



INTERNATIONAL ROAD FEDERATION
FEDERATION ROUTIERE INTERNATIONALE

PUBLIC/PRIVATE PARTNERSHIPS

BEYOND THE FINANCING ASPECTS

AN IRF DISCUSSION PAPER

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This publication has been elaborated by the members of the IRF Working Group on Public/Private Partnerships under the chairmanship of Michel Démarre of the Fédération Nationale des Travaux Publics (FNTP), France. It aims to highlight the economical advantages of public/private partnership contracts over traditional forms of contracting. Long term performance based contracts can help road authorities of all levels to reach their objectives of a safe, well maintained road network in an efficient way.

The paper draws upon the experiences of the working group members as well as international examples of best practices. With the publication, the IRF wishes to contribute to the development of knowledge about public/private partnerships and to increase awareness amongst road authorities of their potential benefits. With as the ultimate objective to improve the road sector's performance.

1. INTRODUCTION

The debate about Public/Private Partnerships (PPPs) tends to be dominated by legal and financial arguments. The IRF represents the voice of the road industry in this debate. This paper advocates the use of PPPs such as Long Term Performance Based contracts by demonstrating the advantages of these types of contractual arrangements from an economic point of view. In doing so, the IRF would like to convince governments, be it at national, regional or local level, of the benefits PPPs can bring to road users.

1.1. Reader's Guide



The paper is structured as follows: section 2 provides a definition of PPPs. We will consider a functional definition rather than a legal one. We want to keep the PPP concept extensive, in order to cover as many forms of PPPs as possible, and to avoid going into too many details pertaining to legal definitions, since they vary considerably from one country to another.

We first describe PPPs (i.e. contractual arrangements) for road works, and then other innovative contractual arrangements not specifically dealing with works, but that may in some way interact with the previous ones, and, in any case, result in some sort of cooperation between the private and the public sector.

In section 3, we list the technical advantages of road works PPPs, i.e. those PPPs whose main objective is to build, rehabilitate and/or maintain roads. "Technical" as opposed to "financial": we consider these PPPs on their own technical merits, independently from the financial clauses they contain. We feel that financial aspects of PPPs too often take precedence over technical issues, and eventually confuse the whole picture and the public understanding of PPPs. Yet there are examples of excellent partnerships where financial aspects are of secondary importance.

Section 4 elaborates another advantage of PPPs and related schemes, which is risk analysis and risk management. With PPP contracts partners involved are forced to identify risks that in traditional contracts might not be made explicit but do exist. The section provides a rough guide to the risk assessment process.

In section 5, we touch upon a positive side effect of the general and long term character of PPP contracts. If well formulated, PPP contracts can lead to innovative solutions and processes.

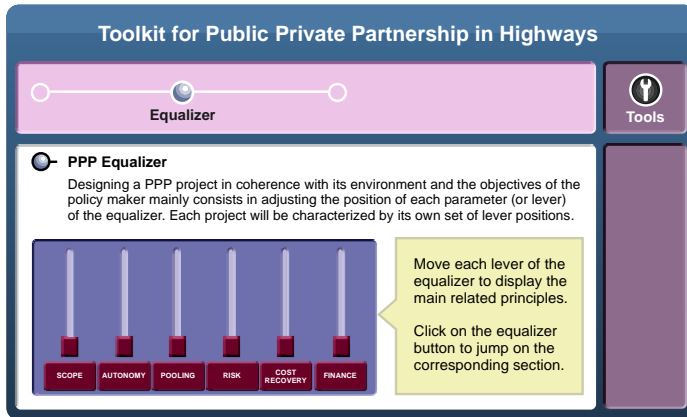
Section 6 considers more specifically the financial aspects of PPPs and how they strengthen the advantages outlined in the preceding sections.

A short conclusion appears at section 7.

2. THE CONCEPT OF PUBLIC/PRIVATE PARTNERSHIPS

2.1. Contractual Arrangements for Road Works

In order to avoid over-dependence on specific national legal definitions, we use the definition of the World Bank Toolkit¹, and specifically the concepts defined in its "equalizer"²:



PPPs and other long-term performance-based contracts are distinguished from traditional contracts by the following characteristics:

- Combination of tasks: in PPP contracts the contractor is generally responsible for different tasks like design, construction, maintenance and operation of the road infrastructure.
- Autonomy for the private contractor: PPP contracts are output oriented and they specify functions and qualities instead of activities and quantities. Hence, PPP contracts leave considerable freedom to the contractor in planning his activities.
- Risk sharing: whereas in traditional contracts, risks are often not made explicit, risk analysis and risk management is key to a PPP contract. The general principle applied is that a risk is allocated to the party who can control it. For risks that are not controllable, sharing mechanisms appear in a PPP contract.
- Source of cost recovery: in PPP projects the private sector's costs are either covered by recurrent instalments paid by the government (be it from the central budget or a dedicated road fund), by user paid tolls or a combination of both.

1) Available at the following address: <http://rru.worldbank.org/Documents/Toolkits/Highways/>

2) See : http://rru.worldbank.org/Documents/Toolkits/Highways/2_carac/22/22_.htm

- Mixed or private financing: PPP projects are either financed through joint funding by the public and private sector (like privately pre-financed investments or shadow tolls) or totally privately financed or even totally publicly financed, even though the latter category has been little publicized.

According to this wide definition, "PPP" in this paper therefore encompasses all types of contracts ranging from rather simple performance-based contracts for management and maintenance of roads to the most complex toll concession schemes.

2.2. Related Concepts

Road pricing

Road pricing as a concept encompasses various direct charges for the use of the road. Road charging can take a wide variety of forms: fuel taxes, licence fees, vignettes, tolls and congestion charging schemes.

In economic theory, road pricing is only a means for a public authority to secure revenues based on road use, and has no relationship with PPPs as defined above, i.e. contractual arrangements for road works. In practice however, road pricing is sometimes interfering with PPPs, because the contractual arrangements themselves incorporate revenue collection as a task to be performed by a private operator.

Tolling can be an example of this. Today direct tolling, based on the "user-pays principle", is widely accepted as a transparent and fair method of infrastructure refinancing. It helps making concessions and PPP projects bankable. Private sector highway operators understand direct tolling as the direct driver/user fee earmarked to fund ongoing operation, maintenance and improvements on the tolled road section. It increases transparency and fairness for all the relevant stakeholders compared to the state budget financing of highways (i.e. funds derived from taxes and used on other non-tolled roads, making the non-users contribute for facilities they do not use).

" Road pricing is sometimes interfering with PPPs, because the contractual arrangements themselves incorporate revenue collection as a private operator's task "

Shadow tolling is another option used in partnerships between the public administrations and the private sector. In this case the money comes from the State budget and the operator is paid a fixed amount per vehicle. However compared to direct tolling, shadow tolling systems count vehicles, but are not directly related to users. Shadow tolling in combination with periodical availability fees paid by the road administration represent an efficient alternative for compensation in PPP models. An availability fee guarantees a higher quality standard in PPP models.

Road operation and management

Roads are being built to last for 80 to 100 years, so once a motorway has been constructed its actual life has merely begun. Operation and management of highways have long been traditional public tasks; the current trend is to outsource these responsibilities to the private sector. These long term

contracts may then include the optimization of road usage through the application of Intelligent Transport Systems. This aspect is particularly relevant in urban areas, where optimization of existing road infrastructure has become of paramount importance.

3. TECHNICAL ADVANTAGES OF ROAD WORKS PPPs

We consider that road PPPs differ from traditional methods of contracting in that the contracts involved are long term contracts, often include performance based requirements and are holistic or sometimes also called global.

Based on the above description, we analyze the advantages of road PPPs over traditional methods of contracting in this chapter. We try not to be too specific about whether we are looking at construction works or maintenance works, because many of the advantages found apply to both types of works, and also because some contracts may involve both types of activity. However we will mention those advantages that apply more specifically to construction or to maintenance works, when relevant.³

3.1. Work planning and organisation

Traditional procurement usually involves applying yearly budgetary procedures. Work is procured in separate packages, based on available funding (typically for large construction works), and/or procurement has to be renewed each year (typically for maintenance works), and for each type of activity (surfacing, grass cutting, road marking, etc.). This method does not allow for optimal work implementation, and therefore impacts negatively on costs, completion time and/or work quality.

Long-term contracts allow the contractor to better plan and program the works. With long-term contracts, it is possible for the contractor to quickly adapt to favourable weather conditions, and for instance to do some maintenance surfacing work in early spring or late winter, if the outside temperature is appropriate, whereas typically, traditional procurement procedures would

Performance-based Requirements

In order to describe what performance-based requirements are, World Bank staff is used to providing the following colourful example:

- i. In traditional maintenance contracts, the contractor gets paid for patching potholes, i.e. for the quantities of materials he places to fill the pothole. The contract usually does not provide any incentive to make an extremely durable repair.
- ii. In performance-based contracts, typically, the contractor gets paid if (and only if) no pothole appears.

More generally, contract requirements focus on those characteristics that are considered as important to road users, e.g. good surfacing evenness, good skid resistance, and on maintaining these characteristics over a period of time, rather than on the materials or "recipes" used for this purpose.

3) The World Bank has an extensive Resource Guide on Performance Based contracting available on: <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTTRANSPORT/EXTROADSHIGHWAYS/0,contentMDK:20917008-pagePK:210058-piPK:210062-theSitePK:338661,00.html>

not allow work inception until a budget is voted and often lengthy tender procedures are over.

Procuring work in a more global package allows better interface management by the contractor. Let us give some examples:

- i. For large works, integration of design and construction tasks is widely recognised as a means of achieving well-defined and unique responsibility, better quality, time and costs savings, better risk management (see the text box on Concurrent Engineering).
- ii. For maintenance works: typical periodic maintenance work on a section of road may involve placing asphalt concrete (AC), cutting grass on adjacent shoulders, prior inspection of bridges and culverts, reinstating road marking, etc. Of course, all these operations have to be implemented in specific order and timing. In theory, this could be achieved by a public authority supervising a whole bunch of different contractors; in practice, however, road authorities have usually been through hard times (and have no financial incentive) in trying to coordinate all these activities. Consequently, it appears more effective to entrust the contractor with all these tasks, and set in the



Concurrent Engineering = Significant Time Savings

The use of concurrent engineering enabled the concessionaire ALIS to implement the development phase of A28 motorway Rouen-Alençon (France) in only 19 months.

"In a classical motorway project, development consists in a series of study phases", explains Patrick Choiset, manager of Alisée, an integrated study team composed in equal parts of staff from construction companies (Bouygues Travaux Publics, Quille and DTP Terrassement) and from the engineering company SCETAUROUTE. "The output of each study is a regulatory document. As soon as a phase is achieved, one proceeds with the next one, always going into more detail. The principle of concurrent engineering is completely different, since it consists in launching all study phases quasi simultaneously." This method is often applied in industrial projects, but seldom in public works, and had never been used so far in a project the size of A28 Rouen-Alençon. For Patrick Choiset, the interest of concurrent engineering is evident: "It enabled us to save one year on the project's development phase. With classical engineering, we couldn't meet the deadline."

The course of right-of-way definition and acquisition procedures is a good example of the interest of this method. The classical procedure is as follows: the engineering company carries out all necessary studies (topography, geology, environmental impact, hydraulic, etc) in order to come up with a tentative alignment, which is then submitted to nearby residents for review. A final alignment is then established, which takes into account changes arising from that review, and forms the basis for right-of-way acquisition procedures.

Continue on next page...

In concurrent engineering, technical studies, consultation with residents as well as the definition of construction methods are carried out simultaneously. The final alignment is determined by progressive integration of elements arising from all three sources. Because of the long time allocated to administrative procedures, right-of-way acquisition is also undertaken even before the final right-of-way is completely defined. For road designers, concurrent engineering is quite a revolution in their method of working. "The difficulty lies in the need to incorporate changes on a permanent basis, which requires utmost rigour", Patrick Choiset comments. "A specific team was set up, whose exclusive task consisted in incorporating changes from the engineering team, from consultation with residents and from the contractors. This also calls for a common information system whereby each entity can access the updated project. Obviously the system generates additional work, both for the engineering team and those in charge of consultation with residents, since it requires continuous adaptation of the project as and when new constraints show up. The game is however worth the candle, in consideration of high time savings." In all, a whole year was saved on the development phase.

"However, the benefits of concurrent engineering are not limited to the development phase", says Jean-Jacques Leugé, Manager of A28 Contractors' Consortium. "At the beginning of the works, we produced and used construction plans, at a time when all project design data were not yet known."

By courtesy of Revue Générale des Routes et Aéroports, issue no. 836, February 2005. Authors : Philippe Bourdon, Alis - Xavier Rigo, Alis - Jean-Jacques Leugé, Bouygues Travaux Publics

contract adequate requirements and milestones, subject to penalty if these are not met by the contractor. The UK's Highway Agency has gone a long way in this direction with their concept of MAC (Managing Agent Contractor) contract (see the text box on MAC contracts).

For the road authority, another advantage in terms of work organisation lies in the decrease in paperwork and administrative tasks associated with numerous yearly tenders : instead of one yearly tender for each individual task (e.g. resurfacing, grass cutting, road marking, etc.), this authority only has one contract to manage. Admittedly, one single holistic multi-year contract may require more preparatory work. Once launched, however, it gives the road authority more time to concentrate on contract management.

3.2. Relation with Utilities

The road works that are considered as the most irritating by citizens, especially in urban areas, are probably those performed by utilities to lay or repair pipes or cables for services such as electricity, gas, water, etc. Very often, such works are performed only a short time after the road has been resurfaced, thus inevitably damaging the new surface and eventually giving citizens a poor image of the road authority's capacity to efficiently manage and coordinate these interventions.

In the road authorities' defence, it must be acknowledged that it is extremely difficult for them to coordinate these interventions when yearly road budgets and plans are not known accurately in advance, whereas utilities are often managed by companies with a private type of management and greater autonomy than road authorities to decide on their future investment and maintenance budgets. PPPs can be a great help in this respect. In a

Managing Agent Contractor contracts

This option involves the combination of the Managing Agent and Term Maintenance Contractor roles into a single operating company. The Managing Agent Contractor (MAC) will be required to produce a rigorous quality plan setting out in detail how it will ensure that works are delivered to the Highways Agency's requirements and that appropriate service is provided for the customer. The Highways Agency will use audit processes to demonstrate service delivery, value for money, propriety and accountability.

Key features include:

- i. The requirement to partner with the Highways Agency, and set up a Network Board [...], to provide a strategic steer, set performance targets etc.
- ii. The use of a comprehensive performance specification for routine and capital maintenance [...]
- iii. A complete focus on service delivery for the customer and optimal efficiency of the administration and management of the contracts.

well-designed PPP, the contractor has substantial control over the planning and financing of the road works over the period of the contract, and thus the possibility to adapt this planning. He has therefore much more capacity, authority and credibility to coordinate the utilities' interventions.

3.3. Optimization

It is known that roads deteriorate over time. In an optimized scenario, roads are not allowed to deteriorate to a point where it would be too expensive to bring them back to their planned level of service. This is illustrated in the chart below, where the quality of a road is assessed over time.

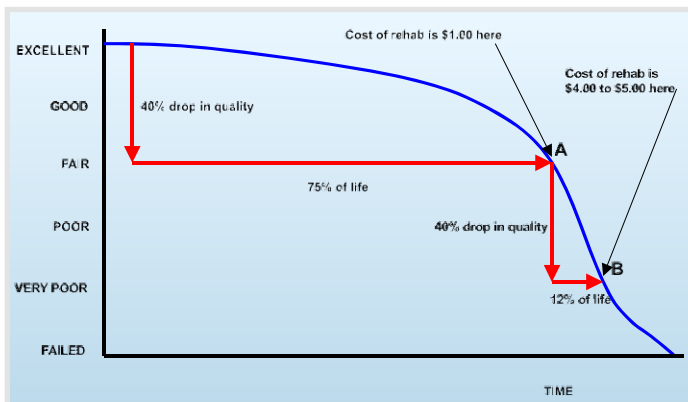


Figure 1 - Road quality assessment over time

Classical contractual arrangements seldom lead to optimization. Typically, at the construction level, pavement structural design is based on assumptions pertaining in particular to standard life expectancy, expected traffic (weight and intensity) and materials resistance to fatigue. Adequately planned periodic maintenance works are then supposed to take place on time, to optimize expenses over the pavement life-cycle.

" With a PPP contract, it is possible for the contractor to really assess life-cycle costs and to implement optimized work sequences. "

This would require that adequate monitoring is carried out on a regular basis to check any deviation from the initial assumptions, and then take any necessary corrective action to keep as close as possible to the planned optimum.

Unfortunately, things never go that way in real life.

Ideally, the first rehabilitation interventions, if optimized, should take place around point A of the deterioration curve

(see Figure 1). However, lack of funding for adequate monitoring and investigations, not to mention lack of funding for rehabilitation works themselves, generally lead road authorities to wait beyond this point and then attempt rehabilitation later (point B or even later), at a much higher cost.

In contrast to this, in a well-designed PPP contract, both construction and rehabilitation maintenance tasks are taken into account over a long period. It is then possible for the contractor to really assess life-cycle costs and to implement optimized work sequences in a timely fashion.

Typically, the contractor will be responsible for monitoring the road condition, according to relevant criteria listed in the contract, and carrying out the work. He will have complete freedom to use whatever technique he wants, based on his own best practice. However, he will probably not take the risk of under-designing his work, nor overspend by over-designing, see Figure 2 below⁴. A well-designed PPP should contain precisely the right set of requirements to make the contractor select optimized work sequences.

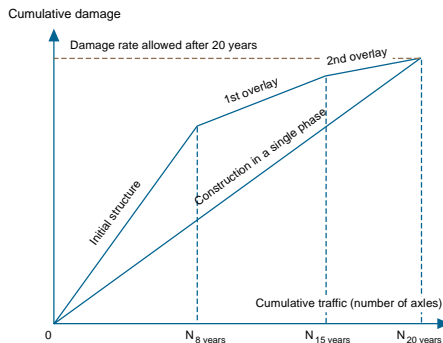


Figure 2 - Illustration of the progressive investment strategy

4) Excerpt from "French Design Manual for Pavement Structures", SETRA-LCPC, page 52

3.4. Service Levels

In a classical construction contract, the contractor has no long lasting responsibility for the quality of the road infrastructure beyond the usual guarantee period. A very important and differentiating aspect of the PPP is that the private partner has also the responsibility for the operation and/or maintenance of the road infrastructure over a certain defined period of time. This responsibility is contractually defined with service levels to which the private partner is committed throughout the contract. These service levels include also hand-back requirements at the end of the contract.

The service levels are monitored and reported and are linked to a penalty/bonus payment scheme. This payment mechanism ensures that the public partner enjoys the constant commitment of the private partner. The definition, subsequent monitoring and enforcement of the service levels ensure the durable quality of the infrastructure and the ultimate goal of facilitating mobility, the primary objective of road infrastructure.

Service levels typically include aspects such as the availability of the road infrastructure (scheduling road closures for major maintenance works so as to minimise disturbance to motorists), response or clearance time for incidents/accidents, delay for emergency repairs, quality of the pavement, effectiveness of winter maintenance etc.

In PPP projects, operation and maintenance aspects are also more effectively taken into account at the planning and design stages thus resulting in more efficient and innovative technical solutions and taking into account the whole life-cycle costing approach.

Having the responsibility for the operation and maintenance over the longer term also ensures that the private partner has anticipated and secured necessary funds for operation and maintenance works and is therefore inclined to make the right decisions based on value for money - not on short-sighted annual budgetary constraints.

" The payment mechanism ensures that the public partner enjoys the constant commitment of the private partner. "

4. RISK MANAGEMENT

The possibility for a road authority to transfer risks associated with road works to contractors, by using PPPs, is often seen as an inherent advantage of using PPPs.

According to the well-known principle, risks should be transferred to those stakeholders (e.g. road authorities, banks, contractors, etc) best able to manage and/or mitigate the consequences of those risks, should they occur.

4.1. A rough guide to risk assessment

The first step on the risk assessment process is to define the objective. For example on PPP projects, banks examine the risk profile of a project in order to secure their loans.



However, before risks are transferred, they must first be identified.

This identification process is perhaps the most valuable part of the process; it makes PPPs virtuous: PPPs help identify hidden risks (and consequently associated costs).

Through identification of risk "ownership" the risk is controlled and it can be seen where the impact will be felt if the risk materialises. It is necessary to have an understanding of the relevant contracts to determine where the impact falls.

Next come mitigation measures, assessment of the costs of mitigation and any residual risks. A number of ways of assessing risks exist but all are based on the basic formula:

$$\text{Impact} = \text{Likelihood} \times \text{Consequence}$$

The manner of quantification of likelihood and consequence can vary from exact figures based on statistical analysis and historical data to an assessment based on "experience".

The risk assessment process results in identification of risks that can be acceptable, or risks that are unacceptable and which should be eliminated or transferred.

4.2. Experience from road maintenance

Risk identification has been widely described for construction projects. Maintenance is a more neglected area. For instance, referring to the examples provided in section 3.1, there are several risks associated with poor maintenance planning and organisation. If a road authority fails to ensure the type of supervision required as mentioned in 3.1 ii, this may result in:

- A long time period elapsing between road surfacing works and road marking, thus leaving road users with increased safety risks during that period of time;
- An AC overlay being placed without prior bridge and culvert inspection as to their bearing capacity, thus entailing disorder or failure risks;
- Snow removal being carried out without due attention paid to signage visibility; etc.

In general, road works PPPs differ essentially from classical procurement procedures in that maintenance tasks are part of the contract, thus providing a high degree of certainty that these tasks will be implemented, which is never guaranteed when maintenance is budgeted yearly and performed under classical procedures.

As a result of risk analysis, PPP contracts very often tend to place on the contractor's responsibility performance requirements that the public authority would not impose on itself by proceeding with classical contracts. This is because the risk analysis process leads to improved assessment of maintenance and operation costs, as well as to the discovery of hidden costs.

Clearly, the major difficulty with PPP contracts is to set the right balance of risks to be shared by the parties, and finding the right incentives for the contractor to meet the expectations of the client.

For instance, some PPP maintenance contracts have to deal with the risks associated with existing structures, such as bridges. It is not reasonable for the contractor to accept full responsibility for these structures (he has actually no control over structures that he did not build, and that sometimes were erected decades ago). It may therefore be interesting to accept the principle of "capping" the contractor's liability in this domain, via a mechanism similar to the "deductibles" in insurance contracts. This can be considered as a reasonable approach, since it does not discharge the contractor from all liability, yet gives him an incentive to carry out bridge inspections and maintenance works to avoid or delay serious damage.

In PPP projects, operation and maintenance aspects are also more effectively taken into account at the planning and design stages thus resulting in more efficient and innovative technical solutions and taking into account the whole life-cycle costing approach.

" International experience shows that works performed under PPP contracts tend to meet cost predictions and deadlines better than with traditional contracts."

4.3. Improved performance

Finally, in relation to financial risks, international experience shows that works performed under PPP contracts tend to meet cost predictions and deadlines better than traditional contracts. Consider a typical structural PPP, i.e. a concession grantor, a special purpose vehicle, supported by a contractor (typically in charge of the building of the asset -CAPEX-) and an operator (operations and maintenance). The risks can be summarised and classified as shown in Table 1.

Risk	Concession Grantor	SPV	Contractor	Operator
Pre-Construction	PT	ET	AR	
General (country related)	PT	ET	AR	AR
Design-construction (initial phase)		ET	AR	AR
Operating phases		ET		AR
Interface		ET	AR	AR
Revenue		AR		

AR: Assumes risk
ET: Entirely transfers risk
PT: Partially transfers risk


Risk flow 

Table 1 - Overview of risk allocation in a typical road concession contract

The table sets out the typical source of risks and the parties that would typically be involved in a transaction. Risks tend to flow from the concession grantor to the SPV, who in turn would typically transfer risks to other parties.

Note that under each heading (e.g. pre-construction), there would be a number of sub-headings with specific risks and transfer profiles. In a PPP arrangement, the allocation and transfer of risks to specific parties is done through contractual arrangements and obligations.

5. INNOVATION

" Technical and organisational innovations are more likely to occur with long-term performance based contracts. "

Because PPPs are usually long-term contracts, they give contractors a good visibility for some years and therefore provide an incentive to look for optimum solutions, resulting in the achievement of performance requirements at lower cost and/or with higher efficiency.

Innovations are therefore more likely to occur with that type of contract; they may be of a technical nature (innovative materials, equipment, etc) or organisational.

Three specific points should be emphasized:

i. Because PPP contracts are performance-based, the development of that type of contract will bring continuous improvements in the tools used to define and measure performance standards. Here again, improvements may be of a technical or organisational nature. As an example, equipment manufacturers have come up with new machinery that not only does the job, but is also capable of quantifying and registering electronically what has been done and at which precise location; it then becomes easier to check if works comply with specifications and to monitor road condition according to performance parameters. This continuous progress in improved tools thus paves the way for further development of PPP contracts. We will certainly be witnessing more and more such developments.



ii. PPP contracts may also be a powerful tool to further develop environment-friendly solutions. Because cost-conscious contractors are given a large amount of leeway, as long as performance standards are met, they will be encouraged to try to offset the consequences of rising energy costs by increasing the use of new or not so new techniques, e.g. recycling, energy-efficient hot mixes⁵, life-cycle analysis (LCA)⁶, etc. It is worth noting that, even in countries where recycling techniques have been available for some years, they have not really taken off - certainly in part because traditional procurement is fraught with conservatism.

⁵ Manufactured at temperatures of roughly 115°C, i.e. 40°C to 50°C less than conventional mixes.

⁶ Especially those LCA tools that can incorporate energy considerations and calculate how to minimize energy costs, energy content, greenhouse gas emissions, etc.

iii. PPP contracts based on a "user pays" principle develop customer-oriented policies, which are also a source of innovation. For example, electronic means of toll collection have been developed in order to offer a high level of service to frequent users and provide incentives to captivate clientele.

6. FINANCIAL ASPECTS OF PPPs

The reason why so much prominence is given to the technical advantages of PPPs is because it is difficult to compare projects implemented under classical procurement procedures with those implemented under PPP schemes.

They are simply not the same projects!

PPP schemes contain built-in prescriptions and requirements that make them more sustainable, less risky (because risks are identified and dealt with), globally cheaper in the long run, etc.

" To cast doubt on PPPs saying that interest rates obtained by private firms are necessarily higher than those for road administrations, is extremely simplistic. "

Consequently, to cast doubt on PPPs on the basis that interest rates obtained by private firms are necessarily higher than those obtained by road administrations, is extremely simplistic. The difference derives from making the risks explicit and giving them a price tag, instead of internalising the risks without properly identifying them, as is the case with traditional contracts.



All too often, the good reasons for considering PPP schemes, as described in the last section, are simply overlooked, and other, inferior thinking, takes precedence.

The finance component in a PPP type of contract need not be very large to induce optimal behaviour by the contractor, as is the case with a 5-year performance contract for specified maintenance. In this type of contract the contractor has for example the daily responsibility of keeping the roadsides and parking areas clean. The way the work is planned is really up to the contractor, as long as he meets certain defined performance norms of "cleanness".

But in cases where the PPP contract involves a large capital investment by the private sector contractor, a third party appears around the table: the lender from which the contractor has to borrow his money. The lender has a long term interest in the project, because the reimbursement paid to him depends on the performance of the contractor. The contractor is thus stimulated from two sides, the procuring government agency and the lender, to optimize, innovate and perform.

7. CONCLUSION

This paper demonstrates the technical advantages of using PPP schemes for road infrastructure development and operation. In the debate about PPP the focus is often on the finance component. But, as shown in the preceding sections, it is worth looking at the incentives offered by the combination of tasks, the longer duration of contracts, the relative autonomy of the contractor and the mechanisms to recover cost - for the contractor to innovate, optimize and perform. Ultimately this leads to better service for the road user.

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