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## **CRITICAL SUCCESS FACTORS FOR THE PERFORMANCE OF INTERNATIONAL CONSTRUCTION JOINT VENTURES IN THE SRI LANKAN CONSTRUCTION INDUSTRY**

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### **Abstract:**

International Construction Joint Ventures (ICJV) are formed to overcome difficulties in construction industry by the multinational parties. As Sri Lankan construction industry has significant impact towards its economy ICJV performance is considered as an important subject. Hence the aim of this research was to investigate the Critical Success Factors (CSFs) affecting the performance of ICJVs in the Sri Lankan construction industry. Initially, a comprehensive literature review was carried out to identify the concept of ICJV, its process and Success Factors (SFs) for the performance of ICJV. Expert interviews and a questionnaire survey were then used to ascertain the ICJV process as applied in Sri Lanka and the CSFs. Finally, a framework was developed for the successful adaptation of ICJVs. Based on the findings, ICJV process had been divided into 4 stages, namely: preparation, formation, operation and dismantling. Out of a total of 25 SFs 13 factors were identified as CSFs, which should prevail in all 4 of the above stages of ICJV process. Finally, the framework revealed that all CSFs in each stage were required to perform the tasks in the respective stages.

**Keywords:** *Critical Success Factors, International Construction Joint Ventures, Performance, Sri Lankan Construction Industry, Stages.*

### **Introduction**

Joint Venture (JV) is "a legal entity formed between two or more parties to undertake an economic activity together" (Zhanget *al.*, 2010, p.87). According to Geringer and Hebert (1989), a JV is turned to an "International Joint Venture (IJV)" when the headquarters of at least one parent firm is located outside the country of operation of the JV. Many economic advantages are offered by IJV including sharing risk and ability of acquiring managerial and technological skills (Zhang and Li, 2001). Despite the above advantages, many studies have identified IJVs as firms, which are difficult to manage due to the complexities raised by the involvement of multinational parties with different political,

cultural and legal frameworks, technical and managerial capabilities (Huang, as cited in Dagbuiet *et al.*, 2011). IJV concept was appeared in the construction industry with the increment of magnitudes, complexities and risks associate with the construction projects (Kumaraswamy *et al.*, 2000). Therefore, ICJVs (International Construction Joint Ventures) were used by the firms to improve competitive positions, enter new markets and share risks and (or) profits (McIntoshand McCabe, 2003). Gale and Luo (2004) have stated that the JVs become successful if they perform well. Neilsen (2007) has proposed that the performance of IJVs should be discussed in relation to the development stages of an IJV life cycle. Therefore, many studies of JVs have drawn attention the CSFs for the performance of ICJVs.

During last few years, a number of ICJV projects have being carried out in the Sri Lankan construction industry. Exploring the SFs for the performance of ICJVs is critical, as there is a close relationship between the success of the ICJV and the success of the project. When considering the previous researches, any evidences cannot be found out about a research which has been carried out to identify the CSFs affecting the performance of ICJVs in accordance with the stages of the ICJV process pertaining to Sri Lankan construction industry. So this research has attempted to fill the gap to identify CSFs for the performance of ICJVs pertaining for each stage of ICJV process in the Sri Lankan construction industry.

### 1.1 AIM AND OBJECTIVES

The aim of this research is to investigate the CSFs for effective performance of ICJVs in Sri Lankan construction industry. The paper first reviews the concept of ICJV and its application within the Sri Lankan construction industry. The stages of ICJV process including the associated tasks at each stage as well as the Success Factors (SFs) for the performance of ICJVs were also reviewed through the available literature. It then goes on to discuss the methodology adopted in the study. The discussions on the findings commence with a review of the wider contextual factors affecting the process of implementing SFs in Public Finance Initiative projects. The key findings pertaining to the above have been presented in the form of a framework consisting of four main stages.

## 2.0 Literature Review

The number of construction JVs have been increased as a result of close relationships between nations, which have grown rapidly due to globalization (Andrewet *et al.*, 2000). An IJV is defined as, “a separate legal organizational entity representing the partial holdings of two or more parent firms, in which the headquarters of at least one is located outside the country of operation of the joint venture” (Adnan and Morledge, 2003, p.765). Zhang *et al.* (2010) have

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defined an ICJV as an IJV alliance applied in the construction field. JVs and ICJVs are a gradually growing phenomenon in the Sri Lankan context as well.

### 2.1 APPLICATION OF ICJVS WITHIN THE SRI LANKAN CONSTRUCTION INDUSTRY

Wijewardana *et al.* (2013) have identified JV as an uncommon procurement method used in the Sri Lankan construction industry, under integrated system. Hence it is obvious that there is a less number of ICJVs exist in the Sri Lankan construction industry. According to Joseph and Jayasena (2008) ICJVs in the Sri Lankan construction industry had emerged during 1992-1996 period which was 3% of average use.

### 2.2 GENERIC STAGES OF ICJV PROCESS

Andrew *et al.* (2000) have stated the stages of ICJV process as preparation, formation, operation and dismantling. Preparation stage is the initial stage of an ICJV process and it is started with the decision to enter into an ICJV. Formation stage is commenced after the ICJV partner(s) is/are selected. Operation stage is started after the construction contract is signed between the client and the ICJV and ended at the end of the defects liability period. Dismantling stage is the final stage of the ICJV process and during this stage ICJV agreement is terminated and the dissolution of ICJV firm is occurred.

### 2.3 SUCCESS FACTORS FOR THE PERFORMANCE OF ICJVS

IJV performance has been defined by Yan and Grey (2001) as achieving the goals by both partners of an IJV. Ozorhon (2007) has emphasized that assessing the ICJV performance is a complex task, because of the issues occur when measuring the ICJV performance. According to Adnan *et al.* (2011) an ICJV become successful when the partners achieve the same goal by using a joint effort. Hence, SFs are necessary for the ICJV partners to achieve their goals. SFs for the ICJV performance which were highlighted by the past researchers can be tabulated as given in Table 1.

*Table 1: SFs identified through the literature review*

<b>Success Factor</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
Mutual Understanding	√			√		
Inter partner trust	√		√	√	√	√
JV agreement	√	√				
Commitment	√	√	√	√	√	
Cooperation	√	√	√		√	√
Financial Stability	√				√	
Coordination	√					
Communication	√					

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Management control	√			√	√	
Profit	√					
Partner's experience	√					
Organizational structure	√			√		
Criteria for good partner selection	√					
Compatibility of partners' objective	√	√				
Equity control	√	√		√		
Effective human resource management (HRM)	√					
Knowledge transfer	√					
Motivating for forming ICJV	√					
Size compatibility of partner's firm	√					
Cultural Understanding	√			√		√
Conflict	√					
Good partner selection		√		√	√	√
Obtaining enough information about partners before negotiation		√				
Partner's set different source of resources					√	
Good technology capability and operational expertise					√	
Fulfillment of client's expectations					√	
Good decision making				√	√	
Satisfaction			√			
Compatibility of partners' Management culture		√				
Technology transfer				√		
Sub-contractor				√		

1; Adnan and Morledge (2003), 2; Gale and Luo (2004), 3; Wilson and Brennan (2009), 4; Adnan et al. (2011), 5; Adnan et al. (2012), 6; Liu et al. (2014)

Out of six researchers five have identified “inter partner trust”, “commitment” and “cooperation” as SFs. Inter partner trust encourages partners to transfer tacit knowledge, which is a key contributor to ICJV performance (Bener and Glaister, 2010). Commitment indicates some decisions regarding the continuous relationship, acceptance of the joint goals and the value of the partnership (Adnan and Morledge, 2003). Cooperation which changes overtime, but prevailing between two JV firms will lead to high level of trust (Wilson and Brennan, 2009). Oxford has defined both cooperation and coordination in a same manner. Hence “cooperation” has been included in this study as a SF to represent both “coordination” and “cooperation”. Four studies have identified “good partner selection” as a SF for the ICJV performance. Partners who have compatible objectives, are the suitable partners who should be selected as the ICJV partners (Adnan et al., 2012). Adnan et al. (2011) have discussed some facts such as “mutual understand”, “trust” and “commitment” regarding partner selection. So it is clear that some of the SFs mentioned here have covered the “good partner selection” and “criteria for good partner selection”. Hence those two factors have been removed from this study. Shridharan (1995) has found that “conflict” adversely affect to the JV performance. Though Adnan and

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Morledge (2003) have used this factor for their study, it was ranked as the last CSF. Hence it was not investigated in this study. Size and compatibility of partner's firm and "compatibility of partners' management culture" have been identified each by different single authors. As these two factors are relative concepts, to represent both factors, compatibility of partners' management culture has been identified for this study.

### **3.0 Methodology**

This research aims to investigate the CSFs at each stage of ICJV process which will enable the effective performance of ICJVs in Sri Lankan construction industry. Expert interviews and a questionnaire survey was used as the main data collection approach in achieving this aim.

Through a comprehensive literature survey the stages of ICJV process, and SFs for the performance of ICJVs were identified. Expert interviews were then conducted to ascertain the application of the ICJV concept to the Sri Lankan context. Herein, four semi-structured interviews were conducted with four experts in the industry representing both local and foreign contractors who had experience in ICJV projects in Sri Lanka. Particular attention was given to identifying the tasks or activities involved in each identified stage in the ICJV process and the SFs for the success of ICJVs in the local context as per the respondents' views.

Questionnaire survey was then carried out among the professionals who have experience in involving the ICJV projects in Sri Lanka between the year 2000 and 2015, representing both local and foreign partners to investigate the CSFs affecting for the performance of ICJVs at each stage of ICJV process in the Sri Lankan construction industry. Altogether, 25 SFs were derived following the literature review and expert interviews that were used to develop the questionnaire guideline.

Selective sampling technique was used to select the sample and questionnaires were distributed among 60 ICJV partners satisfying the above criteria. Out of these, 44 responded to the questionnaire. Data collected through the expert interviews were analysed using content analysis, whereas descriptive analysis and hypothesis testing were used to analyse the questionnaire survey data. According to the responses given by the sample of the questionnaire survey, one sample t-test was carried out using SPSS software. Based on the results of the t-test, CSFs factors were identified at each stage. The following criteria were used to identify the CSFs.

1. When the significance level  $< 0.05$ , null hypothesis (factors which are deviated from the moderate level of importance) were rejected,

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2. If the t-value of the rejected null hypothesis  $> 1.684$ , they were considered as CSFs

After analyzing the questionnaire survey data, two expert views were conducted to further elaborate and explain the quantitative results.

## 4.0 Research findings and discussion

### 4.1 TASKS ASSOCIATED WITH STAGE OF ICJV PROCESS

Through the content analysis of interview data, tasks to be carried out at each stage of the ICJV process were identified as given in Table 2.

*Table 2: Tasks to be carried out at each stage of the ICJV Process*

Stages of ICJV Process	Tasks
<b>Preparation stage</b>	Obtaining bidding document and studying the nature of the project in financial terms, scope etc...
	Establishment of the objectives of JV participation
	Defining the scope of the project
	Searching partners
	Negotiation with the partner(s)
	Selecting the ICJV partner(s)
<b>Formation stage</b>	Deciding the administrative structure of the ICJV
	Signing the pre-bid ICJV agreement by the parties
	Preparing bidding documents and submit to the client
	Design works of the project
	Signing the formal ICJV agreement, after accepting the bid
	Signing the construction contract between the client and the ICJV
<b>Operation stage</b>	Design works of the project
	Carrying out construction works
	Interim payments and sharing payments between the partners
	Maintenance works
	Disputes resolution
<b>Dismantling stage</b>	Adjustment of property
	Ending matter negotiations
	Liquidation
	Dispute resolution
	Termination of the ICJV agreement

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Preparation is the initial stage of the ICJV process. Once the ICJV partner(s) is selected preparation stage would be ended. The main two tasks of preparation stage are deciding to enter into an ICJV and selection of partner(s). After selecting the ICJV partner, formation stage is commenced. Formation stage is ended up when the construction agreement is signed between the ICJV partners and the client. In operation stage mainly construction works are carried out and operational and maintenance works are carried out during the defects liability period. Dismantling stage is the period ICJV partners' dissolute formal ICJV contract. This stage has a short duration when compared to other stages.

#### 4.2 IDENTIFICATION OF CSFSAT EACH STAGE OF ICJV PROCESS

CSFs are required for the performance of ICJV and to achieve goals. CSFs in each stage are shown in Table 3 with their T values.

*Table 3: T test results of every stage*

No	Success Factor	T Value			
		Preparation	Formation	Operation	Dismantling
SF01	Inter partner trust	17.32	38.96	35.61	27.05
SF02	Commitment	21.53	30.91	26.50	11.93
SF03	Cooperation	15.35	27.85	29.54	10.64
SF04	Cultural understanding	3.72	NCSF	7.50	NCSF
SF05	Equity ownershipControl	NCSF	4.55	7.55	5.75
SF06	Management control	3.02	9.73	18.90	6.37
SF07	Mutual understanding	16.35	22.20	61.53	22.31
SF08	ICJV Agreement	NCSF	13.84	25.47	14.03
SF09	Financial stability	9.81	10.72	14.63	2.64
SF10	Organizational structure	NCSF	5.63	12.75	NCSF
SF11	Compatibility of the objectives	9.10	8.26	9.90	4.93
SF12	Good decision making	12.56	18.05	42.55	17.33
SF13	Communication	21.53	19.88	38.98	13.49
SF14	Profit	9.48	13.84	18.09	10.71
SF15	Partners' previous experience in ICJVs	12.93	16.99	15.03	2.94
SF16	Effective HRM	NCSF	8.50	18.11	NCSF
SF17	Knowledge & technology Transfer	NCSF	5.18	15.20	NCSF

SF18	Compatibility of management Cultures	NCSF	4.75	6.01	NCSF
SF19	Obtaining enough information about partner(s) before negotiation	27.05	5.79	NCSF	NCSF
SF20	Good technology capability & operational expertise	15.52	10.74	18.88	NCSF
SF21	Fulfillment of client's expectations	NCSF	10.44	22.20	6.00
SF22	Satisfaction of partners	11.13	9.42	13.20	11.13
SF23	Payment separation mechanism	NCSF	2.83	22.41	13.89
SF24	Capability of tolerance	4.43	5.59	13.69	11.31
SF25	Resource sharing	NCSF	NCSF	19.88	NCSF

NCFA – Not a CSF

Among 25 SFs, only 13 factors have been identified as CSFs which should prevail at every stage, or in other words from the beginning to the end of the ICJV performance.

There are 16 CSFs which have been identified for the performance of ICJVs at the preparation stage. According to the expert views, the most important tasks associated in this stage are having successful negotiations and selecting a good partner. According to the literature, good technology capability and operational expertise, previous experience in ICJVs and financial stability are the qualities of a good ICJV partner. Experts emphasized that commitment, inter partner trust, cooperation, mutual understanding and cultural understanding cause to have long relationships with the partner. Though management control has been identified as a CSF, experts did not agree with the result, because without forming an ICJV firm, there cannot have a management control.

Among 25 SFs, 23 have identified as CSFs at the formation stage. The ICJV agreement, which is signed with ICJV partner, has been identified as an important factor which reduces disputes in later stages. The rights and obligations should be critically reviewed before signing an pre bid ICJV agreement, because sometimes a formal agreement is not signed in the Sri Lankan context. According to the experts, employer is doing interim payments to the ICJV firm, neither party is paid separately by the employer. Leading party, who gets more shares has the responsibility to divide it among the partners. But sometimes leading party delays the payment to other party. This will badly affect to the performance because of the lack of money. Hence it is advisable to agree on a payment separation mechanism before submitting the bid.

Among 25 SFs, 24 have been identified as CSFs which affect the performance at operation stage. As both parties work together mutual understanding, inter



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partner trust and cultural understanding are very critical in this stage. According to the experience of the experts, the parties should have capability of tolerance in some instances such as when one party fails to carry out a critical path activity then it may cause to delay to start the other party's scope. In such situation the suffered party should have the capability of tolerance. Experts have mentioned that fulfillment of clients' objectives is very essential to fulfill partners' goals in this stage. When the parties fulfill client's objectives (time, cost and quality), client will support the parties to fulfill their objectives which will enhance the performance of the ICJV.

There are 17 CSFs have been identified for the dismantling stage. This is the final stage of the ICJV process. So the ICJV partners should make good decisions in this stage to avoid disputes. Experts have mentioned that the above identified factors facilitate the partners to fulfill their objectives in this stage to continue ICJV for another project.

### 4.3 DEVELOPMENT OF THE FRAMEWORK FOR SUCCESSFUL ADAPTION OF THE ICJV PROCESS

From the results discussed in section 4.2 a framework was developed to enable the successful adaption of ICJV process in the Sri Lankan construction industry (see Figure 1). The framework demonstrates the four stages in ICJV process with related tasks and CSFs for the performance of each stage successfully.

Preparation stage →	Formation stage →	Operation stage →	Dismantling stage
<p><b>Tasks</b></p> <ul style="list-style-type: none"> <li>❖ Obtaining bidding documents</li> <li>❖ Establishment of the objective of JV participation</li> <li>❖ Defining the scope of the project</li> <li>❖ Searching partners</li> <li>❖ Negotiation with the partner(s)</li> <li>❖ Selecting the ICJV partner(s)</li> </ul>	<p><b>Tasks</b></p> <ul style="list-style-type: none"> <li>❖ Deciding the administrative structure of the ICJV</li> <li>❖ Signing the pre-bid ICJV agreement by the parties</li> <li>❖ Preparing bidding documents &amp; submit to the client</li> <li>❖ Design works of the projects</li> <li>❖ Signing the formal ICJV agreement, after the bid is</li> </ul>	<p><b>Tasks</b></p> <ul style="list-style-type: none"> <li>❖ Design works of the project</li> <li>❖ Carrying out construction works</li> <li>❖ Interim payments and sharing payments between the partners</li> <li>❖ Maintenance works</li> <li>❖ Disputes resolution</li> </ul>	<p><b>Tasks</b></p> <ul style="list-style-type: none"> <li>❖ Adjustment of property</li> <li>❖ Ending matter negotiations</li> <li>❖ Liquidation</li> <li>❖ Dispute resolution</li> <li>❖ Termination of the ICJV agreement</li> </ul>

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	accepted ❖ Signing the construction contract between the client and the ICJV firm		
<b>CSFs</b> <ul style="list-style-type: none"> <li>• Obtaining enough information</li> <li>• Commitment</li> <li>• Communication</li> <li>• Inter partner trust</li> <li>• Mutual understanding</li> <li>• Good technology capability &amp; operational expertise of the parties</li> <li>• Cooperation</li> <li>• Partners' previous experience in ICJVs</li> <li>• Good decision making</li> <li>• Satisfaction</li> <li>• Financial stability</li> <li>• Profit</li> <li>• Compatibility of objectives</li> <li>• Capability of tolerance</li> <li>• Cultural understanding</li> <li>• Management control</li> </ul>	<b>CSFs</b> <ul style="list-style-type: none"> <li>• Inter partner trust</li> <li>• Commitment</li> <li>• Cooperation</li> <li>• Mutual understanding</li> <li>• Communication</li> <li>• Good decision making</li> <li>• Partners' previous experience in ICJVs</li> <li>• ICJV agreement</li> <li>• Profit</li> <li>• Good technology capability &amp; operational expertise of the parties</li> <li>• Financial stability</li> <li>• Fulfillment of clients' expectations</li> <li>• Management control</li> <li>• Satisfaction</li> <li>• Effective HRM</li> <li>• Compatibility of the objectives</li> <li>• Obtaining enough information about partner before negotiation</li> <li>• Organizational structure</li> <li>• Capability of tolerance</li> </ul>	<b>CSFs</b> <ul style="list-style-type: none"> <li>• Mutual understanding</li> <li>• Good decision making</li> <li>• Communication</li> <li>• Inter partner trust</li> <li>• Cooperation</li> <li>• Commitment</li> <li>• ICJV agreement</li> <li>• Payment separation mechanism</li> <li>• Fulfillment of client's expectation</li> <li>• Resource sharing</li> <li>• Management control</li> <li>• Good technological capability and operational expertise of the parties</li> <li>• Effective HRM</li> <li>• Profit</li> <li>• Knowledge and technology transfer</li> <li>• Partners' previous experience in ICJVs</li> <li>• Financial stability</li> <li>• Capability of tolerance</li> <li>• Satisfaction</li> <li>• Organizational structure</li> <li>• Compatibility of the objectives</li> <li>• Equity ownership control</li> <li>• Cultural understanding</li> <li>• Compatibility of partners'</li> </ul>	<b>CSFs</b> <ul style="list-style-type: none"> <li>• Mutual understanding</li> <li>• Good decision making</li> <li>• Communication</li> <li>• Inter partner trust</li> <li>• Cooperation</li> <li>• Commitment</li> <li>• ICJV agreement</li> <li>• Payment separation mechanism</li> <li>• Fulfillment of client's expectation</li> <li>• Resource sharing</li> <li>• Management control</li> <li>• Good technological capability &amp; operational expertise of the parties</li> <li>• Effective HRM</li> <li>• Profit</li> <li>• Knowledge and technology transfer</li> <li>• Partners' previous experience in ICJVs</li> <li>• Financial stability</li> <li>• Capability of tolerance</li> <li>• Satisfaction</li> <li>• Organizational structure</li> <li>• Compatibility of the objectives</li> <li>• Equity ownership control</li> <li>• Cultural</li> </ul>

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	<ul style="list-style-type: none"> <li>• Knowledge and technology transfer</li> <li>• Compatibility of management cultures</li> <li>• Equity ownership control</li> <li>• Payment separation mechanism</li> </ul>	<p>management cultures</p>	<ul style="list-style-type: none"> <li>• understanding</li> <li>• Compatibility of partners' management cultures</li> </ul>
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Figure 26: Framework for the successful adaptation of ICJV process

This framework can be used to form the ICJV among the contractors in which at least one firm is located outside Sri Lanka and one firm is located in Sri Lanka. The purpose of this framework is to provide proper guidance to the contracting firms who engage with ICJVs for the first time and the firms that were not successful through ICJVs previously. As this framework offer directions to ICJV partners to continue the ICJV process from preparation stage to dismantling stage, partners can achieve their intended goals by following this framework.

**5.0 Conclusions**

JV concept in construction became popular in the construction industry with the complexities involved in the projects and the risks associated with them. With the globalization, developing countries used ICJVs a strategy to share the risks, improve competitive positions in the international construction context and to enter into new markets etc. ICJV can be defined as a separate legal entity between two or more partners which is formed to undertake a construction work together, in which at least one of the partners headquartered outside of the country where the ICJV is formed. The main difference between commonly used equity JVs and construction JVs is that a separate construction agreement is signed between the client and the ICJV firm, other than the JV agreement signed between the parties of the ICJV. ICJV process had been divided into four stages, namely: preparation stage, formation stage, operation stage and dismantling stage. Preparation stage is started with the decision to enter into an ICJV. Formation stage is commenced after the ICJV partner(s) is/are selected and is ended up when the construction agreement is signed between the ICJV firm and the client. Operation stage is started after the construction contract is signed between the client and the ICJV and ended at the end of the defects liability period. Among 25 SFs, 13 factors have been identified as CSFs which should prevail in all the four stages of ICJV

process. Finally, the framework recommended that all CSFs in each stage were required to perform the relevant tasks in the respective stages.

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