Causes and Effects of Delays in Capital Construction Projects at the State Universities in Sri Lanka

Research Report submitted in fulfillment of the requirement for the Research Allowance as per the Management Services Circular No. 02/2013 section 4(iii).

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December 2016
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Declaration

I certify that research case study report does not incorporate without any acknowledgment, any material previously submitted and to the best of my knowledge and belief it does not contain any material previously published or written by another person, except where due reference is made in text.

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G.D.D. Perera
December, 2016

Abstract

Traditional method of public administration become incapable of running government institutions due to its undesirable aspects such as concentration of power, reduction of freedom, and usurpation of political will. As such Public Administration in 1980s and 1990s saw some radical changes by incorporating private sector management aspects into it (Hughes, 2014). The reforms taken place together is termed as New Public Management (Hood, 1995).

The NPM reforms have been implemented in many developing countries. Though the degree of implementation differs from nations to nations, public sector reforms along the line of New Public Management are a common phenomenon in many developing countries. Sri Lankan system of public administration is also on the move towards the NPM reforms (Kumara & Handapangoda, 2008).

Many incidents of major projects failures are reported in Sri Lanka. This work has studied construction project failures in Sri Lankan university system using New Public Management principles. Strengthening of public management in line with New Public Management reforms would improve the performance of construction projects.

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v. List of Abbreviation

BOT	-	Build-Operate-Transfer
D&B	-	Design and Build
DBB	-	Design-Bid-Build
NPG	-	National Procurement Guidelines
NPM	-	New Public Management
PPP	-	Public-Private-Partnership
UGC	-	University Grants Commission

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VFM - Value for Money

vi. List of Illustrations

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Chapter 1

Introduction

1.1 Research Background

Sri Lanka has relatively a larger public sector and plays a major role in the welfare of its people (Kumara & Handapangoda, 2008). Public sector need to be managed more effectively and efficiently because of its larger size in respect of economy and its importance in relation to welfare of the people. It has achieved high scores in human development indicators such as expectancy of life at birth and literacy rate. Presently, average literacy rate and life expectancy at birth are 92.5% and 74.3 years respectively (Central Bank, 2014).Sri Lanka has achieved a higher progress then the other nations in the South Asian region and presently ranked in 73rd position out 187 countries (UNDP, 2013).

The role of the government in the provision of higher education in Sri Lanka is indispensable and of great importance. Nearly 26,000 students have been admitted to undergraduate courses as internal students for 2015/2016 academic year. This number covers only internal students admitted to 14 universities, 03 campuses, and 05 higher educational institutions coming under the purview of the University Grants Commission (Admission Handbook, 2013/2014). Rs. 20,490.00 million was allocated to the University Grants Commission for the recurrent and capital expenditure of the universities and higher educational institutions (UGC Annual Report, 2012).

The government took major steps in 1977 by opening the economy and handing over many of the tasks performed by the government institution to private sector. (Kumara & Handapangoda, 2008). This is part of major reforms taken place in the public sector of Sri Lanka. The reforms coincided with the global phenomenon of New Public Management

(NPM). Accordingly, Sri Lanka too has taken steps to implement NPM initiatives (Samaratunge and Bennington, 2002). This research studies the level of implementation of NPM in state universities and their influence at project success.

The post-conflict environment in Sri Lanka has presented a great opportunity for higher education sector to become an internationally recognized center of higher education in the region. This appeared the aim of the Ministry of Higher Education as its vision is to become a center of higher excellence in higher education.

In order to make this aim into reality infrastructure development priorities have been identified and funds were allocated. As a result a lot of construction projects were initiated in almost all the state universities.

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Those projects are seemed significant in the context of higher education for two reasons. First, projects need to be effective and efficient in order to create world class infrastructure needed to position Sri Lanka as an international hub of higher excellence in higher education in the region. Second, construction projects utilize huge sums of public fund that is more demanding in view of ever expanding budget deficit and foreign debt of our nation. Thus, state university governance needs to be implemented properly to make sure that infrastructure development projects will be completed in high quality and within the budget.

1.2 Problem Statement

There are several construction projects are reported to have been poorly planned or implemented citing various reasons. Several projects initiated within the university sector are also reported to have poorly performed.

For instance, there are several projects which have been designed without adequate Treasury funds. There are also projects which have been designed without giving due consideration to fund availability. Further, several projects have been poorly implemented without meeting deadlines, cost and specifications requirements. Many of the facilities developed are not up to the expected standard and not adequately used by the staff &* students. There are several projects of this nature that came to light in the recent past for many shortcomings. The new government that came into power in January, 2015 suspended many ongoing construction projects. Some of the main projects suspended so are $1.4bn 'Port City' project (Daily mirror, 05 March 2015) and Defense headquarters construction projects in Battaramulla (Daily mirror, 17 March 2015).

Corruption is another factor that very badly affects the implementation construction projects. Sri Lanka is ranked 85 among 175 countries in Corruption Perception Index 2014 by Transparency International. Sri Lanka has scored 38 points out 100. 100 points means a clear public sector (Corruption Perceptions Index, 2014).

This is not a favorable situation for a developing country like Sri Lanka which is highly pressed with the limited resources and indicates that there is a gap in the governance of universities in Sri Lanka in identifying needs, planning, and implementing them.

1.3 Objectives of the Study

The objectives of the study are;

1. To critically review the literature to examine the best practices of implementing high value projects and develop a framework to explain the factors influencing the effectiveness of such projects.

2. To examine the existing rules and regulations, and procedures adopted by state universities in approving and implementing construction projects.

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3. To analyze the factors that are promoting and undermining the effectiveness of construction projects in state universities.

4. To recommend remedial measures that can be taken to improve the effectiveness and efficiency of construction projects in the state universities.

5. To identify the reasons for the failure rate or low completion rate of construction projects in government institution.

6. To make recommendation that would help improve success rate in future.

1.4 Significance of the Study

Therefore, it is vital important to study the existing governance system in the Sri Lankan higher education sector to identify its suitability to the context and the contribution it could make to the university system in Sri Lanka.

Research studies done so far do not seem to have addressed the reasons for this low rate at industry level. Hence, this study intends to fill the knowledge gap at least partly. This study is of practical importance because it offers recommendations for improving the success rate on the following areas.

1. Accountability on public money

2. Effectiveness & efficiency of public money

3. Non adoptability of proper governance practices

4. Lack of research

1.5 Methodology

The study is mostly related with the way universities and higher educational institutions operate. An in dept investigation is needed to gather data for this study at the absence of documented evidence. Further, enough research has not been carried out in the Sri Lanka context.

Accordingly, it is decided to use qualitative method for the purpose of this study. Both secondary and primary data will be collected are drawn from multiple sources such as published books, journal articles, written reports, newspaper, etc. Evidence will be gathered from each of these sources using different approaches as they are likely to yield different kinds of insights.

The participants of the study are Registrar, Head of Capital Works in universities,

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Works Engineers, Sub wardens of Hostels, Works Engineer of the University Grants Commission, Director / Infrastructure Development of the Ministry of Higher Education and Highways, etc. Semi-structured interview are conducted bases on an interview guide, which had a series of questions designed to cover the study area. Interviews take about 30 to 45 minutes and were tape recorded in most cases. Hand written notes were taken where tape recording were not permitted.

The analysis of qualitative data in case study research involves processes of reduction or summarization, classification and interpretation (Lillis, 1999 as cited in Ekkanayake, 2014).

Construction projects carried out by the universities are taken into consideration for the purpose of this study. Successful implementation of construction projects will be measured against the application of New Public Management principles. For the purpose these research satisfaction of two groups of stakeholders namely implementers and receivers are considered. A project satisfaction matrix is proposed and the project will be placed in a proper cell based on its rating with regard to user and implementer satisfaction. Thereafter, the independent and dependent variables will be analyzed based on the framework.

1.6 Limitation of the Study

According to Nguyen and Chileshi (2013) poor performance of contractors, corruption and bribery in construction projects, and economic volatility and high inflation are some of the factors that influence the performance construction projects.

As this particular study explores project management from the point of public management, contract management activities of the selected contractor are not considered in details. Rather, the overall performance of the project is considered from a holistic view.

1.7 Chapter Framework

This report consists of six chapters which include the introductory chapter, chapter 2 which reviews the literature, chapter 3 which describes the research methodology, chapter 4 which reviews the higher education sector and regulatory framework, chapter 5 which describes the Data Analysis and the last chapter which contains the summary of the findings.

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vii. Chapter 2

Literature Review

2.1. Introduction

A project is a temporary endeavor undertaken to produce a unique product, service or result (PMBOK, 2013).Thus, a project is always temporary in nature with clearly defined beginning and end, and objective(s). Its scope and resources are defined and the purpose of a project is always unique. Hence, it differentiates from routine operation of a business (PMBOK, 2013).

According to PMBOK (2013), project management is the application of knowledge, skills and techniques to execute projects effectively and efficiently. A project need to be effectively managed from the concept development stages to project implementation stage. Such project shall be aligned with the organization goals to add strategic value to an organization and strategic projects assists the long term liability and success of organizations (Lanka & Martin (2007). Project management has four stages namely initiating, planning, executing and controlling, and closing or completing (Westland, 2007).

2.2. Parameters to Evaluate Project Success

Every Project has a unique objective. As such project success depends on achieving the output within estimated time and cost budgets and in accordance with specifications. (Collins and Baccarini, 2004). These are the most important evaluation factors of project success. This measure considers factors only during project execution phase.Early literature on project success focused only on these factors for measuring project success.

Scholars now argue that these need to be broadened and developments in other stages of the project life cycle also should be considered in evaluating the success of any project.

For example, period of operation of the project‘s outcome is one such factor to consider. (e.g., Jugdev and Müller, 2005). In other words, factors from product success to business success need to be considered in evaluating project success (Muller & Jugdev, 2012).

Every organization has to satisfy the needs and wants of its customers more effectively and efficiently than their competitors in order to be successful in the long run.

According to this view, satisfaction of customers‘ needs to be studied in measuring project successes and this practice identifies how well a project has achieved its ultimate target (Pinto and Slevin, 1988).

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Zhang and Fan, (2013) have identified four broader criteria for measuring project success, namely meeting project‘s overall performance, owner‘s requirement, project‘s multiple goals, and stakeholder‘s satisfaction. Project‘s overall performance is measured by time, cost, and quality.

Projects need to achieve its objectives while using the minimum resources as much as possible to achieve them. As such, project success according to some researcher is related to efficiency and effectiveness (Pinto and Slevin, 1988: 1989; Crawford and Bryce, 2003). Efficiency refers to the maximization of output for a given level of input or resources, while effectiveness is defined as the achievement of goals or objectives. (Takim, R. and Adnan, H., 2009) had identified a set of indicators to measure the success of construction projects in terms of efficiency and effectiveness. They are: client satisfaction, user satisfaction, achievement of outcome, project functionality, free from defects, value for money, profitability, absence of any legal claims and proceedings, learning and exploitation and generate positive reputation.

In addition to the above discussed view of considering project management in terms of individual projects scholars state that project management is more than an individual project. It has extended its focus from the study of single project to the way organizations uses projects to achieve its goals (Drouin and Besner, 2012). Further, scholars have found out that there is a two way relationship between project management practices and organizational management practices where organizational practices can influence project practices and vice versa (Thiry & Deguire, 2007).

Grabher (2002) has discussed the followings on his studies on the relationship between an organization and a project

- Projects are semi-autonomous temporary organizations created by a hosting institution, but on the other they are also highly influenced by the hosting organization.

- Generally projects are executed by drawing up a range of organizational resources such as people, physical infrastructure, funds etc…

- Further, organizations host a lot of processes before and after project needed to implement a project.

- Culture of an organization plays a significant role in determining how a project is governed, managed and run.

- Projects are often hindered by organizational politics and inertia. (Grabher, 2002) According to Nguyen and Chileshi (2015) lack of a systematic approach to manage projects and entire organization is a main factor that affects successful implementation of projects.

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Thereby, any project is implemented within the established framework of institutions. Accordingly, the administrative practice of an institution would have a greater influence on the performance of construction projects. In turn projects assist organizations to realize its mission and vision.

2.3. Project Management in Public Sector

Stakeholder management is important in public project management. According to (Dunleavy and Hood, 1994) Public Managers need to reconcile between efficiency and public interest. Publics are the principles of the state sector and public interests need to be satisfied in the end. Efforts to improve performance through benchmarking need to be mindful of the existing political norms and shifts in power (Holt and Rowe, 2000). Policy decisions and allocation of resources are made by politicians at Cabinet and Parliament level. As such public and political leadership are most important stakeholder groups in public project management (Hughes, 2014).

Project failure is a common feature in state construction industry. The problem of delays in the housing construction sector is a major feature in Ghana as in other emerging countries and in 2005, 17.3 percent of 417 government contract projects in Malaysia were either delayed more than three months or completely abandoned (Sambasivan and Soon, 2007).

Further, there are regulatory, statutory and legislative requirements to be strictly followed in implementing projects in public sector. As a result, project management process in state sector takes a very long time. Many technology-sensitive or demanddriven facilities fail to meet timely market needs and become functionally obsolescence as soon as they open. The US Army has begun to use design-build methods in an attempt to decrease time it takes to complete a project (McWhirt, Ahn, Shane, and Strong, 2011).

2.4. Contemporary Developments in Public Management

2.4.1. Early Administration

Public Administration has been existed since ancient time. According to Gladden (1972) some form of administration has existed ever since there has been a government. The existence of public administration in the ancient Egypt is well documented. Ancient Egypt had had a well-developed Public administration (Ajdini, 2014). It had been structured with a central government and many local governments. A number of significant administrative departments, among them the treasury, the granaries, agriculture, public works, the armory, and the army had functioned (Beyer, 243). The ancient Egypt system was so good that many times borrowed by many great civilizations like Rome and Greece. Main principle of ancient Egypt had been centralization and control by the government (Ajdini, 2014). Further, Hughes (2012) states that some forms of administrative system had existed in ancient Egypt to administer irrigation from annual flood of the Nile and to build pyramids.

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But, the early administration has been rather personal based on loyalty to an individual such as King or minister. Corruption and misuse of state property had been very common features and the main draw backs of that system (Hughes (2012).

2.4.2. Traditional Model of Public Administration

Traditional model of administration has started in mid nineteenth century in Briton to improve efficiency in departments (Greenaway, 2004). The most important theory of traditional model of administration is Weber‘s theory of bureaucracy. According to Max

Weber, the model is characterized by prescribed rules and procedures, official documents, hierarchy of authority, selection based on merit, and separation of private or personal life from office. Hierarchical structure, task division, formal rules and regulation are the most positive features of bureaucracy (Weber, 1979).

Now, the environment has changed. Organizations are increasingly using information and communication technologies in its operations. Accordingly, the role of the public sector has also changed. Traditional model of administration based on the theory of bureaucracy is criticized for many weaknesses in the system (Clegg, 2015). The hierarchies of the bureaucracy are no longer applicable and they hamper an organization‘s ability to response to demanding conditions.

As the key elements of the external corporate environment of the last decade or so comprise rapid technological advancements, excessive uncertainty, intense world competition and severe hostility, organizations experience tremendous turbulence that not only calls for speed in decision making, but also alters fundamentally the organizational landscape in which leaders are expected to operate.

In addition, the traditional model was criticized for being inefficient, costly, rigid, corrupt, unaccountable, and unsuitable to an age seeking more dynamic social and economic development from the administrative point of view (Hughes, 2014). The increased use of information technology in the organizations has also undermined the

importance of bureaucracy (Castells, 2000). Now, it is seen as inefficient, inflexible and irresponsible system of administration before citizens (Savas, 1987).

2.4.3. New Public Management

Broadly, the NPM refer to a set of modern administrative changes introduced for improving public sector efficiency and performance in the delivery of services. The cores of these changes are the application of private sector values and management tools in the public sector and the delivery of public services through market mechanisms (Hood, 1995). There is no universally accepted definition of new public management (Cepiku & Meneguzzo, 2011). But, the shift from public administration to public management is very evident (Clegg, 2015).

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It was based on the assumptions that the main cause for the existing inefficiency and poor performance are the existing structures and policies of the government (Siddiquee, 2006).

Many scholars have defied NPM in different ways. Based on the available literature, for example, Hughes (2012); Osborne and Gaebler (1992); Hood (1995); Pollitt and Bouckaert (2000) following elements have identified as the most common characteristics of NPM;

- Decentralization of authority with a wide variety of alternative service delivery mechanisms including contracting out and quasi-privatization;
- downsizing (reducing budget and staff of public agencies), deregulation, and employee empowerment in the public sector;
- outcomes and results rather than inputs and processes, performance contracts and performance management to hold staff accountable;
- private sector-style management and flexibility;
- cost recovery, entrepreneurship by allowing employees/teams to pursue program delivery outside established mechanisms, competition between public and private agencies for the contract to deliver services;
- improving quality of regulation and the management of human resources;
- a management culture that emphasizes on the centrality of citizens/customers and accountability for results

The NPM reforms have been implemented in many developing countries. Though the degree of implementation differs from nations to nations, public sector reforms along the line of New Public Management are a common phenomenon in many developing countries. Sri Lankan system of public administration is also on the move towards the NPM reforms (Kumara & Handapangoda, 2008). The University Grants Commission has introduced a series of training program for probationary executive officers to acquaint themselves of public management. The organizations are required to develop long term visions in alignment to the vision of Government. But, performance related pay and market-based public services have been hardly recommended and practiced in Sri Lanka. In principle, the administrative reforms have been based on political agendas of different regimes, and resultantly, the NPM based restructuring programmes have not been able to be implemented as a continuous exercise (Kumara & Handapangoda, 2008).

2.4.4. Public Sector Reforms in the NPM Era

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The reforms taking place is much broader and covers the core components of public management. These are productivity, marketization, service orientation, decentralization, policy and accountability (Kettl, 2005). These reforms together cover all the aspect of management like planning, organizing, leading and controlling while being sensitive to external environment. These reforms would guide to better project performance if implemented properly. Singapore started systematic reforms along new public management model in 1989 and has managed to develop a well performing public sector (Sarker, 2006). The most common features of the reforms that have taken place in the public sector management are discussed in the following section.

2.4.4.1. Management not Administration

This is the main change taken place. Main focus is on achieving results rather than merely carrying out instructions. What is performed, how well it is performed, who is in charge, and who takes responsibility for achieving it are matters under management approach (Hughes, 2012). Public sector organizations have started using management instruments in their activities in order to improve performance.

According to (Nguyen and Chileshi, 2015) the disregard of the significance of project planning process and project planning, and lack of a systematic approach to managing projects and entire organization are some of the main factors that affects the performance of construction projects in Vietnam.

The decisions that are made early in a project have the greatest impact on project. The decisions made at those stages of projects carry greater weight on success or failure of projects (Williams and Samset, 2010).

Many experts argue that efforts put into planning during early stages of project are key in the whole project process and increases the likelihood of project success than efforts undertaken on the project in later stages (Dumon et al., 1997; Cho et al., 1999). The early stages in the project life cycle such as the pre-project stage are very critical to its success. The decisions made within these stages can only be adjusted or changed with

significant impact on the process and the project costs (Othman et al., 2004). Frequent design changes introduced to project at later stages affects project implementation negatively. (Nguyen and Chileshi (2015).

During the planning stage project objectives are required to be defined and thereafter the strategies to achieve them are needed to be formulated. It can be described as the process of defining project objectives, determining the framework, methods, strategies, tactics, targets and deadlines to achieve the objectives and communicating them to project stakeholders (Idoro, 2012).

According to it is at this stage client‘s requirements and available resources are defined first, matched to set project objectives, available options identified and evaluated and the

most appropriate frameworks, strategies and tactics to achieve the objectives selected (Idoro, 2012).

During this planning process activities can be viewed individually, can readjusted to suit time frame and individual capability. Further, scope of any activity can be rearranged to meet time and cost constraints. More importantly, any implementation strategy can be reviewed and reset to improve the efficiency of the project. Basis for control over the project activities during the entire circle of the project management is established at this stage.

Idoro (2012) based on his studied in the experience Nigerian construction industry recommends that increased use of plans concerned with delivery time of projects procured by DB method and increased levels of use of plans concerned with quality standards of projects procured by traditional contract method would improve the outcome of construction projects in Nigeria (Idoro, 2012).

Risk is a common factor that can affect the progress of any activity. Constructions projects in Vietnam are get affected by risks too (Hassanein and Afify, 2007). Planning stage need to consider the risks factors prone to affect the particular project and to make plan in order to avoid or mitigate of those risks.

2.4.4.2. Leadership

Under traditional model there was no room for leadership or any other personal behavior. But, public management identified the importance of informal or personal behavior and requires public management to use it for the benefit of the organization (Hughes, 2012). Under the new leadership perspective, leaders are responsible for building organizations in which people continuously expand their capacity to learn, to understand complexity and to set the vision for the organization (Senge, 1995). Leaders take initiatives, pursue targets, motivate people, chose among alternatives, and experiments with strategies and tactics (Behn, 1998).

Leadership is very important to project management (Turner and Muller, 2005). Leadership is increasingly recognized as a key skills area necessary for better project management (PMI, 2000). By nature projects face many issues thorough out its life cycle. It is argued that effective leadership would go on to address many of the problems that could lead projects to failure (Turner and Muller, 2005).

One of the most common reasons for projects to fall short is lack of executive sponsorship, according to the KPMG New Zealand Project Management Survey (2010).

The sponsor‘s key responsibilities are providing clear direction for the project, linking projects with the organization‘s overall strategy, Securing project resources, and ensuring that the project is on time, on budget and on scope as discussed in PMI White Paper.

Further, internal project sponsors of public project reduce the organizational dependence upon external advisors for implementing projects. It allows for a proactive client presence within the project. Project sponsors also speed up the process of procurement and production, and so, reduce the idle time in project implementation. According to (Holt & Rowe, 2000) such leadership would have a positive effect upon project performance.

2.4.4.3. Focus on Result

Public managers assume responsibility for achieving targets. Performances of public managers are measured on their ability to achieve the declared objectives. An incentive framework that is related with the achievement of targets encourages the managers for better performance (Holmes and Shand, 1995). Performance evaluation is carried out to avoid ineffective and inappropriate use of financial resources.

Performance management is a means of getting better results from the whole organization or teams or individuals within it, by understanding and managing performance within an agreed framework of planned goals, standards and competence requirements (Armstrong, 2000 cited in Kagaari, Munene and Ntayi, 2010). It directs and supports employees to work as effectively and efficiently as possible in line with the needs of the organization (Walters, 1995). In the process performance indicators are used.

The practice of using indicators to assess performance originates from the theory of benchmarking used for improving business processes and products. Aspects of the business or part of it are compared with the best performance in its specific sector. This approach aims to continually improve the business activities and leads to the setting of higher targets. Since the actual performances are compared with targets or desired processes they always provide a basis for project monitoring and control (Haponava & Al-Jibouri 2009).

2.4.4.4. More Strategic Approach

Strategic management and strategic planning provide long term orientation as to what government and government institutions aspire and achieve. Then decisions are made according those term objectives. It helps the organization to be more effective and efficient (Bryson, 2004). According to Lefley (2004), corporate strategy is concerned with what business the organization is in. Rather, business strategy is focusing at a lower level and concerns itself with the way the organizations operate to survive and compete the business it is in.

Artto and Wikstrom, (2005) argue that projects are a means of implementing organizational strategy, and that organizations need to ensure that they are doing the right projects the right way achieve the intended outcome.

As such investments in capital projects need to be aligned with corporate and business strategy of an organization. A project becomes strategic by offering the potential to extend the corporate life of an organization by replacing the dead cells. This is also called as

process of continuing change (Lefley, 1996). Organizations obtain competitive advantages by achieving strategic benefits (Lefley, 1997). Achieving and maintaining sustainable competitive advantages are crucial to the long-term success of any organization Aaker (2001).

Lanka & Martin (2007) believe that the lack of alignment between business strategy and project strategy is a significant contributor of project failures. Any project designed without strategic orientation would add only operational value to an organization (Muller & Jugdev, 2012). Though such projects are efficient they would be less effective as those projects are not aligned with organizational vision. Effectiveness depends on how well organizational objectives are achieved. Further, developing corporate plan for universities and higher educational institution for five year period is mandatory requirement (MOHE, 2011).

2.4.4.5. Improved Financial Management

Finance is the most important and most scarce resources needed for an organization. Accordingly, the finance needs to be managed more efficiently. It emphasizes the need to have good budgeting, and standard reporting system. Several ongoing projects have been stopped or delayed due to lack of fund availability. Availability of funds is critical factor that need to be considered during planning stages (Mansfield, 1994). The final outcome of projects is also largely dependent on the availability of funds. (Bashuna, 2013).

Lack of financial capacity of owner and delay in payment are also some of the key factors that have high impact on the performance of construction project Nguyen and Chileshi (2015). Finance is always associated with a cost, the environment is highly volatile, and the influence of inflation always exists on projects. Therefore, projects finance need to be managed effectively and efficiently.

2.4.4.6. Flexibility in Staffing

Managers need to take personal responsibility to achieve results and capable people are in better position to achieve targets efficiently. Efficient managers need to be paid much higher salary. People performing poorly should not keep in the organization while retaining fair employment environment. Public enterprises need to have highly skilled, experienced and professional staff. Lack of experience in executing complicated project, poor design capacity, lack of knowledge and ability in managing construction projects are among the important factors that affects the performance construction projects in Vietnam (Nguyen and Chileshi, 2015).

Experienced project management staff increases the rate of project success. Highperforming organizations provide consistent and continuous training and development for project managers to enhance organizational success. Training being provided to project management staff need to be aligned with organizational strategy.(PMI, Feb - 2014).

Many changes have occurred in employment practices. The main changes are the increased use of temporary, part-time, and seasonal employment and increased hiring of

employees through employment contracts. These two devices, along with the increased use of outside contractors have significantly changed the face of the public workforce (Liu & Kleiner 2005).

Project defining and planning stage need personnel with diverse skills. Having identified this requirement, procurement guideline of Sri Lanka has made it a requirement to appoint technical evaluation committee comprising of people with related talent in order to advice procurement committees (NPG, 2006).

2.4.4.7. Competition and Contractualism

When there is a chance to contract out the provision of services to the public, it is promoted to do so in order to improve competition and to offer better service to the public (Pedersen and Greve, 2007). But, contracting out should be carried out through a competitive bidding procedure. Project need to be handed over to a capable contractor and the selection of a contractor need to be done through competitive procedure (Walsh, 1995)

Public procurement is the process of public entities obtaining goods, services or works by the most appropriate means (Procurement Guideline, Sri Lanka, 2006, P - 03). The tendering phase or procurement is the most critical and important activity in construction project lifecycle. The contractual and legislative agreements between the client, consultant team, contractor and other members of the project are established during this phase. Inefficient outcome of a procurement process significantly affects the project success. (Lou, 2009).Procurement is attracting more attention among the stakeholders because of its importance. However, very often tender action is done with a rush which in turn leads less optimal decisions.

Every construction project is procured by a particular procurement method and no project can be implemented without following a procurement method. Further, the successful completion of project depends to a considerable extent upon the method of procurement selected. (Idoro, 2012).

According to Raymond (2008), procurement is more than mere acquisition of resources. There are five key principles that are to be achieved in procurements. Value for money (VFM), ethics, competition, transparency, and accountability are those principles.

There are very few procurement systems to choose from. The most common types of procurement methods are traditional approach, design and build (D&B), build-operatetransfer (BOT), management contracting, public-private-partnership (PPP), etc.

In the Nigerian construction industry, two procurement options namely design-bid-build (DBB) and design-build (DB) were the very prominent methods for prosecuting development programs in both public and private sectors (Idoro, 2012).

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Each procurement system has it pros and corns, and delivers project success to a variable degree (Bowen et al., 1997). The selection of optimal procurement systems for projects is very crucial. The most appropriate option is one that will assist the client to achieve his requirements and will guarantee maximum success at the close of a project. It is also a difficult task, because even experienced clients cannot know all the potential benefits and risks of each system. Therefore, procurement is a succession of calculated risks (Chan 2001 and Yakowenko 2004 cited in (Idoro, 2012).
The experience in Nigeria shows that project outcomes of different methods have significant difference. Project procured using traditional method had performed better in terms of project time and cost. Whereas design and build method has performed well in terms of quality standards (Idoro, 2012).

Accordingly, a proper procurement method needs to be selected to get desired outputs. Employment of an imprudently selected procurement method could be a hindrance to the realization of certain benefits associated, and might eventually lead to project failure (Naoum, 1994). It also leads to cost and time overruns and disputes on projects (Masterman, 1992). In other words, selection of appropriate procurement strategies helps to achieve optimal solutions in terms of cost, time and quality. They also contribute to easily meet the agreed targets (Jagger, 1995).

(Idoro, 2012) has found out that Design and Build procurement is mostly used to procure projects with higher gross floor area, building rise and initial contract period. Design and build method has also been common method used for procure more complex project.

A reasonable level of market development and experience of the operation of markets are essential for NPM to be successful as New Public Management principles are market based.

2.4.4.8. Relationship with Politicians

Policy decisions are made by politicians. Accordingly, public managers are required to deal with politicians. Administrator need to maintain necessary relationship with political leaders as they are the policy makers. Thus, the government is the most important stakeholder in relation to projects. Government‘s political orientations largely affect projects.

The focus of political group differs from the other stakeholders of projects and they do not directly influence the project. The concerns of the political groups are from social justice and macroeconomic perspective, such as such as wealth distribution of the society and equal opportunity for minority groups (Doloi, 2012).

Accordingly, the management of political ties is very crucial for an organization. Political connection increases the chance of resource acquisition, organizational learning, and improved performance for an organization (Hillman, 2005).

26.

There are various instruments available to government to influence project. Government influence the projects by way of withholding or limiting the resources that a project needs to precede. The means may be labor, funding, permissions or licenses (Sallinen, Ruuska, & Ahola, 2013). The negative influence arising from stakeholders increases costs and may delay the schedule in projects. (Olander and Landin, 2005).

2.4.4.9. Relationship with Public

New public reforms require more interaction with public as they are the direct and indirect beneficiary of any government institution and alternative ways of service delivery could be explored when more relationship is maintained with the public (Alford, 2009). Scholars have found out that failure to apply professional public relations skills affects both survival and development of organizations (O'Dwyer, 2005).

Public relations is defined as the management function that establishes and maintains mutually beneficial relationships between an organization and the public on whom its success or failure depends Cutlip et al. (2000, p. 6)

Project management also deals with the directing and control of subordinates toward achieving the objectives. Scholars emphasizes that the management of project stakeholders is one of the most crucial tasks in project management. Many individuals have different interests and influences on the success of a project (Karlsen, Graee, & Massaoud, 2008). In respect to higher education sector undergraduate students are the primary and most influential stakeholders.

2.5. **Conceptual Framework**

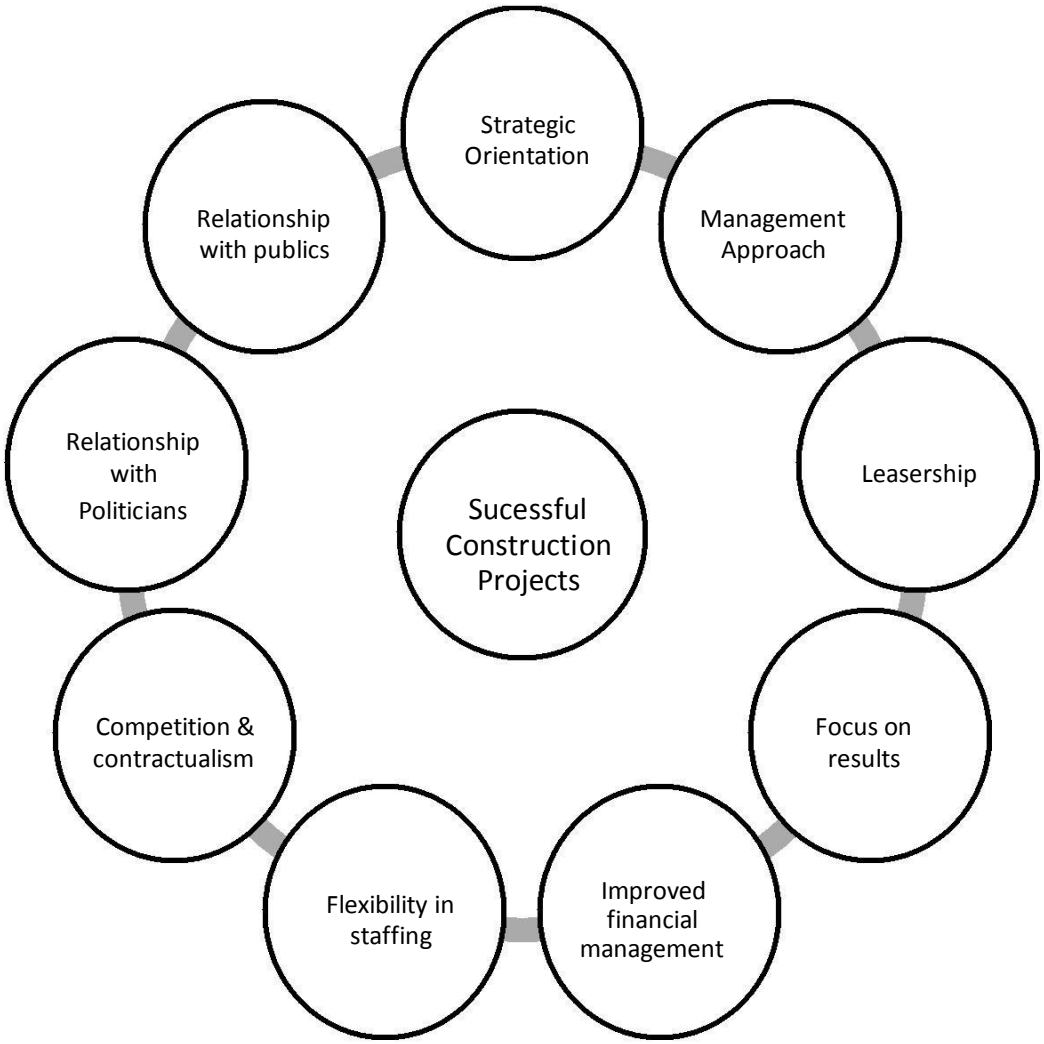
The literature review showed that there are nine important independent variables that will influence the performance of infrastructure projects in a government organization,

namely management not administration, leadership, focus on Result, a more strategic approach, improved Financial Management, flexibility in Staffing, competition and contractualism, relationship with politicians, and relationship with public in the era of new public management.

These key elements are independent variables that affect the performance of construction projects in the public sector, which is the dependent variable of this study. Conceptual model shown in figure 3.1 shows that causal relationship between the independent variable and the dependent variable.

27.

Figure 1 : Conceptual Framework



28.

2.6. Summary of the Chapter

This chapter reviewed the existing literature related to the study followed by a conceptual model based on the literature reviewed. Next chapter will describe the methodology that has been used for this research.

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viii. Chapter 3

Research Design

3.1. Introduction

This chapter outlines the overall research design employed in this study. It includes a discussion of the qualitative research method, case study research technique, sample selection, data collection and management methods, reliability and validity issues, data analysis strategy, and ethical considerations.

3.2. Case Study Methodology and Research Paradigm

Use of qualitative research methods to data gathering and analysis has significantly increased over the past two decades (Strauss, 1987). Qualitative research is any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification (Strauss and Corbin, 1990). In quantitative inquiry representations of the world are symbolized numerically while qualitative study offers representations of the world which are primarily linguistic (Heppner, Kivlighan, & Wampold, 1999).

The purpose of this study was to explore and describe the level of implementation of new public management practices in relation to construction projects implementation. Qualitative inquiry and analysis suits this purpose with stronger sensitivity than a quantitative methodology could offer. Also little research exists on the topic; therefore, qualitative methods are suited for this study. Since this study is exploratory in nature, the process of allowing the data to speak for itself further supports a qualitative method of inquiry. Given that qualitative methodology uses context, individual experience, and subjective interpretation, generalizability is not possible, nor is it a goal (Heppner, Kivlighan, & Wampold, 1999). The case study approach, as applied in this study, offers a high level of internal validity, as the participants and researcher co-create the data as they discuss project success in relation to New Public Management.

Holistic and meaningful examination of the phenomenon is facilitated by case study methodology (Yin, 2003 cited in Ekkanayake, 2014). Case study approach as a tool provides opportunity to do an in-depth investigation of a phenomenon (Cooper and

Morgan, 2008). Therefore the case study was adopted as the appropriate methodology for the purpose of this study.

Selection of Population and Sample: Systematic, theoretically determined sorting of case ensures enough coverage to the phenomenon of the study (Johnson, 1990). Accordingly, the study selects four cases. Presently there is no any database containing information with regard to al the project implemented or being implemented in the university system. Therefore, the best sampling techniques for this kind of study is snowball sampling technique. Accordingly, the cases and interviewee were identified during data collection stage.

The first interview was held with the Works Engineer / University of Peradeniya and the other interviewee was selected based on the findings of that interview. The first interviewee was selected based on more job in hand and outstanding delays in some constructions.

Construction projects with significant impacts are taken into consideration for the purpose of this study. One case is selected for its contribution. The other two cases have been selected to present most the most unsuccessful project scenarios. Another case is selected for its high positive contribution with some shortcomings. Altogether four cases have been selected.

3.3. Data Collection

3.3.1. Organizational Performance Indicators

The following indicators were used as the indicators for measuring the performance a construction project.

3.3.1.1. Time

3.3.1.2. Estimate

3.3.1.3. Specification

3.3.1.4. Client and User Satisfactions

3.3.1.5. Free from Defects

3.3.1.6. Absence of any Legal Claims and Proceedings

3.3.1.7. Learning and Exploitation

3.3.2. Data Collection

Data for the case studies was collected using multiple sources. The research was carried out through a process of document analysis, un-structured and semi-structured interview, questionnaire, and observation.

Data for the study were collected from two sources: semi-structured interview and publicly available documents. The participants of the study are Registrar, Head of Capital Works in universities, Works Engineer, Hostel sub wardens, findings by Works Engineer/University Grants Commission, Director / Infrastructure Development of the Ministry of Higher Education and Highways etc.

Semi-structured interview were conducted bases on an interview guide, which had a series of questions designed to cover the study area. Interviews take about 30 to 45 minutes. Hand written notes were taken.

Both secondary and primary data will be collected are drawn from multiple sources such as published books, journal articles, written reports, newspaper, etc.. Evidence will be gathered from each of these sources using different approaches as they are likely to yield different kinds of insights.

3.4. Data Analysis

3.4.1. Measurement of Level of Success of Construction Projects

Three indicators were developed in order to measure the success achieved by construction projects in the university sector. These indicators are cost,time and client requirement.

Indicator I: cost

Indicator II: time

Indicator III: client requirement

Indicator IV: Stakeholder satisfaction

The projects identified will be classified according to a project satisfaction matrix. The matrix will identify four categories of projects.

1. **Successful Project:** Successful project will be those that have fulfilled the expectations of both the users and implementers.

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2. **Failed successful project:** Projects though successful from the point of view of implementers, it would not have fulfilled the requirements of users.

3. **Successful failed project:** Projects that were successful from the point of view of implementers, had some drawbacks from users point of view and improved with the feedback of users

4. **Failed project:** Those projects that have not fulfilled the expectations of both implementers and users.

Figure 2 : Project Satisfaction Matrix

User's point of view	Successful	Failed
Failed	Failed Successful Projects	Failed Projects
Successful	Successful Projects	Successful failed Projects

Implementer's point of view

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3.5. Factors influencing the Performance of Construction Projects

Nine themes were identified as the influential factors affecting the performance of construction project under public management theory. These nine factors were analyzed as follows;

3.5.1. Management not administration

3.5.2. Leadership

3.5.3. Focus on result

3.5.4. More strategic approach

3.5.5. Improved financial management

3.5.6. Flexibility in staffing

3.5.7. Competition and contractualism

3.5.8. Relationship with politicians

3.5.9. Relationship with public

3.6. Validity and Reliability

Reliability of the data collected in case study methods is very important. Particularly triangulation of the data is very important. Evidences provided were corroborated by at least 03 sources like observation, unstructured and semi structured interview, and documentary evidence to ensure validity of the data collected.

3.7. Limitation of the Study

This particular study considers the construction project performance from public management point of view. Project management capabilities of the selected contractor were not considered for the purpose of this study.

3.8. Summary of the Chapter

This chapter described the methodology that has been used in this research including the selection of populations and samples and the use of interview

guide. Next chapter will present the higher education sector in Sri Lanka and review it regulatory frame work.

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ix. Chapter 4

Governance in State Universities in Sri Lanka and Case Narratives

4.1. Governance in State Universities in Sri Lanka

4.1.1. Institutions involved in the Governance of Higher Education in Sri Lanka

The key state players in the higher education system of Sri Lanka are Ministry of Higher Education and Highways, University of Grants Commission, and Universities. These institutions are vested with different set of authorities, duties, and accountability (Universities Act).

4.1.2. Ministry of Higher Education and Highways (MOHE&H)

Presently there are 15 universities coming under the purview of the Ministry of Higher Education and Highways. MOHE&H has a greater influence in the implementation of large capital project. Request for fund allocation is made to the Ministry of Finance, obtaining the approval of the cabinet of minister, and procurement works in relation to larger projects are performed by the Ministry of Higher Education (NPG, 2006). Any project with value more than 100 million and using the fund of the government of Sri Lanka needs to go the line ministry for approval (Procurement Manual, 2014). As such line ministry has considerable influence in the implementation of capital projects in the university system.

Noticeably, the ministry took a bold step by introducing design and build concept into the higher education sector to expedite project implementation according to Respondent - 2.

Presently two kinds of construction projects are being are being implemented by the Ministry of Higher Education. They are routine projects and special kinds of projects. Proposals for routine projects are developed by individual universities concerned. Then the proposals are sent to the University Grants Commission, the University Grants Commission then sends the proposal to the Ministry, and then they are sent to Department of National Planning for recommendation.

Expeditious hostel project is classic example to special project which was initiated from the top.

Further the projects are funded through three sources. Consolidated funds, local bank loans, and foreign funds are those sources. Typically foreign funds are governed by loan agreements.

4.1.3. University Grants Commission

University Grants Commission is the apex body of the university education in Sri Lanka and responsible for disbursement of funds among higher educational institution (Universities Act). Accordingly, it assumes the authority for encouraging universities and higher educational institutions for proposing projects and to screen projects before being forwarded to the line ministry. Once implemented, the UGC performs periodic monitoring to ensure that project progress is in line. Thus, the University Grants Commission plays an important role of regulator and monitor in the implementation of capital project (FCL, 1/2013).

The University Grants Commission encourages universities and higher educational institutions to increases the student intake for existing courses or start new courses in order to increase the student intake in alignment to the national higher education policy. The UGC knows the infrastructure requirement of the universities or higher educational institutions and in a much better position to evaluate the construction project proposal. Accordingly, the initial screenings of projects are done by the UGC. Though there are some projects which have directly gone by passing the UGC. There are some projects which have been directly submitted to National Planning Department by passing the UGC and Ministry.

Requests for funds are made by the UGC and it is UGC which receives funds from the Treasury. Thereafter, the UGC disburses the funds among the universities and higher educational institutions.

Project reviews with regard to fund allocation is done by the UGC. Normally 03 review meetings are held annually at the UGC where fund usage in relation to project progress is reviewed. If found that, there are some underutilized funds it is directed to some projects that needs money.

Further, there is a Capital Project Evaluation and Monitoring Committee (CPEMC) at the UGC which is headed by the Vice Chairman of the UGC.
The committed studies the capital project proposals in relation to their importance and proposed contribution to the higher education and finally makes recommendation to the University Grants Commission.

4.1.4. Universities

The university council is responsible for the advancement of a University‘s objectives, for its administration, and for the management of its finances and property, and has all the powers necessary for it to discharge these responsibilities. Further, strategic decisions related to universities are made by the councils of each university (Universities Act, 1978). Any major project to be implemented in a university needs the blessing of councils for the approval of the concepts, design, funds, etc.

Departmental Procurement Committees has great influence in implementing projects as procurement authority up to certain level is vested with them (Procurement Manual, 2014).

4.1.5. University of Moratuwa

The University of Mortuwa has established a very good system in place for managing the implementation of construction projects. The university has three committees namely Project Monitoring Committee, Planning and Development Committee, and Master Plan Committee.

Project Progress Review Committee conducts monthly meetings and reviews progress of the ongoing projects. Master Plan Committee develops the master plan for the university and any project proposed within the university needs the sanction of the Master Plan Committee. Planning and Development Committee handles all the matters related to planning and development of infrastructure development.

4.1.6. University of Peradeniya

Land, Building, and Maintenance Committee is responsible to review any project proposal and to make recommendation. The projects identified even in master plan need to get the approval of the Land, Building, and Maintenance Committee. According to Senior Assistant Registrar (Capital Works) of the University of Peradeniya it does not necessary for any project to go through Master Plan Committee. It is a week area in the management of contraction projects.

Further, Landscaping Committee is responsible to make sure that any project being implemented does not affect the existing architectural feature of the university premises. Accordingly, it reviews the drawings of construction projects and approves. If a drawing is not approved by Landscaping, it needs to be revised.

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4.1.7. University of Colombo

There is a Planning and Development Committee at the University of Colombo. All the projects to be implemented at the University of Colombo needs to get the sanction of this committee. Construction project proposals developed by Faculties need to get the sanction of this committee. Then the committee reviews and makes recommendations on the proposals. In addition, several project monitoring committees are set up time to time to monitor the progress of ongoing construction projects.

4.2. Summary

This chapter takes the reader through the governance in Sri Lankan state university system and present situation of construction project implementation. The chapter presented the existing governance of construction projects and the selected case.

Chapter 5

Case Narratives and Discussion of Findings

5.1. Case Narratives

5.1.1. Case 1 : Expeditious Hostel Projects

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Expeditious Hostel Projects is a quick construction project implemented by the Ministry of Higher Education and Highways at the total cost of Rs. 12 Billion to address the issue of lack of accommodation facilities for undergraduate students. Lack of accommodation facilities for under graduate students was a very serious issue university system facing. 60 hostel units have been constructed in 18 higher educational institutions across the county. The cost of one hostel unit is Rs. 200 million. Each unit is having 100 rooms.

It was also one of the major challenges which the university system had to overcome to improve standard of higher education and increase number students for undergraduate courses in Sri Lankan universities. Further, universities had been spending huge amounts of money as rental payment for renting houses or building from private owners for using them student hostels. Sabragamuwa University of Sri Lanka alone had been spending about 20 million per month for this purpose. According to Respondent - 9

"lack of accommodation facilities for undergraduate students is a long outstanding issue the university had been facing".

The end of war saw a lot of students specially Sinhala and Muslim were admitted to the universities located in the northern and eastern provinces of Sri Lanka. Accommodation facilities had not been provided to all the students due to the limited hostel facilities available in those universities. When hostels had not been provided, students had faced a lot of problems as there not been enough private houses or buildings for students in those areas for renting out. Making the situation even worse, newly selected students and their parents staged demonstrations demanding for hostel facilities. The government had to address this issue.

Finally this issue had drawn the attention of His Excellency the President of Democratic Republic of Sri Lanka and then Minister of Higher Education.

The initial decision with regard to implementing a mega hostel project in order to address accommodation issues urgently was collectively made by His Excellency the President and then Hon. Minister of Higher Education. Accordingly, it was a policy decision and had enjoyed the support of the political leadership.

This was an expeditious project and wanted to be implemented in the shortest time possible. *That is why only the common features of hostel had been included into this project* According to Director / Procurement, Ministry of Higher Education and Highways. The other facilities like electricity, sewerage, plumbing etc had not been implemented into this project as the requirements for such services differ from one location to other. The facilities up to flimth level was considered. *Had all other facilities been included into this project, it*

would have been impossible to implement this project within such a short period of this according to Director / Procurement, Ministry of Higher Education and Highways. It is the implementation strategy at ministry level.

It had been decided to maintain uniformity in design and implementation in order to attain scale of economies. As a result all the drawings were identical. Drawings developed for one location were simply replicated in all the other locations.

Identification of requirements and approving of samples had to be done only once. The project was implemented in 19 higher educational institutions around the country. Had uniformity not maintained, the process of planning, designing, procurement, approving of samples etc would have had to be done by individual institutions separately. This had both saved the time and cost needed to perform such tasks each and every time at different locations by different people. Thus, the project had been planned with some clear strategies. Higher educational institutions with limited resources would not have been able to access the technical expertise involved in designing this project. This project was designed by a Consultant Firm based in Singapore.

The project had been designed by qualified external consultants. According to Respondent - 11, *finished hostels are of international standard*. A team had been nominated among the existing staff of the Ministry of Higher Education and Highways and university system to handle this project. An Additional Secretary at the Ministry of Higher Education and Highways was appointed as the Project Director. Director / Procurement, Ministry of Higher Education handled all the procurement related works. Works Engineers from respective higher educational institutions were appointed the by the Secretary / Ministry of Higher Education for spearheading the project at institutional level. They were also paid an honorarium for this service. According to Respondent - 10, the University had nominated the Head of Department of Architecture and the Head of Department of Civil Engineering to supervise the construction works in addition to the Works Engineer of the University. According to Director / Procurement, *the Vice Chancellors of universities had been very keen on this project and had chaired the monthly progress review meeting*.

This was a design and build (turnkey method) project and two leading construction companies in Sri Lanka were selected for implementing the project. Firms‘ construction capacity, past performance, and recognition were taken into consideration in selecting those firms. It ensured that the contractors among the best in Sri Lanka were selected for undertaking the project. Each contractor was assigned 50% of the whole project.

Common extra works of this project had been leveling of hill areas and clearing. They were carried out by the respective higher educational institutions within the shortest possible time using the university resources (including fund). These

potential risks by way of extra works and remedial measures need to be taken had been considered during planning stage. Thus the negative effects unforeseen works on the project performance were avoided.

The project had followed a result oriented approach. Locations were released to contractors in no time to start the project immediately. Progresses of the projects were reviewed regularly. Progress review meetings had been held every month and progress reports were sent to the Secretary to the Ministry of Higher Education & Highways monthly. Completing the project without any deviation from the plan was the concern of the officials involved. Thus the focus has always been on achieving planned millstones.

Being a design and build project payments were made against agreed milestones. Funds were released on time by the General Treasury and payments to contractors were also made without delay. It could have been a motive factor to contractor to perform well. The project has enjoyed a good cash flow.

The project duration was one year. Hostel project in all locations were completed as scheduled and handed over to the administration on time. According to Director / Procurement *finished hostels have met technical requirements*. According to Respondent - 6, one hostel unit has been handed over in seven months. Accordingly, hostel units have been completed as planned. According to Director / Procurement, Ministry of Higher Education and Highways *the expeditious hostel project is most successful*.

The project has significantly increased the capacity of higher educational institutions in providing safe and suitable accommodation facilities to undergraduates. According to Respondent - 9, *the project has increased the hostel accommodation capacity of the university from 19 % to 40 % of the total student population*. The project has also enabled the universities to save huge sums of money that was spent on renting accommodation from private owners. It is a significant contribution. According to Respondent - 8 *the university has been given four hostel units and with these room additions the university has achieved self sufficiency in term of hostel requirements*.

The stakeholders at university level are not that much satisfied with the project as there are some shortcomings with regard to the facilities available in the hostel. Expectations of the stakeholders differ according to their context and in turn expectations influence the level of satisfaction of stakeholders. The stakeholders at university level expresses unsatisfactory feedbacks on areas like having small septic tank, poor sewerage system, inappropriate sanitation facilities, overcrowded, poor lighting facilities, no cafeteria facilities, not conducive for studies. The following section discusses those feedbacks in much detail.

The expeditious project that was stared to provide a quick solution did not cover other facilities such as sewerage system, security fence, furniture, etc. Further landscaping of the areas also has not been included in the project. As a result, the hostels have not been given to students once it is handed over to the university. Two hostel units in the University of Moratuwa had been handed over to the University in May, 2015 and October, 2015 respectively. The university has made arrangements to provide other facilities. Finally the University of Moratuwa is expecting to hander over the hostels for the use of the students by February, 2016. That is nine months and four months after handing over the first and second hostels respectively.

According to Respondent - 8 *the initial plan of the Ministry of Higher Education had been to put only two students in one room. But, it is South Eastern University of Sri Lanka that proposed to then Minister of Higher Education to put four numbers of students in a room*. Thereafter, he says, the Ministry had instructed all the universities to put four numbers of students in a room. According to Director / Procurement, Ministry of Higher Education and Highways the hostels have been designed to accommodate only two students in a room. Though it was designed to put two students in a room initially, later it was decided to put 04 students in a room having considered present situation of the hostel facilities. According to Director / Procurement, Ministry of Higher Education and Highways one to three numbers of students have been staying in a room of 140 sq.ft. Accordingly, the Ministry was of the opinion that 4 students can be accommodated in a room of 180 Sq.Ft.

But, the University of Moratuwa is going to put three students in one room as students have many extra instruments to use while they study. Sub Wardern / University of Moratuwa states that one room would be more ideal for two students. But, the University of Moratuwa having considered lack of hostel facilities decided to put three students in each room. Furniture has also been designed accordingly. The furniture includes table, book rack, bed, and two number of pug points. Each table has a provision to use a table lamp. Students of the University of Moratuwa are highly satisfied with this furniture design. Furniture with standard features could have been purchased at cost of Rs. 20 million. But it has cost Rs. 60 Million for University of Moratuwa due to the additional facilities added to it. It has created a conducive learning environment for students inside the rooms.

South Eastern University of Sri Lanka has put four students in one room, put two tables and four chairs. Further, there are two common lights in a room. Students are not satisfied with these arrangements. Students do not have facilities for keeping books and hanging dress. Having realized this South Eastern University of Sri Lanka is going to provide each room with tow numbers of Book racks and clothes hangers.

Two hostel units are constructed adjacent to each other in the University of Moratuwa and the two hostels together would accommodate 800 students. But, there is no provision for Cafeteria facilities inside those hostels. According to Respondent - 11, *students will have to walk about 1 to 2 kilometers for to reach such facilities. But the University of Moratuwa has planned to use one common room as a Cafeteria*.

According to Respondent - 8, *there are only two plug points in a room. Four students in a room has to share two plug points to charge their laptops, mobile phones, table lamp etc. it is not enough for the students*. But the University of Moratuwa has installed two plug points for each table and in total one room has six plug points.

Common lights in the rooms cannot be turned off even when a student study. It disturbs the sleep of other. Design is same for both South Eastern University of Sri Lanka and University of Moratuwa. But, the University of Moratuwa had taken some efforts to have table lamps where students have the freedom to study individually.

Squatting pan is preferred over commodes in hostel. This fact has not been considered during design stage. The University of Moratuwa with some efforts has managed to have squatting pan in the ground floor. But, they could not manage to have squatting pan in 1^{st}, 2^{nd}, and 3^{rd} floor. Hostel units in South Eastern University of Sri Lanka have commodes in all floors. According to Respondent - 8 students during peak time go to nearby hostel for this purpose.

There is no enough facilities for washing and drying of clothes inside the hostel. It is also a serious issue. According to Respondent - 8, *students do not have enough facilities for drying their clothes*.

According to Respondent - 11, *Planning and Development committee of the University of Moratuwa wanted to have a sustainable system to purify toilet waste and to dispose the only the clean water to nearby river*. But, South Eastern University of Sri Lanka has not made such arrangements to dispose toilet waste. Respondent - 8 forecast that there may be some issues in the long run in the disposal of toilet waste.

There is no common study hall for students to study in both Universities.

The University of Moratuwa has taken some efforts to address the shortcomings in the hostel units and to give greater satisfaction for the students. This would not have been possible without the support of Vice Chancellor, Registrar and other senior officials of the university. According to Respondent - 11, *the*

leadership and commitment of the Vice Chancellor is what has made these hostel unit very different from other hostel.

Sub Warden has been very keen to minimize the negative effects of this project. The other university seems to have not made substantial efforts to reduce the project shortcomings.

Key Positive Aspects:

- Strategic orientation : the project had been implemented in alignment to long term vision of the higher education sector
- Management approach : Common features of hostel projects identified and designed the project accordingly
- Political support : The project has enjoyed strong support of political leadership
- Leadership : appropriate leadership has been provided at ministry and university level
- Project monitoring : Close project monitoring and review has been in place
- Experienced staff: the project has been designed by qualified consultant and monitored by selected team.
- Relationship with the users: students have been an important stakeholder in this project.
- Focus on delivering results : this has been a main concern
- Selection of right procurement method : design and build method has been applied
- Sufficient cash flow : Project has maintained very good cash flow

Key Negative Aspects:

- Changing of plans

- Less understanding of user requirement

- Lack of initiative by the university to overcome the shortcomings

5.1.2. Case 2 : Construction and Completion of the Proposed Sixteen Stories Building Complex for the Faculty of Medicine, University of Colombo

The works on constructing the building complex had been initiated in 1996. The initial plan had been to build a five storied building at the cost of Rs. 290 Million and it had been approved by the Cabinet of Ministers in 2000. The process from identifying the project requirements to obtaining the Cabinet approval had taken about 5 Years. This is a considerable time period. Under these circumstances, it is quite natural that cost escalates and users change their requirement. According to respondent - 1 i*t had been found out that the initial scope is not enough to meet the requirement of the Faculty by the time approval was received"*.

Accordingly first revision to the design and cost was made. It was decided to build a 16 storied building including two basements. The estimated total cost was around Rs. 1,139 Million. It was sent to Cabinet of Ministers, and its approval was received in 2005.

Then Her Excellency the President was then Minister of Higher Education by that time. It made the process of obtaining the approval for the revised estimate easy. Approval of the Cabinet of Ministers for the revised estimate had been obtained in May 2005.

The work on the revised project had started in 2007. The project had followed stage by stage approach for implementing this work. Initially BOQ was prepared for filling work and the piling work was expected to cost around Rs. 190 Million and to take 01 year for implementation. The actual cost for the piling work has been Rs. 211 Million due to some unforeseen work.

By the time, piling works nearing its completion stage it had been realized that the balance work could not be completed with the balance allocation available. Works Engineer / University Grants Commission believe *"that a serious mistake should have occurred in estimating the cost during the first revision of the project".* According to Assistant Registrar / Capital Works even the piling works had also not been completed on time as pile hacking had to be done with second stage of the project. It could have been separated from the scope of the piling contractor and implemented under second phase. Rather, the university had waited until second stage is started. Assistant Registrar/ Capital Works sates that *it is not the best way to handle such issue"*.

According to Respondent - 3, *the university had to go for a price revision for the second time due to non availability of sufficient fund*. The revised estimate is Rs. 7 billion for the total work.

Then, the revised estimate was forwarded for necessary approvals. *So many meeting had been held with the officials of the Department of National Planning. Justifications were sought from the University of Colombo for the revision of cost*. However, according to Respondent - 3, *approval has been granted for the balance estimate of Rs. 6 billion*. According to respondent - 2, *then Minister of Higher Education and then Secretary to the Ministry of Higher Education had made a lot of efforts to get this project moving.*

In the meantime, the university has decided to proceed with work up to the extent possible with the fund available. Finally, the Consultant and the client had agreed that the works up to 1st floor could be completed with the balance allocation. It includes basement parking of two floors, ground floor and 1st floor. The work was awarded to CECB in 2014 following National Competitive Bidding procedure and work is still in progress.

The idea of two floors of basement parking is not an efficient option. During excavation stage of this work some unforeseen works had occurred. It had also delayed the work and cost some extra amounts.

It is a result of not identifying the project requirement properly. The result was unforeseen works leading cost and time overrun. The main reason for the present status of the project is *changing of project scope once it was approved* according to Works Engineer / University of Colombo. *This is the result of not having a master plan committee at the University of Colombo* according to Works Engineer / UOC. He also stated that *Changes of Vice Chancellors of the University of Colombo and Deans of the Medical Faculty of the University of Colombo has also had also influenced the decisions to change the scope time to time*.

Stage by stage implementation approach is another factor that has very badly affected the implementation of this project. *Had the whole project been awarded after the first revision, a necessity would not have arisen to go for another cost revision where the estimate had gone up to around 7 billion from around 1 billion* according to

Respondent - 2. As such the stage by stage implementation method is not most appropriate projects of large scale.

47.

Respondent - 5 recommends that *a master plan committee to be established at the University of Colombo and every projects need to be sanctioned by such committee before implementation*. It would be ensure that any project to be implemented in future would be in alignment to the long term vision of the university and no scope changes would be required in the implementation process.

Key Positive Factors:

- Political support : The project had enjoyed strong support of political leadership
- Leadership : It is the prevalence of leadership that had take necessary decisions to change scopes
- Project monitoring : Close project monitoring and review has been in place
- Focus on delivering results : Ongoing stage is being monitored for results

Key Negative Factors:

- Lack of strategic orientation : the project has lacked strategic orientation throughout the process
- Changes of leadership: There have been several leaders during the time of this project. Leader have taken decisions change scope
- Lack of management approach :
    - Changing of plan once it is approved
    - Piling work has not been handled properly
- Selection of improper procurement method
    - Traditional method was followed
    - Step by step project implementation approach
- Insufficient cash flow

5.1.3. Case 3 : Building complex for Main Library

The library at South Eastern University of Sri Lanka had been had been functioning from temporary building with limited space since the inception of the university. The Student population of the university had been around 500 by the time the library was established. Present population of the university is 4000. Initially the library was serving the students from only 02 faculties.
Now there are four faculties in the premises with larger number of students.
Further, it had been expected that the student population would increase up to 5000 in the near future. There was also a need to locate the library in the central location of all the academic activities.

According to Respondent - 7 *a new building complex with larger and more facilities has been felt very badly the university community"*. The building while providing enough facilities to the existing students would immensely facilitate the future expansion efforts of the university. Accordingly, the project had been identified in alignment to the long term requirement university.

According to Respondent - 6, initial project works had been done by the relevant officials including Librarian, Project Manager, and Senior Assistant Registrar / Capital Works of South Eastern University of Sri Lanka as it is one of the much anticipated project. Further, the Vice Chancellor of the South Eastern University of Sri Lanka had given the necessary leadership during the planning and implementation time. He had played an important role in coordinating the ministry and the university in implementing this project.

This project was funded by the Government of Sri Lanka and estimated to cost around Rs. 200 million. All the procurement related activities had been carried out by the Ministry of Higher Education. Procurement had been carried out following traditional method. First, project consultant was selected through National Competitive Bidding procedure and the building was designed. Secondly, contractor was also selected through National Competitive Bidding Procedure.

Though the project was estimated to cost around Rs. 200 million it was awarded to Rs. 120 million through National Competitive Bidding procedure. Some changes had been done to the initial plan utilizing the balance allocation. These were not the major and critical changes. Those changes had added some extra value for the users while beautify the building.

Project Manager / SEUSL was the focal person on behalf of the university. He was monitoring and coordinating project related activities and was directly reporting to Vice Chancellor. Project Consultant monitored and presented progress to review in the progress review meeting was being held quarterly.

49.

Progress review meeting was chaired by Vice Chancellor and was attended by relevant university officials, representatives of the Consultant, and Contractor. Progress was reviewed, issues were discussed and future course of actions were finalized in those meeting.

The Project Manager who functioned as the focal person of this project was capable of the work having gained a vast amount of experience in this area. He looked after the interest of the university in terms of technical requirement.

According to Respondent - 6, *the linkages prevailed between the key officials of the university with the relevant political leadership has also contributed to easy implementation of extra works*. *Some changes had been done to the initial plan. But it did not significantly affect the progress of the project as fund allocation was available for those extra works*.

Further, the project had enjoyed a good cash flow and payments to the interim bills of the contractor have been paid without delay. Thus, there has not been any negative impact of cash flow on the project implementation.

According to Project Manager, SEUSL the work could have been completed without spending any extra money as the preliminary design had been good and had covered all the facilities. But, some extra works were introduced in order to beautify the project and as the allocation was available.

According to Respondent - 7, *the building is a total success in terms of facilities it has got*. It is located in a strategic location from where it can serve all the faculties, and has been furnished with quality and convenient furniture. Above all the library has got a 24 hours center which can be accessed by the students round the clock. This is a very special feature made available to the students.

It is reported that the project had overrun its initial project duration. Two main reasons are attributed for this. First, the extra works requested after the project was awarded. Secondly, the contractor has heavily depended on university funds for his cash follow.

Noteworthy result of this project is that the stakeholders at both ministry and university level are highly satisfied with the outcome of this project.

Key Positive Aspects:

- Strategic orientation : strategic location and could accommodate even future requirement

50.

- Management approach : proper identification of requirements and implementation
- Political support : The project has enjoyed strong support of political leadership
- Leadership : committed leadership at university level
- Project monitoring : Good project monitoring was exercised at university level
- Experienced staff: experienced project manager was in charge of the implementation of the project on behalf of the university
- Focus on delivering results : this has been a main concern
- Sufficient cash flow : Project has maintained very good cash flow

Key Negative Aspects:

- Contractor‘s own financial issue

5.1.4. Case 4 : Pre Clinical / Para Clinical Building Complex at the Medical Faculty, University of Peradeniya

Preliminary estimates for constructing a pre clinical building complex at the Medical Faculty of the University of Peradeniya were prepared by the State Engineering Cooperation of Sri Lanka. The first phase of the building was estimated to cost around Rs. 128 millions and approved by the Cabinet of Ministers in September, 1996. The work was awarded in 1997 and had been completed around 2001 at the total cost of Rs. 193 million. The cost escalation is nearly Rs. 65.0 million. The cost revision was approved by the cabinet of Ministers in 2001.

The works for commencing the second and final stage of the project had been started around 2001. A new proposal had been prepared at Total cost Estimate of Rs. 280 million and was sent to approval of the Cabinet. It was approved by the cabinet of ministers in September, 2004. Again the project scope had been changed and the stage II could not be completed within the budged cost of Rs. 280.0 million. T*here was significant balance works left out of the second stage due to scope change*.

The faculty had to submit a cost revision proposal of total cost estimate of Rs. 1016 millions in May 2011 to complete the balance works. It had been sent to Department National Planning for recommendation. According to Works Engineer / University of Peradeniya.

Department of National Planning had not recommended the proposal for cost revision at that time stating that it was unjustifiable"

Anyway, having considered the necessity of completing the balance works, Department of National Planning requested to submit as a separate project proposal and the cabinet of ministers had been approved in April, 2013 at the total cost estimate of Rs. 794 Million.

Though one building project, step by step approach has been followed in implementing the project. This approach is more vulnerable to risks that could arise out of change of scope and cost escalation over time. As of now the age of the project is more than 15 years and gone to three stages.

According to Works Engineer / University of Peradeniya, *the client had introduced more new requirements to the project during the designing stages*. They in turn has taken more time, made unable to complete the works within the allocated budget available and compelled for many cost revisions.

Key Positive aspects:

- Support of the political leaders
- Leadership commitment

Key Negative aspects:

- The project has lacked strategic orientation in defining project scope in the beginning. It has resulted in the change of scope of the period of project.
- Lack of management approach. The decision to implement the project stage by stage is not an appropriate approach during ongoing construction process of the project. It should be planned during the planning the planning stage.

5.2. Discussion of Findings

Figure 3 : PRESENTATION OF CASES IN PROJECT MATRIX

User's point of view	*Failed*	Failed Successful Projects a. Case 1	Failed Projects a. Case 2 b. Case 4
	Successful	Successful Projects a. Case 3 b. Case 1	Successful failed Projects
		Successful	Failed
		Implementation's point of view	

SATISFACTION

5.3. Management Approach Make Simple and Static Plan

Projects are to be initiated with clearly identified problem or objectives. This identification of objectives gives the project overall direction as to what to achieve in the end. Case 1 has been initiated to find a solution to one of the major issues the university system was facing at that time. Further, the requirements of the projects had been identified from the point of view of finding a quick solution to the problem. I.e. the Ministry had planned to construct hostels within the shortest time possible. Accordingly, the project has been designed and implemented. Some hotel units have been hand over even before the schedule. Case 3 has been initiated to address a real need of the university and it had been initiated in alignment to long term orientation of the university. It had helped the university to identify requirements and set the objectives very preciously. The project implementation has been very successful. In Case 2 the requirements identified in the initial stage had been changed later. Initial plan had been to construct a five storied building. But, later it had been found that the facilities included in the initial plan would not be sufficient to meet the requirement of the faculty. Both the scope and estimate had to be revised. Eventually it turned out to be very costly. Scope of the project in Case 4 has not been properly defined or identified in the initial stage. The scope of the project had been changed later. It resulted in a project design that could not be implemented with the allocation made available. It also has turned out to be very costly. Accordingly, identifying the requirements and setting the objectives clearly in the early stages of a project helps better project implementation.

Minor extra works if any does not affect project implementation when provisions are available to carry out such works. Case 3 is a good example for one of such instance.

Cost estimation of the project is another important factor that has great influence in the successful implementation of projects. Unrealistic cost estimation would result in another price revision and the associated costs as happened in Case 2. Typically it requires a lot of time, money and effort to rectify them.

Having considered the long term implications of releasing the waste to the environment, University of Moratuwa has implemented treatment system for purifying waste water and releases only clean water to nearby river. The approach at the University of Moratuwa while converting a waste into resource avoids unfavorable consequences that could arise in the future.

The hostel units in one university are of international standard as the negative features of it have been addressed. The same building is not so in another location as the shortcomings of the buildings had not been addressed. Therefore, problems need to be identified early and accordingly corrective measures.

Urgency is not a reason for poor planning. Though urgent, need to be planned well and implanted with much care. Whenever problem arises due consideration needs to be paid to address them.

Changes being done to the initial plan during its implementation stage have proven to be very costly. A facility intended to serve small scope cannot serve larger scope with its original capabilities. That is the case of hostel projects in South Eastern University of Sri Lana. But, it has been enabled to serve a larger purpose with some capacity addition at the University of Moratuwa. So, identifying the real requirement and planning the right facility is very critical to the successful implementation of any project.

Expectations of the stakeholders differ according to their context and in turn expectations influence the level of satisfaction of stakeholders. This is very evident in expeditious hostel project. Some section of stakeholders are highly satisfied while some other at university level are not so. Therefore, stakeholder identification and their proper inclusion in the project is very much important in project implementation. Otherwise projects will not deliver the expected outcome.

Implementation approaches has had great influence on the successful implementation of the project. Case 2 and Case 4 followed stage by stage approaches where one stage would be designed first, awarded and implemented. As such the other stages of the projects would be designed separately and awarded. This approach is highly vulnerable to cost escalation and scope changes. That has happened in case 2 and case 4. This is not a best approach to projects of large scale which will take years to complete. Accordingly, the best method of implementation is to design the project in full and tender at once. Under this method the risks of cost escalation in large scale project is transferred to contractors.

5.4 Strategic Orientation

Projects need to have strategic orientation for it to be successful and to contribute for an organization significantly. Case 1 has been initiated to address the accommodation issue that was one of the main stumbling blocks to increase student intake for undergraduate degree program. Further, lack of hostel facilities in university system had been consuming a lot of resource in terms of finance. This requirement has been specifically identified in the Corporate Plan of the Ministry of Higher Education. Accordingly, Case 1 has been implemented in alignment to corporate plan. The university system has benefitted immensely in terms of financial saving and university system‘s capacity to admit more students. Project has provided a peaceful environment for students to pursue their studies without the fear of the environment. Initial project scope in Case 2 has become inadequate within a short period of time as it has not been prepared in alignment to long term objectives of the faculty. The end result is time overrun, upward cost revision, and under or non utilization of potential resources.

Case 3 has been initiated to address a real need of the university and it had been in alignment to long term orientation. It also had helped the university to identify requirement and set the objectives very preciously. Case 3 has increased university‘s capacity to provide library facilities for more students. Now the university has the capacity of serving around 5000 students. It has increased the university‘s capacity in terms of library facilities.

Implementations of Case 2 and Case 4 have been very badly affected by scope changes. It Clearly shows that the projects have not been implemented in alignment to corporate plan. Scope of the case 2 have been revised twice and resulted in time overrun and cost escalation.

5.6 Experienced Staff

Case 1 has been designed by qualified consultant while its implementation was being monitored by a team of experienced staff nominated from among those working in the university system. Further, those staff involved in the monitoring of the project were paid an honorarium in recognition their service. The project in Case 3 has also been designed by a qualified consultant selected through due procedure. The project had been designed by the consultant in consultation with relevant officers in the university. Further, university focal person also had been a capable person having gained a vast amount of experience in the works of similar nature. Thus it is evident that projects need to be implemented by capable people for it to be successful. This is another factor that has contributed for the effective and efficient implementation of Case 1 and Case 3.

Sub Warden at the University of Moratuwa with his experience of the needs of the students has been able to identify the shortcoming of the project and directed the relevant authorities for necessary solution. Involvement of experienced staff is very important. It alone cannot do anything if it is not supported by other factors. It needs to be supported by the leadership and need to find enough resources.

5.7 Political Support

Case 1 had enjoyed the active support of the political hierarchies and political leaders had actively involved in the project. It had eventually helped to implement an expeditious project across many higher educational institutions in the country. The political support is one among the factors that had encouraged the faculty in Case 2 to go for the first cost revision and the faculty managed to get the approval for it. Even after it was found out that the revised estimate is not enough to carry out the whole works the faculty had managed to get the project moving up to the extent possible. This would not have been possible without the support of political hierarchies.

5.8 Leadership

Further, the relationship between politicians and officials creates a good understanding of the issues being encountered in implementing projects and helps to finds speedy solution. Extra works have been easily implemented in Case 3 thanks to the close relationship prevailed between the Ministry of Higher Education and South Eastern University of Sri Lanka.

Secretary to the Ministry of Higher Education has provided the leadership to Case 1. Secretary due to his position and personal capabilities had been very powerful and commanded the project toward the expected output very easily. Case 2 has been led by several persons due to its long duration. Persons holding the post of Dean / Faculty of Medicine, University of Colombo had been giving leadership to this project. Typically those Deans would be the award winning medical practitioners and enjoys close relationship with the political leadership of the country because of their expert knowledge. Further, a staff member of the faculty had served as the Secretary to the Ministry of Higher Education when the first revision was approved by the Cabinet. They all may have collectively given the faculty enough confidence for making decisions to revise the initial plan. Further, Vice Chancellor / SEUSL has provided the leadership to Case 3 and he had actively involved in the project. He had maintained a very good relationship with then Minister of Higher Education due to his people friendly and flexible human interaction approach.

The Vice Chancellor of the University of Moratuwa has not agree to the proposal of the ministry to put four students in a room. Further, he has also maintained the position that one room is not enough for four students. But, South Eastern University has accepted the proposal in its original form. Hence, the proactive approach of the leadership of the University of Moratuwa has done the desired difference for them.

5.9 Enhanced Collaboration

Lack of accommodation for undergraduate students was common issue many institutions faced. Ministry of Higher Education had implemented a mega project at ministry level by incorporating all individual requirements of each and every higher educational institution. It had enabled the ministry to develop a common project across all location. The drawings had been identical across all locations. Identification of requirements and approving of samples had to be done only once as the requirement is common though it was to be implemented in several locations. Had uniformity not maintained planning, designing, procurement, approving samples etc would have had to be done by individual institutions separately. This had both saved the time and cost needed to perform such tasks each and every time at different locations by different people. Thus, the project had been planned with some clear strategies. Individual higher educational institutions with limited resources would have not been able to access the technical expertise involved in this project for designing. This project was designed by a Consultant Firm based in

Singapore. Accordingly, collaboration has helped the university system to achieve higher outcome then it would have been when implemented individually by each institutions.

5.10 Procurement Method and Handling of Risk

Risk is a common factor that negatively affects projects. It can affect the project at any stage. It can be mitigated if planned well and precautionary measures taken. Case 1 had been designed keeping it in mind and keeping a provision to overcome it. Many of the risks associated with projects would be transferred to the contractor if the project is implemented under design and build method. Case 2 has been affected due to many unforeseen works such unforeseen extra works in pilling and cracking of wall in the adjacent building. Had Case 2 implemented under the design and build method those risks would have been covered by the contractor without any additional cost. If it happens under traditional method, some more time need to be spent on getting approval for those extra works. The delay in turn causes more additional cost due the inflation effect associated with time. Case 4 has changed its requirements once it was finalized. It had cost the project very heavily.

Projects implemented under design and build (turnkey) method delivers project output quicker than traditional method does. Further, design and build method avoids disputes during construction stages as the Consultant is hired by Contractors. Consultants are selected by Contractors within no time. It takes considerable time for government institutions to select a Consultant as they are required to follow procurement guidelines. Under traditional method, first Consultant is selected. Then the selected consultant prepares necessary designs and necessary BOQs. Thereafter a Contractor is selected to implement plans developed by Consultants. Selection of a right Consultant is important in implementing the project successfully. Case 1 was implemented by two Contractors who are among the very best in Sri Lanka for such works.

Had Case 2 been implemented under design and build method it would not have been taken such a long time to get the approval for the initial estimate. It had taken about 5 years for getting the approval for it. But, it is implemented under traditional method where design and BOQ is prepared by the consultant. Thereafter, a suitable consultant is selected for implementing the design. Had a contractor is selected under design and build method after the first revision is made the selected Contractor would have been bound to construct the building at the agreed cost.

Case 3 has been implemented under traditional procurement method. Still it did not get affected as there has been a good effort from all the parties involved. Proper building designs by Consultant and commitment of relevant staff in the universities and ministry have made this project very successful in spite of a small time overrun.

5.11 Focus on Result

The projects activities need to be identified and scheduled for the projects to follow a result oriented approach. There has been a good project monitoring and control in Case

01. Phase 02 of the case 02 which were started in 2014 are reported as in schedule due to close monitoring. Progress of Case 3 has been reviewed regularly. Quarterly meetings, chaired by Vice Chancellor, had been conducted every three months and corrective measures had been taken for any issues arising then and there. It is also important to ensure that the project activities are carried out scheduled. There shall be an active project monitoring and exercising of control for project to perform well.

5.12 Financial Management

Payments had been made without delay in Case 01. It in turn motivates the contractor to perform even better toward the project. As in Case 01, Case 03 also had enjoyed a good cash flow in the part of university and payment had been made to interim bills without much delay. Liquidity issue of the contractor affects the projects. Tight liquidity position of the contractor in Case 03 caused the project to overrun the schedule a bit. Payments on interim bills need to be paid without delay for the contractors to keep on moving with encouragements. Under design and build method making payments on interim bills much easier as payments are made against the agreed milestones.

5.13 Relationship with Public

Undergraduate students being the client are key stakeholder in the university system. Any project that is viewed as the privatization of university education would be opposed by whole student community. This has one among the many reasons which made the university to drop the idea of implementing the balance work of case 2 with Public and Private Partnership. Undergraduate students and academic staff of the university being the key benefit recipient of library, maximum consideration had been paid to create a learning conducive environment for them.

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Figure 4 : ANALYSIS OF POSITIVE FACTORS IN PROJECT SATISFACTION MATRIX

User's point of view *Failed*		Failed Successful Projects (Case 1) • Strategic orientation • Management approach • Political support • Leadership • Project monitoring • Experienced staff • Relationship with the users • Focus on delivering results • Selection of right procurement method • Sufficient cash flow	Failed Projects (Case 2 & Case 4) • Political support • Leadership • Project monitoring • Focus on delivering results
Successful		Successful Projects (Case 3 & Case 1) • Strategic orientation • Management approach • Political support • Leadership • Project monitoring • Experienced staff • Relationship with the users • Focus on delivering results • Selection of right procurement method • Sufficient cash flow	Successful failed Projects
		Successful	Failed
		Implementer's point of view	

Figure 5 : ANALYSIS OF NEGATIVE FACTORS IN PROJECT SATISFACTION MATRIX

User's point of view *Failed*		Failed Successful Projects (Case 1) • Changing of plans (using of facilities) • Less proactive management approach	Failed Projects (Case 2 & Case 4) • Lack of strategic orientation • Lack of management approach • Stage by stage implementation approach • Insufficient cash flow • Changes of leadership
Successful		Successful Projects (Case 3 & Case 1) • Changing of plans (using of facilities) • Less proactive management approach • Contractor's own financial issue	Successful failed Projects
		Successful	Failed
		Implementer's point of view	

5.14 Summary

As identified in the case study, implementation of New Public Management approaches is has contribute to effective and efficient construction project implementation. The chapter presents those factors that contribute and hinders successful project implementation.

Chapter 6

Conclusion and Recommendations

6.1. Introduction

Following conclusions and recommendation can be presented based on the discussion and their findings as stated above in the chapter. They are mainly based on the case study analysis and subsequent observations and reflect the views of the researcher.

6.2. Conclusion

Projects implemented in accordance to the principles of New Public Management have been very successful. The most important public management features in relation to the implementation of construction projects are strategic orientation, management approach, and selection of proper procurement method, sufficient cash flow, and leadership.

Implementing large size projects which runs into many years stage by stage is the most ineffective approach to project implementation. This method has high risks of cost escalation and uncertainties while the bearer of risk is employer. The projects designed and awarded at once though it runs into many years, will not be affected due to price escalation. Accordingly, Design and Build procurement method has been very effective in the Sri Lankan university system for implementing large size construction projects. Traditional procurement method has not been a successful method of procurement for large size construction projects as it takes more time up to awarding of contract.

Implementation larger size or common project by a central authority is also an efficient way of implementation. As it can gather greater strengths, promote higher learning and sharing. Smaller institutions and institutions with less experience of project implementation would not implement project efficiently and effectively. A successful design or implementation method could be replicated for the projects and in other locations for higher success instead of an individual institutions learning trial and error.

6.3 Recommendations

- Strengthen the implementation of New Public Management reforms in the state university sector

- There need to be a committee in every higher educational institution to be in charge of crafting and implementing original project proposal without scope change.

- They are need to be a project monitoring committee for each project and periodical reviewing process should be adopted during the project execution.

- Project requirement shall be identified according to corporate plan of an institution

- Leadership of each higher educational institution needs to be mindful of strategic plan and take all possible efforts to implement it

- Project need to be implemented in a centralized location with close monitoring of its activities for transparency and accountability. But requirements need to be finalized through a systematic approach.

- Need to benchmark project implementation practices and to monitor and measure performance against those benchmarks.

- To achieve higher value for public money

6.4 Summary

This section looks at the conclusions the writer has come to by analyzing the cases, about construction project implementation.

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	Interview Guide
Variables	**Measures**
Management not administration	● How do you identify project requirements? Please explain the procedure/steps. ● How do you finalize the project requirement? ● Have you developed criteria in selecting projects? Please explain how do you develop such criteria? What are the criteria? ● How do you identify risk factors? What are those factors? ● How do you avoid or mitigate effect of risks? Please explain
Leadership	● How did you identify resources for this project? ● How did you make decisions on matters of importance? ● Was there a clearly identified leader for the project? ● Were there officers at every level being held responsible to resolve any issue? Explain ● Was the organization dependent on a consultant for overall direction? Why?
Focus on result	● Have you developed performance targets? Please explain the procedure ● Do you monitor the performance targets? How? ● When any variations to original plan noticed what the measures taken to manage, address or minimize variations to original scope?
More strategic approach	● Have you aligned performance with corporate plan? Can you explain the procedure? ● What is the core advantage of this project? ● What is the value it has added to the university? ● How does the university be benefited? Operationally or strategically? Please describe.
Improved financial	● Did the university have enough funds for this project at commencement of the project?

management	● Did you receive funds on time? ● Were interim payments made on time? If not, why? ● Did the project suffered due to lack of finance? How did you overcome short of finance?
Flexibility in staffing	● Was there any overall manager for this project? ● Were special staffs assigned to this project? How? Why? ● Have project staffs paid special allowances for good performance? ● Have they penalized for poor performance? How? If not, why?
Competition and contractualism	● What is the procurement method used for this work? [Traditional, design and build, other who did decide the method? On what basis? ● What are the criteria for selecting a contractor? ● How do you evaluate the contractors? ● What are the weaknesses of this process? ● Have you selected the best contractor for undertaking this project? If not why? Can you provide reasons for your judgment? ● Do you satisfy with the contractor‘s work? Why? ● Is contractor responsible for the success or failure of this project? How? Please explain.
Relationship with politicians	● Do you receive a good support from the minister in charge of the line ministry? Please provide examples. ● Does the senior management maintain a good relationship with political leadership? Whom? How? ● Was there any encouragement from the government for this project? Why? ● Did politics interrupt the project in any way? Please provide examples.
Relationship with	● Were the stakeholders of this project identified?

public	● Who was the most influential section of the stakeholders? How? ● Were the concerns of the influential stakeholders taken into consideration from the beginning and until the completion of the project? How? ● How the influential stakeholders were represented into the planning process? Please explain. ● How do you balance the interests among the stakeholders in choosing projects for implementing?
Project Evaluation Time	● Was the project duration realistic? How? ● Was the project completed within scheduled duration? If not why?
Project Evaluation Cost	● Was the project estimate realistic? ● Was the project implemented within the budget? If not why?
Project Evaluation Specifications	● Were all the requirements of the project identified early? ● Does the project have the facilities needed for the intended purpose of use? ● Does the project need any modification to make it more suitable for the intended purpose of use?

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