

IDENTIFICATION OF POTENTIALS AND BARRIERS OF PUBLIC-PRIVATE PARTNERSHIP PROJECTS IN EGYPT

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ABSTRACT

Egypt is facing a huge financial problem reflected on the difficulty of funding public projects either in construction and infrastructure sectors. One of the approaches for such problem is to work cooperatively with private sectors in the form of Public-Private Partnership Projects (PPP). This approach, however, is facing a number of challenges. This paper, thus, aims at providing a factor analysis for the establishment of PPP in Egypt through extracting lessons learned in other countries. A literature review has been done to analyze existing factors, followed by a qualitative study of case studies. Finally, a survey questionnaire was conducted on a purposeful sample of 55 stakeholders, either from private or public sectors in order to prioritize and verify factors affecting the success or failure of PPP projects in terms of their severity and impact in Egypt. Results of this paper indicated that bureaucracy, corruption, poor enabling policies and inefficient feasibility studies are among the major barriers that face PPP in Egypt, whereas achieving a reliable contractual structure and political support are the main potentials. Findings of this paper are valuable to stakeholders, decision makers and policy makers in Egypt, as it could guide their thinking towards achieving successful PPP Projects.

KEYWORDS: Public-Private Partnership, Construction projects, Egypt.

1. INTRODUCTION

Worldwide, governments are experimenting new ways for financing construction and infrastructure projects [1]. Egypt, among other countries with emerging economies, is facing a huge financial problem which is reflected on the difficulty of funding public projects and services. The government is facing complications in funding both existing projects and new built ones. One of the

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approaches for such an irritating problem is to work cooperatively with private sectors in the form of Public-Private Partnership Projects PPP, which has become a trending method, especially in public infrastructure projects [2]. Though this approach proved successful in some countries, it is facing a number of challenges. Therefore, to achieve successful PPP projects, there is a need to analyze factors that contribute to the success of such projects; either moving factors or obstructing ones. According to RICS Policy Report [3], more than 40 countries are currently adopting PPPs. These countries found in PPP projects a solution to financial deficit, insufficient monetary resources, and the gap between supply and demand [4]. The investment amount in PPP projects since 1990 and till 2006 is shown in Fig. 1.

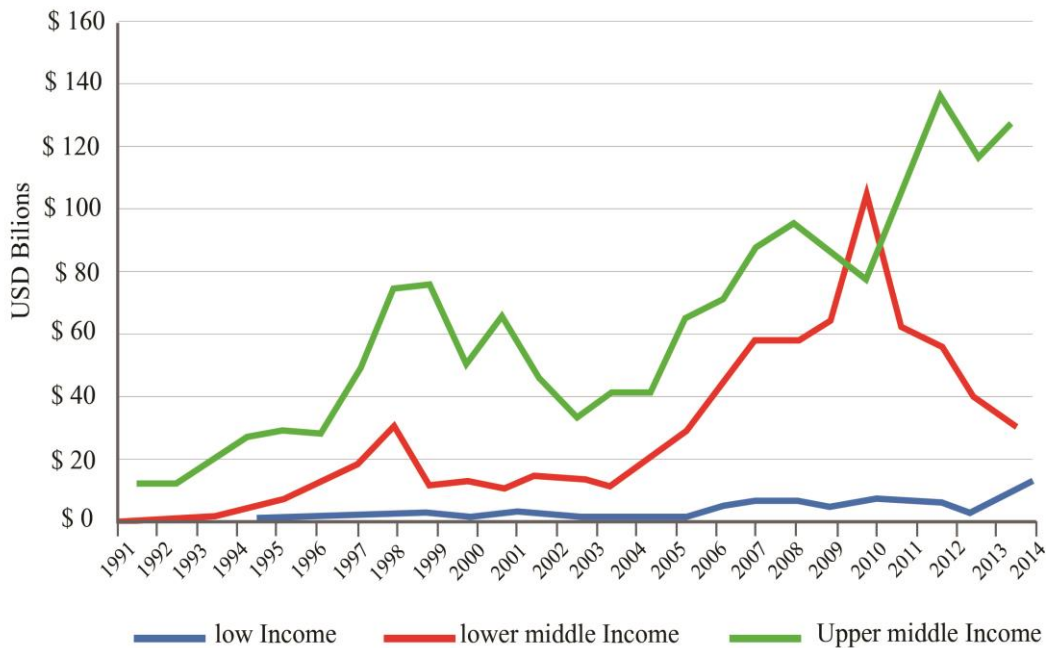


Fig. 1. PPP investment in infrastructure projects in countries adopting PPP [5].

1.1 PPP Projects in Egypt

In Egypt, companies have recognized the importance of setting up long-term strategies with governmental polices, where PPP has become an important method for the government to share risks associated with economic expansion. Responsibilities and benefits in PPP are shared and mutually exchanged between the government and the private sector. While the government makes use of the private sector to run public

services, the private sector is inspired by confidence of the permanence of business operation. In the Vision of Egypt 2030, the economic pillar is set to increase the GDP rate at 7 % per annum, through different means including innovations in the industrial sector, with high dependency on private sector's innovations. In addition, a key objective of the social pillar is achieving confidence in the government through enhanced services provision and boosting infrastructure.

Among the various attempts done by the Egyptian Government in order to enhance the PPP projects in Egypt is the Egyptian Law No. 67 for the year 2010 which was established and dedicated to PPP projects in Egypt. This law defines a "PPP Contract" as "A contract concluded between the administrative authority and a project company under which the project company is entrusted to undertake all or some of the following activities: financing, constructing, equipping and operating infrastructure projects and public utilities and making their services available or financing and rehabilitating such utilities" [6].

1.2 Research Problem and Aim

Applying PPP projects in Egypt calls for providing analysis for lessons learned from the implementation of such projects in similar contexts, namely, countries with emerging economies. Thus, this paper aims at providing a comprehensive factor analysis for the establishment of PPP projects in Egypt through extracting lessons learned from PPP projects in other countries with similar context. The question that the researcher is tempting to answer is twofold: first, what stands behind the success of PPP projects in other countries? And second, what are the existing key barriers that are still existing and limiting the implementation of such projects in Egypt?

1.3 Methodology

The first step for achieving the aim of this paper is identifying the key challenging and potential factors as discussed throughout different literature sources. In order to achieve this initial step, a literature review has been conducted to analyze factors existing in extant literature sources. Based on findings of the literature review,

the research paper succeeded to identify a comprehensive definition for the PPPs, and to highlight the key factors influencing their efficient establishment. As a second step, this was followed by a qualitative study of case studies of PPP projects. The investigated countries included countries that were either pioneering in the adoption of PPP Projects, or countries who recently adopted such approach. The selection of countries considered countries with emerging economies in Asia and Africa to assure some common attributes with the case of Egypt. Finally, the author applied a questionnaire on a purposeful sample of 80 architects, construction engineers, project coordinators, project finance managers, construction project managers and other stakeholders concerned with the process of establishing PPP projects in Egypt. The response rate was 69% with 55 valid responses. The respondents' years of experience varied from 4 to 33 years to represent a wide spectrum of stakeholders involved in PPP. Almost 40% of the sample represented experts with more than 15 years of experience. The survey was based upon the findings the literature, where respondents were asked about their background and previous experiences on PPPs and the most valid definition based on their perception. In addition, respondents had to rate the key potential and barrier factors that were extracted from the research analysis according to their impact on establishing PPPs in Egypt. The application of the questionnaire helped to prioritize and verify the factors affecting the success or failure of PPP projects in terms of their severity and impact in Egypt in particular.

2. LITERATURE REVIEW

The Review of literature starts with a description of the background of the PPP, their nature, and concept. Factors affecting PPP projects are then discussed.

2.1 Nature of Public-Private Partnership Projects

Several reasons have been detected from literature sources why countries tend to adopt PPPs. These reasons include the achievement of better value for money [7], achieving operational efficiency, more innovation, either technological or managerial, and more active involvement of private partners in public service projects [4].

Although these projects have proved to be of value, there is still a need to investigate their nature to fully understand factors affecting them afterwards. The evolution of PPP started long ago in the western world with the objective of utilizing private capital for public services provision [8]. It was only since 1990 that PPPs have started to spread in all countries. In general, the evolution of Public-Private concept has passed through three different generations, this is shown in Fig. 2. These generations reflect the development of PPP projects scale, types and degree of collaboration in order to cope with the critical social and financial needs [9].

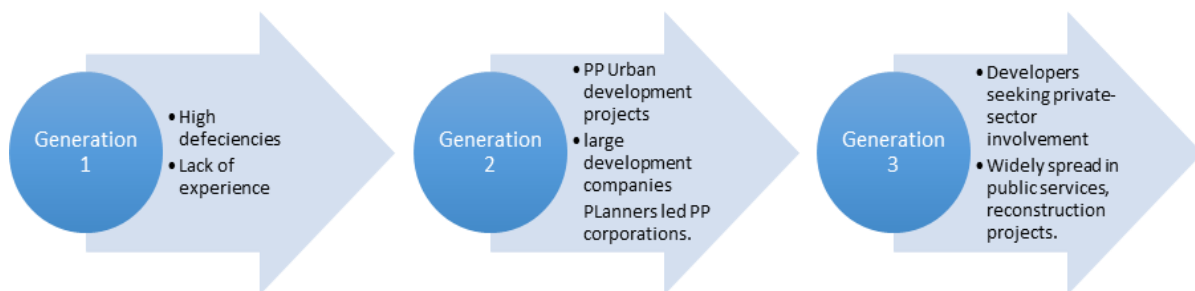


Fig. 2. The generations of PPP evolution [10].

2.2 Definitions and Classification of PPP

Following to understanding the nature and value added from PPP projects, defining them accurately is quite significant. PPPs have various definitions, as summarized in Table 1 based on extant literature sources and experts' insights. The Table adds critical analysis offered by the author to the provided definitions. Based on this analysis, it is observed that the main drawback in most PPP definitions is limiting the application of PPP on infrastructure projects. Rather, the definition should better consider broadening the application on all types of public service projects, including, but not limited to, Education, healthcare and residential projects. In addition, most definitions focused only on the benefits gained by public sector, whereas, it would be of value to add the benefits gained by both sides to spread the culture of PPP. The common attributes among all definitions were gathered in the following suggested definition: "PPP is a process governed by contractual arrangement between public governmental sector and private sector developer, through which both partners share

resources and risks for the sake of providing cost effective, high quality public service projects”.

Table 1. Definitions of PPPs.

Reference /Insight	Definition	Critical Comments
[11]	“Contractual arrangement between a public sector agency and a for-profit private sector developer, whereby resources and challenges are shared for the purpose of delivery of a public service or development of public infrastructure”	Focuses on allowing private firms to finance projects of public sector infrastructure.
[14]	Did not offer a specific definition. Agreed that there is no unified definition of PPP but all definitions have common characteristics.	
[21]	“PPP is a tool to bring together the strengths of both public and private sectors with a view to improving the development of a nation’s infrastructure”	Limits the description of PPP as only a tool not a process. Focuses on infrastructure projects.
Insight	“PPP is an output-oriented long term relationship between the public and the private party”	Offers description of the PPP relationship
[1]	“A cooperative venture between the public and private sectors, built on the expertise of each partner that best meets clearly defined public needs through the appropriate allocation of resources, challenges and rewards”	A balanced definition that focuses on mutual responsibilities and benefits
[1]	“A PPP is a contractual agreement between a Public Authority (the Client) and a private corporate entity (the Partner) spanning an extended term over 10 to 20 years or more for the provision of assets and related services”	A specific term focusing on the legislative aspects of the relationship and limiting its time.
[18]	The involvement of the private sector should be considered in case the infrastructure project capital cost exceeded the value of \$50 million	A limited term focusing on the capital cost limitation for PPP.

2.3 Challenging Factors for Establishing PPP Projects

Achieving efficient PPP projects has always suffered from a number of challenges, or barrier factors [11]. Table 2 summarizes the key barriers among the identified factors that were extracted from extant literature sources and experts' insights. The author observed that most of the discussed literature sources have identified key barriers in terms of their root causes, e.g. barriers related to political issues, lack of transparency, political willingness, and political support. This method of identifying factors by their root cause, though efficient when attempting to solve these problems, lacks linking the factors to the phase in which they occur. Thus, this paper suggests to link the barrier factors to both the root causes and the phases through which they might occur in the life cycle of the PPPs.

Table 2. Identification and classification of key barrier factors affecting PPP.

Reference /Insight	Key Barrier Factor(s)	Classification of Barrier
[11]	Lack of relevant experience, provision of incomprehensive up-front project information, slow negotiations, less open communication, inconsistent risk assessment, and management	Decision Making and authorization-related, Knowledge-related, Communication-related, Management-related, Risk-related
Insight	Lack of competition; and procurement inefficiencies.	Tendering-related Procurement-related
[2]	Public opposition Social behavior of people towards PPPs	Social
Insight	Poor stakeholders' engagement and community acceptance of PPPs	Stakeholders-related Social
Insight	Lack of societal trust in private sector	Social
[16], Insight	Lack of governmental assistance in resolving conflicts and monitoring. Lack of guarantees/incentives by governments	Project support and controlling-related
Insight	Weak policies and enabling frameworks	Politics-related

Reference /Insight	Key Barrier Factor(s)	Classification of Barrier
[2], [7], Insight	Law and regulation changes. Fluctuations in currency.	Legislative Variances-related
[7]	Land acquisition problems Difficulty in obtaining foreign exchange	Feasibility and finance-related
[2]	Shortage of professionals to handle PPP projects	Human Resources-related
Insight	Lack of innovations in design Lack of flexibility in design	Architecture design-related

2.4 Challenging Factors for Establishing PPP Projects

Producing efficient PPP projects is not all about learning from barriers or just avoiding their occurrence, it is also about embracing and enhancing the potential factors which will guarantee promoting value added for these projects. The potential factors for PPPs have been discussed through different literature sources and extracted from experts' insights, where they all agreed that these factors are to be monitored throughout the project life cycle in order to effectively achieve the goals of the organizations in each country [12-13], see Table 3.

Table 3. Identified and classified key potential factors of PPP.




Reference /Insight	Key Potential Factor(s)	Classification of potentials
[21]	Accelerate economic growth, development and infrastructure delivery, and achieve quality service delivery and good governance	Financial Project constraints-related (cost-time-quality-scope) Political
Insight	Technical feasibility	Feasibility-related
Insight	Transparency in procurement process	Procurement-related
Insight	Good governance, effective management control, and favorable investment environment	Political Risk-related
Insight	Favorable investment environment	Political / Finance-related
Insight	Good governance	Political and legislative
[21]	Transparency in the procurement process; effective management control;	Procurement-related Project support and






Reference /Insight	Key Potential Factor(s)	Classification of potentials
	good governance; project economic viability; project technical feasibility and favorable investment environment.	monitoring related Political related\finance related\Feasibility related




2.5 Finding of Key Challenging and Potential Factors for PPP through Literature

Table 4 presents the key factors extracted from extant literature sources in a collective manner, each factor has an assigned code as P (potential) or B (Barrier). The number assigned to each factor represents the main category of the factor, e.g. P1 presents feasibility and finance-related potentials.

Table 4. Summary of identified potential and barrier factors for PPP, Source: Author

Classification based on root causes	Potential Factors	Barrier Factors
1. Feasibility and finance related 	P1.1 Efficient project planning P1.2 Precise technical feasibilities. P1.3 Availability of financial market. P1.4 Stable macroeconomic environment. P1.5 Innovations in finance methods. P1.6 Realistic Cost benefit analysis.	B1.1 Lack of public sector long term funds. B1.2 Delays in payments. B1.3 Inefficient Payback estimation. B1.4 Inaccurate feasibility study.
2. Tendering, Bidding, Procurement and contracts-related 	P2.1 Offering special structures for bid. P2.2 Competitive financial packages P2.3 Transparency in procurement process P2.4 Competitiveness in procurement. P2.5 Reliable contractual structure.	B2.1 Corrupted tendering procedures. B2.2 Lack of procurement completion B2.3 Political influence on procurement process. B2.5 Non-competitive bidding
3. Project's constraints-related 	P3.1 Relative Short period of construction P3.2 Efficient quality-management control.	B3.1 Time Overruns due to negotiations B3.2 Difficulties in clear scope definition B3.3. Difficulties in identification of work requirements and quality standards.

Classification based on root causes	Potential Factors	Barrier Factors
<p>4. Risk management-related</p> 	<p>P4.1 Efficient risk identification. P4.2 Providing suitable risk transfer strategies.</p>	<p>B4.1 countries economy classification as high risk B4.2 Difficulty of attracting foreign investors and foreign exchange risk. B4.3 Lack of clarity of the PPP production process B4.4 Poor risk management process.</p>
<p>5. Decision making, Authorization and stakeholders-related</p> 	<p>P5.1 Distribution of Authority between public and private sector. P5.2 Commitment of responsibility. P5.3 Well-organized approval process P5.4 Efficient stakeholders' management.</p>	<p>B5.1 Conflicts between stakeholders. B5.2 Inability of public sector to manage consultants. B5.3 Lack of coordination between different governmental parties. B5.4 Lack of transparency. B5.5 Bureaucracy B5.6 Lack of independence and centralization</p>
<p>6. Social</p> 	<p>P6.1 Supportive and understanding community.</p>	<p>B6.1 Behavior of people towards PPP. B6.2 Public resistances. B6.3 Lack of trust in private sector.</p>
<p>7. Political and legislative</p> 	<p>P7.1 Political support P7.2 Good governance P7.3 Advantageous legal framework</p>	<p>B7.1 Poor enabling policies B7.2 Problems of regulatory frameworks, procedures and guidelines. B7.3 Poor judicial framework for disputes and conflicts resolution. B7.4 Land acquisition problems. B7.5 Lack of strong political commitment. B7.6 Delays due to political arguments.</p>
<p>8. Variance related</p> 	<p>P8.1 Built in flexibility to adapt with changes. P8.2 Technology transfer. P8.3 Strong private corporations. P8.4 Promising investment environment.</p>	<p>B8.1 Law and regulation changes. B8.2 Political instability B8.3 Changes in the macroeconomic local investment markets.</p>
<p>9. Project support, monitoring and</p>	<p>P9.1 Governmental support by offering incentives.</p>	<p>B9.1 Lack of governmental assistance in resolving</p>

Classification based on root causes	Potential Factors	Barrier Factors
controlling related 	P9.2 Quality management control	conflicts between stakeholders. B9.2 Alterations of guarantees offered by the government B9.3 Poor evaluation by public sector. B9.4 Corruption of monitoring institutions
10. Human and resources related 		B10.1 Lack of experience/expertise in both public sector and private investors. B10.2 Inability of large construction companies to deliver PPP.
11. Architecture and urban design related. 		B11.1 Lack of innovation in design B11.2 Incomplete Architecture drawings B11.3 Lack of coordination between architecture, urban designers and construction and management.

3. ANALYSIS OF PPP CASE STUDIES IN COUNTRIES

After managing to collect and classify the key factors affecting PPP projects, the researcher turned to the next step towards achieving the aim of the research, namely extracting lessons learned from countries of a similar context to Egypt. Thus the coming part analyzes the factors affecting PPP in real life projects and in countries which adopted these projects in general. The analysis was based on literature sources, where the identified factors were detected, based on the previous findings of literature sources.

3.1 Case Studies Presenting Barrier Factors

The selected case studies presenting barrier factors are presented by the countries experiences, not by projects, which will allow the research to benefit from the overall challenging factors in similar countries. Selected countries include China, India, Nigeria and Egypt. The common attributes in the selected countries are: having common aims of

developing infrastructure projects, including private sectors in public services project, facing financial challenges and having political problems. China is a pioneering country in the field, where it started to adopt PPPs since 1970. Nigeria and India started PPPs adoption in the 1990s.

3.1.1 Case study 1: India

According to Lyer the financing for infrastructure projects in India till 2015 was approximately \$ 448 billion, focused on infrastructure projects [14]. This called for the adoption of PPP as a solution to develop India's infrastructure. The Sustainable Cities Program (SCP), supported by the United Nations Development Program (UNDP) which started in 1990, is considered one of India's pioneering PPP. According to the analysis of case studies the key challenges affecting PPP projects in India are:

- (B2.2) Tendering bidding and procurement-related: The project may be prone to cancellation or inadequate bid preparation.
- (B1.3) Feasibility and finance-related: The private party may not have enough financial ability to execute the project.
- (B6.2) Social: In the case of road projects, the displacement of habitants might be required to allow the work to take place.

3.1.2 Case study 2: China

In the case of China, they first implemented PPPs in 1970 to promote infrastructure development [15]. The PPP approach was highly effective in meeting the numerous requirements of new infrastructure development. Examples of successful PPP projects include the Beijing Metro, the Beijing National Stadium, the Olympic water park project, the first sewage treatment plant of Shanghai Zhuyuan, the Hangzhou bay bridge, Line 4 of the Shenzhen Metro, the sewage treatment project in Xilang, and 10 water plants in Beijing [16]. According to the analysis of case studies, the key challenges affecting BOT projects in China are:

- (B5.2, B5.5, B5.6) Decision making and authorization-related: Including Government Intervention and Poor public decision-making process.

- (B9.4) Project support, monitoring and controlling-related: Including Government corruption.
- (B1.1) Feasibility and project finance: Financing challenges.
- (B7.1, B72) Political and legislative: Inadequate law and supervision system [17].

• 3.1.3 Case study 3: Nigeria

In Nigeria there has been a trend towards implementing PPPs since 1990 and to date. The total number of PPP projects till 2014 was about 145 [19]. According to the analysis of case studies the major key challenges affecting PPP projects in Nigeria are:

- (B2.3, B7.6) Political: political interference in procurement process and political instability.
- (B1.1, B1.3) Feasibility and finance-related: poor financial projections; inability of local institutions to provide equity financing.
- (B7.1) Legislative: poor enabling policies.

3.1.4 Case study 4: Egypt

A number of PPPs have been initiated lately, in order to move towards the Egyptian 2030 goals. This includes the call of the Ministry of Housing and Transportation to the private sector to submit offers to finance and maintain monorail projects from Giza to the New Administrative Capital. In the education sector, there are plans to develop and run 200 PPP school, which would improve current conditions and enhance the educational system in the country. Regarding the New Administrative Capital project, it is hosting a number of PPPs to develop 20 housing projects. An international Chinese company is partnering with the Ministry of Housing in developing 60 square meters. Local companies, especially real estate ones, are also participating in these projects, with high profit margins.

- (B1.4) Feasibility and finance-related: Unforeseen geotechnical conditions, Timing and Planning.
- (B11.2, 11.3) Design-related: Technical design issues.

- (B1.3, B3.1) Project constraints-related: Operation Cost Overrun, Time overrun during construction.
- (B8.1, B8.3) Variances-related: Inflation, legislation Change, technological challenges.
- (B4.2, B4.4) Risk management-related: risk transfer including insurance.

3.1.5 Identification of barrier factors in sample PPP

To add more to the lessons learned from worldwide countries in general, Table 5 offers analysis of barriers that face three different PPPs in 3 different countries with emerging economies: Thailand, Malaysia and Nigeria. Barriers were classified according to both their root causes and the phase in which they occurred in the project life cycle. Based on the analysis offered in Table 5, Barriers to PPP occurred along the lifetime of the projects, where in case 3 in Nigeria poor financial feasibility study and revenue expectations from the concession have not been met, which took place in the predesign phase. While absence of competition occurred in the Tendering and bidding phase in case 2 in Malaysia. Finally, a number of barriers occurred in Thailand PPP projects including political instability and inadequate experience of PPPs, which affected the PPP along its life time.

Table 5. Barrier Factors in PPP Examples.

	Case 1 (BOT) projects in Thailand	Case 2 Malaysia's privatized national sewerage project.	Case 3 Murtala Mohammed Airport Terminal 2 (MMA 2)
Pre-design phase			B1.4
Design and planning			
Tendering and bidding		B25	
Construction			
Post Construction			
Process of PPP production	B71 B75 B52		

3.2 Case Studies Presenting Potential Factors of PPP Projects

Thus, the coming part of this paper will focus on qualitative analysis of five pioneering PPPs allocated in countries of similar context to Egypt. The potential factors which had an impact on the effective implementation of these projects are analyzed and

classified in light of the classification offered at the end of the previous literature review part. Table 6 summarizes the analysis. Among the major potential factors that showed up in the case studies during the predesign phase was P1.1, efficient project planning. This was achieved in case 1 in Tanzania where the project structure clearly defined the roles and responsibilities of all parties. Risk was allocated to the parties that could most efficiently manage it. Also attaining precise technical feasibility P1.2 was achieved in Case 3 where the government led the study in a way as to successfully attract the market. The two factors, financial market availability and stable macroeconomic environment, led Case 5 to success, where the government supported the project from its conception, and prepared a legal framework for private sector successful interference. In case 3, the potential factor P1.5, innovation in methods of finance led to project success, where the government adopted a strategic approach to developing PPP expertise and finance know-how along all different sectors in Algeria. During tendering and bidding phase, the major potential factors in the cases included achieving Reliable contractual structure. This was clear in Case1 where it led to reducing the overall risk to project delivery. In Case 2 and Case 5, the contract clearly defined the investment and the operational obligations.

In the construction phase P4.1, efficient risk identification was achieved in Case 3 where the terms of the project long-term funding eliminated foreign exchange risk. In case 4, P3.2, efficient quality management control allowed the government to maximize the quality and quantity of health services available to citizens within its constrained budget, without increasing the minimal charges that they pay for hospital services. In the post construction phase, P9.1, project support, monitoring and control was obvious in case 2 and case 4. In case 2, Governmental support was achieved through offering incentives, certified trustworthy support to customers and links with other similar projects. In case 4, on the other hand, there was a Strong Support from government, staff and community, and an ability to attract powerful private sector consortium.

Finally, along the process of producing PPP, P5.1, Distribution of Authority between public and private sector was clearly achieved in Case1 in Tanzania, in addition to P7.1, the stable political environment enabled it to attract significant long-term investments. In case 2, P5.3, well-organized approval process, and P5.4, Efficient

stakeholders’ management both supported shaping the vision, taking into account both public and private sector issues. The project enjoyed strong political support at the very highest levels, P7.1.C4 benefitted from the involvement of local and regional stakeholders including investors, doctors and service providers, in addition to P6.1, strong support from both government and community.

Table 6. Potential Factors in PPP Examples [20].

	Case1 Songos Processing Plant/ Tanzania	Case2 Maputo- in Mozamb- ique	Case3 Skikada Desalinati on Plant/ Algeria	Case4 National Hospital/ Lesotho	Case5 Water services /Gabon
Predesign phase	P1.1	NA	P1.2-P1.5	NA	P1.3-1.4
Design and planning	NA	NA	NA	NA	NA
Tendering & bidding	P2.5	P2.5	NA	NA	P2.5
Construction	P8.1	NA	P4.1	P3.2	NA
Post construction		P9.1		P9.1	NA
Process of PPP production (Decision making, social, political)	P5.1 P5.2 P7.1	P5.3 P5.4 P7.1	NA	P5.4 P6.1	P7.1

4. GENERIC FINDINGS OF POTENTIAL AND BARRIER FACTORS OF PPP

After analyzing all potentials and barriers of PPP through both literature review and analysis of case studies, common factors were gathered and classified in terms of their expected time of occurrence throughout the project life time and according to the repetition among all case study countries'. Figures 3 and 4 respectively show the key potential and barrier factors for establishing efficient PPP in countries based on lessons learned from both literature review and analysis of case studies. Figure 3 shows that the key potentials are achieving a reliable contractual structure after tendering and bidding phase and along procurement, and offering political support along the lifetime of the project, in Addition to commitment of responsibility of both parties regarding decision making and governmental support by offering incentives in the post construction phase of the project. Achieving these key factors and other 15 factors in Fig. 3 should support the success of PPP projects in Egypt and other countries with similar context. Figure 4 shows the key 22 barrier factors that could form challenges to the successful implementation of PPP in Egypt and other countries adopting PPP.

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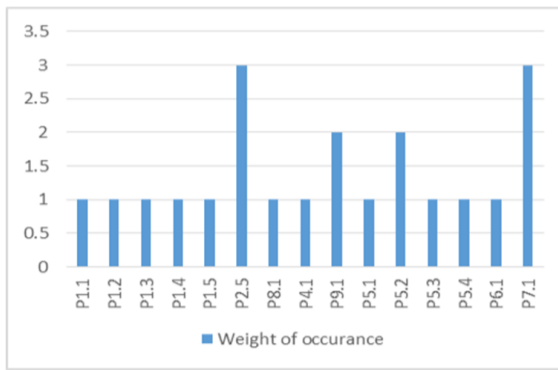


Fig. 3. Key potential factors for PPP in case study countries, Source: Author

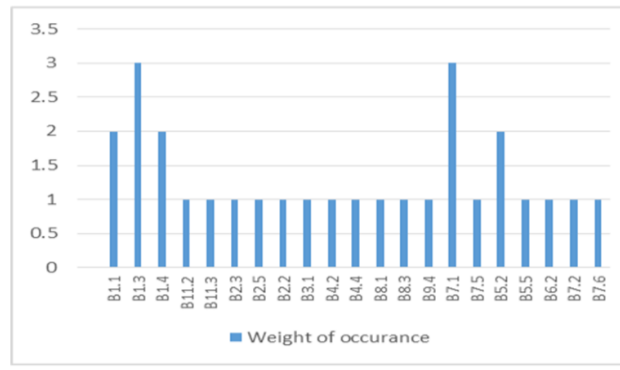


Fig. 4. Key Barrier factors for PPP in case study countries, Source: Author

The key factors include inefficient payback estimation in the predesign phase, poor enabling policies by the government, followed by lack of public sector long-term funds and inability of public sector to manage consultants. It is clear from the figure that most barrier factors are focused in the preliminary phases of the process of producing PPP, including planning, predesign and design phases.

5. APPLICATION OF QUESTIONNAIRE SURVEY

Figure 5 shows the degree of respondents' familiarity with the concept of PPP, where 86% were familiar with the concept of PPP, almost 40% of the respondents were directly involved in one or more PPPs. Figure 6 shows PPP types in which the respondents have been involved, where residential was the main type, followed by healthcare, infrastructure, and educational projects.

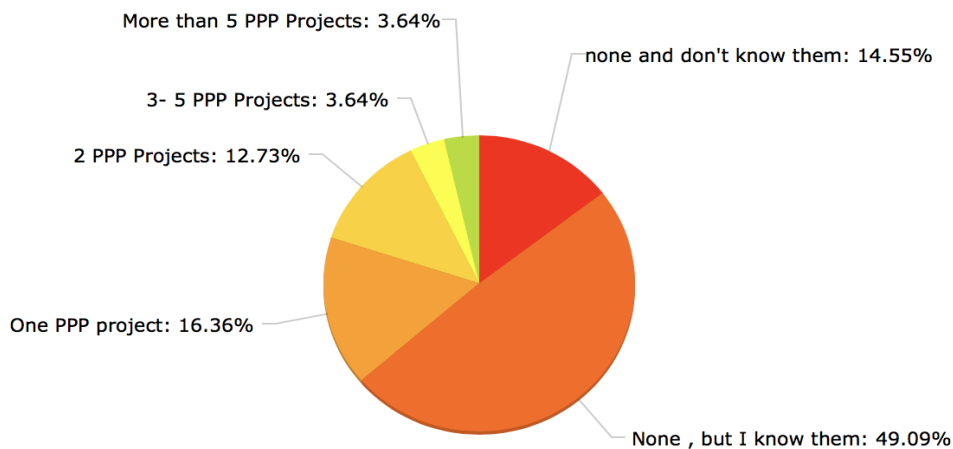


Fig. 5. Degree of involvement in PPP Projects, Source: Author

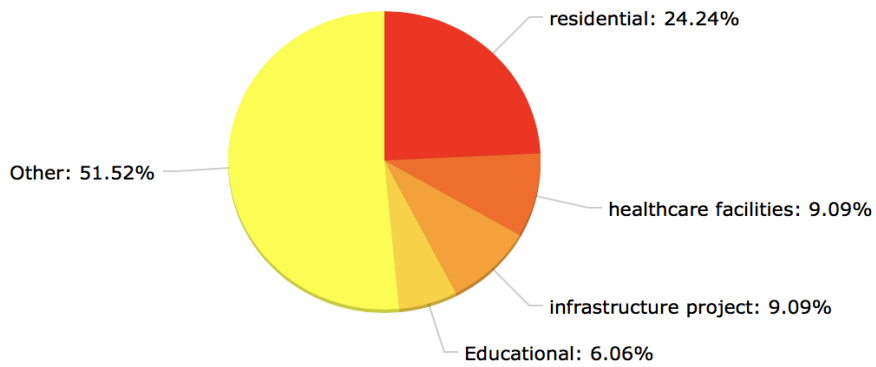


Fig. 6. Types of PPPs in which the respondents shared.

Most of the respondents shared in other types of PPP projects, which shows that the real application of PPP in Egypt is widely spreading. Published definitions [15] were accepted by the respondents as well as those the one suggested by the author. Figure 7 shows the degree of agreement on the definition of PPP, where the main definitions [21] that were accepted by the respondents, as well as the one suggested by the author.

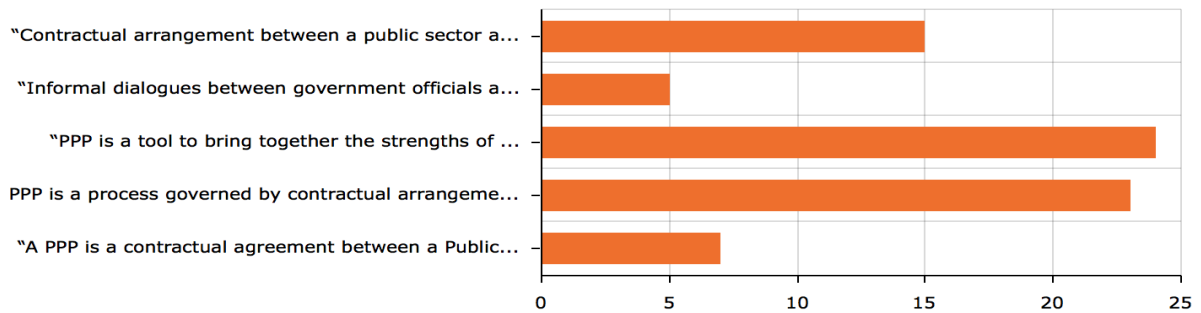


Fig. 7: Agreed Definition of PPP.

Figure 8 and 9 respectively show the rating of key potential and barrier factors for PPP in Egypt according to respondents.

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	very low impact (1)		low (2)		moderate (3)		high (4)		very high impact (5)		Ø	±
	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%		
P1.1 efficient project planning	1x	1.85	4x	7.41	15x	27.78	17x	31.48	17x	31.48	3.83	1.02
P1.2 precise technical feasibility.	-	-	7x	13.21	19x	35.85	17x	32.08	10x	18.87	3.57	0.95
P1.3 Availability of financial market.	1x	1.85	3x	5.56	19x	35.19	25x	46.30	6x	11.11	3.59	0.84
P1.4 Stable macroeconomic enviro...	-	-	7x	12.96	21x	38.89	17x	31.48	9x	16.67	3.52	0.93
P1.5 Innovations in methods of fina...	2x	3.70	4x	7.41	19x	35.19	22x	40.74	7x	12.96	3.52	0.95
P2.5 Reliable contractual structure.	-	-	6x	11.11	22x	40.74	19x	35.19	7x	12.96	3.50	0.86
P4.1 Efficient risk identification.	-	-	4x	7.55	17x	32.08	23x	43.40	9x	16.98	3.70	0.85
P5.1 Distribution of Authority betw...	2x	3.77	10x	18.87	14x	26.42	15x	28.30	12x	22.64	3.47	1.15
P5.2 Commitment of responsibility.	-	-	7x	12.96	15x	27.78	22x	40.74	10x	18.52	3.65	0.93
P5.3 Well -organized approval proc...	-	-	10x	18.52	22x	40.74	15x	27.78	7x	12.96	3.35	0.93
P5.4 Efficient stakeholders manage...	-	-	7x	12.96	18x	33.33	16x	29.63	13x	24.07	3.65	0.99
P6.1 Supportive and understanding ...	2x	3.70	11x	20.37	17x	31.48	14x	25.93	10x	18.52	3.35	1.12
P7.1 Political support	2x	3.70	10x	18.52	9x	16.67	17x	31.48	16x	29.63	3.65	1.20
P8.1 Built in flexibility to adapt wit...	1x	1.85	9x	16.67	18x	33.33	19x	35.19	7x	12.96	3.41	0.98
P9.1 Governmental support by offe...	3x	5.56	5x	9.26	17x	31.48	17x	31.48	12x	22.22	3.56	1.11

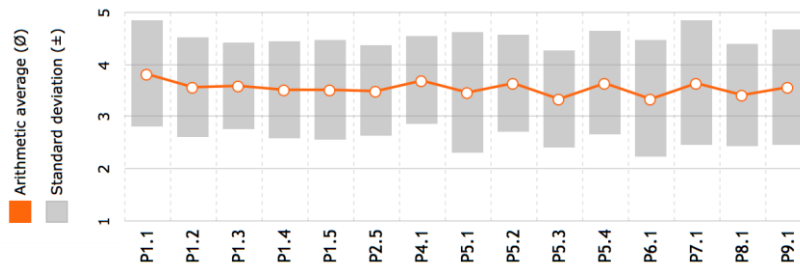


Fig. 8. Rating of key potential factors for PPP in Egypt.

The figures clearly show that all key potential factors were almost equally high rated, which proves the findings of both literature and case studies. Regarding the key barriers, it is clear that the rating matches the findings of this paper in general, however, three of the key barrier factors were considered by respondents to be of less impact on the success of PPPs in Egypt, namely public resistance, incomplete architecture drawings, and inefficient coordination during design phase.

	least probability (1)		low (2)		moderate probability (3)		high (4)		very high probability (5)		Ø	±
	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%		
B1.1 Lack of public sector long t...	1x	1.85	6x	11.11	15x	27.78	24x	44.44	8x	14.81	3.59	0.94
B1.3 Inefficient Payback estimat...	1x	1.85	5x	9.26	14x	25.93	29x	53.70	5x	9.26	3.59	0.86
B1.4 Inaccurate feasibility study.	1x	1.85	3x	5.56	19x	35.19	21x	38.89	10x	18.52	3.67	0.91
B2.2 Lack of procurement compl...	-	-	7x	13.21	21x	39.62	20x	37.74	5x	9.43	3.43	0.84
B2.3 Political influence on procu...	-	-	6x	11.32	9x	16.98	20x	37.74	18x	33.96	3.94	0.99
B2.4 Non -competitive bidding	1x	1.89	7x	13.21	19x	35.85	17x	32.08	9x	16.98	3.49	0.99
B3.1 Time Overruns due to nego...	-	-	5x	9.26	19x	35.19	20x	37.04	10x	18.52	3.65	0.89
B4.2 Difficulty of attracting fore...	-	-	8x	14.81	10x	18.52	24x	44.44	12x	22.22	3.74	0.97
B4.4 Poor risk management proc...	-	-	5x	9.26	22x	40.74	14x	25.93	13x	24.07	3.65	0.95
B5.2 Inability of public sector to...	1x	1.85	9x	16.67	16x	29.63	17x	31.48	11x	20.37	3.52	1.06
B5.5 Bureaucracy	-	-	3x	5.56	17x	31.48	14x	25.93	20x	37.04	3.94	0.96
B5.6 Lack of independence and ...	-	-	6x	11.11	16x	29.63	24x	44.44	8x	14.81	3.63	0.88
B6.2 Public resistances.	2x	3.70	14x	25.93	24x	44.44	9x	16.67	5x	9.26	3.02	0.98
B7.1 Poor enabling policies	-	-	6x	11.11	17x	31.48	24x	44.44	7x	12.96	3.59	0.86
B7.2 Problems of regulatory fra...	2x	3.70	5x	9.26	22x	40.74	14x	25.93	11x	20.37	3.50	1.04
B7.6 Delays due to political argu...	2x	3.70	3x	5.56	14x	25.93	23x	42.59	12x	22.22	3.74	0.99
B8.1 Law and regulation changes.	2x	3.77	12x	22.64	11x	20.75	19x	35.85	9x	16.98	3.40	1.13
B8.3 Changes in the macroecono...	-	-	2x	3.70	22x	40.74	26x	48.15	4x	7.41	3.59	0.69
B9.4 Corruption of monitoring in...	1x	1.89	1x	1.89	16x	30.19	19x	35.85	16x	30.19	3.91	0.93
B11.2 Incomplete Architecture d...	6x	11.11	17x	31.48	20x	37.04	5x	9.26	6x	11.11	2.78	1.13
B11.3 Lack of coordination betw...	2x	3.70	17x	31.48	16x	29.63	15x	27.78	4x	7.41	3.04	1.03

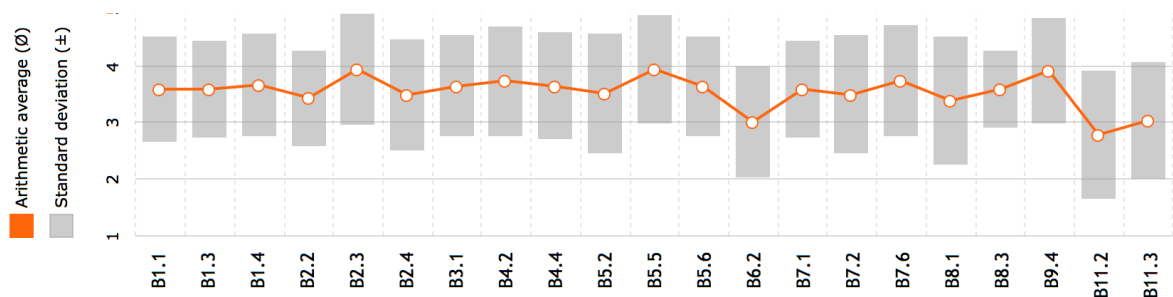


Fig. 9. Rating of key barrier factors of PPP in Egypt

6. CONCLUSIONS (PRIORITIZATION OF FACTORS OF SUCCESS AND CHALLENGING FACTORS FOR PPP IN EGYPT)

In order to achieve successful PPP projects there is a need to analyze factors that contribute to the success of such projects; either moving factors or obstructing ones. Thus, this paper aimed at providing a comprehensive factor analysis for the establishment of PPP projects in Egypt through extracting lessons learned from literature projects in other countries with similar context and performing questionnaire survey.

The paper was able to analyze the findings of the survey questionnaire and compare them to the findings extracted from literature and case studies, in order to fulfill the research aim. The key potential and barrier factors for PPP in Egypt were identified and shown in Fig. 10 and Fig. 11.

Figure 10 compares the key potential factors based on the findings of the questionnaire to those of the literature and case studies. It is clear according to the questionnaire results, that efficient planning of PPP is considered a key potential factor that could guarantee its success. The second factor is achieving efficient risk identification, followed by efficient stakeholders' management, commitment of responsibility, and political support. The key barrier factors that form a challenge towards efficient implementation of PPP in Egypt were found to be Bureaucracy and political influence and arguments, followed by corruption, inaccurate feasibility study, inefficient estimation of payback period, and poor enabling policies, Fig. 11.

Thus the paper suggests a number of basic recommendations that could help in mitigating the key barrier factors as follows:

- Change the government's philosophy of project management and facilitate investment rules.

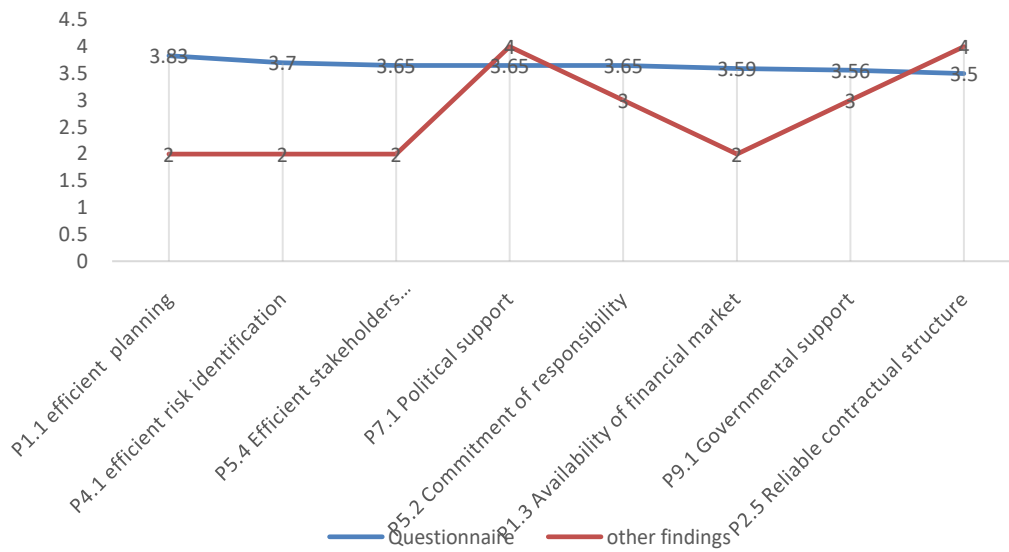


Fig. 10. Comparison between findings of Potential factors, Source: Author

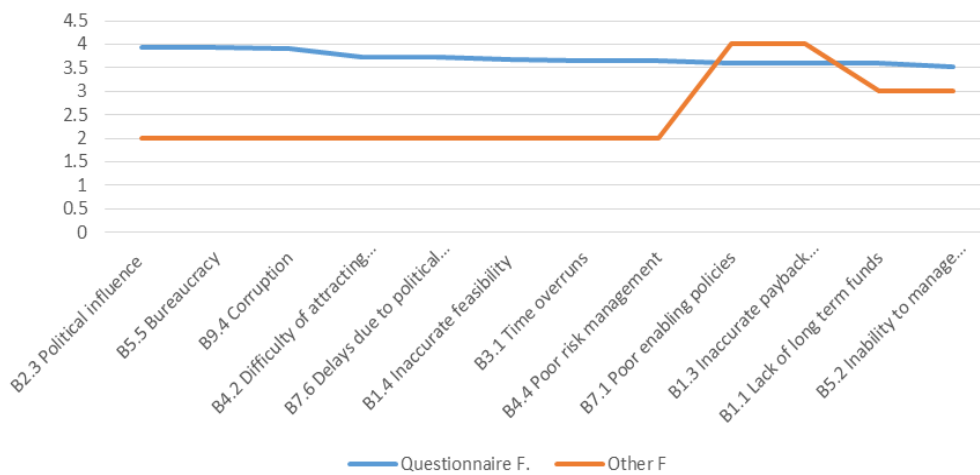


Fig. 11. Comparison between findings of Barrier factors, Source: Author

- Establish new rules that encourage private sector to cooperate with public sector with the guarantee of fair percentage of profit for the private sector within a project.
- Offering clear regulatory and legal measures that would protect against monopolies and undesirable interruptions. These measures would act as incentives for private sector developers, in addition to decreasing public resistance.
- Signing a formal written agreement stating the accurate scope for both parties to shorten the decision-making process and specify limited number of personnel that have the authority to finalize the agreement.

- Multi-cultured management board members, and regulations should be involved in decision making, monitoring and carrying out each project's process.
- Clear strategy, better planning and risk management to be highly considered.

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تحديد عوامل التحفيز والعوامل المعيقة لمشروعات الشراكة التمويلية

بين القطاع العام والقطاع الخاص في جمهورية مصر العربية

يهدف البحث الى الوقوف على اهم العوامل المؤثرة على نجاح مشروعات الشراكة التمويلية بين القطاعين العام والخاص، سواء تلك المحفزة او المعيقة، من خلال استعراض التجارب السابقة لتلك المشروعات، حيث تم تحليل تلك العوامل بصوره مبدئية من الدراسات السابقة فى ذات المجال، ثم اتبع ذلك بإجراء تحليل كیفى لعدد من دراسات الحالة وإجراء استبيان على عينة من ذوى الخبرة فى تلك المشروعات داخل مصر يهدف الى الوقوف على اهم العوامل المؤثرة على نجاح تلك المشروعات والتي تم استخلاصها من الدراسات السابقة ومن دراسات الحالة، وتقييمها من حيث معدل ظهورها ودرجة تأثيرها، قد استنتج البحث ان البيروقراطية والفساد والسياسات المعيقة وضعف دراسات الجدوى، تعد على رأس العوامل المعيقة، بينما يأتى توفير إطار تعاقدى قوى والإرادة السياسية الفاعلة على قمة العوامل المحفزة، وتأتى أهمية البحث من كونه موجهاً لمتخذى القرار والسياسيين، الى دعم فاعلية نجاح مشروعات الشراكة التمويلية فى مصر.