

The Path to Achieving an Efficient Contract Implementation and Management of Public Private Partnership: A Review of Journal Articles of PPP and Addressing Policy Issues for Developing Countries

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(Abstract)

Public Private Partnership (PPP) is increasingly applied in many developed and developing countries to expand public services. Doing this, the governments utilize the potentials of private sector such as finance, managerial skills, experience and transfer many risks. Through a review of journal articles on PPP, we identified various barriers that impact the successful implementation of those projects in developing countries. While planning for PPP projects, developing countries should prepare measures to overcome those barriers.

Keyword: Public Private Partnership, Projects, Developing countries, Service Delivery, Risk

1. Introduction

Public Private Partnership (PPP) is a long-term contract between the government and a private consortium for a period of often more than 30 years. The private consortium, for example, under the Design Build Finance Operate (DBFO) model, is responsible for design, build, finance and operation of a project. The PPP is managed by a separate legal entity such as Special Purpose Vehicle (SPV) which sub-contracts the construction, operation and maintenance with several sub-contractors. The SPV is then responsible to the government for the service delivery according to the terms and conditions of the contract.

There is great enthusiasm about attracting private investment in public service, particularly in developing countries. Besides such enthusiasm, successful implementation of these projects is attracting attention of academicians and policy makers. That means to ensure efficiency, accountability, and Value for Money (VfM) of these projects. PPP projects, however, faces many barriers during the construction and the operation phase. Through a review of journal articles, we will address these barriers relating to the implementation of PPP projects in developing countries.

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The structure of this paper is as follows: In the next section, we provide a literature review of the contract implementation and management. Then, a review of journal articles of PPP projects in developing countries is developed and the result is discussed in chapter 3. Finally, conclusion and recommendation are provided in chapter 4.

2. Literature Review and Methodology

2.1 Literature Review

PPP is widely being applied for both developed and developing countries to finance the public projects. Often politicians, the members of public, and service users are sceptical on efficiency of these projects. Academicians of PPP often conducted extensive research to address policy issues for the countries applying PPP. For example, Grimsey and Lewis (2004:93), Johnston, Romzek and Wood (2004), Romzek and Johnston (2002), Government Accountability Office (GAO, 1992), and Marques (2017) emphasized the role of the public sector critical in monitoring the construction and operation of private operator.

Cost overrun is one common problem to both the PPP and non-PPP projects and that is also associated with contract implementation and management where this burden will impose huge cost to the government and to the citizen. Table 1 provides literatures on cost overrun conducted in many countries. Flyvbjerg et al., (2002) mention that 86 percent of the projects of different countries had cost overrun. Love et al., (2017) mention that in case of rail projects there is a 23 percent cost overrun from estimated value of contracts with 99 percent being increase was due to scope change. Smith et.al., (2016) report 100-million-pound additional cost with the UK physical museum.

Table 1. Literature review of cost overrun on PPP and non-PPP projects

Cost overrun	Sources
Cost overrun is reported in 86 percent of projects	Flyvbjerg, Holm and Buhl (2002)
100-million-pound cost overrun of Physical Museum in the UK	Smith, Sing, Matthews, Liu and Love (2016)
Cost overrun in rail projects: <ul style="list-style-type: none"> ➢ Gold Coast light rail, Moreton bay rail link ➢ Sydney light rail ➢ Perth-Mandurah rail line ➢ UK, rail projects have cost overrun of more than 100 percent 	Love, Zhou, Edwards, Irani, and Sing (2017)
(1) The Federal Aviation Administration (FAA) advanced automation system <ul style="list-style-type: none"> • Cost increase from \$2.5 billion to \$5.1 billion • Schedule slipped by 6 years (2) Department of Energy (DOE)'s Rocky Flats Plant had escalated by 40 percent, due to no monitoring of contractor performance.	GAO (1992)

There are many other studies conducted to ensure the successful implementation of PPP and provide policy direction to policy makers. For example, Chou and Pramudawardhani (2015) compared key drivers, Critical Success Factors (CSFs), and preferred risk allocation in PPP for many countries. Ke et al., (2010) for example, mention 37 risk factors for the PPP projects. Some of these factors are such as: 'corruption, government's intervention, expropriation and nationalization, government's reliability, third party reliability and so on'.

In this paper, we will explore what are the practical situation of PPP implementation in developing countries. Through a review of journal articles published on PPP projects in developing countries, we find out the key barriers that impact the successful implementation of PPP projects in these countries.

2.2 Methodology for this study

We reviewed 27 online journal articles about PPP from five developing countries and regions with potential economic growth such as Brazil, China, India, Malaysia, and Taiwan. For this study, we chose countries included in BRICS (Brazil, Russia, India, China, and South Africa). Because we could not find enough online journal articles for Russia and South Africa on PPP, instead we reviewed journal articles of PPP in Taiwan and Malaysia. Why we chose BRICS in our study is because of their high potential for economic growth. Tian (2016) mentions that these countries are highly populated and possess considerable natural resources. She also reports high economic growth in these countries. Additionally, the role of BRICS countries is very important in the world economy (Truman, 2006). As there are great potential for economic growth, these countries invest hugely to develop infrastructure. For example, Zhang et al., (2016) report that since 1990 more than 1000 PPP projects with the value exceeding 140 billion USD are implemented in China. KPMG reports that by 2022, Brazil invest 65 billion USD in infrastructure per year and that the investment will be done via partnership or privatization. The World Bank Private Participation in infrastructure database for the period (1990-2018) indicates high number of private participation projects in the BRICs countries. For example, during the above period, Brazil, China and India had 942, 1525, and 1017 projects reaching financial closure, respectively. These countries' experience in PPP provides valuable lessons for other developing countries. Moreover, the experience of Taiwan is very important because Taiwan government empowered regulatory regime such as the PPP Unit that exercised control on both contract award and project implementation phase. Malaysia has also tremendous experience on PPP projects in different sectors. The Malaysian audit regime acted to reveal many projects where the private partners had lucrative profits and raised the question of efficiency and transparency of the PPP projects in Malaysia.

We reviewed each journal article from the beginning to the conclusion to identify barriers for

successful implementation of PPP projects. This is to address projects which are terminated earlier, cancelled or failed. After identifying each barrier, we grouped them under several headings such as regulation, participation, administration, monitoring, procurement, and information. These barriers are explained orderly as follows:

1- Regulation is often a critical barrier in the implementation of PPP projects. This barrier is often related to the government action where major changes are brought to the contractual terms. For example, Song et al. (2018:4) provide a list of 23 early terminated projects out of which 17 were bought back by the government during its operation. Six projects were terminated due to regulatory change, and 4 projects were nationalized. These regulatory changes introduced affected demand, revenue generation and the overall operation of PPP projects. Song et al., (2018) add that often local governments make unrealistic promises (i.e. fixed rate of return) to attract investment in PPP projects. The regulatory changes then enable them to take unilateral action to change the contractual terms. This situation becomes worse when the regime changes and the promised contractual terms are refused by the new administration. Song et al., (2018:8) point out that the new regulation in 2002 required liquidation of foreign investment. As a result, five projects with fixed income return were cancelled (table 3).

2-Participation is the given opportunity to the public, NGOs and key stakeholders to have their say on the design of a project, administration of a project and the service delivery. Song et al., (2018) found that the public opposition is a very significant factor for the implementation of PPP projects. They mention that the public should be involved to supervise the construction and operation of a project through forums, interviews and so on, to ensure good status of a project. We observed various public opposition to PPP projects that often impacted the completion of construction, service delivery and the overall success of PPP projects. Mahalingam (2010) addresses lack of political will in project implementation in India. He stresses that projects with high level of political support were successfully implemented. For example, the municipal of Alandur and the elected leader of the Alandur encouraged the private sector engagement in PPP project. Moreover, they got consent of the opposition party to the PPP project through their personal efforts. Some water projects (i.e. sewerage project in the town of Pammal and water supply project in the town of Tiruchirapalli), however, faced huge opposition. This opposition is occurred mainly from the municipality officials. However, the citizen is willing to pay for the services even the tariff is increased. But the municipality officials are creating disturbances for the projects (table 4).

3-Administration is relating to the capacity and experience of public officials in PPP and the level of facilitation available from other government departments. Public managers who plan for PPP shall have experience and competent skills in various fields such as management,

finance, procurement and so on. The PPP project implementation also requires facilitation from related government departments. These facilitations support the process of land approval, site studies, information sharing and other supports in the construction and operation stages. More specifically, administration is facilitation regarding issuing approval, permits, licensing, and so on. Often government departments have poor coordination that impact the implementation of projects (Huang, 2016). Mevada and Devkar (2017) study the reasons for cost and time overrun in Indian Mega projects and identified that land acquisition and clearance were the most critical barriers for the project's implementation. According to them the approval for clearance of forests were not facilitated by the government which led to time and cost overrun of the mega projects. Shrestha et al. (2017) and Mahalingam (2010) have provided that local government are inexperienced in managing the PPP and that the public officials often lack adequate capacity to facilitate the processes of PPP management (table 4).

4-Monitoring is very crucial for successful implementation of PPP projects. In the literature review, we mentioned several studies calling the necessity of monitoring of PPP projects by the government. Abdul-Aziz (2010:154) mentions positive impact of monitoring for the PPP housing in Malaysia. Sapri et al. (2016) mention that monitoring is critical for the improvement of PPP services in Malaysia (table 5). Lop et al. (2016) report that there are lack of Key Performance Indicators (KPIs) through which the public procurer measure performance of the private partner. In table 1, we mentioned that many PPP projects had cost overrun. But through KPIs the cost, service parts, and processes can be measured, and inefficient part of production can be sorted out. Again, the claim for cost overrun or the bailout must be validated through a consistent monitoring of construction or operation phase of a project. We also found out that some cost overrun occur due to poor specification in the project which later the scope of project is changed. For example, increase in office space, installing more equipment or changing a design. But cost overrun also occurs from poor and inefficient operation of private partner, especially when revenue or construction risks is guaranteed by the government. Under such circumstances, the private operator must be penalized for their shortcomings.

5-Procurement contract requires both parties to fulfil their commitments incorporated in the contract. Non-fulfilment of contractual terms cause disputes in the implementation of projects. For example, Cabral and Saussier (2013:114) mention the case of PPP projects in Brazil where the private operator complains delay in payment by the government. The private operator's executive states that *"If the government delays our payment, which it usually does.....of course this causes me a lot of problems, but, you know, we must tolerate, avoid arguing and so on in order to keep a good relationship with government officers.... to get new contracts I need them to put in a good word on my behalf"* (table 2). Xu et al. (2015) mention the payment risk in the PPP contracts. For example, the government under the contract pays the undisputable part to

the concessionaire. The disputed part will be resolved through dispute settlement mechanism mentioned in the contract. If confirmed, the government not only pays principal but the interest too. For an effective contract management which mitigates the risks of future contract disputes, Marques (2017) calls the necessity of regulating procurement contract. He emphasizes on external regulation of procurement to resolve disputes arising in the contract (table 2).

6-Information gathering, and analyses of PPP projects provides greater clarity and facilitates decision making processes. This will ensure that a project is efficient and serves the best interest of the public. This requires a consistent data collection, analysis and information generation. In our review, either information does not exist, or there is asymmetric information about the PPP contracts. Furthermore, it is hardly seen some countries maintaining a PPP database.

3. Review of Journal Articles in Developing Countries and Discussion of Result

3.1 PPP projects in Brazil

We found out four barriers that affect implementation of PPP projects in Brazil (Table 2). These barriers are related to participation, administration, procurement and monitoring. Firstly, there were four cases of participation where the public managers must think to include the media, the general public, key stakeholders and service users in various stages of PPP project implementation. Cabral and Saussier (2013) and Marques (2017) mention that the public opposition to PPP is common for many projects in developing countries. For example, the demand forecasting and willingness to pay, service contents, political support, environmental issues and so on, need discussion with many stakeholders to reduce risk and mitigate future disputes.

Secondly, Brandão et al., (2012) report the project capacity risk error in Metro Line 4 of the São Paulo Subway System in Brazil. We emphasize on the role of administration where the public managers must develop special skills to consider project capacity risk efficiently. Often such risk is compensated by the government through guarantees such as the Minimum Demand Guarantee (MDG) or subsidies. This implies that the project managers shall incorporate such guarantees only when enough analysis is done to avoid future burden to the government. Additionally, such subsidies and government guarantees must be reviewed periodically to ensure that such guarantees are accompanied with efficient operation and that does not bring heavy burden to the government.

Thirdly, monitoring is critical. Marques (2017) mentions delay in construction of PPP projects. Timely completion of PPP project is quite important for the government. It is because of the risk of cost overrun of these projects which increase the cost of service. That is why the public

manager must gather necessary information to ensure that the construction is done according to the construction scheduled. Stern (2012) relates major failure of the PPP project to the lack of public engagement in the PPP. This implies that the public procurer shall gather information from time to time about construction cost, operation cost, and the revenue. This information becomes the base of compensation to the private partner.

Fourthly, the procurement risk and delay in payment creates problems in later stage of project implementation. Dispute arises when contractual terms are not fulfilled. The procurement contract must include mechanism to resolve the procurement disputes. For example, what should be done if the government delays the payment to the private operator? Can the private partner terminate the contract because of such payment delay or does the government pay some compensation because of such delay? Enough considerations should be given to these issues.

Table 2. Identifying barriers on implementation of PPP projects in Brazil

Title of journal article	Barriers and remarks	Source
Government Supports in Public-Private Partnership Contracts: Metro Line 4 Of the São Paulo Subway System	<ul style="list-style-type: none"> ➤ Traffic demand risk error (Participation) ➤ project capacity risk error (Administration) 	Brandão, Bastian-Pinto, Gomes and Labes (2012)
Organizing Prisons through Public-Private Partnerships: A Cross-Country Investigation	<ul style="list-style-type: none"> ➤ Public opposition (Participation) ➤ Delay in payment (Procurement) 	Cabral and Saussier (2013)
Why not regulate PPP?	<ul style="list-style-type: none"> ➤ Contract risks (Procurement) ➤ Delay in construction (Monitoring) ➤ Public opposition (Participation) 	Marques (2017)
Why not regulate the PPP?	<ul style="list-style-type: none"> ➤ Lack of monitoring PPP projects (Monitoring) 	Stern (2012)

3.2 PPP Projects in China

We identified six barriers that affect the implementation of PPP projects in China (table 3). Firstly, we found out 7 cases of regulatory issues in China. We mentioned many cases where contracts were terminated and the project was stopped or the government unilaterally changed the terms and conditions of the contract (Song et al., 2018).

Shrestha et al., (2017) mention that regulatory environment for PPP in developing countries such as China is immature. Grimsey and Lewis (2004) mention that regulation in developing countries are not complete and frequently changes. Jang, et al., (2013) study water PPP projects in China and point out that there is no regulatory framework for contract with fixed rate of return. Earlier we mentioned that the government unilaterally changed these terms and cancelled many such projects. What one must grasp is that the private operator cannot operate in

such environment where regulatory risk is very high. The regulatory framework for PPP shall provide protective measures such as honouring the contractual terms, mediation of disputes, and facilitation of dialogues between the parties.

Secondly, we found out two cases relating to participation. As we discussed in 2.2 above, the stakeholders must be involved in PPP projects. For example, Xu et al., (2015) identifies the entry of non-licensed waste as critical factors that impact the operation of the project. They report that the plant cannot process wastes which has high moisture or dust. These kind of PPP projects require greater involvement of public where people learn, criticize or provide their experience to support the project. The issue of moisture or dust of wastes need to be explained to the society and the service users through various means of communication or some events.

Thirdly, we identified two cases relating to administration. Shrestha et al., (2017) write that local governments do not possess capabilities to manage the PPP projects. Xu et al., mention the case of Guangxi Laibin waste-to-energy where the plant faced shortage of waste supply. The daily supply was 170 tons, while the minimum guarantee supply is 450 tons per day. Such shortage on supply of waste raises serious question on the ability of local governments to administer such projects. Because that shortage means a compensation from the government and a high cost to service user.

Fourthly, we identified one case of monitoring. For example, An et al. (2018) analyse the compensation mechanism for PPP projects and mention the operation efficiency and better management of PPP by investors. We also stress that the compensation provided to the private partner must be with measurement of its impact. That means the government shall collect information about the cost of production and service and it should be ensured that the compensation is followed with efficient operation of private partner.

Fifthly, Xu et al., (2015) mention the payment risk to the private operator. Such risk arises from the government and/or the service user. Shrestha et al., (2017) mention unethical practice and construction risk in procurement contracts in China. Again, the role of dispute settlement in the contract becomes critical through which an affected party will be compensated.

Sixthly, information gathering, and dissemination is important. There was no database of PPP projects exist till 2014. We mentioned that China had the highest number of projects during 1990-2018. These PPP projects provide valuable information if processed through a database system. The information generated through such analyses become the foundation of making effective policies for the PPP. Moreover, foreign firms who want to attend PPP projects do not have information of political and economic situation of local governments in China. To avoid

future dispute between the parties in the PPP contract, it is important that the government should provide information to private operator who invest in a project.

Table 3. Identifying barriers on implementation of PPP projects in China

Title of journal article	Barriers and remarks	Source
Factors Influencing Early Termination of PPP Projects In China	<ul style="list-style-type: none"> ➤ Public opposition (Participation) ➤ Regulatory change and nationalization (Regulation) 	Song et al., (2018)
Enhanced Cooperation Among Stakeholders In PPP Mega-Infrastructure Projects: A China Study (Dalian Bridge Island Tunnel Project)	<ul style="list-style-type: none"> ➤ Conflict between the government and the private partner (Regulation) 	Li, Li, Z., Jiang, Wu and Cheng (2018)
Risks in PPP Water Projects in China: Perspective of Local Governments	<ul style="list-style-type: none"> ➤ Inexperience of local government on management of PPPs (Administration) ➤ Immaturity of Regulatory framework (Regulation) ➤ Unethical practice and construction risk (Procurement) 	Shrestha, Chan, Aibinu, Chen, and Martek (2017)
Critical Risk Factors Affecting the Implementation of PPP Waste-To-Energy Projects in China	<ul style="list-style-type: none"> ➤ Insufficient waste supply (Administration) ➤ Entry of non-licensed waste (Participation) ➤ Payment risk (Procurement) 	Xu, Chan, Xia, Qian, Liu and Peng Yi (2015)
Compensation Mechanism for Urban Water Environment Treatment PPP Project In China	<ul style="list-style-type: none"> ➤ No contribution of incentives to cost reduction (Monitoring) 	An, Li, Wang, Wang, Ding and Cao (2018)
Risk Perception Analysis: Participation in China's Water PPP Market	<ul style="list-style-type: none"> ➤ No proper guideline for direct negotiation for PPP (Regulation) ➤ Prohibition of cross-border design and construction services (Regulation) ➤ Risk of breaching contract by the government (Procurement) 	Choi, Chung, and Lee (2010)
Spatio-Temporal Dynamics of Public Private Partnership Projects In China	<ul style="list-style-type: none"> ➤ Information problem (i.e. there is no PPP projects database till 2014) (Information) 	Cheng, Ke, Lin, Yang and Cai (2016)
Wastewater Treatment Transfer-Operate-Transfer (TOT) Projects in China: The Case of Hefei Wangxiaoying Wastewater Treatment TOT Project	<ul style="list-style-type: none"> ➤ Restriction for foreign investment and ownership of asset problem (Regulation) ➤ Foreign firms lack knowledge (Information) 	Lee and Choi (2014)
Identifying the Strengths, Weaknesses, Opportunities and Threats to TOT and Divestiture Business Models in China's Water Market	<ul style="list-style-type: none"> ➤ Lack of legal and regulatory supports on fixed rate of return deals in China's infrastructure (Regulation) 	Jang, Lee, and Choi (2013)

3.3 PPP Projects in India

We found out that three barriers that impact the PPP project implementation in India (table 4). These barriers are related to regulation, participation and administration. Firstly, we identified two cases of regulatory issues. Mahalingam (2010) reports that there is no specific regulation

regarding PPP in local governments in India. Mevada and Devkar (2017) raise the issue of land ownership problem in the PPP projects.

Secondly, there are public opposition for many PPP projects. We mentioned several projects which faced public opposition in section 2.2. We also stressed the role of public participation in the PPP projects. For example, political leaders, respected elders, local community, groups, activists and so on must be involved in various processes of PPP project.

Thirdly, we identified four cases of administration regarding PPP implementation in India. Mevada and Devkar (2017) mention administrative barrier to the PPP projects in India. As stated earlier, the public procurer must ensure that there is necessary support and facilitation regarding the licensing, permits and approvals from the related government departments. Mahalingam (2010) reports the weak capacity of public officials in managing the affairs of PPP. He relates the contract failure or renegotiation of contracts due to lack of capacity of public officials to select and procure PPP projects.

Table 4. Identifying barriers on implementation of PPP projects in India

Title of journal article	Barriers and remarks	Source
Analysis of reasons for cost and time overrun in Indian megaprojects	<ul style="list-style-type: none"> ➤ Land ownership problem (Regulation) ➤ Administrative barriers (Administration) 	Mevada and Devkar (2017)
Financial risk assessment and modelling of PPP based Indian highway	<ul style="list-style-type: none"> ➤ Cash flow and investment analysis problem (Administration) 	Kumar, Jindal and Velaga (2017)
PPP Experiences in Indian Cities: Barriers, Enablers, and the way forward	<ul style="list-style-type: none"> ➤ Lack of regulations in the state level for PPP projects (Regulation) ➤ Lack of capacity of public officials (Administration) ➤ Political opposition (Participation) ➤ Administrative barriers (Administration) 	Mahalingam (2010)
Performance Evaluation of Implementation of Continuous water Supply projects: Two case studies from India	<ul style="list-style-type: none"> ➤ Lack of support from government agencies (Administration) 	Tawalare and Balu (2016)

3.4 PPP Projects in Malaysia

As shown in table 5, we identified four barriers in implementation of PPP projects in Malaysia. These barriers are related to regulation, participation, monitoring and information. Regarding regulation issues in Malaysian PPP, Lop et al., (2016) mention that there is no guidelines and framework for the procurement of PPP projects. This implies that it will be very difficult for the private operator to prepare their tender without having proper guidelines and instructions. Such guidelines and framework of procurement also direct the procurement team of public procurer for better planning, management and monitoring of PPP construction, operation and maintenance.

We identified two cases where the public participation is important. For example, Abdul-Aziz and Kassim (2010) report political intervention in the PPP projects in Malaysia. They mention that the most sensible issue is patronage politics that politicians want their friends being engaged in PPP projects. Beh (2010) point out several projects impacted by complex involvement of politics in Malaysia. He adds that such involvement, patronage and profits distort the implementation of PPP projects in Malaysia.

Monitoring of PPP projects are highly reported in Malaysian PPP projects. In section 2.2, we mentioned some projects in Malaysia that required monitoring. Beh (2010) reports the moral hazard issue in Malaysian PPP projects where the government bail-out poor performance of private operator. Often there is delay in construction, and such delay is not monitored by the public authorities. For example, Beh (2010) reports the case of Port Klang Free Trade Zone (PKFTZ) which had a cost overrun of RM 1.8 billion to RM 4.6 billion. Additionally, the improvement of services also requires monitoring from the public authority (Sapri et al., 2016). Abdul-Rahman, Wang, and Binti Muhammad (2010) mention project management tools such as Earned Value Analysis (EVA) which is used for “*monitoring and forecasting the project performance such as time and cost*”. According to them, the project performance can be monitored efficiently applying EVA.

We mentioned earlier the importance of information in section 2.2. In our review of journal articles in Malaysia, we found out two cases relating to information which require the existence of a PPP information system. Through such information system, a PPP project’s efficiency can be measured.

Table 5. Identifying barriers on implementation of PPP projects in Malaysia

Title of journal article	Barriers and remarks	Sources
Objectives, success and failure factors of housing public private partnerships in Malaysia	<ul style="list-style-type: none"> ➤ Lack of proper monitoring (Monitoring) ➤ Political will (Participation) 	Abdul-Aziz and Kassim (2010)
Public Private Partnership Benefits in Delivering Public Facilities in Malaysia	<ul style="list-style-type: none"> ➤ The need for effective monitoring (Monitoring) 	Sapri, Hariati, Ting and Sipan (2016)
Project Performance Monitoring Methods Used in Malaysia and Perspectives of Introducing EVA as a Standard Approach	<ul style="list-style-type: none"> ➤ Project management (Monitoring) 	Abdul-Rahman, Wang, Binti Muhammad (2010)
Performance Assessment Framework for Private Finance Initiative Projects in Malaysia	<ul style="list-style-type: none"> ➤ Absence of KPIs for PFI projects (Monitoring) ➤ Absence of guidelines and framework for PFI procurement system (Regulation) 	Lop, Ismail and Isa (2016)
Sustainability and the facilities management in Malaysia	<ul style="list-style-type: none"> ➤ Lack of PPP knowledge (Information) 	Asbollah, Isa and Kamaruzzaman (2016)

Development and Distortion of Malaysian Public-Private Partnerships - Patronage, Privatised Profits and Pitfalls	<ul style="list-style-type: none"> ➤ Complex involvement of politics (Participation) ➤ Lucrative profits of private partner (Monitoring) ➤ Excessive government guarantee and bailout for failed PPP projects (Monitoring) ➤ Lack of PPP manuals and guidelines (Regulation) 	Beh (2010)
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3.5 PPP Projects in Taiwan

The experience of Taiwan on implementation of PPP projects has both successful and unsuccessful stories. The successful story is about institutional reform brought to the PPP unit. Tserng et al., (2012) mention the institutional improvement of PPP in Taiwan. According to them, during 2005 many contractual disputes occurred, and the PPP unit did not intervene to resolve the disputes. This resulted in loss to private sectors and the investors' confidence to PPP projects declined. Since 2008, however, the PPP unit is given responsibility and authority of both ex-ante quality control and ex-post performance measurement. Before a contract is awarded, the commitments made by both parties are verified by the PPP unit. During the contract implementation, the PPP unit encourages the parties to resolve their disagreements through negotiation and dialogue. At the same time, the strong PPP unit with high political support improves the investor's confidence. Moreover, the application of payment mechanism in Nanzih project (Zheng and Tiong (2010)) and the central government payment guarantee also contributed to the success of PPP implementation in Taiwan.

Despite of those success stories, we identified four barriers which affect the successful implementation of PPP projects in Taiwan (table 6). Firstly, in case of regulation of PPP projects, often there is confusions and mistakes occur on applying two acts. The act for promotion of PPP and the act for public procurement. Huang (2016) compares the two acts and point out that "historical background, legislative purpose, implementation procedures, transparency and confidentiality regulations are fundamentally different between the two acts". He adds that the government staff do not have experience and professional knowledge of the act for the promotion of PPP and whenever problem happens, the project manager will be held accountable. Additionally, this also occurs due to fear of prosecution when a violation is detected. So, this is a big confusion on which act should be used for promotion of PPP. Huang (2016) recommends that the act for promotion of PPP shall emphasize on mutual trust and cooperation between the parties in the contract. Chou et al., (2015) emphasize on the role of institutional framework in management of the PPP projects. That means the policy makers should think of developing proper guidelines to direct and measure performances. For example, the Taiwan government measured the performance of private operator through satisfaction indexes of key stakeholders. This is a big step for ensuring successful operation of PPP project.

Secondly, Huang (2016) mentions poor administration of the government officials in implementation of PPP projects in Taiwan. This is specially about implementing the Act for promotion of PPP. For example, he quotes the Taiwan MOF report (2015) which mentions the PPP project's performance is affected by the poor administration of government officials.

Thirdly, there were two cases of procurement related issues. Lee and Yu (2010) mention the case of wastewater treatment in Taiwan and argue that the responsibility of connection of household to the concessionaire reduces the government administrative barrier. At the same time, as the payment is volume based it creates incentives to concessionaire to speed up the connection works. As there are many wastewater projects implemented in Taiwan, the public managers must conduct a cost-benefit analysis of the volume-based payment or the payment based on services done. Perhaps, the early completion must be accompanied with quality check and control. Chou et al. (2015) reports from the Taiwan Public Construction Commission that during 2002-2009, the rate (number of project disputes/ No. of total projects) of contractual disputes were 16 percent. According to them, 84 percent of disputes were resolved through mediation (table 6).

Fourthly, Zheng and Tiong (2010) mention the need for regulatory information to the private operators. For example, they mention some important government documents such as *“land utilization plan, construction, operational plan, the financial plan, and letter of intent for financing”* which needs to be submitted. Absence of any of such documents results in disqualification of a bidder. In the case of Nanzih wastewater BOT project in Taiwan, Zheng and Tiong (2010) note that the international bidder's bid was rejected on such ground. The company, however, resubmitted the documents but still could not satisfy the requirement of the PPP act. Zheng and Tiong (2010) emphasize that the private company must know the PPP law and regulations. Equally important the law and regulation must be accompanied with guidelines with detailed information to facilitate bid preparation.

Table 6. Identifying barriers on implementation of PPP projects in Taiwan

Title of journal article	Barriers and remarks	Source
Service delivery comparisons on household connections in Taiwan's sewer public-private-partnership (PPP) projects	➤ Specification problem (Procurement)	Lee and Yu (2010)
First Public-Private-Partnership Application in Taiwan's Wastewater Treatment Sector: Case Study of the Nanzih BOT Wastewater Treatment Project	✓ Lack of regulatory information such as: Government documents such as land utilization plan, construction and operational plan, the financial plan, letter of intent for financing (Information)	Zheng and Tiong (2010)

A Comparative Study on the Present Government Procurement Act and Act for Promotion of Private Participation in Infrastructure Projects in Taiwan	<ul style="list-style-type: none"> ✓ Poor coordination (Administration) ✓ Vagueness of the Act for promotion of PPP (Regulation) ✓ lack of guidelines on PPP applications (Regulation) 	Huang (2016)
Strategic governance for modelling institutional framework of public-private partnerships	<ul style="list-style-type: none"> ✓ Improving institutional framework (Regulation) ✓ Contractual disputes (Procurement) 	Chou, Tserng, Lin and Huang (2015)
Analysing the Role of National PPP Units in Promoting PPPs: Using New Institutional Economics and a Case Study	<ul style="list-style-type: none"> ✓ Improving institutional framework (i.e. pre-contract quality control and post contract management responsibility of PPP Unit (Regulation) 	Tserng, Russell, Hsu, and Lin (2012)

4. Conclusion and Recommendations

PPP is a good policy tool to expand and develop public services by applying expertise, finance, and management skills of private sector. In case of developing countries, there is shortage of public fund and poor public services which can be supported through the PPP. But the empirical evidence on PPP projects implementation indicates that there are barriers for the successful implementation of PPP projects. Through a review of journal articles on PPP in developing countries, we identified six barriers that affect the implementation of PPP projects. These barriers are: regulation, participation, administration, monitoring, procurement and information.

We strongly recommend developing countries to consider appropriate measures relating to the above barriers while planning for PPP. We provide our recommendations as follows:

1- Regulation is very important for successful implementation of PPP projects. Because there is great possibility that the government officials may change the contractual terms for their political motives. The government may dishonour contractual terms and nationalize a project. That is why a strong regulatory authority is needed to ensure proper execution of a contract. For example, the private partner may have promised huge investment which might not possible for them to do. The government may have promised too much generous terms in favour of private partner which might be difficult to be implemented. For example, is the MDG provided in the contract does not impose huge cost to the government? Does the private partner have capability (i.e. human resource, financial stability, experience and so on) to implement the project? Is the promise of the private sector under the contract is feasible? For example, as author showed in section 3.2, Song et al., (2018) mentioned that the contracts contained “fixed rate of return” were cancelled in China. The regulatory authority must facilitate the regulatory issues to private operator by developing guidelines and manuals. For example, information about conflict of interest, dispute settlement and the role of regulatory authority to ensure transparency, and the procedure for bidding must be explained. Additionally, the regulatory authority shall

ensure that the private operator knows the local economic and political conditions.

2- Participation is important to ensure that the PPP project has enough political support. The public managers should identify, analyse and involve key stakeholders in various stages of project implementation. Local politicians, respected elders, media, NGOs, ordinary citizen and service users shall be asked to join public meetings where they express their priorities and needs. The service user's willingness to pay for a service can also be examined through the public participation. Such participation generates information that help minimization of future disputes in the PPP projects.

3- Administration is facilitation and coordination required by the government departments in the implementation of a PPP project. Prior to planning a PPP project, the public manager and the management team shall ensure that they already have necessary facilitation and assistance from related government departments. The public procurer shall communicate, negotiate and even sign agreements on future cooperation and coordination required for a project. For example, a government department make written promises to facilitate the processes of issuing licenses, permits, approvals and any other assistance required for a project. Otherwise, many problems and challenges such as environmental issue, land issue and so on will occur. Additionally, the public managers are required to develop skills and capabilities to encourage their employees for more interaction with the related government departments. In this way, trust can be built gradually between government organizations. The knowledge created through PPP implementation shall be shared with officials and employees to enhance their professional experience. Employees shall be given opportunity to learn administration through capacity building programs. To carry out such affairs, the public procurer needs to dedicate resources, energy and time to enhance performance.

4- Monitoring of PPP projects by public officials is crucial to ensure efficiency and effectiveness of services. Public managers must think that they are responsible for the PPP success. Because if a project fails, the public procurer must seek alternative service. That will bring more administrative pressure and financial cost to the government. That is why a consistent monitoring is critical to ensure that the project construction and operation is within the schedule and meet the defined criteria. Without such information, it will also be difficult to measure the impact of government financial support to a project.

5- Procurement contract risks such as breach of contract or disputes arising from the terms and conditions of the contract are observed in many projects. This requires that the contract must provide mechanism for settlement of disputes. Besides introducing such mechanism, it is highly recommended to maintain a cooperative relationship with the private partner. Because

it is a long-term contract and there will be frequent problems and challenges. Whenever a problem occurs, it will be very costly and time-consuming to refer to external arbitration or court.

6- Information regarding the PPP projects should be gathered, analysed and disseminated. For example, a project efficiency shall be judged through a consistent information gathering and analyses. Similar projects shall be compared to identify the critical factors that impact the efficient implementation of a project. Additionally, through such process, the public managers should ensure that the service users are satisfied from the service and to analyse if there is discrepancy between the demand forecasted and the actual demand for the service. The information generated through this process becomes a base for making future policies on PPP.

Throughout this paper, we tried to address various barriers in both pre-award and post-award contracting. We also provided various examples and recommendations for each barrier. This study, of course, does not reflect the whole experience of PPP projects in developing countries. We recommend further research and analysis of PPP implementation in each of the mentioned developing countries, particularly for Russia and South Africa.

Abbreviations

BOT	Build Own Transfer
BRICS	Brazil, Russia, India, China, and South Africa
DBFO	Design Build Finance Operate
DOE	Department of Energy
EVA	Earned Value Analysis
FAA	The Federal Aviation Administration
GAO	Government Accountability Office
KPIs	Key Performance Indicators
MDG	Minimum Demand Guarantee
NGOs	Non-governmental Organizations
PFI	Private Finance Initiative
PPP	Public Private Partnership
SPV	Special Purpose Vehicle
TOT	Toll Operate Transfer
USD	US dollar
VfM	Value for Money

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