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IDENTIFICATION OF FACTORS AFFECTING THE SUCCESS OF EXPRESSWAY CONSTRUCTION PROJECTS IN SRI LANKA

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ABSTRACT

Multibillion-dollar investments have been made in the expressway network construction in Sri Lanka in the recent past with the goals of developing social and living standards, enhancing the capacity of the construction industry, and ascertaining the economic development of the country. The main objectives of this research are to conduct a scientific study of the expressway construction projects to identify the success factors and the influence of the technology transfer process, as well as to develop evaluation criteria for assessing the success of the projects. The research follows a descriptive approach, and perceptional data from managerial-level employees of the completed projects were collected using a structured questionnaire. Data were analyzed by the SPSS package using linear correlation and regression analysis techniques. Based on the findings, ten critical success factors relevant to expressway projects are identified, and evaluation criteria consisting of seven indicators are developed. The study reveals the moderating effect of the technology transfer process on the technological success factors that contribute to project success. The major limitation of this study is the insufficiency of completed projects located in similar geographic conditions. Further research in other South Asian countries is recommended to generalize the findings of this study.

Key Words: Critical success factors, Technology transfer process, Project success, moderating effect, Expressway construction projects, Sri Lanka

1. Introduction

The construction industry has been one of the prominent sectors in the economic development of Sri Lanka since the induction of economic reforms in 1978. Since then, several upending events in evolving construction industry can be identified. They are the Mahaweli development scheme in 1978-81, infrastructure development in Northern and Eastern regions in 2006-08, and infrastructure development projects in 2011-13. Three major cash-in-flow sources are identified in the construction industry: foreign direct investments (FDI), borrowings from local and international funding agencies, and grants and aid from international donor agencies.

As stated in the Ministry of Roads and Highways (2019), investment in the road sector for the period from 2007 to 2019 was Rs. 1,600 billion, and 70% of them were invested in expressway construction projects. The impact of expressway construction projects is foreseeable significantly in society, environment, legislature, economy, science and technology, and many more. Furthermore, the construction cost of expressways in Sri Lanka drastically escalated from 7.7 million USD to 57.2 million USD per kilometer during the period, where the average cost lies in the range of 2.8 – 7.8 million USD in the global context (Kumarage, 2014).

Projects are defined as temporary endeavours created to deliver unique products, services, or results and have specific start and end times (Project Management Institute, 2008). However, construction projects are contextually different from business projects, in which, multiple stakeholders and objectives are identified. Several objectives can be identified for expressway construction projects in Sri Lanka and they are the development of economic activities in rural and suburban areas, performance improvement and capacity development of local construction firms, development of small and medium scale industries, agriculture, and tourism, and sustainable development of the country and society. Multiple stakeholders such as contractor/ sub-contractor, consultant, Road Development Authority (RDA) as the client, project management unit (PMU), and community are apparent in expressway construction projects.

The Research Problem

Due to the specific nature of the expressway construction projects, there are limitations in assessing those projects based on existing frameworks. Still, it is needed to evaluate them due to excessive investment in past and ongoing projects and limited accessibility of expressways to the general public due to the regulations. Furthermore, demographic and geographic differences in the Sri Lankan environment made the situation more complicated.

For assessing the success of expressway construction projects, two different perspectives were identified as relevant to the context in Sri Lanka. They are the critical success factors of expressway projects and influence the technology transfer process. Critical success factors (CSFs) are vastly identified domain in the literature, though there is no universally recognized set of factors due to the complex nature of construction projects (Bayiley & Teklu, 2016; Toor & Ogunlana, 2009). Limited attention was given to

international development projects (Ika et al., 2012) and there is no such study conducted on Sri Lankan expressway projects.

A diverse set of techniques, tools, methods, and equipment are crucial for the construction and maintenance of expressways. Sri Lankan organizations are having limited opportunities for in-house development of required technology and therefore, acquisition and adoption of technology through international technology transfer (ITT) is the viable solution. Most of the studies of the technology transfer domain are based on the business and manufacturing environments (Waroonkun & Stewart, 2008b) and the cultural relationship between the transferor and transferee is prominent for the success of technology transfer (Waroonkun & Stewart, 2008a). Therefore, a study of the international technology transfer of expressway construction projects from the transferee's perspective is a prominent requirement.

Based on the facts, the research objectives of the study are derived as follows.

1. Identification of factors affecting the success of expressway construction projects in Sri Lanka.
2. Identification of moderating effect of the technology transfer process for the success of the expressway construction projects in Sri Lanka.
3. Ascertain the relationship between project success factors and project success in relevance to the expressway construction projects in Sri Lanka.
4. Derive the policies and strategies to capitalize on the contribution of the investment in expressway construction projects for the development of the construction industry and the Sri Lankan economy.

2. Literature review

A comprehensive literature survey was conducted on project management and technology transfer domains to identify the possible factors affecting the success of expressway construction projects in Sri Lanka.

Project management success and project success are two interrelated concepts in the project management domain. Project management success is a sequential process carried out throughout the project lifecycle concerning the time, cost, and quality perspectives (Ika et al., 2012; Khang & Moe, 2008; Yamin & Sim, 2016; Yong & Mustaffa, 2017). In contrast, project success is evaluated based on the achievement of ultimate objectives and goals, which is more prominent for infrastructure construction projects (Al-Ageeli, 2016; Ika et al., 2012; Yamin & Sim, 2016). Based on the objectives of constructed expressways, a set of unique indicators for expressway project success are derived as technology advancement and competitive advantage of the industry, community development, and stakeholder satisfaction (Southern Transport Development Project.Pdf, 2014).

Due to the different characteristics and objectives, projects are having a specific set of success factors (Gudienė et al., 2013). The concept of critical success factors of a project is initially discussed by Rockart (1982) as cited in Gunasekera & Chong, (2018); Toor & Ogunlana, (2009); Yong & Mustaffa, (2017) and defined as the set of definite factors caused to the success of the project. Yong and Mustaffa, (2013) defined the CSFs as the

utilization of important and scarce resources of an organization in achieving its objectives. Gunasekara and Chong (2018) further emphasized the argument by utilizing scarce resources or competencies efficiently and effectively to achieve the organization's objectives. In concluding the argument, CSFs of a project mean a specific set of variables, which are influencing the outcome of the project and are vital for the overall success of the project.

In the particular case of expressway construction projects, technology transfer is a definite requirement in construction technology, machinery and equipment, management skills, and many more aspects. Referring to the literature, technology transfer is defined as transferring the systematic knowledge necessary for manufacturing a product, process, or rendering a service (as cited in Di Benedetto et al., 2003; Waroonkun & Stewart, 2008). Takim et al., (2009) defined ITT in the construction industry as cross border transfer of technological capabilities by acquisition, adoption, or improvement. In expressway construction, the acquisition of technology and knowledge relevant to the process, techniques, managerial and operational capabilities, and equipment and machinery from an international company to a local entity is identified as ITT. The most common and possible technology transfer mechanisms for expressway construction projects in the Sri Lankan environment are; sub-contracting arrangements, training programs, hiring of experts/ consultants, imports of construction resources, and project team integrations.

Critical Success Factors

Table 1: List of CSFs developed from literature

Critical Success Factor	Attributes
Project manager-related factors	Competence of project manager (Al-Ageeli, 2016; Bayiley & Teklu, 2016; Gudienė et al., 2013; Saqib et al., 2008; Toor & Ogunlana, 2009; Yong & Mustaffa, 2017)
Project team-related factors	Performance and skills of project team members (Al-Ageeli, 2016; Ika et al., 2012; Khang & Moe, 2008; Saqib et al., 2008; Toor & Ogunlana, 2009; Yong & Mustaffa, 2017); effective monitoring and controlling mechanism for project team members (Bayiley & Teklu, 2016; Ika et al., 2012; Saqib et al., 2008; Yamin & Sim, 2016)
Project management concept-related factors	Good working relationship with project stakeholders; Mutual trust among project partners; Adequate communication among related parties (Al-Ageeli, 2016; Gudienė et al., 2013; Ika et al., 2012; Toor & Ogunlana, 2009; Yong & Mustaffa, 2017); Clear written agreements and dispute resolution mechanism(Gudienė et al., 2013; Saqib et al., 2008; Toor & Ogunlana, 2009; Yong & Mustaffa, 2017); Experience related to project management(Gudienė et al., 2013; Yamin & Sim, 2016)
Client-related factors	Clear and precise goals of the client; Responsiveness of the client (Al-Ageeli, 2016; Gudienė et al., 2013; Ika et al., 2012; Saqib et al., 2008; Toor & Ogunlana, 2009; Yamin & Sim, 2016); Regular participation of the client(Al-Ageeli, 2016; Gudienė et al., 2013; Toor & Ogunlana, 2009)
Contractor-related factors	Capability of contractor / sub-contractor(Al-Ageeli, 2016; Gudienė et al., 2013; Saqib et al., 2008; Yong & Mustaffa, 2017); Awarding contracts to the right contractors; Performance of contractors/ sub-contractors(Al-Ageeli, 2016; Khang & Moe, 2008; Toor & Ogunlana, 2009; Yong & Mustaffa, 2017)
Consultant-related factors	Consultant's competency in project domain(Al-Ageeli, 2016; Bayiley & Teklu, 2016; Khang & Moe, 2008); Consultant's corporation(Al-Ageeli, 2016; Saqib et al., 2008)
Political-related factors	The stable and favourable political environment(Al-Ageeli, 2016; Gudienė et al., 2013; Ika et al., 2012; Khang & Moe, 2008; Saqib et al., 2008; Toor & Ogunlana, 2009; Yamin & Sim, 2016; Yong & Mustaffa, 2017)
Social and community-related factors	A clear understanding of project deliverables by society; Proper communication of stakeholders with society (Al-Ageeli, 2016; Bayiley & Teklu, 2016; Ika et al., 2012; Khang & Moe, 2008; Saqib et al., 2008; Toor & Ogunlana, 2009; Yamin & Sim, 2016; Yong & Mustaffa, 2017)
Technological factors	Usage of the most suitable and updated technology and knowledge(Ika et al., 2012; Khang & Moe, 2008; Saqib et al., 2008; Toor & Ogunlana, 2009; Yong & Mustaffa, 2017)
Institutional factors	Assistance/ coordination of other institutions(Gudienė et al., 2013; Ika et al., 2012)

Source: Authors according to literature

Critical success factors of expressway construction projects are identified based on two strands of project management. Internal success factors were identified based on the project lifecycle approach (Khang & Moe, 2008) and six key factors; project manager-related factors, project team-related factors, project management concept-related factors, client-related factors, contractor-related factors, and consultant-related factors and their attributes were identified. Four external success factors were derived related to the macro environment (Toor & Ogunlana, 2009). They are political-related factors, social and community-related factors, technological factors, and institutional factors. The derived list of CSFs and their attributes are listed in table 1.

Moderating effect of ITT

Technology is one of the macro-environmental success factors identified for the expressway construction projects. Acquisition of technology through the ITT process is foreseeable as the foremost method used by local counterparts to bridge the gap. Performance characteristics of ITT are identified by studying the literature and derived the indicators for measuring the success of the technology transfer process in economic development, knowledge improvement and technology advancement sectors. Derived indicators for assessing the ITT process in expressway construction projects are listed in table 2.

Table 2: List of TT performance indicators

Performance indicator	Attributes
Economic performance	Improved firm performance; Gain competitive advantage (Al-Abed et al., 2014; Stewart & Waroonkun, 2007; Waroonkun & Stewart, 2008a, 2008b)
Knowledge improvement	Improved working practices and knowledge of processes and techniques(Al-Abed et al., 2014, p.; Stewart & Waroonkun, 2007; Waroonkun & Stewart, 2008a, 2008b)
Technology advancement	Adoption of new technologies(Al-Abed et al., 2014; Ganesan & Kelsey, 2006; Stewart & Waroonkun, 2007; Waroonkun & Stewart, 2008a, 2008b); Efficiency and performance improvement by imported machinery and equipment(Ganesan & Kelsey, 2006; Konstandina & Gachino, 2020; Stewart & Waroonkun, 2007; Waroonkun & Stewart, 2008a, 2008b)

Source: Authors according to literature

3. Methodology

Conceptual Framework

The project success depends on many factors and those factors are identified as the critical success factors. In this scenario, ten factors relevant to the internal and external environment of expressway construction projects in Sri Lanka are derived as factors affecting success. (Gudienė et al., 2013; Yong & Mustaffa, 2017). Hence, these ten factors are identified as independent variables of the study. Attributes related to the critical success factors are identified (table 1) according to the literature and used as measuring indicators of the survey. According to the findings of (Li-Hua, 2006), technology transfer plays a dominant role in the economic and social development of any industry.

Expressway construction technology in Sri Lanka has evolved enormously due to the concepts related to technology transfers with developed countries. During the time being, dependency on foreign technology for the construction of expressways is drastically reduced (Final EIAR - CEP Sections 1,2&4 - Volume I - Main Report - English.Pdf, 2016; Southern Transport Development Project.Pdf, 2014). Therefore, the influence of the technology transfer process is emphasized for success, hence, it is depicted as a moderating effect of technology transfer (Li-Hua, 2006). Project success is not solely described in time, cost, and quality constraints for construction projects and in the case of expressway construction projects, it is depicted by the effectiveness of the project, satisfaction of stakeholders and many more aspects. Therefore, project success is the dependent variable of the study, which is measured by seven attributes. A developed conceptual framework based on the findings is given in figure 1.

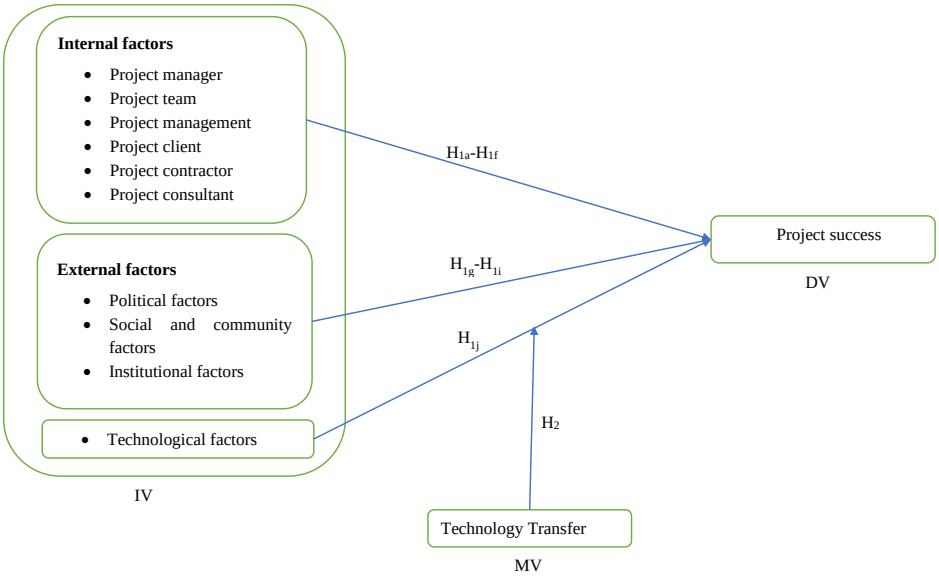

Figure 1. Conceptual framework of the study

Possible hypotheses for the study are derived according to the developed conceptual model for the identified independent, dependent, and moderating variables.

H1a: project manager related factors are positively correlated with the project success

H1b: project team-related factors are positively correlated with the project success

H1c: project management concept-related factors are positively correlated with the project success

H1d: client-related factors are positively correlated with the project success

H1e: contractor related factors are positively correlated with the project success

H1f: consultant related factors are positively correlated with the project success

H1g: political factors are positively correlated with the project success

H1h: social and community factors are positively correlated with the project success

H1i: technological factors are positively correlated with the project success
H1j: institutional factors are positively correlated with the project success

In the context of Sri Lanka, one of the most important factors of the expressway construction projects is technology development within the industry for the construction and operation of expressways. The technology acquisition by transferring means caused the development of industry at the firm or industrial level and caused the success of projects ultimately (Ganesan & Kelsey, 2006). At the initial stage, the technology requirement was accommodated by procurement and outsourcing. In the latter stage, most of the technology components necessary for the construction and operation of expressways are assimilated by local counterparts. (Final EIAR - CEP Sections 1,2&4 - Volume I - Main Report - English.Pdf, 2016; Southern Transport Development Project.Pdf, 2014). Therefore, the second hypothesis of the study is derived as follows.

H2: Technology transfer is having a moderating relationship with the influence of the independent variable, technological factors to the dependent variable, project success.

Research Design

The study is focused on the identification of factors based on knowledge of the related population. Hence, this research is following a descriptive approach based on quantitative data collection. Knowledge and experience of the stakeholders of completed expressway projects were extracted using a structured questionnaire distributed through electronic media. The developed questionnaire is consisting of four main sections. Section I is focused on collecting demographic information of the respondents. The ensuing sections are used to evaluate the perception of respondents regarding the identified CSFs of expressway construction projects, the performance of the technology transfer process during the project tenure, and the success of the projects based on identified multiple indicators.
For the study, expressway construction projects completed before 31st January 2022 are selected and each project is identical in a structure consisting of five key stakeholders. The sample frame of executive-level employees of the stakeholders is selected and the total population of the study is 273 based on the contact registries and archives available in RDA. Considering the necessity for generalizability of results assuming the equal influence of the stakeholders and an equal weight of the projects, the disproportionate stratified random sampling technique is selected. The minimum acceptable sample size of the study is 162 according to the Krejcie and Morgan (1970) findings for social science research with a 95% confidence interval.

Data analysis is performed in three aspects. The goodness of measures is tested using reliability and validity testing. The demographic information of the respondents is analyzed using descriptive statistical testing methods. Exploratory data analysis is performed on data set for deriving the relationships of variables and testing hypotheses. All of those analyses are performed using the SPSS software package.

4. Data analysis and Discussion

180 questionnaires were distributed among the selected sample population and returned 109 valid responses, which is a 60.55% response rate. Questionnaires were distributed in twelve completed projects representing five stakeholders and the sample profile is homogeneously distributed among the population (figure 2).

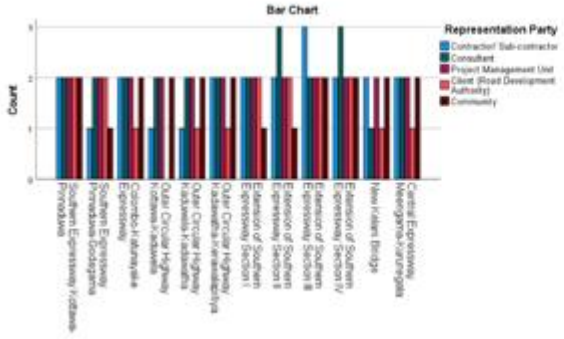

Figure 2: Graphical Presentation of Profile

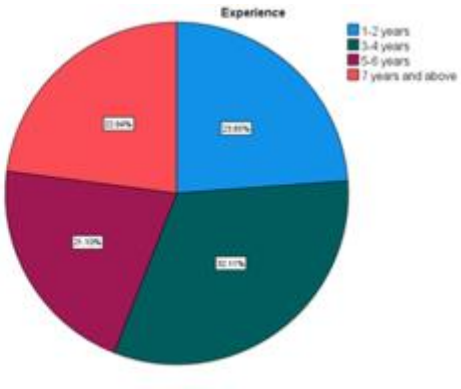

Figure 3:Experience of Participants

Descriptive Statistics

60.6% of the sample is representing males and they are belonging to four age categories. The highest representation in the 36-45 age category, which is 44% in percentage and 46-55 years is 25.7%, 25-35 years is 16.5%, and 56 years and above is 13.8% respectively. Most of the respondents are having a university degree or higher educational qualification, which is 76.1% of the profile. It is obvious for the selected sample of managerial level employees of the stakeholders. The experiences of the respondents are distributed into four categories and illustrated in figure 3.

The goodness of the measuring instrument is tested for variables with multiple indicators using Cronbach's Alpha test for reliability and factor analysis for construct validity. For the consistent instrument, Cronbach's Alpha value should be 0.7 or above (Sekaran, & Bougie, 2016). According to the results, each variable with multiple indicators is having an Alpha value greater than 0.7. Based on factor analysis, each variable with two or more indicators has a factor loading higher than 0.5 and an Eigenvalue higher than 1, which is acceptable (Hair et al., 2010).

Table 3: Cronbach's Alpha values for independent, moderator, and dependent variables

Variable	No of indicators	Cronbach's Alpha value
Project team	2	0.713
Project management concepts	5	0.828
Project client	3	0.826
Project contractor	3	0.893
Project consultant	2	0.857
Community	2	0.732
Technology transfer	5	0.892
Project success	7	0.911

Source: Structured questionnaire survey

Inferential Statistics

Identification of CSFs is accomplished by analyzing the responses using the mean ranking method. In the survey instrument, a Likert scale of 1-5 indicating 5 for the highest perception regarding the construct is used. Each variable is having a mean value higher than 4.0, which indicates the strong agreement regarding the selected variables by the respondents. A summary of the mean ranking analysis is depicted in table 4.

Table 4: Mean ranking of success factors

Success factor	Mean value	Mean ranking
Project manager-related factors	4.4862	5
Project team-related factors	4.0833	9
Project management concepts-related factors	4.2093	8
Client-related factors	4.3180	7
Contractor-related factors	4.5657	1
Consultant-related factors	4.4541	6
Political factors	4.5413	2
Social and community factors	4.0370	10
Technological factors	4.5321	3
Institutional factors	4.5046	4

Source: Structured questionnaire survey

The first set of hypotheses is derived for testing the relationship of success factors relevant to expressway construction projects with the project success. The bivariate correlational analysis is performed for the variables for the 95% confidence interval and correlation coefficients prove the moderate to very strong correlations between independent to dependent variables (Table 5).

Table 5: Association between success factors and project success

Success factor	Correlation coefficient	Strength of relationship with project success
Project manager-related factors	0.742	Strong correlation
Project team-related factors	0.678	Strong correlation
Project management concept-related factors	0.825	Very strong correlation
Client related factors	0.765	Strong correlation
Contractor related factors	0.814	Very strong correlation
Consultant related factors	0.846	Very strong correlation
Political factors	0.526	Moderate correlation
Social and community factors	0.625	Strong correlation
Technological factors	0.840	Very strong correlation
Institutional factors	0.760	Strong correlation

Source: Structured questionnaire survey

The linear regression model is derived for the study to examine the explanatory factor of independent variables. According to the model summary, the R square value is 0.846 for the significance interval lesser than 0.01. The value indicates 84.6% explanatory power of selected success factors for the success of expressway construction projects.

Table 6: Model summary – regression analysis

Model	R	R Square	Adjusted R Square	Std. Error of the estimate	Durbin-Watson value
1	0.920	0.846	0.830	0.34419	1.591

Source: Structured questionnaire survey

For testing the moderating effect of the technology transfer process on technological factors toward project success, the regression model of selected variables is analyzed using two linear regression models. Model 1 predictors are selected as technological factors and technology transfer. Multiplication of technological factors by technology transfer is added as the third predictor in the second model. A summary of the regression model is illustrated in table 5. Analyzing the regression results, it is identified higher R square value for the second model, where both models are statistically significant. The regression coefficient for the technological factor is 0.328 for the first model and it increases three-fold to the coefficient of 0.900 in the second model indicating the moderating effect of the technology transfer process toward project success.

Table 7: Model summary – moderating variable analysis

Model	R	R Square	Adjusted R Square	Std. Error of the estimate	Durbin-Watson value
1	0.908	0.824	0.820	0.34941	
2	0.920	0.847	0.842	0.32741	1.630

Source: Structured questionnaire survey

Project success is evaluated by seven indicators in the study according to the perceptions of respondents. In the purview of selected indicators, the completed expressway projects in Sri Lanka are ranked using the mean ranking method based on the respondent's perception (table 8). According to the results, the Colombo-Katunayake expressway and Kadwatha-Kerawalapitiya expressway are among the highest ranked

projects, which are the highest trafficked expressway in Sri Lanka. Meanwhile, the most expensive expressway in Sri Lanka, the New Kelani bridge project is ranked among the lowest successful projects.

Table 8: Ranking of project success based on respondent's perception

Project	Mean statistic	Ranking
Southern Expressway Kottawa-Pinnaduwa	4.2000	9
Southern Expressway Pinnaduwa-Godagama	4.3750	6
Colombo-Katunayake Expressway	4.5278	2
Outer Circular Expressway Kottawa-Kaduwela	3.8571	12
Outer Circular Expressway Kaduwela-Kadawatha	4.0625	10
Outer Circular Expressway Kadawatha-Kerawalapitiya	4.5000	3
Extension of Southern Expressway Section I	4.4167	5
Extension of Southern Expressway Section II	4.5500	1
Extension of Southern Expressway Section III	4.2273	7
Extension of Southern Expressway Section IV	4.2045	8
New Kelani Bridge	3.9063	11
Central Expressway Meerigama-Kurunegala	4.4722	4

Source: Structured questionnaire survey

5. Conclusion and Implications

Expressway construction projects in Sri Lanka are discussed in the research in three main aspects. They are identification of success factors, examine the influence of technological factors and technology transfer, and assess the success of projects based on broader objectives and economic feasibility. Based on the findings, ten critical success factors relevant to the expressway construction projects in Sri Lanka are identified. They are subdivided into internal and macro-environmental factors. Project manager-related factors, project team-related factors, project management concept-related factors, client-related factors, contractor-related factors, and consultant-related factors are identified as internal stakeholder characteristics and Political environment-related factors, social and community factors, technological factors, and institutional behaviour-related factors are identified as characteristics related to external stakeholders. All of these factors are having moderate to very strong correlation to the success of the project.

Conferring to the results, technology transfer is influencing the effect of the technological factor by three folds on the success of expressway construction projects. It was depicted by the coefficient of a technological factor in the regression model. Therefore, technology transfer is having a positive effect on moderating the relationship between technological factors and the success of expressway construction projects in Sri Lanka.

Seven indicators were identified for assessing the success of expressway construction projects according to the findings. Achieving visible competitive advantage by the firms and construction industry, technological advancement of the industry, budgetary factors of the project, project completion within stipulated timeframes, maintaining quality standards, the satisfaction of stakeholders, and improvement in social indicators should be considered altogether for evaluation of expressway construction projects in Sri Lanka.

The study fulfilled the knowledge gap of identifying success factors and evaluation criteria in the Sri Lankan context, which deviates from the general purview due to different geographic, social, and economic conditions. The findings are significant in theory, business, and social aspects and revealed the influence of the technology transfer process in the construction industry of Sri Lanka. The findings of this research can be used for planning and implementing efficient and effective management of future projects. Moreover, the derivatives of the study can be used effectively to persuade the social acceptance of expressway construction projects by the community.

A limited number of completed projects, which are situated in Southern and Western regions of the country with similar geographic conditions is identified as the main limitation of the study. Due to the time constraint, perception of the managerial level employees and affected parties of the community is considered, and having a biased relationship with RDA is also identified as another limitation of the study.

Policy Recommendations of the Study

The findings of the study can be used for planning and implementing future projects in Sri Lanka by the government and authorities. Selection of the most suitable contractor, consultant, and technology and instigating the project management principles are important factors for the success of projects. The technology transfer process should be more attentive area while planning and designing future projects, which is significant for the industry's long-term success. Accurate estimation and completion within estimated cost should be the prime focus of authorities to restore the attitudes of society regarding the construction of expressways in Sri Lanka. Prolonged conversation based on facts and figures by academia and professionals is important for the justification of investment in mega-development projects.

Directions for Further Study

The research can be expanded to other developing countries such as south Asian countries for generalizing the findings. The sample can be expanded in size and diversity by including key positions of the Ministry of Highways, middle and lower-level employees, and beneficiary and victimized parties of the society. Future research can be conducted to evaluate the relationship between technology transfer aspects and project success in construction projects in developing countries based on the experience of expressway construction projects in Sri Lanka.

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