

Institutional and Failure Analysis of Highway PPP Projects

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Public-private partnership has been adopted to tap private sector resources and expertise in fulfilling the infrastructure gap, especially in developing countries. However, the successful implementation of PPP projects has been impeded by a number of factors, including a lack of clear and well-defined PPP legal and regulatory framework. The study of failure factors is crucial for developing countries as it essentially assists in improving project management practices. This study embarks with a comparative assessment of PPP legal and regulatory framework of Nepal, India, Philippines, Indonesia, Thailand and Vietnam with the United Kingdom for construction, operation, and project expiry phases. Case studies of failed PPP transportation projects of different countries are examined and a detailed case study of failed PPP highway projects of Nepal is conducted through the aid of document reviews and interviews. Results revealed that UK and Thailand have a different approach for PPP procurement and Nepal has significant room for improvement in its PPP legal and regulatory framework. It is also observed that poor demand forecast is one of the major failure reason for PPP transportation project across Asian countries. Further, the reasons for the failure of the PPP highway project of Nepal is identified and the interrelationship is sought. The policy recommendations suggested in this study might help policymakers of Nepal for efficient PPP execution.

Key Words: highway, legal and regulatory framework, failure reason, Nepal, public-private partnership

1. Introduction

Public-Private Partnership (PPP) is defined as a preferred approach that enhances the development of infrastructure projects and services through leveraging private sector efficiency in both developed and developing countries with diverse results of success and failures in delivering the infrastructure outputs ^{1), 2)}. PPP models are becoming crucial in developing countries for infrastructure development. Consequently, PPP are considered as a vital tool that facilitates in achieving Sustainable Development Goals (SDGs) related to basic human rights such as water supply, education, health, and resilient infrastructures (road, railways, airports, etc.).

The adoption of PPP has increased around the world, however such increase has not been without challenges. These challenges have created a difficult path for effective PPP implementation, as observed

from the history of failed PPP projects. It was indicated that the fragile legal and regulatory framework, lack of public sector capacity, poor financial and economic analysis, political instability, etc. are some of the key factors impeding PPP implementation ³⁾. Among the other factors, one of the prominent factors is the absence of clear and well-defined PPP legal and regulatory framework ^{4), 5)}. PPP related laws and regulations serve as a means of communication to convey the commitment of the government towards PPP implementation, facilitates in ensuring efficient PPP operation and further helps to ensure the right of the private sector during any uncertain events. Thus, it can be implied that the PPP approach invariably depends upon the conducive PPP legal and regulatory framework for each country.

The legal and regulatory framework for PPP varies between the countries depending upon the nature of

the legal system of the respective countries. In general, there are two main types of legal systems: a) civil law and b) common law. Civil law systems are categorized by codified statutes and regulations while common law system is lesser descriptive and are less reliant upon such statute and regulations. Further, PPP legal and regulatory environment also varies depending on whether the framework is a flexible type or fixed type. The fixed type PPP legal and regulatory framework has clarity and is detailed in its framework that provides greater certainty, and predictability during the PPP project implementation⁶⁾. For developing countries with less or no PPP experience, a fixed or rigid framework might be complicated for adoption owing to its weak political system and limited institutional capacity. On the other hand, the flexible type PPP framework has the discretion to design and modify the rules and regulations in the contract to respond to the changing circumstances during the contract term. This framework enhances the adoption of external contractors or consultants for capacity development in PPP execution and also facilitates the domestic private sector to participate in the PPP projects.

Given the infrastructure need of developing countries, PPP can be considered more of a necessity than just an option. However, there are myriads of issues impeding infrastructure development in developing countries that need to be addressed and resolved properly in order to facilitate a better understanding of how to develop the infrastructure efficiently and seamlessly via PPP. Thus, it is important to identify the factors that cause or trigger any PPP project to fail so as to draw lessons for the future which will assist developing countries in improving and enhancing viability and effectiveness of PPP projects.

In this paper, first a comparative study of PPP legal and regulatory framework of six developing countries viz: Nepal, India, Philippines, Indonesia, Thailand, and Vietnam in comparison with the United Kingdom (UK) for the highway sector is carried out. Second, case studies of failed PPP transportation projects are conducted to identify the failure reasons. Then, a detailed case study of a failed PPP highway project of Nepal is conducted to identify the underlying failure reasons. Comprehensive lessons for Nepal and other developing countries are discussed and further policy recommendations are suggested for the policymakers of Nepal for efficient PPP execution.

2. Literature Review

There has been a considerable amount of research devoted to the comparative analysis of the legal and regulatory framework across different countries. European Investment Bank⁷⁾ concentrated on the cross-sectional assessment of legal frameworks and the readiness of the nine Mediterranean countries for the PPP project and compared them against the good practice of England, France, Mexico, Poland, and South Africa. Kantor⁸⁾ assessed the PPP framework in 6 Eastern Partner countries for the existence of the regulatory framework for PPP, provisions for procurement of PPP, and contract management on energy-related projects. Economic Intelligence Unit⁹⁾ carried out the capacity evaluation of the 19 Asian countries to undertake long-term PPP by assessing the PPP environment across five dimensions: the laws and regulations, institutions, maturity, investment and business climate, and financing.

Above mentioned studies carried out the comparative analysis of the legal and regulatory frameworks of different countries, covering different scopes for analysis of the PPP environment and its readiness to undertake PPP project. In contrast, World Bank¹⁰⁾, evaluated the laws and regulations of 135 countries according to three main stages of PPP project: preparation, procurement and contract management of PPPs and also examined a fourth module: management of unsolicited proposals (USPs), with particular focus on highway transport project. However, this study has not conducted a detailed analysis of the phase-wise regulation for construction, operation, and project expiry phases.

Despite an increase in PPP applications worldwide, PPP practices have not always yielded satisfactory outcomes, as a notable number of failed PPP projects have been observed around the world. The investigation of the success and failure factors of PPP projects have been conducted by a number of studies over the years. Earnest number of studies have been conducted to identify a range of factors impacting the viability of PPP projects and its implementation, which consequently lead towards project failures^{11), 12)}. Few studies have also attempted to identify the reasons and barriers that drive project towards failure so as to help the public sector to make informed decisions for PPP arrangements^{13), 14)}. While previous researchers explored the key factors impacting certain aspects of PPP projects such as tendering phase¹⁵⁾, PPP procurement¹⁴⁾, and contract administration issues¹⁶⁾, some studies focused on identification and analysis of factors causing PPP failure for specific sectors such as

transportation ^{13), 17), 18)}, housing projects ¹⁹⁾, and water sanitation ²⁰⁾. Much attention was not given for transportation sectors along with the case study of various failed PPP projects. Thus, in this study, the case study of failed PPP transportation projects of different countries based on literature is carried out with particular focus across Asian countries to identify the relevant failure reasons related to PPP transportation projects. In addition, as there is a definite lack of PPP studies in the prospects of Nepal, this study intends to conduct a detailed case study of failed PPP highway project of Nepal to learn about the reasons causing the project to fail and establish its interrelationship.

3. World bank assessment of PPP legal and regulatory frameworks

A study by World Bank in 2018 named “Procuring Infrastructure Public-Private Partnerships” conducted an analysis of the regulatory framework of 135 countries and benchmarked the framework against the globally recognized good practices that govern PPP procurement, with the aim of helping countries improve their regulatory qualities. This study assessed the laws and regulations of each country based on PPP preparation, procurement and contract management and a special module on unsolicited proposals (USPs) for the highway sector. This study focused on whether the specific elements of the framework in the respective country were aligned with the recognized good practice or not and based on such, it identified the areas of improvement in the respective framework for above-mentioned thematic areas. This study illustrated that high-income country has relatively good and stable PPP regulations and practice, while the low-income country needs improvement in their regulations.

The assessment of the World Bank ¹⁰⁾ is based on the broader regulatory framework for PPP which includes legal text, PPP policies, PPP standardized transaction documents and contracts, judicial decisions and administrative precedents regarding the process of procuring PPP. World Bank ¹⁰⁾ has analyzed preparation and procurement phases of PPP comprehensively while considering necessary issues that require attention including for the contract award phase too. However, the detailed assessment of the regulations necessary for construction, operation and project expiry has not been evaluated in this study. Under the contract management, although the study covers various aspects, it has not carried out a detailed analysis of regulations governing the phases

mentioned above including performance evaluation and provisions governing the hand back of project facility to the government authority upon the expiry of the project term. Even though it mentions tracking during construction and monitoring after the construction, its comprehensive study is not performed.

4. International comparison of institutional frameworks for PPP implementation

Given the prolonged nature of the construction and operation phase in a PPP project, it inevitably faces a wide range of uncertainties and circumstances. The ability and obligation of government and private sector are critical in this phase for the successful PPP implementation. Therefore, the legal and regulatory framework of six countries viz. Nepal, India, Philippines, Indonesia, Thailand, and Vietnam for construction, operation, and project expiry phases are assessed with respect to United Kingdom (UK) to identify the differences and conformity of the elements in the frameworks.

The provisions considered important for performance evaluation and monitoring by UK’s regulations was assessed, evaluated and were compared whether the provisions are mentioned in the regulatory framework of respective countries or not. The comparative study of the regulatory framework of each country for construction, operation and project expiry phases are shown in [Table 1](#).

(1) Classification of Asian countries based on conformity with UK’s regulations

Based on the assessment of the laws and regulations of countries mentioned above with UK, it was found that the laws differ among different countries. While some countries were found to have well stipulated and comprehensive regulation, it was also revealed that there is significant room for improvement in the PPP legal and regulatory framework for other countries. In this regard, the countries are classified into three categories viz. high, intermediate and low based on the conformity with the UK’s laws and regulations for each of the phases.

It was found that India and Philippines were most aligned with the UK’s regulation for all three phases with detailed and comprehensive provisions, followed by Nepal and Indonesia. Thailand and Vietnam were found to least aligned the with the UK’s regulations. Nevertheless, Thailand was found to have the least conformity of regulations for all three phases with no provisions stipulated for the construction phase as shown in [Table 2](#).

Table 1. Comparison of conformity of legal and regulatory framework for construction, operation and project expiry phases of Asian countries with UK.

S.N.	Provisions	UK	India	Philippines	Indonesia	Vietnam	Thailand	Nepal
1	Construction							
1.1	Review and approval of construction plan and specification	Yes	Yes	Yes	Yes	Yes	Yes (In contract)	Not specified
1.2	Monitoring the construction/ improvement of infrastructure facility	Yes	Yes	Yes	Yes	Yes	Yes (In contract)	Yes
1.3	Progress and performance report	Yes	Yes	Yes	Yes	Not specified	Yes (In contract)	Not specified
1.4	Testing and inspection							
	a) During the construction	Yes	Yes	Yes	Not specified	Not specified	Not specified	Not specified
	b) After construction finish and before operation	Yes	Yes	Not specified	Not specified	Yes	Yes (In contract)	Yes
1.5	Review of facility upon inspection	Yes	Yes	Yes	Not specified	Yes	Yes (In contract)	Yes
1.6	Remedial measure if fail the test or non-conformity with specification	Yes	Yes	Yes	Yes	Yes	Yes (In contract)	Yes
1.7	Provision for delay during construction	Yes	Yes	Yes	Yes	Not specified	Not specified	Yes
1.8	Other provisions for non-conformity or delay							
	a) Liquidated Damage	Yes	Yes	Yes	Not specified	Not specified	Not specified	Yes
	b) Forfeiture/Reduction of guarantees	Yes	Not specified	Yes	Yes	Not specified	Not specified	Not specified
1.9	Final approval of the facility, and equipment for operation of facility	Yes	Yes	Yes	Yes	Yes	Not specified	Yes
2	Operation							
2.1	Routine repair and maintenance	Yes	Yes	Yes	Yes	Yes	Not specified	Yes
2.2	Monitoring and supervision of performance	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2.3	Performance report by contractor	Yes	Yes	Yes	Yes	Not specified	Yes	Yes
2.4	Remedies for non-compliance	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2.5	Retention fund	Yes	Yes	Yes	Yes	Not specified	Not specified	Yes
3	Project expiry							
3.1	Condition of assets during transfer.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3.2	Monitoring before asset transfer	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3.3	Remedial measures for non-conformity	Yes	Yes	Yes	Yes	Yes	Not specified	Yes
3.4	Defect liability period	Yes	Yes	Yes	Not specified	Not specified	Not specified	Yes
3.5	Assistance after project transfer	Yes	Yes	Yes	Not specified	Yes	Not specified	Not specified

(2) Evaluation of legal and regulatory framework of Thailand

From the analysis of the framework, it was observed that Thailand does not have regulations for construction phase in its framework. Thus, to investigate the existence of necessary regulations in the project contract, a case study of PPP road project of Thailand named Second Stage Toll Expressway System (SES) is carried out in this study. Upon the

study of the project and its relevant documents, it was observed that those regulations considered important by UK was carried out in project and were mentioned in the project contract.

Although Thailand was observed to be least aligned with the UK's regulations, it was observed that Thailand has a different approach for procuring the PPP projects. Thailand has a flexible PPP framework where PPP provisions in law are limited

to the general obligation of the private sector and more detailed provisions are stipulated in contract, i.e., the project issues are addressed through project contract which varies for each project. Whereas the UK has a rigid PPP framework with detailed and clear laws and regulations prescribed for PPP projects. Thus, it can be implied that the regulations in Thailand have greater flexibility for PPP implementation in comparison with the UK.

(3) Legal and regulatory framework of Nepal

The comparative study conducted in the previous section showed that Nepal has relatively poor laws and regulations compared to other countries. From [Table 1](#), it can be observed that the provisions considered important for the above-mentioned phases were not mentioned in Nepal and some of those mentioned were not comprehensive and detailed with respect to other countries. The provision such as review and approval of construction plan and progress report submission, which are important during the construction to avoid any deviation of plans and design from project agreement, and to prevent the risk of poor construction by the private sector were not mentioned in the case of Nepal. Similarly, the remedial measures for non-compliance to the agreed standard are not comprehensive for all three phases in Nepal although these remedial measures are important for carrying out the correction of the deficiencies, ensuring compliances with the agreed specification and for preventing the risk of poor maintenance in the future. Further, routine repair and maintenance, and monitoring of the facility during the operation phase is of prime importance as this helps in assuring that the service and facility are provided to the user at all times in designated standard. However, Nepal does not stipulate comprehensive regulation in this regard too.

Table 2. Classification of Asian countries for different phases

Conformity Phases	High	Intermediate	Low
Construction	-India -Philippines	-Nepal -Indonesia	-Thailand -Vietnam
Operation	-India -Philippines	-Nepal -Indonesia	-Thailand -Vietnam
Project expiry	-India -Philippines	-Nepal -Vietnam	-Thailand -Indonesia

In addition, the laws and regulations for PPP are sporadic in nature, spread across different PPP acts and rules present in Nepal. Also, the regulations of Nepal stipulate the establishment of PPP center, however, the Government of Nepal (GoN) has not been able to establish a PPP center within time and is

revising the provision regarding its establishment. This shows a lack of competency, commitment, and capacity of government for timely establishment and implementation of PPP. The absence of commitment from GoN and the limited institutional capacity of Nepal is very crucial for successful PPP implementation. Thus, Nepal needs to consider better ways of improving and innovating the legal and regulatory framework to enhance the capacity and address the government's obligation for proper PPP development.

5. Failure experience in PPP transportation projects

The case study of failed transportation PPP projects in 11 countries with major focus on the projects of Asian countries is discussed in this section. With Nepal venturing into the new territory of PPP for transportation projects recently, it has already faced failure in its first attempt. So, it is necessary for Nepal to draw lessons from the international failure experience in transportation PPP projects and learn from it to avoid its occurrence in the future attempts of PPP projects. For this purpose, different project case studies are studied to realize the reasons for failure and the consequences for the project upon failure. Data and information for the case study were mainly drawn from journal papers, books and newspaper articles. The case study includes projects from America, Europe each and nine projects from Asia (see [Table 3](#)).

Based on the case study of various PPP transportation projects that experienced failure, it was observed that different projects failed at different phases, due to different reasons and had different consequences or end results after the failure under PPP modality. From [Table 3](#), it can be seen that many projects had similar reasons that led the project to fail. Among all the failure reasons enlisted, poor demand forecast was observed for all the projects that failed during the operation phase. It shows that transportation projects are heavily impacted by traffic estimation whether it is under or over estimated. The faulty prediction of the traffic also impacts the revenue generation from the project which might make it difficult for the private sector to repay its debt, which was also a prominent failure reason in the case studies. Other important failure reasons gathered are the concessionaire's financial issue, public opposition, and parallel project issue, etc. (see [Table 3](#)).

Table 3 Failure reasons of PPP projects for different phases based on case study

Phase	Failure reasons	Pakistan (M9 motorway)	Indonesia (Jakarta ring road)	Thailand (BERTS)	Hungary (M1/ M15)	Mexico (Camino Colombia)	Laos (Tha Ngone Bridge)	Malaysia LRT	China (Hangzhou Bridge)	Taiwan HSR	India (Delhi Expressway)	India (Delhi Metro)
Tendering and construction	Poor coordination between government	O	O									
	Concessionaire's financial issue	O										
	No technical study			O								
	Poor coordination of parallel project			O								
	Lack of public and private coordination			O								
	Asian Financial crisis		O									
Operation	Poor demand forecast				O	O	O	O	O	O	O	O
	Public opposition				O		O					
	Failure to repay loan				O	O	O	O				
	Technical defects											O
	Concessionaire's financial issue								O	O		
	Poor operation and maintenance										O	
	Poor coordination of parallel project					O			O			
	Public and private sector legal battle										O	O
	Project refinanced										O	
	Asian financial crisis						O	O				

6. Failure identification of PPP highway project of Nepal

A brief overview about the road networks and PPP situation of Nepal is highlighted in this section. A failure case study of the first PPP highway project adopted in Nepal is discussed. Finally, the failure reasons based on the literature, interview and content analysis are presented.

(1) Road networks and PPP situation in Nepal

Nepal is a Himalayan country situated between China and India. Being a landlocked country with limited navigable watercourses, road networks serves as a major means of transportation. However, owing to rugged terrain and the varied topography of Nepal, the road networks of Nepal is not very extensive with very low road density.

At present, the East-West highway is the major highway that serves for national trade and connection along the lower longitudinal stretch of Nepal. However, along the North-South corridor, there are not many corridors of national significance that can support easy access, economic benefit and trade connection linking Kathmandu and other cities to the wider markets in the Terai region as well as to India. The existing North-South corridor consists of two highways connecting Kathmandu with Terai via the East-West highway which are roundabout, time-consuming and geographically difficult from Kathmandu.

GoN sought of a fast track route, viz. Kathmandu-Terai Fast-Track Project (KTFT), that serves a shortcut connection of Kathmandu to the Terai region. Apart from aiming to reduce the travel distance and travel time, this project also serves to reduce the

traffic pressure over the existing highway, transfer the growing population pressure from Kathmandu and induce uniform industrial and commercial development in the Terai region. With the lack of financial resources and necessary technical knowledge to overcome the topographical constraints, GoN initiated Kathmandu-Terai Fast-Track project under PPP modality.

The track record of Nepal with PPP projects overall has been limited over the years, with the majority in the hydropower sectors, followed by water utility, telecom, and road sector. However, the concept of PPP is not completely new in Nepal. Since the early 1990s, the GoN envisaged the necessity of private sector involvement in public sector delivery and had included the provisions for infrastructure delivery via the build-own-operate-transfer (BOOT) method in its development plans, particularly in the hydropower sector. With the increase in PPP adoption worldwide, and an increase in demand for electricity for house and export in Nepal in the late 1990s, GoN encouraged PPP implementation for the hydropower sector in its next development plan. Since then, PPP implementation in the hydropower sector has been successful and widely adopted in Nepal.

However, the implementation of PPP in other sectors has not been significant in Nepal, with two cases in telecommunication and one each in road and water utility sectors. Although, the development plan of Nepal in the late 1990s had also envisaged the necessity of the private sector for construction and operation of the road through BOOT system²¹⁾, its actual implementation could not happen. Later, GoN adopted a policy to promote private sector participation in construction and maintenance of road network and drafted an act subsequently in 2006 to encourage domestic and international private sector participation for project investment based on build-operate-transfer (BOT) and BOOT system. Based on this act, the government attempted tendering procedure for the KTFT project under the BOT model and an Indian Concessionaire was selected in 2015. This project was the first attempt of GoN to adopt the PPP scheme for transportation project. However, in 2016, the government decided to backtrack from the PPP model, canceled the project and handed over the project to the Nepal Army under the traditional procurement method in 2017.

(2) Case study of Kathmandu-Terai Fast-Track project

The KTFT project was first attempted in 1996 when GoN called for Expression of Interest (EOI) to

implement the project. After this attempt failed, it took more than 10 years for the project rebidding to occur. In 2008, the Asian Development Bank (ADB) supported conducting a feasibility study for this project. As per the ADB study, the KTFT project consists of 76.5 km of the 4-lane highway of Asian Highway Class I standard. The study estimated the total cost of the project to be \$920 million and recommended BOT model as one of the funding scenarios for the project. Thus, based upon the study, GoN conducted a global procurement process, pursuant to Private Financing in Build and Operation of Infrastructure Act (PFBOI), to develop the KTFT project under BOT model in 2008 despite of the ongoing political instability in Nepal. However, this attempt also failed to proceed further as the effort attracted little interest from the private sector.

In May 2012, while the KTFT project was still in negotiation to be tendered, another project Kathmandu-Kulekhani-Hetauda Tunnel (KKHT), which is a highway parallel to KTFT, was proposed by GoN under BOOT model and signed the concession agreement with a Nepali private company. Following this project tender, in July 2012, another bidding was conducted again under the BOT model for the KTFT project and out of nine companies from India and China that purchased EOI documents, only three Indian companies were shortlisted for the Request for Proposal (RFP) stage. However, those three shortlisted companies did not participate in the RFP stage citing reasons such as low traffic demand to justify the construction, issuance of permit to build competing tunnel highway KKHT, and uncertainty in return on investment and profit generation.

After a number of unsuccessful tendering, in September 2014, an EOI was published again to call for international bidders for KTFT project under the BOT model. This time, the government put forward several criteria to attract the private sector for the bidding process including 30 years of concession period, provision of minimum revenue guarantee (MRG) to the private sector through toll collection and also commitment to provide \$150 million as equity support. In addition to MRG and equity support, the government also extended the condition that in case the toll revenue collected exceeds the MRG, the surplus would be shared equally among GoN. This proposal succeeded in attracting eight private investors from India and China among which only two companies were shortlisted for the RFP stage.

Finally, in February 2015, Indian consortium IL&FS was declared as the successful bidder. However, in the financial proposal that the firm

submitted, IL&FS demanded very high project cost and MRG for the project stating uncertainty over the low vehicle upon operation. The MRG amount was specified at \$234-\$389 million annually while the project cost was priced at \$1970 million which was more than double the price estimated by ADB in 2008 (\$920 million). Such high cost garnered huge criticism from the bureaucrats, opposition government, and infrastructure experts. However, amid the criticism, opposition, and negotiations for the project, the Ministry of Physical Infrastructure and Transport (MOPIT) requested IL&FS to prepare Detail Project Report (DPR) and to revise its financial proposal. Upon revisions, the financial proposal reduced MRG to \$150 million and specified the project cost at \$1117 million. Additionally, the revised proposal also demanded a soft loan of \$750 million from GoN at a subsidized interest rate of 3%. Furthermore, the toll rate was also allocated very high considering the low economy of Nepal and the affordability of the public as the existing toll rate in Nepal is comparatively very low.

Out of the \$1117 million project cost, the government had to bear \$150 million of equity support and \$750 million of soft loan in addition to \$150 million of annual MRG. The total investment by GoN added up to \$900 million while the Indian firm had to invest only \$217 million. As the project cost changed by a wide margin from the ADB estimation, the financial burden over the GoN also increased persistently, while the burden over the Indian firm was minor. This led towards a major disagreement among the opposition parties, bureaucrats, infrastructure experts, and the general public who strongly opposed the project and government's attempt. They objected against the project based on the lack of transparency, high project cost and huge government contribution to the project. Another reason for the disagreement for the project was the discontent towards the Indian firm. In continuation of the opposition and disagreement, a legal case was filed in the Supreme Court against the project. Following the writ, the Supreme Court intervened in the government's decision to award the contract. Later, the newly changed government terminated the KTFT project under the BOT model and decided to construct the project by mobilizing domestic resources in October 2015.

(3) Failure reasons for KTFT project and their relationship

Based on the interviews and available literature, content analysis was performed to identify the failure reasons for KTFT project. From the results of con-

tent analysis, 10 major reasons have been identified which are categorized into micro and macro conditions based upon the characteristics of the reasons. Micro condition refers to the reasons occurring in the project scenario whereas macro condition refers to the reasons occurring at national level that is beyond private sector control.

Table 4. Major failure reasons identified for the KTFT project.

Categories	Concepts	Codes
Micro condition	Consideration of PPP	Inaccurate preliminary feasibility study
	Limited ability of government sector	Lack of PPP experience
		Government's incompetence
	Inefficient tendering	Lack of government's due diligence for project
		Doubtful tendering process
	Inappropriate project related documents	Unfair provisions in draft contract document
		Conflicting bid documents
	Selection of inefficient private sector	Incompetent Nepali private sector
		Insufficient financial capacity of private sector
		Inexperienced private sector
	Feasibility of project	Uncertainty in profitability over long period
		Very high project cost
Public opposition	Public not convinced of the project and PPP	
	Reluctance towards Indian firm	
Macro condition	Political risk	Opposition government
		Politician's intervention
		Unstable political situation
	Legal and policy issues	No flexibility in law
		Inconsistency in law and legal documents
		Insignificant institutional capacity
	Financial risk	Poor investment environment in Nepal
Uncertainty in investment		

The categories and concepts obtained from the content analysis are shown in Table 4. All of the reasons identified in this study are interlinked with each other. The relationship between failure reasons is shown in Fig. 1. The necessity of the KTFT project to connect Kathmandu with the Terai region caused the initiation of the project based upon the preliminary feasibility study of ADB which suggested the PPP scheme as one of the funding schemes. Based on this study, the government went

ahead to adopt the PPP model without conducting a proper preliminary study by themselves for KTFT. Without prior experience and knowledge on PPP, the government proceeded to attempt PPP for the road project for the first time. The inexperience coupled with inability and incompetency from the government sector caused ineffective tendering and preparation of poor bid documents for the project. The non-competitive tendering and poor project documents together with political intervention in project approval resulted in the selection of inappropriate private sectors.

The inefficient private sector selected in conjunction with inappropriate project documents, which was impacted by inconsistent law and financial constraints of Nepal, impacted the project feasibility causing an increase in project cost and associated project uncertainty. The poor feasibility of the project together with public opposition resulted in the legal case in the Supreme Court and led towards project termination under PPP modality. After the project termination, GoN handed over the project to Nepal Army to construct under the traditional procurement method. With the termination of project, the government had to bear huge sunk cost and at present, with Nepal Army working on the project, it is facing delays in its execution and also incurring high project costs. The concurrence and interrelation of the failure reasons in various stages of the KTFT projects resulted in the failure of the project under the PPP model.

7. Policy recommendations

Several lessons that can be learned from the failure case study for future PPP implementation of PPP projects are first discussed in this section. Then, policy recommendations for Nepal are suggested that might facilitate efficient PPP execution in Nepal in future. Although this study focuses on the PPP environment in Nepal, the lessons and recommendations presented here will be useful for other developing countries that aim to enhance and initiate PPP implementation in the highway sector.

(1) Lessons learned for future PPP highway projects

Each of the studies carried out in the previous sections are a comparative study that compared the legal and regulatory frameworks and different failure reasons for PPP projects. The key lessons derived from this study for future PPP adoption in Nepal are as follows:

a) The inadequacy and rigidity in the laws and regulations for PPP projects can prevent private sector participation for infrastructure development. It is necessary for Nepal to improve its legal and regulatory framework and adopt an appropriate framework that better suits the actual situation and national need of Nepal for proper PPP implementation and should take inspiration from other countries as a reference for implementation.

b) Almost all projects in the operation phase in the case studies had an improper demand forecast as failure reason. This was due to the gap that emerged between the user's willingness to pay and commercially viable toll rates for the highway as seen in Hungary. Thus, Nepal also should not only pay due consideration over the traffic study but also efficient toll allocation, considering the economy of Nepal.

c) A robust and comprehensive feasibility study is very important before opting for project tendering. Similar to the case of Thailand and Nepal, avoiding such studies can create a larger rebound effect at the later phase as the government fails to predict its financial liability and can reduce the PPP benefits. Thus, the government sector should be prepared and trained properly for PPP and should conduct various technical and feasibility evaluations to ensure project efficiency.

d) Unlike the case of Pakistan, Thailand, Laos, Indonesia, and Nepal, PPP projects should be tendered under competitive and transparent bidding and ensure appropriate private sector selection with sufficient knowledge and financial capacity.

e) Public opposition also should be given due consideration for PPP project implementation as it can lead towards premature project failure. As public attitudes and expectations were not addressed during the decision-making process in many cases, it is necessary to address public opinion and achieve their consensus for the PPP projects.

f) Streamlining government objectives for infrastructure development is very necessary for efficient project execution including PPP.

(2) Policy recommendations for Nepal

The following two major policy recommendations are suggested for Nepal through this study.

a) Amend and reform legal and regulatory framework of Nepal

Nepal has developed various policies and framework for PPP implementation over the years. However, due to the limited experience and knowledge over the PPP project, as seen from the case study of the KTFT project, the legal and regulatory framework of Nepal was inconsistent and

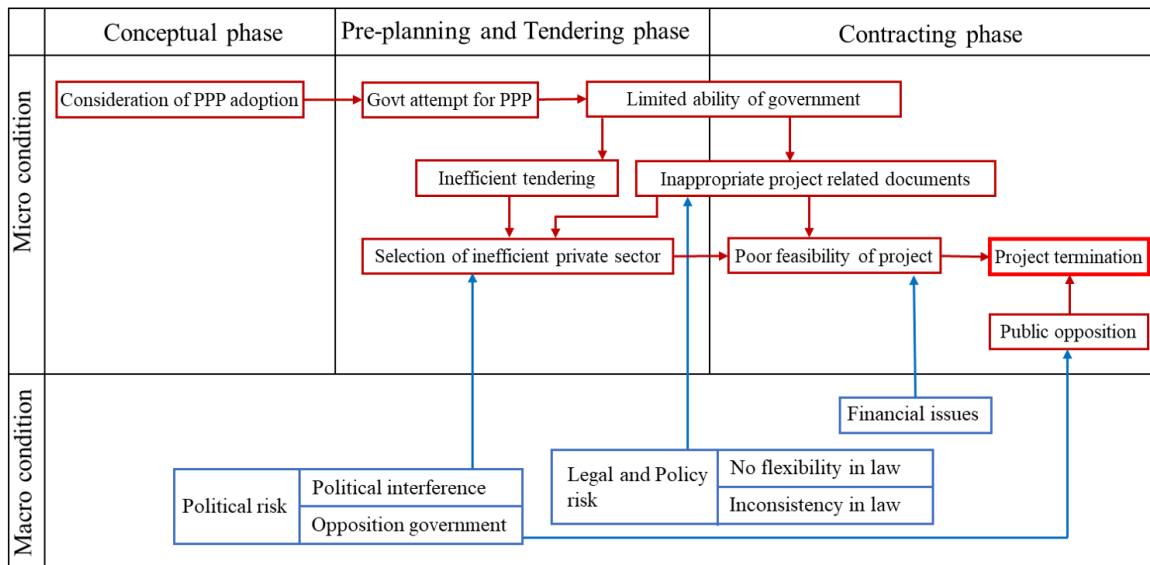


Fig. 1. Relationship between the failure reasons of Kathmandu-Terai Fast-Track Project under PPP modality.

conflicting, thus hindering PPP development in Nepal. Further, the comparative study of PPP legal and regulatory framework showed that the PPP framework of Nepal is weak, with limited institutional capacity. Hence, Nepal must improve and amend its framework that better suits its present condition for efficient PPP execution.

Based on this study, it is recommended that Nepal should reform its framework to adopt a flexible PPP framework. Under the rigid and detailed PPP framework, there are specified guidelines that need to be performed to undertake PPP such as Value for Money (VfM) assessment to analyze the best procurement option. However, in case of developing nations like Nepal, due to financial constraints and dire infrastructure needs, PPP remains the only option to overcome the constraints. Therefore, the rigid framework might be not feasible for Nepal as the purpose of PPP adoption varies for developing countries. Further, as Nepal ranks low in terms of the competitiveness for attracting international investors, and with rigidity in its legal systems that pre-define profitability level, international investors might be reluctant to invest in Nepal for PPP projects. In such a case, Nepal must rely upon the domestic private sector. Under a flexible framework, as the government can modify the project contract according to the situation, so if the domestic private sector is selected, they can renegotiate the project terms as required and overcome it. This facilitates both the government and private sectors in overcoming their drawbacks.

Thus, under the existing political and financial scenario in Nepal, it might be suitable to adopt flexible framework initially to gain sufficient experience in PPP project with given flexibility.

However, private investors might get confused regarding the provisions and regulations under the flexible framework and might stall the project progress. In addition, the flexibility in the framework might induce the decision-makers to take undue benefits from the project and could result in huge corruption problem which will gather opposition for the flexible framework. In such cases, the legal and contractual documents must specify severe punishment for any anomaly happening. In addition, the government should also strengthen its capacity and conduct regular seminars and negotiations to ensure investors understand the situations and conditions properly. Moreover, transparency also should be ensured so as to allow public scrutiny towards stakeholders so that they act within the boundary of law in accordance with best practice. Thus, the implementation of a flexible framework will help Nepal in gaining the necessary confidence and good practice. Later, Nepal can revise, improve and establish a fixed framework that provides a detailed and stable regulatory environment for project execution. It is necessary that Nepal continuously innovate and improve its legal and regulatory system with the experience and knowledge gained over time.

b) Reform the toll system for highway projects in Nepal

In Nepal, the toll system exists in few highways but has relatively low fares, collected mainly for repair and maintenance of the road. In the case study of the PPP highway project of Nepal, a high toll fare was allocated which was higher than the nominal fare. Such a drastic rise in the toll rate was unacceptable to the public, which caused public opposi-

tion. However, without such toll rate, the private sector would not be interested in investment and thus makes PPP not feasible in Nepal.

Thus, under such a situation, it might be suitable to allocate a low fare level i.e., market level initially. And the fare level should not be fixed, rather it should be set such that it increases with the increase in the country's economy i.e., GDP or inflation. As the low fare results in low revenue contribution for the private sector, the government should address the concern of the private sector by providing their support in the form of subsidy. First, the government should carry out necessary financial analysis calculating the present value of the expected subsidy to be paid by government during the life of the contract as a guarantee. Then, putting forward the condition of increasing toll rate with changing economy, the government shall ask for the willingness of private sector to invest in the project with the government's guarantee. Alternatively, the private sector can be allowed to propose a particular fare level for the project bid, and based on the private sector's proposed fare, government can allocate a toll fare suitable for Nepal. Hence, the gap between the private sector and the government's toll allocation shall be bridged by government subsidy. However, the amount of subsidy should be allocated considering the economic benefit of the country and the capacity of the government to pay.

As observed from case studies, toll allocation is important for demand estimation and thus revenue generation. However, given the economic situation of Nepal, subsidy recommendation might also attract government opposition. Thus, it is necessary to make the government sector and policymakers understand the economic and social benefits that toll road incurs for the country. The government should be explained that toll road is profitable if its economic benefit is considered and is worthy of subsidy provision. In addition, the issue of financial constraint to pay the subsidy can be addressed through financial support from international institution including ADB, World Bank, etc. Thus, the low toll fare allocation is necessary but with approved government support to ensure the best interest of public and private sector.

8. Conclusions

Diverse results have occurred in infrastructure PPPs, with both successes and failures. Given the positive impacts that PPP beholds, there are also various challenges that impede the effective execu-

tion of PPP which ultimately results in its failure. These failure factors need special consideration, especially in developing countries as it serves as a guide for making proper decision making for enhancing PPP delivery.

As one of the factors hindering successful delivery of PPP, this study investigates the legal and regulatory framework of Nepal, India, Philippines, Indonesia, Thailand, and Vietnam with the UK to analyze the legal environment of each country, with special focus on Nepal to understand the shortcomings in Nepal's legal framework. From the comparative study, it is realized that among the six countries considered, India and the Philippines have laws and regulations that conform the most with the UK. It is observed that Nepal has a relatively weak legal and regulatory framework that lacks comprehensiveness in its provisions. Nepal needs improvement in its framework to enhance PPP projects. Further, it is also identified that Thailand has greater flexibility in PPP implementation in comparison with the UK.

The study of failed PPP projects of different countries provides a list of reasons that caused project failure. From this study, faulty demand forecast and financial constraint of concessionaire are identified to be one of the major reasons impacting the successful PPP implementation. For the failed PPP road project of Nepal, case study and interviews with PPP experts were conducted. The findings from the analysis of case study and interviews reveal that the failure of the KTFT project was impacted by a series of reasons which led towards the project to be terminated. The non-competitive tendering followed by non-transparent negotiation of the project, in conjunction with unethical inclusion of provisions, high toll rate allocation and public opposition owing to discontent against the private sector impacted the project most.

Nepal needs to learn from the experience of past failed projects so as to avoid certain practices that impact project implementation. Also, it is observed that the legal and regulatory environment is important for the PPP project and as such, Nepal needs significant improvement in its PPP regulatory framework. Hence, policy recommendations are suggested in this study which can foster the PPP environment in Nepal.

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