

Project Implementation in New Public Management Era: Cases from the Constructions Projects in the Public University System in Sri Lanka

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Abstract - New Public Management (NPM) reforms have also been tried out in many developing countries where the extent of implementation of NPM differs from a nation to nation, public sector reforms along the line of NPM are a common phenomenon in many developing countries including Sri Lanka. However, the degree of success of these reforms appears to be varied between the countries as well as between the projects. Hence, the aim of this study is to investigate the factors influencing the successful project implementation in the public sector in Sri Lanka. For this purpose, the study has chosen to examine the construction projects in the public university system in Sri Lanka. Over years, there have been a number of successful as well as failed construction projects within this sector. The NPM reforms provided the basis for analysis. The study followed case study research method. Data were collected from semi structured interviews, documentary evidences, and observations, and were analyzed through the standard qualitative data analysis method. More importantly, a matrix has been developed in the study to analyze projects classifying them in terms of stakeholder satisfaction. The study revealed that lack of strategic orientation and management approach, selection of inappropriate procurement methods, insufficient cash flows, and changes in leadership were the most common factors for poor project implementation. However, the study also found evidence to suggest that there has been an improvement in the performance of construction projects in public sector following the NPM reforms.

Keywords: New Public Management, Public University System, Construction Projects

I. INTRODUCTION

Sri Lanka has relatively a larger public sector and it plays a major role in the welfare of its people (Kumara & Handapangoda, 2008). Further, the Government Investment in both economic and social infrastructure development has a significant impact on Foreign Direct Investment inflows to the country (M.F. Marsook, 2018). Public sector needs 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. Sri Lanka 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 (CBSL, 2014). Sri Lanka has achieved a higher progress than the other nations in the South Asian region and presently ranked in 73rd position out of 187 countries (UNDP, 2014).

The role of the government in the provision of higher education in Sri Lanka is indispensable and of great importance. 24,540 students have been admitted to undergraduate courses as internal students for 2013/2014 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 (UGC) (Admission Handbook, 2013/2014). Rs. 20,490.00 million was allocated to the University Grants Commission for the recurrent and capital expenditure of universities and higher educational institutions (UGC Annual Report, 2012).

Government of Sri Lanka took major steps in 1977 by opening the economy and handing over many of the tasks performed by the government institutions 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 was the aim of the Ministry of Higher Education and Highways as its vision was to become a center of higher excellence in higher education. In order to make this aim into reality infrastructure development priorities had been identified and funds were allocated. As a result a lot of construction projects were initiated in almost all the state universities.

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 Sri Lanka. Thus, state university governance needs to be implemented properly to make sure that infrastructure development projects are implemented more and efficiently. Related work in other industries have shown strong relationships in goal setting, self-evaluation, participation for the appraisal process, appraisal interview, pay for performance (S.T. Ahamed, et.,al, 2018)

There are several construction projects that 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 fund. 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. This project is aimed to identify the key factors involved in construction projects in the public university.

II. OBJECTIVES

- To examine the best practices of implementing high value projects and develop a framework, rules and regulations, and procedures adopted by state universities in approving and implementing construction projects.
- To analyze the factors that are promoting and undermining the effectiveness of construction projects in state universities to recommend remedial measures that can be taken to improve the effectiveness and efficiency.

II. METHODOLOGY

A. Selection of Population and Sample

This project is mainly having qualitative data. This study explored four cases from Sri Lankan state university sector. Presently there is no comprehensive database containing information with regard to all the projects implemented or being implemented in the university system. Accordingly, the cases and interviewee were identified during data collection stage. Two numbers of extreme cases each for most successful and most unsuccessful cases were identified.

The first interview was held with the Engineer at the University Grants Commission and it was the initial point of data collection. Cases and interviewees were selected based on the findings revealed from that interview. Construction projects with significant impacts were taken into consideration for the purpose of this study. One case was selected for its highly positive contribution. The other two cases had been selected to present the most unsuccessful project scenarios. Fourth case was selected for its high positive contribution with some shortcomings. Altogether four cases had been studied in the project.

B. Data Collection

Time, estimate, specification, client and user satisfactions, free from defects, absence of any legal claims and proceedings, learning and exploitation were used as the indicators for measuring the performance a construction project. 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. Semi-structured interview were conducted based on an interview guide, which had a series of questions designed to cover the study area. The interview guide was developed based on the conceptual framework that reflects the existing literature related to research question.

Interview was the main source of data collection in this study as it is the most suitable method for studying the issues of project implementations and the level of adoption of New Public Management Principles in an organization. Interview technique is used to gather information in a situation where the phenomenon cannot be directly observed (Ekanyake, 2014). Information related to the implementation of New Public Management reforms, and observations and experiences of the respondents project implementations were collected during the interview.

Interviews took about 30 to 45 minutes. Hand written notes were taken. Interview guide was generally followed in asking questions. But there were some exceptional occasions where questions in the interview guide were not asked if the interviewee had given the response for such questions in replying to some other questions.

Fifteen semi-structured interviews were conducted. The interviewees were carefully selected so as to ensure that they represent different stakeholder. The participants of the study are students, Registrar, Heads of Capital Work Departments in universities, Works Engineers, Hostel Sub Wardens, Director / Infrastructure Development of the Ministry of Higher Education and Highways, students etc.

In addition data were also drawn from multiple sources such as published books, journal articles, written reports, newspaper, relevant project proposals and memorandum etc. This helped in preparing the interview guide and validating the information collected during the interview.

C. Data Analysis

Analysis of qualitative data is performed by a process of three steps of summarization, classification, and interpretation (Ekanayake, 2014). The information collected from interview, documentary evidence, and observations was first summarized and each case scenario was developed. Secondly, the relative positions of the projects were identified in the Project Satisfaction Matrix given below in fig 01. Positive and negative features of the projects individually and collective were identified. As a final step of data analysis, conclusion and recommendations were made from the data collected.

D. Measurement of level of success of construction projects

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

The projects identified are classified according to a project satisfaction matrix shown in the following figure.

E. Project Satisfaction Matrix

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

Fig 01 - Matrix identifies four categories of projects.

Successful Project: Successful project are those that have fulfilled the expectations of both the users and implementers.

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

Successful failed project: Projects those were successful from the point of view of users, but not successful from the point of view of implementers

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

F. Factors influencing the performance of construction projects

Nine factors were identified as the influential factors affecting the performance of construction project under public management theory. These nine factors analyzed are as follows; management not administration, leadership, focus on result, more strategic approach, improved financial management, flexibility in staffing, competition and contractualism, relationship with politicians, relationship with public

G. 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.

IV. RESULTS AND DISCUSSIONS

Case -01

The Expeditious Hostel Project implemented in the university system is stated as case-01 in this article. Sixty 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 has 100 rooms. Expeditious Hostel Projects is a quick construction project implemented at a total cost of Rs. 12 Billion to address the issues of lack of accommodation facilities for undergraduate students at universities. Lack of accommodation facilities for undergraduate students was a very serious issue faced by the university system. It was also one of the major challenges which the university system had to

meet to improve standards of higher education and increase number students for undergraduate courses offered by the Sri Lankan universities. Further, universities had been spending huge amounts of money as rental for hiring houses or buildings from private owners for the use of students as hostels.

According to Respondents, the lack of accommodation facilities for undergraduate students was a long outstanding issue the university had been facing. Accommodation facilities were not provided to all the students due to limited hostel facilities available in universities. When hostels were not provided, students had to face issues in finding accommodation as there were not enough private houses or buildings for students to rent out.

The initial decision with regard to implementing a mega hostel project in order to address accommodation issues urgently was collectively made by relevant political leaders. Thus, it enjoyed the support of the political leadership.

This was an expeditious project and required to be implemented in the shortest time possible. "Only the basic features of hostels had been included into this project". The other facilities like electricity, sewerage, plumbing etc... had not been covered into this project as their requirements, and implementation methodologies might differ from one location to other. "Had all other facilities been included into this project, it would not have been possible to implement this project within such a short period of time". Further, the project had been implemented with a centralized approach.

Uniformity had been maintained in design and implementation in order to attain scale of economies. As a result all the drawings had been identical. Drawings developed for one location had simply been replicated in all the other locations. Identification of requirements and approving of samples had to be done only once. The project had been implemented in 18 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 centralized approach 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 had the exposure to advanced technical expertise involved in designing this project.

The project had been designed by an international consultant firm. According to Respondents, the hostels had been constructed to an international standard. A team had been nominated comprising the staff from the Ministry concerned and relevant universities to handle this project. A senior staff from the Ministry was in charges of the Project. All works related to procurement had been handled at central level. Engineers from respective higher educational institutions were spearheading the project at institutional level.

This project has been completed within time schedule and without extra cost.

The users at location I of Case – 1 are satisfied with the project whereas the users at location II of the same project are not satisfied. One room is given for only 03 students in location I whereas one room is given for 04 students in location II. Other

facilities in location I had been properly designed to provide better learning environment for students.

Based on the feedbacks of the stakeholders the project is identified as successful project in one location and failed successful project in another location as shown in Fig – 2.

Case – 2

Another construction project implemented in the university system will be stated as case-2 in this article. The works on constructing this building complex had been initiated in 1996. The initial plan was to build a five storied building at the cost of Rs. 290 Million and it had been approved in 2000. The process starting from identifying the project requirements to obtaining the approval had taken about 5 Years. This is a considerable time period and it is quite natural that cost escalates and users change their requirements. According to respondent – 1 “it had been found out that the initial scope is not enough to meet the requirements of the Faculty by the time approval was received”.

Accordingly first revision to the design and cost had been made to the project. It was approved in 2005.

The work on the revised project had started in 2007 and followed stage by stage approach in implementing it. However, the piling work had overrun the cost estimate due to some unforeseen works.

By the time, piling works were nearing its completion stage, it had been realized that the balance work could not be completed with the balance allocation available. Respondent - 1 believed “that a mistake should have occurred in estimating the cost during the first revision to the project.

Both the implementers and users were not satisfied with the progress of the project by the time the study was carried out. Accordingly, the project is classified as a failed project as shown in Fig – 2.

Case – 3

Another construction project implemented in the university system will be stated as case- 3 in this article. The project had been proposed to address important need of the university while absorbing the future needs too.

According to the result, “the need for a new building complex with larger and more facilities has been felt very badly by the university community”. The building required was to provide enough facilities to the existing students and to facilitate the future expansion efforts of the university. Accordingly, the project had been identified in alignment with the long term requirement of the university.

Relevant stakeholders had involved in the initial project identification and planning stage and had enjoyed top management’s support. Further, the top management had played active role in coordinating the all relevant stakeholders including external stakeholders.

This project was funded by the Government of Sri Lanka and estimated to cost around Rs. 200 million. All procurement related activities were carried out by the line ministry following traditional method. First, Project Consultant had been selected through the National Competitive Bidding

procedure. Then the building had been designed. Finally, a contractor had been selected to implement the design.

The actual cost had been much lower than the estimated cost. Some minor changes had also been done to the project utilizing some of the saving. Those additional works had added some extra value for the users while beautifying the building. A Project Manager had also been appointed at the University level. He has been monitoring progress of the project and coordinating the project related activities. Further, he was directly reporting to the Vice Chancellor. Quarterly progress meeting had also been conducted to ensure that the project was progressing as planned, and corrective actions had also been taken whenever deviations from the plan were noticed.

The Project Manager was vastly experienced in the work and looked after the interest of the university in terms of technical requirement.

However, the project had overrun its initial project duration due to extra works requested after the project was awarded, and the Contractor heavy dependence on university’s payments for his cash flow. Noteworthy aspect of this project is that the stakeholders at both ministry and university level are highly satisfied with the outcomes of this project. Accordingly, the project is classified as a successful project as shown in Fig – 2.

Case - 4

Another construction project implemented in the university system will be stated as case - 4 in this article. The first phase of the building was estimated to cost around Rs. 128 millions and approved 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 had been approved in 2001.

The works for commencing the second and final stage of the project had been started in 2001. A new proposal had been prepared at a total cost estimate of Rs. 280 million and it was approved in September, 2004. The project scope had again been changed and the stage – II could not be completed within the estimated cost of Rs. 280 million. The result showed that “there was significant balance works left out of the second stage due to scope change”.

The university had to submit a cost revision proposal at the total cost estimate of Rs. 1016 millions in May 2011 to complete the balance works. However, it had not been recommended for implementation stating that the cost revision was unjustifiable.

Still the balance work had been approved as a separate project at the total cost estimate of Rs. 794 Million in 2013

Though the project is to construct one building, step by step approach had been followed in implementing it. This stage by stage approach is more vulnerable to risks that could arise out of change of scope and cost escalation over time. The age of the project, by the time the study was carried out, was more than 15 years and gone to three stages. The client had added new requirements to the project during the designing stages. They in turn have caused time delay to the project and cost overrun.

Based on the feedbacks of the stakeholders the project is identified as the successful project in one location, and failed

successful project in another location. It is clearly shown as shown in Fig – 2.

Fig 02–Identificationof projects

User's point of view	Failed	Failed Successful Projects Case – 1 (Location - i)	Failed Projects Case – 2 Case - 4
	Successful	Successful Projects Case – 3 Case – 1 (Location - ii)	Successful failed Projects
		Successful	Failed
Implementer's point of view			

Table 01 – Positive and Negative aspects of the case studied

Case No	Positive aspects	Negative aspects
Case 1	<ol style="list-style-type: none"> 1. Strategic orientation : the project had been implemented in alignment to long term vision of the higher education sector 2. Management approach : Common features of hostel projects identified and designed the project accordingly 3. Political support : The project had enjoyed strong support of political leadership 4. Leadership : appropriate leadership had been provided at every level 5. Project monitoring : Close project monitoring and review had been in place 6. Experienced staff: the project has been designed by qualified consultant and monitored by a project monitoring. 7. Relationship with the users: students have been an important stakeholder in this project. 8. Focus on delivering results : this has been a main concern 	<ol style="list-style-type: none"> 1. Changing of plans 2. Less understanding of user requirement 3. Lack of room to incorporate changes to rectify the shortcomings
Case 2	<ol style="list-style-type: none"> 1. Political support : The project had enjoyed strong support of political leadership 2. Leadership : It is the prevalence of leadership that had taken necessary decisions to change scopes 3. Project monitoring : Close project monitoring and review had been in place 4. Focus on delivering results : Ongoing stage is being monitored for results 	<ol style="list-style-type: none"> 1. Lack of strategic orientation : the project has lacked strategic orientation throughout the process 2. Changes of leadership: There have been several leaders during the time of this project. Leaders had taken decisions on change of scopes 3. Lack of management approach : 4. Selection of improper procurement method
Case 3	<ol style="list-style-type: none"> 1. Strategic orientation : strategic location and room to accommodate future requirement as well 2. Management approach : proper identification of requirements and implementation 3. Political support : The project had enjoyed strong support of political leadership 4. Leadership : committed leadership at university level 5. Project monitoring : Good project monitoring was exercised at university level 	<ol style="list-style-type: none"> 1. Contractor's own financial issue

	<ol style="list-style-type: none"> 6. Experienced staff: experienced project manager was in charge of the implementation of the project on behalf of the university 7. Focus on delivering results : this had been the main focus 	
Case 4	<ol style="list-style-type: none"> 1. Support of the political leaders 2. Leadership commitment 	<ol style="list-style-type: none"> 1. The project has lacked strategic orientation in defining project scope in the beginning. It has resulted in the change of scope 2. Lack of management approach. The decision to implement the project stage by stage is not an appropriate approach

Management not administration

Projects are to be initiated with clearly identified problem or objectives. This identification of objectives gives a project an 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 project 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. The project had been designed and implemented accordingly. Some hostel units have been handed over even before scheduled delivery date. Case – 3 has been initiated to address a real need of the university and it had been initiated in alignment with the long term orientation of the university. It had helped the university to identify requirements and set the objectives very precisely. 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 requirements 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 had 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 available allocation. It had also turned out to be very costly. Accordingly, identifying requirements and setting the objectives clearly in the early stages of a project helps better project implementation.

Strategic Orientation

Projects need to have strategic orientation for it to be successful and to make significant contribution for an organization. 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 and Highways. Accordingly, Case – 1 had been implemented in alignment to corporate plan. The university system has achieved immense financial saving, and increased its capacity to admit more students for undergraduate programs. Project has provided a conducive environment for students to pursue their studies without the fear of the environment. Initial project scope in Case – 2 had become inadequate within a short period of time as it had not been prepared in alignment to long term objectives of the faculty.

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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 had also helped the university to identify requirement and set the objectives very precisely. Case – 3 has increased university’s capacity to provide library facilities for more students.

Flexibility in staffing

Case – 1 has been designed by qualified consultant while its implementation had been monitored by a team of experienced staff nominated from among those working in the university system. The project in Case – 3 had 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, the university focal person had also been an expert in project implementation having gained a vast amount of experience in the field. 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. Also, M.F. Hibathul Careem, (2019), reported that leadership style of supervisors strongly influences on the job satisfaction of the construction workers

Relationship with politicians

Case – 1 had enjoyed the active support of the political hierarchies. It had helped to implement an expeditious project across many higher educational institutions in the country. The political leadership is also a factor, among other, that had encouraged the faculty in Case – 2 to go for the first cost revision. The negative influence arising from stakeholders increases costs and may delay the schedule in projects (Olander and Landin, 2005). 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. Political leaderships has also been aware of the project and played an important role in sorting out its issues. Government influences projects by way of withholding or limiting resources that a project needs to precede. The means may be labour, funding, permissions or licenses (Sallinen, Ruuska, & Ahola, 2013).

Leadership

Every Project has a unique objective. As such project success depends on achieving the output within its estimated time and cost budgets and in accordance with specifications. (Collins and Baccarini, 2004). Further, a good relationship

between politicians and officials creates a good understanding of the issues encountered in implementing projects and helps to find speedy solution. Extra works have been easily implemented in Case – 3 due to the improved understanding prevailed between the Ministry and relevant higher educational institution.

The line Ministry itself has provided leadership to Case – 1. It enabled the project to achieve the expected output very easily. Case – 2 has been led by several officials due to its prolonged implementation period.

Competition and contractualism

Risk is a common factor that negatively affects projects. It can affect the project at any stage. It can be mitigated if a project is planned properly and precautionary measures are taken. Case – 1 had been designed giving consideration to perceived risks. Many of the risks associated with projects are transferred to contractors if a 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. Under traditional method, additional time need to be spent to get approval for extra works. This delay itself would increase the 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.

Focus on Results

Decisions made according to long term objectives helps organizations to be more effective and efficient (Bryson, 2004). According to Lefley (2004), “corporate” strategy is concerned with what business the organization is in. 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.

Improved Financial Management

Timely payments motivates contractors to perform better towards the project. Case – 01, and Case – 03 had enjoyed good cash flows, and payments had been made without much delay. Liquidity issues of contractors affect projects performance. 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 perform with motivation. Under design and build method making payments on interim bills are easier as payments are made against the agreed milestones. 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).

Relationship with public

Undergraduate students being the clients are a key stakeholder group in the university system. The idea of implementing the balance work of case – 2 under Public and Private Partnership had also been dropped due to strong opposition some stakeholders. Having understood the requirement of clients only adequate number of students were allocated for a hostel room, and designed furniture. Thus, the users in location I of the Case – I were satisfied with the outcome of the project.

V. CONCLUSION

Projects implemented in accordance to the principles of New Public Management have been very successful. Critical public management factors that are very important for implementing 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 in stages is the most ineffective method. This method has high risks for cost escalation, and are vulnerable to scope changes. The projects designed and awarded as a whole though it runs into many years, are not affected due to price escalation because, the risk of price escalation is transferred to the contractor. Further, it does not allow any scope changes. Thus, Design and Build procurement method has been very effective in the Sri Lankan university system for implementing large size construction projects.

Implementing large, shared, and similar projects at central, by the ministry with the involvement of relevant institutions, is an efficient way of project implementation as it achieves economies of scale.

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