

PRIVATE-PUBLIC PARTNERSHIP INITIATIVES AROUND THE WORLD: LEARNING FROM THE EXPERIENCE

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Abstract

In New Zealand, there have been signs that Public-Private Partnerships (PPP) may be employed in expanding the roading network in order to meet future developing needs. This paper examines the lessons from international experiences and the potential of PPP initiatives in developing roading projects in New Zealand in order to contribute to the scientific and technical discussion. Potential issues in the implementation of PPP initiatives focusing in New Zealand context are identified.

1. Introduction

There has been a growing tendency in involving the private sector in providing high-standard transport infrastructure to meet the needs of rapid economic growth. For many years, the public sector has traditionally financed and operated infrastructure projects using resources from taxes and various levies (e.g. fuel taxes, road user charges). However, the recent disparity between the capacity to generate resources and the demand for new facilities has forced governments to look for new funding methods and sources. Many countries are now contemplating Public Private Partnerships (PPP) as an arrangement between public and private sectors to finance, design, build, operate and maintain public infrastructure, community facilities and related services.

Despite widely acknowledged benefits associated to PPP, international experiences have shown that there can be many issues affecting the successful implementation of these partnerships. It has been argued that a properly structured PPP can efficiently achieve better results than public sector initiatives. It is often claimed the private sector, with its wide range of managerial, commercial, and technical skills, can reputedly perform certain tasks more efficiently than the government, thereby offering potentially huge benefits to the public (Zhang *et al.*, 2001). Despite avowed advantages, recent international experiences of PPP programmes have shown that extensive planning actions are required in order to guarantee the minimum level of risk (World Bank, 1999; Fisher and Babbar, 1996; Menckhoff and Zegras, 1999; Shaw *et al.*, 1996).

This paper intends to contribute to the technical discussion about PPP planning and implementation in the New Zealand context. A review on recent international experiences is presented in order to identify potential issues, challenges, barriers and lessons that may contribute to developing PPP roading projects in New Zealand. The paper is divided into four sections, namely: critical analysis of world wide PPP initiatives in roading projects; New Zealand context and PPP; of PPP initiatives focusing in New Zealand context and conclusions and recommendations for further studies.

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In New Zealand, there have been signs that PPP may be employed in expanding the roading network. Land Transport New Zealand, Transit and the Ministry of Transport have demonstrated interest on the theme. Various preliminary reports (Wallis, 2005; MOT, 2002; Transit 2003a; 2003b) have been prepared in order to create knowledge and instigate discussion about PPP policies for funding infrastructure projects. The main focus of these reports has been on: policy development; guidelines for funding; traffic forecast and economic analysis.

2. Public Private Partnership (PPP)

PPP is significantly distinct from traditional design- bid - build contracts. Many fundamental issues can be highlighted such as: a broad range of uncertainties and risks associated with the long-term PPP contract; radical realignment of risks, responsibilities, and rewards among multiple project participants; the private-sector partner undertakes far more responsibilities and assumes much more and deeper risks than a mere contractor. Also, PPP usually involve limited resources and off-balance transactions, as well as complicated contractual arrangements between project participants.

Various PPP definitions can be found in the literature (Allan, 1999). The two most commonly used definitions are:

- a cooperative between the public and private sectors, built on the expertise of each partner, that best meets clearly defined public needs through the appropriate allocation of resources, risks and rewards; and / or
- An arrangement between two or more entities that enables them to work cooperatively towards shared or compatible objectives and in which there is some degree of shared authority and responsibility, joint investment of resources, shared risk taking and mutual benefit.

Historically, PPP have been observed since nineteenth century. At that time, railways, canals, roads, and gas, power, and water systems were initially privately owned, operated, and funded. However, over the years, infrastructure companies were regulated or nationalized, although the pattern varied substantially across and within countries and sectors. Wars and economic depression gave another boost to nationalization and stronger regulation, which increased in the 1940s and 1950s. Disappointment with the performance of regulated or nationalized firms led again to deregulation and privatization in many countries from the 1970's onward (Klein and Roger, 1994).

Following the evolution of the PPP in infrastructure, the forms of contracts have also changed depending on: degree of risk allocated between the partners; amount of expertise required on the part of each partner to negotiate contracts; and potential implications for ratepayers. Thus, currently PPP have been undertaken with a combination of the following functions: design; build; finance; operate; maintain; own; transfer; lease; develop; and buy. It is also referred as different type of arrangements such as Build-Operate-Transfer (BOT), although the actual delivery mechanism includes Design-Build-Operate-Maintain (DBOM), Design-Build-Finance-Operate (DBFO), Build-Own-Operate (BOO) and Rehabilitate-Operate-Transfer (ROT) (Menckhoff and Zegras 1999; Zhang 2001).

The level of risk of each PPP type can be determined as shown in Figure 1. It is observed that when decisions regarding the choice of PPP model as we move towards total decrease of public sector involvement, more risk is transferred to the private sector and vice versa. For example, in the Operation and Maintenance model the risk involves mainly public investments. On the

other hand, in the Concession model, risk is mostly transferred to the private sector and its investments.

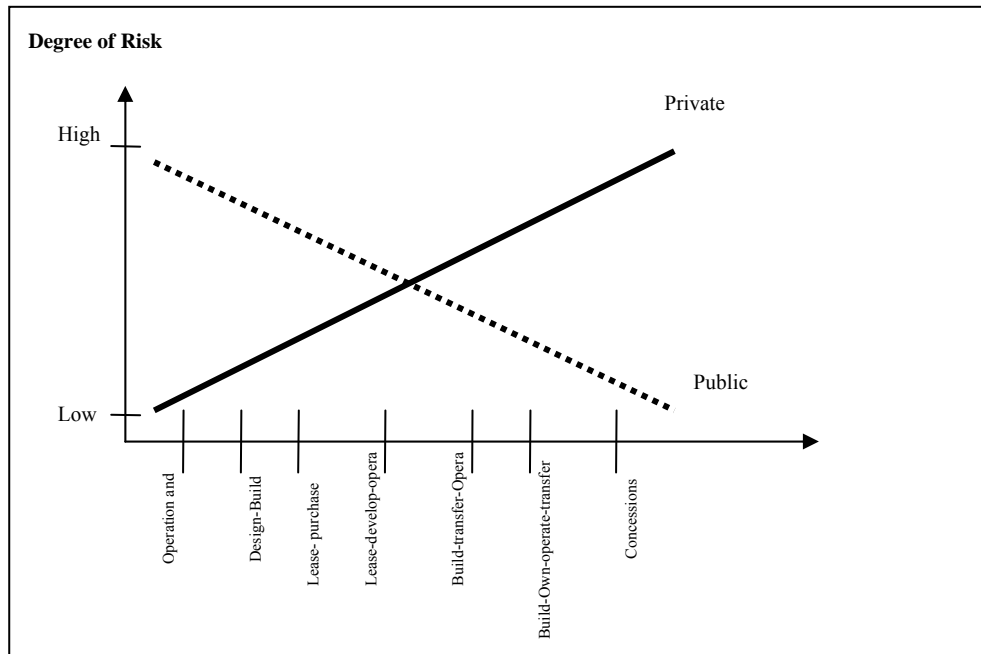


Figure 1 - Risk Degrees in PPP

Source: Adapted from Chege and Rwelamila (2001) and Guislain and Kerf (1995)

Various researches have been conducted in order to foresee and / or diminish issues in PPP Programmes. For example, the World Bank (1999) and Shaw *et al.* (1996) have identified the following key issues to implement PPP programmes: (1) **Planning and institutional issues;** (2) **Legal and regulatory framework;** (3) **Types of contracts;** (4) **Government Support;** (5) **Traffic Forecasting;** (6) **Setting and adjusting toll rates;** (7) **Financing structure and sources;** (8) **Public acceptance;** and (9) **Role of donor agencies.** These elements can help to establish a prosperous environment for PPP programme. It is important that government and private sectors know their role, benefits, investments, risks, guarantees, etc when participating in a PPP programme. Thus, issues that may appear in future will be easier to solve.

3. PPP programmes around the world

Different types of PPP have been put in practice in worldwide infrastructure development. Limited financial resources available to the public sector for financing infrastructure development have prompted countries in Asia, Africa, Europe and North, Central and South America to use private investment as a promising alternative. As noticed by World Bank (2002), there have been 662 transport projects with private participation that attracted US\$135 billion in investment during 1990 to 2001. Table 1 summarizes the biggest PPP projects, some social characteristics and the degree of the private sector involvement.

Table 1- Transportation PPP projects worldwide

Country	Total length of toll roads in operation (km)	GDP per Capita (US\$) 1997	Autos per 1,000 pop. (1997)	Extent of Private Sector Involvement
Argentina	197	9,700	151	Moderate
Brazil	856	6,300	67	High
Chile	3	11,600	109	Moderate
China	4,735	3,460	8	High
Colombia	1,330	6,200	38	High
France	6,716	22,700	521	High
Hong Kong	68	26,800	74	High
Hungary	254	7,400	272	Moderate
Indonesia	472	4,600	21	High
Italy	6,440	21,500	679	High
Malaysia	1,127	11,100	152	High
Mexico	6,061	7,700	133	High
Philippines	168	3,200	12	High
Spain	2,255	16,400	457	High
Thailand	91	8,800	105	Moderate
United Kingdom	8	21,200	406	High
United States	7,363	30,200	760	Low

Various lessons can be taken from these PPP initiatives (World Bank, 1999; World Bank, 2002; Harris, 2003). They are:

- **Argentina:** The toll road concession program transferred to private operators one-third of the intercity road system and the vast majority of the access roads to Buenos Aires. *Major issues were:* complex bidding criteria and rules for contract renegotiations; term of concession periods; negative public response; the need for a well-defined legal and regulatory regime; and the importance of institutions;
- **Brazil:** Over 850 km transferred to private sector, which is expected to invest over US\$1.1 billion in the next 25 years. *Major issues were:* the role of multilateral development banks, particularly in providing long-term financing; the use of cross-subsidies to fund unprofitable toll roads; use of relatively low toll rates to foster public acceptance; and vulnerability to economic crisis;
- **Chile:** Enacted a law allowing for the award of concessions for the construction, maintenance, and operation of toll roads, tunnels, and related infrastructure under BOT schemes, which intend to attract US\$4 billion from 1997 to 2000. *Major issues were:* focusing goals on the development of adequate road infrastructure at the lowest possible costs and greatest efficiency, avoiding goals irrelevant to these considerations; transparent and competitive bidding procedures, with the terms of the contract clear and equal for all participants, leaving as little as possible to future negotiations; preparation of basic information (e.g., traffic estimate for the base year, basic engineering, basic design, soil studies) by the government; endeavouring to keep tolls at levels that users are willing to pay; and reducing construction risk, with the government giving bidders reference designs;
- **Colombia:** Called for about US\$1.2 billion in private investment for the 1995-1998 period in order to rehabilitate 1,080 km and construction of 250 km of new road. *Major issues were:* use of a private-public sector partnership to bring additional resources to the project and increase efficiency; use of competitive bidding to minimize governmental support and residual risk; need to base project revenues on affordable toll rates; benefits of providing an up-front capital contribution rather than an operational subsidy; benefits of

including existing tolled facilities in the concession package; need to allow concessionaires to take a position in the project's future upside revenue; importance of quality project preparation; and helpful role played by an international development bank, such as The World Bank;

- **China:** Estimates of over 70 percent increase in traffic forecasts in the 1994-2000 has triggered the construction of 130,000 km of new roads by 2000, which requires over US\$150 billion investments. Although there remains a substantial shortfall in the financing available for implementation, China has been laying the foundation for substantial and long-lasting private sector participation. *Major issues were:* leveraging of existing highway assets to raise new funds in capital markets; need for a legal and regulatory environment conducive to private financing for new toll highways; need for adequate institutional capacity and compensation for land acquisition and resettlement; creditworthiness and commitments from public entities; need for flexible forms of project companies in order to facilitate foreign investment; and need for transparent contracting procedures;
- **France:** The development of high-performance roads in France may be divided into four phases. In the first phase, from 1955-69, France made a commitment to the use of tolls for financing motorway construction by public companies. The second phase, one of liberalization and privatization, lasted from 1969 to 1981. The third phase, from 1982 to 1993, involved crisis management through a state takeover and a national system of cross-subsidies. The current phase, commencing in 1993, is one of planning agreements and consolidation within the public sector. *Major issues were:* relative advantages and disadvantages of motorway financing through cross subsidies; relative advantages and disadvantages of toll financing of highways; efficiency of private concessions for highways; dilemma of regulating toll rates of concessionaires; importance of guarding against potential conflicts of interest when construction companies participate in concessions; and relative ability of public and private sector companies to take environmental considerations into account;
- **Hong Kong:** despite a lack of public funding, motives for introducing BOT were not the primary concern. Main motivations were: introduce innovative technology; build up needed infrastructure more rapidly than would have been possible using conventional methods; build and operate infrastructure in a more efficient manner than it was thought that the public sector alone would be able to do; and retain public funds for needs that might arise after Hong Kong reverted to the People's Republic of China. *Major issues were:* identification of BOT projects based on a long-term plan; and clear risk-sharing based legislative ordinances enacted for each project; transparent tendering and selection procedures; independent monitoring of the tender process; the importance of allowing the private sector maximum flexibility in route selection and design, addressing revenue risks through firm and fair toll adjustment mechanisms; concession expiration and "re-bidding"; maintaining the flexibility to utilize such tools as development rights to supplement project economics; and the importance of using experienced contractors for technologically sophisticated projects;
- **Hungary:** initially developed a toll motorway network on a BOT basis, which called for the development of four motorway corridors. *Major issues were:* need for reliable traffic forecasts; importance of public acceptance; importance of well-drafted concession laws; appropriateness of Government contributions of rights-of-way; potential conflicts of interest in contractor-driven projects; role of multilateral bank support; and transition toward PPP;
- **Italy:** a toll motorway has been developed through granting concessions, almost entirely to companies controlled by public bodies. There are about 28 toll motorway concessionaires (1993), with 27 of these being semi-public companies. *Major issues were:* the creation of a financially strong toll road operator; the importance of winning public

acceptance for toll increases; the limited use of direct government subsidies; the use of special accounts to provide financial support for financially weak concessionaires; and the use of a price-cap scheme for toll increases; and

- **United Kingdom:** due to legal restrictions and strong public resistance, direct assessment of tolls has thus far only been used for very short road links, such as bridges and tunnels through Design-Build-Finance- Operate (DBFO) mechanism. The concessionaire typically provides the facility and the services to the Government in return for “shadow tolls” that are based on highway usage and the availability of the facility. *Major issues were:* appropriate sharing of revenue risks; the compatibility between appropriate profit levels and effective incentives for the private sector; the appropriate scope and procedures for government review of private sector projects; the monitoring of project activities through a public inquiry and/or independent committee process; the importance of using an experienced contractor; and innovative financing in a mature financial environment.

4. New Zealand context and PPP issues

Historically, investment in the New Zealand transport system has been heavily dependent on government funding. Recently, however, it has been argued that investment through the National Land Transport Fund (NLTF) and territorial authorities is insufficient to address changes in transport demand and the strategic needs of New Zealand. Hence, there have been signs that PPP may be employed in expanding the roading network in order to meet future developing needs.

Governmental agencies such as Ministry of Transport, Land Transport New Zealand (LTNZ) and Transit New Zealand have demonstrated interested on the theme. These agencies have prepared reports in order to create knowledge on how they can benefit from private investment to. A few initiatives have already been done towards the PPP direction

In 2002, the Ministry of Transport established the Land Transport Management Bill, which represented the biggest legislative change since the late 1980's. The Bill provides for a balanced and flexible funding framework for land transport. The Bill places a number of conditions on PPPs including:

- Partnership arrangements are limited to 35 years or less;
- Land transport infrastructure remains in public ownership;
- Initial acquisition of land, and designation of land for roading, remains with the public sector;
- The public sector is not liable to compensate any party if traffic numbers are below forecast for the life of the project;
- The project has a high degree of support from affected communities;
- The final proposal needs ministerial approval; and
- PPP will usually, but not always, involve tolls. The bill provides a generic framework for tolling projects, which until now have required a separate piece of legislation for each project.

Under the Bill, Transit New Zealand has developed two major reports: *Alternative Methods of Funding Future State Highway Projects and Finance*; and *Toll projects-Implementation Guide*. The guidelines are aimed to provide guidance for implementing alternatively funded State Highway projects using PPP (concession) agreements. The reports provide a step-by-step process in the implementation of candidate projects through an alternative funding method (Transit NZ, 2003a; 2003b).

In addition, more recently LTNZ has funded a research report examined the implications of road tolling policies for New Zealand. Despite the report focus only on toll roads financed mainly by government investments and resources, the results reached in the report are applicable for PPP schemes. The report identified main areas of deficiency in tolling road specially the assumptions using to modelling the traffic and economic evaluation.

5. Learning from the Experience

Overall, all experiences analyzed in this report demonstrated that PPP scheme has to be carefully applied. Success and failures of these partnerships have shown that one of the main issues associated with PPP are the assumptions and estimations conducted during the planning process. Clearly these assumptions and estimates may reflect on the risk of PPP projects. Amongst them, it can be highlighted:

- Variations in exchange rate;
- Expected growth in traffic demand;
- Political tensions and changes in policies; and
- Renegotiations of contracts.

PPP projects in Southeast Asia, Malaysia, Indonesia, and Thailand, have failed mainly because of the high risk and fewer guaranties on the investment return. In these countries, public agencies have inaccurately estimated costs and traffic forecasts, which interfere in the private finance hesitance. Inability to assess local conditions and the lack of confidence to guarantee the long-term investment return has created huge problems for those countries.

On the other hand, other experiences such as in the United Kingdom, France, Colombia and Brazil draw the attention to three main critical aspects on the planning and implementation of PPP's. Firstly, it is important to have simple and transparent criteria for the projects. Secondly, the rules for renegotiating contracts should be spelled out as early and as clearly as possible. The third aspect is the whole planning and implementation process of PPP projects. The planning, design, maintenance, and construction phases are the responsibility of the government, but the investment comes from the private section. Therefore, it is crucial that the public sector realizes its role and the importance of its strategic actions in order to offer a reliable and safe service to users.

Therefore, if the New Zealand government decides to move forward with the introduction of PPP schemes, a comprehensive program should be established to guarantee the successful attainment of the Land Transport Strategy's objectives. Based on the international experiences, the program should be based on long-term planning that provides indicates stability in actions and commitment to minimize risk levels, which are likely to attract private companies. On the other hand, the selection of transport infrastructure projects should be carefully analysed to avoid the various pitfalls that have plagued PPP schemes all over the globe. Specifically, there should be serious consideration on which projects would really contribute to achieve "*an integrated, safe, responsive and sustainable land transport system*". In various countries, there has been a tendency to focus in providing additional transport infrastructure where there is already a great deal of demand saturation, which is obviously a considerable attractive factor for financial return. Nevertheless, this may be counterproductive in terms of achieving travel demand management objectives, i.e., efficient utilization of available resources using policy instruments.

Building from these principles, there would be a need for methods and tools that could

specifically support the analysis and evaluation of PPP projects. Traditionally, the assessment of transport projects has mostly been based on economic appraisal as in the LTNZ Project Evaluation Manual, which mainly considers travel costs and the revenues of direct investments and maximizing the net benefits in resource terms (Willis *et al.*, 1998; Lee, 2000). Nevertheless, in a PPP environment the necessity of analysis of not only operation but also social, political and economical criteria has become an essential factor for success of any PPP project (Dantas *et al.* 2006). The World Bank (1999) reports that factors such as land use, population and economical growth surrounding the asset influence directly and indirectly the structure of the PPP project. Therefore, the use of cost benefits analysis should be applied as one of many steps to evaluate PPP project but not the only one.

Thus, the availability of PPP-oriented methods and tools would contribute to other key areas such as financial, risk and law issues. They would contribute to produce more realistic assumptions and estimates to cost benefit analysis and consequently to decrease the risk and increase the changes of financial success of the PPP projects.

6. Conclusions

This paper reviewed on worldwide experiences and examined the potential and issues that may be faced in adopting PPP in New Zealand. Previous experiences show that there is significant potential in attracting investment from the private sector, but successful PPP profoundly depends on planning actions prior to implementation. A key lesson to New Zealand would be that PPP should be carefully planned and presented based upon simple, transparent and strategic principles. In this sense, there is a growing realization that further research is needed in order to develop tools and methods that could accurately analyse the complex reality of PPP projects.

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