Airport Public Private Partnership Case Study

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1. Introduction

Public infrastructure projects have been traditionally procured by the public sector and to cope with the increasing demand for infrastructure provisions and to maintain existing services, new approaches had to be developed and adopted to overcome the shortage in public funding resources (Augenblick and Custer, FHwA cited in Abdel Aziz, 2007, p.918). Public Private Partnership (PPP) was considered as an answer to public funding problems and thus, this approach has been used widely utilized worldwide (Abdel Aziz, 2007, p.918).

The concept of designing an efficient facility is not new, but what is considered new is the effective engagement of partnerships models as vehicles for delivering such objective while considering value for money and whole life cycle approach (Grimsey and Lewis, 2004, p.1).

Following to Latham and Egan reports, there has been lots of effort exerted to promote and develop collaboration approach, which according to Fryer *et al*. (2004, p.196) has evidently improved productivity, profitability and value. Collaboration approach is meant to reduce waste, enhance relationships and encourage innovation.

The integration of design, construction, finance, operations and maintenance within a long-term partnership has essentially created a motivation to think beyond the design stage that will eventually result in decreasing waste and thus, lower running costs (Grimsey and Lewis, 2004, p.1).

PPP models are essentially, arrangements where private parties are involved in the provision of infrastructure and can take many forms and incorporate various features (Grimsey and Lewis, 2004, p.1). In that context, Germany does not have formal PPP programme despite having the private sector involved in road projects e.g. the Warnow tunnel (Grimsey and Lewis, 2004, p.1). Instead, Acts, rules and regulations apply with the most notable being the PPP Acceleration Act (Schaefer and Voland, 2009).

2. Private Finance for Public Sector Projects

There is a common misconception about the principle of PPPs that they are mainly private sector financing of public infrastructure which is not essentially correct as financing is only one aspect of the process (Grimsey and Lewis, 2004, p.6). The PPP core value is that the public sector is purchasing services under specific terms and conditions rather than buying an asset and this feature is the key factor determining whether this transaction is viable or not (Grimsey and Lewis, 2004, p.6).

PPP agreements are incentives oriented contracting agreements where the payment mechanism and risk transfer are driving the need for an effective design, financing structure along with managing project delivery and revenue stream (Grimsey and Lewis, 2004, p.6).

The idea of associating the movement from 'taxpayer pays' to 'user pays' to effective economic usage of the services, has promoted to commercial-led infrastructure (Grimsey and Lewis, 2004, p.30).

The commercial-led infrastructure has been associated with the recognition of the effective improvement of the private capital markets in the construction and operations processes primarily to decrease waste and ensure value for money and thus, it has been established that benefits can be obtained by utilizing a combination of public and private resources in infrastructure projects (Grimsey and Lewis, 2004, p.32).

The need for PPP arrangements was driven by governments desire to reduce debt and contain taxation while fulfilling the need to improve and maintain public facilities (Grimsey and Lewis, 2004, p.105). However, it is important to note that PPP cannot be considered as the only solution to the public infrastructure as it will still draw public funds if user charges do not cover the cost of services and thus, operating payments must cover costs as well as a return on risk capital (Grimsey and Lewis, 2004, p.105). Therefore, a project delivered under PPP arrangement will more or less have the same effect on the government annual operating surplus if the project was to be procured traditionally but with little or no upfront capital expenditure (*See Figure no.1*) (Grimsey and Lewis, 2004, p.105).

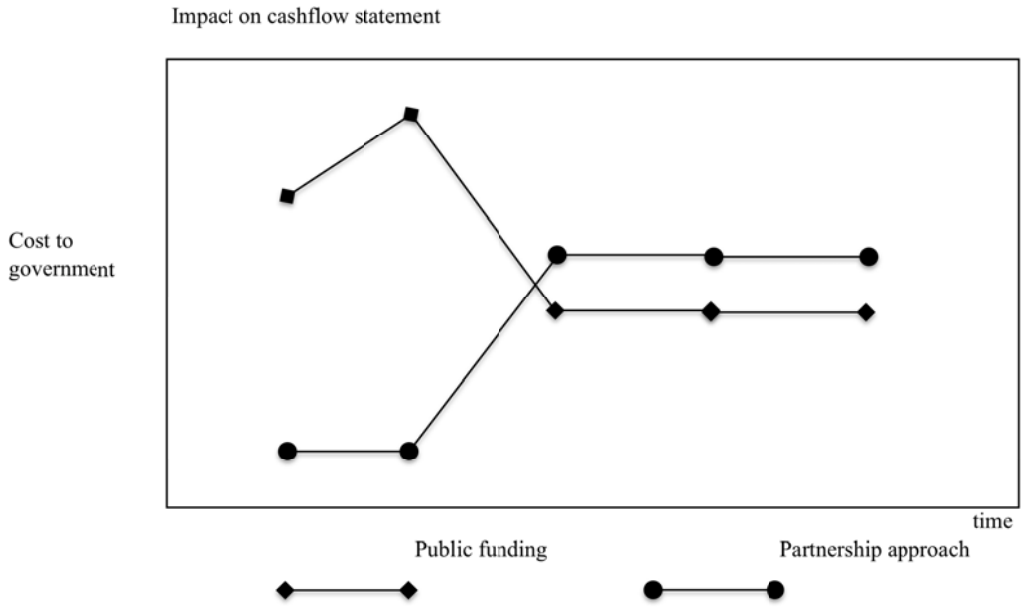

Figure no.1 – Comparison of public funding and partnerships on cashflows

For a private entity to finance a public infrastructure under PPP arrangements, it needs to ensure viable revenue which comes from two sources, user payments, public entity payments or a combination of both and the source of revenue will determine how the private entity will handle cost and quality trade-offs and the nature of the risks involved (Grimsey and Lewis, 2004, p.64).

The private sector is often required to invest a combination of equity and debt and the debt to equity gearing is often 90:10 (Chinyio and Gameson, 2009, p.10). Other sources of fund

besides equity are bonds, loan from shareholders and mezzanine finance (Chinyio and Gameson, 2009, p.10).

3. Principles and Applicability of PPP

In light of the above, the rationale for PPP arrangements can be considered as the desire for innovation in the provision of infrastructure as declared by Eaton cited in Eaton and Akbiyikli "without innovation a business does not have a rational source of competitive advantage in construction".

The structure of a PPP project is defined by complex contracts linking different parties with different scope and interests (Eaton and Akbiyikli, 2009, p.306). The structure of the PPP contract define the relationship between the public authority and the concession company (SPV) for a service provision of a 30-40 year concession period that eventually require establishment of mutual objectives, integration and cooperation (Eaton and Akbiyikli, 2009, p.306). The SPV will be ultimately responsible for the delivery of defined services based on output specifications, designing and building or upgrading the infrastructure, raising funds for the project, focusing on objectives while responding to the project environment and returning ownership of the asset at the end of the contract in the specified condition (Grimsey and Lewis, 2004, p.112).

In a PPP arrangement, the private sector provides an integrated one-stop shop service for design, build, finance and operate and thus, considered as a contractor-led procurement system that will ensure consistency and minimal disturbance in the project value chain if the output specification is well defined by the granting authority (Male cited in Eaton and Akbiyikli, 2009, p.308). And as stated by Grant cited in Eaton and Akbiyikli, PPP arrangements are most successful when the partners are financially strong, organizationally stable and willing to commit their best human resources and when there is shared rights and obligations.

Abdel Aziz (2007) has identified the principles shaping the implementation of PPP arrangements to be related to the availability of PPP institutional/legal framework, the availability of policy and implementation units, understanding of private finance objectives, understanding of risk allocation, understanding of value for money, standardization of procedures and contracts, and finally, performance and method specifications.

Germany does not have a formal PPP programme. However, the PPP market is developing in Germany with a total of 51 PPP life cycle real estate projects in the time period from 2002 until Q1 of 2007 and there is a continuous debate over the appropriate financing form for a PPP project (Daube, Vollrath and Alfen, 2008, p.376). Currently, there are two basic forms financing PPP projects in Germany, which are Project Finance and the Forfeiting Model (Daube, Vollrath and Alfen, 2008, p.376, p.377).

PPP Task Forces have been used to support PPP arrangements in order to deliver infrastructure provisions in a more efficient way in different sectors and countries around the world and have evidently created a competitive PPP market in Germany by providing pivotal functions such as project support, knowledge management, policy and framework development (Fischer, Jungbecker and Alfen, 2006, p.539, p.543).

On view of the current scenario where the council of Gruben aims at developing their existing airport facility supported by the transport council's similar plans to expand air travel and with the existence of well defined output specifications, utilizing PPP in the AH airport development project has a huge success potential given the fact that the German PPP market has developed to be highly competitive with the participation of international consortia (Fischer, Jungbecker and Alfen, 2006, p.546).

4. PPP Models

Public Private Partnerships delivery models are broadly categorized depending on the degree of retention of service delivery by the government and they vary from services being delivered by public sector with only infrastructure-related services provided by private entities to the minimum degree of retention where private sector is responsible for delivering a full range of services to the public including infrastructure (Grimsey and Lewis, 2004, p.102).

PPPs have developed and branched into many variations that reflect different approaches to procure infrastructure projects with core PPP contracts types such as BOOT (Concession), BOO, BTO, BLT and DBFO. The BOOT initiation process typically starts with the host government identifying the need for an infrastructure project followed by an expression of interest to interested private parties and resulting in a short list of 10 to 15 firms (Rebeiz, 2012, p.422).

As mentioned earlier, the two forms of financing PPP projects in Germany are Project Finance and the Non-recourse forfeiting of installments, which is also known as Forfeiting Model (Daube, Vollrath and Alfen, 2008, p.377). The Forfeiting Model concept where it provides special arrangement for the private entity to sell claims for payments resulting from the construction contract with the public sector to the bank and accordingly, the granting authority declares a waiver of objection regarding the claim sold (*See Figure 2*) (Daube, Vollrath and Alfen, 2008, p.376, p.377).

The Forfeiting Model is the preferred financing form in Germany, and it is the most implemented form in German projects since 2002 contrary to the international practice where Project Finance is used the most (Daube, Vollrath and Alfen, 2008, p.376, p.377).

Project Finance is the nearest form to the BOOT concept where Project Finance is mainly based on the project's cash flow and the ability to cover interest and debt repayment operating costs and yields return on equity (*See Figure 3*) (Daube, Vollrath and Alfen, 2008, p.377, p.378).

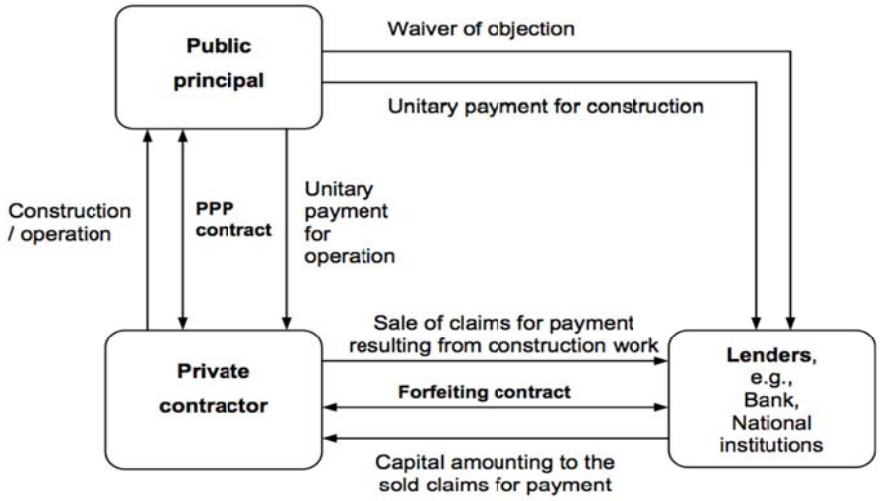

Figure no.2 – The structure of a Forfeiting Model

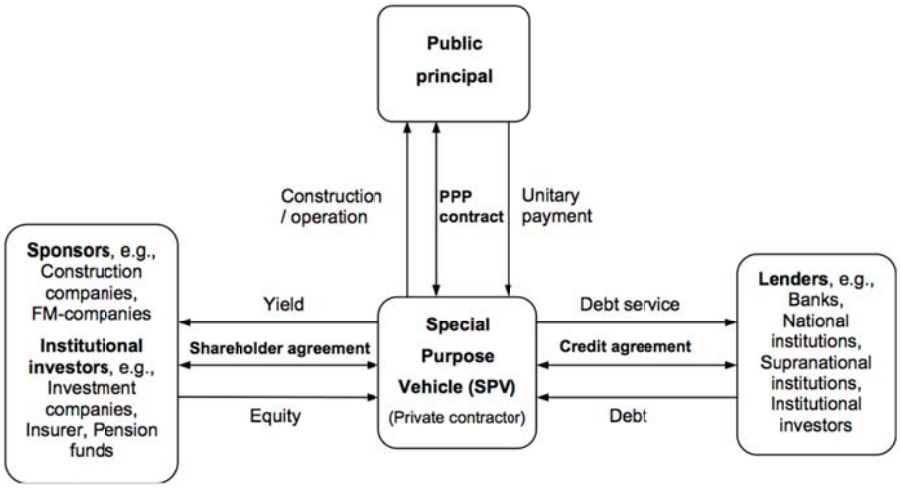

Figure no.3 – The structure of Project Finance

The above-mentioned PPP arrangements are considered as bundled procurement methods that comprise design, construction, operation, maintenance and finance (Grimsey and Lewis, 2009, p.402). The main criteria to be used in comparing these models include price certainty, flexibility, risk transfer and incentive structures and there should be a special consideration to value for money that relies on certain key factors such as risk allocation, whole life costing and innovation (Grimsey and Lewis, 2009, p.403).

The availability of various delivery models accommodating the provision of infrastructure services has necessitated the development of a framework to analyze the validity of a certain model to an infrastructure project and as concluded by Grimsey and Lewis (2009) this framework comprises a five-stage approach that includes data gathering, bundling analysis, procurement validation, procurement option analysis and the preferred procurement option.

On view of the German PPP market, Daube, Vollrath and Alfen (2008) have concluded that the prevailing usage of the Forfeiting Model in Germany is associated with small investment volume, and if there is a correlation between the complexity of a project and the investment volume, it is evident that the higher the project's investment the more Project Finance form is a better choice.

5. Risks Identification and Analysis

The PPP programme approach has increased the awareness of risk management, and thus, resulted in providing a great deal of consideration to the identification, allocation and management of risks in the PPP arrangements (Grimsey and Lewis, 2004, p.136).

Risk transfer is the essence of the PPP arrangements where value for money is improved as the party carrying the risk is able to minimize the probability of the risk occurrence or bear the financial consequences if does occur or both (Grimsey and Lewis, 2004, p.136).

There are certain types of risks that are usually facing any infrastructure project such as technical risk due to design deficiencies, construction delay, cost escalation, revenue risk, financial risk, force majeure and political risk (Grimsey and Lewis, 2004, p.172). And some other risks that are specific to the given scenario such as the risk of a low number of passengers and risk of the existing carrier not renewing agreement.

These risks should be properly analyzed and allocated within the contractual arrangement of the project because project default will be borne by private entities if debt cannot be covered (Grimsey and Lewis, 2004, p.172, p.175). However, the government eventually has to interfere to ensure the continuity of services and thus, the granting authority must concern itself with the risks involved (Grimsey and Lewis, 2004, p.175).

Risk allocation between the project parties is governed by the service obligations, payment mechanisms and contractual provisions adjusting risk allocation (Grimsey and Lewis, 2004, p.177).

Service obligations should clearly identify the output specifications incorporating government objectives, required level of risk transfer and the quality of the service that has to be measured and compared against a set of pre-determined key performance indicators (Grimsey and Lewis, 2004, p.177). Furthermore, output specifications should avoid prescribing how the service is to be delivered or maintained which will eventually encourage innovation otherwise the government may unintentionally take back risk that should be borne by the private party (Grimsey and Lewis, 2004, p.177).

Payment mechanism development is required to determine the degree of risk allocation and to act as an incentive for the private entity to perform (Grimsey and Lewis, 2004, p.177). As stated by Grimsey and Lewis, payment mechanism may feature payment based on availability and performance of service, payment made per transaction unit and payment based on improvement of the business e.g. safety.

The transfer of risks is not for free as private entities would accept most risks but with premium cost (Grimsey and Lewis, 2004, p.179). It is the government to decide whether the transfer of risk is good value for money or not, and hence, all project risks have to be identified, determine services where risks cannot be transferred to the private entity, analyze

risks and identify risks that are best to be managed by the government, decide whether any of the remaining risks to be shared, and finally, allocate risks and ensure that it is reflected in the contract (Grimsey and Lewis, 2004, p.183).

Due to the importance of risk management to the private entities as well as the granting authority, it is essential to examine the risks from different perspectives of the main parties to the project as illustrated below in Figure no.4 by Grimsey and Lewis (2004)

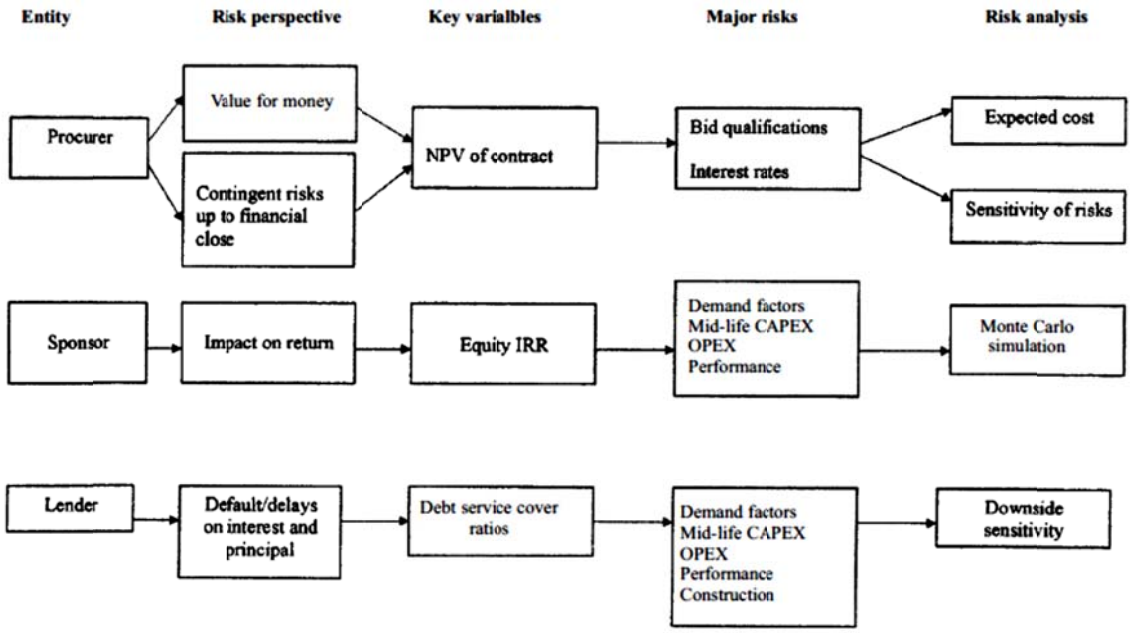

Figure no.4 – A guide to methodology employed by main parties

6. Project Viability and Conclusion

By analyzing the financial model of the given scenario, it is evident that the project is in general, profitable and can be procured directly by the public entity using the traditional procurement route as there is remarkable revenue through different stages of the project life cycle. However, it is important to discuss certain factors and risks that should be analyzed by the granting authority in order to make a final decision on whether these issues and risks can be retained and handled or better transferred and shared with a private entity.

Kaka and Alsharif (2009) concluded that financial models are sensitive as they have a large influence on the final bidding offer that can eventually results in winning projects if they are well optimized and argued that using the financial model can result in a large saving and/or profit margin of 5 to 10%.

By applying certain risks scenarios on the financial model such as reducing the number of passengers, delay in construction, reduce aviation per pax, it is evident that there is a negative impact on the present values especially in stage 1 of the project. However, the net present value is remarkably positive in all of the what-if scenarios applied.

It is worth mentioning that there are many attractive features inherent to PPPs such as the transfer of risk, enhanced whole life cost, value for money. However, there are key issues that have to be considered such as political stability, market conditions and public acceptance of the facility as PPP is still emerging in Germany and there is no true precedent with the same level of investment.

7. References

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