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ABBREVIATION

ADR	: Alternative Dispute Resolution
CIDA	: Construction Industry Development Authority
CPCP	: The Colombo Port Construction Project
CQS	: Chief Quantity Surveyor
EOT	: Extension of Time
GOSL	: Government of Sri Lanka
IFC	:
PPP	: Public-Private partnership
QER	:
QS	: Quantity Surveyor
SLPA	:
VfM	: Value for Money

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DEDICATION

.....To My

Beloved Parents

And

Sister...

DECLARATION

I hereby declare that this submission is my own work and that to the best of my knowledge and belief, it contains neither materials published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma or university or other institute of higher studies, except where an acknowledgement made in the text.

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Date

ABSTRACT

Sri Lanka is a developing country, which is experiencing of acceleration in the construction development at present, after 30 years of civil war. Construction industry is the fourth largest economic sector, which contributes in an important level to the country's GDP. Nowadays Sri Lankan construction firms are on a trying to expand the business with new concepts of Public private partnership investment for government projects. But when consider about conflicts, claims and disputes within the projects, the occurrence is very frequent and the value of conflictive claims is higher when compared to the countries. Most of those destructive conflicts cause to inefficiency and losses to the final project in all the three terms of cost, quality and time. This directly effects to the enhancement of the construction sector. Many of those conflicts generate within the groups of construction parties. A Conflict can be solved at two particular stages of an ongoing project, either before arise the conflict by proper planning or through pre-designed mitigation means or after the arrival, through proper dispute resolution mechanism.

This research used expert interview to identify the common conflictive and dispute situations arose in Public Private Partnership Construction project and suggestions were made to mechanisms for dispute resolution. Expert interview has been carried out by using different organization entities from government, private and public population to gather fair thoughts from all main parties. Semi-structured interviews were conducted with the respective expert such as Project managers, Engineers, Qs, Investors and clients, whom involved with PPP projects. Base on the research findings, suggestions were decide to most practical dispute resolution mechanisms, such as recommendation of observed expert opining as separate mechanism or supportive mechanism or combined mechanism. It is expected that the findings will be useful for all professionals who lead PPP construction project, which are situated in Sri Lanka.

Key Words: *Conflicts, Public Private Partnership, Expert interview, Sri Lankan Construction Industry,*

1.0 INTRODUCTION

1.1 Background

Public-Private Partnership (PPP) has been used in more than 85 countries for procuring economic and social infrastructure projects (Regan, Smith, and Love, 2009). When analyzing the recent trends, it is evident that during the last couple of decades, PPP has grown rapidly in the procurement of infrastructure and municipal services (Regan *et al.* 2011). According to Miller (2010), the global infrastructure requirements have been estimated to be more than US\$50 trillion over the next 25 years. Further to a report by the U.S. Department of Transportation (2005) on PPP infrastructure projects worldwide between 1985 and 2004, more than 1,000 projects were completed with an approximate total cost of US\$450 billion. According to preliminary data for 2014 of World Bank (2014), total investment commitments to private infrastructure projects in developing countries were US\$51.2 billion. This represents a 23% increase from 2013, which was US\$41.7 billion.

Public private partnerships (PPPs) differ from conventional procurement in several aspects. PPPs are long-term contractual relationships between the public and private sectors often established with the objective of utilizing the private sector's resources, expertise knowledge and best practices in the provision of infrastructure development and delivery of public services which is basically in the public interest (Chinyio and Gameson 2010).

World Bank (2011, Cited in Lam, and Javed, 2015), defined PPP as;

“An arrangement between the public and private sectors whereby part of the services or works that fall under the responsibilities of the public sector are provided by the private sector, with a clear agreement on shared objectives for delivery of public infrastructure and/or public services.”

The Canadian Council for Public-Private Partnerships (2011) (Cited in Lam, and Javed, 2015) further elaborates PPP as *“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, risks and rewards.”*

Chew, Storr and Casey (2007) stated that PPP infrastructure facilities can generally be divided into two major categories:

- Economic infrastructure: those facilities where users are directly charged for using the services by the concessionaire, such as toll roads, railways, power stations, water and sewage treatment plants, telecommunications, etc.; and
- Social infrastructure: those facilities that a government funds through a series of post-completion payments to the concessionaire, such as schools, hospitals, prisons, justice facilities, police stations, etc.

According to above mentioned definition and current aspects of the contract form, PPP has been recognized as an effective way of delivering value for money for public infrastructure and services, where it seeks to combine the advantages of competitive tendering and flexible negotiation, and to allocate risk on an agreed basis between the public sector and the private sector (Li, Akintoye, Edwards, and Hardcastle, 2005). In preparing for a PPP project, government would state its preferred allocation of project risks; private investors would assess their capability of undertaking these risks, and then propose a bidding price. The contract negotiation would be focused on the risk sharing scheme (Ke, Wang, and Chan, 2010).

Furthermore, Ke *et al.*, (2010) highlighted that when considering the numerous types of risks engaged with this project. Risks such as third party tort liability, force majeure, excessive contract variation, poor financial market, and influential economic events which will have severe impacts but also driven by mainly external factors, which is beyond their control were preferred to be shared by both parties. The majority of the remaining PPP risks, especially those at the mesorisk level were preferred to be allocated to the private sector. Natural risks, relationship risks, and other risks such as excessive contract variation, residual risk, inflation rate volatility, level of public opposition to project, and staff crises were also preferred to be shared by the public and private sectors.

Acharya, Lee, and Im (2006) presented that risk in construction project cause to conflicting situation at the point of not clearly assign the risk and those conflicts cause to claims in project, if not manage at the moment. Further those claims can be causes to projects' disputes if not resolve. The authors further stated that construction project risk linked to dispute through few doubttable steps.

Disputes among PPP participants may involve many issues, including surety bond issue, subcontractor qualification, license permit, investment scale, resident rights, government guarantee, excessive profits, operations period, taxation, and default loan commitment. Disagreements among parties can jeopardize the original project plan and cause the time-consuming dispute handling process that damage the government's PPP supporting image and the investors' future willingness to participate in public services (Chou and Lin, 2013)

Unlike conventional construction projects, PPP projects involve not only a building (B) stage, but also operations (O), rent (R), transferring (T), and own (On) stages (e.g., BOT, OT, ROT, BOnOT, BTO). In post-construction stage, the likelihood of incomplete contracts usually increases, especially which involve long time scales and complex PPP projects. Some contractual agreements designed to maximize ex-ante efficiency may result in ex-post inefficiency because the value of the contract performance to the promisee is lower than the cost of performance incurred by the promisor (Solino and Vassallo 2009).

During the last decade, many PPP projects were not as successful as expected due to the occurrence of project disputes during the build, operate and transfer (BOT) phase. These disputes were resolved by mediation and non-mediation procedures. Non-mediation procedures include arbitration, litigation, negotiation, and administrative appeals (Chou, Tsai, and Lu, 2013).

1.2 Problem Statement

Sri Lankan construction industry is inclusive of many complex construction projects that are ultimately referring to claims and disputes, which is mainly due to the fragmented nature of projects. Public-Private Partnership in construction projects are the most emerging type of contract for economic or social infrastructure projects in Sri Lanka.

Although there are researches on barriers for PPP, regulation for PPP and risk and risk allocation of PPP projects, there is a lack of study on disputes and dispute resolution mechanism for PPP project.

Therefore there is a need to investigate disputes in PPP projects and identify mechanisms to resolve the identified dispute in PPP projects.

1.3 Aim and Objectives

Aim of this study is to develop a dispute resolution mechanism to minimize disputes in PPP construction projects in Sri Lanka. Following object will assist in achieving the aim:

- Review PPP concept in construction industry,
- Investigate disputes in PPP projects in Sri Lankan construction industry,
- Investigate dispute resolution mechanisms to resolve dispute in PPP construction projects in Sri Lankan construction industry,

1.4 Scope and Limitation

The scope of this research is limited to Public-Private Partnership construction projects in Sri Lanka.

1.5 Research Method

The research has been carried out based on the following method:

A comprehensive literature survey was carried out to identify risk, disputes and its resolution mechanism in construction industry with the nature of PPP construction projects. Literature survey was based on research papers, journal and articles, books, dissertations and electronic media.

Further, interviews with subject matter experts were carried out to identify risks, disputes and available dispute resolution mechanism for PPP construction projects in Sri Lanka. Collected data was analyzed using content analysis technique without software usage.

1.6 Chapter Breakdown

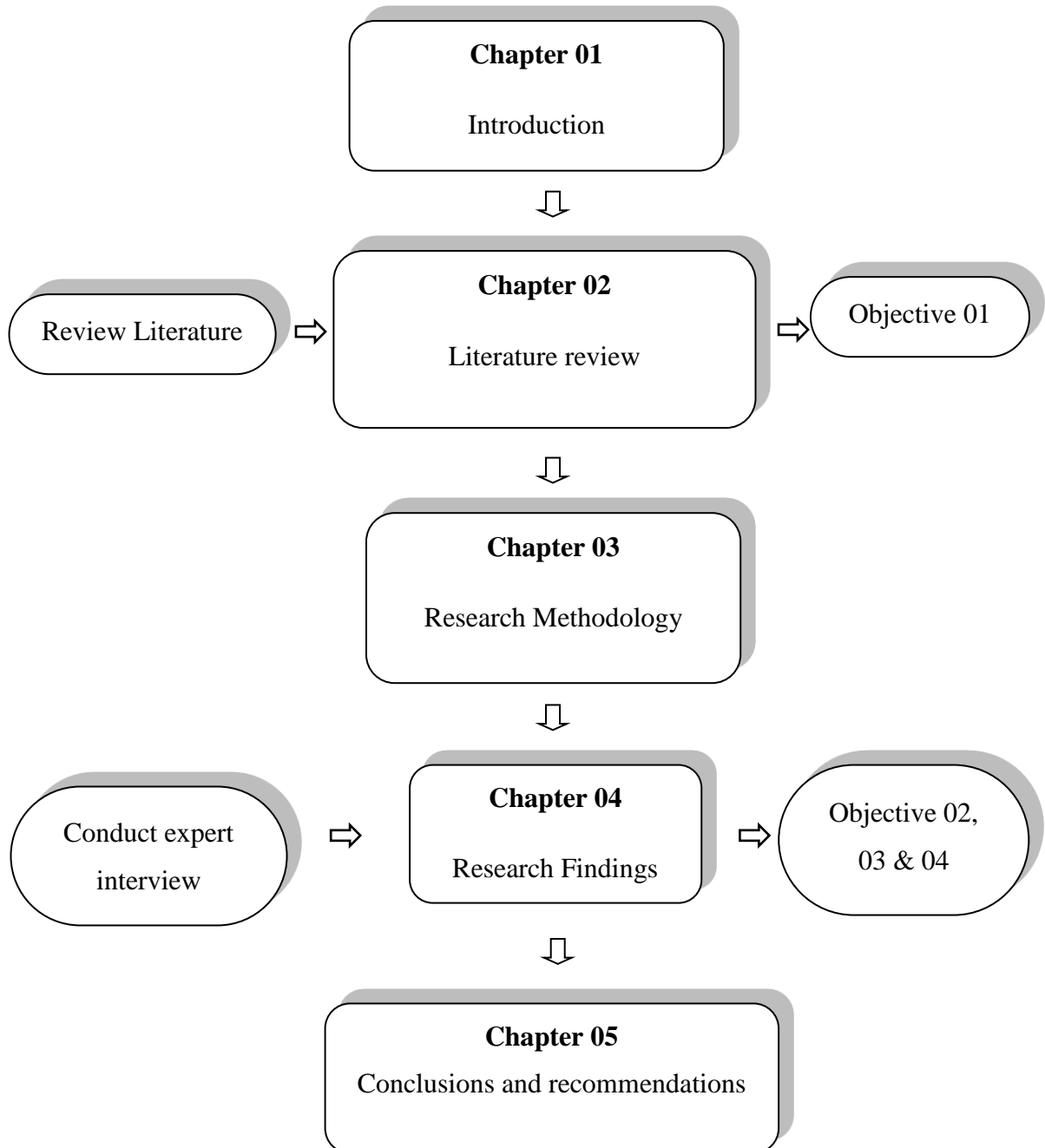


Figure 1.6-1: Chapter breakdown

As per above illustrated figure 1.6, for the achieved aim of this research, in mentioned chapters handled to achieve objectives under research frame work.

1.7 Summary

This chapter summarized the subsequent chapters briefly by identifying the background to the research study strengthened by literature review. Further, aim and objectives for research have been emphasized together with scope and limitations and research methodology in concise manner.

2.0 LITERATURE REVIEW

2.1 Introduction

In every developing or developed country infrastructure development and upgrading the public facilities have become a major concern as they directly impact on the social cultural and economic aspects of any county. In this process financing huge amounts of money on such public project has become impractical in most of the scenarios. That is where the importance of Public-Private Partnership (PPP) arise. PPPs are becoming a common tool to bring together the strengths of both public and private sectors. The drivers for adopting PPPs have been identified by a number of earlier researchers. With the fragmented nature of construction industry, the drivers for PPPs are briefly explained as method of better risk allocation/sharing. The core principle of any PPP is the allocation of risk to the party best able to manage it at least cost. The aim is to optimise rather than maximise risk transfer and ensure that best value is achieved (Li, 2003; Efficiency Unit, 2003; Li *et al.*, 2005; Kwak *et al.*, 2009; AfDB,2010 United Nations, 2011; HM Treasury, 2012). Hence, PPP concept has become one of the popular procurement method that governments choose to achieve their public infrastructure requirements.

2.2 What is PPP

Chou and Lin (2013) states that Public-private partnership (PPP) is a financial strategy for stimulating private investments in public services. A Private Public Partnership (PPP) could be identified as a contract, amid a governmental and a private entity (Rodriguez, 2011). In simply according to Collins English Dictionary (2018) private-public partnership means, “*an agreement in which a private company commits skills or capital to a public-sector project for a financial return*”. Adding to the same, these are often long-term contracts mostly corporations and the aim of this cooperation is to deliver some public benefit, in the form of either an asset or a service. This definition further explained by World Bank (2014) as the PPP is “*a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance*”.

2.2.1 PPP concept in the construction industry

PPP concept commonly found in the construction industry and although the public sector to risk averse and tends to avoid financial guarantees. Government support for PPP projects has never been downwards in developing countries compared with developed ones based on that reason (Chou & Lin, 2013). Further the authors emphasizes that this is the case especially after the 2008 global financial crisis significantly affected the construction industry. Furthermore, a significant element of these PPP contracts is that the private entity must take on a substantial serving of the risks entangled with the delivery of the project (Rodriguez, 2011). Carrying such risks and benefits it is observed that PPP concept is embraced in the construction industry often in the global construction industry.

2.2.2 PPP concept in the global construction industry

Higher the construction activities involved in an economy higher the sophistication of the process of PPP project implementation. The following graph includes the level of sophistication around the worked with relation to the PPP concept government support.

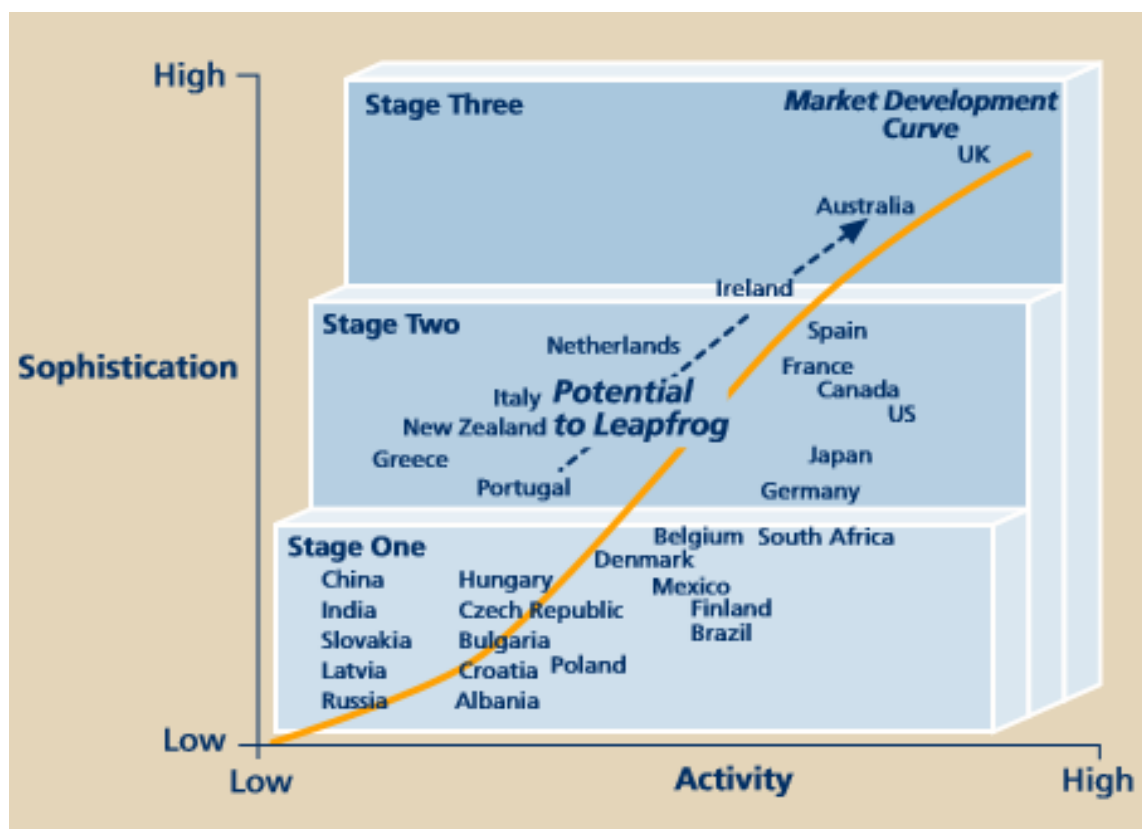


Figure 2.2-1: PPP projects and sophistications of countries

2.2.3 Why PPP Projects are so popular worldwide in terms of delivering infrastructure / public facilities?

A strategic PPP approach can potentially diminish the invades and plan delays that plague traditional infrastructure project delivery by clearly demarcating authority, allocating collective risk, integrating resources, applying best practices, and establishing a life cycle-long perspective of costs and accountability (Rocca, M.D. 2017). The author experience and according to the department of economic affairs under ministry of finance in India (2016), involved PPP institutions face eight recurring challenges with their capital project portfolios, often unrelated to financing. PPPs can potentially address each of these trouble making points to varying degrees depending on the project. Such as,

- ***Unclear responsibilities***

A lack of clarity about decision making and project governance often deters effective project delivery. PPPs address this challenge by demanding the owner to document and convey the performance criteria, risk-allocation mechanisms, responsibilities, rewards, and penalties in a translucent and commercially representative mode.

- ***Poor alignment with strategy***

Support can decline, or execution can be hindered, when projects are not supported by a strategic and strong commitment. PPPs, however, are carefully curtained and scrutinized from a group of prospective investments with a high notch of public reflectiveness, resulting in project commitments allied with the strategy of the sponsor.

- ***Insufficient optimization of project features***

Sponsors are frequently controlled by prevailing standards, procedures, and restricted exposure to best practices under traditional methods. But PPPs boost innovative problem resolving by concessionaires during the bidding, design, construction, and long-term operating phases.

- ***Lack of an ownership mind-set in the delivery team***

Traditional project delivery often results in poor alignment between the contractor and owner. In PPPs, concessionaires adopt the viewpoint of owners, sponsors, or both because of the performance motivations and duty to ultimately handover assets in a state of worthy repair.

- ***Lack of discipline in execution***

Large infrastructure projects habitually agonize from challenging objectives, time frames, and resource commitments. PPPs achieve clarity of delivery and operational accountability by defining and aligning contractual obligations and integrating project delivery functions, such as design, procurement, and supply chain management.

- ***Poor project controls.***

Multiple participants and different systems can result in competing versions of progress, differing views of the truth, wasted effort on reconciliation, and a strained relationship among participants. PPP concessionaires typically deploy project-wide systems and considerable resources to identify, manage, and mitigate deviations from plan, resulting in better contingency planning and faster response to changes.

- ***Low initial cost mind-set***

Traditional procurement approaches frequently award contracts to the lowest construction bid without a mechanism to consider the full cost of life cycle operation and maintenance (O&M). PPPs, by definition, focus on the long-term total cost of ownership, including O&M, at the time of contract award, thereby incentivizing the concessionaire to optimize not the minimum required capital, but the initial capital expenditure and ongoing operating expenditures that actually maximize value.

- ***Poor resource optimization***

Owners sometimes suffer from inadequate internal resources to ensure progress and daily decision making in a timely manner. PPPs address this challenge by transferring delivery responsibility to highly capable and well-resourced teams incentivized to perform through the negotiated contract terms.

2.3 PPP concept in the Sri Lankan construction industry

PPP is fetching as a widespread investment model since late 1980s and 1990s in the world (Anonymous, 2014).

Sri Lanka's history of privatizations and PPPs is brief and limited to around a decade. Three specialized institutions which include the Public Enterprises Reforms Commission, Bureau of Infrastructure Investments and the Private Sector Infrastructure Development Company were previously set up to facilitate PPPs, all functioning under the then President in the capacity of Minister of Finance (The Ceylon Chamber of Commerce, 2016)

Currently, the South Asia Gateway Terminals development project was Built-Owned and Operated by the joint venture companies. It is to be transferred back to the SLPA at the end of the concession period of 30 years. Equity partners include, SLPA, one Sri Lankan investment group, two port management companies, and three lending institutions including the World Bank as well as one shipping company. This PPP became the first such project in the port sector to be implemented in South Asia and the largest public or private investment project to commence construction in Sri Lanka.

PROJECT NAME	SECTOR	FINANCIAL CLOSURE YEAR	INVESTMENT (\$US MILLION)
Colombo South Container Terminal	Ports	2011	\$500.00
Norochcolai Coal Power Plant	Electricity	2010	\$450.00
Kankasanturai Wind/Solar Power Plant	Electricity	2012	\$280.00
Colombo Port	Ports	1999	\$240.00
Lanka Bell Pvt Ltd.	ICT	1996	\$194.00
AES Kelanitissa Power Project	Electricity	2001	\$104.00
Broadlands Hydropower Plant	Electricity	2010	\$82.00
Sampur Trincomalee power plant	Electricity	2010	\$75.00
Colombo Port Power Barge	Electricity	1999	\$72.00
Heladhanavi HFO Power Plant	Electricity	2004	\$62.00

Figure 2.3-1: Sri Lankan PPP projects in brief

The Colombo Port City Project (CPCP) is widely regarded as the largest and most ambitious Sri Lankan PPP and Foreign Direct Investment (FDI) undertaking to date and is a collaborative project between the Government of Sri Lanka (GOSL) and the China Harbour Engineering Corporation (CHEC) Port City Colombo (Pvt) Ltd. The project faced early setbacks and controversy due to alleged mishandling of key processes. This CPCP milestone project provides valuable insights on the nature of PPP projects in the Sri Lankan context. Further it helped to establish the factors to be considered for the successful implementation of future PPP projects in Sri Lanka as a sample project.

Another perceptible PPP initiative made in Sri Lankan context is, a study done focusing the small-scale entrepreneurs and urban poor communities in developing a model as a feasible strategy of private sector financing of development and operation of water services for improved efficiency and reduced wastage. Urban water supply at Halgahakumbura low-income settlement is developed using base data of various pilot studies of the National Water Supply and Drainage Board in the recent past and the recent initiative of 'Pro-poor Public-Private Community Partnership' to provide an individual

water connection in urban low-income settlements. The outcomes of projects shows that further subsidy is required to make the project viable. It is clear that in order to reap the maximum benefit to the economy as well as attracting competitive private service providers, the users should pay the full cost of service. If the social affordability level is inadequate, then the Government should complement user fees with a carefully targeted subsidy payment, ensuring the subsidy to those in most need. Likewise, such public beneficial projects need more funding in order to make them a success. In that case, the most effective method of investment or the procurement could be PPP initiatives.

Structural transformation of the economy will place further demands for more, cost-effective infrastructure or investment for public crowd. Increasing urbanization will require more sophisticated infrastructure to maximize benefits from agglomeration, provide for livability, and avoid congestion; which calls for infrastructure investments and opportunities for PPPs in development areas of water and sanitation; roads, ports, railways and other connective infrastructure; power and energy; solid waste management; middle income housing and townships, etc. (The Ceylon Chamber of Commerce, 2016)

2.4 Models of PPP Projects in the Construction Industry

There are different modes on the basis of which PPP arrangements work in India (Harisankar, K.S. & Sreeparvathy, G. 2013).

They may broadly be classified into three, namely

1. Public ownership and public operation where the policy decision is to retain public ownership and control over the sector; direct private financing and operation may be allowed under commercial principles by vesting ownership and management on separate legal entities controlled by the government.
2. Public ownership but private operations where Operation and Management (O&M) activities may be contracted out to the private sector.
3. Private ownership and operation where the private party owns and operates the facility

Depending on the approach of sharing the responsibility between public and private sectors, many PPP models have been identified. A wide spectrum of PPP models have emerged and they vary mainly by:

- Ownership of capital assets
- Responsibility for investment

- Assumption of risks; and
- Duration of contract

Some of the such identified major PPP models are as per World bank (2014) and The Canadian Council for Public-Private Partnerships (2017);

Table 2.4-1: Models of PPP projects

	PPP Model	Description
1	Operations & Maintenance (O&M)	Contracts with a private partner to provide and/or maintain a public facility or system. The public partner retains ownership and overall management.
2	Operations, Maintenance & Management (OMM)	Contracts with a private partner to operate, maintain and manage a public facility or system providing a service. The public partner retains ownership of the public facility of system.
3	Design - Build (DB)	The private partner provides both design and construction of a project to the public agency. The public-sector partner owns the assets and is responsible for the operation and maintenance.
4	Design-Build-Maintain (DBM)	Similar to a DB except the maintenance of the facility for some period of time becomes the responsibility of the private sector partner. The public-sector partner owns and operates the assets.
5	Design-Build-Operate (DBO)	A single contract is awarded for the design, construction, and operation of a capital improvement. Title to the facility remains with the public sector. The public agency maintains ownership and retains a significant level of oversight of the operations through terms defined in the contract.
6	Design-Build-Operate-Maintain (DBOM)	An integrated partnership that combines the design and construction responsibilities of design-build procurements with operations and maintenance. These project components are procured from the private sector as a single contract with financing secured by the public sector.
7	Design-Build-Finance-Operate-Maintain(DBFOM) and Design-Build-Finance-Operate-	The responsibilities for designing, building, financing, operating and maintaining are bundled together and transferred to private sector partners. DBFOMT is same as DBFOM except that the private sector owns the asset until the end of the contract when the ownership is transferred to the public sector.

	Maintain- Transfer(DBFOMT)	
8	Build-Operate- Transfer (BOT)	The private partner builds a facility to the specifications agreed to by the public agency, operates the facility for a specified time period under a contract or franchise agreement with the agency, and then transfers the facility to the agency at the end of the specified period of time.
9	Build-Own-Operate (BOO)	The contractor constructs and operates a facility without transferring ownership to the public sector. Legal title to the facility remains with the private sector, and there is no obligation for the public sector to purchase the facility or take title.
10	Turnkey	A public agency contracts with a private investor to design and build a complete facility in accordance with specified performance standards. In a turnkey transaction, financing and ownership of the facility can rest with either the public or private partner.

2.5 Significance of PPP projects in the construction industry

In the delivery of public services PPPs have become a spectacle which is spreading globally and stimulating high attention amidst governments, investing parties and other main project participants (*Public - private partnerships for infrastructure development in Sri Lanka*, 2014). The role of infrastructure projects is momentous in socio-economic development due to their immense contribution to national economy and social welfare in developing countries as well as in and developed countries (Ke, 2014). One of the main advantages of PPPs is that they avoid the often-negative properties of either exclusive public ownership or outright privatization (United Nations, 2007). This is seen as a win-win situation for both public and private entities where they undertake large budget projects. This balanced approach is especially welcomed in public services which touch on every human being's basic needs & economic development of a country.

Development of new infrastructure, providing social services efficiently and effectively, and better targeting of services to those in most need, are critical to alleviate poverty and provide economic opportunities for the less fortunate. Reforms using "quasi - public"

contracts, commercializing public agencies, contracting out specific services to the private sector, and transferring responsibility for providing services to the private sector would be better alternatives to leverage with private sector skills and resources.

2.6 Advantages of PPP project initiatives

One of the main advantages of the PPP approach is that it can save resources in many ways. The government can concentrate on its core competencies, and does not need to rely on its own resources for unfamiliar projects (Cumming, 2007). Because of the participation of the private sector, government assets, data and intellectual property can also be utilized more productively, which leads to substantial improvement in the quality of public facilities and services (Edkins & Smyth, 2006).

On the other hand, by proper use of the private sector's skills, experience, technology and innovation, public services can be delivered with a higher quality and much satisfaction. A further advantage is that the public and private sectors can share risks at the different stages of the project life cycle (Shen *et al.*, 2006). As the private sector brings higher commercial disciplines and safety margins into public projects, the risk of cost overruns and project delays can be drastically reduced which leads to better project outcome (Li and Akintoye, 2003; Ho, 2006). In order to finish the design, build, and operation stages under the concept of PPP, the private sector can contribute to make a much efficient civil service structure with a more efficient hierarchy of responsibility for services delivery (EU, 2005).

Other than the advantages of wastage minimization and saving resources or more efficient use of them, the economic aspect can be improved by the adaptation of the PPP approach. For instance it has been proven that PPP leads to the reduction of lifecycle costs (Li and Akintoye, 2003), since these projects spread government capital investment over the life of a project. This guarantees the expected rate of return for governmental investment (Royal Institution of Chartered Surveyors, 2015).

One of the main plus points in this whole project concept could be summarized as better value for money. PPPs increase the value for money of the investment or cash spent for infrastructure services by providing more-efficient, lower-cost, and reliable services. Value for money cannot be gained simply by selecting the cheapest bid; it means considering and opting for the best solution for the long-term and entering into

partnerships that will deliver services which meet the public or the individual needs of the citizens (HM Treasury, 2000; Harris, 2003; Li, 2003; Li *et al.*, 2005; Kwak *et al.*, 2009; AfDB, 2010; World Bank, 2011).

Furthermore another main advantage is that this concept accelerate infrastructure provision to the country. PPPs often allow the public sector to translate upfront capital expenditure into a flow of on-going service payments. (Akintoye & Liyanage, 2011; HM Treasury, 2012).

The provision of design and construction duty to the private sector, combined with payments linked to the accessibility of a service, provides substantial incentives for the private sector to provide projects within shorter construction timelines (Li, 2003; Harris, 2003; AfDB, 2010).

The international experience recommends that the quality of service attained under PPPs are often enhanced than that achieved by traditional procurement. (Harris, 2003; Li, 2003; Akintoye & Liyanage, 2011).

The provision of project risk should encourage the private sector contractor to increase its management and performance on any given project. Therefore, the satisfactory sharing of project risks would enhance private sector performance on any given project (Efficiency Unit, 2003) Also relocating responsibility for providing public services support government officials to act as regulators. This indicates the delivery of public facilities and services through PPPs allow government concentrating on service planning and performance monitoring (; Kwak *et al.*, 2009).

The private sector may be able to generate further revenues from third parties, thereby dropping the cost of any public-sector subsidy required. (United Nations, 2011). PPP projects necessitate operational and maintenance service provision. Thus, offers the private sector with strong incentives to reduce costs over the whole life of a project. For instance, collaborations from merging design, construction and operation guarantee the private sector concentrations on the whole life costs of the asset over the project life cycle (Li, 2003; Kwak *et al.*, 2009).

As the above findings it is evident that PPPP is reap many sound benefits to any country. As a developing country in south Asia where the public find availability is not at a very solid level PPPs can do a very major role in uplifting the development of the country

2.7 Disadvantages of PPP projects

Although PPP is perceived as a way of creating public infrastructure at little or no cost to the public purse, it is still the notion that “there is no free lunch” is true (Kumaraswamy & Zhang, 2001). Kumaraswamy and Zhang (2001) presented several cases of BOT ventures that had run into problems due to cost overruns, unrealistic price and income projections, and legal disputes between private operators and the government. In nearly all of these cases, the government and the general public, but not the private operators, have eventually shouldered the cost of failure (Tang, Shen & Cheng, 2010).

Such researches on the previous failures has led the researchers to focus on the point of view from the public sector about the failure of PPP performance at present. Practitioners have indicated that political obstacles stand in the way of using PPPs (Algarni *et al.*, 2007). This view is not surprising since PPP projects always need special legislation. In most circumstances, the municipal or state legislature has to discuss this issue at length before legislation is enacted to regulate the use of PPP.

Also, some government agencies may exhibit resistance to change in the context of adopting a new delivery/financing approach. The PPP method of project development may not be well understood and sometimes may not be well received by the government agencies that handle it. Hence, it is with great concern the critical success factors of PPP shall be identified and strengthened in order to achieve the PPP project success.

2.8 Critical Success factors for PPP projects in the construction industry

It as aforementioned is noted that not all PPP projects are prosperous. Since they involve large amounts of capital and other resources as well as very critical to the country successful implementation can thrive the economy while a failure can down fall the entire economy. This has caused a number of studies to focus on recognizing critical success factors in PPP project. Such identified critical success factors can be identified by Eliot (2016) is presented as below.

The distribution of the management of risks optimally among the public and private sectors can allow a more effective use of resources over the lifetime of the asset. The long-term nature of the project can generate greater confidence and mitigate the probability of surprises down the line. This also guarantees planning for proper long-term

maintenance of properties, which is regularly mislaid in conventional public sector (Eliot, 2016).

The open exposure of capital to long-term performance risk gives the private party an inducement to design and build the asset on time and within budgetary limits taking into account the lifelong cost of the development.

The PPP process usually involves a much greater level of quality assurance than the standard public procurement process as the public authority prepares its projects and engages with the market. The public authority will face scrutiny by parties outside government, such as lenders and investors, whose capital will be at risk over the long term, depending on the performance of service delivery.

The more open inspection of the long-term obligation that has to be there of a PPP generally a realistic update regarding the true long-term risks. This analysis can produce a more informed and realistic debate in selecting among the potential projects

2.9 Dispute and conflicts in PPP projects in construction industry

Existence of a credible and efficient dispute resolution mechanism (hereinafter DRM), which can settle the differences in a time bound manner is one of the key factors for the success of any PPP. In private investments, especially in those involving high capital, the perceived risks and costs of delay in resolution of disputes can be fatal to the country. Provision for an effective-both in terms of speed and quality- assumes relevance for PPPs taking into account the possible conflicts of interests, long-term and high investments involved, political and social sensitivity often attached to the projects etc. Thus, it becomes imperative that the parties get the assistance of a body, with necessary technical, financial and legal expertise, to settle their disputes in a time bound manner (Harisankar, K.S. & Sreeparvathy, G. 2013). To get a proper understanding of those disputes and conflicts related to the PPP projects, understanding the background of the disputes in the construction industry is vital.

2.9.1 Background of Disputes and conflicts in the construction industry

Contrasting to other types of industries where the development and manufacture of product can be standardized and tested before being purchased, the nature of projects in the construction industry is extremely diverse. Every project is unique. Even where identical buildings are under construction, the site conditions in each will differ and

introduce new challenges. Moreover, it is a multi-party process where numerous specialist parties are involved due to the diversity of skills required and thus maintaining teamwork atmosphere and controlling potential conflicts is important. Also, the construction projects normally span for a long period between the decision to invest and the completion of works. This leads to instability of supply and demand and high sensitivity to economic fluctuation (Wood, 2001)

Maintaining a cooperative environment becomes a difficult task because conflicts are inherent in construction projects (Zack, 1995 & Fenn, 1997). Where conflicts result in adversarial stances and mistrust, they have a detrimental effect on project performance (Harmon, 2003). Eliminating conflicts appears to be a daunting objective (Kumaraswamy, 1998 & Cheung, S.O. & Suen, 2002) and so efforts have been directed towards reducing their magnitude and/or keeping them under control (Vaaland, 2004). A list of the root causes and the proximate causes identified by Kumaraswamy (1997) is depicted below.

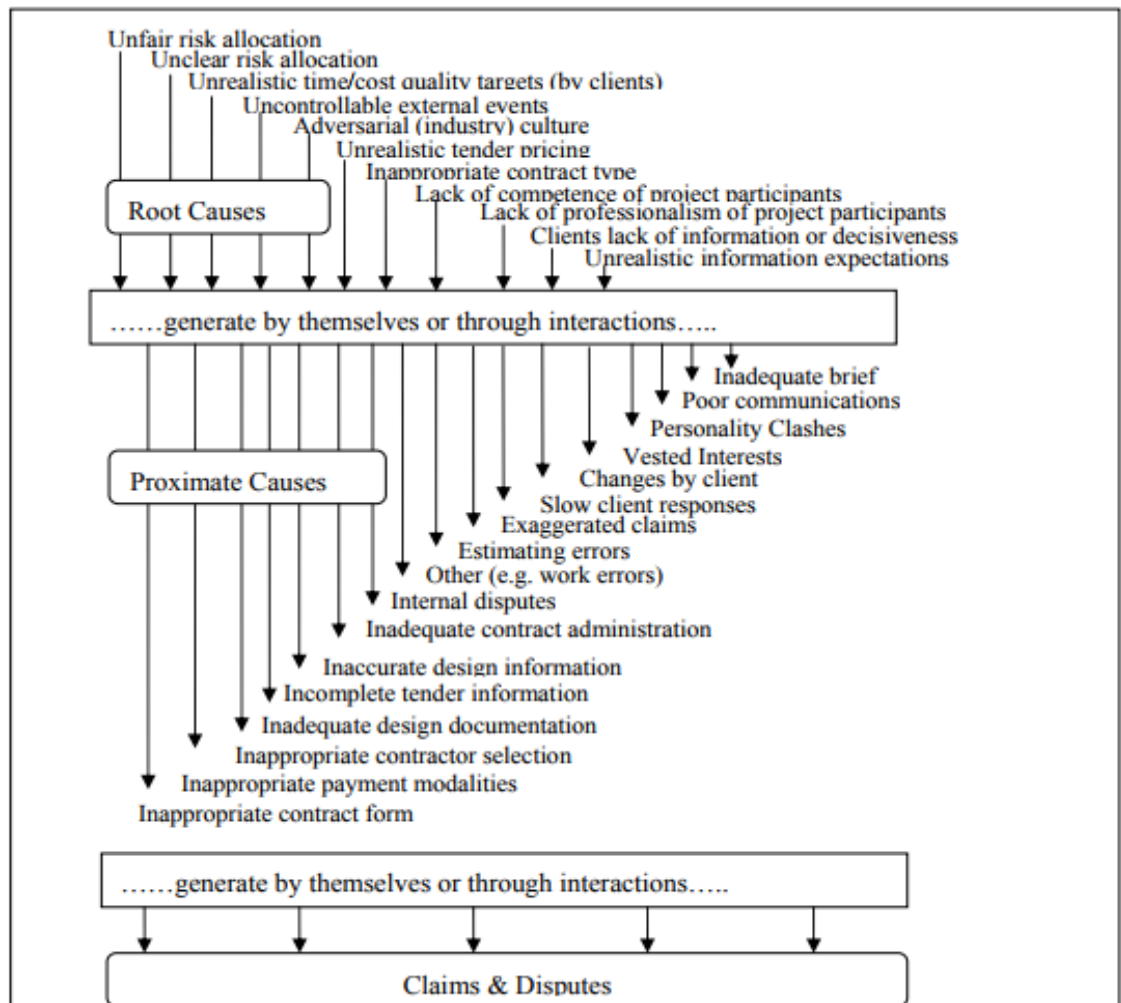


Figure 2.9-1: Causes of disputes

Kumaraswamy's (1997) argues that the disputes and conflicts in the construction industry are ascended based on the above root causes and the proximity causes. Further he implies by observing and taking proactive measures to the above can significantly mitigate the unwanted disputes and conflicts. Keeping those facts in mind makes the process of understanding the disputes in the context of PPP projects as well.

2.9.2 Dispute and conflicts in PPP projects in construction industry

As in construction sector in general, disputes and conflict in PPP projects are often observed mostly due to the ignorance of proactive measures to avoid them at the initial stages. When discussing PPP dispute context, it is vital to have known the PPP project implementation process. Though there may be minor variations depending on the sectoral needs, various stages in a PPP project implementation, are the following.

1. Identification—it is the stage where potential projects are identified through a strategic planning process and these potential projects are evaluated for their suitability for development as PPP.
2. Full feasibility—a potential PPP identified in the first phase is considered in detail and an application is made for in principle clearance to continue to the procurement phase.
3. Procurement—the procurement process takes place, an application is made for final approval, the preferred bidder is selected and the project is taken to technical close.
4. Contract Management and Monitoring—here, the Sponsoring Authority manages the PPP throughout its life, including monitoring the private partner's performance against the requirements of the Concession Agreement. Phase 4 begins at the pre-operative stage, and spans the construction stage (where relevant), the operations stage, and contract closure and asset transfer ("Public Private Partnership in India | Tool Kit for Decision Making Processes," 2010)

The need for dispute resolution arises mostly in contract management stage. But possibility of a dispute arising cannot be ruled out even prior to that; say at the stage of procurement where the award of project may be challenged on grounds of arbitrariness and illegality before courts of law. This is in addition to the public policy issues relating to land acquisition and environmental clearance that government agency may have to sort out at an earlier stage. The judiciary in India has been candid in maintaining that judicial review cannot extend to policy matters which are the prerogative of the government and it is in public interest to expedite disposal of cases involving challenge to economic policies, as any delay will be counter-productive to public interest. The duty of the court, maintains the Supreme Court, is only to confine itself to the questions of illegality, irrationality and procedural impropriety. Hence, the courts have generally restrained themselves from interfering in matters relating to bidding and award of projects unless the arbitrariness and illegality is apparent on the face of it. Similarly, it is observed that disputes and conflicts make significant impact on the success and the effectiveness of the PPP projects.

2.9.3 Impact of disputes and conflicts with relation to PPP projects

As it has been discussing in previous sections, there are instances which the PPP's lead to failures or other complications like extended time or cost over runs due to various disputes and conflicts as depicted in the below table.

Table 2.9-1: Impact of Disputes and conflict to PPP projects

Project Name	Reason of Failure
<ul style="list-style-type: none"> Light Railway Transit (LRT) Project – the Metro Sul do Tejo (MST), Portugal 	<p>The project did not go beyond the first phase of construction. The reasons behind the cancellation were stated as an unclear risk-sharing mechanism, lack of supporting documents for contract management, no provision of contingency plans for emergencies, and a lack of expert personnel for complex contract management (Tavares 2014).</p>
<ul style="list-style-type: none"> Domestic Terminal at Murtula Muhammed Airport, Nigeria 	<p>The project was initially awarded to Royal Sanderton Ventures Ltd. Due to a lack of significant progress after six months, the government decided to revoke Sanderton's mandate and it was awarded to the second bidder, Bi-Courtney Ltd. The company faced challenges in securing financing and had to start construction without a long-term finance model. On the operations side, airlines were reluctant to move to the new terminal owing to its small size. There were also disputes by parties and claims of breach of contractual rights (Nigeria 2012).</p>
<ul style="list-style-type: none"> Panagarh-Palsit Highway Project, India 	<p>The contract for the design, construction, operation, and maintenance was signed between the National Highways Authority of India (NHAI) and Gamuda-WCT in November 2001. The Construction Phase was completed five months behind schedule. The delay was caused by land availability issues and a change of scope orders. The Auditor General of India, on inspection, found consistent and major cracks, repairs, and deflections values. Ineffective structuring of the PPP agreement led to time overruns and insufficient quality (India 2012).</p>
<ul style="list-style-type: none"> Lekki Toll Road Concession Project, Nigeria 	<p>The contract for the upgrading and maintenance of the Expressway was awarded to LCC. However, the project faced problems, such as protests by local communities who were against paying tolls, which led to tolling suspension. A</p>

need for strong contract management and stakeholder communication within the government team was addressed. There was also a need to set performance standards backed by penalty regimes in the contract in order to ensure better quality of roads (Nigeria 2012).

At the stage of Contract Management, disputes essentially relate to the validity, enforceability, interpretation or non-performance of a contractual obligation, or seeking injunctive relief, compensation, specific performance, etc., may come up and thus amenable to the original jurisdiction of a civil court of competent jurisdiction. However, litigation is not preferred as a mode of dispute resolution presumably due to factors like potential delay and the need for specialized knowledge (Harisankar, K.S. & Sreeparvathy, G. 2013). When observing the above discussed facts it leads to the point that urges the need of a proper dispute resolution mechanism in handling PPP project which could mitigate the impact of disputes on them.

2.9.4 Necessity of a proper dispute resolution mechanism in handling PPP projects

Dispute resolution mechanisms are also a common component of PPP concession contracts, as there is recognition that disputes between the partners in a PPP are quite common and can be costly to resolve. PPP contracts commonly contain provisions for negotiation and mediation as a first mechanism to settle disputes between the public-sector sponsor and the private sector concessionaire, with more lengthy and expensive legal remedies as a final alternative. In spite of this, there are scenarios requiring renegotiation or termination of PPP contracts due to changing conditions or default of the concession consortium. The effectiveness of dispute resolution mechanisms in PPP project environment requires immediate attention (Akintoye & Kumaraswamy, 2016)

In some cases, failures or alleged failures in infrastructure and PPP themselves become political issues. The Philippines experienced a very difficult build–operate– transfer project involving the construction of a new airport terminal in the capital, Manila. Delays, cost overruns, and disputes between the government and the contractor were all exposed to the public spotlight that could discourage other PPPs (Asian Development Bank, 2012). The case highlights the need for processes and institutions that can resolve problems and differences between stakeholders in a timely and responsible manner without risking the

project itself. Paderanga (2011) cites that the “*failure of the judicial system in settling issues and debt resolution*” is a key factor in hindering the greater use of PPPs in the Philippines.

2.9.5 Dispute resolution mechanism in PPP construction projects

With the observations throughout the above literature it can be deduced that dispute resolution mechanisms are vital in the PPP construction sector to reap the optimum benefits out of them. Hence, to approach these dispute resolution mechanisms it is wise to look into how to mitigate disputes and how the dispute resolution mechanisms are in practice in the construction industry.

2.10 Solving disputes in PPPs

A key pre-requisite for attracting private partnership is identified as laying down ‘a policy, and a legal and regulatory framework that assures fair return for investors and protects the interests of the users, especially poor and assures quality at a reasonable cost’ (K.S. & G., 2013). The Government of India and various state governments have been consistently making efforts to bring clarity to policy and regulations by inter alia modifying policy documents, providing for model contract documents and mechanisms for financial structuring (ibid.). It has, of late notified standardized bidding and contractual documents for various sectors. In addition, the union government has, in 2011 come out with a draft policy and rules regarding the same.

In 2013, Iboh, Adindu, and Oyoh suggests in their research findings that the following steps could be effective in securing PPP context with less disputes and conflicts.

1. Increasing the awareness and level of adoption of the PPP contracting route for the provision of public infrastructure services previously undertaken by the public sector.
2. Creation of access to credit securities for PPP operators.
3. Dealing with all issues relating to withholding or delay in payments.
4. Development of facilities maintenance and management policy with proactive implementation plan.
5. Development of an effective national regulatory framework to provide practicing guidelines for all the states and establishments.

-
6. Extension of the operations of the Infrastructure Concession Regulatory Commission (ICRC) beyond the national level to the state and other establishments (Iboh, Adindu, & Oyoh, 2013)

The principle of profit maximization holds the key for private investors even when they partner with public entities. Disputes mean delay and delay in turn would mean escalation of costs; and for a private investor it would mean loss of earnings from the resources which he could have utilized otherwise. Efficacy of dispute resolution mechanism thus holds significance, in attracting private investors to partner with the government. As the above discussion shows resolving disputes through amicable means like mutual discussions, conciliation, or mediation, at the earliest, holds the best solution in any PPP initiative. However, it is not so often that parties agree to merge their difference by mutual concessions and adjustments. When the parties fail to come to an agreement Arbitration is resorted which has many advantages including flexibility in procedures, binding nature of the award, the relative speed in which matter is resolved etc. However, as discussed above the way in which arbitration is practiced in the country has made it no better than litigation. Judicial intervention, delay and procedural rigidity of the tribunal have diminished its scope as the most effective mechanism in PPPs. Adjudication by statutory expert bodies like the Electricity Appellate Tribunal seems to be a viable model for dispute resolution in PPP. There are many advantages like expertise, efficiency in time, less interference by the judiciary, etc., which can be effectively used for structuring a dispute resolution mechanism. A harmonized system of dispute resolution with a single appellate authority at the center would be a workable model for PPP in India in most of the sectors. Barring the jurisdiction of the civil courts and making provision for appeal only to the apex court in substantial questions of law would go a long way towards speedy disposal; while the presence of experts from diverse fields would ensure efficacy in such an arrangement (Harisankar, K.S. & Sreeparvathy, G. 2013).

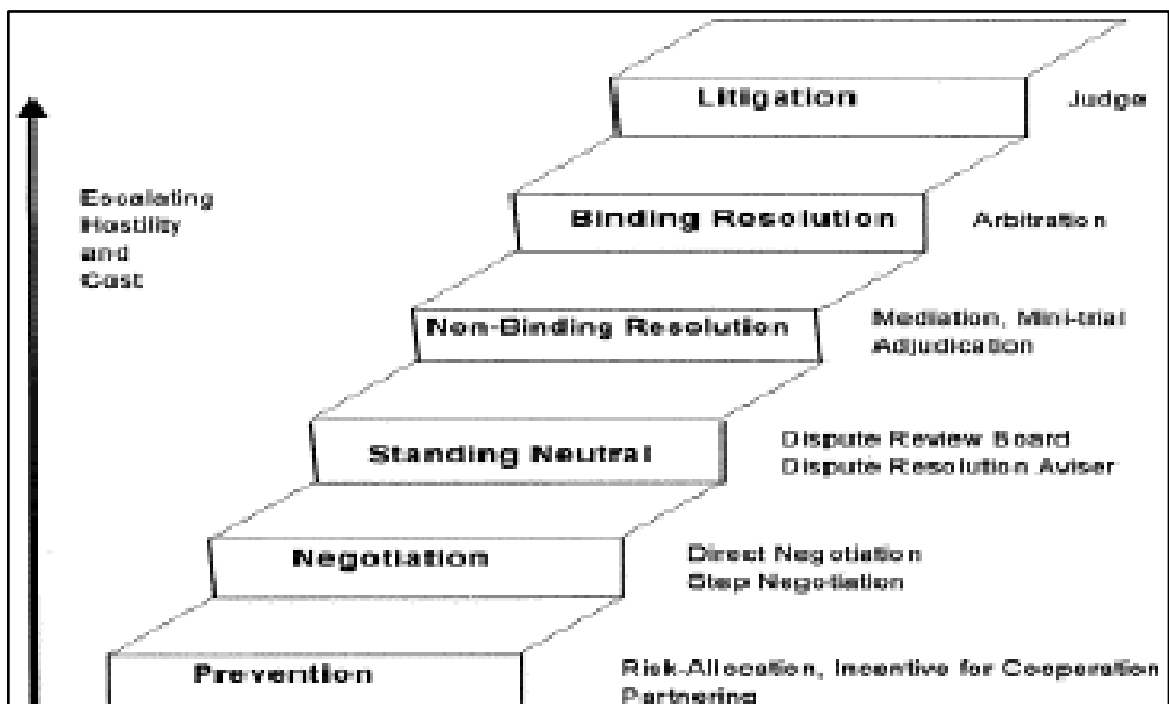
There is also some talk regarding the setting up of an entity to coordinate all efforts of PPP, apart from the existing Public–Private Partnership Approval Committee (PPPAC) and other legal and policy frameworks. One area repeatedly emphasized by all the major policy frameworks and model contract documents is the provision for an efficient and credible dispute resolution mechanism. Agency for speedy dispute resolution: The Government should consider setting up a single quasi-judicial authority for all infrastructure sectors. This authority will have statutory powers to resolve disputes between the authorities and private developers. Such an authority will make faith in the

private investors to divert their finances more into PPP projects in a more secured background and that will directly impact on the improvement of the development of PPP sector dispute resolution context.

2.10.1 Dispute Resolution mechanisms in the construction industry

The construction industry is a very competitive high-risk business. Many problems, such as little cooperation, lack of trust, and ineffective communication resulting in adversarial relationships between contracting parties, are facing the construction industry. Partnering is perhaps one of the most innovative developments in delivering a project efficiently and reducing construction disputes. It provides a sound basis for a “win-win” climate and synergistic teamwork.

There are several step by step processes for dispute resolution in the construction industry. These are depicted in figure 2.10-1.



Most of these are private except arbitration and litigation that are statutory controlled.

Figure 2.10-1: Construction dispute resolution steps

The rising steps in the chart intimate the escalating levels in hostility and cost associated with the various forms of dispute resolution. The hierarchy starts with the prevention techniques. The use of prevention techniques aims at creating teamwork and harmony, thereby preventing dispute from arising. Equitable risk sharing and incentive for cooperation are usually initiated by clients, whereas the success of partnering relies on

contributions from all parties involved in the construction process. It has been suggested that where long-term relationship is important to the contracting parties, prevention techniques should be adopted. Prevention techniques do not guarantee total dispute elimination. Problems cropping up during construction still need to be resolved. Resolving construction problems typically start with negotiation between the disputants. In negotiation, the parties have absolute freedom with respect to the form, process and type of agreement. Negotiating construction problems demand cooperative effort from the disputants. If negotiation fails, the disputants may choose to seek assistance from a neutral third party. There are two possible formats, the standing neutral and nonbinding resolution. The standing neutral concept involves the participation of a neutral person adjunct to the construction phase of a project, solving problems at the source. This method is relatively inexpensive because problems are addressed relatively informally and while facts are fresh. Dispute review boards and dispute resolution advisors have been used for this purpose. Alternative Dispute Resolution techniques such as mediation, mini-trials and adjudication are typical examples of non-binding resolution. These are employed after a problem has become fully developed into a dispute. These processes require more development of historical facts and greater preparation. Beyond this stage, positions become more polarized and costs to both parties begin to mount. If the dispute is not resolved amicably through ADR procedures, the next step is to refer the dispute to a third party for a binding decision. This, typically, is a giant step, involving formal identification of opposing positions and issues. These require considerable preparation by the parties, typically with the assistance of lawyers, consultants and expert witnesses. This will be a case for arbitration, a proceeding before a private judge, or the even more public and expensive step of litigation. Arbitration is by far the most commonly used method to resolve construction disputes. Most construction contracts contain arbitration clauses requiring the parties to refer any dispute to arbitration. At the top end of the stair-step chart as seen in Figure 2.10-1 is litigation. Litigation is a rigidly regulated process; the process is subject to the rules and procedures set out by the court. By adopting the litigation route, the parties surrender their control over the process and the outcome will be imposed by a third party.

Formalized disputes resolution processes construction ventures are characterized by a high degree of uncertainty and complexity. Drafting of construction contract documentation is no easy task and typically involves the inclusion of provisions for anticipatory contingencies. However, complete visualization of all eventualities is almost

impossible. Construction disputes often arise over such unanticipated happenings. Whilst formalized dispute resolution processes such as arbitration and litigation are useful in vindicating right and wrong, however, this may not be the real desire of the disputants. In this context, a rationalized dispute resolution process that meets the real expectations of the dispute resolution users would gain wide acceptance. Alternative dispute resolution techniques have been introduced to meet this need. Alternative dispute resolution Alternative dispute resolutions arose in the last two decades as a response to the high cost and lengthy process associated with arbitration and litigation. Both methods involve the application of strict procedural rules and the involvement of the legal professions. ADR techniques however do not require the involvement of the legal profession.

2.11 Barriers for Proper Implementation of Public Private Partnerships (PPP) in Sri Lanka

The literature demonstrated inadequate coverage of PPP legal regime, poor regulatory frameworks and weakness in enforcement of policy, lack of institutional capacity and PPPs strategy, absence of PPP disputes resolving legal institute among others as legal constraints for proper implementation of PPPs in most developing economies. This indicates that some developing countries governments with less matured economies execute PPPs even when overall PPP policies are absent, which drives towards improperly established goals and objectives ultimately creating greater possibility of issues with projects implementation. PPP generates exceptional pressure on the legal regime affecting economic maturity, renaissance, and mechanism for developing infrastructure. Although in PPP projects a large number of agreements and conditions are involved in documentary lack of a proper package has become a barrier to proper implementation of PPP. PPP involves a great deal of disputes among parties involved due to different interests of stakeholders, for protection of public interests and legitimate rights of private sector. According to Grimsey and Lewis (2004) and Satpathy and Das (2007) lack of well-established legal framework, has given rise to number of disputes which are inevitable in PPP.

3.0 RESEARCH METHOD

3.1 Introduction

In order to further proceed with the research, with the literature review taking as the base, a specific research method namely expert interview survey, followed by a content analysis was undertaken. The research method followed by the researcher is illustrated. This chapter is structured primarily to provide with overall methodological frame work for this research. Further, this part is enclosed with the discussion on expert interview survey methodology and its suitability, which was selected out of possible other research approaches. The following section illustrates the research process, data collection method and data analysis of this study with justification.

3.2 The Research Methodological Frame Work

This is the basic steps of research process which is researcher going to follow,

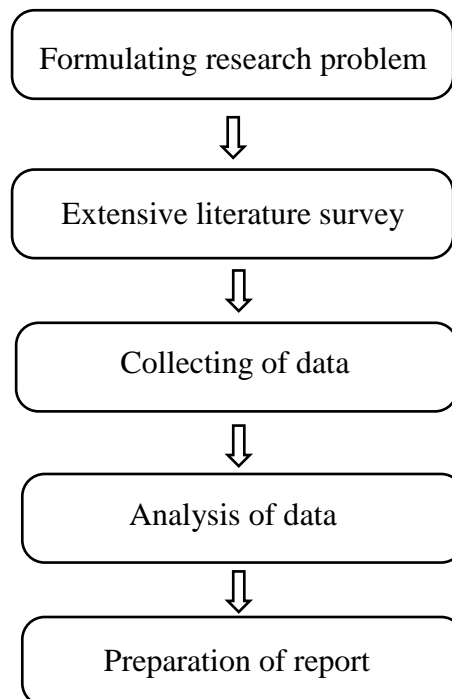


Figure 3.2-1: Research methodological framework

3.3 Formulating the research problem:

Formulating the research problem:

Since last three four year time, government always stating about government development under PPP concepts. This was most related to mega scale development project which are unable to bear the cost by government as a single entity. This concept is new to the ordinary people of this country. But it is not new to construction industry of the world.

Hence, through implementation of PPP in construction industry there are some conflict occurred between the participated parties because of the nature of concept. Then that was developed as the research “Dispute and Resolution Mechanism of Public Private Partnership Projects in Sri Lankan Construction Industry”.

The research problem has further refined by undertaking comprehensive literature synthesis as mentioned in next section of this research process. Moreover, the aim and objectives were established to unravel the research problem. Further, scope and limitations were defined to avoid the complexity of this research study.

3.4 Extensive literature survey:

In this research, through the literature, the research gap was defined. For that purpose the necessary information is collected through referring to journals, research papers, conference proceedings, government reports, books, online papers and web sites. In order to saturate the knowledge about problem many documentary sources were referred.

3.5 Research philosophy

According to Senarathne (2012), research philosophy is placed between two ends, such as positivist paradigm and interpretive paradigm. Research approach placed between those two ends due to the philosophy of the research. Furthermore, Senarathne (2012) illustrated that, another key research philosophy, such as critical social theory and post-positivism. Qualitative approach seeks to gain insight and to understand peoples’ perception of ‘the world’ – where as individual or group wise, the beliefs, understandings, opinions and views of people and analyze them to find solutions (Fellows and Lui, 2008)

3.6 Research approach

According to Finlay, A., (2012) there are three types of basic research methodologies this unit will introduce you to be:

- Quantitative research
- Qualitative research
- Participatory research

Each of these methods can be used to arrive at different conclusions. These can be used individually or as sets in a variety of combinations. However, it is important to understand what each methodology entails. Furthermore Finlay, A., (2012) illustrated research approach as quantitative research, qualitative research and participatory research, which are further discussed as follows.

Researcher follows qualitative research approach, because the aim of qualitative research is to deepen the understanding about any aspect and usually this means going beyond the numbers and the statistics. It is often contrasted to quantitative research and they are very often used together to get the ‘bigger picture’ of what is being tried to find out whereas the ‘flesh out the story’. Senarathne (2005) illustrated that there are few tools for researches. Such as experiments, surveys, case study, ethnography, action research and grounded theory. In this research, researcher selected case study method as a research tool after considering literature survey.

Yin (1994) suggested that the case study, research approach for the researcher which has research problems like “how” and “why” types. In here the second question of researcher depends on the first answer. Furthermore Yin (1994) defined that case study as;

“an empirical inquiry that investigates a contemporary occurrence with in real life context is not clearly evident”.

To identify the real situation, the research should follow each type of arrangement (sample of research) one by one, at least one (unit of project) from main types. When considering about collaborative procurement arrangement, there is no evident in building project in Sri Lanka. That is another reason to select one case study for each main arrangement.

3.7 Collecting the data:

In dealing with any real life problem it is often found that data at hand are inadequate, and hence, it becomes necessary to collect data that are appropriate. There are several ways of collecting the appropriate data which differ considerably in context of money costs, time and other resources at the disposal of the researcher. Senarathne (2012) illustrated certain data collection methods such as, interviews, questionnaires, documentation, observation and participation. In this research combination of couple of techniques were used to collect data, namely interviews.

Therefore, the researcher followed a rigid procedure and developed answers to a set of pre-conceived questions through personal interviews. This method of collecting data was usually carried out in an unstructured way where output depends upon the knowledge of the interviewer to a greater extent.

Team role of a person, which refers to preferences regarding behavior with other members of a team while performing tasks, should be distinguished from the respective functional role, which refers to the technical skills, project management and procurement knowledge and operational knowledge relevant to their job (Aritzeta *et al.*, 2005). Hence, the researcher aimed to interview main resource persons of each party involved in the project stakeholders namely public sector, private sector, consultant and end user. Most of time interviewee was a well knowledgeable person of projects about conflict and procurement arrangement from each party.

3.8 Analysis of data:

After the data was collected, the next step was data analysis. According to Senarathne (2012), four data analysis techniques can be illustrated namely, statistical, content analysis, pattern-matching and cognitive mapping. The unwieldy data should necessarily be condensed into a few manageable groups and tables for further analysis. Thus, researcher classified the raw data into some purposeful and usable categories.

This research followed all data regard conflict and resolution mechanism in PPP. There are two analysis systems, namely within identified groups and cross analysis as a industry by content analysis technique without software usage.

3.9 Summary

This chapter has presented and justified the methodological approach used in this research study. Research design commenced with the ‘nested approach’ and followed with research process. The research process was explained through formulating the research problem, extensive literature survey, collecting the data, analysis of data and preparation of the report. Finally, this provided a brief explanation on the selection of expert interview survey for this research thus leading to the research findings.

4.0 RESEARCH FINDINGS

4.1 Introduction

As illustrated in the research method, this chapter intends to further present the analysis of the points of expert interview survey in line with the method of study. Initially, a brief introduction to the selected group of stake holders is given as to provide an understanding on the background of each points within analysis has been carried out to identify the conflict/dispute and resolution mechanism within projects according to interviewees' knowledge and idea. This is the followed by, industry analysis to scrutinize the similarities and differences between each projects separately and discussed about Dispute and Resolution Mechanism of Public Private Partnership.

Early described in research method, the interview carried out through main three stakeholders, such as public sector, private sector and end user. In this section research finding presented under interview guideline subtitles. At the latter parts of this chapter a discussion is carried out to present the findings through expert interview in industry view point.

4.2 Selection of parties

As define in the literature chapter, PPP is investing private capital on government benefit for both parties' advantages. Therefore in PPP agreement, mainly buildup between Government institute and private investing company. But early describe this is government project for public peoples. Therefore automatically public people become end users of the projects. Hence this PPP project has main three stockholders. Namely, Government institute, private investing company and end users from public.

Table 4.2-1: Main categories of stakeholders in PPP projects

Stake holder	Relationship to Project
Government institute	Initial project owner/ Initiator
Private Company	Capital investing partner
Public persons	End user of the project

According to the Sri Lankan context with government development project, there are many government organizations able to be a partner of PPP construction projects. Such as Port Authority, Aviation Authority, Irrigation Department, Ceylon Electricity Board, Water Supply and Drainage Board, Road Development Authority, Urban Development Authority, etc. When considering about the history of construction industry of Sri Lanka, there are few organizations, which involved with PPP construction project. Such as Port Authority, Road Development Authority and Urban Development Authority in last decades.

Currently and near past there is a trend to build housing complexes project in government land by private investment under PPP concept. Those became a highly resource projects to this research after interview conducted.

To absorb the real situation of those project interviewees, interview the key persons, whom involve directly to the PPP constructions project.

Table 4.2-2: Resource persons in research

Stake Holder	Code	Position	Project Involvement
Government institute	Engineer ¹	Asst. Project Manager	Project Management team
	Engineer ²	Manager Project & development	Project Procurement & Management team
Private Company¹	QS ¹	Contract Manager	Cost management & Administration
	Engineer ³	DGM/ Asst. Wise president	Project Management
	Project Manager/ QS ²	Senior Project Manager	Project Management
Private Company²	QS ³	Chief Quantity Surveyor	Cost management & Administration
Private Company³	Engineer ⁴	General Manager	Project Management & Investment
	QS ⁴	Administration Manager	Cost management & Administration
Public persons	User ¹ & User ²		House owners

Engineer¹ is currently working for Road Development Authority. Now he involving with central highway development project and he has experiences in PPP road development project under government authority¹ in last decades. Engineer² from another government², who has experiences of project management and administration in two PPP Housing development project with more than 15 years construction industry practices.

For the private entity questioner selected few peoples from three leading construction company which are involved to PPP construction projects and more than 20 years experiences in construction field. QS¹ has 14 years of experiences in local & international construction industry and two PPP housing development project under Privet Construction Company¹. Engineer³ and QS² also joined with above mentioned projects with QS¹ in project management level. Both person have more than 15years experience in Construction industry and QS² has international PPP construction project experience also.

QS³ from another leading construction company² of Sri Lanka. And his role is CQS of the company. Therefore he dealing with all QS functions, mainly with estimation, contract administration and post contract management. Engineer⁴ also from separate Construction company³ of leading Commercial group of Sri Lanka. Therefore he had opportunity to be evaluator before investing the project. Then his view about investing is very important to company investment. QS⁴ from same construction company, but engaged with separate unit of contract management, which is handling Building and road projects of Company³.

Users of those project doesn't have any experience about PPP project or construction experience before this purchases. But they experiencing it, became a final user of projects with project handing over quality and its advantages or disadvantages.

4.3 Nature of interviewee involved PPP construction projects

There is a new trend in Sri Lanka, which is most of Construction companies involved with PPP project by financing arrangements from local banks on loan basis. Most probably its for construction of multi storied housing complex for city areas. Because with the centralization of jobs to city areas, high demand for flat houses. Therefore it was

easy to find resources persons, who are involved with these PPP housing construction project with more construction field experiences.

Engineer² from government authority² have involved with many PPP development projects partially, and mainly there were worked with housing project at Henamulla (LKR 2,899 Mn & 3,246 Mn) and Borella (4,499 Mn). Those all project process under PPP concept with funding of private construction companies as above describe. Government authority¹, Engineer¹ participated to many road development project as a consultant and project manager, Specially successful PPP Road project at Dambulla area worth of LKR 6 billion.

QS¹, Engineer³ and QS² involved with same project currently under one private construction company. Commonly they are engaging with housing development project currently, where at Wadduwa (LKR 1,100 Mn) and Ragama (750 Mn) with government Authority³. Further there are working for another PPP projects which are still at tender stages under UDA and Ministry of Mega Polis. QS¹ initially worked for construction company at Dubai and now he has more than 10 years experiences in Sri Lankan construction field. Above mentioned two projects are first PPP practices of his life. QS² has around 25 year working experiences and he has international PPP experiences project with Rajasthan public work authority and City development authority of Malaysia.

CQS (QS³) of second private company engaging with several PPP projects with Sri Lankan government institutes such as National Housing Development Authority, Ministry of Defense, Ministry of Higher Education, and Road Development Authority. Housing development project with government authority³ content of 820 housing units at Homagama, project for ministry of defense is 22 storied and total area 680,000ft² building, project for Ministry of Higher Education content with several building total area 75,000 m² and Highway Road project with 20 km and two lanes for government authority¹.

Engineer⁴ work for another private construction company³ as early mentioned and he involving as project manager and investor of the company. Under his company he was involved to take over PPP project such as Housing projects at Henamulla (Housing unit Phase.I-1137 Nos and Phase.II-941 Nos) and Borella (Housing unit 1440 Nos) and Bridge project for government authority¹ at Jayawardena-pura area. The QS⁴ is the main person in cost management side of above mentioned Building projects.

User¹ is house owner of Henamulla housing development project and User² is house owner of Homagama housing development project.

4.4 Projects arrangements

As common to all about Sri Lankan PPP construction projects, private construction project funded by those above private construction companies by getting loans from commercial banks of Sri Lanka. According to the agreement those banks release payments as per payment certificate of government institutes. Because, it is their declaration about worth of the project. And bank covers their payment by receiving money from government body. The authority power of house selling is with partner of government. Time and amount gap between payments receive to bank and payment for contractor cause to interest of the bank.

Under the PPP concept construction team still arranged basis of mix culture of traditional procurement arrangement and Design and Build project. Project consultation part handle by government stakeholder as a supervising partner of quality of work and concern about project features as per early agreement. Contractor doing his construction part after arrangement of fund through local banks and they receive their payment based on payment certificate given by the government entity. It is rare to involve separate party to involve as a consultant.

Main difference of these project is real final owner of the project involved at the end of the construction or mid of the construction. Initially project was starting with investors and design team only.

In the tender stage there is no price bid submission for select lowest bidder. It is qualification submission with describing of financial arrangement. Secondly or though above submission government members considering about capacity of the projects/ investment and design as per early given retirements. Those are evaluated by the government party to select their investing party.

4.5 Conflicts of PPP projects and their nature

As a common idea of Engineers of government, there are many conflicts arrived due to miss-interpretation of design features and basic requirements of projects form the tendering stage. Because of according to government concept, recent housing

development project stating based on identified customers group. Therefore they gave project final retirements of project contain at the beginning, such as target price of housing unit, content of one unit, number of bed rooms, quality of basic material, quality certificated required, etc. but private investors getting those as minimum requirements of the project and work for high profit earnings. But, these houses selling to outsiders by using government good name for value of money. Therefore as a government party they more concern about quality of project and further confirmed that conflicts are mainly about the design matters. EOT matters are common to all construction projects. But in PPP construction projects, it is more critical matter, when final product already sold to public at time of construction. Then giving EOT is cause to blame of final users of the project, as per Engineers.

As per to interview result of professionals of company¹, there are many conflicts about those mentioned PPP projects. According to their clarification, they gave the total design of the project according to given requirements of government party. Then those projects run as per Design & Build concept. Therefore total design responsibility and interpretation power should have to contracting party of the project. But after acceptance of project proposal, government party always try to go for high quality design features of construction. Further they mentioned that, there were conflicts about payment receiving to the company and interest of bank, for the reason that changing criteria for buyers. Because of commercial bank release their finance by considering of sales of production and payment certification of government party. Initially government did not put any rules for buyers of housing unit. But after inception of project government authority³ put rules such as one buyer can only buy one house, owners early resident address should 20 km away from the relevant city limit, etc. But to continue the construction, company always receive payment as per work progress, and due to less sales its causes to financial gap to bank and its cause to make high interest. Because of, gap between bank release payment and amount of bank received.

Moreover that there were delays of progress due to facilitating matters of other government institutes. Such as road facility of roads, sufficient electricity and water supply. Because inter government coordination still at poor level in Sri Lanka. As per the initial agreement government party should responsible for all infrastructure facility and should help to take other construction approval and licenses. But those not completed as per agreed schedule time and it also cause to increase of loan interest of bank.

In above housing projects, selling price is fixed (LKR 5 Mn) at the project tender stage and there were 80/20 agreement. Which is company able to 20% of housing unit sale at any price by developing as they wish. But majority of production unit have to sale under fixed price, therefore all loses and cost overruns have to bear the private partner of PPP project, they further mentioned as main conflicts of the PPP projects.

According to clarifications of QS³ of other private company² there were few matters occurred during those PPP construction progress. Mainly there were conflicts on design quality limits and design interpretation. Its with government partner and final owner of the project also. Design proposal submit according to the given basic requirement of government, under competitive bidding to give high value of government land investment. Therefore, as a contractor, they had to maintain project value with some profit expectation. Further there were conflicts about time extension for project, due to unexpected time taken to approval of government bodies. Time frame for granting approval not included to initial project program, it causes to difficulty of time allocation for excess time for approval to government bodies. As per initial agreement, government bodies mentioned that all approvals will be ready at time of inception. It is the cause for not allocation of time for taking approval in project plan. That EOT matters effected to cash flow and interest to loan of the bank. Initially there was a matter of boundaries of land. Those not cleared with adjacent land owners and few of them declare their objection about the housing project in their area. Those delays were also affected to inception of project at right time frame.

Except to above, government partner instructed to take some quality approvals in later, which were not in the initial agreement. It also causes to time and cost overrun to the projects. With all matter contractor did not able to get decision about scope deduction for minimize the profit losses as even a responsible partner of investment, because of government party always maintain the effective utilization of given government land.

As illustrated by the Engineer⁴ of other private construction company³, most of conflicts about the design matter of given proposal as others describe. Initially it was with government party at the construction stage, as early mentioned by other experts in construction field. But lately its also became conflicts with the house owners. Because of house unit sold by the government entity by their representatives using initial drawing and graphics designs in initial proposal. Therefore with completion of project clients

comes with conflicts about given graphics design and deviations of actual construction. That matter expanded at the project at Borella, according to QS⁴.

In Borella housing development project, organized client group always concern about quality of project, because by purchasing they had their ownership to final product already. That client team consist with engineers and other professionals also with knowledge of construction. The government party also failed to control their influence. It is making more confliction situations to quality limits and finally it causes to progress of the project.

From the clients' perspective, conflicts made through the poor interpretation about the project. At the time of purchase, project representative sold the houses by expressing, 'this is a full government project'. Therefore clients expected high structural quality and poor finishing quality. Because normally government not expecting high profit through government project by marketing. But after they realize the actual site collaboration as, it is private investment project. Then their expectation changed as poor structural quality and high finishing quality. Further, with the actual construction it doesn't have shown spaces in the houses and common areas, such as corridors and lobby. As example they argue with, if someone put shoe rack at corridor, there is not sufficient space to movement. Therefore there were conflicts about quality and spaces of given proposals in common to both users (user¹ & user²).

Table 4.5-1: Conflicts in brief gathered through expert interview

Party	Conflicts
Government	Gap between given scope and design proposal
	Deviation of design scope and actual construction
Company¹	Conflicts about submitted proposal and government expectation
	Matters of payment certification
	Bearing of losses due to interest of bank
	Conflicts of rules for buyers
	EOT due to lack of infrastructure facilities by government bodies
Company²	Conflicts of design interpretations
	EOT due to approval delays of government license
	Conflicts due to responsibility of land and boundary matters
	Conflicts of newly introduce quality approvals
	Discussion for scope reduction
Company³	Conflict with house owners about project quality and arrangement
	Conflict about design matters with government
	Conflict with house owners about quality and space arrangement

	Conflicts made by organized clients group quality of work
Users	Variation of given initial design and actual construction

4.6 Conflicts lead to Disputes

As illustrated by Engineer² basic criteria changes of given proposal for construction had to discuss at tender negotiation stage. Because of selected investor, tried to keep within margin of requirements. As identified by government authority procurement team that margin level can deviate to negative side with actual site condition and as per nature of construction projects. There for it was needed to clear before commencing the project. Further after sold of housing units, some scope changes arisen and as government party, they wanted to clear those also in accepted method, to avoid future matters regarding customer complains.

But the Engineer¹ from road side, arrived conflicts not considered as a disputed matter at beginning of the discussion. Because, with the fragmented nature of construction industry, those kind matters normally arrived. But further discussion with him, he agreed that, they used combined process to resolve those matters as considering dispute.

QS¹ and Engineer³ also repeated about conflict about design matters always wanted to justify by using process of work. But conflicts about payment matters, not became a disputes because of understanding of both parties. Therefore government party always gave positive response to those payment delays which were not related to other disputes matters. EOT matters always lead to dispute, because at the middle of construction house units sold to public with finalized handing over dates. As specified by the Engineer³ and QS² conflicts about introduce rules for buyers and losses due to interest of bank still remain after process of dispute resolution, because its solution full partial to government party.

Conflicts about design interpretation was led to disputes at many time, as illustrated by QS³. Since projects inception it was happen for many project which were he involved. Matters about approval delays and project delay based on that reason also became a dispute and it was affected to profit loss from bank interest. After receiving of advance payment, there were occurred delays mainly causes to financial loss through interest of bank loan. But from government side also, they don't have to clear answer about that matter, it was the main reason to go for dispute resolution to minimize further losses

without stuck with conflicts, as he explained. Newly introduce quality approval and proposal for scope reduction also resolved base on professional manner as considering disputes and conflicts with house owners resolved also professional related manner, but it was not recorded as other disputes, he mentioned.

As per Engineer⁴, mentioned both conflicting situation lead to dispute, when those not resolved at initial discussion. Those about limits of design criteria and interpretation of given scope with government party and end users. According to QS of same company, conflict with arise with organized clients group, should not consider as dispute. Because of those resolved on unrecorded manner by direct discussion at most of time.

4.7 Dispute resolution mechanisms and relation to PPP concept

As described by the Engineer¹, he was experienced that dispute resolution through negotiation of his involved PPP project. Those disputes regarding variation between design criteria, contractor's given proposal and actual construction. According to his thinking those disputes and resolution is normal with all other construction project, because of the nature of construction industry. Further he mentioned that his experienced PPP project had some features of 'Design and build project' and its causes to design matters. But, in those case there were not separate third party to consult the project. By the group of relevant government department, established that initial requirement and further management team guided those criteria to govern project.

In road construction projects, project design always can be change according to site condition and matters of environment as he explained. Therefore private partner had to clarify his every variation with proper justification to proposal. It was happen in above mentioned PPP project and final decision taken through direct negotiation had with them.

But with his experiences in the construction field, it is more important to take separate party to get equitable decision to both party. Moreover that he suggested to take involvement of 'Dispute Review Board' system is more proper to Sri Lankan construction industry, not even to PPP construction project CIDA guidelines in govern condition of contract.

Engineer² said that, disputes of latest project of PPP resolved through involvement of minister of the department. At the time of projects progress meeting all matters taken on board to discuss. Then it was resolved or came to final decision, with more beneficial to government. Further engineering stated that "*I feel, private partner loss some profit*

amount, because discussion had with the Minister". Engineer² mean that, under some conflict situations equal winning chances not received to private partner in this contract.

Furthermore, Engineer² expressed that, some design changes proposed in the initial meeting had with them and those not included to PPP contract agreement. Therefore they had to conduct re-discussion about design criteria time to time. But in the second project they minimize those conflict situation by proper documentation.

Minimizing is not the prevention. According to his idea, private partner always think about profit through given basic requirement more than the quality of project. Therefore at the time of finishing is on progress, there are many disputes arisen a quality of used material, ex- tilling and painting material. Those dispute resolved through both party understanding at the time of negotiation.

Except to negotiation and direct discussion had with minister. It is very unethical manner and not like neutral party involvement, as his explanation.

The QS¹ presented that, there are many benefits in this PPP concept project for construction investors. But, in Sri Lankan contest about PPP construction project, it is no developed mechanism for dispute resolution at the moment. As QS¹'s experienced in mentioned two project, process of negotiation is the mechanism for dispute resolution. But those negotiations most of time end up on minister's table. By given orders of the company management, minister's decision was accepted by the QS¹ to maintain good relationship for future project opportunities.

In above mentioned PPP projects, total financial risk and any failure totally absorb by the private partner. But concept of PPP, both parties have to have some portion of those risk. But it can't decide by understanding of PPP parties, because of all are willing to take some benefit than to other party. *"Therefore most of cost had bear within the given cost proposal. Further public partner expected high quality product, more over to expecting profit to both parties. This is not expecting in JV contract as real partners"* mentioned the QS. Therefore neutral party involvement is most important to manage these kind project, expressed by the QS¹. Further he illustrated that, when time of handing over project to end users, there were disputes occurs about, their early expectation and what they got. But the time of handing over it duty of the government of Sri Lanka. But contractor had to represent government party at explanation of the given project. Then

they had to take its responsibility and had to explain all matters with them, as direct discussion.

According to idea of Engineer³ and QS² of same company, they also face same condition regarding those projects. And Engineer³ mentioned, these PPP project gave them different experience regarding the construction agreement, when considered the early PPP projects. As early mentioned, decision of dispute matters, mostly received from minister of government institute, secretary of department or through cabinet approval at the beginning of the period. Most of time those dispute negotiation finally converted to meeting of decision delivery. As Engineer³'s idea that style will be bad impact of future PPP projects.

QS² further expand above describes by adding statement of "*At the moment, there are no many PPP experienced professionals in government institute. Therefore deviation of real concept of PPP is should expect from them. As well as political influence also badly effect to future of industry*". Further according to his early experience he illustrated that, best way to dispute resolution is negotiation and getting expert opinion to further clarification. Because its time and cost effective than other all methods, but it should incorporated with agreement from the inception.

QS³ of other private company² expressed very practical and efficient mechanism for dispute resolution, which is same to QS² suggested. In his projects it is practicing currently. It is combination of negotiation and expert opinion. Conflict occurred due to design interpretation on given initial criteria, contractor's proposal and actual construction resolved base on expert opinion. Both government and privet partners agreed that interpretation without further disputes. Other contractual matters they resolved by process of negotiation. That mechanism use that company's all projects since long time ago. As a practice, the company² use that mechanism by inserting to agreement at project implementation. According to QS³'s ideas, it is very beneficial to both parties to maintain good understanding and relationship.

Engineer⁴ of private investing company³, also used expert opinion with the requirement of projects and most of time they used negotiation process. But at time of any advance dispute occurred they willing to use arbitration process, because of it is legal bonded mechanism. Those three mechanisms recommended by the Engineer⁴ for all PPP construction project as well as other type of construction projects. Made conflicting situations by organized team of users, still remaining and most of matters resolved by

proper explanations and amicable settlements, as per QS⁴. According to QS⁴'s experience in PPP construction projects,

End users of the PPP housing development projects, to clarify their matters regarding design and construction deviation, they comes with known Engineers. It is more like to expert opinion as well as mediation process. But they doesn't have idea about dispute resolution mechanisms.

4.8 Findings

Dispute resolution in PPP projects is always an area of excessive burden and one that should be approached with unlimited attention and practicality. The reason for caution is that PPP projects are complex, typically have specific contractual participants, and are prone to impacts from outside entities influence, often beyond the control of the involved parties. Main goal of this research if finding or identify suitable mechanism to dispute resolution in Public Private Partnership construction project. Through the expert survey, researcher identified few dispute resolution mechanisms, which are already use in PPP construction project and suggestion of experts, whom involved with PPP process.

In construction field all parties seek for quick and efficient dispute resolution system due to its direct effect time, cost and profit of project. As per government Engineers used direct negotiation process to resolve the negotiation. But Engineer² recommended to use Dispute Review Board mechanism as per CIDA clauses to Sri Lankan PPP construction project. In such cases, the private partner often argues that a usual litigation procedure through courts can be slow, expensive, and sometimes even misjudged or misguided, as there are not too many experts that are aware about the complexities of PPP agreements. This party will also often argue that the arbitration process is favored as the process is faster, even though the required resources can often be expensive and the same legal procedure needs to be followed, as Engineer²'s illustration.

According to discussion had with private invest company¹'s professionals, they are using and used negotiation mechanism at the moment, but further explained it is causes to losses when negotiation with the minister of government and main reason of non-involvement of third party. As an experience QS² and Project Manager of same institute he suggested to use to expert opinions of neutral party for great efficiency and equality about conflicting matter under both party agreement.

As per QS³ of private company², dispute situations are common in any PPP construction projects and could affect the accomplishment and failure of projects, thereby making additional costs for all stakeholders. PPP construction project matters, concerns, and disputes occur as a result of many causes such as technical, climatic, and logistical events, while resolution of PPP construction project disputes is subjective by people's ideas, manners, activities, and cultural things. Therefore trying to become amicable settlement is more important by identifying above all factors. But The QS³ using negotiation process with combination of expert opinion as a practice in their most of project as well as PPP construction project. That process they agreed from the agreement of the contract. The QS³ realized, that is most convenient process to dispute resolution in construction project.

The Engineer⁴ of other private investment construction company³ explained that, they are using process of negotiation, taking expert opinion and process of arbitration according to occurred disputes and its nature.

From users' side they followed primary level of expert opinion to clarify their doubts about the received end production of PPP construction.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter mainly provides conclusions and recommendations on the findings of the literature analysis and expert interview carried out in previous chapters. Recommendations have been given as implications to PPP projects in Sri Lankan construction industry. Limitations of the research and the further research directions are also discussed within this chapter.

5.2 Recommendations

To-date, the consumption of PPP model has been influential in providing much wanted construction projects in a lesser period of time than would have been likely with public finance only. In equivalent with the development of this procurement method, improved governance and control of these type of projects desires to be prudently mirrored upon by governments or the implementing agencies. Furthermore, adequate inducements must to be set to draw private parties for investing. Furthermore, there is a necessity for better transparency in infrastructure investment marketplaces to allow investors to yardstick performance comparative to other asset classes and to evaluate investment risk.

However, in configuring the PPPs, the risks and rewards essentially need to be alienated fairly between the participating parties' specifically public sector and private sector. As per the literature findings this can be argumentative, especially in countries where elected bodies are still surfacing. Public acquirement of property for the development of construction projects can also generate a tentative barrier to effective implementation of PPP. Also, the determination of service charges demands challenging and problematic decisions. This emphasizes the necessity to establish a transparent legal system and governing procedures to support resolution of the project disputes fairly. For PPPs to flourish, the decisions need to be made and supported in an environment of decent governance and control. PPPs encompass a great number of integral risks, including improbability over forthcoming exchange rates, inflation, and product prices. If these variables change unpredictably, there may be serious costs for the commercial feasibility of a project.

Furthermore, for PPPs to thrive in the long term and play a significant role in fulfilling country's construction essentials, governments need to admit and take on a numeral vital

roles, including that of supervisory body to administer high quality and safety standards. This could be administratively and officially hard, particularly when the mission is to guarantee that the private sector service provider encounters community aims. To empower this to materialize, countries must have the organizational capability and policy atmosphere to help their project and action. This will make sure global financial organizations can deliver funding backing.

Value-for-money must be confirmed, both in terms of economic and quality concerns and in the long run. Definitely deviations will be unavoidable due to economic, social and technological changes in the PPP life cycle. Therefore, it is vital that the studies on PPP projects come up with future improved ways for dealing with those changes. One such way is regulating the project setup and the dispute resolution mechanism which will provide a better security and guarantee of avoiding project failures due to these issues which ultimately lead to disputes.

While PPP is becoming further extensively used in delivery of public constructions, there persist some ineffectiveness that ascend in exercise since of managerial risk, practical difficulty that misleads competition, and unproductive allocation of risks between the public and the private sectors. In order to address and resolve these shortcomings, interventions are required. Suggestions for improved competence and capacities of the public sector in relation to PPP have been identified to include improving the knowhow and basic skills of public administrators deployed to develop and manage PPP projects; adopting adequate tools to assess the feasibility, affordability and sustainability of projects; developing standard contractual templates; designing appropriate procurement procedures to select the best-value partners; safeguards against unethical practices including collusion; and adopting adequate risk management practices to efficiently allocate and mitigate risks. As regards financial issues, interventions that can contribute to the successful implementation of PPP suggestions are offered including encouraging the development of alternative project financing schemes, such as bonds; providing security instruments to facilitate access to credit, thus enabling the success of financial closure for strategic infrastructure; increasing the involvement of public banks in order to obtain low-interest loans; and introducing smart forms of bank lending support.

Moreover, there is an ongoing need in both public and private sectors in many countries, particularly developing countries for capacity building in many areas of PPP including project prioritization and planning, preparing bankable proposals, using appropriate

financial models, understanding how their portion of the project fits into the overall national development framework, appraising projects on sound value for money basis, and administering projects fairly while demonstrating political goodwill in implementing globally acceptable sound laws and consistent policies. The countries aspiring to attract more PPP must also develop skills to communicate clearly and systems to ensure adequate disclosure and transparency. Many countries have therefore set up Central PPP Units that are charged with developing relevant capacities. Their tasks thus include organizing specialized courses for training on PPP, managing projects through their many phases and the whole lifecycle appraisal of projects. These are steps in the right direction and require teams of suitably positioned and well-equipped 'champions' at different levels in public and private sectors, as well as from academia, to move them forward along desirable PPP pathways. Well-informed academia focusing on this domain, can help guide this journey by providing independent unbiased inputs, also drawing on objective data collection and analyses, that can help achieve the right balance among all stakeholders including of course the end-users of PPP services, in the expected win-win-win scenarios.

Nevertheless, it will be essential to reorganize many present procurement models as well as develop innovative investment vehicles to redirect the revolution in financial, economic and legal backgrounds in order to enhance the flow of private investment. This is in line with the establishment of a proper dispute resolution mechanism to address the probable disputes the implementation of PPP projects. The clients who have invested their money will not be dissatisfied of the poor performance of the projects due to the various types of disputes aroused.

Moreover to literature findings, through the expert interview survey, it is confirmed that there are some disputes specially comes because of the nature of PPP construction project. The key factors of PPP concept handle the nature difference of those disputes. Therefore identifying dispute and nature of PPP construction project are very important to resolve those dispute and minimize disputes in future projects. As per ideas of most expertise, some involved parties do not have clear idea about PPP concept and their responsibilities. That reason link to other matters of the projects.

In Sri Lankan PPP construction projects, government party does not invest money for projects. Therefore they does not concern about money matters of the project. And according to proffetionals of private sector, government bodies expecting unwanted

quality of project features, time to time. Those matters should address within the PPP project to its development in the future.

As above mentioned proper dispute resolution mechanism always lead the good future for PPP projects in construction industry. In this research, researcher try to extract that thing trough experienced persons in construction industry, whom involved with PPP projects. According to discussion had with them, selecting of proper dispute resolution mechanism depends on many factors of the projects. Such as gravity of dispute, nature of dispute, its effect, contractual agreement about dispute resolution, relationship with other party, nature of other party, cost and efficiency of resolution mechanism, binding and easily enforceable of decision and many more things. The most important criteria, when consider the selection of dispute resolution methods. The second most important factor in the selection of the dispute resolution methods are fairness and speed outcome.

Based on above factors there are referred dispute resolution mechanisms in Sri Lankan construction industry. Negotiation, mediation, dispute review board, adjudication, arbitration, litigation, expert opinion and combined process were those identified dispute resolution mechanisms. As a result from expert interview, most of parties starting with negotiation to resolve the dispute. But most of those decisions are not fair because of non-involvement of neutral third party and political influence. According to idea of government experts, as per Sri Lankan Dispute Review Board are suggested to PPP dispute resolution as in normal projects according to CIDA contract procedures. But highly experience professionals recommended to uses expert opinion by considering of cost, time efficiency and fairness. If any legal matter about decision, expert opinion easily can enforceable with non-ADR system also. Moreover that expert opinion also can use for parts of raised conflict and can use as a support to another mechanism for higher efficiency of dispute resolution.

Finally the selection of ADR or non-ADR itself is not a major issue; rather, there is a concern for increased efficiency and an appreciation of the methods in the construction industry are more demanding. For that efficiency, practice of expert opinion as a separate dispute resolution mechanism.

5.3 Conclusion

Negotiation is still the preferred method of dispute resolution in Sri Lankan Construction industry. It is common to PPP construction project also. Cost, efficiency,

and fairness were the most important performance criteria when in the selection of dispute resolution methods. Other critically important factors are contractual obligations and maintain good relationships among parties. There are ADR and non-ADR dispute resolution mechanisms can use in Sri Lankan construction project according to above criteria relevant to dispute. Identified dispute resolution mechanisms help to long term intangible benefits such as improvement in the process of dispute resolution for future benefits. As a result of expert interview survey, obtaining expert opinion is most recommended mechanism to best outcome of above considered factors. Further identified that obtaining expert opinion can practice as support to another dispute resolution mechanism or combined process is helpful, instead of use as separate dispute resolution mechanism.

5.4 Limitation

Mainly, the cases for this study were selected on Private Public Partnership projects in Sri Lanka and which are experience by interviewed expert. Therefore, the generalization of the research findings can be done limited to the same population. As the research data is based on opinions of people which hold a subjective awareness in its nature and other convenience issues to the project and gathered opinion the generalization of the research findings.

Moreover, the PPP projects always run on partnership with public and private sector partners. Hence research findings can be generalized to the mentioned population with confidence.

5.5 Further research direction

Followings could be given as suggestions for further research which emerged out of the study carried out.

- **Behavioral approach of parties involved with PPP projects and their concerns**

As per identified through the research, most disputes occurred due to individual agendas of involved parties and personals. Therefore clear identification is more important to minimize disputes in future PPP projects.

- **Mechanism for minimize conflicts and dispute in PPP construction projects in Sri Lanka.**

Dispute minimization is process, which should start before arisen the conflicts and disputes. It is more help to prevent cost overruns and further matters because of disputes.

- **Dispute resolution mechanism for PPP building projects and infrastructure project separately**

This research conduct by considering all type of PPP project through expert interviews. To beyond that separate researches conduction base on case analysis is more practical to different type of construction project, such as building, roads, bridges (infrastructure), etc.

- **Reasons for lack of invertors to PPP construction project, whom not engage with constructions work**

At most of time construction companies involved as private partner of the PPP construction project. Searching of reason behind that is important to further development of PPP concept project in Sri Lankan construction industry.

REFERENCES

- Acharya, N.K., Lee Y.D., and Im H.M., (2006). Conflicting factors in construction projects: Korean perspective. *Architectural management*, 13(6), 543-566.
- Akintoye, A. B., & Kumaraswamy, M. (2016). *Public private partnerships: A global review*. London: Routledge/Taylor & Francis Group.
- Anonymous. (2014). Public -private partnerships for infrastructure development in Sri Lanka,
- Aritzeta, A., SabinoAyestaran, S. and Swailes, S., 2005. Team role preference and conflict management styles. *The international journal of conflict management*, 16(2), 157-182.
- Asian Development Bank. (2012). *Infrastructure for supporting inclusive growth and poverty reduction in Asia*. Manila, Philippines: Author.
- Cheung, S.O. and Suen, C.H. (2002) A multi-attribute utility model for dispute resolution strategy selection, *Construction Management and Economics*, 20: 557–68.
- Chew, A., Storr, D., and Casey, B. (2007). Current issues in hospital PPPs in Australia. *International Construction Law Review*, 24(3), 290–317.
- Chinyio, E., and Gameson, R., (2010). Private finance initiative in use. In A. Akintoye & M. Beck (Eds.), *Policy, finance and management for public-private partnerships*, (pp. 3–23). U.K: Wiley, Oxford.
- Chou, J. S., Tsai, C. F., and Lu, Y. H., 2013. Project dispute prediction by hybrid machine learning techniques. *Journal of Civil Engineering and Management*, 19(4). 505-517.
- Chou, J., & Lin, C. (2013). Predicting Disputes in Public-Private Partnership Projects: Classification and Ensemble Models. *Journal of Computing in Civil Engineering*, 27(1), 51-60. doi:10.1061/(asce)cp.1943-5487.0000197

- Chou, J., & Lin, C. (2013). Predicting Disputes in Public-Private Partnership Projects: Classification and Ensemble Models. *Journal of Computing in Civil Engineering*, 27(1), 51-60. doi:10.1061/(asce)cp.1943-5487.0000197
- Collins English Dictionary. (n.d.). HarperCollins Publishers.
- Construction Project Disputes in Nigeria. *JORIND*, 11(1).
- Department of economic affairs, Ministry of finance in India. (2016). PPP Guide for Practitioners. Delhi:Government printing office.
- Developing Toolkit for Improving Public Private Partnership Decision Making Processes. (2010). New Delhi-110 001, India: Department of Economic Affairs Ministry of Finance, Government of India.
- Fenn, P. (1997) Rigour in research and peer review, *Construction Management and Economics*, 15: 383-385.
- Finlay, A., (2012). *Introduction to basic research methods* [online]. Available from: <http://www.itrainonline.org/itrainonline/mmtk/> [Accessed 31 Jan 2012]
- Harisankar, K.S. & Sreeparvathy, G. (2013). Rethinking Dispute Resolution in Public–Private Partnerships for Infrastructure Development in India. *Journal of Infrastructure Development*, 5(1), 21-32. doi:10.1177/0974930613488292
- Harmon, K. M. (2003) Conflicts between Owner and Contractor: Proposed Intervention Process, *Journal of Management in Engineering*, 19(3): 121-125.
- Iboh, A. A., Adindu, C. C., & Oyoh, A. J. (2013). Public Private Partnership Construction Project Disputes in Nigeria. *JORIND*, 11(1).
- K.S., H., & G., S. (2013). Rethinking Dispute Resolution in Public–Private Partnerships for Infrastructure Development in India. *Journal of Infrastructure Development*, 5(1), 21-32. doi:10.1177/0974930613488292
- Ke, Y., Wang, S., and Chan, A. P. C. (2010). Risk Allocation in Public-Private Partnership Infrastructure Projects: Comparative Study. *Journal of Infrastructure Systems*, 16(4), 343–351.

- Kumaraswamy, M.H. (1997) Conflicts, claims and disputes in construction engineering, *Construction and Architectural Management*, 4(2): 66-74.
- Kumaraswamy, M.H. (1998) Consequences of construction conflict: a Hong Kong perspective, *Journal of Management in Engineering*, 14(3):66–74.
- Lam, P. T. I., and Javed, A. A. (2015). Comparative Study on the Use of Output Specifications for Australian and U.K. PPP/PFI Projects. *Journal of Performance of Constructed Facilities*, 29(2), doi: [http://dx.doi.org/10.1061/\(ASCE\)CF.1943-5509.0000554](http://dx.doi.org/10.1061/(ASCE)CF.1943-5509.0000554)
- Li, B., Akintoye, A., Edwards, P. J., and Hardcastle, C. (2005). The allocation of risk in PPP/PFI construction projects in the UK. *Journal of Project Management*, 23(1), 25–35.
- McKinsey & Company. (2018). *The rising advantage of public-private partnerships*. [online] Available at: <https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/the-rising-advantage-of-public-private-partnerships> [Accessed 25 Feb. 2018].
- Miller, J. D. (2010). *Infrastructure 2010: Investment imperative*, Washington, DC: The Urban Land Institute.
- Paderanga, C. Jr. 2011. Private Sector Assessment: Philippines. Mandaluyong City, Philippines: Asian Development Bank.
- Public Private Partnership in India | ToolKit for Decision Making Processes. (2010). Retrieved from <http://toolkit.pppinindia.com>
- Public -private partnerships for infrastructure development in Sri Lanka* (Doctoral dissertation). (n.d.).
- Regan, M., Smith, J., and Love, P. (2009). Public private partnerships: What does the future hold?. In *The Construction and Building Research Conference (COBRA 2009) of the Royal Institution of Chartered Surveyors (RICS)* (pp. 462-474). Cape town: RICS.
- Rocca, M.D. (2017). The rising advantage of public-private partnerships. *Journal of Capital Projects & Infrastructure* . 42:28-29

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- Rodriguez, J. (2011, June 6). The Benefits and Disadvantages of P3. Retrieved from <https://www.thebalance.com/public-private-partnership-pros-and-cons-844713>
- Senarathne, S., 2005. *A knowledge-based approach to managing project change in the construction phase within collaborative team setting*, Unpublished Thesis (PhD), University of Salford.
- Senarathne, S., 2012. Reserch philosophies & methods, *Research methodology program*. University of Moratuwa, Unpublished.
- Solino, A. S., and Vassallo, J. M. (2009). Using public-private partner-ships to expand subways: Madrid-Barajas International Airport case study. *Journal of Management Engineering*, 25(1), 21–28
- Tang, L., Shen, Q. and Cheng, E. (2010). A review of studies on Public–Private Partnership projects in the construction industry. *International Journal of Project Management*, 28(7), pp.683-694.
- The Canadian Council for Public-Private Partnerships. (2017). *Public-private partnership (PPP)*. Retrieved from <http://whatis.techtarget.com/definition/Public-private-partnership-PPP>.
- Vaaland, T.I. (2004) Improving project collaboration: start with the conflicts, *International Journal of Project Management*, 22: 447-454.
- Wood, G.D. (2001) Conflict Avoidance and Management, Postgraduate Course in Construction Law and Arbitration, Leeds Metropolitan University.
- World Bank. (2014). *Private Participation in Infrastructure Database*. Retrieved from <http://ppi.worldbank.org/>.
- Zack, J.G. (1995) Practical dispute management, *Cost Engineering*, 37(12): 55.

ANNEXES A: INTERVIEW GUIDELINES

H.M.N.S.B. Heenkenda
211/A,
Parakatawella,
Pilimathalawa.

CQS
Private Construction Company²

.....

28.10.2017

Dear Professionals,

Ref: Expert Interview survey on the “Disputes and Resolution Mechanism of Public-Private Partnership Infrastructure Projects in Sri Lankan Construction Industry”

I am post graduate student of University of Moratuwa, following the M.Sc in Construction Law & Dispute Resolution. Currently I am conducting a research titled as “Disputes and Resolution Mechanism of Public-Private Partnership Infrastructure Projects in Sri Lankan Construction Industry”. The research is conducted under the supervision of Dr. Yasangika Sandanayake, Head of the Building Economics Department, University of Moratuwa.

I am in the process of collecting input from expertise in Construction Industry practitioners for developing this research. The final aim of this research is to identify most convenient dispute resolving mechanisms for PPP infrastructure project in Sri Lankan construction industry.

Please be kind enough to allow me an appointment to conduct a preliminary interview for the above research. I assure that the information collected will be purely used for the research purpose, whereas the confidentiality of the detail provided will be maintained at all times.

Thank You.

Yours faithfully,

H.M.N.S.B. Heenkenda
University of Moratuwa.
Mob: +9471 651 7165
Email: nishantha.heenkenda@gmail.com

INTERVIEW GUIDELINE

SECTION I: BACKGROUND INFORMATION OF INTERVIEWEE

Name (Optional): QS³

Current Designation: Chief Quantity Surveyor

Name of the Organization (Optional): Private Construction Company²

Nature of the Organization: Sub company of leading group of company, involving with investment, design, monitoring and construction

Experience in construction field (years): 16 years

SECTION II: PROJECTS IN SRI LANKA NATURE OF PPP

- 1. Have you involved in PPP infrastructure projects in Sri Lanka.
If so, can you briefly explain your role in those PPP projects.**

There several PPP construction projects were involved in Sri Lanka. In this construction company, I experienced it as a project QS, Estimator and Chief quantity surveyor of company.

Under role of estimator we referred government basic requirements and made estimation base on our investing capacity. Its somewhat different with giving estimate on early design. Because in these cases we have to optimize our design and estimate on monitory investment and government land investment. Because of competition was those project is, give highest utilization of government investment. But it can't go over, because of limit of commercial bank loan amount, which we can obtain.

Therefore I estimated amount of one unit according to government criteria and number of unit calculated based on one unit and our total estimation. Then it gave to design team for their design and further contract amount change as per design proposal. Moreover that we had to decide profit percentage to give large portion of cost of project to increase it's worth. The reason of profit also part of investment of bank loan. Therefore to increase final production, it need to get lower profit. Because of it is the competitive factor of bidding process.

As a project QS and CQS of the company, it is major role about cost monitoring and management. Inventing 'value engineering concept' also a role in these projects. After finalized the project proposal, it is major task to find cost saving mechanisms, without affecting to given proposal. Fighting for new design proposal and quality maintain of project also another tasks of these project because of nature of PPP construction projects. As a partner of PPP projects, government party always tries to increase value of their

investment without any monetary support. It can only do by increasing quality and production of project to them.

As a few, I involved with milestone PPP projects of Sri Lankan construction industry partnering with National Housing Development Authority, Ministry of Defense, Ministry of Higher Education, and Road Development Authority.

2. What is the nature and contractual arrangements in those above mentioned projects?

- **Parties involved and their nature**
- **Funding arrangements**
- **Procurement method**
- **Procurement arrangement**
- **Any other (Please mention)**

PPP construction project initiated by the government authorities for facilitate to public. It can be infrastructure project or building development project according to requirement of government. In most of Sri Lankan PPP project, the government authority provides land as their investment. Therefore private partner have to invest their money to build the project. And end of project, the both parties can claim their effort by delivering project to public or private partner can take his portion by delivering project to government authority. At the moment I didn't participated PPP project with operating part to private investor.

As above mentioned after identified government development opportunity, they publish their basic criteria about project as requirement and asking bid proposal to maximum the investment of land. And at most of time there were consultant team from same department instead of separate party. Therefore same government party became project managers of the project. In few projects government authority appointed another government organization as project consultants.

After initiation of the bid process, as an investor we discussed with some commercial bank for loan facility by mentioning payment procedure and payback procedures. Then we had idea about maximum investment capacity of company. Then we prepared our proposal according to our investment. Selecting criteria for banks are loan amount and special interest opportunities. At the submission of bid, these project more like to design and build project. It is deviate with investing procedure.

Then government authority evaluates the submitted bids for award the project for optimum investment on their land. Under that evaluation they consider about investment capacity and stability, design proposal, project team, value engineering proposals, and benefit to public, etc.

SECTION III: DISPUTE IN PPP PROJECTS IN SRI LANKA

3. What are the conflicts occurred in those PPP projects at the different phases in construction projects.

- Pre contract
- Construction
- Operation
- Transfer

From the inception of the project, there are conflicts about design matters. Government authority always expected high quality of project was the reason of most of those conflict. If they are one of partner of these projects, they have no any concern about project cost and they wanted to increase the value of projects. At the of evaluation government party had to chance to ask any query about given proposal, as per their requirement. But they didn't use that opportunity clear design matters and after awarding they come with some quality requirements which cause to cost overrun. Some of point became conflicts, because of miss interpretation of project proposal. And some special high quality items, they try to apply for all same kind areas. Such as quality of tiles, brands of sanitary fittings, etc.

Secondly most conflicted matter was taking approval for EOT. Initially projects plans without considering time allocation for building approval and other social matters. But government body failed to arrange approval as they agreed earlier. As well as some matters were arisen by outside parties. Which are not expected earlier regarding clearance and material transport on roads. Delays of construction drawing and variation approval from government authority also effected to projects program badly.

With the progress of the project partnering authority of government ask to conduct some international quality scheme with their quality testing and approvals. As a reputed construction company we always maintain required quality of all projects. But it not meaning, always taking test reports. The cost of newly introduced tests also became a conflict of few PPP projects. In one housing development project, we wanted to reduce number of housing unit to maintain optimum profit level for investment. But as agreed

with other partner it was not succeed. It was a conflicting situation at that negotiation period. Because as an authorized investor we didn't have rights for changes.

Moreover that design interpretation with final owner of project also made some conflict situation about design description at the final stages of project. During the construction period, house unit sold to public by involvement of government authority. Then that customer had owning power of the project. So they always concern and made various queries about house arrangement and quality of materials.

4. What are the conflicts which extended upto a dispute in those PPP projects? Explain the reasons behind them.

- **Pre contract**
- **Construction**
- **Operation**
- **Transfer**

Main reason of conflict upturn as a dispute is unavailability of responsible party for conflicts resolution from the beginning of the project. After establishing main features of PPP construction project, there were not proper analysis about given design proposal. Because of in most of PPP project they appointed consultant team within same department. Other thing of those disputes is improper understanding about concept of PPP. Still some of professionals act in the project as owner instead of partner position.

Matters about design criteria interpretation with government party and final owner, conflict about EOT, extra cost for newly added tests and scope reduction matters end up with making dispute situation to projects. Those resolved using some mechanisms of dispute resolutions.

5. If there any relationship between the dispute and the PPP arrangement

Disputes and conflicts are common to all construction projects, but with arrangement of PPP concept common type conflicts and dispute unable address as other construction projects. As an example dispute regarding project quality and design interpretation, government authority always instructed to go for high quality level, because of they don't concern about cost and profit, because of they didn't invest money. But in that case they have to power to concern about that because of responsibility of final product and value of invested land. This basis is not happen in other type of construction project.

EOT matters of this project also come with different approach. Final owners of these PPP projects are general public. During construction period most of units sold out to them by getting advance or full amount of money. They are always concern about project delivery date and not aware about construction matters. But agreement of construction with government party, and they did not have authority to grant time extension because project final ownership not belongs to them. This also results of PPP construction concept to develop public utilities.

Further in the matter about additional cost also, change according to the PPP nature. Money investor of the project is Contractor party and the cost because of the requirement of other government party, who invest the land. Therefore additional cost absorption party also matter to those projects. If those are normal construction project or Joint venture contract, that matter not raised.

6. What are the effects of the disputes occurred due to PPP nature on the project?

Disputes always lead to some effect of construction project. It is common to whole industry, not especially to PPP construction project. Firstly dispute effected to relationship and understanding of involved parties. Then it can effect to time constriction of the projects. And make extra cost of resolving mechanisms. Not only that cost, finally all result of disputes cause to extra cost of construction project.

SECTION IV: RESOLUTION MECHANISM TO OVERCOME DISPUTE IN PPP PROJECTS

7. What are the action that you have taken to solve these disputes occurred due to PPP nature?

As a practice in our company we used combined mechanisms to resolve dispute in our projects according to the gravity of dispute. At the time of agreement preparation we are try to add some clauses regarding dispute resolution with the acceptance of other parties, which we are practices in the industry. As a CQS and project administration manager it is duty of mine.

At the time of dispute occurred, I have to explain its contractual background with the company management and have to decide best dispute resolution mechanism. That decision should not effected to relationship between contractual parties and next effected to the future construction opportunities. Moreover that, as a duty I have to clarify about effects of dispute to the higher management and its additional costs.

Finally I involved with most of disputes as representative of contracting organization and try to maximum benefit to the my company.

8. What are the other dispute resolving mechanisms that you can take to solve the dispute, identified in Q.5?

	Yes	No
• Negotiation	√	
• Conciliation	√	
• Mediation	√	
• Dispute review board	√	
• Adjudication		
• Med-Arb		
• Arbitration	√	
• Litigation		
• Any other (Please mention)	√	

combinations

Initially we try to resolve disputes at conflict level by adding some decisions. But it can be unsuccessful at most of times. At that time we select some of above by considering gravity of dispute, nature of dispute, its effect, contractual agreement about dispute resolution, relationship with other party, nature of other party, cost and efficiency of resolution mechanism and many more things.

At some situation we used combined resolution mechanism with identifying areas of disputes. But except to above mentioned resolution mechanism, we highly used expert opinions by adding relevant clause to agreement at initially or according to all parties acceptance lately.

9. In your opinion, what would be the best mechanism to solve above identified disputes in PPP infrastructure projects?

As early mentioned there are many factors to consider for select the proper dispute resolution mechanism. As a practice in our company, we realized that getting expert opinion for technical matters if most efficiency and cost effective mechanism. But try to resolve disputes using negotiation is most cost effective mechanism. If effect of dispute is at considerable level, it can be not worth and sometime final answer may effect to relationship of parties.

Under involvement of third party, that matter can minimized, because of fair decision of separate neutral party. Involved with complex dispute resolution mechanism, may cause to time wastages of project. Therefore taking expert opinion is very best from all sides. In our all project we use it successfully.

But according to procedures of government, we have to follow early agreed dispute resolution mechanism as per agreement. For that kind of situation through that process, consider expert opinion from another party also more efficient than taking decision only from relevant procedure.

Therefore I suggest expert opinion and its combine disputes resolution mechanisms are the most suitable dispute resolution mechanism for current PPP construction projects.

.....Thank you.....