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Article

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Malaysian public-private partnerships: Risk management in build, lease, maintain and transfer projects

Usman Ahmad^{1*}, Yusnidah Ibrahim² and Mohd Sobri Minai²

Abstract: Public-private partnership (PPP) is a tool for infrastructure development in many countries. In Malaysia, the government has been implementing PPP since the 1980s, but the records show that quite a number of PPP projects have failed to achieve their objectives due to the lack of risk management. While such a fact is being challenged, how risk management is practised within the context of PPP projects is being observed. Worldwide, different types of PPP projects exist; however, there is a dearth of literature on risks and risk management for each type of PPP project except for a few. This article reports the risks and risk management for the build, lease, maintain and transfer (BLMT) projects in Malaysia from a study regarding the PPP projects in the health and education sectors. The study employs exploratory sequential research design methodology and data were collected through interviews, followed by a survey. The study concludes that BLMT projects apply risk management; however, the government has transferred most of the risks to the private partner. This is not the initial objective of the PPP as both sides are supposed to share the risks even though it may not be on an equal basis. This finding offers the nature of PPP risk management being practised in Malaysia and could provide useful insight for other countries in areas of practising and governing in improvising the PPP project arrangements.

Subjects: Public Administration & Management; Risk; Risk Management



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Usman Ahmad is PhD student at Universiti Utara Malaysia. He has been doing research on risk management of public-private partnership projects in Malaysia. His research interest includes risk management, project management, credit risks, public finance and international finance. The current study is related to his PhD work.

PUBLIC INTEREST STATEMENT

Around the globe, various governments seek private sector involvement to meet the demand of infrastructure and public services through public-private partnership (PPP) projects. In Malaysia, build, lease, maintain and transfer (BLMT), the specific type of PPP arrangements, is employed in health and education sectors to meet the demand and for better service quality. However, the involvement of public and private sector in the PPP project makes the project complex and different than other projects. This distinct nature and complexity increase the risks and require robust risk management practices. Therefore, this study describes the risks associated with BLMT projects and the risk management process based on the distinct nature of the BLMT.

Keywords: public–private partnerships; build lease maintain and transfer; risks; risk management

JEL Code: G32; L32; L38

1. Introduction

There is a general agreement that the state is responsible for the provision of public infrastructure and public services and that the state directly provides or facilitates the private sector (through subsidies, tax relaxation or by some other incentives). However, in the last four decades, public–private partnership (PPP) has evolved as a new tool for the provision of public services (Yescombe, 2011). In Malaysia, the government has promoted the private sector's involvement in the provision of public services using the concept of PPP, due to budgetary pressure, as a tool to speed up national development (Ismail, 2013a). Furthermore, innovation, reduction of public money tied up in capital investment, reduction of the total project cost and local economic development are the factors that led the Malaysian government to consider PPP as a tool for the provision of infrastructure and public services (Ismail, 2013b). This endeavour is cited to allow the government to transfer risks to the private sector while benefitting from the reduced government expenditure on infrastructure development.

Despite the benefits of PPP, quite some PPP projects in Malaysia failed to achieve the desired objectives (Mohamad, Ismail, & Said, 2018). The National Audit Reports (Auditor General's Report, 2012, 2015, 2016) highlighted the issues of delay in construction as well as lack of monitoring and risk management in the PPP projects. Similarly, for Malaysian e-government PPP projects, Khadaroo, Wong, and Abdullah (2013) reported the barriers that hinder the achievement of project objectives are lack of clarity in the contract, relationship risks and inaccurate cost assessment. All these issues are extreme risks for the PPP projects (Ahmad, Ibrahim, & Minai, 2017) and are part of the risk management issues. Several studies have identified that organisations that are involved in the PPP projects have not adopted proper risk management (Keers & van Fenema, 2018; Markom, 2012), and this is not a favourable scenario.

Keers and van Fenema (2018) claimed that recent literature on risk management of PPP mostly emphasised risk identification and risk allocation as the strategy to manage the risks instead of considering only risk identification (Ahmad et al., 2017; Hwang, Zhao, & Gay, 2013). Lack of risk management is one of the most mentioned reasons for the failure of PPP projects in Malaysia (Fischer, Leidel, Riemann, & Wilhelm Alfen, 2010; Khadaroo et al., 2013). A better understanding of the risks inherent in the PPP projects as well as knowledge of the magnitude and possible impact of those risks shall lead to a better risk response measure. Thus, proper risk management is important in the PPP projects to ensure that the desired objectives are attained (Fischer et al., 2010). The current literature on risk management of PPP is found to emphasise risk allocation as the strategy to manage risks.

Most of the empirical evidence available is for two types of PPP: build, operate and transfer (BOT) projects (Durdyev & Ismail, 2017; Jin & Zhang, 2011; Li, Akintoye, Edwards, & Hardcastle, 2005) and build, own, operate and transfer (BOOT) (Jin & Zhang, 2011; Simanjuntak, Collins, & Dwiandhari, 2017). Although Li (2003) explained the risk management process for BOT PPP projects in the construction sector in the UK only applied for the country's context, some could also be applicable to Malaysian PPP projects. In Malaysia, the build, lease, maintain and transfer (BLMT) project (i.e. a type of PPP project) is commonly practised and has been frequently adopted in the Malaysian health and education sectors for the past few years (Ahmad, Ibrahim, & Bakar, 2018). The Malaysian government has built hostels of a public university and a children's hospital by using the BLMT (Ahmad et al., 2018). This adoption in the health and education sectors makes the BLMT model popular in developing the country. As different types of PPP are different in nature, the risks inherent in each type may be different and may require different risk response strategies (Ahmad et al., 2017).

Thus, this article aims to highlight the risk management process applied in BLMT projects in Malaysia, assess the risks involved and document the risk response strategies. It is hoped that the insights can lead to a better understanding of risk management in BLMT projects and may guide risk management for other types of PPP projects. Moreover, an explanation of the risk management process may help practitioners to assess, treat and monitor the risks in a better way.

2. PPP projects

Different types of PPP and level of participation of the private sector are the two important factors in defining PPP. The Prime Minister's PPP Department of Malaysia defined PPP as "a form of cooperation between the public-private partnership in which a standalone business is created, funded and managed by the private sector as a package which includes the construction, management, maintenance, repair and replacement of public sector assets including buildings, infrastructure, equipment and facility" (UKAS, 2017). Academic researchers and industrial practitioners still consider the concept of PPP as being "very ambiguous" because of the wide range of arrangements whereby the level of involvement of the private sector varies (Li, 2003). Even though a consensus on one definition of PPP does not exist in the literature, this study adopts the definition of PPP by Peters (1998), Li (2003) and Akintoye, Beck, and Hardcastle (2008) in which a project is called a PPP project if it has certain characteristics. First, this type of partnership comprises two or more players where one of them is public and the other is private. In some complex PPP arrangements, there may be more than one public agency. Normally, a private partner participates for profit, although Tarantello and Seymour (1998) considered an agreement between the government and a non-profit organisation for welfare as a PPP arrangement as well. Second, each player/partner acts as a principal, i.e. each partner is capable of negotiating/bargaining on its behalf.

However, recently, the Malaysian government has set up separate agencies (i.e. UKAS), and these agencies negotiate with the private sector on behalf of the government but do not enter into any contract. Third, PPP is a continuous partnership that creates long-term relationships where the parameters of these relationships are defined in an agreement. Nevertheless, the relationships are one-off transactions. Fourth, each player/partner contributes something in terms of resources such as capital or land for the creation of the partnership. The last and most important feature of PPP is the sharing of responsibilities, risks and outcomes.

PPP includes alternate service contracts, leasing, joint venture, concession and privatisation, although concession is the most commonly used model around the world (Li, 2003). In a concession, complete ownership is granted to the private sector for a limited time. There are several types of concession, i.e. BOT, BOOT and land transfer (Li, 2003).

BLMT arrangements are concession projects that are applied in the health and education sectors in Malaysia. In this arrangement, the government pays rent to the private partner for the constructed facility and public services (Ahmad et al., 2018).

3. Risk management of PPP projects

Risk management is a management process that has the goal to protect the assets and to ensure profits by reducing the possible losses or damages before they occur (Li, 2003). Risk management is a systematic process for dealing with risks (Bunni, 1986, Harrington & Niehaus, 1999). Moreover, the risk management process should establish an appropriate context to set objectives; to identify and analyse risks; to treat risks; and to monitor and review risk responses (Edwards & Bowen, 2003; ISO 31000, 2009). Similarly, ISO 31000 (2009) Risk Management—Principles and Guidelines explains that a risk management process involves risk assessment, risk treatment and risk monitoring. Risk assessment includes the process of risk identification, risk analysis and risk evaluation. Risk treatment covers the formulation of risk mitigation policies including risk allocation. Risk monitoring refers to a continuous review of strategies to assess and treat risks.

Fischer et al. (2010) and Li (2003) explained that risk management of a PPP project possesses five steps:

- risk identification: preparation of a risk list;
- risk analysis and assessment: usage of a software or risk matrix;
- risk allocation: decision based on the consent of the contracting parties and risk-based key ratios;
- risk mitigation: development of risk strategies; and
- risk monitoring: maintaining a risk register, project risk database

To explain the risk management process for a BLMT project, this study adopts an ISO risk management process.

4. Methodology

This study adopts a mixed method research approach, specifically exploratory sequential research design (Cresswell, 2013), to achieve the objectives of the study. In the first phase of this method, interviews were conducted to explore the nature of a BLMT project, to assess the risks and to document the risk management process for the BLMT. In the second phase, a survey was conducted to rank and allocate the risks.

Interviews were conducted based on the guidelines of Groenewald (2004). In the first part of the interviews, a risk catalogue, developed based on the literature (Ahmad et al., 2017; Hwang et al., 2013, Li et al., 2005), was used to identify the risks involved in the BLMT. In the second part, the respondents discussed how these risks could be categorised and allocated. In the third part, the respondents were asked to share the experience of managing the identified risks in BLMT projects. Each of the 12 interviewees has at least 5 years of experience in the field of PPP and are currently engaged in BLMT projects. ATLAS ti 8.0 (<https://atlasti.com/product/v8-windows/>) was used to arrange the interview data and generate themes. Based on themes and the important quotations of the interviews, this study explains the BLMT and the risk management process of BLMT projects.

In the second phase, questionnaires were sent to practitioners to rank and to suggest the allocations of risks. The respondents were the managers from UKAS, the public sector (Ministry of Health and monitoring institutions) and the managers of the special purpose vehicle (SPV), who are involved in BLMT projects in Malaysia. The experts were asked to rank the risk using the Likert scale, which is based on a risk matrix as shown in Table 1; specifically, 1 means negligible and 5 means extreme. As risks in PPP projects are shared or allocated to any of the partners, respondents were asked to suggest the preferred allocations of risks, i.e. SPV/private partner, public or shared.

Since the establishment of UKAS in 2009, 42 projects are in the operational stage. In addressing the small number of sample size, Sekaran (2016) suggested adopting a simple random sampling if representativeness and generalisability are the objectives. Thus, in the study, based on Krejcie and Morgan (1970), questionnaires were distributed to 36 projects with one questionnaire for each of the public and private partner (the total was 72 questionnaires). However, only 64 respondents from 32 projects responded, and these are the questionnaires being analysed.

5. Interview findings and discussion

The ATLAS ti 8.0 arranges the data and generates the reports on interview quotations for identified theme/codes. These reports help to elucidate the phenomena. This section explains the BLMT arrangement according to the findings of the interviews (Appendix A). The risk management process is explained next (Appendices B and C). The details of the BLMT arrangement and the risk management process undertaken by BLMT projects are presented in the following section.

Table 1. Risk matrix

		Level of impact				
		Negligible	Minimal	Minor	Serious	Catastrophic
Level of occurrence	Certain	Moderate	High	High	Extreme	Extreme
	Likely	Moderate	Moderate	High	High	Extreme
	Possible	Low	Moderate	Moderate	High	Extreme
	Unlikely	Low	Moderate	Moderate	Moderate	High
	Rare	Low	Low	Moderate	Moderate	High

Source: Elmontsri (2014) and Ristić (2013).
 Colors represent the severity of the risks.

5.1. Build, lease, maintain and transfer (BLMT)

In a BLMT model, an SPV/private partner is granted a concession project to finance, build and maintain a public facility that is later rented to the government (Appendix A). The BLMT consists of three main stages: planning, construction and operation. In the planning stage, first, the government officials, from the ministry that initiate PPP project, explain the project objectives and requirements. In Malaysia, the BLMT is applied in health and education sectors, thus, usually Ministry of Education or Ministry of Health officials are involved (Ahmad et al., 2018). Then, the SPV presents a detailed design concept and budgeted statements in accordance with the government's objectives and requirements. The government then evaluates the design concept. After the approval of the design concept, the SPV builds the facility. At the commencement of operation after construction, the government uses the facility for public services, and the SPV receives rental fees/availability charges. The SPV maintains the facility throughout the concession period. At the end of the concession period, the facility is transferred to the government in an agreed working condition. The rent includes maintenance charges and a fixed amount of rent of the facility. The BLMT model differs from the BOT and BOOT models as in the BLMT model, the SPV gets payment from the government while in BOT and BOOT models, the SPV collects unitary charges directly from the users. The Malaysian BLMT model is congruent with the design, construct, manage and finance (DCMF) model of the UK in which the private partner designs, constructs, manages and finances the facility according to government requirements. However, in DCMF, the SPV does not transfer the facility to the government (Li, 2003).

5.2. Risk management in BLMT projects

The interview results, which are based on nine themes, are presented in Appendix C. The findings describe the specific risk management activities carried out in BLMT projects. Appendix B depicts the linkages between themes. In this figure, "G" represents groundedness, i.e. the number of important interview quotes attached to each code, while "D" represents the density, i.e. the number of links between one code and the others.

The analysis shows that the risk management process in BLMT projects in Malaysia comprises risk assessment, risk treatment and risk monitoring. Risk assessment is primarily conducted at the planning stage, and risk treatment is carried out in the planning, construction and operation stage. Also, risks are properly monitored at all stages. The detailed process is presented below.

5.2.1. Risk assessment

The risk assessment process includes risk identification as well as risk analysis and evaluation.

5.2.1.1. Risk identification. Risk identification in BLMT projects in Malaysia involves technical risk identification, financial risk identification and legal risk identification. In the technical risk

identification process, a committee of experts comprising members from both the public and private partners is formed. The ministry, which initiates the project, explains the detailed requirements and objectives of the project. Based on those requirements, the SPV presents the “Design Concept”. The technical experts highlight all the potential technical risks related to the project such as the risks of project selection, design, construction and operation. After the submission of the technical risk report, another committee comprising financial experts is formed. Finally, a committee of legal experts is formed to highlight the legal risks. The financial risk identification process focuses on macroeconomic and financial risks while the legal risk identification covers different issues of permits, tax rules and political hostility. UKAS maintains the database of all risks of PPP projects, and it is used as a reference in the risk identification exercise.

According to Grimsey and Lewis (2004), because of the involvement of two or more parties in a PPP project, the identification of risks of PPP projects is a crucial step. This study lists 37 risks for Malaysian BLMT projects (Table 2). These risks differ from the identified risks of Ahmad et al. (2017), Li et al. (2005) and Hwang et al. (2013) because eight risks are excluded in this study. Based on the interviews, this study excludes eight risks, i.e. industrial regulatory change, inadequate distribution of responsibilities and risks, lack of commitment from either partner, lack of a tradition of private provision of public services, land acquisition (site availability), operational revenue below expectation, staff crises and unproven engineering techniques. Specifically, the risk of operational revenue below expectation has been excluded because, in BLMT projects, the government pays a fixed rent to the SPV, and hence, the risk of revenue is negligible.

5.2.1.2. Risk analysis and evaluation. The transfer of risk to the private sector is one of the main objectives of the government in using PPP (Dey & Ogunlana, 2004; Li et al., 2005). However, it is difficult to transfer all risks, and some risks need to be shared between the SPV and the government. The process of risk analysis measures the risks in terms of frequency of occurrence and the severity of loss. Subsequently, in risk evaluation, the risks are ranked in terms of their overall impact on the success of PPP projects. There are different risk assessments techniques in the literature (Dey & Ogunlana, 2004), although the selection of any technique depends on the project’s nature and practitioner’s choice. The findings indicate that for Malaysian BLMT projects the risk analysis and evaluation are based on experts’ judgement.

Based on the survey, Table 3 presents the ranks and the criticality of risks for Malaysian BLMT projects. To rank the risks, the mean score technique is adopted (Ahmad et al., 2017). The respondents rate the risk on a Likert scale of 1–5. Based on prior literature (Ahmad et al., 2017; Hwang et al., 2013), the study calculates the mean score by dividing the total score of each risk by the number of respondents. Risks with scores of 4 or above are considered extreme, below 4 but greater than 3 are considered high, below 3 but greater than 2 are moderate and risks with scores less than 2 but more than 1.5 are low. Meanwhile, risks with scores of 1.5 or less are considered negligible. The results in Table 3 depict extreme risks as construction time delay, availability of finance, delay in project approvals and permits, financial attraction of project to investors, construction cost overrun, operation cost overrun and maintenance more frequent than expected, which are almost consistent with Li et al. (2005). However, Hwang et al. (2013) considered “unstable government” and “inadequate experience in the PPP field” among the crucial risks while in the case of Malaysian BLMT, project experts do not consider them crucial because in Malaysia, the PPP projects have been implemented for a long time and the country’s policies on privatisation and PPP projects are consistent.

5.2.2. Risk treatment

In BLMT projects, the risk treatment process comprises risk allocation and development of risk mitigation policies that are implemented to reduce the probability of occurrence and impact of the

Table 2. Risks identified in BLMT projects

Categories of risks	Risk factor
Political	Unstable government
	Expropriation or nationalisation of assets
	Poor public decision-making process
	Strong political opposition/hostility
Macroeconomic	Corruption and bribery
	Poor financial market
	Inflation rate volatility
	Interest rate volatility
Legal	Influential economic events
	Legislation change
	Change in tax laws
Natural	Force majeure
	Geotechnical conditions
	Weather
Project selection	Environment
	Level of demand for project
Project finance	Level of public opposition to the project
	Availability of finance
	Financial attraction of the project to investors
Residual assets	High finance costs
	Residual assets risks
Design	Delay in project approvals and permits
	Design deficiency
Construction	Construction cost overrun
	Construction time delay
	Material availability
	Late design changes
	Poor quality of workmanship
	Excessive contract variation
Operation	Insolvency/default of sub-contractors/suppliers*
	Operation cost overrun
	Low operating productivity
	Maintenance costs higher than expected
	Maintenance more frequent than expected
	Insolvency/default of sub-contractors/suppliers
Relationship	Organisation and coordination risk
	Inadequate distribution of authority in the partnership
	Differences in working method and know-how between partners

risks. In PPP projects, risk allocation has become a major risk treatment tool (Li et al., 2005). Based on the findings of the interviews, the risk treatment process of the BLMT is detailed as follows.

5.2.2.1. Risk allocation. In BLMT projects, risks are allocated with the mutual consent of both public and private partners and are clearly stated in the agreement. Based on the survey, Table

Table 3. Risk ranking

Risks	Score	Rank	Criticality
Construction time delay	4.66	1	Extreme
Availability of finance	4.51	2	Extreme
Delay in project approvals and permits	4.46	3	Extreme
Financial attraction of the project to investors	4.20	4	Extreme
Construction cost overrun	4.15	5	Extreme
Operation cost overrun	4.13	6	Extreme
Maintenance more frequent than expected	4.02	7	Extreme
Low operating productivity	4.00	8	High
Maintenance costs higher than expected	3.89	9	High
Insolvency/default of sub-contractors/suppliers	3.89	10	High
High finance costs	3.77	11	High
Inflation rate volatility	3.70	12	High
Design deficiency	3.64	13	High
Corruption and bribery	3.59	14	High
Late design changes	3.43	15	High
Interest rate volatility	3.36	16	High
Influential economic events	3.33	17	High
Level of public opposition to the project	3.16	18	High
Strong political opposition/hostility	3.10	19	High
Excessive contract variation	2.98	20	Moderate
Differences in working method and know-how between partners	2.98	21	Moderate
Poor financial market	2.97	22	Moderate
Change in tax laws	2.87	23	Moderate
Residual risks	2.39	24	Moderate
Poor quality of workmanship	2.13	25	Moderate
Legislation change	1.93	26	Low
Poor public decision-making process	1.84	27	Low
Expropriation or nationalisation of assets	1.82	28	Low
Material availability	1.77	29	Low
Level of demand for project	1.75	30	Low
Organisation and coordination risk	1.56	31	Low
Weather	1.49	32	Negligible
Geotechnical conditions	1.44	33	Negligible
Unstable government	1.43	34	Negligible
Force majeure	1.23	35	Negligible
Environment	1.20	36	Negligible
Inadequate distribution of authority in partnership	1.08	37	Negligible

4 presents the preferred allocation of risks between contracting parties for Malaysian BLMT projects. The study decides the allocation based on percentages, guided by prior literature (Ahmad et al., 2017; Hwang et al., 2013). For instance, 62% of the respondents rated that design deficiency risk should be allocated to the public partner (i.e. respective government ministry) that approves the design. The preferred allocation in BLMT projects (Table 4) is almost consistent with Li et al. (2005) and Hwang et al. (2013). Nevertheless, the allocation of “Design Deficiency” and “Level of Demand for Project” risks differs from prior literature (Hwang et al., 2013; Li et al., 2005)

Table 4. Risk allocation in BLMT projects

Risks	Public (%)	Private (%)	Shared (%)	Allocation
Design deficiency	62.30	19.67	18.03	Public
Level of public opposition to the project	49.18	16.39	34.43	Public
Strong political opposition/hostility	90.16	1.64	8.20	Public
Poor public decision-making process	96.72	0.00	3.28	Public
Level of demand for project	67.21	14.75	18.03	Public
Unstable government	78.69	6.56	14.75	Public
Corruption and bribery	16.39	24.59	59.02	Shared
Late design changes	37.70	16.39	45.90	Shared
Differences in working method and know-how between partners	16.39	22.95	60.66	Shared
Organisation and coordination risk	16.39	8.20	75.41	Shared
Inadequate distribution of authority in partnership	0.00	14.75	85.25	Shared
Excessive contract variation	16.39	26.23	57.38	Shared
Environment	4.92	70.49	24.59	SPV
Construction time delay	3.28	83.61	13.11	SPV
Availability of finance	0.00	90.16	9.84	SPV
Delay in project approvals and permits	19.67	57.38	22.95	SPV
Financial attraction of project to investors	22.95	65.57	11.48	SPV
Construction cost overrun	1.64	90.16	8.20	SPV
Operation cost overrun	9.84	86.89	3.28	SPV
Maintenance more frequent than expected	24.59	73.77	1.64	SPV
Low operating productivity	16.39	75.41	8.20	SPV
Maintenance costs higher than expected	24.59	73.77	1.64	SPV
Insolvency/default of sub-contractors /suppliers	0.00	100.00	0.00	SPV
High finance costs	1.64	93.44	4.92	SPV
Inflation rate volatility	4.92	86.89	8.20	SPV
Interest rate volatility	4.92	85.25	9.84	SPV
Influential economic events	8.20	49.18	42.62	SPV
Poor financial market	1.64	83.61	14.75	SPV
Change in tax laws	16.39	45.90	37.70	SPV
Residual risks	16.39	65.57	18.03	SPV
Poor quality of workmanship	1.64	78.69	19.67	SPV
Legislation change	24.59	40.98	34.43	SPV
Expropriation or nationalisation of assets	6.56	52.46	40.98	SPV
Material availability	6.56	88.52	4.92	SPV
Weather	1.64	80.33	18.03	SPV
Geotechnical conditions	3.28	78.69	18.03	SPV
Force majeure	6.56	57.38	36.07	SPV

in PPP projects. The findings of the interviews suggest that in BLMT the SPV is not liable for any deficiency in the design of the project after the approval of the design concept. To mitigate the risk, the government seeks experts' opinion before approving a design. Also, the government agrees to pay a fixed rent to the SPV for the facility, regardless of consumer demand. Thus the government is liable if the demand level for the project is low. Nevertheless, all BLMT arrangements are usually

Table 5. Mitigation strategies at planning stage

Risks	Government policies	SPV policies
Availability of finance, financial attraction of the project to investors, poor financial market and high finance costs	At the time of the bid, the government specifies the debt to equity ratio at 80:20. The government provides a guarantee for the payment of rent at the start of operation in scheduled instalments.	The SPV reports the budgeted cost of finance in financial meetings at the planning stage, and rental payments are based on it. The SPV takes a loan for the concession period and agrees to pay the loan in instalments right after the commencement of operations. To the SPV, the government guarantee plays a vital role in finding suitable financiers as it attracts investors.
Change in tax laws, legislation change and corruption and bribery	The government always shares the regulatory plans for taxation with the SPV.	The SPV forecasts the tax deductions in budgeted statements, where the SPV abides by all laws.
Delay in project approvals and permits	According to the agreement, in case of any corruption, the government reserves the right to terminate the agreement.	The SPV reserves the right to report any pressure of bribe to the Project Monitoring Committee (PMC) and can proceed with litigation. In this scenario, the government bears the cost of litigation.
Expropriation or nationalisation of assets	To avoid delays, right after the selection of the SPV, UKAS decides the schedule of meetings and approvals.	Most of the delays occur due to the long scrutiny process of the debt provider. Therefore, usually, the SPV starts the documentation for obtaining loan right after the selection.
Influential economic events and interest rate volatility	According to the agreement, the government reserves the right to expropriate the assets in the national interest.	The agreement states the criteria of settlement in the case of expropriation, although the SPV is not entitled to any profit in such a case.
Poor public decision-making process, late design changes and excessive contract variation	The SPV makes future agreements with labour contractors and material suppliers to minimise the effect of interest rate fluctuation or future influential economic events.	The SPV obtains the design approval before construction and then does not entertain any further changes unless extra payment is offered by the government.
Residual risks	The government obtains experts' opinions for the design concept and demands of the public. However, if the project requires modification/expansion after construction, the government may enter into a supplementary contract with the same SPV.	The SPV obtains the design approval before construction and then does not entertain any further changes unless extra payment is offered by the government.
Strong political opposition/hostility	The government does not take any asset that is not in working condition.	The agreement states the depreciation method to avoid residual risk. Despite this, all assets must be in working condition at the end of the concession period.
	To avoid any public hostility, the government always publishes project reports and explains the benefits of the project.	After the agreement, the SPV does not account for public hostility in BLMT projects as the government is liable for rental payments and provision of site security in case of any agitation.

applied in critical sectors like health and education; consequently, there is a significant demand for the project.

Table 6. Mitigation strategies at construction stage

Risks	Government policies	SPV policies
Construction cost overrun, material availability, inflation rate volatility, interest rate volatility, poor quality of workmanship and insolvency/default of suppliers	Not applicable	The SPV enters into future contracts with materials and labour suppliers. Even though the contracted price may be higher than the present price, this gives the SPV a shelter against future cost overrun. These future contracts specify the quality of material and labour clearly. Furthermore, the SPV takes bank guarantees or security deposits on these contracts to ensure the quality of material and to cover against insolvency of the supplier.
Construction time delay		The SPV prepares the construction schedule and split the construction into a few phases. Also, the SPV adopts a machine-oriented construction to complete construction by the scheduled time.

Table 7. Mitigation strategies at operational stage

Risks	Government policies	SPV policies
Level of demand for project	Government experts forecast demand at the planning stage. Furthermore, if demand is exceeded, the government may enter into subsidiary contracts with the same SPV to expand the facility and pay the cost of construction. However, in the case of lower demand, the government must pay the rentals to the SPV, but this may not occur for BLMT projects because these projects are established for education and health sectors where demand is higher.	The SPV takes its rent irrespective of demand.
Design deficiency	After the design approval, the government bears the cost of any changes at the time of operation.	The SPV is not allowed to commence operation without rectification if construction is not done according to the approved design.
Operation cost overrun, inflation rate volatility and interest rate volatility		The SPV reserves the right to report the increase in cost due to any influential event in PMC meetings, but it is the PMC's decision whether to increase it.
Low operating productivity	The government can impose a penalty on the SPV if project productivity is not according to KPIs.	The SPV uses machine-oriented operations rather than labour-oriented to ensure productivity.
Maintenance costs higher than expected and maintenance more frequent than expected		The SPV prepares a proper schedule of maintenance and replaces the asset in case of frequent maintenance.

(Continued)

Table 7. (Continued)

Risks	Government policies	SPV policies
Insolvency/default of sub-contractors		The SPV always takes a security amount and takes bank guarantee from the suppliers to cover losses in case of their insolvency.
Differences in working method and know-how between partners, Organisation and coordination risk	The government does not participate in the management of the operation to avoid conflict but plays a regulatory role through the PMC.	The SPV manages the operation. Clarity of the agreement hedges these risks.

5.2.2.2. Risk mitigation strategies. The risk mitigation strategies are formulated at all stages, namely planning, construction and operational. Based on the agreed risk allocation, the respective parties formulate the risk mitigation policies. Also, both parties mutually develop the strategies for shared risks. The code “Risk mitigation” (Appendix C) presents a few important interview quotations related to it. Based on the findings of the interviews, Tables 5– 7 document risk mitigation strategies in the planning, construction and operational stages for all risks except the negligible risks. Some risks are grouped based on similar mitigation strategies.

5.2.3. Risk monitoring

BLMT risk management is a continuous process of monitoring the micro and macro environments to check the emergence of any risk at any stage. For monitoring purposes, UKAS, the ministry and the SPV form a Project Monitoring Committee (PMC) and Dispute Resolution Committee (DRC). Each committee comprises representatives from both the government ministry and the SPV. In the planning stage of a BLMT project, key performance indicators (KPIs) and rules of arbitration are derived. Based on these KPIs, the PMC evaluates the constructed facility and service quality. Besides, the PMC reviews the rental payments if the SPV requests for review. However, the decision of an increment in rental payment is made with the consent of the government. The DRC plays a vital role in settlement in case of disputes. Moreover, after the decision of the DRC, both parties may proceed to legal arbitration. For Malaysian BLMT projects, the PMC meetings are held quarterly. Furthermore, any partner can call for a meeting in any special circumstances.

6. Conclusion

The study has highlighted the dearth of literature in the field of PPP risk management specifically for BLMT projects. Mixed method research (i.e. exploratory sequential design) is applied to describe the risk management process and to highlight the risks of BLMT projects. The findings of the interviews produced descriptions of the BLMT and the risk management process while the survey helped to explain the criticality and the allocation of risks. The findings of the interviews revealed that in BLMT projects, the SPV is involved in three crucial stages, namely planning, construction and operation, and that the SPV receives a fixed rent from the government.

The BLMT risk management process starts at the planning stage in terms of risk assessment and continues throughout the project duration in the form of risk treatment and monitoring. For risk treatment, both contracting parties allocate the risks and develop the mitigation strategies at the planning stage. For risk treatment, an agreement is considered as the main risk mitigation tool because it states the risk allocation as well as the roles and responsibilities of each contracting party. The quantitative survey highlighted 37 risks for BLMT projects. However, 8 risks out of the 37 are not considered. Out of the 37 risks, construction time delay, availability of finance, delay in project approvals and permits, the financial attraction of the project to investors and construction cost overrun are ranked as extreme risks. These five risks are allocated to the SPV. In total, 25 risks

are allocated to the SPV, 6 are shared while another 6 are allocated to the government. The allocation of extreme risks to the SPV describes the vital role of the SPV in BLMT projects. However, assessment of demand and approval of the right design concept increase the government's responsibility in BLMT projects. The results prove the distinct nature of the BLMT compared to the other types of PPP projects.

There are several notable contributions of the current study. First, it describes the BLMT arrangement, a popular type of PPP arrangements in Malaysia that is applied across the health and education sectors. Second, the study explains the risk management process for BLMT projects that is different from that in other types of PPP. Before the current study, risk management process and risk mitigation strategies were generalised for all PPP projects irrespective of the distinct nature of the type of project. Third, the study paves the way for future research to consider the risk management of the third stakeholder of the PPP project, namely the debt provider who is another important player in the PPP project.

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Appendix A. BLMT report

ATLAS ti report

Project: BLMT risk management

Report created by lenovo on 12/11/2017

Codes report

Selected codes (4)

○ BLMT

Created by lenovo on 2/11/2017

11 Quotations:

D 1: 1-1:1 1 (45:109)

BLMT has 3 crucial stages Planning, Construction and Operations.

D 1: 1-1:4 1 (2094:2132)

In BLMT government pays rental payments

D 1: 1-1:5 1... (2135:2213)

Rent is paid for facility built by SPV and it also includes maintenance charges.

D 1: 1-1:49 1... (9506:9636)

Hostel objective it to save cost of construction and get same design and quality of resident hostel if government construct itself.

D 1: 1-1:52 1... (10475:10592)

BLMT hostel give leverage to pay in instalments and ultimately after certain time the hostel becomes university asset.

D 2: 3-2:1 5... (18:342 [18:452])

handover the Project Land and

Facilities and Infrastructure in a well-maintained and operational condition

D 2: 3-2:3 5... (19:1528 [19:1631])

Concession Company shall be entitled to the Availability Charges by way of monthly payments in arrears.

D 3: 4-3:1 2 (17:58)

BLMT government pays rent for the facility

D 3: 4-3:4 2 (158:221)

BLMT consist of three stages Planning Construction and Operation

D 3: 4-3:5 2... (224:320)

In BLMT government never give any guarantee to bank except payment of rent/availability charges.

D 4: 2-4:1 2... (95:203)

Government gives guarantee to SPV for payment of rent subject to the construction according to design concept

○ **Construction stage**

Created by lenovo on 2/11/2017

9 Quotations:

D 1: 1-1:1 1 (45:109)

BLMT has 3 crucial stages Planning, Construction and Operations.

D 1: 1-1:37 1 (7051:7115)

PMC monitors the project during construction and operation period

D 1: 1-1:39 1... (7194:7312)

In case of delay in construction period an extra time is given to SPV. After that extra time, agreement is terminated.

D 1: 1-1:40 1... (7313:7452)

After construction, PMC and government inspector inspects the project and after satisfaction, approval to commence the operation is granted.

D 1: 1-1:46 1 (9062:9130)

Government don't pay anything extra if cost of construction increases

D 2: 3-2:2 5... (19:1199 [19:1286])

Concession Company undertaking the obligations to carry out the Construction Works

D 3: 4-3:2 2 (61:112)

Government does not participate in construction cost

D 3: 4-3:3 2 (115:155)

SPV takes loan and construct the facility

D 7: 8-7:5 8 (373:441)

SPV prepares the construction schedule to avoid delay in construction

○ **Operational stage**

Created by lenovo on 2/11/2017

12 Quotations:

D 1: 1-1:1 1 (45:109)

BLMT has 3 crucial stages Planning, Construction and Operations.

D 1: 1-1:37 1 (7051:7115)

PMC monitors the project during construction and operation period

D 1: 1-1:41 1 (7454:7491)

Operations are monitored based on KPIs

D 1: 1-1:42 1 (7454:7493)

Operations are monitored based on KPIs.

D 1: 1-1:43 1... (7494:7574)

PMC conducts regular meetings, tracks the operational and macroeconomic variables

D 1: 1-1:53 1... (10205:10295)

Low quality materials affect their maintenance cost and they may be fined for major issues

D 2: 3-2:4 5... (20:270 [20:383])

Concession Company undertaking the obligation to provide the Asset Management Services under this Agreement,

D 7: 8-7:1 8... (0:102)

At operational stage SPV prepares the schedule of maintenance to keep service quality according to KPIs

D 7: 8-7:2 8... (105:184)

It is important for SPV do proper maintenance to keep quality according to KPIs.

D 7: 8-7:3 8... (186:307)

SPV prepare a budgeted cash flows that includes the frequency and cost of maintenance and amount of government instalments

D 7: 8-7:6 8... (445:541)

At operational stage SPV maintain and manage the facility that is called Asset Management Service

D 7: 8-7:7 8 (544:580)

Maintenance must be according to KPIs

○ Planning stage

Created by lenovo on 2/11/2017

14 Quotations:

D 1: 1-1:1 1 (45:109)

BLMT has 3 crucial stages Planning, Construction and Operations.

D 1: 1-1:2 1... (112:203)

First of all, respective ministry send project details to UKAS and expectation from project.

D 1: 1-1:7 1... (2383:2496)

The meeting schedule is prepared and deadlines are set because planning stage gets prolong if schedule is not set.

D 1: 1-1:8 1 (2564:2615)

SPV has to get required licences in scheduled time.

D 1: 1-1:21 1... (3619:3894)

Design Concept is a detailed document which includes the construction design, expected time of construction, functional design, operational output, technology requirement, human resource requirement, material/labour requirement and costs of construction, operation and finance

D 1: 1-1:23 1 (3959:4018)

Planning stage is important because it highlights all risks.

D 1: 1-1:45 1... (8154:8257)

Lengthy planning is because of SPV, most of the time they take too much time for preparing the documents

D 3: 4-3:6 2 (323:384)

Agreement is the main document that is based on Design concept

D 3: 4-3:8 2... (522:735)

Agreement is a mitigating documents because few it tells the mitigating policies for risks if it occurs like, Expropriation or nationalization of assets, Force majeure, construction delay, operation and many others

D 3: 4-3:9 2... (738:890)

Agreement provides basics to the Risk monitoring because it all KPIs are written in agreement and functions and jurisdiction of PMC is stated in as well.

D 5: 5-5:4 4 (298:367)

Allocations and Mitigation is done through agreement in planning stage

D 5: 5-5:8 4... (854:951)

For BLMT planning stage is very important because of finalization of Design concept and agreement.

D 5: 5-5:9 4... (953:1025)

Agreement is very important of part of risk management and planning stage

D 5: 5-5:10 4... (1028:1132)

Design concept is Risk identification tool for me (interviewee) as it highlights every aspect of project.

Appendix B. Risk management



**Appendix C. Risk management report
 ATLAS ti report**

Project: BLMT risk management

Report created by lenovo on 13/11/2017

Codes report

Selected codes (9)

○ Risk management

Created by lenovo on 2/11/2017

1 Quotations:

D 6: 6-6:5 5... (340:442)

Risk management is continuous process which start at planning stage and continue until concession ends.

○ Risk assessment (in general)

Created by lenovo on 2/11/2017, modified by lenovo on 10/11/2017

11 Quotations:

D 1: 1-1:6 1 (2215:2277)

After selection of SPV committee of technical experts is formed

D 1: 1-1:9 1... (2616:2695)

Technical committee in actual assess almost all risk related to PPP/BLMT project

D 1: 1-1:10 1... (2698:2800)

Technical Committee deals all technical aspects including construction, cost time, and type of material

D 1: 1-1:12 1... (2884:2984)

Financial committee is formed after the technical committee report and finalization of design concept

D 1: 1-1:13 1... (3047:3125)

Financial committee finalize the debt to equity ratio. 80:20 percent is a rule.

D 1: 1-1:22 1 (3897:3956)

Every risk of project needs to be reported in Design Concept

D 1: 1-1:30 1... (4993:5149)

After the presentation of design concept, financial aspects are discussed, a financial committee is formed comprises of both SPV, UKAS and government members

D 4: 2-4:2 2 (1679:1717)

The risk database is available at UKAS.

D 4: 2-4:3 2... (1719:1796)

Technical experts discuss all risks except finance and legal in design concept

D 4: 2-4:4 3... (1799:1872)

Design Concept is a detailed document. First all experts discuss the risks

D 4: 2-4:16 3 (3038:3092)

Risks are important in terms of their impact on project

○ Risk identification

Created by lenovo on 2/11/2017

14 Quotations:

D 1: 1-1:10 1... (2698:2800)

Technical Committee deals all technical aspects including construction, cost time, and type of material

D 1: 1-1:13 1... (3047:3125)

Financial committee finalize the debt to equity ratio. 80:20 percent is a rule.

D 1: 1-1:14 1 (3127:3186)

Debt to equity can be 90:10 if project need too much finance

D 1: 1-1:20 1 (3552:3617)

Finance cost may become high if government do not give guarantees.

D 1: 1-1:21 1... (3619:3894)

Design Concept is a detailed document which includes the construction design, expected time of construction, functional design, operational output, technology requirement, human resource requirement, material/labour requirement and costs of construction, operation and finance

D 1: 1-1:22 1 (3897:3956)

Every risk of project needs to be reported in Design Concept

D 1: 1-1:23 1 (3959:4018)

Planning stage is important because it highlights all risks.

D 1: 1-1:24 1 (4020:4083)

The Financial issues are dependent on Technical aspects and risk

D 1: 1-1:28 1... (4720:4846)

cost of finance for SPV became so high that project construction had been stopped and SPV was unable to complete the operation.

D 1: 1-1:29 1... (4854:4991)

the concept of debt to equity ratio comes, normally the debt to equity ratio for PPP is 80:20 but it can be 90:10 depends on project need.

D 1: 1-1:30 1... (4993:5149)

After the presentation of design concept, financial aspects are discussed, a financial committee is formed comprises of both SPV, UKAS and government members

D 1: 1-1:31 1... (5152:5330)

Financial committee focuses on macroeconomic and financial aspects to decide the unitary charge or SPV remuneration. "Unitary charge" is SPV payment, which is given by government

D 1: 1-1:32 1... (5473:5702)

After settlement of financial issues, a legal committee is formed to discuss the legal issues including permits, tax rules, political hostility, roles and responsibility, ownership structure, asset transfer and agreement drafting.

D 4: 2-4:19 3 (3189:3254)

UKAS experts keep record of the risks for all types of PPP project

○ **Excluded risks**

Created by lenovo on 10/11/2017

13 Quotations:

D 4: 2-4:5 3... (1875:2003)

Formula of risk transfer is in UKAS guidelines, but few risk can be shared. Majority of the risks belongs to concession company.

D 4: 2-4:6 3... (2005:2162)

No problem of land in BLMT because Ministry plans the project when it has land. In IIUM 5000 Bed project the university had the land on which hostel is built.

D 4: 2-4:7 3... (2175:2262)

for teaching hospital university had the land first then government planned the project.

D 4: 2-4:8 3... (2265:2338)

BLMT project is for health and education normally so there's demand always

D 4: 2-4:9 3 (2341:2388)

In Hostel project we had demand so we planned it

D 4: 2-4:10 3... (2391:2490)

Secondly to SPV demand doesn't matter as government has to pay rent no matter there is demand or not

D 4: 2-4:11 3... (2493:2586)

Once facility is constructed according to KPIs the government has to pay rent for the facility

D 4: 2-4:12 3... (2589:2755)

There is scheduled for the payment to SPV and government pays according to that unless if Service is not according to KPIs. This Fluctuation in revenue is not possible

D 4: 2-4:13 3... (2758:2840)

In hospital there is government staff and government has enough staff for hospital.

D 4: 2-4:14 3... (2842:2913)

SPV doesn't need too much specialized and what they need it is available

D 4: 2-4:15 3... (2916:3036)

Before selection of SPV capability of SPV of doing project is inspected so it is not possible that they don't have staff.

D 5: 5-5:18 4... (1654:1731)

PPP has been implementing since 1980 so there is no risk of experience in PPP.

D 5: 5-5:19 4... (1733:1941)

Unproven engineering is not possible because of the guidelines of state construction department. All buildings should be on guidelines of state construction department because SPV gets permits from department.

○ **Risk analysis and evaluation**

Created by lenovo on 2/11/2017

8 Quotations:

D 1: 1-1:11 1... (2803:2882)

Technical committee discuss all risks as well but no legal and financial details

D 4: 2-4:2 2 (1679:1717)

The risk database is available at UKAS.

D 4: 2-4:4 3... (1799:1872)

Design Concept is a detailed document. First all experts discuss the risks

D 4: 2-4:16 3 (3038:3092)

Risks are important in terms of their impact on project

D 4: 2-4:17 3 (3095:3147)

Risk mostly increase the cost or decrease the quality

D 4: 2-4:18 3 (3150:3187)

Experts figure out the impact of risk.

D 4: 2-4:20 3 (3257:3309)

Judgement of experts is important in risk assessment.

D 5: 5-5:11 4... (1134:1273)

UKAS database of risk already has categories and risk/issues are written in agreement in different section on the basis of these categories.

○ **Risk treatment**

Created by lenovo on 2/11/2017

5 Quotations:

D 1: 1-1:33 1... (6078:6216)

Agreement of PPP project is a vital document and defines, contracting parties' role, responsibility, ownership, duties and span of control.

D 4: 2-4:26 3... (3804:3901)

Experts suggest mitigation policies but each party has to develop its own risk mitigation policies

D 5: 5-5:1 4... (41:117)

Proper allocations of risks and policies to overcome the risks are important.

D 5: 5-5:2 4 (0:38)

For PPP risk is treated via allocations

D 5: 5-5:3 4... (119:296)

UKAS has clear guidelines for risk allocations and suggested policies but ultimately the risk bearer has to develop the policy for risk. Government keep as less risks as possible.

○ Risk allocation

Created by lenovo on 2/11/2017

8 Quotations:

D 4: 2-4:5 3... (1875:2003)

Formula of risk transfer is in UKAS guidelines, but few risk can be shared. Majority of the risks belongs to concession company.

D 4: 2-4:21 3 (3311:3376)

UKAS has clear formula for allocation of risk of each type of PPP.

D 4: 2-4:22 3... (3443:3576)

there are set guidelines for risk allocations in UKAS database, but technical experts finally decide which risk belong to which party.

D 4: 2-4:23 3 (3579:3634)

Most of the risks are transferred to concession company.

D 4: 2-4:24 3 (3636:3684)

Risk allocation is clearly mentioned in agreement

D 5: 5-5:3 4... (119:296)

UKAS has clear guidelines for risk allocations and suggested policies but ultimately the risk bearer has to develop the policy for risk. Government keep as less risks as possible.

D 5: 5-5:4 4 (298:367)

Allocations and Mitigation is done through agreement in planning stage

D 5: 5-5:7 4... (727:852)

Cost and operational risks are always transferred to Concession Company because it is the main objective of BLMT arrangements.

○ Risk mitigation

Created by lenovo on 2/11/2017

45 Quotations:

D 1: 1-1:7 1... (2383:2496)

The meeting schedule is prepared and deadlines are set because planning stage gets prolong if schedule is not set.

D 1: 1-1:8 1 (2564:2615)

SPV has to get required licences in scheduled time.

D 1: 1-1:15 1 (3189:3223)

SPV seeks guarantee from government

D 1: 1-1:16 1 (3226:3277)

Government gives guarantee for payment of rent only.

D 1: 1-1:17 1... (3279:3378)

Government also writes that payment of rent is subject to the delivery of services according to KPI.

D 1: 1-1:18 1 (3380:3431)

SPV take loans on the basis of government guarantee.

D 1: 1-1:19 1... (3433:3549)

In early PPP projects government gives guarantee of payment to financial institution if SPV defaults but not anymore.

D 1: 1-1:20 1 (3552:3617)

Finance cost may become high if government do not give guarantees.

D 1: 1-1:26 1 (4242:4308)

Usually too many changes are made because of ministry requirements.

D 1: 1-1:27 1... (4310:4497)

Government do not approve design concept until it is fully satisfied. Government consult many different departments to check design including water and sanitation, environment civil works.

D 1: 1-1:33 1... (6078:6216)

Agreement of PPP project is a vital document and defines, contracting parties' role, responsibility, ownership, duties and span of control.

D 1: 1-1:34 1 (6237:6304)

SPV seeks financier based on design concept and government guarantees

D 1: 1-1:39 1... (7194:7312)

In case of delay in construction period an extra time is given to SPV. After that extra time, agreement is terminated.

D 1: 1-1:40 1... (7313:7452)

After construction, PMC and government inspector inspects the project and after satisfaction, approval to commence the operation is granted.

D 1: 1-1:46 1 (9062:9130)

Government don't pay anything extra if cost of construction increases

D 1: 1-1:47 1... (9262:9332)

Quality of material used in construction can lower the maintenance cost

D 1: 1-1:48 1... (9413:9502)

Government provide Guarantee that it will start paying rent once construction is completed

D 1: 1-1:50 1... (9987:10057)

Quality of hostel service is depending on its design and material used.

D 3: 4-3:2 2 (61:112)

Government does not participate in construction cost

D 3: 4-3:3 2 (115:155)

SPV takes loan and construct the facility

D 3: 4-3:5 2... (224:320)

In BLMT government never give any guarantee to bank except payment of rent/availability charges.

D 3: 4-3:7 2 (387:439)

Agreement is the tool that mitigate few risks as well

D 3: 4-3:8 2... (522:735)

Agreement is a mitigating documents because few it tells the mitigating policies for risks if it occurs like, Expropriation or nationalization of assets, Force majeure, construction delay, operation and many others

D 3: 4-3:13 2 (1041:1069)

PMC review the rental charges

D 3: 4-3:14 2... (1072:1212)

In case of extra ordinary increase in cost, PMC may increase the rental charges. Normally the rental charges are fixed for concession company

D 3: 4-3:15 2... (1215:1346)

PMC imposes fine in any deficiency for example delay in construction, major or minor defect in construction and low service quality.

D 3: 4-3:16 2... (1865:1980)

Government impose penalty/fine to ensure the quality by deducting certain amount based on KPI criteria in agreement.

D 3: 4-3:17 2... (1982:2159)

Debt provider is in win-win situation if it gets its payments in time. Recently government do not give guarantee to debt provider that it'll settle loan in case of default of SPV

D 4: 2-4:25 3... (3687:3763)

for each type of risks the nature and responsibility is written in agreement.

D 4: 2-4:26 3... (3804:3901)

Experts suggest mitigation policies but each party has to develop its own risk mitigation policies

D 5: 5-5:3 4... (119:296)

UKAS has clear guidelines for risk allocations and suggested policies but ultimately the risk bearer has to develop the policy for risk. Government keep as less risks as possible.

D 5: 5-5:4 4 (298:367)

Allocations and Mitigation is done through agreement in planning stage

D 5: 5-5:5 4... (370:517)

Mitigation is subject to the stage of BLMT. If risk can be mitigated through agreement it is done at planning otherwise at construction or operation

D 5: 5-5:6 4... (521:725)

Government always informs the SPV in advance if there is change in legislation for example SPV were informed about the GST implementation in 2015 but for any sudden change SPV needs to comply with the law.

D 5: 5-5:12 4... (1275:1437)

Lengthy planning is itself a risk so a scheduled is set for meetings. To avoid delays government experts gives detailed briefing of required documents and permits.

D 5: 5-5:13 4 (1532:1599)

Government hire experts for assessment of demand from the facility.

D 5: 5-5:14 4 (1600:1652)

Government consultants evaluates the design concept.

D 6: 6-6:1 5... (0:94)

Government publish the project report to convince the public to reduce any hostility by public.

D 6: 6-6:2 5... (96:184)

Malaysian people are not hostile to PPP projects because it is implemented for long time.

D 6: 6-6:3 5... (186:275)

To get constant supplies of material SPV creates future contracts with material suppliers.

D 6: 6-6:4 5 (277:338)

For labour, SPV hire labour contractor in construction period.

D 7: 8-7:3 8... (186:307)

SPV prepare a budgeted cash flows that includes the frequency and cost of maintenance and amount of government instalments

D 7: 8-7:4 8 (310:371)

Budgeted cash flows help SPV to manage debt payments as well.

D 7: 8-7:5 8 (373:441)

SPV prepares the construction schedule to avoid delay in construction

D 7: 8-7:8 8 (583:629)

Government imposes fine in case of low quality.

○ **Risk monitoring**

Created by lenovo on 2/11/2017

19 Quotations:

D 1: 1-1:25 1... (4150:4240)

The KPIs of Construction and Operations are discussed and finalized by technical committee.

D 1: 1-1:35 1 (6549:6587)

a PMC is created to monitor the project

D 1: 1-1:36 1... (6801:6956)

Project Management Committee (PMC) is important committee that is formed to govern and monitor the project from construction to the end of concession period

D 1: 1-1:37 1 (7051:7115)

PMC monitors the project during construction and operation period

D 1: 1-1:38 1... (7118:7191)

For each phase of KPIs are the yardstick to measure the performance of SPV

D 1: 1-1:41 1 (7454:7491)

Operations are monitored based on KPIs

D 1: 1-1:43 1... (7494:7574)

PMC conducts regular meetings, tracks the operational and macroeconomic variables

D 1: 1-1:44 1 (7577:7633)

The important function of PMC is review of unitary charge

D 1: 1-1:51 1 (10068:10122)

there are government inspectors to inspect these things

D 1: 1-1:54 1... (7577:7760)

The important function of PMC is review of unitary charge, in case SPV's cost of operation is increased significantly due to any sudden event, it can ask for review of unitary charges.

D 2: 3-2:5 5... (21:173 [21:333])

The Concession Company may request for a review of the Asset Management Services Charges save for Asset Management Programme component on each Review Date

D 2: 3-2:6 5... (12:556 [12:734])

Key Performance Indicators are means the level of service which are required to be achieved by the Concession Company in relation to carrying out the Asset Management Services

D 2: 3-2:7 5... (37:636 [37:792])

All goods, equipment, consumables and materials which are to be used in the provision of the Asset Management Services shall be of satisfactory quality

D 2: 3-2:8 5... (40:1808 [40:2125])

In the event the Concession Company fails and/or neglects to carry out any Asset Management Services or the Asset Management Services carried out are not in accordance with the Asset Management Services Manual in any month, the Government shall have the right to impose the relevant demerit value penalty

D 3: 4-3:10 2... (738:889)

Agreement provides basics to the Risk monitoring because it all KPIs are written in agreement and functions and jurisdiction of PMC is stated in as well

D 3: 4-3:11 2 (892:945)

PMC plays a vital role in monitoring the BLMT project.

D 3: 4-3:12 2... (947:1038)

PMC compares the actual values of variables with KPIs and take action on underachieve things

D 6: 6-6:6 7 (444:496)

For monitoring two committees PMC and DRC are formed.

D 6: 6-6:7 7... (498:577)

PMC monitors continuously throughout the concession. DRC resolves disputes only.



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