibility to accommodate efficient changes later on, when it is more likely that substantial unanticipated changes in technology or demand took place that effectively require contractual changes.

Finally, the contract should establish substantial **fees** to accompany private partners' demand for contract changes; these should be withheld in case the demand for contract change is rejected as unfounded. This would deter frivolous demands while leaving open a channel for serious ones.

## 4. Best Practices on Contract Duration

### 4.1 Contract duration and investment

If the contract duration is to be determined with the purpose of providing appropriate investment incentives, it is important to take into account the **contractibility and specificity** of investments and the payment mechanism used in the project.

For a project involving **contractible investments** and unitary payments made by the public-sector party, the duration of the contract should be determined ensuring a balance between the future certain payments and the funds invested by the private-sector party, taking into account the residual value of the asset.

In particular, assets should be kept by the private-sector party after contract expiration provided that they have a **residual value** (and thus could provide the private partner with revenues in an alternative use) and the public sector does not need them to ensure service continuation. The contract should then balance the unitary payments with the invested funds net of the residual value of the assets. Thus, for a given payment per unit of time, the contract duration should be shortened when the project's assets have residual value and will be retained by the private sector; alternatively, for a given contract length, the payment per unit of time should be reduced.

In this regard, it is important to properly design the payment profile, i.e. the stream of outlays by the public-sector party: if payments are concentrated at the back-end, PPP turns into an expensive way of financing public infrastructure, with a negative effect on welfare across generations; on the other hand, if payments are concentrated at the front-end, the private partner faces weak incentives to perform in the long term.

If, instead of unitary payments, user charges constitute the payment mechanism, the length of the contract should be such that expected revenues to be collected from final users

over the contract life are sufficient to recoup the invested funds.<sup>1</sup> Therefore, designing a long-term contract is recommended for a project requiring a large volume of contractible investment. Besides, for any volume of investment, the longer the contract, the lower the service charge that allows recovering the invested funds. Hence, a long-term contract is advisable to ensure affordability of the project by both the public-sector party and the final users.

On the other hand, for a project involving **non-contractible investments**, the contract duration should carefully consider the assets specificity. When a non-contractible, highly specific investment that increases the project's profits is available, as it is generally the case in DBFO contracts where the quality of the facility has a significant impact on the operation and maintenance costs, it is advisable to lengthen the duration of the contract to encourage the private-sector partner to undertake it (assuming the specific investment raises the private profits as well).

By ensuring a protracted contractual relationship, a long-term contract allows the private partner to recover the funds invested in specific assets, and protects him from holdups by the other party that could arise in renewing short-term contracts. Hence, a long-term contract should be used to provide incentives to undertake non-contractible specific investment and ensure the benefits of the whole-life costing approach, although for the reasons discussed below, excessively long contracts should be avoided. There are indeed often legal constraints on the contract length. For example, the maximum length of concession in Chile is 50 years, and of a PPP contract using private finance in Italy is 30 years.

## 4.2 Contract duration and flexibility

The duration of the contract affects the **flexibility** to modify the contract terms adapting the service provision to incoming innovations in user needs and technologies. In

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<sup>1</sup> It should be noticed that, in principle, expected revenues are higher for a longer contract, but also the forecasts of demand and costs are less accurate for a long time horizon, thus increasing the project's risks.

principle, it is advisable for the public-sector party to enjoy a high degree of flexibility when the project develops in a sector characterized by a rapid pace of change in user needs and technologies. Thus, it may be confidently expected that the service initially contracted will become outdated or redundant in the future, so adaptations whose nature is yet unknown, and hence non-contractible, are likely to be needed. But it may happen that adapting the service provision at the time innovations arise is costly for both the public-sector party (who should require and negotiate changes in the contract terms), and the private-sector party (who would have to undertake adaptation investment). Under these circumstances, the bargaining power of both parties heavily depends on the contract duration.

The contract should be short-term if a high degree of flexibility is to be given to the public-sector party. Having a chance to switch provider when the contract expires, the public-sector party holds a strong bargain position and thus can induce the private partner to accept contract changes and undertake adaptation investment for a reasonable remuneration. Moreover, if no agreement is reached on the proposed changes, the public-sector party has the option to wait little time until it can redraft a new contract with another provider introducing efficient adaptations (rather than commencing a dispute resolution procedure).

#### **Case Study: The London Underground (UK) (Part IV)**

The PPP contracts awarded by the consortiums Tube Lines and Metronet to rehabilitate and upgrade the underground networks have a duration of 30 years. Periodic contract revisions were envisaged every seven-and-a-half-years, so the contracts were implicitly divided in four periods.

The PPP agreements included special provisions allowing LUL to require additional works from the Infracos that could not be fully contracted upon in the original contracts. The possibility of reviewing the contract every seven-and-a-half years intended to give flexibility to LUL since service requirements and the infrastructure service charge (ISC) could be modified. Also, the consortiums' performance was to be evaluated in the review periods.

But this **flexibility** may have been costly for the project: the uncertainty about what could happen in the future periodic reviews may have increased the cost of capital for the Infracos.

*Sources: see London Underground (Part VII).*

#### 4.3 Contract duration, competition, and incentives

If the contract duration is to be managed as a means to foster **competition and market discipline**, it is important to consider the possibility of collusive agreements in a bidding ring, the transaction costs associated with a re-tendering, and the sources of static/dynamic efficiency gains.

For a sector having a largely concentrated market, where it is difficult to prevent the formation of anticompetitive bidding agreements, a long-term contract is advisable to reduce the frequency of interaction among competitors and thus the likelihood of such agreements. Besides, by lengthening the contract, the private partner is given an opportunity to increase the quantity supplied and to exploit possible economies of scale and scope. However, since a long-term contract protects the incumbent from being replaced until it expires, incentive devices should be carefully designed to discipline the private-sector party as if it were operating in a competitive environment. A possible device is an instance of re-tendering before the long-term contract expires.

On the other hand, if collusive agreements in a bidding ring can be effectively prevented and the transaction costs for switching providers are small, it is recommended to use a short-term contract that allows for frequent re-tendering and thus exposes the incumbent to competition and market discipline. In sectors with significant dynamic efficiency gains, using shorter contracts also encourages experimentation and innovation because a (potential) turnover among competitors enables a more efficient innovator to replace a less efficient incumbent. Nevertheless, cost reductions and quality improvements that result from 'learning by doing' may be lost if the incumbent is replaced too early, so contracts should not be too short.

Contract renewal is an in-kind reward for the current incumbent that encourages it to comply with the contract terms and to undertake non-contractible investments and quality-improving actions. Using contract renewal as a performance incentive requires the contract to be short-term so that the frequency of renewal increases. Moreover, a short-term contract provides the public-sector party with an outright exit option if the private partner performs poorly. The exit option could be valuable when it is costly to specify and enforce clauses for

early contract termination aiming at penalizing the private sector for a systematic bad performance.

#### **4.4 Contract duration in service unbundling**

A project may involve different services, e.g. a road project encompassing construction of a highway, maintenance service provision, accident recovery service, etc. In particular, the services related to facility management can be classified in two categories: 'soft' and 'hard'. Soft services neither require significant capital outlays to be provided nor affect the value of the project's major capital assets, e.g. cleaning and security. On the contrary, hard services do involve capital outlays and affect the value of capital assets, e.g. life-cycle maintenance services.

In some cases, it is possible and convenient to unbundled soft and hard services, purchasing them from different providers through contracts of different duration. These cases arise, for instance, when the providers of soft services are small firms that employ most of the staff and so are vulnerable to environmental and social conflicts; and when the soft service providers cannot be heavily penalized through performance deductions, but their failures largely affect the public opinion about the project since they constitute an inter-face between the facility and the final users. Then, if unbundling is undertaken, short-term contracts should be used for contracting soft services as little investment is required in providing them. In contrast, long-term contracts are advisable for purchasing hard services since they involve large capital expenditures. This is the case of PPP of hospitals in Portugal where the contract length for core services is much longer than for cleaning services.

#### **4.5 Endogenously determined contract duration**

In the case of an operation PFI contract involving fixed, unitary payments, it is possible to let bidders propose the duration of the contract as part of their bids. Instead, in a concession contract where tariffs are used, the length of the concession could be

endogenously determined using the Least Present Value of Revenue (LPVR) method. Once the project delivers an amount of revenue equal to the LPVR submitted by the winning bidder in the tendering process, the contract expires automatically. Then, unexpected variations in service demand are accommodated by changes in the duration of the concession.

## 5. Best Practices on other Contractual Issues

### 5.1 Refinancing

As we have discussed in the companion paper, it is likely that the private-sector party obtains windfall benefits in refinancing its debt liabilities during the contract life. Since refinancing involves a change in the financing structure of the project, the public-sector party should be informed about any refinancing operation undertaken by the private-sector party. Further, the contract should contain provisions giving the public-sector party the right to approve any refinancing proposal and to share the benefits of refinancing.

The public sector should consider positively any refinancing proposal submitted by the private partner as refinancing is likely to be beneficial for both parties. However, in evaluating a refinancing proposal, the public-sector party should take into account possible negative effects of a refinancing operation, such as an increase in the risks faced by the public sector or in the compensation upon voluntary termination, a reduction in the private sector incentives to perform in later years and a weaker financial stability of the private partner.

The method for calculating and sharing refinancing gains should be specified on case-by-case basis. The benefits for the public sector can of course be materialized in different ways. First, the public sector may choose to receive an amount of money at the time refinancing occurs. Second, the public sector may wish to reduce the tariff or unitary payment received by the private sector over the period following refinancing. Third, the public-sector party may prefer to increase the scope of the service as its share of refinancing gains.

There are cases when a mixture of both a cash payment and a service charge reduction may be appropriate. This is when, for example, refinancing involves gains to be realized at the time refinancing occurs along with gains to be made over a long period of time in the future.

As for the share of refinancing gains that should accrue to the public sector, it should be small when refinancing gains are caused by the private partner's good performance, not to curb incentives to perform; and it should be larger when the refinancing gains origin from

exogenous changes like improvements in the macroeconomic condition or the natural reduction of information asymmetries taking place while the project implementation goes on in time.

### **Case Study: The Fazakerley Prison (UK)**

The refinancing of Fazakerley prison in the UK was caused by the successful construction of the prison and the increasing confidence of financial markets towards PFI projects (this can be seen in the decrease in the loan margin from 1.5% to 0.7% showing banks' increased confidence in the PFI market).

The contract did not specify the Prison Service was to gain from any refinancing, but the consent of the Service was needed. As compensation for taking an increased risk regarding termination liability, the Prison Service received £1 million from FPSL (the consortium), approximately one fifth of the total re-financing gains. It was suggested that the Service could have received more from the re-financing but "*the Service did not wish to deter FPSL or other consortia from bidding in future PFI prison competitions by removing opportunities for them to benefit from this type of project*" (NAO,2000, paragraph 1.10).

However, there is great uncertainty in the re-financing procedure as the Prison Services termination liability could increase as a consequence of extending the loan repayment period.

*Source: NAO, (2000)*

### **Case Study: London Underground (UK) (Part V)**

Broadly reflecting PFI precedents in UK, the PPP contracts contained specific provisions for sharing the benefits from refinancing operations. In May 2004, 18 months after Tube Lines was awarded the contract, the company conducted an early refinancing operation that turned out to be very profitable as gains amounted £85 millions over time.

The contract provisions entitled the public-sector party to receive 70% of the refinancing gains (i.e. £59 million), leaving the remaining 30% for Tube Lines (i.e. £25 million). The refinancing gain-sharing scheme had a proportion 70:30 that differed from the standard 50:50 recommended by HM Treasury for UK PFI contracts.

*Sources: see London Underground (Part VII).*

## 5.2 Dispute resolution

The contracting parties should include clauses in the contract specifying a dispute resolution mechanism to handle disputes that may arise during the contract life. An alternative dispute resolution procedure, such as **arbitration**, is preferable to courts.

A simple dispute resolution procedure may involve three **stages**, with the contracting parties moving from one stage to the next if the former fails. The first stage is an internal consultation in ‘good faith’ between the parties trying to reach a mutually convenient agreement on a certain case. The second stage is an external consultation where the case is put before an appointed expert, or a conciliator, whose decision may or may not be binding. If either party disagrees with the expert’s determination, the last stage envisages a PPP arbitration for a final and binding decision on the case. The contractual clause should clearly specify the procedure that will be followed for the appointment of the expert and of the arbitrator.

Despite the benefits of the three-stage procedure in terms of smoothing the conflict resolution process, the procedure may require too much time for certain pressing issues and give rise to transaction costs. To cope with pressing issues that require immediate decisions and may lead to an increase in costs, an extraordinary, fast-track procedure accelerating the three stages should be established in the contract.

In implementing external consultation and PPP arbitration, a number of issues should be addressed. Regarding the costs of undertaking such procedures, the contract should envisage a mechanism for appointing and compensating experts and PPP arbitrators. To encourage both parties to control transaction costs, it might be convenient that each party bear its own legal costs.

The contract should also envisage a mechanism for compensating experts and PPP arbitrators. Experts and PPP arbitrators should be appointed from panels or among distinguished professionals, thus avoiding affiliations that may lead to a conflict of interests, e.g. persons linked to the public-sector party, the private partner, competitors, or suppliers. In

this regard, it is important to ensure transparency in the selection of experts and PPP arbitrators.

For the dispute resolution mechanism to attain its purpose effectively, the contract should facilitate any action and decision-making by the experts and PPP arbitrators. For instance, they should be entitled to access any document relevant for the case, to call the parties for hearings, to require written submissions from the parties, etc. Whether the information conveyed by the parties to them must be kept confidential or not is an issue that should be discussed on the basis of the specific circumstances of the dispute, but where possible confidentiality should be avoided. As discussed in the companion paper, **transparency** is key for reducing the likelihood of performance failure.

It is recommended to specify strict deadlines for the PPP experts and arbitrators' decisions and to require a **written justification** for any decision they make. Enforceability of decisions made by experts and PPP arbitrators is an essential requirement for the dispute resolution mechanism to work and be legitimate. In particular, the parties must be obliged to acknowledge and observe the decisions made by PPP arbitrators regarding compensations to be paid by one party to the other.

While the dispute resolution mechanism is underway, it may happen that the private-sector party attempts to avoid penalties resulting from construction delay or poor performance in service provision by arguing that these events are consequence of the yet unsettled dispute. However, the contract should not allow for lower payment deductions when a dispute has arisen.

In any case, if the private-sector party undertakes works to meet its contractual obligations while the dispute resolution mechanism is underway, but the final resolution makes these works redundant, then the private-sector party should be entitled to a compensation to be determined by the expert or PPP arbitrator.

More generally, the contract should specify which party is liable for any extra cost resulting from the final decision made in the dispute resolution procedure, e.g. economic costs of delaying service commencement, costs for rebuilding parts of the facilities, etc.

### **Case Study: London Underground (UK) (Part VI)**

In order to handle disputes that may arise during the contract life, the PPP contracts included provisions to appoint a PPP Arbiter. The Arbiter can be called for to determine key financial terms of the PPP agreements at the periodic contract reviews every seven-and-a-half years. The Arbiter can also be appointed in the case that a specified circumstance makes it necessary for the parties to carry on an extraordinary contract review, e.g. a major cost overrun when upgrading a line.

The difference between the Arbiter and an arbitrator is that the former has a continuum role and the ability to give guidance as well as directions under the contract terms, whereas an arbitrator is called for only in specific circumstances when the parties have reached a certain stage in the dispute resolution procedure.

In the London Tube PPP case, the Arbiter did not escape from criticism. As there was no dispute to arbitrate during the first 20 months of the contracts, but the Arbiter Office enjoyed an annual budget of £1.6 million, some argued that it was being a costly procedure for resolving disputes.

*Sources: see London Underground (Part VII).*

### **5.3 Step-in rights**

As we have discussed in the companion paper, there may be circumstances under which it is desirable for the public-sector party and the lenders to take over the responsibilities that the private-sector party has in normal times. Therefore, the contract should include provisions to give step-in rights to the public-sector party and to the lenders. Since the public-sector party and the lenders may wish to intervene in the project under different circumstances, the contract should specify each of them. In addition, the contract should set out the private-sector party's duties and rights when other parties are stepping-in.

It is advisable to establish **public-sector party step-in rights** to deal with short-term problems involving safety, health, and environmental issues that must be sorted out immediately. But in no case the public-sector party should be forced to step in. The contract should contain procedures for the public-sector party to notify the private partner of the motives leading the former to step-in, the date commencing the step-in action, and the expected period in which the step-in action develops.

The contract should contain provisions specifying who bears the cost of step-in. Generally, when the problem triggering the public sector stepping-in does not result from the private-sector party's action, and hence its causes are **external to the contract**, the costs arising from the step-in action should be borne by the public-sector party. This helps to ensure that the public-sector party has incentives to undertake actions to control these costs.

Further, during the step-in period, it is recommended that the public sector continue paying the private partner for the service as if it were fully delivered. For instance, if the service becomes unavailable as consequence of the step-in action by the public-sector party, unavailability deductions should not apply to payments to the private-sector party.

However, to the extent that some parts of the service are still provided by the private-sector party during the step-in period, payment deductions for poor performance should apply. In the case where payments to the private-sector party are based on service usage and third party revenue, the contract should also include provisions to calculate such payments despite the fact that the service may not be actually delivered.

On the other hand, when a **private sector breach of contract** causes the problem that leads the public-sector party to step-in, it is the private-sector party that should bear any cost arising from the step-in action. The private sector's failures should trigger the corresponding penalty provisions included in the contract. However, during the step-in period, it is advisable to pay the private-sector party as if it had not breached the contract. If the private sector breach of contract subsists after the public-sector party steps-in, it is recommended to set out provisions allowing for **early contract termination on private sector default**.

It is advisable to establish **lenders step-in rights** to encourage lenders to intervene in a project that is at risk of termination on private sector default. The public-sector party should notify the lenders of its intention to terminate the contract, giving them the possibility to step-in in order to revive the ailing project either by managing it by themselves or by replacing the private partner. Similarly to the case of public-sector party step-in rights, lenders should not be obliged to step in. If lenders choose not to exercise their step-in rights, then the public-sector party should be entitled to proceed with the early contract termination, choosing whether to re-tender or not and making the corresponding compensations (see the following sub-section for more details on early termination on private sector default).

On the other hand, if lenders choose to exercise their step-in rights, they should pay for any outstanding liability of the private partner as well as take action to remedy the breaches of contract. In order to give lenders an opportunity to undertake a **rectification action**, it is recommended to specify a rectification period within which the contract is relieved from termination provisions. In addition, the penalty points accrued prior to the lenders step-in action that may trigger an early contract termination should be suspended as soon as lenders step-in; otherwise, lenders may be reluctant to exercise their step-in rights as there would be a high risk of contract termination arising mainly from the private-sector party's past poor performance.

If the breach of contract arising prior to the lenders step-in action cannot be remedied by the lenders, or if new breaches occur during the lenders step-in period (e.g. outstanding liabilities are not paid by the stepping-in lenders), or if lenders choose to step-out because they no longer wish to revive the project, the public-sector party should maintain its right to terminate the contract early. In particular, the public-sector party should be entitled to proceed with the early contract termination on private sector default as described below.

#### **Case Study: London Underground (UK) (Part VII)**

The contracts entitled LUL to make deductions from the basic ISC payments when an Infracos' performance fell short of the targets. In addition, the contracts envisaged a number of actions that could be taken by LUL to cope with a persistent underperformance by the Infracos.

First, LUL could issue a corrective action notification requiring the Infracos to promptly remedy their poor performance in providing the service, and it could also call for an extraordinary contract review introducing the Arbiter into the picture.

Second, LUL was entitled with step-in rights allowing it either to intervene in the pledged works to remedy the problems arising from the Infracos' non-compliance or to appoint a third party to work them out.

Third, when the breaches of contract by the Infracos were repeated and/or the LUL had stepped-in for over a year, LUL was allowed to enact a mandatory sale of the contract aiming at ensuring continuity in the service provision. In this regard, unlike other PFI contracts in the UK, the lenders are not allowed to sell the contract to other providers in order to protect their investment; according to the House of Commons (2005) report, this led lenders to call for an initial debt guarantee by the public sector, as discussed before.

The contracts had provisions for **early contract termination** that restricted termination to extreme circumstances such as insolvency or fraud.

One might ask why LUL didn't step-in and/or terminate the Metronet contract after the apparent PPP failure. It may be argued that LUL has little incentive to follow such a course of action because, if LUL fails to find a new provider within one year after stepping-in, it will become liable for the £ 2 billion debt of Metronet.

*Sources:*

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## 5.4 Early Contract Termination

The contract should specify the circumstances that may lead the public-sector party and/or the private partner to terminate the contractual relationship before the contract expires. Thus, the contracting parties should agree to specify clauses determining their **rights to terminate the contract early**. These clauses should describe the reasons that may trigger a contract early termination, and the **compensation** each party is entitled to when the early termination occurs.

Contract early termination may result from a number of factors, including default of either of both parties, voluntary termination by the public-sector party, force majeure events and corrupt gifts and fraud.

Regarding a **public-sector party default**, the contract should specify the failures that allow the private-sector party to call for terminating the contractual relationship, making sure that the public-sector party has had the opportunity to remedy the situation. For instance, the public-sector party may incur in default if it fails to make a due payment after a

predetermined period (including interests in arrears), or if it breaches the contract in such a way that it becomes impossible for the private-sector party to perform the service provision during a certain period (e.g. expropriating assets needed in providing the service). Under circumstances like these, the private-sector party should be given the right to terminate the contract early.

In the case of public-sector party default, the public-sector should compensate the private-sector party fully in such a way that the latter bears no financial consequences from the breach. The private-sector party compensation should then be sufficient to cover: (i) the equity return (i.e. the loss of profits over the remaining project term); (ii) the outstanding debt obligations; and (iii) any costs arising from the termination of existing contracts between the private-sector party and its employees and suppliers (e.g. redundancy costs).

The private-sector party should be required to submit a method to calculate compensations at the bidding stage, and that method should be applied if a public-sector party default eventually occurs.<sup>2</sup> Further, provisions should be made to ensure that the losses estimated by the private partner are not artificially inflated.

Of critical importance is the provision specifying what happens to the assets built by the private-sector party, which should aim at minimizing service disruptions. The provision should generally ensure that the project's assets are transferred to the public-sector whilst the private-sector party is fully compensated for the losses.

As far as the **private-sector party default** is concerned, it is the public-sector party that calls for early contract termination. For instance, the private-sector party may incur in default if it fails to meet a predetermined service commencement date, or alternatively a long-stop date, in an infrastructure project involving construction and operation phases.

There may be also a default when the private partner persistently fails to comply with certain obligations such as service performance standards, despite of warning notices and

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<sup>2</sup> Regarding the equity return, for instance, three methods have been proposed to compute the compensation: (i) a compensation based on the internal rate of return level set out in the original 'base case' (i.e. in the financial model agreed by the contracting parties in order to compute the service charge) for the whole life of the contract; (ii) a compensation based on the market value of equity for the entire duration of the contract; and (iii) a compensation based on the rate of return level set out in the original 'base case' for the remaining life of the contract starting from the early termination date.

rectification periods allowed to remedy the failures (whilst still imposing deductions). Failure to contract the required insurance and outright private-sector party insolvency may also lead to private-sector party default.<sup>3</sup> In general, the contract should specify the circumstances that give the public-sector party the right to terminate the contract early.

The public-sector should enforce deductions and call for a termination of the contractual relationship whenever the conditions for deductions and for termination arise. Failure to impose deductions and to call for contract termination not only destroys the incentives for the current private partner to perform and meet the contractual obligations but it also damages the reputation of the public-sector party with future private partners, which in turn weakens the incentives of these other them.

In the case of private-sector party default, it is recommended to entitle the public-sector party to have the project's assets transferred to it. But to avoid benefiting the public-sector party at the expense of the private-sector party by transferring valuable assets, the contract should also envisage a compensation for the later paid by the former.

In addition, to avoid the costs for the public-sector party associated with terminating the project and interrupting the service provision, it is convenient that the contract includes procedures to facilitate the continuation of the project, e.g. transferring the project to the lenders or to a new private partner.

The contract should envisage a scheme to address the issues of determining the compensation amount and facilitating project continuation. In the companion paper we discuss three possible alternatives: (i) No compensation, (ii) Stage-based compensation, and (iii) Market based compensation, and the benefits and costs of each of them. Depending on the project circumstances, the availability or not for a liquid market in the sector where the project develops, the cost of re-tendering and the presence of alternative private partners, the appropriate approach should be chosen.

It should however be taken into account that approach (iii), currently used in the UK, might not be appropriate in other countries as it might result in a private sector in default receiving an unduly high compensation. In countries where the private sector has had weak

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<sup>3</sup> Early termination on private-sector party default could also happen when the private-sector party requires protection from a court against possible bankruptcy actions undertaken by lenders, as provided for by an administration order in the UK bankruptcy law or Chapter 11 in the US bankruptcy law.

incentives to perform so far, approaches such (i) or (ii) can help to provide stronger incentives for the private party and to increase the credibility of the public-sector party.

The contract should envisage circumstances under which the public-sector party has the right to **voluntary terminate** the contract early. For instance, changes in policy at national or regional level may create restrictions hindering the continuity of a project or making the service provision redundant, and then the public sector may prefer an outright project discontinuation.

In the event of a voluntary early contract termination, the private-sector party should be fully compensated, receiving a payment that leaves it in the position it would have been in had the contract not been terminated. It is recommended to set the same compensation amount payable to the private-sector party in early contract terminations triggered either by the public-sector party's default or by it exercising the right of voluntary termination. This is because, otherwise, the public sector could face distorted incentives regarding the means by which it is entitled to terminate the contract early. In any case, since the private-sector party is being fully compensated, the project's assets should revert to the public-sector party as this will help minimize service disruptions.

#### **Case Study: Balmoral High School (Northern Ireland)**

The education authorities in Northern Ireland face a £7 million bill to maintain a school abandoned after less than five years of service. The 500-place Balmoral High School, on the western outskirts of Belfast, was one of the two schools built under a £17 million PFI deal in 2002.

But demographic changes have seen pupil numbers fall from over 400 when the scheme was planned to 154 today.

The Belfast Education and Library Board has not confirmed plans to close the school yet. But it will have to pay a £7.4 million bill to maintain and service the school over the remainder of the 20-year contract.

*Source: Public Private Finance, April 2007, issue 112*

Contract clauses addressing **force majeure** events should carefully define which events are to be considered as such, e.g. natural catastrophes, acute social conflicts, war or

terrorism in the jurisdiction where the project develops. Under such circumstances, the contract should not entitle any party to claim for a breach of contract by the other party or to impose charges on that party. On the contrary, the contract should encourage both parties to seek for means to mitigate the effects of the force majeure events and to ensure project continuation. Since it may happen that the contracting parties fail to agree on how to deal with these events, it is recommended to give the right to early contract terminate to both of them. Then, in determining compensations applicable to early contract termination on force majeure events, the negotiation between the contracting parties should be based on the principle that force majeure events are the fault of neither party, and that financial damages should be shared. It is advisable to entitle the public-sector party to have the project's assets transferred to it. In addition, the private-sector party should be partially compensated by a payment covering the equity return (party), the outstanding debt obligations, and a fraction of the costs arising from the termination of existing contracts between the private-sector party and its employees and suppliers (e.g. redundancy costs).

The contract should consider **corrupted gifts and fraud** as causes for early contract termination. In addressing this issue, it is advisable to take into account both the interest of the public-sector party in ceasing the contractual relationship with a corrupted and/or fraudulent partner, and the interest of the lenders, who may not be involved in any prohibited act, in recovering their funding to the project. The contract should specify which actions imply corrupted gifts and fraud. If the private-sector party is directly responsible for a prohibited action, the public-sector party should have the right to terminate the contract by paying the outstanding financial liabilities; in addition, the public-sector party should be compensated by the private-sector party and receive the project's assets. Instead, if the private-sector party is not directly responsible (e.g. the prohibited action is undertaken by an employee acting on his own), it should be given an opportunity to displace the responsible person and then continue the contractual relationship with the public-sector party.

## 6. Best Practices on Transparency and Confidentiality in PPP Contract Design

As discussed in the companion paper (Section 1), a case can be made to withhold information from the public only when that information is ‘commercially sensitive’ or is sensitive to the public interest (e.g. on national defence grounds). That is, only information whose dissemination is either contrary to the public interest or unique to the private-sector party (in the sense that it could damage the private partner’s competitive position if it were disclosed).

The focus here is only on the disclosure rules that apply once the private-sector party has been selected and the contract has been drafted and signed by the relevant parties.<sup>4</sup> At this stage, the type of information that is important to enhance **accountability** relates to contract design and to output specification and performance variables. This information is not related to input variables (i.e. how to obtain the output) which are precisely the variables most likely to contain commercially sensitive information.

For this reason, and given the serious accountability problems involved in PPP procurement, the baseline of these guidelines is the presumption that all documents and information must be readily and proactively publicly disclosed unless:

- (i) they are identified as ‘commercially sensitive’ by the private-sector party and recognized as such by representatives of the PPP Authority *and* the benefits of increased accountability achieved through their disclosure have been shown to be substantially smaller than the cost the private partner may incur in case of public disclosure;

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<sup>4</sup> The present best practices are relative to contract design only. They do not consider information disclosure requirements during the consultation period preceding contract drafting (where absent protection firms would not offer suggestions on possible solutions based on private knowledge), nor disclosure rules during the competitive private partner selection process (where information disclosure may affect the functioning of the process).

- (ii) they are identified as sensitive to the public interest (e.g. for national security reasons) *and* the benefits of increased accountability achieved through their disclosure are shown to be smaller than the cost in terms of public interest in case of public disclosure.

In other words, there should be a strong presumption that contractual and operational information is neither commercially sensitive nor sensitive to the public interest, and a stringent test should be used to verify claims that they are, with written and publicly available arguments in case of information that passes the test and is not disclosed.

In particular, the details of the PPP contract regarding output levels required from the private sector and connections between output levels and payments (i.e. the payment scheme) will generally not contain commercially sensitive information nor information sensitive to the public interest. Therefore, the final contract and all related documentation should be put in the public domain largely intact (with the only exception of documents related to the production plan and process, and other input variable that passed the test above). Also, output specifications, performance targets measured during the contract execution, and the payment deductions for low performance applied, should be all publicly disclosed within a pre-determined time period after they have been measured/applied.

Ways in which best practices on information disclosure have been circumvented in the past included hiding information in hard-to-reach corners of a homepage, or delaying disclosure as long as possible without answering to the requiring parties. For this reason, information should be put in the public domain in a proactive way, possibly in electronic form and in the first page of the project's homepage. Moreover, information should be disclosed within a pre-established, short, and binding time limit from its emergence.

Further, the experience suggests these disclosure requirements should not be left as suggested practices that the contracting parties are then free to follow or not. Therefore, disclosure requirements should be made compulsory; otherwise it is very likely that they will not be followed. Moreover, if general regulation does not cover disclosure rules, then each contract should specify disclosure rules in detail.

Information contained in the final contract that is not about input or production processes, but may have a ground in terms of ‘commercial sensitivity’, is that about financial provisions (e.g. prices and priced elements of the payment mechanism). In particular, financial provisions internal to the relationship among the contracting partners can be ‘commercially sensitive’ (for example, terms on which lending is arranged can be ‘commercially sensitive’ for the lenders). This kind of information, however, is not of the highest relevance for the accountability of the project. Still, it should pass the test before being declared confidential and not disclosed.

Of course, these baseline recommendations regard disclosure of information to the general public. Disclosure rules for Agencies empowered to control and regulate the PPP procurement should be complete, i.e. disclosure rules should include full and swift access to all contractual information, including that regarding inputs (production plans and processes, etc.).

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